SUBMITTED TO:
Earle M. Jorgensen Company
10650 S. Alameda Street
Lynwood, CA 90262

Part 4 of 5
Contents Include:
Appendix E, Part 4
Important Information

BY:
Shannon & Wilson
400 N. 34th Street, Suite 100
Seattle, WA 98103

(206) 632-8020
www.shannonwilson.com

DRAFT FOR PUBLIC COMMENT

REMEDIAL INVESTIGATION REPORT

Jorgensen Forge Corporation Property

TUKWILA, WASHINGTON

SHANNON & WILSON

March 10, 2025

Shannon & Wilson No: 21-1-12596-040

APPENDIX E: DATA QUALITY SUMMARY REPORTS

Appendix E

Data Quality Summary Reports

CONTENTS

- Data Quality Summary Report – November 2020 Remedial Investigation
- Data Quality Summary - 2021 Q1 through Q4 Site Investigation
- Laboratory Analytical Reports

Laboratory Analytical Reports List

Sampling Event	Work Order Number	Laboratory
November 2020		
First Soil Sampling Mobilization	20K0101	Analytical Resources, Inc
First Soil Sampling Mobilization	20K0117	Analytical Resources, Inc
First Soil Sampling Mobilization	20K0152	Analytical Resources, Inc
First Soil Sampling Mobilization	20L0098	Analytical Resources, Inc
First Soil Sampling Mobilization	20L0100	Analytical Resources, Inc
First Soil Sampling Mobilization	20L0286	Analytical Resources, Inc
First Soil Sampling Mobilization	20L0436	Analytical Resources, Inc
First Soil Sampling Mobilization	20L0437	Analytical Resources, Inc
First Quarter 2021		
Second Soil Sampling Mobilization	21A0352	Analytical Resources, Inc
Second Soil Sampling Mobilization	21A0376	Analytical Resources, Inc
Second Soil Sampling Mobilization	21B0005	Analytical Resources, Inc
Second Soil Sampling Mobilization	21B0081	Analytical Resources, Inc
Second Soil Sampling Mobilization	21B0087	Analytical Resources, Inc
Second Soil Sampling Mobilization	21B0101	Analytical Resources, Inc
Second Soil Sampling Mobilization	21B0126	Analytical Resources, Inc
Second Soil Sampling Mobilization	21D0061	Analytical Resources, Inc
1Q Groundwater Sampling	21B0160	Analytical Resources, Inc
1Q Groundwater Sampling	21B0174	Analytical Resources, Inc
1Q Groundwater Sampling	21B0192	Analytical Resources, Inc
1Q Groundwater Sampling	21B0227	Analytical Resources, Inc
1Q Groundwater Sampling	21B0239	Analytical Resources, Inc
1Q Groundwater Sampling	21B0255	Analytical Resources, Inc
1Q Groundwater Sampling	21B0272	Analytical Resources, Inc
1Q Groundwater Sampling	21B0296	Analytical Resources, Inc
1Q Groundwater Sampling	21B0309	Analytical Resources, Inc
1Q Groundwater Sampling	21B0322	Analytical Resources, Inc
1Q Groundwater Sampling	21B0344	Analytical Resources, Inc
1Q Groundwater Sampling	21D0265	Analytical Resources, Inc
1Q Groundwater Sampling	J70313-1	Eurofins/Test America
Lab Omissions from 1Q Sampling Events	21G0121	Analytical Resources, Inc
Second Quarter 2021		
2Q Groundwater Sampling	21E0174	Analytical Resources, Inc
2Q Groundwater Sampling	21E0190	Analytical Resources, Inc
2Q Groundwater Sampling	21E0194	Analytical Resources, Inc
2Q Groundwater Sampling	21E0206	Analytical Resources, Inc
2Q Groundwater Sampling	21E0213	Analytical Resources, Inc
2Q Groundwater Sampling	21E0244	Analytical Resources, Inc
2Q Groundwater Sampling	21E0260	Analytical Resources, Inc
2Q Groundwater Sampling	21E0290	Analytical Resources, Inc
2Q Groundwater Sampling	21E0302	Analytical Resources, Inc
2Q Groundwater Sampling	21E0323	Analytical Resources, Inc
2Q Groundwater Sampling	21E0352	Analytical Resources, Inc
2Q Groundwater Sampling	21E0361	Analytical Resources, Inc

Laboratory Analytical Reports List

Sampling Event	Work Order Number	Laboratory
Third Quarter 2021		
3Q Groundwater Sampling	21H0207	Analytical Resources, Inc
3Q Groundwater Sampling	21H0209	Analytical Resources, Inc
3Q Groundwater Sampling	21H0210	Analytical Resources, Inc
3Q Groundwater Sampling	21H0222	Analytical Resources, Inc
3Q Groundwater Sampling	21H0230	Analytical Resources, Inc
3Q Groundwater Sampling	21H0248	Analytical Resources, Inc
3Q Groundwater Sampling	21H0282	Analytical Resources, Inc
3Q Groundwater Sampling	21H0291	Analytical Resources, Inc
3Q Groundwater Sampling	21H0304	Analytical Resources, Inc
3Q Groundwater Sampling	21H0320	Analytical Resources, Inc
3Q Groundwater Sampling	21H0341	Analytical Resources, Inc
3Q Groundwater Sampling	21H0367	Analytical Resources, Inc
3Q Groundwater Sampling	21I0001	Analytical Resources, Inc
3Q Groundwater Sampling	21I0012	Analytical Resources, Inc
3Q Groundwater Sampling	21I0040	Analytical Resources, Inc
Fourth Quarter 2021		
Follow-Up Soil Sampling	21J0060	Analytical Resources, Inc
Follow-Up Soil Sampling-IDW	21L0122	Analytical Resources, Inc
4Q Groundwater Sampling	21K0165	Analytical Resources, Inc
4Q Groundwater Sampling	21K0213	Analytical Resources, Inc
4Q Groundwater Sampling	21K0240	Analytical Resources, Inc
4Q Groundwater Sampling	21K0245	Analytical Resources, Inc
4Q Groundwater Sampling	21K0284	Analytical Resources, Inc
4Q Groundwater Sampling	21K0303	Analytical Resources, Inc
4Q Groundwater Sampling	21K0322	Analytical Resources, Inc
4Q Groundwater Sampling	21K0343	Analytical Resources, Inc
4Q Groundwater Sampling	21K0367	Analytical Resources, Inc
4Q Groundwater Sampling	21K0382	Analytical Resources, Inc
4Q Groundwater Sampling	21K0419	Analytical Resources, Inc
4Q Groundwater Sampling	21K0444	Analytical Resources, Inc
4Q Groundwater Sampling	21L0003	Analytical Resources, Inc
4Q Groundwater Sampling	21L0031	Analytical Resources, Inc
4Q Groundwater Sampling	21L0046	Analytical Resources, Inc
4Q Groundwater Sampling	21L0078	Analytical Resources, Inc
4Q Groundwater Sampling	J81991-1	Eurofins/Test America
4Q Groundwater Sampling	J82516-1	Eurofins/Test America
4Q Groundwater Sampling-IDW	J83346-1	Eurofins/Test America

NOTES:

1Q, 2Q, 3Q, and 4Q refer to the first, second, third, and fourth quarters of 2021.

IDW = investigation-derived waste

Draft for Public Comment

Analytical Resources, LLC
Analytical Chemists and Consultants

14 December 2021

Meg Strong
Shannon & Wilson, Inc
400 N 34th St., Suite 100
Seattle, WA 98103-8636

RE: Lower Duwamish

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
21E0361	N/A

Susan Dunnihoo

Digitally signed by Susan Dunnihoo
Date: 2021.12.15 14:53:03 -08'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

Susan Dunnihoo For Shelly Fishel, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 210361	Turn-around Requested: Standard
ARI Client Company: Shannon & Wilson, Inc.	Phone:
Client Contact: Shoshana Howard	
Client Project Name: ~~[illegible]~~ LDW	
Client Project #: 21-1-12596	Samplers: CTC

Page: 1 of 1	
Date: 5/28/21	Ice Present? Yes
No. of Coolers: 1	Cooler Temps: 4, 8

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

CTC

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TPH-G	TPH-Dx	BTEX	HVOCs	MTBE	PAHs	SVOCs (Full list)	SVOCs (Limited list)	PCBs (Aroclors)	Metals (total) (As, Cr, Mn, Ni, Zn)	Hex. Chrome	Hardness			Notes/Comments
MW-3-20212805	5/28	1135	W	9	X	X	X	X	X					X					① As, Ba, Cr, Mn, Ni, Cd, Co, Cu, Fe, Pb, Hg, Se, Ag, V, Zn -Pb
CTC ~~MW-[illegible]~~																			
MW-39-20212805	5/28	1315	W	11	X	X	X	X					X	X	X				-As, Cr, Mn, Ni, Zn
CTC ~~TB-[illegible]~~	~~5/28~~	~~[illegible]~~	~~W~~	~~3~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~				~~X~~	~~X~~	~~X~~				~~As, Cr, Mn, Ni, Zn~~
TB-11-20212805	5/28	1025	W	5	X		X	X	X										
CTC ~~MS/MSD MW-39-20212805~~	~~5/28~~		~~W~~	~~11~~	~~X~~	~~X~~	~~X~~	~~X~~					~~X~~	~~X~~	~~X~~				~~As, Cr, Mn, Ni, Zn~~

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Christian Canfield	Printed Name: Jacob Shea	Printed Name:	Printed Name:
	Company: Shannon & Wilson, Inc.	Company: ARI	Company:	Company:
	Date & Time: 5/28/21 1518	Date & Time: 05/28/2021 1518	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Draft for Public Comment

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-3-20212805	21E0361-01	Water	28-May-2021 11:35	28-May-2021 15:18
MW-3-20212805	21E0361-02	Water	28-May-2021 11:35	28-May-2021 15:18
MW-39-20212805	21E0361-03	Water	28-May-2021 13:15	28-May-2021 15:18
MW-39-20212805	21E0361-04	Water	28-May-2021 13:15	28-May-2021 15:18
TB-11-20212805	21E0361-05	Water	28-May-2021 11:35	28-May-2021 15:18

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish
Work Order: 21E0361

Sample receipt

Samples as listed on the preceding page were received 28-May-2021 15:18 under ARI work order 21E0361. For details regarding sample receipt, please refer to the Cooler Receipt Form.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Gasoline by NWTPH-g (GC/MS)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Volatiles - EPA Method SW8260D

The sample(s) were analyzed within the recommended holding times.

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Total and Dissolved Metals - EPA Method 6020B

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21E0361-03 in Total Metals batch BJF0424. The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21E0361-03 in Hexavalent Chromium batch BJE0753. The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

REVISED to correct VOC list.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 5/28/2021 5:08:27PM

WORK ORDER

21E0361

Client: Shannon & Wilson, Inc	**Project Manager: Shelly Fishel**
Project: Lower Duwamish	**Project Number: Lower Duwamish**

Preservation Confirmation

Container ID	Container Type	pH	
21E0361-01 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21E0361-01 B	Glass NM, Amber, 500 mL		
21E0361-01 C	Glass NM, Amber, 500 mL		
21E0361-01 D	VOA Vial, Clear, 40 mL, HCL		
21E0361-01 E	VOA Vial, Clear, 40 mL, HCL		
21E0361-01 F	VOA Vial, Clear, 40 mL, HCL		
21E0361-01 G	VOA Vial, Clear, 40 mL, HCL		
21E0361-01 H	VOA Vial, Clear, 40 mL, HCL		
21E0361-02 A	HDPE NM, 500 mL	>2	Fail
21E0361-03 A	HDPE NM, 500 mL		
21E0361-03 B	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21E0361-03 C	Glass NM, Amber, 1000 mL		
21E0361-03 D	Glass NM, Amber, 1000 mL		
21E0361-03 E	Glass NM, Amber, 500 mL		
21E0361-03 F	Glass NM, Amber, 500 mL		
21E0361-03 G	VOA Vial, Clear, 40 mL, HCL		
21E0361-03 H	VOA Vial, Clear, 40 mL, HCL		
21E0361-03 I	VOA Vial, Clear, 40 mL, HCL		
21E0361-03 J	VOA Vial, Clear, 40 mL, HCL		
21E0361-03 K	VOA Vial, Clear, 40 mL, HCL		
21E0361-04 A	HDPE NM, 500 mL	>2	Fail
21E0361-05 A	VOA Vial, Clear, 40 mL, HCL		
21E0361-05 B	VOA Vial, Clear, 40 mL, HCL		
21E0361-05 C	VOA Vial, Clear, 40 mL, HCL		
21E0361-05 D	VOA Vial, Clear, 40 mL, HCL		
21E0361-05 E	VOA Vial, Clear, 40 mL, HCL		

JB

Preservation Confirmed By

05/28/2021

Date

Reviewed By

Date

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Shannon & Wilson Project Name: LDW

COC No(s): _____ (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 21E0361 Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1518 4.8

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 5006

Cooler Accepted by: JSm Date: 05/28/2021 Time: 1518

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
How were bottles sealed in plastic bags?	Individually	(Grouped)	Not
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	(YES)	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	NA	05/26/2021	

Were the sample(s) split by ARI? (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JSm Date: 05/28/2021 Time: 1659 Labels checked by: JSm

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 5/28/2021 4:03:14PM

WORK ORDER

21E0359

Client: The Boeing Company [BDS Haz Waste]	**Project Manager:** Kelly Bottem
Project: BDS Haz Waste	**Project Number:** BDS Haz Waste

Preservation Confirmation

Container ID	Container Type	pH	
21E0359-01 A	Glass WM, Clear, 4 oz	>2	Fail (1)
21E0359-02 A	Glass WM, Clear, 2 oz	>2	Fail (2)

Preservation Confirmed By

05/28/2021
Date

(1) preserved to pH <2.0 with 0.30 ml conc. HNO_3 (J2314). ML 05/28/21

(2) preserved to pH <2.0 with 3 ml conc. HNO_3 (J2314). ML 05/28/21

Reviewed By

Date

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

MW-3-20212805

21E0361-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/28/2021 11:35
Instrument: NT2 Analyst: LH — Analyzed: 06/02/2021 14:24

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21E0361-01 F
Preparation Batch: BJF0045 — Sample Size: 10 mL
Prepared: 06/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.45	ug/L	
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	5.38	ug/L	
m,p-Xylene	179601-23-1	1	0.14	0.40	1.06	ug/L	
o-Xylene	95-47-6	1	0.08	0.20	1.33	ug/L	
Xylenes, total	1330-20-7	1	0.22	0.60	2.38	ug/L	
Methyl tert-butyl Ether	1634-04-4	1	0.14	0.50	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*108*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*98.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*104*	*%*	

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Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

MW-3-20212805

21E0361-01 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 05/28/2021 11:35

Instrument: NT2 Analyst: LH — Analyzed: 06/02/2021 14:24

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21E0361-01 F

Preparation Batch: BJF0045 — Sample Size: 10 mL

Prepared: 06/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	321	ug/L	
HC ID: GAS						
Surrogate: Toluene-d8			*80-120 %*	*99.9*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*98.9*	*%*	

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Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

MW-3-20212805

21E0361-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 05/28/2021 11:35
Instrument: FID4 Analyst: CTO — Analyzed: 06/08/2021 19:27

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21E0361-01 B 01
Preparation Batch: BJF0030 — Sample Size: 500 mL
Prepared: 06/04/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*83.4*	*%*	

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Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

MW-3-20212805

21E0361-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/28/2021 11:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/17/2021 22:21

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21E0361-01 A 03
Preparation Batch: BJF0424 — Sample Size: 25 mL
Prepared: 06/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0513	0.100	0.201	ug/L	

Draft for Public Comment

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

MW-3-20212805

21E0361-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 05/28/2021 11:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/18/2021 09:21

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21E0361-02 A 02
Preparation Batch: BJF0379 — Sample Size: 25 mL — Filtration Batch: BJE0747
Prepared: 06/15/2021 — Final Volume: 25 mL — Filtration Date: 05/28/2021 15:25

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

MW-39-20212805

21E0361-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/28/2021 13:15
Instrument: NT2 Analyst: LH — Analyzed: 06/02/2021 14:46

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21E0361-03 J
Preparation Batch: BJF0045 — Sample Size: 10 mL
Prepared: 06/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*113*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*103*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

MW-39-20212805

21E0361-03 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 05/28/2021 13:15
Instrument: NT2 Analyst: LH — Analyzed: 06/02/2021 14:46

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21E0361-03 J
Preparation Batch: BJF0045 — Sample Size: 10 mL
Prepared: 06/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*97.0*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*95.3*	*%*	

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MW-39-20212805

21E0361-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 05/28/2021 13:15
Instrument: FID4 Analyst: CTO — Analyzed: 06/08/2021 19:48

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21E0361-03 E 01
Preparation Batch: BJF0030 — Sample Size: 500 mL
Prepared: 06/04/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*76.7*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

MW-39-20212805

21E0361-03 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 05/28/2021 13:15
Instrument: ECD7 Analyst: JGR — Analyzed: 06/09/2021 00:53

Analysis by: Analytical Resources, LLC

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21E0361-03 C 01
	Preparation Batch: BJF0018	Sample Size: 1000 mL	
	Prepared: 06/02/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21E0361-03 C 01
	Cleanup Batch: CJF0058	Initial Volume: 0.5 mL	
	Cleaned: 07-Jun-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21E0361-03 C 01
	Cleanup Batch: CJF0056	Initial Volume: 0.5 mL	
	Cleaned: 07-Jun-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21E0361-03 C 01
	Cleanup Batch: CJF0057	Initial Volume: 0.5 mL	
	Cleaned: 07-Jun-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	0.003	ug/L	J
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*87.5*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*82.2*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*82.2*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*55.7*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

MW-39-20212805

21E0361-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 05/28/2021 13:15
Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/17/2021 08:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21E0361-03 B 02
Preparation Batch: BJF0424 — Sample Size: 25 mL
Prepared: 06/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	2	0.520	1.00	48.6	ug/L	D
Manganese	7439-96-5	10	1.42	5.00	980	ug/L	D

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

MW-39-20212805

21E0361-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 05/28/2021 13:15

Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/17/2021 08:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21E0361-03 B 02

Preparation Batch: BJF0424 — Sample Size: 25 mL

Prepared: 06/16/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.0746	0.400	6.97	ug/L	D
Nickel	7440-02-0	2	0.158	1.00	12.4	ug/L	D
Zinc	7440-66-6	2	5.84	12.0	46.2	ug/L	D

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MW-39-20212805

21E0361-03 (Water)

Wet Chemistry

Method: SM 3500-Cr B-09 — Sampled: 05/28/2021 13:15

Instrument: UV1800-1 Analyst: CDE — Analyzed: 05/28/2021 18:51

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21E0361-03 A 01

Preparation Batch: BJE0753 — Sample Size: 40 mL

Prepared: 05/28/2021 — Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexavalent Chromium	1854-02-99	1.25	0.013	0.013	0.016	mg/L	D

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MW-39-20212805

21E0361-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 05/28/2021 13:15

Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/18/2021 09:27

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21E0361-04 A 02

Preparation Batch: BJF0379 — Sample Size: 25 mL — Filtration Batch: BJE0747

Prepared: 06/15/2021 — Final Volume: 25 mL — Filtration Date: 05/28/2021 15:25

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.260	0.500	10.4	ug/L	
Manganese, Dissolved	7439-96-5	1	0.142	0.500	1.84	ug/L	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

MW-39-20212805

21E0361-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 05/28/2021 13:15

Instrument: ICPMS1 Analyst: MCB — Analyzed: 06/18/2021 09:27

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21E0361-04 A 02

Preparation Batch: BJF0379 — Sample Size: 25 mL — Filtration Batch: BJE0747

Prepared: 06/15/2021 — Final Volume: 25 mL — Filtration Date: 05/28/2021 15:25

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	1.28	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	0.252	ug/L	J
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

TB-11-20212805

21E0361-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 05/28/2021 11:35
Instrument: NT2 Analyst: LH — Analyzed: 06/02/2021 10:48

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21E0361-05 B
Preparation Batch: BJF0045 — Sample Size: 10 mL
Prepared: 06/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.14	0.50	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*107*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*95.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.2*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*103*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

TB-11-20212805

21E0361-05 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 05/28/2021 11:35
Instrument: NT2 Analyst: LH — Analyzed: 06/02/2021 10:48

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21E0361-05 B
Preparation Batch: BJF0045 — Sample Size: 10 mL
Prepared: 06/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*95.8*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*95.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BJF0045 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJF0045-BLK1)				Prepared: 02-Jun-2021 Analyzed: 02-Jun-2021 09:45							
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							U
Surrogate: Toluene-d8	4.85			ug/L	*5.00*		*96.9*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.89			ug/L	*5.00*		*97.9*	*80-120*			
Blank (BJF0045-BLK2)				Prepared: 02-Jun-2021 Analyzed: 02-Jun-2021 09:45							
Vinyl Chloride	ND	0.08	0.20	ug/L							U
1,1-Dichloroethene	ND	0.08	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.07	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Benzene	ND	0.05	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
Toluene	ND	0.05	0.20	ug/L							U
Tetrachloroethene	ND	0.09	0.20	ug/L							U
Ethylbenzene	ND	0.05	0.20	ug/L							U
m,p-Xylene	ND	0.14	0.40	ug/L							U
o-Xylene	ND	0.08	0.20	ug/L							U
Xylenes, total	ND	0.22	0.60	ug/L							U
Methyl tert-butyl Ether	ND	0.14	0.50	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.37			ug/L	*5.00*		*107*	*80-129*			
Surrogate: Toluene-d8	4.85			ug/L	*5.00*		*96.9*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.89			ug/L	*5.00*		*97.9*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.07			ug/L	*5.00*		*101*	*80-120*			
LCS (BJF0045-BS1)				Prepared: 02-Jun-2021 Analyzed: 02-Jun-2021 07:20							
Gasoline Range Organics (Tol-Nap)	911		100	ug/L	1000		91.1	72-128			
Surrogate: Toluene-d8	5.01			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.14			ug/L	*5.00*		*103*	*80-120*			
LCS (BJF0045-BS2)				Prepared: 02-Jun-2021 Analyzed: 02-Jun-2021 07:41							
Vinyl Chloride	8.79	0.08	0.20	ug/L	10.0		87.9	66-133			
1,1-Dichloroethene	9.17	0.08	0.20	ug/L	10.0		91.7	69-135			
trans-1,2-Dichloroethene	9.43	0.07	0.20	ug/L	10.0		94.3	78-128			
cis-1,2-Dichloroethene	10.3	0.08	0.20	ug/L	10.0		103	80-121			
Benzene	10.3	0.05	0.20	ug/L	10.0		103	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BJF0045 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJF0045-BS2)				Prepared: 02-Jun-2021 Analyzed: 02-Jun-2021 07:41							
Trichloroethene	9.85	0.07	0.20	ug/L	10.0		98.5	80-120			
Toluene	10.0	0.05	0.20	ug/L	10.0		100	80-120			
Tetrachloroethene	9.51	0.09	0.20	ug/L	10.0		95.1	80-120			
Ethylbenzene	10.2	0.05	0.20	ug/L	10.0		102	80-120			
m,p-Xylene	21.2	0.14	0.40	ug/L	20.0		106	80-121			
o-Xylene	9.58	0.08	0.20	ug/L	10.0		95.8	80-121			
Xylenes, total	30.8	0.22	0.60	ug/L	30.0		103	76-127			
Methyl tert-butyl Ether	10.3	0.14	0.50	ug/L	10.0		103	71-132			
Surrogate: 1,2-Dichloroethane-d4	4.97			ug/L	*5.00*		*99.5*	*80-129*			
Surrogate: Toluene-d8	5.06			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.23			ug/L	*5.00*		*105*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.04			ug/L	*5.00*		*101*	*80-120*			
LCS Dup (BJF0045-BSD1)				Prepared: 02-Jun-2021 Analyzed: 02-Jun-2021 08:02							
Gasoline Range Organics (Tol-Nap)	956		100	ug/L	1000		95.6	72-128	4.80	30	
Surrogate: Toluene-d8	5.05			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.13			ug/L	*5.00*		*103*	*80-120*			
LCS Dup (BJF0045-BSD2)				Prepared: 02-Jun-2021 Analyzed: 02-Jun-2021 08:22							
Vinyl Chloride	8.85	0.08	0.20	ug/L	10.0		88.5	66-133	0.66	30	
1,1-Dichloroethene	9.11	0.08	0.20	ug/L	10.0		91.1	69-135	0.61	30	
trans-1,2-Dichloroethene	9.35	0.07	0.20	ug/L	10.0		93.5	78-128	0.89	30	
cis-1,2-Dichloroethene	10.2	0.08	0.20	ug/L	10.0		102	80-121	0.60	30	
Benzene	10.1	0.05	0.20	ug/L	10.0		101	80-120	1.42	30	
Trichloroethene	9.56	0.07	0.20	ug/L	10.0		95.6	80-120	2.96	30	
Toluene	9.82	0.05	0.20	ug/L	10.0		98.2	80-120	2.12	30	
Tetrachloroethene	9.00	0.09	0.20	ug/L	10.0		90.0	80-120	5.50	30	
Ethylbenzene	9.83	0.05	0.20	ug/L	10.0		98.3	80-120	3.98	30	
m,p-Xylene	20.6	0.14	0.40	ug/L	20.0		103	80-121	2.95	30	
o-Xylene	9.42	0.08	0.20	ug/L	10.0		94.2	80-121	1.68	30	
Xylenes, total	30.0	0.22	0.60	ug/L	30.0		100	76-127	2.55	30	
Methyl tert-butyl Ether	10.5	0.14	0.50	ug/L	10.0		105	71-132	2.34	30	
Surrogate: 1,2-Dichloroethane-d4	5.00			ug/L	*5.00*		*100*	*80-129*			
Surrogate: Toluene-d8	5.10			ug/L	*5.00*		*102*	*80-120*			

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BJF0045 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJF0045-BSD2)				Prepared: 02-Jun-2021 Analyzed: 02-Jun-2021 08:22							
Surrogate: 4-Bromofluorobenzene	5.22			ug/L	*5.00*		*104*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.00			ug/L	*5.00*		*100*	*80-120*			

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

Analysis by: Analytical Resources, LLC

Petroleum Hydrocarbons - Quality Control

Batch BJF0030 - EPA 3510C SepF

Instrument: FID4 Analyst: CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJF0030-BLK1)				Prepared: 04-Jun-2021	Analyzed: 08-Jun-2021 18:02					
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: o-Terphenyl	0.172		mg/L	*0.225*		*76.4*	*50-150*			
LCS (BJF0030-BS1)				Prepared: 04-Jun-2021	Analyzed: 08-Jun-2021 18:24					
Diesel Range Organics (C12-C24)	2.34	0.100	mg/L	3.00		78.0	56-120			
Surrogate: o-Terphenyl	0.181		mg/L	*0.225*		*80.4*	*50-150*			
LCS Dup (BJF0030-BSD1)				Prepared: 04-Jun-2021	Analyzed: 08-Jun-2021 18:45					
Diesel Range Organics (C12-C24)	2.26	0.100	mg/L	3.00		75.4	56-120	3.46	30	
Surrogate: o-Terphenyl	0.173		mg/L	*0.225*		*77.1*	*50-150*			

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

Analysis by: Analytical Resources, LLC

Aroclor PCB - Quality Control

Batch BJF0018 - EPA 3510C SepF

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJF0018-BLK1)				Prepared: 02-Jun-2021 Analyzed: 08-Jun-2021 20:03							
Aroclor 1016	ND	0.002	0.010	ug/L							U
Aroclor 1221	ND	0.002	0.010	ug/L							U
Aroclor 1232	ND	0.002	0.010	ug/L							U
Aroclor 1242	ND	0.002	0.010	ug/L							U
Aroclor 1248	ND	0.002	0.010	ug/L							U
Aroclor 1254	ND	0.002	0.010	ug/L							U
Aroclor 1260	ND	0.003	0.010	ug/L							U
Aroclor 1262	ND	0.003	0.010	ug/L							U
Aroclor 1268	ND	0.003	0.010	ug/L							U
Surrogate: Decachlorobiphenyl	0.0188			ug/L	*0.0200*		*94.2*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0173			ug/L	*0.0200*		*86.7*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0165			ug/L	*0.0200*		*82.4*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0123			ug/L	*0.0200*		*61.4*	*32-120*			
LCS (BJF0018-BS1)				Prepared: 02-Jun-2021 Analyzed: 08-Jun-2021 20:24							
Aroclor 1016	0.052	0.002	0.010	ug/L	0.0500		105	54-120			
Aroclor 1260	0.058	0.003	0.010	ug/L	0.0500		116	51-128			
Surrogate: Decachlorobiphenyl	0.0191			ug/L	*0.0200*		*95.7*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0178			ug/L	*0.0200*		*89.1*	*32-120*			*P1*
Surrogate: Decachlorobiphenyl [2C]	0.0181			ug/L	*0.0200*		*90.4*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0119			ug/L	*0.0200*		*59.5*	*32-120*			*P1*
LCS Dup (BJF0018-BSD1)				Prepared: 02-Jun-2021 Analyzed: 08-Jun-2021 20:45							
Aroclor 1016	0.046	0.002	0.010	ug/L	0.0500		92.6	54-120	12.30	30	
Aroclor 1260	0.051	0.003	0.010	ug/L	0.0500		101	51-128	13.60	30	
Surrogate: Decachlorobiphenyl	0.0170			ug/L	*0.0200*		*85.2*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0160			ug/L	*0.0200*		*79.9*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0158			ug/L	*0.0200*		*79.2*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0109			ug/L	*0.0200*		*54.6*	*32-120*			

Draft for Public Comment

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BJF0424 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJF0424-BLK1)					Prepared: 16-Jun-2021 Analyzed: 16-Jun-2021 16:44							
Chromium	52	ND	0.260	0.500	ug/L							U
Chromium	53	ND	0.239	0.500	ug/L							U
Lead	208	ND	0.0513	0.100	ug/L							U
Manganese	55	ND	0.142	0.500	ug/L							U
Arsenic	75a	ND	0.0373	0.200	ug/L							U
Nickel	60	ND	0.0792	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Zinc	66	ND	2.92	6.00	ug/L							U
Zinc	67	ND	0.940	6.00	ug/L							U
LCS (BJF0424-BS1)					Prepared: 16-Jun-2021 Analyzed: 16-Jun-2021 16:49							
Chromium	52	24.5	0.260	0.500	ug/L	25.0		98.0	80-120			
Chromium	53	24.5	0.239	0.500	ug/L	25.0		97.9	80-120			
Lead	208	22.7	0.0513	0.100	ug/L	25.0		90.9	80-120			
Manganese	55	25.5	0.142	0.500	ug/L	25.0		102	80-120			
Arsenic	75a	23.5	0.0373	0.200	ug/L	25.0		94.0	80-120			
Nickel	60	24.1	0.0792	0.500	ug/L	25.0		96.5	80-120			
Nickel	62	24.1	0.220	0.500	ug/L	25.0		96.4	80-120			
Zinc	66	76.0	2.92	6.00	ug/L	80.0		94.9	80-120			
Zinc	67	74.3	0.940	6.00	ug/L	80.0		92.9	80-120			
Duplicate (BJF0424-DUP1)			**Source: 21E0361-03**		Prepared: 16-Jun-2021 Analyzed: 17-Jun-2021 08:34							
Chromium	52	48.7	0.520	1.00	ug/L		48.6			0.12	20	D
Arsenic	75a	6.98	0.0746	0.400	ug/L		6.97			0.14	20	D
Nickel	60	12.9	0.158	1.00	ug/L		12.4			4.01	20	D
Zinc	66	45.9	5.84	12.0	ug/L		46.2			0.48	20	D
Duplicate (BJF0424-DUP2)			**Source: 21E0361-03**		Prepared: 16-Jun-2021 Analyzed: 17-Jun-2021 22:31							
Lead	208	34.2	0.513	1.00	ug/L		34.6			1.13	20	D
Manganese	55	986	1.42	5.00	ug/L		980			0.62	20	D
Matrix Spike (BJF0424-MS1)			**Source: 21E0361-03**		Prepared: 16-Jun-2021 Analyzed: 17-Jun-2021 08:38							
Chromium	52	68.6	0.520	1.00	ug/L	25.0	48.6	79.9	75-125			D
Arsenic	75a	30.8	0.0746	0.400	ug/L	25.0	6.97	95.4	75-125			D
Nickel	60	37.5	0.158	1.00	ug/L	25.0	12.4	100	75-125			D
Zinc	66	110	5.84	12.0	ug/L	80.0	46.2	79.7	75-125			D

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BJF0424 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJF0424-MS1)			**Source: 21E0361-03**			Prepared: 16-Jun-2021		Analyzed: 17-Jun-2021 08:38				
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BJF0424-MS2)			**Source: 21E0361-03**			Prepared: 16-Jun-2021		Analyzed: 17-Jun-2021 22:36				
Lead	208	54.5	0.513	1.00	ug/L	25.0	34.6	79.5	75-125			D
Manganese	55	1010	1.42	5.00	ug/L	25.0	980	106	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJF0379 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJF0379-BLK1)					Prepared: 15-Jun-2021 Analyzed: 16-Jun-2021 23:40							
Chromium, Dissolved	52	ND	0.260	0.500	ug/L							U
Chromium, Dissolved	53	ND	0.239	0.500	ug/L							U
Manganese, Dissolved	55	ND	0.142	0.500	ug/L							U
Arsenic, Dissolved	75a	ND	0.0373	0.200	ug/L							U
Nickel, Dissolved	60	ND	0.0792	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
Zinc, Dissolved	66	ND	2.92	6.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	6.00	ug/L							U
Blank (BJF0379-BLK2)					Prepared: 15-Jun-2021 Analyzed: 17-Jun-2021 19:36							
Lead, Dissolved	208	ND	0.0513	0.100	ug/L							U
LCS (BJF0379-BS1)					Prepared: 15-Jun-2021 Analyzed: 16-Jun-2021 23:45							
Chromium, Dissolved	52	24.5	0.260	0.500	ug/L	25.0		98.0	80-120			
Chromium, Dissolved	53	24.0	0.239	0.500	ug/L	25.0		95.8	80-120			
Manganese, Dissolved	55	24.5	0.142	0.500	ug/L	25.0		97.9	80-120			
Arsenic, Dissolved	75a	23.7	0.0373	0.200	ug/L	25.0		94.8	80-120			
Nickel, Dissolved	60	24.5	0.0792	0.500	ug/L	25.0		97.9	80-120			
Nickel, Dissolved	62	24.7	0.220	0.500	ug/L	25.0		98.7	80-120			
Zinc, Dissolved	66	76.0	2.92	6.00	ug/L	80.0		95.0	80-120			
Zinc, Dissolved	67	72.4	0.940	6.00	ug/L	80.0		90.5	80-120			
LCS (BJF0379-BS2)					Prepared: 15-Jun-2021 Analyzed: 17-Jun-2021 19:41							
Lead, Dissolved	208	20.7	0.0513	0.100	ug/L	25.0		82.9	80-120			

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BJE0753 - No Prep Wet Chem

Instrument: UV1800-1 Analyst: CDE

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJE0753-BLK1)				Prepared: 28-May-2021 Analyzed: 28-May-2021 18:49							
Hexavalent Chromium	ND	0.013	0.013	mg/L							U
LCS (BJE0753-BS1)				Prepared: 28-May-2021 Analyzed: 28-May-2021 18:49							
Hexavalent Chromium	0.630	0.013	0.013	mg/L	0.625		101	85-115			D
Duplicate (BJE0753-DUP1)		**Source: 21E0361-03**		Prepared: 28-May-2021 Analyzed: 28-May-2021 18:51							
Hexavalent Chromium	0.015	0.013	0.013	mg/L		0.016			5.31	20	D
Matrix Spike (BJE0753-MS1)		**Source: 21E0361-03**		Prepared: 28-May-2021 Analyzed: 28-May-2021 18:51							
Hexavalent Chromium	0.074	0.013	0.013	mg/L	0.0625	0.016	92.9	85-115			D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, LLC
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
EPA 6020B UCT-KED in Water	
Arsenic-75a	WADOE,WA-DW,DoD-ELAP,ADEC,NELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Zinc-66	WADOE,WA-DW,DoD-ELAP
Zinc-67	WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
EPA 8082A in Water	
Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC

Analytical Resources, LLC
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Analytical Report

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Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC

EPA 8260D in Water

Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE

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trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
n-Hexane	WADOE

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

2-Pentanone	WADOE
NWTPH-Dx in Water	
Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE
NWTPHg in Water	
Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP
SM 3500-Cr B-09 in Water	
Hexavalent Chromium	WADOE,NELAP

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	14-Dec-2021 12:41

Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
J	Estimated concentration value detected below the reporting limit.
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

06 September 2021

Meg Strong
Shannon & Wilson, Inc
400 N 34th St., Suite 100
Seattle, WA 98103-8636

RE: Lower Duwamish Q3

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
21H0207	N/A

Shelly Fishel

Digitally signed by Shelly Fishel
Date: 2021.09.07 12:51:31 -07'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

Shelly Fishel, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21H0207	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: Shannon & Wilson	Phone: 206-695-6811	Date: 8/17/21	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 1	Cooler Temps: 13.9
Client Project Name: Lower Duwamish			
Client Project #: 21-1-12596-012	Samplers: DES, MED		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	TPH-Dx	Limited SVOCs	PCBs	Total metals	Dissolved metals	PAHs	Hexavalent Cr		Notes/Comments
MW-46-20211708	8/17	13:56	H2O	9	✓	✓		✓(1)	✓(1)	✓	✓		(1) Arsenic, chromium, manganese, nickel, copper, lead, mercury, selenium, silver, zinc
MW-71-20211708	↓	10:52	↓	8	✓		✓	✓	✓	✓			
				MED, 8/17									

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: DANIEL SCHWIGHT	Printed Name: Jacob Haltz	Printed Name:	Printed Name:
	Company:	Company: ARI	Company:	Company:
	Date & Time: 17-AUG-2021 1737	Date & Time: 08/17/2021 1737	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-46-20211708	21H0207-01	Water	17-Aug-2021 13:56	17-Aug-2021 17:37
MW-46-20211708	21H0207-02	Water	17-Aug-2021 13:56	17-Aug-2021 17:37
MW-71-20211708	21H0207-03	Water	17-Aug-2021 10:52	17-Aug-2021 17:37
MW-71-20211708	21H0207-04	Water	17-Aug-2021 10:52	17-Aug-2021 17:37

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish Q3
Work Order: 21H0207

Sample receipt

Samples as listed on the preceding page were received 17-Aug-2021 17:37 under ARI work order 21H0207. For details regarding sample receipt, please refer to the Cooler Receipt Form.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except Tetrachlorometaxylene which was out of control low in sample 21H0207-03, the method blank, blank spike and blank spike duplicate and have been flagged.

The method blank(s) were clean at the reporting limits.

The blank spike/blank spike duplicate (BS/BSD aka LCS/LCSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Semivolatiles - EPA Method SW8270E

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements except Pentachlorophenol which was out of control low. All samples which contain analyte have been flagged with a "Q" qualifier.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except Phenol-d5 which was out of control low in method blank BJH0468-BLK1 and has been flagged.

The method blank(s) were clean at the reporting limits.

The blank spike/blank spike duplicate (BS/BSD aka LCS/LCSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike/blank spike duplicate (BS/BSD aka LCS/LCSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Total and Dissolved Mercury - EPA Method 7470/7471

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0207-02 in Dissolved Mercury batch BJH0599. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

Total Metals - EPA Method 6020B

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits except Total Manganese. All samples which contain analyte have been flagged with a "B" qualifier.

The blank spike (BS/LCS) percent recoveries were within control limits.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0207-01 in batch BJH0452. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike (MS) percent recoveries were ouside advisory control limits low. The post preparation spike was out of control low. Deviations have been flagged.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/17/2021 5:56:59PM

WORK ORDER

21H0207

Client: Shannon & Wilson, Inc
Project Manager: Shelly Fishel
Project: Lower Duwamish
Project Number: Lower Duwamish

Preservation Confirmation

Container ID	Container Type	pH	
21H0207-01 A	Glass NM, Amber, 500 mL		
21H0207-01 B	Glass NM, Amber, 500 mL		
21H0207-01 C	Glass NM, Amber, 500 mL		
21H0207-01 D	Glass NM, Amber, 500 mL		
21H0207-01 E	Glass NM, Amber, 500 mL		
21H0207-01 F	Glass NM, Amber, 500 mL		
21H0207-01 G	Glass NM, Amber, 250 mL		
21H0207-01 H	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0207-02 A	HDPE NM, 500 mL	>2	Fail
21H0207-03 A	Glass NM, Amber, 1000 mL		
21H0207-03 B	Glass NM, Amber, 1000 mL		
21H0207-03 C	Glass NM, Amber, 500 mL		
21H0207-03 D	Glass NM, Amber, 500 mL		
21H0207-03 E	Glass NM, Amber, 500 mL		
21H0207-03 F	Glass NM, Amber, 500 mL		
21H0207-03 G	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0207-04 A	HDPE NM, 500 mL	>2	Fail

Preservation Confirmed By

08/17/2021
Date

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Shannon & Wilson Project Name: Lone Duwamish

COC No(s): NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Assigned ARI Job No: 21H0207 Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1737 13.9

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 5006

Cooler Accepted by: JG Date: 08/17/2021 Time: 1737

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	YES	NO
How were bottles sealed in plastic bags?	Individually	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JG Date: 08/17/2021 Time: 1749 Labels checked by: JG

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Temperature Compliance Form

ARI Work Order: 21H0207

Cooler#: _____ **Temperature(°C):** 13.4

Sample ID	Bottle Count	Bottle Type
Samples received about 6°C		

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Completed by: JAM Date: 08/17/2021 Time: 1737

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Analytical Chemists and Consultants

Printed: 8/17/2021 5:56:59PM

WORK ORDER

21H0207

Client: Shannon & Wilson, Inc
Project Manager: Shelly Fishel
Project: Lower Duwamish
Project Number: Lower Duwamish

Preservation Confirmation

Container ID	Container Type	pH	
21H0207-01 A	Glass NM, Amber, 500 mL		
21H0207-01 B	Glass NM, Amber, 500 mL		
21H0207-01 C	Glass NM, Amber, 500 mL		
21H0207-01 D	Glass NM, Amber, 500 mL		
21H0207-01 E	Glass NM, Amber, 500 mL		
21H0207-01 F	Glass NM, Amber, 500 mL		
21H0207-01 G	Glass NM, Amber, 250 mL		
21H0207-01 H	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0207-02 A	HDPE NM, 500 mL	>2	Fail (1)
21H0207-03 A	Glass NM, Amber, 1000 mL		
21H0207-03 B	Glass NM, Amber, 1000 mL		
21H0207-03 C	Glass NM, Amber, 500 mL		
21H0207-03 D	Glass NM, Amber, 500 mL		
21H0207-03 E	Glass NM, Amber, 500 mL		
21H0207-03 F	Glass NM, Amber, 500 mL		
21H0207-03 G	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0207-04 A	HDPE NM, 500 mL	>2	Fail (1)

JAm
Preservation Confirmed By

08/17/2021
Date

(1) Filtered at 0.45 um and preserved to pH<2.0 with 0.75ml conc. HNO_3 (J7647).
MI 08/18/21

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-46-20211708

21H0207-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/17/2021 13:56

Instrument: NT10 Analyst: VTS — Analyzed: 08/28/2021 13:01

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0207-01 A 01

Preparation Batch: BJH0468 — Sample Size: 1000 mL

Prepared: 08/19/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Surrogate: 2-Fluorophenol				*30-160 %*	*46.9*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*30.3*	*%*	
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*80.1*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*64.7*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*87.3*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*84.7*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*111*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*99.0*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-46-20211708

21H0207-01 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/17/2021 13:56
Instrument: NT11 Analyst: VTS — Analyzed: 09/01/2021 14:31

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJH0469; Prepared: 08/19/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21H0207-01 C 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJH0298; Cleaned: 31-Aug-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21H0207-01 C 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.007	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.014	ug/L	
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.030	ug/L	
Acenaphthylene	208-96-8	1	0.002	0.010	0.014	ug/L	
Acenaphthene	83-32-9	1	0.003	0.010	1.77	ug/L	E
Dibenzofuran	132-64-9	1	0.002	0.010	0.008	ug/L	J
Fluorene	86-73-7	1	0.002	0.010	0.114	ug/L	
Phenanthrene	85-01-8	1	0.001	0.010	0.338	ug/L	
Anthracene	120-12-7	1	0.001	0.010	0.026	ug/L	
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	0.037	ug/L	
Pyrene	129-00-0	1	0.001	0.010	0.016	ug/L	
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*80.4*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*74.1*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*87.3*	*%*	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-46-20211708

21H0207-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/17/2021 13:56
Instrument: FID4 Analyst: TWC/CTO — Analyzed: 09/03/2021 12:35

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0207-01 E 01
Preparation Batch: BJH0472 — Sample Size: 500 mL
Prepared: 08/18/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.388	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*80.0*	*%*	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-46-20211708

21H0207-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/17/2021 13:56

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/30/2021 17:43

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0207-01 H 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	5	1.30	2.50	ND	ug/L	U
Lead	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese	7439-96-5	5	0.710	2.50	1100	ug/L	B, D
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-46-20211708

21H0207-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/17/2021 13:56

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/27/2021 18:57

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0207-01 H 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	17.6	ug/L	
Copper	7440-50-8	1	0.173	0.500	ND	ug/L	U
Nickel	7440-02-0	1	0.0792	0.500	0.276	ug/L	J
Selenium	7782-49-2	1	0.179	0.500	0.199	ug/L	J
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-46-20211708

21H0207-01 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/17/2021 13:56

Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 14:35

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0207-01 H

Preparation Batch: BJH0598 — Sample Size: 20 mL

Prepared: 08/24/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	0.000013	mg/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-46-20211708

21H0207-01 (Water)

Wet Chemistry

Method: SM 3500-Cr B-09 — Sampled: 08/17/2021 13:56

Instrument: UV1800-2 Analyst: DOE — Analyzed: 08/18/2021 10:59

Sample Preparation: Preparation Method: SM 5310 A-00, 0.45um filtration — Extract ID: 21H0207-01 G

Preparation Batch: BJH0452 — Sample Size: 40 mL

Prepared: 08/18/2021 — Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexavalent Chromium	1854-02-99	1.25	0.013	0.013	ND	mg/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-46-20211708

21H0207-01RE1 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/17/2021 13:56
Instrument: NT11 Analyst: VTS — Analyzed: 09/04/2021 08:35

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJH0469; Prepared: 08/19/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21H0207-01RE1 C 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJH0298; Cleaned: 31-Aug-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21H0207-01RE1 C 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	3	0.004	0.030	0.007	ug/L	J, D
2-Methylnaphthalene	91-57-6	3	0.003	0.030	0.012	ug/L	J, D
1-Methylnaphthalene	90-12-0	3	0.003	0.030	0.028	ug/L	J, D
Acenaphthylene	208-96-8	3	0.006	0.030	0.014	ug/L	J, D
Acenaphthene	83-32-9	3	0.009	0.030	2.18	ug/L	D
Dibenzofuran	132-64-9	3	0.005	0.030	0.007	ug/L	J, D
Fluorene	86-73-7	3	0.005	0.030	0.108	ug/L	D
Phenanthrene	85-01-8	3	0.004	0.030	0.351	ug/L	D
Anthracene	120-12-7	3	0.003	0.030	0.027	ug/L	J, D
Carbazole	86-74-8	3	0.004	0.030	ND	ug/L	U
Fluoranthene	206-44-0	3	0.005	0.030	0.034	ug/L	D
Pyrene	129-00-0	3	0.004	0.030	0.015	ug/L	J, D
Benzo(a)anthracene	56-55-3	3	0.002	0.030	ND	ug/L	U
Chrysene	218-01-9	3	0.003	0.030	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	3	0.001	0.030	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	3	0.010	0.030	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	3	0.006	0.030	ND	ug/L	U
Benzofluoranthenes, Total		3	0.011	0.030	ND	ug/L	U
Benzo(a)pyrene	50-32-8	3	0.007	0.030	ND	ug/L	U
Perylene	1985-5-0	3	0.018	0.030	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	3	0.003	0.030	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	3	0.004	0.030	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	3	0.004	0.030	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*78.9*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*57.7*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*84.3*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-46-20211708

21H0207-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/17/2021 13:56
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/25/2021 22:16

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0207-02 A 01
Preparation Batch: BJH0642 — Sample Size: 25 mL — Filtration Batch: BJH0459
Prepared: 08/25/2021 — Final Volume: 25 mL — Filtration Date: 08/18/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.260	0.500	0.441	ug/L	J
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	10	1.42	5.00	1040	ug/L	D
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-46-20211708

21H0207-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/17/2021 13:56
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/25/2021 22:16

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0207-02 A 01
Preparation Batch: BJH0642 — Sample Size: 25 mL — Filtration Batch: BJH0459
Prepared: 08/25/2021 — Final Volume: 25 mL — Filtration Date: 08/18/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	7.28	ug/L	
Copper, Dissolved	7440-50-8	1	0.173	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	0.222	ug/L	J
Selenium, Dissolved	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	2.92	6.00	31.7	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-46-20211708

21H0207-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/17/2021 13:56
Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 15:17

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0207-02 A 03
Preparation Batch: BJH0599 — Sample Size: 20 mL — Filtration Batch: BJH0459
Prepared: 08/24/2021 — Final Volume: 20 mL — Filtration Date: 08/18/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-71-20211708

21H0207-03 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/17/2021 10:52
Instrument: NT11 Analyst: VTS — Analyzed: 09/01/2021 15:01

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJH0469; Prepared: 08/19/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21H0207-03 C 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJH0298; Cleaned: 31-Aug-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21H0207-03 C 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.007	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.003	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.040	ug/L	
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	0.464	ug/L	
Dibenzofuran	132-64-9	1	0.002	0.010	0.005	ug/L	J
Fluorene	86-73-7	1	0.002	0.010	0.030	ug/L	
Phenanthrene	85-01-8	1	0.001	0.010	0.008	ug/L	J
Anthracene	120-12-7	1	0.001	0.010	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.010	0.237	ug/L	
Fluoranthene	206-44-0	1	0.002	0.010	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.010	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*71.9*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*66.5*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*81.7*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-71-20211708

21H0207-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/17/2021 10:52

Instrument: FID4 Analyst: TWC/CTO — Analyzed: 09/03/2021 12:55

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0207-03 E 01

Preparation Batch: BJH0472 — Sample Size: 500 mL

Prepared: 08/18/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*83.6*	*%*	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-71-20211708

21H0207-03 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/17/2021 10:52
Instrument: ECD7 Analyst: JGR — Analyzed: 09/02/2021 23:11

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0207-03 A 01
	Preparation Batch: BJH0467	Sample Size: 1000 mL	
	Prepared: 08/20/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0207-03 A 01
	Cleanup Batch: CJI0003	Initial Volume: 0.5 mL	
	Cleaned: 01-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0207-03 A 01
	Cleanup Batch: CJI0001	Initial Volume: 0.5 mL	
	Cleaned: 01-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0207-03 A 01
	Cleanup Batch: CJI0002	Initial Volume: 0.5 mL	
	Cleaned: 01-Sep-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*78.9*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*7.69*	*%*	*
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*75.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*7.66*	*%*	*

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-71-20211708

21H0207-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/17/2021 10:52

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/27/2021 19:01

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0207-03 G 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0765	0.500	8.35	ug/L	
Chromium	7440-47-3	2	0.520	1.00	0.610	ug/L	J, D
Iron	7439-89-6	2	36.4	72.0	14400	ug/L	D
Lead	7439-92-1	1	0.0513	0.100	0.0750	ug/L	J
Manganese	7439-96-5	2	0.284	1.00	456	ug/L	B, D
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium	7440-62-2	2	0.111	0.400	4.00	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-71-20211708

21H0207-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/17/2021 10:52

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/27/2021 19:01

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0207-03 G 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	9.44	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt	7440-48-4	1	0.0178	0.200	0.457	ug/L	
Copper	7440-50-8	1	0.173	0.500	0.556	ug/L	
Nickel	7440-02-0	1	0.0792	0.500	0.150	ug/L	J
Selenium	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-71-20211708

21H0207-03 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/17/2021 10:52
Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 14:38

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0207-03 G
Preparation Batch: BJH0598 — Sample Size: 20 mL
Prepared: 08/24/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	0.000016	mg/L	J

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-71-20211708

21H0207-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/17/2021 10:52
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/25/2021 22:21

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0207-04 A 01
Preparation Batch: BJH0642 — Sample Size: 25 mL — Filtration Batch: BJH0459
Prepared: 08/25/2021 — Final Volume: 25 mL — Filtration Date: 08/18/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.114	0.500	1.42	ug/L	
Chromium, Dissolved	7440-47-3	1	0.260	0.500	ND	ug/L	U
Iron, Dissolved	7439-89-6	5	33.2	100	3860	ug/L	D
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	5	0.710	2.50	460	ug/L	D
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0556	0.200	0.442	ug/L	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-71-20211708

21H0207-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/17/2021 10:52
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/25/2021 22:21

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0207-04 A 01
Preparation Batch: BJH0642 — Sample Size: 25 mL — Filtration Batch: BJH0459
Prepared: 08/25/2021 — Final Volume: 25 mL — Filtration Date: 08/18/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	3.94	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	0.372	ug/L	
Copper, Dissolved	7440-50-8	1	0.173	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	0.0900	ug/L	J
Selenium, Dissolved	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

Draft for Public Comment

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

MW-71-20211708

21H0207-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/17/2021 10:52
Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 15:26

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0207-04 A 03
Preparation Batch: BJH0599 — Sample Size: 20 mL — Filtration Batch: BJH0459
Prepared: 08/24/2021 — Final Volume: 20 mL — Filtration Date: 08/18/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Semivolatile Organic Compounds - Quality Control

Batch BJH0468 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0468-BLK1)				Prepared: 19-Aug-2021 Analyzed: 28-Aug-2021 10:29							
1,4-Dichlorobenzene	ND	0.03	0.2	ug/L							U
1,2-Dichlorobenzene	ND	0.03	0.2	ug/L							U
2,4-Dimethylphenol	ND	0.3	1.0	ug/L							U
Benzoic acid	ND	0.1	2.0	ug/L							U
N-Nitrosodiphenylamine	ND	0.03	0.2	ug/L							U
Pentachlorophenol	ND	0.1	1.0	ug/L							U
Di-n-Butylphthalate	ND	0.05	0.2	ug/L							U
Butylbenzylphthalate	ND	0.07	0.2	ug/L							U
bis(2-Ethylhexyl)phthalate	ND	0.2	0.2	ug/L							U
Surrogate: 2-Fluorophenol	3.43			ug/L	*7.50*		*45.7*	*30-160*			
Surrogate: Phenol-d5	2.10			ug/L	*7.50*		*28.0*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	6.03			ug/L	*7.50*		*80.5*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.23			ug/L	*5.00*		*64.7*	*30-160*			
Surrogate: Nitrobenzene-d5	3.99			ug/L	*5.00*		*79.8*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.80			ug/L	*5.00*		*75.9*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.83			ug/L	*7.50*		*91.0*	*30-160*			
Surrogate: p-Terphenyl-d14	5.20			ug/L	*5.00*		*104*	*30-160*			
LCS (BJH0468-BS1)				Prepared: 19-Aug-2021 Analyzed: 28-Aug-2021 11:07							
1,4-Dichlorobenzene	3.8	0.03	0.2	ug/L	5.00		75.1	30-160			
1,2-Dichlorobenzene	3.4	0.03	0.2	ug/L	5.00		68.8	30-160			
2,4-Dimethylphenol	9.6	0.3	1.0	ug/L	13.0		74.0	30-160			
Benzoic acid	10.1	0.1	2.0	ug/L	23.0		43.9	30-160			
N-Nitrosodiphenylamine	3.7	0.03	0.2	ug/L	5.00		74.4	30-160			
Pentachlorophenol	9.2	0.1	1.0	ug/L	13.0		70.6	30-160			Q
Di-n-Butylphthalate	4.6	0.05	0.2	ug/L	5.00		91.5	30-160			
Butylbenzylphthalate	4.9	0.07	0.2	ug/L	5.00		97.8	30-160			
bis(2-Ethylhexyl)phthalate	5.0	0.2	0.2	ug/L	5.00		99.7	30-160			
Surrogate: 2-Fluorophenol	4.29			ug/L	*7.50*		*57.2*	*30-160*			
Surrogate: Phenol-d5	2.85			ug/L	*7.50*		*38.0*	*30-160*			
Surrogate: 2-Chlorophenol-d4	7.21			ug/L	*7.50*		*96.1*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.66			ug/L	*5.00*		*73.2*	*30-160*			
Surrogate: Nitrobenzene-d5	4.92			ug/L	*5.00*		*98.5*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.44			ug/L	*5.00*		*88.9*	*30-160*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Semivolatile Organic Compounds - Quality Control

Batch BJH0468 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0468-BS1)				Prepared: 19-Aug-2021 Analyzed: 28-Aug-2021 11:07							
Surrogate: 2,4,6-Tribromophenol	7.94			ug/L	*7.50*		*106*	*30-160*			
Surrogate: p-Terphenyl-d14	5.74			ug/L	*5.00*		*115*	*30-160*			
LCS Dup (BJH0468-BSD1)				Prepared: 19-Aug-2021 Analyzed: 28-Aug-2021 11:45							
1,4-Dichlorobenzene	3.8	0.03	0.2	ug/L	5.00		76.7	30-160	2.07	30	
1,2-Dichlorobenzene	3.5	0.03	0.2	ug/L	5.00		70.3	30-160	2.16	30	
2,4-Dimethylphenol	9.4	0.3	1.0	ug/L	13.0		72.1	30-160	2.52	30	
Benzoic acid	10.0	0.1	2.0	ug/L	23.0		43.6	30-160	0.59	30	
N-Nitrosodiphenylamine	3.8	0.03	0.2	ug/L	5.00		76.7	30-160	2.95	30	
Pentachlorophenol	9.8	0.1	1.0	ug/L	13.0		75.3	30-160	6.54	30	Q
Di-n-Butylphthalate	4.9	0.05	0.2	ug/L	5.00		97.7	30-160	6.56	30	
Butylbenzylphthalate	5.0	0.07	0.2	ug/L	5.00		99.6	30-160	1.88	30	
bis(2-Ethylhexyl)phthalate	5.2	0.2	0.2	ug/L	5.00		103	30-160	3.28	30	
Surrogate: 2-Fluorophenol	3.74			ug/L	*7.50*		*49.8*	*30-160*			
Surrogate: Phenol-d5	2.57			ug/L	*7.50*		*34.2*	*30-160*			
Surrogate: 2-Chlorophenol-d4	6.38			ug/L	*7.50*		*85.1*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.35			ug/L	*5.00*		*66.9*	*30-160*			
Surrogate: Nitrobenzene-d5	4.45			ug/L	*5.00*		*88.9*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.12			ug/L	*5.00*		*82.4*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	7.42			ug/L	*7.50*		*98.9*	*30-160*			
Surrogate: p-Terphenyl-d14	5.21			ug/L	*5.00*		*104*	*30-160*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0469 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0469-BLK1)				Prepared: 19-Aug-2021 Analyzed: 01-Sep-2021 12:30							
Naphthalene	0.003	0.001	0.010	ug/L							J
2-Methylnaphthalene	ND	0.001	0.010	ug/L							U
1-Methylnaphthalene	ND	0.0009	0.010	ug/L							U
Acenaphthylene	ND	0.002	0.010	ug/L							U
Acenaphthene	ND	0.003	0.010	ug/L							U
Dibenzofuran	ND	0.002	0.010	ug/L							U
Fluorene	ND	0.002	0.010	ug/L							U
Phenanthrene	ND	0.001	0.010	ug/L							U
Anthracene	ND	0.001	0.010	ug/L							U
Carbazole	ND	0.001	0.010	ug/L							U
Fluoranthene	ND	0.002	0.010	ug/L							U
Pyrene	ND	0.001	0.010	ug/L							U
Benzo(a)anthracene	ND	0.0008	0.010	ug/L							U
Chrysene	ND	0.0009	0.010	ug/L							U
Benzo(b)fluoranthene	ND	0.0005	0.010	ug/L							U
Benzo(k)fluoranthene	ND	0.003	0.010	ug/L							U
Benzo(j)fluoranthene	ND	0.002	0.010	ug/L							U
Benzofluoranthenes, Total	ND	0.004	0.010	ug/L							U
Benzo(a)pyrene	ND	0.002	0.010	ug/L							U
Perylene	ND	0.006	0.010	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.001	0.010	ug/L							U
Dibenzo(a,h)anthracene	ND	0.001	0.010	ug/L							U
Benzo(g,h,i)perylene	ND	0.001	0.010	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	0.219			ug/L	*0.300*		*73.0*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.207			ug/L	*0.300*		*69.0*	*29-120*			
Surrogate: Fluoranthene-d10	0.248			ug/L	*0.300*		*82.7*	*57-120*			
LCS (BJH0469-BS1)				Prepared: 19-Aug-2021 Analyzed: 01-Sep-2021 13:00							
Naphthalene	0.207	0.001	0.010	ug/L	0.300		68.9	37-120			
2-Methylnaphthalene	0.212	0.001	0.010	ug/L	0.300		70.5	37-120			
1-Methylnaphthalene	0.212	0.0009	0.010	ug/L	0.300		70.6	29-120			
Acenaphthylene	0.197	0.002	0.010	ug/L	0.300		65.6	41-120			
Acenaphthene	0.196	0.003	0.010	ug/L	0.300		65.4	41-120			
Dibenzofuran	0.198	0.002	0.010	ug/L	0.300		66.2	38-120			
Fluorene	0.219	0.002	0.010	ug/L	0.300		73.0	43-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0469 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0469-BS1)					Prepared: 19-Aug-2021 Analyzed: 01-Sep-2021 13:00						
Phenanthrene	0.221	0.001	0.010	ug/L	0.300		73.6	41-120			
Anthracene	0.201	0.001	0.010	ug/L	0.300		67.1	40-120			
Carbazole	0.226	0.001	0.010	ug/L	0.300		75.5	30-160			
Fluoranthene	0.224	0.002	0.010	ug/L	0.300		74.8	45-120			
Pyrene	0.226	0.001	0.010	ug/L	0.300		75.2	41-120			
Benzo(a)anthracene	0.215	0.0008	0.010	ug/L	0.300		71.5	42-120			
Chrysene	0.212	0.0009	0.010	ug/L	0.300		70.7	44-120			
Benzo(b)fluoranthene	0.189	0.0005	0.010	ug/L	0.300		62.9	44-120			
Benzo(k)fluoranthene	0.248	0.003	0.010	ug/L	0.300		82.6	50-120			
Benzo(j)fluoranthene	0.228	0.002	0.010	ug/L	0.300		76.0	39-160			
Benzofluoranthenes, Total	0.665	0.004	0.010	ug/L	0.900		73.8	46-120			
Benzo(a)pyrene	0.201	0.002	0.010	ug/L	0.300		66.9	35-120			
Perylene	0.202	0.006	0.010	ug/L	0.300		67.4	30-160			
Indeno(1,2,3-cd)pyrene	0.203	0.001	0.010	ug/L	0.300		67.7	37-120			
Dibenzo(a,h)anthracene	0.202	0.001	0.010	ug/L	0.300		67.4	34-120			
Benzo(g,h,i)perylene	0.198	0.001	0.010	ug/L	0.300		65.9	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.217			ug/L	*0.300*		*72.4*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.213			ug/L	*0.300*		*70.9*	*29-120*			
Surrogate: Fluoranthene-d10	0.239			ug/L	*0.300*		*79.8*	*57-120*			
LCS Dup (BJH0469-BSD1)					Prepared: 19-Aug-2021 Analyzed: 01-Sep-2021 13:30						
Naphthalene	0.236	0.001	0.010	ug/L	0.300		78.7	37-120	13.30	30	
2-Methylnaphthalene	0.241	0.001	0.010	ug/L	0.300		80.3	37-120	13.00	30	
1-Methylnaphthalene	0.242	0.0009	0.010	ug/L	0.300		80.6	29-120	13.20	30	
Acenaphthylene	0.226	0.002	0.010	ug/L	0.300		75.5	41-120	14.10	30	
Acenaphthene	0.225	0.003	0.010	ug/L	0.300		75.2	41-120	14.00	30	
Dibenzofuran	0.226	0.002	0.010	ug/L	0.300		75.4	38-120	13.00	30	
Fluorene	0.248	0.002	0.010	ug/L	0.300		82.6	43-120	12.40	30	
Phenanthrene	0.251	0.001	0.010	ug/L	0.300		83.6	41-120	12.70	30	
Anthracene	0.235	0.001	0.010	ug/L	0.300		78.2	40-120	15.40	30	
Carbazole	0.260	0.001	0.010	ug/L	0.300		86.6	30-160	13.70	30	
Fluoranthene	0.261	0.002	0.010	ug/L	0.300		87.0	45-120	15.00	30	
Pyrene	0.263	0.001	0.010	ug/L	0.300		87.6	41-120	15.20	30	
Benzo(a)anthracene	0.256	0.0008	0.010	ug/L	0.300		85.2	42-120	17.50	30	
Chrysene	0.242	0.0009	0.010	ug/L	0.300		80.8	44-120	13.40	30	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0469 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJH0469-BSD1)					Prepared: 19-Aug-2021 Analyzed: 01-Sep-2021 13:30						
Benzo(b)fluoranthene	0.247	0.0005	0.010	ug/L	0.300		82.5	44-120	27.00	30	
Benzo(k)fluoranthene	0.252	0.003	0.010	ug/L	0.300		83.9	50-120	1.47	30	
Benzo(j)fluoranthene	0.253	0.002	0.010	ug/L	0.300		84.5	39-160	10.60	30	
Benzofluoranthenes, Total	0.752	0.004	0.010	ug/L	0.900		83.6	46-120	12.40	30	
Benzo(a)pyrene	0.235	0.002	0.010	ug/L	0.300		78.4	35-120	15.80	30	
Perylene	0.232	0.006	0.010	ug/L	0.300		77.4	30-160	13.70	30	
Indeno(1,2,3-cd)pyrene	0.242	0.001	0.010	ug/L	0.300		80.8	37-120	17.80	30	
Dibenzo(a,h)anthracene	0.243	0.001	0.010	ug/L	0.300		80.9	34-120	18.20	30	
Benzo(g,h,i)perylene	0.231	0.001	0.010	ug/L	0.300		76.8	38-120	15.40	30	
Surrogate: 2-Methylnaphthalene-d10	0.241			ug/L	*0.300*		*80.4*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.247			ug/L	*0.300*		*82.2*	*29-120*			
Surrogate: Fluoranthene-d10	0.270			ug/L	*0.300*		*89.9*	*57-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Petroleum Hydrocarbons - Quality Control

Batch BJH0472 - EPA 3510C SepF

Instrument: FID4 Analyst: TWC/CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0472-BLK1)				Prepared: 18-Aug-2021 Analyzed: 03-Sep-2021 11:35						
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: o-Terphenyl	0.183		mg/L	*0.225*		*81.2*	*50-150*			
LCS (BJH0472-BS1)				Prepared: 18-Aug-2021 Analyzed: 03-Sep-2021 11:55						
Diesel Range Organics (C12-C24)	2.66	0.100	mg/L	3.00		88.7	56-120			
Surrogate: o-Terphenyl	0.193		mg/L	*0.225*		*86.0*	*50-150*			
LCS Dup (BJH0472-BSD1)				Prepared: 18-Aug-2021 Analyzed: 03-Sep-2021 12:15						
Diesel Range Organics (C12-C24)	2.53	0.100	mg/L	3.00		84.3	56-120	5.07	30	
Surrogate: o-Terphenyl	0.179		mg/L	*0.225*		*79.7*	*50-150*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Aroclor PCB - Quality Control

Batch BJH0467 - EPA 3510C SepF

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0467-BLK1)				Prepared: 20-Aug-2021 Analyzed: 02-Sep-2021 21:49							
Aroclor 1016	ND	0.002	0.010	ug/L							U
Aroclor 1221	ND	0.002	0.010	ug/L							U
Aroclor 1232	ND	0.002	0.010	ug/L							U
Aroclor 1242	ND	0.002	0.010	ug/L							U
Aroclor 1248	ND	0.002	0.010	ug/L							U
Aroclor 1254	ND	0.002	0.010	ug/L							U
Aroclor 1260	ND	0.003	0.010	ug/L							U
Aroclor 1262	ND	0.003	0.010	ug/L							U
Aroclor 1268	ND	0.003	0.010	ug/L							U
Surrogate: Decachlorobiphenyl	0.0154			ug/L	*0.0200*		*77.1*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.00197			ug/L	*0.0200*		*9.86*	*32-120*			*
Surrogate: Decachlorobiphenyl [2C]	0.0142			ug/L	*0.0200*		*70.9*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.00190			ug/L	*0.0200*		*9.48*	*32-120*			*
LCS (BJH0467-BS1)				Prepared: 20-Aug-2021 Analyzed: 02-Sep-2021 22:10							
Aroclor 1016	0.027	0.002	0.010	ug/L	0.0500		54.1	54-120			
Aroclor 1260	0.042	0.003	0.010	ug/L	0.0500		84.2	51-128			
Surrogate: Decachlorobiphenyl	0.0163			ug/L	*0.0200*		*81.7*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.00111			ug/L	*0.0200*		*5.56*	*32-120*			*
Surrogate: Decachlorobiphenyl [2C]	0.0155			ug/L	*0.0200*		*77.6*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.00116			ug/L	*0.0200*		*5.81*	*32-120*			*
LCS Dup (BJH0467-BSD1)				Prepared: 20-Aug-2021 Analyzed: 02-Sep-2021 22:30							
Aroclor 1016	0.041	0.002	0.010	ug/L	0.0500		81.4	54-120	40.30	30	*
Aroclor 1260	0.042	0.003	0.010	ug/L	0.0500		84.6	51-128	0.47	30	
Surrogate: Decachlorobiphenyl	0.0149			ug/L	*0.0200*		*74.3*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.00564			ug/L	*0.0200*		*28.2*	*32-120*			*
Surrogate: Decachlorobiphenyl [2C]	0.0140			ug/L	*0.0200*		*69.9*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.00532			ug/L	*0.0200*		*26.6*	*32-120*			*

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Metals and Metallic Compounds - Quality Control

Batch BJH0598 - TWM EPA 7470A

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0598-BLK1)				Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 14:21							
Mercury	ND	0.000013	0.000100	mg/L							U
LCS (BJH0598-BS1)				Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 14:24							
Mercury	0.00166	0.000013	0.000100	mg/L	0.00200		82.8	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Metals and Metallic Compounds - Quality Control

Batch BJH0670 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0670-BLK1)					Prepared: 26-Aug-2021 Analyzed: 27-Aug-2021 17:36							
Barium	135	ND	0.114	0.500	ug/L							U
Barium	137	ND	0.0765	0.500	ug/L							U
Chromium	52	ND	0.260	0.500	ug/L							U
Chromium	53	ND	0.239	0.500	ug/L							U
Iron	54	ND	18.2	36.0	ug/L							U
Iron	57	ND	6.63	36.0	ug/L							U
Lead	208	ND	0.0513	0.100	ug/L							U
Manganese	55	0.429	0.142	0.500	ug/L							*, J
Silver	107	ND	0.0220	0.200	ug/L							U
Vanadium	51a	ND	0.0556	0.200	ug/L							U
Vanadium	51b	ND	0.0521	0.200	ug/L							U
Arsenic	75a	ND	0.0373	0.200	ug/L							U
Cadmium	111	ND	0.0300	0.100	ug/L							U
Cadmium	114	ND	0.0400	0.100	ug/L							U
Cobalt	59	ND	0.0178	0.200	ug/L							U
Copper	63	ND	0.173	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	ND	0.0792	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Selenium	78	ND	0.179	0.500	ug/L							U
Zinc	66	ND	2.92	6.00	ug/L							U
Zinc	67	ND	0.940	6.00	ug/L							U
LCS (BJH0670-BS1)					Prepared: 26-Aug-2021 Analyzed: 27-Aug-2021 17:41							
Barium	135	24.7	0.114	0.500	ug/L	25.0		98.7	80-120			
Barium	137	23.5	0.0765	0.500	ug/L	25.0		94.1	80-120			
Chromium	52	22.9	0.260	0.500	ug/L	25.0		91.5	80-120			
Chromium	53	24.6	0.239	0.500	ug/L	25.0		98.3	80-120			
Iron	54	4900	18.2	36.0	ug/L	5000		98.1	80-120			
Iron	57	4890	6.63	36.0	ug/L	5000		97.8	80-120			
Lead	208	24.7	0.0513	0.100	ug/L	25.0		98.9	80-120			
Manganese	55	24.9	0.142	0.500	ug/L	25.0		99.5	80-120			B
Silver	107	23.7	0.0220	0.200	ug/L	25.0		94.8	80-120			
Vanadium	51a	22.3	0.0556	0.200	ug/L	25.0		89.3	80-120			
Vanadium	51b	22.8	0.0521	0.200	ug/L	25.0		91.2	80-120			

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Metals and Metallic Compounds - Quality Control

Batch BJH0670 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0670-BS1)						Prepared: 26-Aug-2021 Analyzed: 27-Aug-2021 17:41						
Arsenic	75a	24.6	0.0373	0.200	ug/L	25.0		98.5	80-120			
Cadmium	111	24.8	0.0300	0.100	ug/L	25.0		99.3	80-120			
Cadmium	114	24.9	0.0400	0.100	ug/L	25.0		99.7	80-120			
Cobalt	59	24.9	0.0178	0.200	ug/L	25.0		99.5	80-120			
Copper	63	25.2	0.173	0.500	ug/L	25.0		101	80-120			
Copper	65	25.2	0.350	0.500	ug/L	25.0		101	80-120			
Nickel	60	25.1	0.0792	0.500	ug/L	25.0		100	80-120			
Nickel	62	25.6	0.220	0.500	ug/L	25.0		102	80-120			
Selenium	78	75.4	0.179	0.500	ug/L	80.0		94.2	80-120			
Zinc	66	76.8	2.92	6.00	ug/L	80.0		96.0	80-120			
Zinc	67	74.0	0.940	6.00	ug/L	80.0		92.5	80-120			

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJH0599 - TWM EPA 7470A

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0599-BLK1)				Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 15:08							
Mercury, Dissolved	0.000019	0.000013	0.000100	mg/L							J
LCS (BJH0599-BS1)				Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 15:15							
Mercury, Dissolved	0.00175	0.000013	0.000100	mg/L	0.00200		87.5	80-120			
Duplicate (BJH0599-DUP1)		**Source: 21H0207-02**		Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 15:19							
Mercury, Dissolved	0.000015	0.000013	0.000100	mg/L		ND					J
Matrix Spike (BJH0599-MS1)		**Source: 21H0207-02**		Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 15:22							
Mercury, Dissolved	0.000907	0.000013	0.000100	mg/L	0.00100	ND	90.7	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJH0599-MSD1)		**Source: 21H0207-02**		Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 15:24							
Mercury, Dissolved	0.000863	0.000013	0.000100	mg/L	0.00100	ND	86.2	75-125	5.01	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											

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Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJH0642 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0642-BLK1)					Prepared: 25-Aug-2021 Analyzed: 25-Aug-2021 17:01							
Barium, Dissolved	135	ND	0.114	0.500	ug/L							U
Barium, Dissolved	137	ND	0.0765	0.500	ug/L							U
Chromium, Dissolved	52	ND	0.260	0.500	ug/L							U
Chromium, Dissolved	53	ND	0.239	0.500	ug/L							U
Iron, Dissolved	54	ND	18.2	36.0	ug/L							U
Iron, Dissolved	57	ND	6.63	20.0	ug/L							U
Lead, Dissolved	208	ND	0.0513	0.100	ug/L							U
Manganese, Dissolved	55	ND	0.142	0.500	ug/L							U
Silver, Dissolved	107	ND	0.0220	0.200	ug/L							U
Vanadium, Dissolved	51a	ND	0.0556	0.200	ug/L							U
Vanadium, Dissolved	51b	ND	0.0521	0.200	ug/L							U
Arsenic, Dissolved	75a	ND	0.0373	0.200	ug/L							U
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L							U
Cadmium, Dissolved	114	ND	0.0400	0.100	ug/L							U
Cobalt, Dissolved	59	ND	0.0178	0.200	ug/L							U
Copper, Dissolved	63	ND	0.173	0.500	ug/L							U
Copper, Dissolved	65	ND	0.350	0.500	ug/L							U
Nickel, Dissolved	60	ND	0.0792	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
Selenium, Dissolved	78	ND	0.179	0.500	ug/L							U
Zinc, Dissolved	66	ND	2.92	6.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	6.00	ug/L							U
LCS (BJH0642-BS1)					Prepared: 25-Aug-2021 Analyzed: 25-Aug-2021 17:05							
Barium, Dissolved	135	24.5	0.114	0.500	ug/L	25.0		97.9	80-120			
Barium, Dissolved	137	24.6	0.0765	0.500	ug/L	25.0		98.6	80-120			
Chromium, Dissolved	52	24.6	0.260	0.500	ug/L	25.0		98.6	80-120			
Chromium, Dissolved	53	24.5	0.239	0.500	ug/L	25.0		98.1	80-120			
Iron, Dissolved	54	4890	18.2	36.0	ug/L	5000		97.8	80-120			
Iron, Dissolved	57	4910	6.63	20.0	ug/L	5000		98.3	80-120			
Lead, Dissolved	208	24.1	0.0513	0.100	ug/L	25.0		96.5	80-120			
Manganese, Dissolved	55	25.4	0.142	0.500	ug/L	25.0		102	80-120			
Silver, Dissolved	107	24.8	0.0220	0.200	ug/L	25.0		99.2	80-120			
Vanadium, Dissolved	51a	24.6	0.0556	0.200	ug/L	25.0		98.3	80-120			
Vanadium, Dissolved	51b	24.5	0.0521	0.200	ug/L	25.0		98.2	80-120			

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Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJH0642 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0642-BS1)						Prepared: 25-Aug-2021 Analyzed: 25-Aug-2021 17:05						
Arsenic, Dissolved	75a	23.7	0.0373	0.200	ug/L	25.0		94.8	80-120			
Cadmium, Dissolved	111	23.8	0.0300	0.100	ug/L	25.0		95.3	80-120			
Cadmium, Dissolved	114	24.2	0.0400	0.100	ug/L	25.0		97.0	80-120			
Cobalt, Dissolved	59	23.6	0.0178	0.200	ug/L	25.0		94.3	80-120			
Copper, Dissolved	63	23.7	0.173	0.500	ug/L	25.0		94.9	80-120			
Copper, Dissolved	65	23.7	0.350	0.500	ug/L	25.0		94.7	80-120			
Nickel, Dissolved	60	23.6	0.0792	0.500	ug/L	25.0		94.5	80-120			
Nickel, Dissolved	62	23.7	0.220	0.500	ug/L	25.0		94.7	80-120			
Selenium, Dissolved	78	71.9	0.179	0.500	ug/L	80.0		89.9	80-120			
Zinc, Dissolved	66	71.2	2.92	6.00	ug/L	80.0		89.0	80-120			
Zinc, Dissolved	67	67.8	0.940	6.00	ug/L	80.0		84.7	80-120			

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Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Wet Chemistry - Quality Control

Batch BJH0452 - SM 5310 A-00, 0.45um filtration

Instrument: UV1800-2 Analyst: DOE

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0452-BLK1)				Prepared: 18-Aug-2021 Analyzed: 18-Aug-2021 10:57							
Hexavalent Chromium	ND	0.013	0.013	mg/L							U
LCS (BJH0452-BS1)				Prepared: 18-Aug-2021 Analyzed: 18-Aug-2021 10:57							
Hexavalent Chromium	0.627	0.013	0.013	mg/L	0.625		100	85-115			D
Duplicate (BJH0452-DUP1)		**Source: 21H0207-01**		Prepared: 18-Aug-2021 Analyzed: 18-Aug-2021 11:00							
Hexavalent Chromium	ND	0.013	0.013	mg/L		ND					U
Matrix Spike (BJH0452-MS1)		**Source: 21H0207-01**		Prepared: 18-Aug-2021 Analyzed: 18-Aug-2021 11:01							
Hexavalent Chromium	0.016	0.013	0.013	mg/L	0.0625	ND	25.7	85-115			*, K, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Post Spike (BJH0452-PS1)		**Source: 21H0207-01**		Prepared: 18-Aug-2021 Analyzed: 18-Aug-2021 11:15							
Hexavalent Chromium	0.007			mg/L	0.0395	ND	-19.8	85-115			*

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Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Silver-107	WADOE,WA-DW,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Silver-107	WA-DW,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
EPA 6020B UCT-KED in Water	
Arsenic-75a	WADOE,WA-DW,DoD-ELAP,ADEC,NELAP
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	NELAP,DoD-ELAP,WADOE
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Zinc-66	WADOE,WA-DW,DoD-ELAP
Zinc-67	WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC

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Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	DoD-ELAP,NELAP,WADOE
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP

EPA 7470A in Water

Mercury	WADOE,NELAP,DoD-ELAP
Mercury	WADOE,NELAP,DoD-ELAP

EPA 8082A in Water

Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC

EPA 8270E in Water

Phenol	NELAP,DoD-ELAP
bis(2-chloroethyl) ether	NELAP,DoD-ELAP
2-Chlorophenol	NELAP,DoD-ELAP
1,3-Dichlorobenzene	NELAP,DoD-ELAP
1,4-Dichlorobenzene	NELAP,DoD-ELAP

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

1,2-Dichlorobenzene	NELAP,DoD-ELAP
Benzyl Alcohol	NELAP,DoD-ELAP
2,2'-Oxybis(1-chloropropane)	NELAP,DoD-ELAP
2-Methylphenol	NELAP,DoD-ELAP
Hexachloroethane	NELAP,DoD-ELAP
N-Nitroso-di-n-Propylamine	NELAP,DoD-ELAP
4-Methylphenol	NELAP,DoD-ELAP
Nitrobenzene	NELAP,DoD-ELAP
Isophorone	NELAP,DoD-ELAP
2-Nitrophenol	NELAP,DoD-ELAP
2,4-Dimethylphenol	NELAP,DoD-ELAP
Bis(2-Chloroethoxy)methane	NELAP,DoD-ELAP
2,4-Dichlorophenol	NELAP,DoD-ELAP
1,2,4-Trichlorobenzene	NELAP,DoD-ELAP
Naphthalene	NELAP,DoD-ELAP
Benzoic acid	NELAP,DoD-ELAP
4-Chloroaniline	NELAP,DoD-ELAP
Hexachlorobutadiene	NELAP,DoD-ELAP
4-Chloro-3-Methylphenol	NELAP,DoD-ELAP
2-Methylnaphthalene	NELAP,DoD-ELAP
Hexachlorocyclopentadiene	NELAP,DoD-ELAP
2,4,6-Trichlorophenol	NELAP,DoD-ELAP
2,4,5-Trichlorophenol	NELAP,DoD-ELAP
2-Chloronaphthalene	NELAP,DoD-ELAP
2-Nitroaniline	NELAP,DoD-ELAP
Acenaphthylene	NELAP,DoD-ELAP
Dimethylphthalate	NELAP,DoD-ELAP
2,6-Dinitrotoluene	NELAP,DoD-ELAP
Acenaphthene	NELAP,DoD-ELAP
3-Nitroaniline	NELAP,DoD-ELAP
2,4-Dinitrophenol	NELAP,DoD-ELAP
Dibenzofuran	NELAP,DoD-ELAP
4-Nitrophenol	NELAP,DoD-ELAP
2,4-Dinitrotoluene	NELAP,DoD-ELAP
Fluorene	NELAP,DoD-ELAP
4-Chlorophenylphenyl ether	NELAP,DoD-ELAP
Diethyl phthalate	NELAP,DoD-ELAP
4-Nitroaniline	NELAP,DoD-ELAP
4,6-Dinitro-2-methylphenol	NELAP,DoD-ELAP

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

N-Nitrosodiphenylamine	NELAP,DoD-ELAP
4-Bromophenyl phenyl ether	NELAP,DoD-ELAP
Hexachlorobenzene	NELAP,DoD-ELAP
Pentachlorophenol	NELAP,DoD-ELAP
Phenanthrene	NELAP,DoD-ELAP
Anthracene	NELAP,DoD-ELAP
Carbazole	NELAP,DoD-ELAP
Di-n-Butylphthalate	NELAP,DoD-ELAP
Fluoranthene	NELAP,DoD-ELAP
Pyrene	NELAP,DoD-ELAP
Butylbenzylphthalate	NELAP,DoD-ELAP
Benzo(a)anthracene	NELAP,DoD-ELAP
3,3'-Dichlorobenzidine	NELAP,DoD-ELAP
Chrysene	NELAP,DoD-ELAP
bis(2-Ethylhexyl)phthalate	NELAP,DoD-ELAP
Di-n-Octylphthalate	NELAP,DoD-ELAP
Benzo(b)fluoranthene	NELAP,DoD-ELAP
Benzo(k)fluoranthene	NELAP,DoD-ELAP
Benzofluoranthenes, Total	NELAP
Benzo(a)pyrene	NELAP,DoD-ELAP
Indeno(1,2,3-cd)pyrene	NELAP,DoD-ELAP
Dibenzo(a,h)anthracene	NELAP,DoD-ELAP
Benzo(g,h,i)perylene	NELAP,DoD-ELAP
N-Nitrosodimethylamine	NELAP,DoD-ELAP
1-Methylnaphthalene	NELAP,DoD-ELAP

EPA 8270E-SIM in Water

Naphthalene	ADEC,DoD-ELAP,NELAP,WADOE
2-Methylnaphthalene	ADEC,DoD-ELAP,NELAP
1-Methylnaphthalene	ADEC,DoD-ELAP,NELAP,WADOE
Biphenyl	NELAP
Acenaphthylene	ADEC,DoD-ELAP,NELAP,WADOE
Acenaphthene	ADEC,DoD-ELAP,NELAP,WADOE
Dibenzofuran	ADEC,DoD-ELAP,NELAP
Fluorene	ADEC,DoD-ELAP,NELAP,WADOE
Phenanthrene	ADEC,DoD-ELAP,NELAP,WADOE
Anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Carbazole	NELAP
Fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Pyrene	ADEC,DoD-ELAP,NELAP,WADOE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Benzo(a)anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Chrysene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(b)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(k)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(j)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(e)pyrene	NELAP
Benzo(a)pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Perylene	ADEC,NELAP
Indeno(1,2,3-cd)pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Dibenzo(a,h)anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(g,h,i)perylene	ADEC,DoD-ELAP,NELAP,WADOE

NWTPH-Dx in Water

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

SM 3500-Cr B-09 in Water

Hexavalent Chromium	WADOE,NELAP

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 13:32

Notes and Definitions

*	Flagged value is not within established control limits.
B	This analyte was detected in the method blank.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
J	Estimated concentration value detected below the reporting limit.
K	Hexavalent Chromium post spike performed on a pH adjusted sample to verify matrix interference.
M	Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
Y1	Raised reporting limit due to interference
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

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Analytical Resources, Incorporated
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06 September 2021

Meg Strong
Shannon & Wilson, Inc
400 N 34th St., Suite 100
Seattle, WA 98103-8636

RE: Lower Duwamish Q3

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
21H0209	N/A

Shelly Fishel
Digitally signed by Shelly Fishel
Date: 2021.09.07 12:54:32 -07'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Shelly Fishel, Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21H0209	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: Shannon & Wilson	Phone: 206-695-6811	Date: 8/17/21	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 1	Cooler Temps: 12.2
Client Project Name: Lower Duwamish			
Client Project #: 21-1-12596-012	Samplers: DES, MED		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	TPH-Dx	(MED 8/17) ~~8TEX~~	(MED 8/17) HVOCs	SVOCs	PCBs	Total Metals	Diss. lvad Metals	Hardness	Notes/Comments
MW-68-20211708	8/17/21	4:10 PM	H_2O	~~3~~ (MED 8/17) 8	✓	X	X	✓	✓	✓	✓	✓	
MW-76-20211708	↓	12:40	↓	~~3~~ (MED 8/17) 8	✓			✓		✓	✓		Test for PAHs.

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: DANIEL SCHWICHT	Printed Name: Jacob Leth	Printed Name:	Printed Name:
	Company:	Company: ARI	Company:	Company:
	Date & Time: 17-AUG-2021 1737	Date & Time: 08/17/2021 1737	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-68-20211708	21H0209-01	Water	17-Aug-2021 16:10	17-Aug-2021 17:37
MW-68-20211708	21H0209-02	Water	17-Aug-2021 16:10	17-Aug-2021 17:37
MW-76-20211708	21H0209-03	Water	17-Aug-2021 12:40	17-Aug-2021 17:37
MW-76-20211708	21H0209-04	Water	17-Aug-2021 12:40	17-Aug-2021 17:37

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish Q3
Work Order: 21H0209

Sample receipt

Samples as listed on the preceding page were received 17-Aug-2021 17:37 under ARI work order 21H0209. For details regarding sample receipt, please refer to the Cooler Receipt Form.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except Tetrachlorometaxylene which was out of control low in sample 21H0209-01, the method blank, blank spike and blank spike duplicate and have been flagged.

The method blank(s) were clean at the reporting limits.

The blank spike/blank spike duplicate (BS/BSD aka LCS/LCSD) percent recoveries and relative percent difference (RPD) were within control limits except Aroclor 1016 RPD which has been flagged.

Semivolatiles - EPA Method SW8270E

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements except 2,4-Dinitrophenol, Pentachlorophenol and 3,3-Dichlorobenzene which were out of control low and Fluoroanthene which was out of control high. All samples which contain analyte have been flagged with a "Q" qualifier.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except Phenol-d5 which was out of control low in the method blank and has been flagged.

The method blank(s) were clean at the reporting limits.

The blank spike/blank spike duplicate (BS/BSD aka LCS/LCSD) percent recoveries were within control limits except 4-Chloroaniline which was out of control low and has been flagged. The BS/ BSD relative percent difference (RPD) were

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

within control limits.

Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The blank spike/blank spike duplicate (BS/BSD aka LCS/LCSD) percent recoveries and relative percent difference (RPD) were within control limits.

Total and Dissolved Metals - EPA Method 6020B

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits except Total Manganese. All sample which contain analyte have been flagged with a "B" qualifier.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0209-04 in Dissolved Metals batch BJH0642. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Total Metals - EPA Method 6010D/Hardness

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Sample specific QC was performed in association with sample 21H0209-01 in batch BJH0699. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Total Mercury - EPA Method 7470/7471

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/18/2021 9:40:45AM

WORK ORDER

21H0209

Client: Shannon & Wilson, Inc **Project Manager:** Shelly Fishel

Project: Lower Duwamish Q3 **Project Number:** Lower Duwamish

Preservation Confirmation

Container ID	Container Type	pH	
21H0209-01 A	Glass NM, Amber, 1000 mL		
21H0209-01 B	Glass NM, Amber, 1000 mL		
21H0209-01 C	Glass NM, Amber, 500 mL		
21H0209-01 D	Glass NM, Amber, 500 mL		
21H0209-01 E	Glass NM, Amber, 500 mL		
21H0209-01 F	Glass NM, Amber, 500 mL		
21H0209-01 G	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0209-02 A	HDPE NM, 500 mL	>2	Fail
21H0209-03 A	Glass NM, Amber, 500 mL		
21H0209-03 B	Glass NM, Amber, 500 mL		
21H0209-03 C	Glass NM, Amber, 500 mL		
21H0209-03 D	Glass NM, Amber, 500 mL		
21H0209-03 E	Glass NM, Amber, 500 mL		
21H0209-03 F	Glass NM, Amber, 500 mL		
21H0209-03 G	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0209-04 A	HDPE NM, 500 mL	>2	Fail

Preservation Confirmed By

08/18/2021
Date

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Shannon Hillsan Project Name: Lower Duwamish

COC No(s): _____ NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 21H0209 Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1737 12.2 ____ ____ ____ ____ ____ ____

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D00 5006

Cooler Accepted by: JS Date: 08/17/2021 Time: 1737

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	YES	NO
How were bottles sealed in plastic bags?	Individually	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA	_____	

Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JS Date: 08/18/2021 Time: 0934 Labels checked by: JS

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Temperature Compliance Form

ARI Work Order: 21H0209

Cooler#: _____ **Temperature(°C):** 18.2

Sample ID	Bottle Count	Bottle Type
Samples received above 6°C		

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Completed by: _____ Date: 08/17/2021 Time: 1737

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/18/2021 9:40:45AM

WORK ORDER

21H0209

Client: Shannon & Wilson, Inc
Project Manager: Shelly Fishel
Project: Lower Duwamish Q3
Project Number: Lower Duwamish

Preservation Confirmation

Container ID	Container Type	pH	
21H0209-01 A	Glass NM, Amber, 1000 mL		
21H0209-01 B	Glass NM, Amber, 1000 mL		
21H0209-01 C	Glass NM, Amber, 500 mL		
21H0209-01 D	Glass NM, Amber, 500 mL		
21H0209-01 E	Glass NM, Amber, 500 mL		
21H0209-01 F	Glass NM, Amber, 500 mL		
21H0209-01 G	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0209-02 A	HDPE NM, 500 mL	>2	Fail ①
21H0209-03 A	Glass NM, Amber, 500 mL		
21H0209-03 B	Glass NM, Amber, 500 mL		
21H0209-03 C	Glass NM, Amber, 500 mL		
21H0209-03 D	Glass NM, Amber, 500 mL		
21H0209-03 E	Glass NM, Amber, 500 mL		
21H0209-03 F	Glass NM, Amber, 500 mL		
21H0209-03 G	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0209-04 A	HDPE NM, 500 mL	>2	Fail ①

Preservation Confirmed By

08/18/2021
Date

① Filtered at 0.45 um and preserved to pH <2.0 with 0.75ml conc. HNO_3 (J1647). MI 08118121

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-68-20211708

21H0209-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/17/2021 16:10

Instrument: NT10 Analyst: VTS — Analyzed: 08/28/2021 13:39

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0209-01 C 01

Preparation Batch: BJH0468 — Sample Size: 1000 mL

Prepared: 08/19/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	0.01	0.2	0.04	ug/L	J
bis(2-chloroethyl) ether	111-44-4	1	0.03	0.2	ND	ug/L	U
2-Chlorophenol	95-57-8	1	0.03	0.2	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.03	0.2	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	0.02	0.2	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	0.03	0.2	ND	ug/L	U
2-Methylphenol	95-48-7	1	0.03	0.2	ND	ug/L	U
Hexachloroethane	67-72-1	1	0.04	0.2	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	0.04	0.2	ND	ug/L	U
4-Methylphenol	106-44-5	1	0.03	0.2	ND	ug/L	U
Nitrobenzene	98-95-3	1	0.03	0.2	ND	ug/L	U
Isophorone	78-59-1	1	0.03	0.2	ND	ug/L	U
2-Nitrophenol	88-75-5	1	0.04	1.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	0.03	0.2	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	0.1	1.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.03	0.2	ND	ug/L	U
Naphthalene	91-20-3	1	0.03	0.2	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	0.3	ug/L	J
4-Chloroaniline	106-47-8	1	0.04	1.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	0.04	0.2	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	0.1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.03	0.2	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	0.1	1.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	0.2	1.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	0.1	1.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	0.03	0.2	ND	ug/L	U
2-Nitroaniline	88-74-4	1	0.2	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.02	0.2	ND	ug/L	U
Dimethylphthalate	131-11-3	1	0.04	0.2	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.03	0.2	0.04	ug/L	J
3-Nitroaniline	99-09-2	1	0.2	1.0	ND	ug/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-68-20211708

21H0209-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/17/2021 16:10

Instrument: NT10 Analyst: VTS — Analyzed: 08/28/2021 13:39

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	0.2	2.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.02	0.2	ND	ug/L	U
4-Nitrophenol	100-02-7	1	0.06	1.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	0.1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.02	0.2	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	0.02	0.2	ND	ug/L	U
Diethyl phthalate	84-66-2	1	0.06	0.2	0.1	ug/L	J
4-Nitroaniline	100-01-6	1	0.2	1.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	0.4	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	0.02	0.2	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	0.04	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.02	0.2	ND	ug/L	U
Anthracene	120-12-7	1	0.03	0.2	ND	ug/L	U
Carbazole	86-74-8	1	0.04	0.2	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Fluoranthene	206-44-0	1	0.03	0.2	ND	ug/L	U
Pyrene	129-00-0	1	0.03	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.04	0.2	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	0.3	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.04	0.2	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	0.05	0.2	ND	ug/L	U
Benzofluoranthenes, Total		1	0.08	0.4	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.05	0.2	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.06	0.2	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.07	0.2	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.04	0.2	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.03	0.2	ND	ug/L	U
Surrogate: 2-Fluorophenol				*30-160 %*	*46.5*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*30.7*	*%*	
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*84.7*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*68.8*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*86.3*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*86.0*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-68-20211708

21H0209-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/17/2021 16:10

Instrument: NT10 Analyst: VTS — Analyzed: 08/28/2021 13:39

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 2,4,6-Tribromophenol		*30-160 %*	*96.9*	*%*	
Surrogate: p-Terphenyl-d14		*30-160 %*	*95.8*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-68-20211708

21H0209-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/17/2021 16:10
Instrument: FID4 Analyst: TWC/CTO — Analyzed: 09/03/2021 13:15

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0209-01 E 01
Preparation Batch: BJH0472 — Sample Size: 500 mL
Prepared: 08/18/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	1.01	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	0.618	mg/L	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*75.6*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-68-20211708

21H0209-01 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/17/2021 16:10
Instrument: ECD7 Analyst: JGR — Analyzed: 09/02/2021 23:31

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0209-01 A 01
	Preparation Batch: BJH0467	Sample Size: 1000 mL	
	Prepared: 08/20/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0209-01 A 01
	Cleanup Batch: CJI0003	Initial Volume: 0.5 mL	
	Cleaned: 01-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0209-01 A 01
	Cleanup Batch: CJI0001	Initial Volume: 0.5 mL	
	Cleaned: 01-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0209-01 A 01
	Cleanup Batch: CJI0002	Initial Volume: 0.5 mL	
	Cleaned: 01-Sep-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*66.4*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*10.8*	*%*	*
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*59.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*10.6*	*%*	*

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Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-68-20211708

21H0209-01 (Water)

Metals and Metallic Compounds

Method: EPA 6010D — Sampled: 08/17/2021 16:10

Instrument: ICP2 Analyst: MVP — Analyzed: 08/30/2021 14:35

Sample Preparation: Preparation Method: TWC EPA 3010A — Extract ID: 21H0209-01 G 02

Preparation Batch: BJH0699 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Calcium	7440-70-2	1	0.0220	0.0500	29.1	mg/L	
Magnesium	7439-95-4	1	0.0209	0.0500	19.3	mg/L	

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MW-68-20211708

21H0209-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/17/2021 16:10

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/27/2021 18:47

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0209-01 G 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	2	0.228	1.00	12.2	ug/L	D
Chromium	7440-47-3	2	0.520	1.00	5.10	ug/L	D
Iron	7439-89-6	2	36.4	72.0	5860	ug/L	D
Lead	7439-92-1	2	0.103	0.200	1.18	ug/L	D
Manganese	7439-96-5	20	2.84	10.0	2500	ug/L	B, D
Silver	7440-22-4	2	0.0440	0.400	ND	ug/L	U
Vanadium	7440-62-2	2	0.111	0.400	34.2	ug/L	D

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MW-68-20211708

21H0209-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/17/2021 16:10
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/27/2021 18:47

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0209-01 G 01
Preparation Batch: BJH0670 — Sample Size: 25 mL
Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.0746	0.400	6.31	ug/L	D
Cadmium	7440-43-9	2	0.0600	0.200	0.0940	ug/L	J, D
Cobalt	7440-48-4	2	0.0356	0.400	1.50	ug/L	D
Copper	7440-50-8	2	0.346	1.00	5.93	ug/L	D
Nickel	7440-02-0	2	0.158	1.00	5.76	ug/L	D
Selenium	7782-49-2	2	0.358	1.00	0.608	ug/L	J, D
Zinc	7440-66-6	2	5.84	12.0	19.6	ug/L	D

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MW-68-20211708

21H0209-01 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/17/2021 16:10
Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 14:40

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0209-01 G
Preparation Batch: BJH0598 — Sample Size: 20 mL
Prepared: 08/24/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	0.000021	mg/L	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-68-20211708

21H0209-01 (Water)

Metals and Metallic Compounds

Method: SM 2340 B-97 — Sampled: 08/17/2021 16:10

Instrument: [CALC] Analyst: MVP — Analyzed: 08/30/2021 14:35

Sample Preparation: Preparation Method: [CALC] — Extract ID: 21H0209-01

Preparation Batch: [CALC]

Prepared: 08/26/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Hardness		1		152	mg/L CaCO3	

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MW-68-20211708

21H0209-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/17/2021 16:10
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/25/2021 22:46

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0209-02 A 01
Preparation Batch: BJH0642 — Sample Size: 25 mL — Filtration Batch: BJH0459
Prepared: 08/25/2021 — Final Volume: 25 mL — Filtration Date: 08/18/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	2	0.228	1.00	11.3	ug/L	D
Chromium, Dissolved	7440-47-3	2	0.520	1.00	5.08	ug/L	D
Iron, Dissolved	7439-89-6	20	133	400	5380	ug/L	D
Lead, Dissolved	7439-92-1	2	0.103	0.200	0.752	ug/L	D
Manganese, Dissolved	7439-96-5	20	2.84	10.0	2420	ug/L	D
Silver, Dissolved	7440-22-4	2	0.0440	0.400	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	2	0.111	0.400	36.0	ug/L	D

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Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-68-20211708

21H0209-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/17/2021 16:10
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/25/2021 22:46

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0209-02 A 01
Preparation Batch: BJH0642 — Sample Size: 25 mL — Filtration Batch: BJH0459
Prepared: 08/25/2021 — Final Volume: 25 mL — Filtration Date: 08/18/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	2	0.0746	0.400	5.84	ug/L	D
Cadmium, Dissolved	7440-43-9	2	0.0600	0.200	0.0820	ug/L	J, D
Cobalt, Dissolved	7440-48-4	2	0.0356	0.400	1.24	ug/L	D
Copper, Dissolved	7440-50-8	2	0.346	1.00	4.43	ug/L	D
Nickel, Dissolved	7440-02-0	2	0.158	1.00	5.05	ug/L	D
Selenium, Dissolved	7782-49-2	2	0.358	1.00	0.628	ug/L	J, D
Zinc, Dissolved	7440-66-6	2	5.84	12.0	17.6	ug/L	D

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Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-68-20211708

21H0209-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/17/2021 16:10
Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 15:29

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0209-02 A 03
Preparation Batch: BJH0599 — Sample Size: 20 mL — Filtration Batch: BJH0459
Prepared: 08/24/2021 — Final Volume: 20 mL — Filtration Date: 08/18/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	0.000024	mg/L	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-76-20211708

21H0209-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/17/2021 12:40

Instrument: NT10 Analyst: VTS — Analyzed: 08/28/2021 14:17

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0209-03 A 01

Preparation Batch: BJH0468 — Sample Size: 1000 mL

Prepared: 08/19/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	0.01	0.2	0.02	ug/L	J
bis(2-chloroethyl) ether	111-44-4	1	0.03	0.2	ND	ug/L	U
2-Chlorophenol	95-57-8	1	0.03	0.2	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.03	0.2	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	0.02	0.2	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	0.03	0.2	ND	ug/L	U
2-Methylphenol	95-48-7	1	0.03	0.2	ND	ug/L	U
Hexachloroethane	67-72-1	1	0.04	0.2	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	0.04	0.2	ND	ug/L	U
4-Methylphenol	106-44-5	1	0.03	0.2	ND	ug/L	U
Nitrobenzene	98-95-3	1	0.03	0.2	ND	ug/L	U
Isophorone	78-59-1	1	0.03	0.2	ND	ug/L	U
2-Nitrophenol	88-75-5	1	0.04	1.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	0.03	0.2	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	0.1	1.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.03	0.2	ND	ug/L	U
Naphthalene	91-20-3	1	0.03	0.2	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	0.04	1.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	0.04	0.2	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	0.1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.03	0.2	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	0.1	1.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	0.2	1.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	0.1	1.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	0.03	0.2	ND	ug/L	U
2-Nitroaniline	88-74-4	1	0.2	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.02	0.2	ND	ug/L	U
Dimethylphthalate	131-11-3	1	0.04	0.2	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.03	0.2	0.4	ug/L	
3-Nitroaniline	99-09-2	1	0.2	1.0	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-76-20211708

21H0209-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/17/2021 12:40

Instrument: NT10 Analyst: VTS — Analyzed: 08/28/2021 14:17

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	0.2	2.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.02	0.2	ND	ug/L	U
4-Nitrophenol	100-02-7	1	0.06	1.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	0.1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.02	0.2	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	0.02	0.2	ND	ug/L	U
Diethyl phthalate	84-66-2	1	0.06	0.2	ND	ug/L	U
4-Nitroaniline	100-01-6	1	0.2	1.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	0.4	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	0.02	0.2	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	0.04	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.02	0.2	0.3	ug/L	
Anthracene	120-12-7	1	0.03	0.2	ND	ug/L	U
Carbazole	86-74-8	1	0.04	0.2	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Fluoranthene	206-44-0	1	0.03	0.2	ND	ug/L	U
Pyrene	129-00-0	1	0.03	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.04	0.2	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	0.3	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.04	0.2	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	0.05	0.2	ND	ug/L	U
Benzofluoranthenes, Total		1	0.08	0.4	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.05	0.2	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.06	0.2	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.07	0.2	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.04	0.2	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.03	0.2	ND	ug/L	U
Surrogate: 2-Fluorophenol				*30-160 %*	*47.5*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*30.2*	*%*	
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*80.6*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*66.3*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*83.1*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*77.1*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-76-20211708

21H0209-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/17/2021 12:40

Instrument: NT10 Analyst: VTS — Analyzed: 08/28/2021 14:17

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 2,4,6-Tribromophenol		*30-160 %*	*98.3*	*%*	
Surrogate: p-Terphenyl-d14		*30-160 %*	*98.1*	*%*	

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Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-76-20211708

21H0209-03 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/17/2021 12:40
Instrument: NT11 Analyst: VTS — Analyzed: 09/01/2021 15:31

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0209-03 C 01
Preparation Batch: BJH0469 — Sample Size: 500 mL
Prepared: 08/19/2021 — Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 21H0209-03 C 01
Cleanup Batch: CJH0298 — Initial Volume: 0.5 mL
Cleaned: 31-Aug-2021 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.003	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	0.424	ug/L	
Dibenzofuran	132-64-9	1	0.002	0.010	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.010	0.007	ug/L	J
Phenanthrene	85-01-8	1	0.001	0.010	0.287	ug/L	
Anthracene	120-12-7	1	0.001	0.010	0.011	ug/L	
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	0.007	ug/L	J
Pyrene	129-00-0	1	0.001	0.010	0.004	ug/L	J
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*77.7*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*72.3*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*89.0*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-76-20211708

21H0209-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/17/2021 12:40
Instrument: FID4 Analyst: TWC/CTO — Analyzed: 09/03/2021 13:35

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0209-03 E 01
Preparation Batch: BJH0472 — Sample Size: 500 mL
Prepared: 08/18/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*74.6*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-76-20211708

21H0209-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/17/2021 12:40

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/27/2021 18:52

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0209-03 G 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.114	0.500	5.50	ug/L	
Chromium	7440-47-3	2	0.520	1.00	ND	ug/L	U
Iron	7439-89-6	2	36.4	72.0	16400	ug/L	D
Lead	7439-92-1	1	0.0513	0.100	0.0610	ug/L	J
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium	7440-62-2	2	0.111	0.400	1.71	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-76-20211708

21H0209-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/17/2021 12:40

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/27/2021 18:52

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0209-03 G 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	0.999	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt	7440-48-4	1	0.0178	0.200	0.222	ug/L	
Copper	7440-50-8	1	0.173	0.500	0.491	ug/L	J
Nickel	7440-02-0	1	0.0792	0.500	0.197	ug/L	J
Selenium	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-76-20211708

21H0209-03 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/17/2021 12:40
Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 14:47

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0209-03 G
Preparation Batch: BJH0598 — Sample Size: 20 mL
Prepared: 08/24/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	0.000016	mg/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-76-20211708

21H0209-03RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/17/2021 12:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/30/2021 18:04

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0209-03RE1 G 01
Preparation Batch: BJH0670 — Sample Size: 25 mL
Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	5	0.710	2.50	591	ug/L	B, D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-76-20211708

21H0209-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/17/2021 12:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/25/2021 22:51

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0209-04 A 01
Preparation Batch: BJH0642 — Sample Size: 25 mL — Filtration Batch: BJH0459
Prepared: 08/25/2021 — Final Volume: 25 mL — Filtration Date: 08/18/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.114	0.500	1.24	ug/L	
Chromium, Dissolved	7440-47-3	1	0.260	0.500	ND	ug/L	U
Iron, Dissolved	7439-89-6	5	91.0	180	281	ug/L	D
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	5	0.710	2.50	529	ug/L	D
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0556	0.200	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-76-20211708

21H0209-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/17/2021 12:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/25/2021 22:51

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0209-04 A 01
Preparation Batch: BJH0642 — Sample Size: 25 mL — Filtration Batch: BJH0459
Prepared: 08/25/2021 — Final Volume: 25 mL — Filtration Date: 08/18/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.351	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	0.116	ug/L	J
Copper, Dissolved	7440-50-8	1	0.173	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	ND	ug/L	U
Selenium, Dissolved	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

MW-76-20211708

21H0209-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/17/2021 12:40
Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 15:31

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0209-04 A 03
Preparation Batch: BJH0599 — Sample Size: 20 mL — Filtration Batch: BJH0459
Prepared: 08/24/2021 — Final Volume: 20 mL — Filtration Date: 08/18/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	0.000021	mg/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Semivolatile Organic Compounds - Quality Control

Batch BJH0468 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0468-BLK1)				Prepared: 19-Aug-2021 Analyzed: 28-Aug-2021 10:29							
Phenol	0.02	0.01	0.2	ug/L							J
bis(2-chloroethyl) ether	ND	0.03	0.2	ug/L							U
2-Chlorophenol	ND	0.03	0.2	ug/L							U
1,3-Dichlorobenzene	ND	0.03	0.2	ug/L							U
1,4-Dichlorobenzene	ND	0.03	0.2	ug/L							U
1,2-Dichlorobenzene	ND	0.03	0.2	ug/L							U
Benzyl Alcohol	ND	0.02	0.2	ug/L							U
2,2'-Oxybis(1-chloropropane)	ND	0.03	0.2	ug/L							U
2-Methylphenol	ND	0.03	0.2	ug/L							U
Hexachloroethane	ND	0.04	0.2	ug/L							U
N-Nitroso-di-n-Propylamine	ND	0.04	0.2	ug/L							U
4-Methylphenol	ND	0.03	0.2	ug/L							U
Nitrobenzene	ND	0.03	0.2	ug/L							U
Isophorone	ND	0.03	0.2	ug/L							U
2-Nitrophenol	ND	0.04	1.0	ug/L							U
2,4-Dimethylphenol	ND	0.3	1.0	ug/L							U
Bis(2-Chloroethoxy)methane	ND	0.03	0.2	ug/L							U
2,4-Dichlorophenol	ND	0.1	1.0	ug/L							U
1,2,4-Trichlorobenzene	ND	0.03	0.2	ug/L							U
Naphthalene	ND	0.03	0.2	ug/L							U
Benzoic acid	ND	0.1	2.0	ug/L							U
4-Chloroaniline	ND	0.04	1.0	ug/L							U
Hexachlorobutadiene	ND	0.04	0.2	ug/L							U
4-Chloro-3-Methylphenol	ND	0.1	1.0	ug/L							U
2-Methylnaphthalene	ND	0.03	0.2	ug/L							U
Hexachlorocyclopentadiene	ND	0.1	1.0	ug/L							U
2,4,6-Trichlorophenol	ND	0.2	1.0	ug/L							U
2,4,5-Trichlorophenol	ND	0.1	1.0	ug/L							U
2-Chloronaphthalene	ND	0.03	0.2	ug/L							U
2-Nitroaniline	ND	0.2	1.0	ug/L							U
Acenaphthylene	ND	0.02	0.2	ug/L							U
Dimethylphthalate	ND	0.04	0.2	ug/L							U
2,6-Dinitrotoluene	ND	0.2	1.0	ug/L							U
Acenaphthene	ND	0.03	0.2	ug/L							U
3-Nitroaniline	ND	0.2	1.0	ug/L							U

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Semivolatile Organic Compounds - Quality Control

Batch BJH0468 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0468-BLK1)				Prepared: 19-Aug-2021 Analyzed: 28-Aug-2021 10:29							
2,4-Dinitrophenol	ND	0.2	2.0	ug/L							U
Dibenzofuran	ND	0.02	0.2	ug/L							U
4-Nitrophenol	ND	0.06	1.0	ug/L							U
2,4-Dinitrotoluene	ND	0.1	1.0	ug/L							U
Fluorene	ND	0.02	0.2	ug/L							U
4-Chlorophenylphenyl ether	ND	0.02	0.2	ug/L							U
Diethyl phthalate	ND	0.06	0.2	ug/L							U
4-Nitroaniline	ND	0.2	1.0	ug/L							U
4,6-Dinitro-2-methylphenol	ND	0.4	2.0	ug/L							U
N-Nitrosodiphenylamine	ND	0.03	0.2	ug/L							U
4-Bromophenyl phenyl ether	ND	0.02	0.2	ug/L							U
Hexachlorobenzene	ND	0.04	0.2	ug/L							U
Pentachlorophenol	ND	0.1	1.0	ug/L							U
Phenanthrene	ND	0.02	0.2	ug/L							U
Anthracene	ND	0.03	0.2	ug/L							U
Carbazole	ND	0.04	0.2	ug/L							U
Di-n-Butylphthalate	ND	0.05	0.2	ug/L							U
Fluoranthene	ND	0.03	0.2	ug/L							U
Pyrene	ND	0.03	0.2	ug/L							U
Butylbenzylphthalate	ND	0.07	0.2	ug/L							U
Benzo(a)anthracene	ND	0.04	0.2	ug/L							U
3,3'-Dichlorobenzidine	ND	0.3	1.0	ug/L							U
Chrysene	ND	0.04	0.2	ug/L							U
bis(2-Ethylhexyl)phthalate	ND	0.2	0.2	ug/L							U
Di-n-Octylphthalate	ND	0.05	0.2	ug/L							U
Benzofluoranthenes, Total	ND	0.08	0.4	ug/L							U
Benzo(a)pyrene	ND	0.05	0.2	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.06	0.2	ug/L							U
Dibenzo(a,h)anthracene	ND	0.07	0.2	ug/L							U
Benzo(g,h,i)perylene	ND	0.04	0.2	ug/L							U
1-Methylnaphthalene	ND	0.03	0.2	ug/L							U
Surrogate: 2-Fluorophenol	3.43			ug/L	*7.50*		*45.7*	*30-160*			
Surrogate: Phenol-d5	2.10			ug/L	*7.50*		*28.0*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	6.03			ug/L	*7.50*		*80.5*	*30-160*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Semivolatile Organic Compounds - Quality Control

Batch BJH0468 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0468-BLK1)				Prepared: 19-Aug-2021 Analyzed: 28-Aug-2021 10:29							
Surrogate: 1,2-Dichlorobenzene-d4	3.23			ug/L	*5.00*		*64.7*	*30-160*			
Surrogate: Nitrobenzene-d5	3.99			ug/L	*5.00*		*79.8*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.80			ug/L	*5.00*		*75.9*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.83			ug/L	*7.50*		*91.0*	*30-160*			
Surrogate: p-Terphenyl-d14	5.20			ug/L	*5.00*		*104*	*30-160*			
LCS (BJH0468-BS1)				Prepared: 19-Aug-2021 Analyzed: 28-Aug-2021 11:07							
Phenol	1.8	0.01	0.2	ug/L	5.00		35.8	30-160			
bis(2-chloroethyl) ether	4.6	0.03	0.2	ug/L	5.00		91.8	30-160			
2-Chlorophenol	3.9	0.03	0.2	ug/L	5.00		77.1	30-160			
1,3-Dichlorobenzene	3.4	0.03	0.2	ug/L	5.00		67.0	30-160			
1,4-Dichlorobenzene	3.8	0.03	0.2	ug/L	5.00		75.1	30-160			
1,2-Dichlorobenzene	3.4	0.03	0.2	ug/L	5.00		68.8	30-160			
Benzyl Alcohol	2.6	0.02	0.2	ug/L	5.00		52.8	30-160			
2,2'-Oxybis(1-chloropropane)	4.5	0.03	0.2	ug/L	5.00		90.5	30-160			
2-Methylphenol	3.4	0.03	0.2	ug/L	5.00		67.6	30-160			
Hexachloroethane	3.6	0.04	0.2	ug/L	5.00		71.0	30-160			
N-Nitroso-di-n-Propylamine	3.3	0.04	0.2	ug/L	5.00		65.2	30-160			
4-Methylphenol	3.1	0.03	0.2	ug/L	5.00		62.4	30-160			
Nitrobenzene	4.5	0.03	0.2	ug/L	5.00		90.7	30-160			
Isophorone	6.1	0.03	0.2	ug/L	5.00		122	30-160			
2-Nitrophenol	4.5	0.04	1.0	ug/L	5.00		89.5	30-160			
2,4-Dimethylphenol	9.6	0.3	1.0	ug/L	13.0		74.0	30-160			
Bis(2-Chloroethoxy)methane	4.3	0.03	0.2	ug/L	5.00		86.5	30-160			
2,4-Dichlorophenol	11.9	0.1	1.0	ug/L	13.0		91.6	30-160			
1,2,4-Trichlorobenzene	3.3	0.03	0.2	ug/L	5.00		66.9	30-160			
Naphthalene	3.7	0.03	0.2	ug/L	5.00		74.1	30-160			
Benzoic acid	10.1	0.1	2.0	ug/L	23.0		43.9	30-160			
4-Chloroaniline	1.9	0.04	1.0	ug/L	13.0		14.8	30-160			*
Hexachlorobutadiene	3.3	0.04	0.2	ug/L	5.00		66.2	30-160			
4-Chloro-3-Methylphenol	13.5	0.1	1.0	ug/L	13.0		103	30-160			
2-Methylnaphthalene	3.6	0.03	0.2	ug/L	5.00		71.3	30-160			
Hexachlorocyclopentadiene	4.7	0.1	1.0	ug/L	13.0		36.2	30-160			
2,4,6-Trichlorophenol	14.1	0.2	1.0	ug/L	13.0		108	30-160			
2,4,5-Trichlorophenol	14.0	0.1	1.0	ug/L	13.0		108	30-160			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Semivolatile Organic Compounds - Quality Control

Batch BJH0468 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0468-BS1)					Prepared: 19-Aug-2021 Analyzed: 28-Aug-2021 11:07						
2-Chloronaphthalene	4.1	0.03	0.2	ug/L	5.00		83.0	30-160			
2-Nitroaniline	14.4	0.2	1.0	ug/L	13.0		111	30-160			
Acenaphthylene	3.4	0.02	0.2	ug/L	5.00		68.4	30-160			
Dimethylphthalate	4.3	0.04	0.2	ug/L	5.00		86.5	30-160			
2,6-Dinitrotoluene	14.3	0.2	1.0	ug/L	13.0		110	30-160			
Acenaphthene	3.9	0.03	0.2	ug/L	5.00		77.0	30-160			
3-Nitroaniline	10.2	0.2	1.0	ug/L	13.0		78.4	30-160			
2,4-Dinitrophenol	19.2	0.2	2.0	ug/L	23.0		83.5	30-160			Q
Dibenzofuran	3.8	0.02	0.2	ug/L	5.00		75.5	30-160			
4-Nitrophenol	5.4	0.06	1.0	ug/L	13.0		41.2	30-160			
2,4-Dinitrotoluene	14.4	0.1	1.0	ug/L	13.0		111	30-160			
Fluorene	3.9	0.02	0.2	ug/L	5.00		78.2	30-160			
4-Chlorophenylphenyl ether	4.2	0.02	0.2	ug/L	5.00		83.7	30-160			
Diethyl phthalate	4.4	0.06	0.2	ug/L	5.00		87.4	30-160			
4-Nitroaniline	10.7	0.2	1.0	ug/L	13.0		82.4	30-160			
4,6-Dinitro-2-methylphenol	22.8	0.4	2.0	ug/L	23.0		99.0	30-160			
N-Nitrosodiphenylamine	3.7	0.03	0.2	ug/L	5.00		74.4	30-160			
4-Bromophenyl phenyl ether	4.7	0.02	0.2	ug/L	5.00		93.5	30-160			
Hexachlorobenzene	4.4	0.04	0.2	ug/L	5.00		87.8	30-160			
Pentachlorophenol	9.2	0.1	1.0	ug/L	13.0		70.6	30-160			Q
Phenanthrene	3.9	0.02	0.2	ug/L	5.00		77.6	30-160			
Anthracene	3.7	0.03	0.2	ug/L	5.00		74.5	30-160			
Carbazole	3.9	0.04	0.2	ug/L	5.00		78.7	30-160			
Di-n-Butylphthalate	4.6	0.05	0.2	ug/L	5.00		91.5	30-160			
Fluoranthene	5.5	0.03	0.2	ug/L	5.00		109	30-160			Q
Pyrene	5.3	0.03	0.2	ug/L	5.00		106	30-160			
Butylbenzylphthalate	4.9	0.07	0.2	ug/L	5.00		97.8	30-160			
Benzo(a)anthracene	4.2	0.04	0.2	ug/L	5.00		83.3	30-160			
3,3'-Dichlorobenzidine	7.7	0.3	1.0	ug/L	13.0		59.1	30-160			Q
Chrysene	4.0	0.04	0.2	ug/L	5.00		80.1	30-160			
bis(2-Ethylhexyl)phthalate	5.0	0.2	0.2	ug/L	5.00		99.7	30-160			
Di-n-Octylphthalate	4.3	0.05	0.2	ug/L	5.00		86.2	30-160			
Benzofluoranthenes, Total	8.2	0.08	0.4	ug/L	10.0		82.2	30-160			
Benzo(a)pyrene	3.9	0.05	0.2	ug/L	5.00		77.1	30-160			
Indeno(1,2,3-cd)pyrene	4.2	0.06	0.2	ug/L	5.00		84.7	30-160			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Semivolatile Organic Compounds - Quality Control

Batch BJH0468 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0468-BS1)					Prepared: 19-Aug-2021 Analyzed: 28-Aug-2021 11:07						
Dibenzo(a,h)anthracene	4.1	0.07	0.2	ug/L	5.00		82.8	30-160			
Benzo(g,h,i)perylene	4.2	0.04	0.2	ug/L	5.00		83.2	30-160			
1-Methylnaphthalene	3.6	0.03	0.2	ug/L	5.00		71.5	30-160			
Surrogate: 2-Fluorophenol	4.29			ug/L	*7.50*		*57.2*	*30-160*			
Surrogate: Phenol-d5	2.85			ug/L	*7.50*		*38.0*	*30-160*			
Surrogate: 2-Chlorophenol-d4	7.21			ug/L	*7.50*		*96.1*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.66			ug/L	*5.00*		*73.2*	*30-160*			
Surrogate: Nitrobenzene-d5	4.92			ug/L	*5.00*		*98.5*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.44			ug/L	*5.00*		*88.9*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	7.94			ug/L	*7.50*		*106*	*30-160*			
Surrogate: p-Terphenyl-d14	5.74			ug/L	*5.00*		*115*	*30-160*			
LCS Dup (BJH0468-BSD1)					Prepared: 19-Aug-2021 Analyzed: 28-Aug-2021 11:45						
Phenol	1.8	0.01	0.2	ug/L	5.00		36.9	30-160	2.88	30	
bis(2-chloroethyl) ether	4.6	0.03	0.2	ug/L	5.00		93.0	30-160	1.31	30	
2-Chlorophenol	3.9	0.03	0.2	ug/L	5.00		77.4	30-160	0.34	30	
1,3-Dichlorobenzene	3.5	0.03	0.2	ug/L	5.00		69.9	30-160	4.21	30	
1,4-Dichlorobenzene	3.8	0.03	0.2	ug/L	5.00		76.7	30-160	2.07	30	
1,2-Dichlorobenzene	3.5	0.03	0.2	ug/L	5.00		70.3	30-160	2.16	30	
Benzyl Alcohol	2.7	0.02	0.2	ug/L	5.00		54.5	30-160	3.25	30	
2,2'-Oxybis(1-chloropropane)	4.5	0.03	0.2	ug/L	5.00		90.2	30-160	0.39	30	
2-Methylphenol	3.4	0.03	0.2	ug/L	5.00		68.0	30-160	0.69	30	
Hexachloroethane	3.7	0.04	0.2	ug/L	5.00		74.0	30-160	4.08	30	
N-Nitroso-di-n-Propylamine	3.4	0.04	0.2	ug/L	5.00		67.9	30-160	4.08	30	
4-Methylphenol	3.1	0.03	0.2	ug/L	5.00		62.8	30-160	0.57	30	
Nitrobenzene	4.7	0.03	0.2	ug/L	5.00		94.6	30-160	4.17	30	
Isophorone	6.5	0.03	0.2	ug/L	5.00		130	30-160	5.61	30	
2-Nitrophenol	4.8	0.04	1.0	ug/L	5.00		96.2	30-160	7.17	30	
2,4-Dimethylphenol	9.4	0.3	1.0	ug/L	13.0		72.1	30-160	2.52	30	
Bis(2-Chloroethoxy)methane	4.5	0.03	0.2	ug/L	5.00		90.1	30-160	4.12	30	
2,4-Dichlorophenol	11.9	0.1	1.0	ug/L	13.0		91.2	30-160	0.47	30	
1,2,4-Trichlorobenzene	3.5	0.03	0.2	ug/L	5.00		70.0	30-160	4.55	30	
Naphthalene	3.8	0.03	0.2	ug/L	5.00		76.5	30-160	3.17	30	
Benzoic acid	10.0	0.1	2.0	ug/L	23.0		43.6	30-160	0.59	30	
4-Chloroaniline	1.8	0.04	1.0	ug/L	13.0		13.9	30-160	5.96	30	*

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Semivolatile Organic Compounds - Quality Control

Batch BJH0468 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJH0468-BSD1)					Prepared: 19-Aug-2021 Analyzed: 28-Aug-2021 11:45						
Hexachlorobutadiene	3.4	0.04	0.2	ug/L	5.00		67.4	30-160	1.70	30	
4-Chloro-3-Methylphenol	13.8	0.1	1.0	ug/L	13.0		106	30-160	2.57	30	
2-Methylnaphthalene	3.7	0.03	0.2	ug/L	5.00		74.7	30-160	4.67	30	
Hexachlorocyclopentadiene	5.6	0.1	1.0	ug/L	13.0		42.9	30-160	17.10	30	
2,4,6-Trichlorophenol	14.1	0.2	1.0	ug/L	13.0		108	30-160	0.07	30	
2,4,5-Trichlorophenol	13.8	0.1	1.0	ug/L	13.0		106	30-160	1.32	30	
2-Chloronaphthalene	4.3	0.03	0.2	ug/L	5.00		86.6	30-160	4.27	30	
2-Nitroaniline	14.9	0.2	1.0	ug/L	13.0		114	30-160	3.46	30	
Acenaphthylene	3.5	0.02	0.2	ug/L	5.00		70.8	30-160	3.39	30	
Dimethylphthalate	4.4	0.04	0.2	ug/L	5.00		88.9	30-160	2.72	30	
2,6-Dinitrotoluene	14.8	0.2	1.0	ug/L	13.0		114	30-160	3.38	30	
Acenaphthene	4.0	0.03	0.2	ug/L	5.00		80.0	30-160	3.79	30	
3-Nitroaniline	10.3	0.2	1.0	ug/L	13.0		79.1	30-160	0.87	30	
2,4-Dinitrophenol	20.6	0.2	2.0	ug/L	23.0		89.4	30-160	6.86	30	Q
Dibenzofuran	3.9	0.02	0.2	ug/L	5.00		78.8	30-160	4.28	30	
4-Nitrophenol	5.6	0.06	1.0	ug/L	13.0		42.9	30-160	4.10	30	
2,4-Dinitrotoluene	14.9	0.1	1.0	ug/L	13.0		115	30-160	3.11	30	
Fluorene	4.1	0.02	0.2	ug/L	5.00		81.1	30-160	3.73	30	
4-Chlorophenylphenyl ether	4.3	0.02	0.2	ug/L	5.00		85.4	30-160	1.93	30	
Diethyl phthalate	4.6	0.06	0.2	ug/L	5.00		91.9	30-160	5.02	30	
4-Nitroaniline	11.2	0.2	1.0	ug/L	13.0		85.9	30-160	4.20	30	
4,6-Dinitro-2-methylphenol	23.2	0.4	2.0	ug/L	23.0		101	30-160	1.88	30	
N-Nitrosodiphenylamine	3.8	0.03	0.2	ug/L	5.00		76.7	30-160	2.95	30	
4-Bromophenyl phenyl ether	4.9	0.02	0.2	ug/L	5.00		97.9	30-160	4.60	30	
Hexachlorobenzene	4.5	0.04	0.2	ug/L	5.00		90.0	30-160	2.56	30	
Pentachlorophenol	9.8	0.1	1.0	ug/L	13.0		75.3	30-160	6.54	30	Q
Phenanthrene	4.1	0.02	0.2	ug/L	5.00		82.4	30-160	6.01	30	
Anthracene	3.9	0.03	0.2	ug/L	5.00		78.0	30-160	4.64	30	
Carbazole	4.2	0.04	0.2	ug/L	5.00		83.1	30-160	5.44	30	
Di-n-Butylphthalate	4.9	0.05	0.2	ug/L	5.00		97.7	30-160	6.56	30	
Fluoranthene	5.5	0.03	0.2	ug/L	5.00		111	30-160	1.38	30	Q
Pyrene	5.6	0.03	0.2	ug/L	5.00		111	30-160	4.61	30	
Butylbenzylphthalate	5.0	0.07	0.2	ug/L	5.00		99.6	30-160	1.88	30	
Benzo(a)anthracene	4.4	0.04	0.2	ug/L	5.00		87.8	30-160	5.29	30	
3,3'-Dichlorobenzidine	8.0	0.3	1.0	ug/L	13.0		61.3	30-160	3.81	30	Q

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Semivolatile Organic Compounds - Quality Control

Batch BJH0468 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJH0468-BSD1)					Prepared: 19-Aug-2021 Analyzed: 28-Aug-2021 11:45						
Chrysene	4.2	0.04	0.2	ug/L	5.00		84.1	30-160	4.85	30	
bis(2-Ethylhexyl)phthalate	5.2	0.2	0.2	ug/L	5.00		103	30-160	3.28	30	
Di-n-Octylphthalate	4.5	0.05	0.2	ug/L	5.00		89.3	30-160	3.51	30	
Benzofluoranthenes, Total	8.8	0.08	0.4	ug/L	10.0		87.9	30-160	6.70	30	
Benzo(a)pyrene	4.1	0.05	0.2	ug/L	5.00		81.3	30-160	5.33	30	
Indeno(1,2,3-cd)pyrene	4.4	0.06	0.2	ug/L	5.00		87.4	30-160	3.17	30	
Dibenzo(a,h)anthracene	4.3	0.07	0.2	ug/L	5.00		85.8	30-160	3.66	30	
Benzo(g,h,i)perylene	4.3	0.04	0.2	ug/L	5.00		85.6	30-160	2.75	30	
1-Methylnaphthalene	3.8	0.03	0.2	ug/L	5.00		77.0	30-160	7.38	30	
Surrogate: 2-Fluorophenol	3.74			ug/L	*7.50*		*49.8*	*30-160*			
Surrogate: Phenol-d5	2.57			ug/L	*7.50*		*34.2*	*30-160*			
Surrogate: 2-Chlorophenol-d4	6.38			ug/L	*7.50*		*85.1*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.35			ug/L	*5.00*		*66.9*	*30-160*			
Surrogate: Nitrobenzene-d5	4.45			ug/L	*5.00*		*88.9*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.12			ug/L	*5.00*		*82.4*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	7.42			ug/L	*7.50*		*98.9*	*30-160*			
Surrogate: p-Terphenyl-d14	5.21			ug/L	*5.00*		*104*	*30-160*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0469 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0469-BLK1)				Prepared: 19-Aug-2021 Analyzed: 01-Sep-2021 12:30							
Naphthalene	0.003	0.001	0.010	ug/L							J
2-Methylnaphthalene	ND	0.001	0.010	ug/L							U
1-Methylnaphthalene	ND	0.0009	0.010	ug/L							U
Acenaphthylene	ND	0.002	0.010	ug/L							U
Acenaphthene	ND	0.003	0.010	ug/L							U
Dibenzofuran	ND	0.002	0.010	ug/L							U
Fluorene	ND	0.002	0.010	ug/L							U
Phenanthrene	ND	0.001	0.010	ug/L							U
Anthracene	ND	0.001	0.010	ug/L							U
Carbazole	ND	0.001	0.010	ug/L							U
Fluoranthene	ND	0.002	0.010	ug/L							U
Pyrene	ND	0.001	0.010	ug/L							U
Benzo(a)anthracene	ND	0.0008	0.010	ug/L							U
Chrysene	ND	0.0009	0.010	ug/L							U
Benzo(b)fluoranthene	ND	0.0005	0.010	ug/L							U
Benzo(k)fluoranthene	ND	0.003	0.010	ug/L							U
Benzo(j)fluoranthene	ND	0.002	0.010	ug/L							U
Benzofluoranthenes, Total	ND	0.004	0.010	ug/L							U
Benzo(a)pyrene	ND	0.002	0.010	ug/L							U
Perylene	ND	0.006	0.010	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.001	0.010	ug/L							U
Dibenzo(a,h)anthracene	ND	0.001	0.010	ug/L							U
Benzo(g,h,i)perylene	ND	0.001	0.010	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	0.219			ug/L	*0.300*		*73.0*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.207			ug/L	*0.300*		*69.0*	*29-120*			
Surrogate: Fluoranthene-d10	0.248			ug/L	*0.300*		*82.7*	*57-120*			
LCS (BJH0469-BS1)				Prepared: 19-Aug-2021 Analyzed: 01-Sep-2021 13:00							
Naphthalene	0.207	0.001	0.010	ug/L	0.300		68.9	37-120			
2-Methylnaphthalene	0.212	0.001	0.010	ug/L	0.300		70.5	37-120			
1-Methylnaphthalene	0.212	0.0009	0.010	ug/L	0.300		70.6	29-120			
Acenaphthylene	0.197	0.002	0.010	ug/L	0.300		65.6	41-120			
Acenaphthene	0.196	0.003	0.010	ug/L	0.300		65.4	41-120			
Dibenzofuran	0.198	0.002	0.010	ug/L	0.300		66.2	38-120			
Fluorene	0.219	0.002	0.010	ug/L	0.300		73.0	43-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0469 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0469-BS1)					Prepared: 19-Aug-2021 Analyzed: 01-Sep-2021 13:00						
Phenanthrene	0.221	0.001	0.010	ug/L	0.300		73.6	41-120			
Anthracene	0.201	0.001	0.010	ug/L	0.300		67.1	40-120			
Carbazole	0.226	0.001	0.010	ug/L	0.300		75.5	30-160			
Fluoranthene	0.224	0.002	0.010	ug/L	0.300		74.8	45-120			
Pyrene	0.226	0.001	0.010	ug/L	0.300		75.2	41-120			
Benzo(a)anthracene	0.215	0.0008	0.010	ug/L	0.300		71.5	42-120			
Chrysene	0.212	0.0009	0.010	ug/L	0.300		70.7	44-120			
Benzo(b)fluoranthene	0.189	0.0005	0.010	ug/L	0.300		62.9	44-120			
Benzo(k)fluoranthene	0.248	0.003	0.010	ug/L	0.300		82.6	50-120			
Benzo(j)fluoranthene	0.228	0.002	0.010	ug/L	0.300		76.0	39-160			
Benzofluoranthenes, Total	0.665	0.004	0.010	ug/L	0.900		73.8	46-120			
Benzo(a)pyrene	0.201	0.002	0.010	ug/L	0.300		66.9	35-120			
Perylene	0.202	0.006	0.010	ug/L	0.300		67.4	30-160			
Indeno(1,2,3-cd)pyrene	0.203	0.001	0.010	ug/L	0.300		67.7	37-120			
Dibenzo(a,h)anthracene	0.202	0.001	0.010	ug/L	0.300		67.4	34-120			
Benzo(g,h,i)perylene	0.198	0.001	0.010	ug/L	0.300		65.9	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.217			ug/L	*0.300*		*72.4*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.213			ug/L	*0.300*		*70.9*	*29-120*			
Surrogate: Fluoranthene-d10	0.239			ug/L	*0.300*		*79.8*	*57-120*			
LCS Dup (BJH0469-BSD1)					Prepared: 19-Aug-2021 Analyzed: 01-Sep-2021 13:30						
Naphthalene	0.236	0.001	0.010	ug/L	0.300		78.7	37-120	13.30	30	
2-Methylnaphthalene	0.241	0.001	0.010	ug/L	0.300		80.3	37-120	13.00	30	
1-Methylnaphthalene	0.242	0.0009	0.010	ug/L	0.300		80.6	29-120	13.20	30	
Acenaphthylene	0.226	0.002	0.010	ug/L	0.300		75.5	41-120	14.10	30	
Acenaphthene	0.225	0.003	0.010	ug/L	0.300		75.2	41-120	14.00	30	
Dibenzofuran	0.226	0.002	0.010	ug/L	0.300		75.4	38-120	13.00	30	
Fluorene	0.248	0.002	0.010	ug/L	0.300		82.6	43-120	12.40	30	
Phenanthrene	0.251	0.001	0.010	ug/L	0.300		83.6	41-120	12.70	30	
Anthracene	0.235	0.001	0.010	ug/L	0.300		78.2	40-120	15.40	30	
Carbazole	0.260	0.001	0.010	ug/L	0.300		86.6	30-160	13.70	30	
Fluoranthene	0.261	0.002	0.010	ug/L	0.300		87.0	45-120	15.00	30	
Pyrene	0.263	0.001	0.010	ug/L	0.300		87.6	41-120	15.20	30	
Benzo(a)anthracene	0.256	0.0008	0.010	ug/L	0.300		85.2	42-120	17.50	30	
Chrysene	0.242	0.0009	0.010	ug/L	0.300		80.8	44-120	13.40	30	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0469 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJH0469-BSD1)				Prepared: 19-Aug-2021 Analyzed: 01-Sep-2021 13:30							
Benzo(b)fluoranthene	0.247	0.0005	0.010	ug/L	0.300		82.5	44-120	27.00	30	
Benzo(k)fluoranthene	0.252	0.003	0.010	ug/L	0.300		83.9	50-120	1.47	30	
Benzo(j)fluoranthene	0.253	0.002	0.010	ug/L	0.300		84.5	39-160	10.60	30	
Benzofluoranthenes, Total	0.752	0.004	0.010	ug/L	0.900		83.6	46-120	12.40	30	
Benzo(a)pyrene	0.235	0.002	0.010	ug/L	0.300		78.4	35-120	15.80	30	
Perylene	0.232	0.006	0.010	ug/L	0.300		77.4	30-160	13.70	30	
Indeno(1,2,3-cd)pyrene	0.242	0.001	0.010	ug/L	0.300		80.8	37-120	17.80	30	
Dibenzo(a,h)anthracene	0.243	0.001	0.010	ug/L	0.300		80.9	34-120	18.20	30	
Benzo(g,h,i)perylene	0.231	0.001	0.010	ug/L	0.300		76.8	38-120	15.40	30	
Surrogate: 2-Methylnaphthalene-d10	0.241			ug/L	*0.300*		*80.4*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.247			ug/L	*0.300*		*82.2*	*29-120*			
Surrogate: Fluoranthene-d10	0.270			ug/L	*0.300*		*89.9*	*57-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Petroleum Hydrocarbons - Quality Control

Batch BJH0472 - EPA 3510C SepF

Instrument: FID4 Analyst: TWC/CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0472-BLK1)				Prepared: 18-Aug-2021 Analyzed: 03-Sep-2021 11:35						
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: o-Terphenyl	0.183		mg/L	*0.225*		*81.2*	*50-150*			
LCS (BJH0472-BS1)				Prepared: 18-Aug-2021 Analyzed: 03-Sep-2021 11:55						
Diesel Range Organics (C12-C24)	2.66	0.100	mg/L	3.00		88.7	56-120			
Surrogate: o-Terphenyl	0.193		mg/L	*0.225*		*86.0*	*50-150*			
LCS Dup (BJH0472-BSD1)				Prepared: 18-Aug-2021 Analyzed: 03-Sep-2021 12:15						
Diesel Range Organics (C12-C24)	2.53	0.100	mg/L	3.00		84.3	56-120	5.07	30	
Surrogate: o-Terphenyl	0.179		mg/L	*0.225*		*79.7*	*50-150*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Aroclor PCB - Quality Control

Batch BJH0467 - EPA 3510C SepF

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0467-BLK1)				Prepared: 20-Aug-2021 Analyzed: 02-Sep-2021 21:49							
Aroclor 1016	ND	0.002	0.010	ug/L							U
Aroclor 1221	ND	0.002	0.010	ug/L							U
Aroclor 1232	ND	0.002	0.010	ug/L							U
Aroclor 1242	ND	0.002	0.010	ug/L							U
Aroclor 1248	ND	0.002	0.010	ug/L							U
Aroclor 1254	ND	0.002	0.010	ug/L							U
Aroclor 1260	ND	0.003	0.010	ug/L							U
Aroclor 1262	ND	0.003	0.010	ug/L							U
Aroclor 1268	ND	0.003	0.010	ug/L							U
Surrogate: Decachlorobiphenyl	0.0154			ug/L	*0.0200*		*77.1*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.00197			ug/L	*0.0200*		*9.86*	*32-120*			*
Surrogate: Decachlorobiphenyl [2C]	0.0142			ug/L	*0.0200*		*70.9*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.00190			ug/L	*0.0200*		*9.48*	*32-120*			*
LCS (BJH0467-BS1)				Prepared: 20-Aug-2021 Analyzed: 02-Sep-2021 22:10							
Aroclor 1016	0.027	0.002	0.010	ug/L	0.0500		54.1	54-120			
Aroclor 1260	0.042	0.003	0.010	ug/L	0.0500		84.2	51-128			
Surrogate: Decachlorobiphenyl	0.0163			ug/L	*0.0200*		*81.7*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.00111			ug/L	*0.0200*		*5.56*	*32-120*			*
Surrogate: Decachlorobiphenyl [2C]	0.0155			ug/L	*0.0200*		*77.6*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.00116			ug/L	*0.0200*		*5.81*	*32-120*			*
LCS Dup (BJH0467-BSD1)				Prepared: 20-Aug-2021 Analyzed: 02-Sep-2021 22:30							
Aroclor 1016	0.041	0.002	0.010	ug/L	0.0500		81.4	54-120	40.30	30	*
Aroclor 1260	0.042	0.003	0.010	ug/L	0.0500		84.6	51-128	0.47	30	
Surrogate: Decachlorobiphenyl	0.0149			ug/L	*0.0200*		*74.3*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.00564			ug/L	*0.0200*		*28.2*	*32-120*			*
Surrogate: Decachlorobiphenyl [2C]	0.0140			ug/L	*0.0200*		*69.9*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.00532			ug/L	*0.0200*		*26.6*	*32-120*			*

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Metals and Metallic Compounds - Quality Control

Batch BJH0598 - TWM EPA 7470A

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0598-BLK1)				Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 14:21							
Mercury	ND	0.000013	0.000100	mg/L							U
LCS (BJH0598-BS1)				Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 14:24							
Mercury	0.00166	0.000013	0.000100	mg/L	0.00200		82.8	80-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Metals and Metallic Compounds - Quality Control

Batch BJH0670 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0670-BLK1)					Prepared: 26-Aug-2021 Analyzed: 27-Aug-2021 17:36							
Barium	135	ND	0.114	0.500	ug/L							U
Barium	137	ND	0.0765	0.500	ug/L							U
Chromium	52	ND	0.260	0.500	ug/L							U
Chromium	53	ND	0.239	0.500	ug/L							U
Iron	54	ND	18.2	36.0	ug/L							U
Iron	57	ND	6.63	36.0	ug/L							U
Lead	208	ND	0.0513	0.100	ug/L							U
Manganese	55	0.429	0.142	0.500	ug/L							*, J
Silver	107	ND	0.0220	0.200	ug/L							U
Vanadium	51a	ND	0.0556	0.200	ug/L							U
Vanadium	51b	ND	0.0521	0.200	ug/L							U
Arsenic	75a	ND	0.0373	0.200	ug/L							U
Cadmium	111	ND	0.0300	0.100	ug/L							U
Cadmium	114	ND	0.0400	0.100	ug/L							U
Cobalt	59	ND	0.0178	0.200	ug/L							U
Copper	63	ND	0.173	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	ND	0.0792	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Selenium	78	ND	0.179	0.500	ug/L							U
Zinc	66	ND	2.92	6.00	ug/L							U
Zinc	67	ND	0.940	6.00	ug/L							U
LCS (BJH0670-BS1)					Prepared: 26-Aug-2021 Analyzed: 27-Aug-2021 17:41							
Barium	135	24.7	0.114	0.500	ug/L	25.0		98.7	80-120			
Barium	137	23.5	0.0765	0.500	ug/L	25.0		94.1	80-120			
Chromium	52	22.9	0.260	0.500	ug/L	25.0		91.5	80-120			
Chromium	53	24.6	0.239	0.500	ug/L	25.0		98.3	80-120			
Iron	54	4900	18.2	36.0	ug/L	5000		98.1	80-120			
Iron	57	4890	6.63	36.0	ug/L	5000		97.8	80-120			
Lead	208	24.7	0.0513	0.100	ug/L	25.0		98.9	80-120			
Manganese	55	24.9	0.142	0.500	ug/L	25.0		99.5	80-120			B
Silver	107	23.7	0.0220	0.200	ug/L	25.0		94.8	80-120			
Vanadium	51a	22.3	0.0556	0.200	ug/L	25.0		89.3	80-120			
Vanadium	51b	22.8	0.0521	0.200	ug/L	25.0		91.2	80-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Metals and Metallic Compounds - Quality Control

Batch BJH0670 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0670-BS1)						Prepared: 26-Aug-2021 Analyzed: 27-Aug-2021 17:41						
Arsenic	75a	24.6	0.0373	0.200	ug/L	25.0		98.5	80-120			
Cadmium	111	24.8	0.0300	0.100	ug/L	25.0		99.3	80-120			
Cadmium	114	24.9	0.0400	0.100	ug/L	25.0		99.7	80-120			
Cobalt	59	24.9	0.0178	0.200	ug/L	25.0		99.5	80-120			
Copper	63	25.2	0.173	0.500	ug/L	25.0		101	80-120			
Copper	65	25.2	0.350	0.500	ug/L	25.0		101	80-120			
Nickel	60	25.1	0.0792	0.500	ug/L	25.0		100	80-120			
Nickel	62	25.6	0.220	0.500	ug/L	25.0		102	80-120			
Selenium	78	75.4	0.179	0.500	ug/L	80.0		94.2	80-120			
Zinc	66	76.8	2.92	6.00	ug/L	80.0		96.0	80-120			
Zinc	67	74.0	0.940	6.00	ug/L	80.0		92.5	80-120			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Metals and Metallic Compounds - Quality Control

Batch BJH0699 - TWC EPA 3010A

Instrument: ICP2 Analyst: MVP

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0699-BLK1)				Prepared: 26-Aug-2021 Analyzed: 30-Aug-2021 13:38							
Calcium	ND	0.0220	0.0500	mg/L							U
Magnesium	ND	0.0209	0.0500	mg/L							U
LCS (BJH0699-BS1)				Prepared: 26-Aug-2021 Analyzed: 30-Aug-2021 14:28							
Calcium	9.36	0.0220	0.0500	mg/L	10.0		93.6	80-120			
Magnesium	10.1	0.0209	0.0500	mg/L	10.0		101	80-120			
Duplicate (BJH0699-DUP1)		**Source: 21H0209-01**		Prepared: 26-Aug-2021 Analyzed: 30-Aug-2021 14:32							
Calcium	28.1	0.0220	0.0500	mg/L		29.1			3.35	20	
Magnesium	18.8	0.0209	0.0500	mg/L		19.3			2.58	20	
Matrix Spike (BJH0699-MS1)		**Source: 21H0209-01**		Prepared: 26-Aug-2021 Analyzed: 30-Aug-2021 14:38							
Calcium	38.5	0.0220	0.0500	mg/L	10.0	29.1	94.1	75-125			
Magnesium	28.2	0.0209	0.0500	mg/L	10.0	19.3	89.4	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJH0699-MSD1)		**Source: 21H0209-01**		Prepared: 26-Aug-2021 Analyzed: 30-Aug-2021 14:43							
Calcium	38.3	0.0220	0.0500	mg/L	10.0	29.1	91.8	75-125	0.61	20	
Magnesium	30.7	0.0209	0.0500	mg/L	10.0	19.3	114	75-125	8.34	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJH0599 - TWM EPA 7470A

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0599-BLK1)				Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 15:08							
Mercury, Dissolved	0.000019	0.000013	0.000100	mg/L							J
LCS (BJH0599-BS1)				Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 15:15							
Mercury, Dissolved	0.00175	0.000013	0.000100	mg/L	0.00200		87.5	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJH0642 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0642-BLK1)					Prepared: 25-Aug-2021 Analyzed: 25-Aug-2021 17:01							
Barium, Dissolved	135	ND	0.114	0.500	ug/L							U
Barium, Dissolved	137	ND	0.0765	0.500	ug/L							U
Chromium, Dissolved	52	ND	0.260	0.500	ug/L							U
Chromium, Dissolved	53	ND	0.239	0.500	ug/L							U
Iron, Dissolved	54	ND	18.2	36.0	ug/L							U
Iron, Dissolved	57	ND	6.63	20.0	ug/L							U
Lead, Dissolved	208	ND	0.0513	0.100	ug/L							U
Manganese, Dissolved	55	ND	0.142	0.500	ug/L							U
Silver, Dissolved	107	ND	0.0220	0.200	ug/L							U
Vanadium, Dissolved	51a	ND	0.0556	0.200	ug/L							U
Vanadium, Dissolved	51b	ND	0.0521	0.200	ug/L							U
Arsenic, Dissolved	75a	ND	0.0373	0.200	ug/L							U
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L							U
Cadmium, Dissolved	114	ND	0.0400	0.100	ug/L							U
Cobalt, Dissolved	59	ND	0.0178	0.200	ug/L							U
Copper, Dissolved	63	ND	0.173	0.500	ug/L							U
Copper, Dissolved	65	ND	0.350	0.500	ug/L							U
Nickel, Dissolved	60	ND	0.0792	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
Selenium, Dissolved	78	ND	0.179	0.500	ug/L							U
Zinc, Dissolved	66	ND	2.92	6.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	6.00	ug/L							U
LCS (BJH0642-BS1)					Prepared: 25-Aug-2021 Analyzed: 25-Aug-2021 17:05							
Barium, Dissolved	135	24.5	0.114	0.500	ug/L	25.0		97.9	80-120			
Barium, Dissolved	137	24.6	0.0765	0.500	ug/L	25.0		98.6	80-120			
Chromium, Dissolved	52	24.6	0.260	0.500	ug/L	25.0		98.6	80-120			
Chromium, Dissolved	53	24.5	0.239	0.500	ug/L	25.0		98.1	80-120			
Iron, Dissolved	54	4890	18.2	36.0	ug/L	5000		97.8	80-120			
Iron, Dissolved	57	4910	6.63	20.0	ug/L	5000		98.3	80-120			
Lead, Dissolved	208	24.1	0.0513	0.100	ug/L	25.0		96.5	80-120			
Manganese, Dissolved	55	25.4	0.142	0.500	ug/L	25.0		102	80-120			
Silver, Dissolved	107	24.8	0.0220	0.200	ug/L	25.0		99.2	80-120			
Vanadium, Dissolved	51a	24.6	0.0556	0.200	ug/L	25.0		98.3	80-120			
Vanadium, Dissolved	51b	24.5	0.0521	0.200	ug/L	25.0		98.2	80-120			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJH0642 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0642-BS1)						Prepared: 25-Aug-2021 Analyzed: 25-Aug-2021 17:05						
Arsenic, Dissolved	75a	23.7	0.0373	0.200	ug/L	25.0		94.8	80-120			
Cadmium, Dissolved	111	23.8	0.0300	0.100	ug/L	25.0		95.3	80-120			
Cadmium, Dissolved	114	24.2	0.0400	0.100	ug/L	25.0		97.0	80-120			
Cobalt, Dissolved	59	23.6	0.0178	0.200	ug/L	25.0		94.3	80-120			
Copper, Dissolved	63	23.7	0.173	0.500	ug/L	25.0		94.9	80-120			
Copper, Dissolved	65	23.7	0.350	0.500	ug/L	25.0		94.7	80-120			
Nickel, Dissolved	60	23.6	0.0792	0.500	ug/L	25.0		94.5	80-120			
Nickel, Dissolved	62	23.7	0.220	0.500	ug/L	25.0		94.7	80-120			
Selenium, Dissolved	78	71.9	0.179	0.500	ug/L	80.0		89.9	80-120			
Zinc, Dissolved	66	71.2	2.92	6.00	ug/L	80.0		89.0	80-120			
Zinc, Dissolved	67	67.8	0.940	6.00	ug/L	80.0		84.7	80-120			
Duplicate (BJH0642-DUP1)			**Source: 21H0209-04**			Prepared: 25-Aug-2021 Analyzed: 25-Aug-2021 22:55						
Barium, Dissolved	135	1.06	0.114	0.500	ug/L		1.24			15.20	20	
Chromium, Dissolved	52	ND	0.260	0.500	ug/L		ND					U
Lead, Dissolved	208	ND	0.0513	0.100	ug/L		ND					U
Silver, Dissolved	107	ND	0.0220	0.200	ug/L		ND					U
Vanadium, Dissolved	51a	ND	0.0556	0.200	ug/L		ND					U
Arsenic, Dissolved	75a	0.368	0.0373	0.200	ug/L		0.351			4.73	20	
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L		ND					U
Cobalt, Dissolved	59	0.114	0.0178	0.200	ug/L		0.116			1.74	20	J
Copper, Dissolved	63	ND	0.173	0.500	ug/L		ND					U
Nickel, Dissolved	60	ND	0.0792	0.500	ug/L		ND					U
Selenium, Dissolved	78	ND	0.179	0.500	ug/L		ND					U
Zinc, Dissolved	66	ND	2.92	6.00	ug/L		ND					U
Duplicate (BJH0642-DUP2)			**Source: 21H0209-04**			Prepared: 25-Aug-2021 Analyzed: 26-Aug-2021 16:37						
Iron, Dissolved	54	278	91.0	180	ug/L		281			1.10	20	D
Manganese, Dissolved	55	524	0.710	2.50	ug/L		529			0.92	20	D
Matrix Spike (BJH0642-MS1)			**Source: 21H0209-04**			Prepared: 25-Aug-2021 Analyzed: 25-Aug-2021 23:00						
Barium, Dissolved	135	26.2	0.114	0.500	ug/L	25.0	1.24	100	75-125			
Chromium, Dissolved	52	21.4	0.260	0.500	ug/L	25.0	ND	85.8	75-125			
Lead, Dissolved	208	23.0	0.0513	0.100	ug/L	25.0	ND	91.9	75-125			
Silver, Dissolved	107	23.8	0.0220	0.200	ug/L	25.0	ND	95.3	75-125			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJH0642 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJH0642-MS1)			**Source: 21H0209-04**			Prepared: 25-Aug-2021		Analyzed: 25-Aug-2021 23:00				
Vanadium, Dissolved	51a	21.4	0.0556	0.200	ug/L	25.0	ND	85.8	75-125			
Arsenic, Dissolved	75a	23.9	0.0373	0.200	ug/L	25.0	0.351	94.1	75-125			
Cadmium, Dissolved	111	23.1	0.0300	0.100	ug/L	25.0	ND	92.3	75-125			
Cobalt, Dissolved	59	22.0	0.0178	0.200	ug/L	25.0	0.116	87.6	75-125			
Copper, Dissolved	63	21.9	0.173	0.500	ug/L	25.0	ND	87.6	75-125			
Nickel, Dissolved	60	21.3	0.0792	0.500	ug/L	25.0	ND	85.4	75-125			
Selenium, Dissolved	78	73.2	0.179	0.500	ug/L	80.0	ND	91.5	75-125			
Zinc, Dissolved	66	68.3	2.92	6.00	ug/L	80.0	ND	85.4	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike (BJH0642-MS2)			**Source: 21H0209-04**			Prepared: 25-Aug-2021		Analyzed: 26-Aug-2021 16:41				
Iron, Dissolved	54	5130	91.0	180	ug/L	5000	281	96.9	75-125			D
Manganese, Dissolved	55	540	0.710	2.50	ug/L	25.0	529	46.0	75-125			HC, D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJH0642-MSD1)			**Source: 21H0209-04**			Prepared: 25-Aug-2021		Analyzed: 25-Aug-2021 23:05				
Barium, Dissolved	135	26.1	0.114	0.500	ug/L	25.0	1.24	99.5	75-125	0.44	20	
Chromium, Dissolved	52	21.5	0.260	0.500	ug/L	25.0	ND	85.8	75-125	0.06	20	
Lead, Dissolved	208	23.3	0.0513	0.100	ug/L	25.0	ND	93.1	75-125	1.28	20	
Silver, Dissolved	107	23.8	0.0220	0.200	ug/L	25.0	ND	95.3	75-125	0.10	20	
Vanadium, Dissolved	51a	21.6	0.0556	0.200	ug/L	25.0	ND	86.5	75-125	0.78	20	
Arsenic, Dissolved	75a	24.1	0.0373	0.200	ug/L	25.0	0.351	95.2	75-125	1.15	20	
Cadmium, Dissolved	111	23.3	0.0300	0.100	ug/L	25.0	ND	93.2	75-125	1.01	20	
Cobalt, Dissolved	59	22.3	0.0178	0.200	ug/L	25.0	0.116	88.6	75-125	1.05	20	
Copper, Dissolved	63	22.0	0.173	0.500	ug/L	25.0	ND	88.0	75-125	0.39	20	
Nickel, Dissolved	60	21.7	0.0792	0.500	ug/L	25.0	ND	86.7	75-125	1.54	20	
Selenium, Dissolved	78	72.9	0.179	0.500	ug/L	80.0	ND	91.2	75-125	0.34	20	
Zinc, Dissolved	66	69.2	2.92	6.00	ug/L	80.0	ND	86.5	75-125	1.25	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJH0642-MSD2)			**Source: 21H0209-04**			Prepared: 25-Aug-2021		Analyzed: 26-Aug-2021 16:45				
Iron, Dissolved	54	5110	91.0	180	ug/L	5000	281	96.6	75-125	0.38	20	D
Manganese, Dissolved	55	536	0.710	2.50	ug/L	25.0	529	28.2	75-125	0.82	20	HC, D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Certified Analyses included in this Report

Analyte	Certifications
EPA 6010D in Water	
Calcium	WADOE,NELAP,DoD-ELAP
Magnesium	WADOE,NELAP,DoD-ELAP
EPA 6020B in Water	
Silver-107	WADOE,WA-DW,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Silver-107	WA-DW,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
EPA 6020B UCT-KED in Water	
Arsenic-75a	WADOE,WA-DW,DoD-ELAP,ADEC,NELAP
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	NELAP,DoD-ELAP,WADOE
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Selenium-78	NELAP,WADOE,DoD-ELAP
Zinc-66	WADOE,WA-DW,DoD-ELAP
Zinc-67	WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	DoD-ELAP,NELAP,WADOE
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
EPA 7470A in Water	
Mercury	WADOE,NELAP,DoD-ELAP
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8082A in Water	
Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
EPA 8270E in Water	
Phenol	NELAP,DoD-ELAP

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

bis(2-chloroethyl) ether	NELAP,DoD-ELAP
2-Chlorophenol	NELAP,DoD-ELAP
1,3-Dichlorobenzene	NELAP,DoD-ELAP
1,4-Dichlorobenzene	NELAP,DoD-ELAP
1,2-Dichlorobenzene	NELAP,DoD-ELAP
Benzyl Alcohol	NELAP,DoD-ELAP
2,2'-Oxybis(1-chloropropane)	NELAP,DoD-ELAP
2-Methylphenol	NELAP,DoD-ELAP
Hexachloroethane	NELAP,DoD-ELAP
N-Nitroso-di-n-Propylamine	NELAP,DoD-ELAP
4-Methylphenol	NELAP,DoD-ELAP
Nitrobenzene	NELAP,DoD-ELAP
Isophorone	NELAP,DoD-ELAP
2-Nitrophenol	NELAP,DoD-ELAP
2,4-Dimethylphenol	NELAP,DoD-ELAP
Bis(2-Chloroethoxy)methane	NELAP,DoD-ELAP
2,4-Dichlorophenol	NELAP,DoD-ELAP
1,2,4-Trichlorobenzene	NELAP,DoD-ELAP
Naphthalene	NELAP,DoD-ELAP
Benzoic acid	NELAP,DoD-ELAP
4-Chloroaniline	NELAP,DoD-ELAP
Hexachlorobutadiene	NELAP,DoD-ELAP
4-Chloro-3-Methylphenol	NELAP,DoD-ELAP
2-Methylnaphthalene	NELAP,DoD-ELAP
Hexachlorocyclopentadiene	NELAP,DoD-ELAP
2,4,6-Trichlorophenol	NELAP,DoD-ELAP
2,4,5-Trichlorophenol	NELAP,DoD-ELAP
2-Chloronaphthalene	NELAP,DoD-ELAP
2-Nitroaniline	NELAP,DoD-ELAP
Acenaphthylene	NELAP,DoD-ELAP
Dimethylphthalate	NELAP,DoD-ELAP
2,6-Dinitrotoluene	NELAP,DoD-ELAP
Acenaphthene	NELAP,DoD-ELAP
3-Nitroaniline	NELAP,DoD-ELAP
2,4-Dinitrophenol	NELAP,DoD-ELAP
Dibenzofuran	NELAP,DoD-ELAP
4-Nitrophenol	NELAP,DoD-ELAP
2,4-Dinitrotoluene	NELAP,DoD-ELAP
Fluorene	NELAP,DoD-ELAP

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

4-Chlorophenylphenyl ether	NELAP,DoD-ELAP
Diethyl phthalate	NELAP,DoD-ELAP
4-Nitroaniline	NELAP,DoD-ELAP
4,6-Dinitro-2-methylphenol	NELAP,DoD-ELAP
N-Nitrosodiphenylamine	NELAP,DoD-ELAP
4-Bromophenyl phenyl ether	NELAP,DoD-ELAP
Hexachlorobenzene	NELAP,DoD-ELAP
Pentachlorophenol	NELAP,DoD-ELAP
Phenanthrene	NELAP,DoD-ELAP
Anthracene	NELAP,DoD-ELAP
Carbazole	NELAP,DoD-ELAP
Di-n-Butylphthalate	NELAP,DoD-ELAP
Fluoranthene	NELAP,DoD-ELAP
Pyrene	NELAP,DoD-ELAP
Butylbenzylphthalate	NELAP,DoD-ELAP
Benzo(a)anthracene	NELAP,DoD-ELAP
3,3'-Dichlorobenzidine	NELAP,DoD-ELAP
Chrysene	NELAP,DoD-ELAP
bis(2-Ethylhexyl)phthalate	NELAP,DoD-ELAP
Di-n-Octylphthalate	NELAP,DoD-ELAP
Benzo(b)fluoranthene	NELAP,DoD-ELAP
Benzo(k)fluoranthene	NELAP,DoD-ELAP
Benzofluoranthenes, Total	NELAP
Benzo(a)pyrene	NELAP,DoD-ELAP
Indeno(1,2,3-cd)pyrene	NELAP,DoD-ELAP
Dibenzo(a,h)anthracene	NELAP,DoD-ELAP
Benzo(g,h,i)perylene	NELAP,DoD-ELAP
N-Nitrosodimethylamine	NELAP,DoD-ELAP
1-Methylnaphthalene	NELAP,DoD-ELAP

EPA 8270E-SIM in Water

Naphthalene	ADEC,DoD-ELAP,NELAP,WADOE
2-Methylnaphthalene	ADEC,DoD-ELAP,NELAP
1-Methylnaphthalene	ADEC,DoD-ELAP,NELAP,WADOE
Biphenyl	NELAP
Acenaphthylene	ADEC,DoD-ELAP,NELAP,WADOE
Acenaphthene	ADEC,DoD-ELAP,NELAP,WADOE
Dibenzofuran	ADEC,DoD-ELAP,NELAP
Fluorene	ADEC,DoD-ELAP,NELAP,WADOE
Phenanthrene	ADEC,DoD-ELAP,NELAP,WADOE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Carbazole	NELAP
Fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(a)anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Chrysene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(b)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(k)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(j)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(e)pyrene	NELAP
Benzo(a)pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Perylene	ADEC,NELAP
Indeno(1,2,3-cd)pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Dibenzo(a,h)anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(g,h,i)perylene	ADEC,DoD-ELAP,NELAP,WADOE

NWTPH-Dx in Water

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	06-Sep-2021 09:41

Notes and Definitions

*	Flagged value is not within established control limits.
B	This analyte was detected in the method blank.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
HC	The natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
J	Estimated concentration value detected below the reporting limit.
M	Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
Y1	Raised reporting limit due to interference
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Analytical Resources, Incorporated
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03 September 2021

Meg Strong
Shannon & Wilson, Inc
400 N 34th St., Suite 100
Seattle, WA 98103-8636

RE: Lower Duwamish Q3

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
21H0210	N/A

Shelly Fishel

Digitally signed by Shelly Fishel
Date: 2021.09.03 18:05:20 -07'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Shelly Fishel, Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21H0210	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: Shannon + Wilson	Phone: 206-695-6811	Date: 8/17/21	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 1	Cooler Temps: 18.4
Client Project Name: Lower Duwamish			
Client Project #: 21-1-12596-002 ~~21-1-20211708 (MED)~~	Samplers: DES, MED		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	BTEX	HVOCs	TPH-Dx						Notes/Comments
					Analysis Requested								
MW-46-20211708	8/17	13:56	H_2O	(MED 8/17) 5 7	✓	✓	✓						
MW-68-20211708		16:10		5 7 5	✓	✓							
MW-71-20211708		10:52		7 7 5	✓	✓	✓						
MW-76-20211708		12:40		5 7 5	✓	✓							
TB-1-20211708	↓	10:52	↓	5	✓	✓	✓						
				MED 8/17									

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: DANIEL SCHWICHT	Printed Name: Jacob Lalt	Printed Name:	Printed Name:
	Company:	Company: ARI	Company:	Company:
	Date & Time: 17-AUG-2021 1737	Date & Time: 08/17/2021 1737	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-46-20211708	21H0210-01	Water	17-Aug-2021 13:56	17-Aug-2021 17:37
MW-68-20211708	21H0210-02	Water	17-Aug-2021 16:10	17-Aug-2021 17:37
MW-71-20211708	21H0210-03	Water	17-Aug-2021 10:52	17-Aug-2021 17:37
MW-76-20211708	21H0210-04	Water	17-Aug-2021 12:40	17-Aug-2021 17:37
TB-1-20211708	21H0210-05	Water	17-Aug-2021 10:52	17-Aug-2021 17:37

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish Q3
Work Order: 21H0210

Sample receipt

Samples as listed on the preceding page were received 17-Aug-2021 17:37 under ARI work order 21H0210. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Gasoline by NWTPH-g (GC/MS)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Volatiles - EPA Method SW8260D

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Volatiles - EPA Method 8260D-SIM (Selected Ion Monitoring)

The sample(s) were analyzed within the recommended holding times.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

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Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Sherman & Wilson Project Name: Lone Mountain

COC No(s): NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 21H0210 Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1737	15.9						

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 5006

Cooler Accepted by: JG Date: 08/17/2021 Time: 1737

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	YES	NO
How were bottles sealed in plastic bags?	Individually	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA	08/17/2021	

Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JG Date: 08/18/2021 Time: 0958 Labels checked by: JG

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Temperature Compliance Form

Tue 08/18/2021

ARI Work Order: ~~21H0210~~ 21H0210

Cooler#: _____ Temperature(°C): 18.4

Sample ID	Bottle Count	Bottle Type
Samples received above 6°C		

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ Temperature(°C): _____

Sample ID	Bottle Count	Bottle Type

Completed by: JR Date: 08/17/2021 Time: 1737

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

MW-46-20211708

21H0210-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/17/2021 13:56

Instrument: NT3 Analyst: PKC — Analyzed: 08/19/2021 14:44

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0210-01 G

Preparation Batch: BJH0506 — Sample Size: 10 mL

Prepared: 08/19/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	0.11	ug/L	J
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*101*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.4*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.4*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.8*	*%*	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

MW-46-20211708

21H0210-01 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/17/2021 13:56

Instrument: NT3 Analyst: PKC — Analyzed: 08/30/2021 17:56

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0210-01 F

Preparation Batch: BJH0751 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*98.7*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*96.5*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

MW-68-20211708

21H0210-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/17/2021 16:10

Instrument: NT3 Analyst: PKC — Analyzed: 08/19/2021 15:09

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0210-02 C

Preparation Batch: BJH0506 — Sample Size: 10 mL

Prepared: 08/19/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	0.38	ug/L	
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*106*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*102*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*90.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*94.5*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

MW-71-20211708

21H0210-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/17/2021 10:52

Instrument: NT3 Analyst: PKC — Analyzed: 08/19/2021 15:34

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0210-03 C

Preparation Batch: BJH0506 — Sample Size: 10 mL

Prepared: 08/19/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.11	ug/L	J
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*102*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.7*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*94.1*	*%*	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

MW-71-20211708

21H0210-03 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/17/2021 10:52

Instrument: NT3 Analyst: PKC — Analyzed: 08/30/2021 18:21

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0210-03 F

Preparation Batch: BJH0751 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*99.7*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*97.4*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

MW-71-20211708

21H0210-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/17/2021 10:52

Instrument: NT16 Analyst: PB — Analyzed: 08/20/2021 18:33

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0210-03 A

Preparation Batch: BJH0543 — Sample Size: 10 mL

Prepared: 08/20/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	40.7	ng/L	M
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*109*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*104*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*90.3*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

MW-76-20211708

21H0210-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/17/2021 12:40

Instrument: NT3 Analyst: PKC — Analyzed: 08/19/2021 16:00

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0210-04 A

Preparation Batch: BJH0506 — Sample Size: 10 mL

Prepared: 08/19/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*96.3*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*94.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*100*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

MW-76-20211708

21H0210-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/17/2021 12:40

Instrument: NT16 Analyst: PB — Analyzed: 08/20/2021 18:54

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0210-04 B

Preparation Batch: BJH0543 — Sample Size: 10 mL

Prepared: 08/20/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*108*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*103*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*89.7*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

TB-1-20211708

21H0210-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/17/2021 10:52

Instrument: NT3 Analyst: PKC — Analyzed: 08/19/2021 13:53

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0210-05 A

Preparation Batch: BJH0506 — Sample Size: 10 mL

Prepared: 08/19/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.09	ug/L	J
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*101*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*91.1*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

TB-1-20211708

21H0210-05 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/17/2021 10:52

Instrument: NT3 Analyst: PKC — Analyzed: 08/30/2021 13:18

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0210-05 C

Preparation Batch: BJH0751 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*96.9*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

TB-1-20211708

21H0210-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/17/2021 10:52
Instrument: NT16 Analyst: PB — Analyzed: 08/20/2021 16:11

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0210-05 B
Preparation Batch: BJH0543 — Sample Size: 10 mL
Prepared: 08/20/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*108*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*105*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*88.6*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

Volatile Organic Compounds - Quality Control

Batch BJH0506 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0506-BLK1)				Prepared: 19-Aug-2021 Analyzed: 19-Aug-2021 13:07							
Vinyl Chloride	ND	0.08	0.20	ug/L							U
1,1-Dichloroethene	ND	0.08	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.07	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Benzene	ND	0.05	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
Toluene	ND	0.05	0.20	ug/L							U
Tetrachloroethene	ND	0.09	0.20	ug/L							U
Ethylbenzene	ND	0.05	0.20	ug/L							U
m,p-Xylene	ND	0.14	0.40	ug/L							U
o-Xylene	ND	0.08	0.20	ug/L							U
Xylenes, total	ND	0.22	0.60	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.98			ug/L	*5.00*		*99.5*	*80-129*			
Surrogate: Toluene-d8	4.99			ug/L	*5.00*		*99.7*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.94			ug/L	*5.00*		*98.9*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.04			ug/L	*5.00*		*101*	*80-120*			
LCS (BJH0506-BS1)				Prepared: 19-Aug-2021 Analyzed: 19-Aug-2021 11:29							
Vinyl Chloride	10.2	0.08	0.20	ug/L	10.0		102	66-133			
1,1-Dichloroethene	11.0	0.08	0.20	ug/L	10.0		110	69-135			
trans-1,2-Dichloroethene	9.60	0.07	0.20	ug/L	10.0		96.0	78-128			
cis-1,2-Dichloroethene	9.99	0.08	0.20	ug/L	10.0		99.9	80-121			
Benzene	9.92	0.05	0.20	ug/L	10.0		99.2	80-120			
Trichloroethene	9.40	0.07	0.20	ug/L	10.0		94.0	80-120			
Toluene	9.83	0.05	0.20	ug/L	10.0		98.3	80-120			
Tetrachloroethene	9.50	0.09	0.20	ug/L	10.0		95.0	80-120			
Ethylbenzene	9.91	0.05	0.20	ug/L	10.0		99.1	80-120			
m,p-Xylene	19.4	0.14	0.40	ug/L	20.0		97.2	80-121			
o-Xylene	9.59	0.08	0.20	ug/L	10.0		95.9	80-121			
Xylenes, total	29.0	0.22	0.60	ug/L	30.0		96.8	76-127			
Surrogate: 1,2-Dichloroethane-d4	5.34			ug/L	*5.00*		*107*	*80-129*			
Surrogate: Toluene-d8	4.86			ug/L	*5.00*		*97.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.22			ug/L	*5.00*		*104*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.06			ug/L	*5.00*		*101*	*80-120*			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

Volatile Organic Compounds - Quality Control

Batch BJH0506 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJH0506-BSD1)					Prepared: 19-Aug-2021 Analyzed: 19-Aug-2021 12:17						
Vinyl Chloride	9.81	0.08	0.20	ug/L	10.0		98.1	66-133	3.79	30	
1,1-Dichloroethene	10.3	0.08	0.20	ug/L	10.0		103	69-135	6.00	30	
trans-1,2-Dichloroethene	8.73	0.07	0.20	ug/L	10.0		87.3	78-128	9.48	30	
cis-1,2-Dichloroethene	8.97	0.08	0.20	ug/L	10.0		89.7	80-121	10.70	30	
Benzene	9.07	0.05	0.20	ug/L	10.0		90.7	80-120	8.93	30	
Trichloroethene	8.81	0.07	0.20	ug/L	10.0		88.1	80-120	6.49	30	
Toluene	8.99	0.05	0.20	ug/L	10.0		89.9	80-120	8.97	30	
Tetrachloroethene	9.09	0.09	0.20	ug/L	10.0		90.9	80-120	4.40	30	
Ethylbenzene	9.38	0.05	0.20	ug/L	10.0		93.8	80-120	5.54	30	
m,p-Xylene	18.7	0.14	0.40	ug/L	20.0		93.3	80-121	4.16	30	
o-Xylene	9.23	0.08	0.20	ug/L	10.0		92.3	80-121	3.83	30	
Xylenes, total	27.9	0.22	0.60	ug/L	30.0		92.9	76-127	4.05	30	
Surrogate: 1,2-Dichloroethane-d4	4.95			ug/L	*5.00*		*99.0*	*80-129*			
Surrogate: Toluene-d8	5.02			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.06			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.87			ug/L	*5.00*		*97.4*	*80-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

Volatile Organic Compounds - Quality Control

Batch BJH0751 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0751-BLK1)				Prepared: 30-Aug-2021 Analyzed: 30-Aug-2021 12:53						
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.96		ug/L	*5.00*		*99.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.09		ug/L	*5.00*		*102*	*80-120*			
LCS (BJH0751-BS1)				Prepared: 30-Aug-2021 Analyzed: 30-Aug-2021 10:15						
Gasoline Range Organics (Tol-Nap)	1020	100	ug/L	1000		102	72-128			
Surrogate: Toluene-d8	5.09		ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.82		ug/L	*5.00*		*96.4*	*80-120*			
LCS Dup (BJH0751-BSD1)				Prepared: 30-Aug-2021 Analyzed: 30-Aug-2021 11:05						
Gasoline Range Organics (Tol-Nap)	1060	100	ug/L	1000		106	72-128	3.74	30	
Surrogate: Toluene-d8	4.90		ug/L	*5.00*		*98.1*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.82		ug/L	*5.00*		*96.4*	*80-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

Volatile Organic Compounds - SIM - Quality Control

Batch BJH0543 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0543-BLK1)				Prepared: 20-Aug-2021 Analyzed: 20-Aug-2021 14:57							
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	5290			ng/L	*5000*		*106*	*80-129*			
Surrogate: Toluene-d8	5120			ng/L	*5000*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4490			ng/L	*5000*		*89.8*	*75-125*			
LCS (BJH0543-BS1)				Prepared: 20-Aug-2021 Analyzed: 20-Aug-2021 12:35							
Vinyl chloride	2400	5.01	20.0	ng/L	2000		120	62-141			
Surrogate: 1,2-Dichloroethane-d4	5310			ng/L	*5000*		*106*	*80-129*			
Surrogate: Toluene-d8	4960			ng/L	*5000*		*99.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5930			ng/L	*5000*		*119*	*75-125*			
LCS Dup (BJH0543-BSD1)				Prepared: 20-Aug-2021 Analyzed: 20-Aug-2021 14:21							
Vinyl chloride	2300	5.01	20.0	ng/L	2000		115	62-141	4.43	30	
Surrogate: 1,2-Dichloroethane-d4	5410			ng/L	*5000*		*108*	*80-129*			
Surrogate: Toluene-d8	4880			ng/L	*5000*		*97.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5130			ng/L	*5000*		*103*	*75-125*			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

Certified Analyses included in this Report

Analyte	Certifications
EPA 8260D in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

EPA 8260D-SIM in Water

Acrylonitrile	NELAP,WADOE
Vinyl chloride	NELAP,WADOE
1,1-Dichloroethene	NELAP,WADOE
cis-1,2-Dichloroethene	NELAP,WADOE
trans-1,2-Dichloroethene	NELAP,WADOE
Trichloroethene	NELAP,WADOE
Tetrachloroethene	NELAP,WADOE
1,1,2,2-Tetrachloroethane	NELAP,WADOE
1,2-Dichloroethane	NELAP,WADOE
Benzene	NELAP,WADOE

NWTPHg in Water

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	03-Sep-2021 18:02

Notes and Definitions

*	Flagged value is not within established control limits.
B	This analyte was detected in the method blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
J	Estimated concentration value detected below the reporting limit.
M	Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

09 September 2021

Meg Strong
Shannon & Wilson, Inc
400 N 34th St., Suite 100
Seattle, WA 98103-8636

RE: Lower Duwamish Q3

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
21H0222	N/A

Shelly Fishel
Digitally signed by Shelly Fishel
Date: 2021.09.09 19:09:34 -07'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

Shelly Fishel, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21H0222	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: Shannon + Wilson	Phone: 206-695-6811	Date: 8/18/21	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 2	Cooler Temps: 4.9 3.6
Client Project Name: Lower Duwamish			
Client Project #: 21-1-12596-012	Samplers: DES, MED		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	TPH-G	TPH-Dx	BTEX	Total Metals	Dissolved Metals	HVOCs	Full List SVOCs	PCBs	Notes/Comments
MW-38-20211808	8/18	14:13	H_2O	9	✓	✓	✓	✓①	✓①				① Manganese
MW-42-20211808		10:20		11		✓	✓	✓②	✓②	✓		✓	② Chromium Magnesium Mercury
MW-67-20211808		12:15		13		✓	✓	✓③	✓③	✓	✓	✓	
MW-36-20211808*		15:55		11	✓	✓	✓	✓④	✓④	✓			③ As, Ba, Cr, Mn, Ni, Cd, Co, Cu, Fe, Pb,
MW-103-2021808	↓	14:28	↓	18 (8/18 only)	✓	✓	✓	✓①	✓①				Hg, Se, Ag, Va, Zn
TB-2-2021808	8/18	10:19	H_2O	5			✓			✓			* Analyze for Hardness + NA
													④ As, Cr, Mn, Ni, Cd, Co, Cu, Pb, Hg, Se, Ag, Zn

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: DANIEL SCHWICHT	Printed Name: Jacob Leite	Printed Name:	Printed Name:
	Company:	Company: ARI	Company:	Company:
	Date & Time: 18-AUG-2021 17:18	Date & Time: 08/18/2021 1718	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-36-20211808	21H0222-01	Water	18-Aug-2021 15:55	18-Aug-2021 17:18
MW-36-20211808	21H0222-02	Water	18-Aug-2021 15:55	18-Aug-2021 17:18
MW-38-20211808	21H0222-03	Water	18-Aug-2021 14:13	18-Aug-2021 17:18
MW-38-20211808	21H0222-04	Water	18-Aug-2021 14:13	18-Aug-2021 17:18
MW-42-20211808	21H0222-05	Water	18-Aug-2021 10:20	18-Aug-2021 17:18
MW-42-20211808	21H0222-06	Water	18-Aug-2021 10:20	18-Aug-2021 17:18
MW-67-20211808	21H0222-07	Water	18-Aug-2021 12:15	18-Aug-2021 17:18
MW-67-20211808	21H0222-08	Water	18-Aug-2021 12:15	18-Aug-2021 17:18
MW-103-20211808	21H0222-09	Water	18-Aug-2021 14:28	18-Aug-2021 17:18
MW-103-20211808	21H0222-10	Water	18-Aug-2021 14:28	18-Aug-2021 17:18
TB-2-20211808	21H0222-11	Water	18-Aug-2021 10:20	18-Aug-2021 17:18

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish Q3
Work Order: 21H0222

Sample receipt

Samples as listed on the preceding page were received 18-Aug-2021 17:18 under ARI work order 21H0222. For details regarding sample receipt, please refer to the Cooler Receipt Form.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike/blank spike duplicate (BS/BSD aka LCS/LCSD) percent recoveries and relative percent difference (RPD) were within control limits.

Gasoline by NWTPH-g (GC/MS)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike/blank spike duplicate (BS/BSD aka LCS/LCSD) percent recoveries and relative percent difference (RPD) were within control limits.

Volatiles - EPA Method SW8260D

The sample(s) were analyzed within the recommended holding times.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike/blank spike duplicate (BS/BSD aka LCS/LCSD) percent recoveries and relative percent difference (RPD) were within control limits.

Volatiles - EPA Method 8260D-SIM (Selected Ion Monitoring)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike/blank spike duplicate (BS/BSD aka LCS/LCSD) percent recoveries and relative percent difference (RPD) were within control limits.

Semivolatiles - EPA Method SW8270E

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements. except Pentachlorophenol which was out of control low and 2-Nitrophenol, 2,4,6-Trichorophenol, 2-Nitroaniline, Fluoranthene, Butylbenzylphthalate and bis(2-Ethylhexyl)Phthalate which were out of control high. All samples which contain analyte have been flagged with a "Q" qualifier.

The low concentration calibration verification was within caontrol limits except 2,4-Dinitrophenol, Hexachlorocyclopentadiene and Pentachlorophenol which were out of control low.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except Phenol-d5 which was out of control low in sample 21H0222-05, BJH0569-BLK1, BJH0569-BS1 and BJH0569-BSD1 and has been flagged.

The method blank(s) were clean at the reporting limits.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

The blank spike/blank spike duplicate (BS/BSD aka LCS/LCSD) percent recoveries and relative percent difference (RPD) were within control limits except Phenol, Benzoic Acid, 4-Chloroaniline and 4-Nitrophenol which were out of control low and have been flagged.

Total and Dissolved Metals - EPA Method 6020B

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits except Total Manganese. All samples which contain analyte have been flagged with a "B" qualifier.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0222-08 in Dissolved Metals batch BJI0013. The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times except Sulfite. The holding time was exceeded upon sample receipt.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The reference material (SRM) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0222-01 in Sulfite batch BJH0486 and in Anions batch BJH0508 and in association with sample 21H0222-01RE1 in Ferrous Iron batch BJH0487. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits except Sulfate which has been flagged. The matrix spike (MS) spike recoveries and relative percent difference (RPD) were within advisory control limits.

Total Mercury - EPA Method 7470/7471

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0222-02 in Dissolved Mercury batch BJH0611. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits.

Volatile Gases - MEE by RSK175

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries were within control limits. The BS/BSD relative percent difference (RPD) was outside control limits due to loss of the BSD in extraction and has been flagged.

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/19/2021 8:17:45AM

WORK ORDER

21H0222

Client: Shannon & Wilson, Inc
Project Manager: Shelly Fishel
Project: Lower Duwamish Q3
Project Number: 21-1-12596-012

Preservation Confirmation

Container ID	Container Type	pH	
21H0222-01 A	Small OJ, 500 mL, EDTA		
21H0222-01 B	Glass NM, Amber, 500 mL, HCl	Lab to verify preservation	
21H0222-01 C	Small OJ, 500 mL		
21H0222-01 D	Small OJ, 500 mL		
21H0222-01 E	HDPE NM, 500 mL		
21H0222-01 F	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0222-01 G	Glass NM, Amber, 500 mL		
21H0222-01 H	Glass NM, Amber, 500 mL		
21H0222-01 I	VOA Vial, Clear, 40 mL, HCL	Bubble	
21H0222-01 J	VOA Vial, Clear, 40 mL, HCL		
21H0222-01 K	VOA Vial, Clear, 40 mL, HCL		
21H0222-01 L	VOA Vial, Clear, 40 mL, HCL		
21H0222-01 M	VOA Vial, Clear, 40 mL, HCL		
21H0222-01 N	VOA Vial, Clear, 40 mL, HCL		
21H0222-01 O	VOA Vial, Clear, 40 mL, HCL		
21H0222-01 P	VOA Vial, Clear, 40 mL, HCL		
21H0222-01 Q	VOA Vial, Clear, 40 mL, HCL		
21H0222-02 A	HDPE NM, 500 mL	>2	Fail
21H0222-03 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0222-03 B	Glass NM, Amber, 500 mL		
21H0222-03 C	Glass NM, Amber, 500 mL		
21H0222-03 D	VOA Vial, Clear, 40 mL, HCL	Bubble	
21H0222-03 E	VOA Vial, Clear, 40 mL, HCL		
21H0222-03 F	VOA Vial, Clear, 40 mL, HCL		
21H0222-03 G	VOA Vial, Clear, 40 mL, HCL		
21H0222-03 H	VOA Vial, Clear, 40 mL, HCL		
21H0222-04 A	HDPE NM, 500 mL	72	Fail
21H0222-05 A	Glass NM, Amber, 1000 mL		
21H0222-05 B	Glass NM, Amber, 1000 mL		
21H0222-05 C	Glass NM, Amber, 500 mL		
21H0222-05 D	Glass NM, Amber, 500 mL		
21H0222-05 E	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0222-05 F	VOA Vial, Clear, 40 mL, HCL		
21H0222-05 G	VOA Vial, Clear, 40 mL, HCL		
21H0222-05 H	VOA Vial, Clear, 40 mL, HCL		

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/19/2021 8:17:45AM

WORK ORDER

21H0222

Client: Shannon & Wilson, Inc | **Project Manager: Shelly Fishel**

Project: Lower Duwamish Q3 | **Project Number: 21-1-12596-012**

21H0222-05 I	VOA Vial, Clear, 40 mL, HCL		
21H0222-05 J	VOA Vial, Clear, 40 mL, HCL		
21H0222-06 A	HDPE NM, 500 mL	>2	Fail
21H0222-07 A	Glass NM, Amber, 500 mL		
21H0222-07 B	Glass NM, Amber, 500 mL		
21H0222-07 C	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0222-07 D	VOA Vial, Clear, 40 mL, HCL		
21H0222-07 E	VOA Vial, Clear, 40 mL, HCL		
21H0222-07 F	VOA Vial, Clear, 40 mL, HCL		
21H0222-07 G	VOA Vial, Clear, 40 mL, HCL		
21H0222-07 H	VOA Vial, Clear, 40 mL, HCL		
21H0222-08 A	HDPE NM, 500 mL	>2	Fail
21H0222-09 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0222-09 B	Glass NM, Amber, 500 mL		
21H0222-09 C	Glass NM, Amber, 500 mL		
21H0222-09 D	VOA Vial, Clear, 40 mL, HCL	Bubble	
21H0222-09 E	VOA Vial, Clear, 40 mL, HCL		
21H0222-09 F	VOA Vial, Clear, 40 mL, HCL		
21H0222-09 G	VOA Vial, Clear, 40 mL, HCL		
21H0222-09 H	VOA Vial, Clear, 40 mL, HCL		
21H0222-10 A	HDPE NM, 500 mL	>2	Fail
21H0222-11 A	VOA Vial, Clear, 40 mL, HCL		
21H0222-11 B	VOA Vial, Clear, 40 mL, HCL		
21H0222-11 C	VOA Vial, Clear, 40 mL, HCL		
21H0222-11 D	VOA Vial, Clear, 40 mL, HCL		
21H0222-11 E	VOA Vial, Clear, 40 mL, HCL		

TSB
Preservation Confirmed By

08/19/2021
Date

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Shannon d Hillson Project Name: Lone Dunamish Q3

COC No(s): ~~NA~~ Delivered by: Fed-Ex UPS Courier ~~Hand Delivered~~ Other: ____

Assigned ARI Job No: 21H0222 Tracking No: ~~NA~~

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	~~NO~~
Were custody papers included with the cooler?	~~YES~~	NO
Were custody papers properly filled out (ink, signed, etc.)	~~YES~~	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1718 4.9 3.6 ____ ____ ____ ____

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 5206

Cooler Accepted by: JSm Date: 08/18/2021 Time: 1718

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	~~NO~~
What kind of packing material was used?	~~Bubble Wrap~~ ~~Wet Ice~~ ~~Gel Packs~~ ~~Baggies~~ ~~Foam Block~~ Paper Other: ____		
Was sufficient ice used (if appropriate)?	NA	~~YES~~	NO
How were bottles sealed in plastic bags?	Individually	Grouped	~~Not~~
Did all bottles arrive in good condition (unbroken)?		~~YES~~	NO
Were all bottle labels complete and legible?		~~YES~~	NO
Did the number of containers listed on COC match with the number of containers received?	JSm	~~YES~~	~~NO~~
Did all bottle labels and tags agree with custody papers?		~~YES~~	NO
Were all bottles used correct for the requested analyses?		~~YES~~	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	~~YES~~	NO
Were all VOC vials free of air bubbles?	NA	YES	~~NO~~
Was sufficient amount of sample sent in each bottle?		~~YES~~	NO
Date VOC Trip Blank was made at ARI	NA	08/13/2021	

Were the sample(s) split by ARI? ~~NA~~ YES Date/Time: ____ Equipment: ____ Split by: ____

Samples Logged by: JSm Date: 08/19/2021 Time: 0747 Labels checked by: JSm

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

vials w/ air bubbles marked on preservation sheet, lab to determine sizes. Only 9 containers received for MW-67-20211808, not 13. Only 9 containers received for MW-103-20211808, not 18.

By: JSm Date: 08/19/2021

RE: LDW Q3 Receiving Documents and Issues 210H0222

Shoshana Howard <SKH@shanwil.com>

Thu 8/19/2021 1:37 PM

To: Shelly Fishel <shelly.fishel@arilabs.com>; Meg Strong <MJS@shanwil.com>

Hi Shelly,

As a follow-up to our conversation earlier today, for this work order:

- I have asked the field team to revisit MW-67 to obtain the additional volume needed (seems there was a label printing issue). Please remove PCBs and TPH-Dx from this work order for MW-67-20211808. They will collect an additional 2x1L Ambers and 2x500mL Ambers for running PCBs and TPH-Dx for this location on a separate COC. Please keep the SVOCs.
- The missing containers for MW-103-20211808 was simply a COC error. They collected 9 and only needed 9. Can you revise as appropriate?
- The samplers wrote magnesium for sample MW-42-20211808. This was intended to be manganese. Can you please remove total and dissolved magnesium for this sample and replace with total and dissolved manganese?
- The samplers marked hardness analysis for MW-36-20211808; however, this was in error. Can hardness be removed for that sample for this work order?
- The trip blank was marked for BTEX and HVOCs only, but should also be run for TPH-Gx. I have reminded them of this for future work orders.

Thanks!
Shoshana

Shoshana Howard, PE | Senior Engineer
400 N. 34th St., Suite 100
Seattle, WA 98103-8636
www.shannonwilson.com
Phone: (206) 632-8020 Fax: (206) 695-6777
Direct: (206) 695-6811 skh@shanwil.com

From: Shelly Fishel <shelly.fishel@arilabs.com>
Sent: Thursday, August 19, 2021 11:02 AM
To: Meg Strong <MJS@shanwil.com>; Shoshana Howard <SKH@shanwil.com>
Subject: LDW Q3 Receiving Documents and Issues 210H0222

Hello Meg and Shoshana,

ARI received five water samples and one trip blank for analysis which were logged under work order 21H0222. The samples were intact and within temperature compliance. There were some issues noted with regard to number of containers. There are missing containers. Please see comments below. Also, the trip blank only listed BTEX and HVOC. Did you also want NWTHP-Gx?

Receiving documentation is attached. Please review for accuracy.

From sample receiving:

We have 4 missing containers for sample -07/-08 (MW-67-20211808); client wants to run PCBs, Full list SVOCs and Dx for this sample but only provided 2-500mL AG bottles. I've logged all the analytes as

requested on the CoC.

We also have 9 missing containers for sample -09/-10 (MW-103-20211808); client lists 18 total containers, we only received 9. We have enough volume to run the requested analysis, but if this was supposed to be MS/MSD, Extractions won't have enough volume and VOAs may not have enough either.

Be safe and stay healthy!

Regards,

Shelly Fishel

Project Manager

Analytical Resources, Inc.
4611 S. 134th Place, Suite 100
Tukwila, WA 98168-3240
Website: https://www.arilabs.com
Direct Phone: 206-695-6210
E-Mail: shelly.fishel@arilabs.com

Please note that sample receiving hours will be changed to 8-5 until further notice.

"Today is only one day in all the days that will ever be. But what will happen in all the other days that will ever come can depend on what you do today." Thoreau

How was your customer experience?
Please take our 5 minute Online Customer Survey

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Effective **February 1, 2021** ARI Labs, Inc. will be migrating metals analysis methods SW6010C to SW6010D (ICP) and SW6020A to SW6020B (ICPMS). Please see this post for more information.

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If you have received this correspondence in error, please notify sender and delete this message from your computer immediately. Thank you.

ARI Labs, Inc.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/19/2021 8:17:45AM

WORK ORDER

21H0222

Client: Shannon & Wilson, Inc	**Project Manager:** Shelly Fishel
Project: Lower Duwamish Q3	**Project Number:** 21-1-12596-012

Preservation Confirmation

Container ID	Container Type	pH	
21H0222-01 A	Small OJ, 500 mL, EDTA		
21H0222-01 B	Glass NM, Amber, 500 mL, HCl	Lab to verify preservation	
21H0222-01 C	Small OJ, 500 mL		
21H0222-01 D	Small OJ, 500 mL		
21H0222-01 E	HDPE NM, 500 mL		
21H0222-01 F	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0222-01 G	Glass NM, Amber, 500 mL		
21H0222-01 H	Glass NM, Amber, 500 mL		
21H0222-01 I	VOA Vial, Clear, 40 mL, HCL	Bubble	
21H0222-01 J	VOA Vial, Clear, 40 mL, HCL		
21H0222-01 K	VOA Vial, Clear, 40 mL, HCL		
21H0222-01 L	VOA Vial, Clear, 40 mL, HCL		
21H0222-01 M	VOA Vial, Clear, 40 mL, HCL		
21H0222-01 N	VOA Vial, Clear, 40 mL, HCL		
21H0222-01 O	VOA Vial, Clear, 40 mL, HCL		
21H0222-01 P	VOA Vial, Clear, 40 mL, HCL		
21H0222-01 Q	VOA Vial, Clear, 40 mL, HCL		
21H0222-02 A	HDPE NM, 500 mL	>2	Fail (1)
21H0222-03 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0222-03 B	Glass NM, Amber, 500 mL		
21H0222-03 C	Glass NM, Amber, 500 mL		
21H0222-03 D	VOA Vial, Clear, 40 mL, HCL	Bubble	
21H0222-03 E	VOA Vial, Clear, 40 mL, HCL		
21H0222-03 F	VOA Vial, Clear, 40 mL, HCL		
21H0222-03 G	VOA Vial, Clear, 40 mL, HCL		
21H0222-03 H	VOA Vial, Clear, 40 mL, HCL		
21H0222-04 A	HDPE NM, 500 mL	>2	Fail (1)
21H0222-05 A	Glass NM, Amber, 1000 mL		
21H0222-05 B	Glass NM, Amber, 1000 mL		
21H0222-05 C	Glass NM, Amber, 500 mL		
21H0222-05 D	Glass NM, Amber, 500 mL		
21H0222-05 E	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0222-05 F	VOA Vial, Clear, 40 mL, HCL		
21H0222-05 G	VOA Vial, Clear, 40 mL, HCL		
21H0222-05 H	VOA Vial, Clear, 40 mL, HCL		

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/19/2021 8:17:45AM

WORK ORDER

21H0222

Client: Shannon & Wilson, Inc	**Project Manager:** Shelly Fishel
Project: Lower Duwamish Q3	**Project Number:** 21-1-12596-012

21H0222-05 I	VOA Vial, Clear, 40 mL, HCL		
21H0222-05 J	VOA Vial, Clear, 40 mL, HCL		
21H0222-06 A	HDPE NM, 500 mL	>2	Fail (1)
21H0222-07 A	Glass NM, Amber, 500 mL		
21H0222-07 B	Glass NM, Amber, 500 mL		
21H0222-07 C	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0222-07 D	VOA Vial, Clear, 40 mL, HCL		
21H0222-07 E	VOA Vial, Clear, 40 mL, HCL		
21H0222-07 F	VOA Vial, Clear, 40 mL, HCL		
21H0222-07 G	VOA Vial, Clear, 40 mL, HCL		
21H0222-07 H	VOA Vial, Clear, 40 mL, HCL		
21H0222-08 A	HDPE NM, 500 mL	>2	Fail (1)
21H0222-09 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0222-09 B	Glass NM, Amber, 500 mL		
21H0222-09 C	Glass NM, Amber, 500 mL		
21H0222-09 D	VOA Vial, Clear, 40 mL, HCL	Bubble	
21H0222-09 E	VOA Vial, Clear, 40 mL, HCL		
21H0222-09 F	VOA Vial, Clear, 40 mL, HCL		
21H0222-09 G	VOA Vial, Clear, 40 mL, HCL		
21H0222-09 H	VOA Vial, Clear, 40 mL, HCL		
21H0222-10 A	HDPE NM, 500 mL	>2	Fail (1)
21H0222-11 A	VOA Vial, Clear, 40 mL, HCL		
21H0222-11 B	VOA Vial, Clear, 40 mL, HCL		
21H0222-11 C	VOA Vial, Clear, 40 mL, HCL		
21H0222-11 D	VOA Vial, Clear, 40 mL, HCL		
21H0222-11 E	VOA Vial, Clear, 40 mL, HCL		

SBr
Preservation Confirmed By

08/19/2021
Date

(1) Filtered at 0.45 um and preserved to pH <2.0 with conc. HNO_3 (7647). MI 08119121

Reviewed By

Date

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-36-20211808

21H0222-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/18/2021 15:55

Instrument: NT3 Analyst: PKC — Analyzed: 08/19/2021 16:25

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0222-01 O

Preparation Batch: BJH0506 — Sample Size: 10 mL

Prepared: 08/19/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*101*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*96.1*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*96.6*	*%*	

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-36-20211808

21H0222-01 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/18/2021 15:55

Instrument: NT3 Analyst: PKC — Analyzed: 08/30/2021 18:46

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0222-01 L

Preparation Batch: BJH0751 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*104*	*%*	

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-36-20211808

21H0222-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/18/2021 15:55

Instrument: NT16 Analyst: PB — Analyzed: 08/20/2021 19:14

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0222-01 K

Preparation Batch: BJH0543 — Sample Size: 10 mL

Prepared: 08/20/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*110*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*103*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*88.7*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-36-20211808

21H0222-01 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 08/18/2021 15:55

Instrument: FID6 Analyst: PB — Analyzed: 08/25/2021 14:23

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0222-01 P

Preparation Batch: BJH0481 — Sample Size: 10 mL

Prepared: 08/25/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	5190	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*72-122 %*	*83.8*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-36-20211808

21H0222-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/18/2021 15:55
Instrument: FID4 Analyst: TWC — Analyzed: 09/08/2021 18:19

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0222-01 G 01
Preparation Batch: BJH0530 — Sample Size: 500 mL
Prepared: 08/23/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.419	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*105*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-36-20211808

21H0222-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/18/2021 15:55

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/31/2021 00:05

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0222-01 F 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	2	0.520	1.00	1.31	ug/L	D
Lead	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese	7439-96-5	20	2.84	10.0	3130	ug/L	B, D
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U

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Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-36-20211808

21H0222-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/18/2021 15:55

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/27/2021 20:05

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0222-01 F 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	51.7	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt	7440-48-4	1	0.0178	0.200	0.151	ug/L	J
Copper	7440-50-8	1	0.173	0.500	0.183	ug/L	J
Nickel	7440-02-0	1	0.0792	0.500	0.475	ug/L	J
Selenium	7782-49-2	1	0.179	0.500	0.287	ug/L	J
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-36-20211808

21H0222-01 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/18/2021 15:55
Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 14:49

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0222-01 F
Preparation Batch: BJH0598 — Sample Size: 20 mL
Prepared: 08/24/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	0.000015	mg/L	J

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-36-20211808

21H0222-01 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 08/18/2021 15:55

Instrument: IC930 Analyst: BF — Analyzed: 08/19/2021 16:43

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0222-01 C

Preparation Batch: BJH0508 — Sample Size: 10 mL

Prepared: 08/19/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	0.100	0.100	4.65	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	1.26	mg/L	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-36-20211808

21H0222-01 (Water)

Wet Chemistry

Method: SM 4500-SO3 B-00 — Sampled: 08/18/2021 15:55

Instrument: N/A Analyst: UW — Analyzed: 08/18/2021 17:44

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0222-01

Preparation Batch: BJH0486 — Sample Size: 50 mL

Prepared: 08/18/2021 — Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfite	14265-45-3	1	1.4	1.4	ND	mg/L	H, U

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-36-20211808

21H0222-01RE1 (Water)

Wet Chemistry

Method: SM 3500-Fe B-97 — Sampled: 08/18/2021 15:55

Instrument: UV1800-2 Analyst: BF — Analyzed: 08/18/2021 19:25

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0222-01RE1 B

Preparation Batch: BJH0487 — Sample Size: 5 mL

Prepared: 08/18/2021 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ferrous Iron		20	0.800	0.800	33.6	mg/L	D

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-36-20211808

21H0222-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/18/2021 15:55
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/01/2021 19:11

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0222-02 A 02
Preparation Batch: BJI0013 — Sample Size: 25 mL — Filtration Batch: BJH0499
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/19/2021 11:39

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.260	0.500	0.430	ug/L	J
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-36-20211808

21H0222-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/18/2021 15:55
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/01/2021 19:11

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0222-02 A 02
Preparation Batch: BJI0013 — Sample Size: 25 mL — Filtration Batch: BJH0499
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/19/2021 11:39

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	13.3	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	0.128	ug/L	J
Copper, Dissolved	7440-50-8	1	0.173	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	0.448	ug/L	J
Selenium, Dissolved	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-36-20211808

21H0222-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/18/2021 15:55
Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 15:43

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0222-02 A 01
Preparation Batch: BJH0611 — Sample Size: 20 mL — Filtration Batch: BJH0499
Prepared: 08/24/2021 — Final Volume: 20 mL — Filtration Date: 08/19/2021 11:39

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	0.000015	mg/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-36-20211808

21H0222-02RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/18/2021 15:55
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/01/2021 19:50

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0222-02RE1 A 02
Preparation Batch: BJI0013 — Sample Size: 25 mL — Filtration Batch: BJH0499
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/19/2021 11:39

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	20	2.84	10.0	2940	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-38-20211808

21H0222-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/18/2021 14:13

Instrument: NT3 Analyst: PKC — Analyzed: 08/19/2021 16:50

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0222-03 F

Preparation Batch: BJH0506 — Sample Size: 10 mL

Prepared: 08/19/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*102*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*99.1*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-38-20211808

21H0222-03 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/18/2021 14:13

Instrument: NT3 Analyst: PKC — Analyzed: 08/30/2021 19:11

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0222-03 H

Preparation Batch: BJH0751 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*97.9*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*99.7*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-38-20211808

21H0222-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/18/2021 14:13
Instrument: FID4 Analyst: TWC — Analyzed: 09/08/2021 18:40

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0222-03 B 01
Preparation Batch: BJH0530 — Sample Size: 500 mL
Prepared: 08/23/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*96.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-38-20211808

21H0222-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/18/2021 14:13

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/31/2021 19:43

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0222-03 A 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	5	0.710	2.50	618	ug/L	B, D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-38-20211808

21H0222-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/18/2021 14:13
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/01/2021 18:22

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0222-04 A 02
Preparation Batch: BJI0013 — Sample Size: 25 mL — Filtration Batch: BJH0499
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/19/2021 11:39

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	10	1.42	5.00	368	ug/L	D

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-42-20211808

21H0222-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/18/2021 10:20

Instrument: NT3 Analyst: PKC — Analyzed: 08/19/2021 17:15

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0222-05 H

Preparation Batch: BJH0506 — Sample Size: 10 mL

Prepared: 08/19/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*102*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*99.7*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.4*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-42-20211808

21H0222-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/18/2021 10:20

Instrument: NT16 Analyst: PB — Analyzed: 08/20/2021 19:34

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0222-05 I

Preparation Batch: BJH0543 — Sample Size: 10 mL

Prepared: 08/20/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*110*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*103*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*89.2*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-42-20211808

21H0222-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/18/2021 10:20
Instrument: FID4 Analyst: TWC — Analyzed: 09/08/2021 19:00

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0222-05 C 01
Preparation Batch: BJH0530 — Sample Size: 500 mL
Prepared: 08/23/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*92.4*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-42-20211808

21H0222-05 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/18/2021 10:20
Instrument: ECD7 Analyst: JGR — Analyzed: 09/02/2021 15:41

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0222-05 A 01
	Preparation Batch: BJH0532	Sample Size: 1000 mL	
	Prepared: 08/23/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0222-05 A 01
	Cleanup Batch: CJI0015	Initial Volume: 0.5 mL	
	Cleaned: 02-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0222-05 A 01
	Cleanup Batch: CJI0013	Initial Volume: 0.5 mL	
	Cleaned: 02-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0222-05 A 01
	Cleanup Batch: CJI0014	Initial Volume: 0.5 mL	
	Cleaned: 02-Sep-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*78.8*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*70.9*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*76.1*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*66.9*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-42-20211808

21H0222-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/18/2021 10:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/31/2021 19:52

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0222-05 E 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	5	1.30	2.50	9.97	ug/L	D
Manganese	7439-96-5	5	0.710	2.50	108	ug/L	B, D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-42-20211808

21H0222-05 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/18/2021 10:20
Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 14:52

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0222-05 E
Preparation Batch: BJH0598 — Sample Size: 20 mL
Prepared: 08/24/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	0.000022	mg/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-42-20211808

21H0222-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/18/2021 10:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/01/2021 19:06

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0222-06 A 02
Preparation Batch: BJI0013 — Sample Size: 25 mL — Filtration Batch: BJH0499
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/19/2021 11:39

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.260	0.500	0.779	ug/L	
Manganese, Dissolved	7439-96-5	1	0.142	0.500	86.4	ug/L	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-42-20211808

21H0222-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/18/2021 10:20
Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 15:52

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0222-06 A 01
Preparation Batch: BJH0611 — Sample Size: 20 mL — Filtration Batch: BJH0499
Prepared: 08/24/2021 — Final Volume: 20 mL — Filtration Date: 08/19/2021 11:39

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	0.000019	mg/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-67-20211808

21H0222-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/18/2021 12:15

Instrument: NT3 Analyst: PKC — Analyzed: 08/19/2021 17:41

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0222-07 E

Preparation Batch: BJH0506 — Sample Size: 10 mL

Prepared: 08/19/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	0.12	ug/L	J
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*102*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*98.1*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*97.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-67-20211808

21H0222-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/18/2021 12:15

Instrument: NT16 Analyst: PB — Analyzed: 08/20/2021 19:54

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0222-07 F

Preparation Batch: BJH0543 — Sample Size: 10 mL

Prepared: 08/20/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	16.2	ng/L	J
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*109*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*103*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*89.5*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-67-20211808

21H0222-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/18/2021 12:15

Instrument: NT10 Analyst: VTS — Analyzed: 09/03/2021 15:31

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0222-07 A 01

Preparation Batch: BJH0569 — Sample Size: 1000 mL

Prepared: 08/24/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	0.01	0.2	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	0.03	0.2	ND	ug/L	U
2-Chlorophenol	95-57-8	1	0.03	0.2	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.03	0.2	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	0.02	0.2	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	0.03	0.2	ND	ug/L	U
2-Methylphenol	95-48-7	1	0.03	0.2	ND	ug/L	U
Hexachloroethane	67-72-1	1	0.04	0.2	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	0.04	0.2	ND	ug/L	U
4-Methylphenol	106-44-5	1	0.03	0.2	ND	ug/L	U
Nitrobenzene	98-95-3	1	0.03	0.2	ND	ug/L	U
Isophorone	78-59-1	1	0.03	0.2	ND	ug/L	U
2-Nitrophenol	88-75-5	1	0.04	1.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	0.03	0.2	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	0.1	1.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.03	0.2	ND	ug/L	U
Naphthalene	91-20-3	1	0.03	0.2	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	0.04	1.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	0.04	0.2	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	0.1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.03	0.2	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	0.1	1.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	0.2	1.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	0.1	1.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	0.03	0.2	ND	ug/L	U
2-Nitroaniline	88-74-4	1	0.2	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.02	0.2	ND	ug/L	U
Dimethylphthalate	131-11-3	1	0.04	0.2	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.03	0.2	ND	ug/L	U
3-Nitroaniline	99-09-2	1	0.2	1.0	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-67-20211808

21H0222-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/18/2021 12:15

Instrument: NT10 Analyst: VTS — Analyzed: 09/03/2021 15:31

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	0.2	2.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.02	0.2	ND	ug/L	U
4-Nitrophenol	100-02-7	1	0.06	1.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	0.1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.02	0.2	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	0.02	0.2	ND	ug/L	U
Diethyl phthalate	84-66-2	1	0.06	0.2	ND	ug/L	U
4-Nitroaniline	100-01-6	1	0.2	1.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	0.4	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	0.02	0.2	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	0.04	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.02	0.2	ND	ug/L	U
Anthracene	120-12-7	1	0.03	0.2	ND	ug/L	U
Carbazole	86-74-8	1	0.04	0.2	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Fluoranthene	206-44-0	1	0.03	0.2	ND	ug/L	U
Pyrene	129-00-0	1	0.03	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.04	0.2	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	0.3	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.04	0.2	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	0.05	0.2	ND	ug/L	U
Benzofluoranthenes, Total		1	0.08	0.4	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.05	0.2	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.06	0.2	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.07	0.2	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.04	0.2	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.03	0.2	ND	ug/L	U
Surrogate: 2-Fluorophenol				*30-160 %*	*34.4*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*19.9*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*72.0*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*64.9*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*78.2*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*81.1*	*%*	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-67-20211808

21H0222-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/18/2021 12:15

Instrument: NT10 Analyst: VTS — Analyzed: 09/03/2021 15:31

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 2,4,6-Tribromophenol		*30-160 %*	*92.6*	*%*	
Surrogate: p-Terphenyl-d14		*30-160 %*	*85.4*	*%*	

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Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-67-20211808

21H0222-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/18/2021 12:15

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/31/2021 18:49

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0222-07 C 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.114	0.500	8.68	ug/L	
Chromium	7440-47-3	1	0.260	0.500	1.82	ug/L	
Iron	7439-89-6	1	18.2	36.0	680	ug/L	
Lead	7439-92-1	1	0.0513	0.100	0.0880	ug/L	J
Manganese	7439-96-5	1	0.142	0.500	9.50	ug/L	B
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium	7440-62-2	1	0.0556	0.200	4.74	ug/L	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-67-20211808

21H0222-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/18/2021 12:15

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/27/2021 20:10

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0222-07 C 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	1.08	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt	7440-48-4	1	0.0178	0.200	0.256	ug/L	
Copper	7440-50-8	1	0.173	0.500	4.03	ug/L	
Nickel	7440-02-0	1	0.0792	0.500	2.09	ug/L	
Selenium	7782-49-2	1	0.179	0.500	0.704	ug/L	
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-67-20211808

21H0222-07 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/18/2021 12:15

Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 14:54

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0222-07 C

Preparation Batch: BJH0598 — Sample Size: 20 mL

Prepared: 08/24/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	0.000019	mg/L	J

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-67-20211808

21H0222-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/18/2021 12:15
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/01/2021 19:16

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0222-08 A 02
Preparation Batch: BJI0013 — Sample Size: 25 mL — Filtration Batch: BJH0499
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/19/2021 11:39

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.114	0.500	6.04	ug/L	
Chromium, Dissolved	7440-47-3	1	0.260	0.500	0.743	ug/L	
Iron, Dissolved	7439-89-6	1	18.2	36.0	33.8	ug/L	J
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	1	0.142	0.500	5.05	ug/L	
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0556	0.200	3.49	ug/L	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-67-20211808

21H0222-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/18/2021 12:15

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/01/2021 19:16

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0222-08 A 02

Preparation Batch: BJI0013 — Sample Size: 25 mL — Filtration Batch: BJH0499

Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/19/2021 11:39

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.716	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	0.129	ug/L	J
Copper, Dissolved	7440-50-8	1	0.173	0.500	3.33	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	1.72	ug/L	
Selenium, Dissolved	7782-49-2	1	0.179	0.500	0.470	ug/L	J
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-67-20211808

21H0222-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/18/2021 12:15
Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 15:54

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0222-08 A 01
Preparation Batch: BJH0611 — Sample Size: 20 mL — Filtration Batch: BJH0499
Prepared: 08/24/2021 — Final Volume: 20 mL — Filtration Date: 08/19/2021 11:39

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	0.000016	mg/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-103-20211808

21H0222-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/18/2021 14:28

Instrument: NT3 Analyst: PKC — Analyzed: 08/19/2021 18:06

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0222-09 E

Preparation Batch: BJH0506 — Sample Size: 10 mL

Prepared: 08/19/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*98.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*97.3*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-103-20211808

21H0222-09 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/18/2021 14:28

Instrument: NT3 Analyst: PKC — Analyzed: 08/30/2021 19:36

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0222-09 G

Preparation Batch: BJH0751 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*96.9*	*%*	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-103-20211808

21H0222-09 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/18/2021 14:28
Instrument: FID4 Analyst: TWC — Analyzed: 09/08/2021 19:20

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0222-09 B 01
Preparation Batch: BJH0530 — Sample Size: 500 mL
Prepared: 08/23/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*97.5*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-103-20211808

21H0222-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/18/2021 14:28
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/31/2021 19:47

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0222-09 A 01
Preparation Batch: BJH0670 — Sample Size: 25 mL
Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	5	0.710	2.50	569	ug/L	B, D

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

MW-103-20211808

21H0222-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/18/2021 14:28
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/01/2021 18:26

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0222-10 A 02
Preparation Batch: BJI0013 — Sample Size: 25 mL — Filtration Batch: BJH0499
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/19/2021 11:39

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	10	1.42	5.00	255	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

TB-2-20211808

21H0222-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/18/2021 10:20

Instrument: NT3 Analyst: PKC — Analyzed: 08/19/2021 14:19

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0222-11 B

Preparation Batch: BJH0506 — Sample Size: 10 mL

Prepared: 08/19/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.07	ug/L	J
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*97.7*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.5*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*100*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.0*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

TB-2-20211808

21H0222-11 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/18/2021 10:20

Instrument: NT3 Analyst: PKC — Analyzed: 08/30/2021 13:44

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0222-11 E

Preparation Batch: BJH0751 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*98.6*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*98.7*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

TB-2-20211808

21H0222-11 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/18/2021 10:20
Instrument: NT16 Analyst: PB — Analyzed: 08/20/2021 16:31

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0222-11 C
Preparation Batch: BJH0543 — Sample Size: 10 mL
Prepared: 08/20/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*108*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*105*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*89.0*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Volatile Organic Compounds - Quality Control

Batch BJH0506 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0506-BLK1)				Prepared: 19-Aug-2021 Analyzed: 19-Aug-2021 13:07							
Vinyl Chloride	ND	0.08	0.20	ug/L							U
1,1-Dichloroethene	ND	0.08	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.07	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Benzene	ND	0.05	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
Toluene	ND	0.05	0.20	ug/L							U
Tetrachloroethene	ND	0.09	0.20	ug/L							U
Ethylbenzene	ND	0.05	0.20	ug/L							U
m,p-Xylene	ND	0.14	0.40	ug/L							U
o-Xylene	ND	0.08	0.20	ug/L							U
Xylenes, total	ND	0.22	0.60	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.98			ug/L	*5.00*		*99.5*	*80-129*			
Surrogate: Toluene-d8	4.99			ug/L	*5.00*		*99.7*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.94			ug/L	*5.00*		*98.9*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.04			ug/L	*5.00*		*101*	*80-120*			
LCS (BJH0506-BS1)				Prepared: 19-Aug-2021 Analyzed: 19-Aug-2021 11:29							
Vinyl Chloride	10.2	0.08	0.20	ug/L	10.0		102	66-133			
1,1-Dichloroethene	11.0	0.08	0.20	ug/L	10.0		110	69-135			
trans-1,2-Dichloroethene	9.60	0.07	0.20	ug/L	10.0		96.0	78-128			
cis-1,2-Dichloroethene	9.99	0.08	0.20	ug/L	10.0		99.9	80-121			
Benzene	9.92	0.05	0.20	ug/L	10.0		99.2	80-120			
Trichloroethene	9.40	0.07	0.20	ug/L	10.0		94.0	80-120			
Toluene	9.83	0.05	0.20	ug/L	10.0		98.3	80-120			
Tetrachloroethene	9.50	0.09	0.20	ug/L	10.0		95.0	80-120			
Ethylbenzene	9.91	0.05	0.20	ug/L	10.0		99.1	80-120			
m,p-Xylene	19.4	0.14	0.40	ug/L	20.0		97.2	80-121			
o-Xylene	9.59	0.08	0.20	ug/L	10.0		95.9	80-121			
Xylenes, total	29.0	0.22	0.60	ug/L	30.0		96.8	76-127			
Surrogate: 1,2-Dichloroethane-d4	5.34			ug/L	*5.00*		*107*	*80-129*			
Surrogate: Toluene-d8	4.86			ug/L	*5.00*		*97.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.22			ug/L	*5.00*		*104*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.06			ug/L	*5.00*		*101*	*80-120*			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Volatile Organic Compounds - Quality Control

Batch BJH0506 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJH0506-BSD1)					Prepared: 19-Aug-2021 Analyzed: 19-Aug-2021 12:17						
Vinyl Chloride	9.81	0.08	0.20	ug/L	10.0		98.1	66-133	3.79	30	
1,1-Dichloroethene	10.3	0.08	0.20	ug/L	10.0		103	69-135	6.00	30	
trans-1,2-Dichloroethene	8.73	0.07	0.20	ug/L	10.0		87.3	78-128	9.48	30	
cis-1,2-Dichloroethene	8.97	0.08	0.20	ug/L	10.0		89.7	80-121	10.70	30	
Benzene	9.07	0.05	0.20	ug/L	10.0		90.7	80-120	8.93	30	
Trichloroethene	8.81	0.07	0.20	ug/L	10.0		88.1	80-120	6.49	30	
Toluene	8.99	0.05	0.20	ug/L	10.0		89.9	80-120	8.97	30	
Tetrachloroethene	9.09	0.09	0.20	ug/L	10.0		90.9	80-120	4.40	30	
Ethylbenzene	9.38	0.05	0.20	ug/L	10.0		93.8	80-120	5.54	30	
m,p-Xylene	18.7	0.14	0.40	ug/L	20.0		93.3	80-121	4.16	30	
o-Xylene	9.23	0.08	0.20	ug/L	10.0		92.3	80-121	3.83	30	
Xylenes, total	27.9	0.22	0.60	ug/L	30.0		92.9	76-127	4.05	30	
Surrogate: 1,2-Dichloroethane-d4	4.95			ug/L	*5.00*		*99.0*	*80-129*			
Surrogate: Toluene-d8	5.02			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.06			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.87			ug/L	*5.00*		*97.4*	*80-120*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Volatile Organic Compounds - Quality Control

Batch BJH0751 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0751-BLK1)				Prepared: 30-Aug-2021 Analyzed: 30-Aug-2021 12:53						
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.96		ug/L	*5.00*		*99.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.09		ug/L	*5.00*		*102*	*80-120*			
LCS (BJH0751-BS1)				Prepared: 30-Aug-2021 Analyzed: 30-Aug-2021 10:15						
Gasoline Range Organics (Tol-Nap)	1020	100	ug/L	1000		102	72-128			
Surrogate: Toluene-d8	5.09		ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.82		ug/L	*5.00*		*96.4*	*80-120*			
LCS Dup (BJH0751-BSD1)				Prepared: 30-Aug-2021 Analyzed: 30-Aug-2021 11:05						
Gasoline Range Organics (Tol-Nap)	1060	100	ug/L	1000		106	72-128	3.74	30	
Surrogate: Toluene-d8	4.90		ug/L	*5.00*		*98.1*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.82		ug/L	*5.00*		*96.4*	*80-120*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Volatile Organic Compounds - SIM - Quality Control

Batch BJH0543 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0543-BLK1)				Prepared: 20-Aug-2021 Analyzed: 20-Aug-2021 14:57							
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	5290			ng/L	*5000*		*106*	*80-129*			
Surrogate: Toluene-d8	5120			ng/L	*5000*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4490			ng/L	*5000*		*89.8*	*75-125*			
LCS (BJH0543-BS1)				Prepared: 20-Aug-2021 Analyzed: 20-Aug-2021 12:35							
Vinyl chloride	2400	5.01	20.0	ng/L	2000		120	62-141			
Surrogate: 1,2-Dichloroethane-d4	5310			ng/L	*5000*		*106*	*80-129*			
Surrogate: Toluene-d8	4960			ng/L	*5000*		*99.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5930			ng/L	*5000*		*119*	*75-125*			
LCS Dup (BJH0543-BSD1)				Prepared: 20-Aug-2021 Analyzed: 20-Aug-2021 14:21							
Vinyl chloride	2300	5.01	20.0	ng/L	2000		115	62-141	4.43	30	
Surrogate: 1,2-Dichloroethane-d4	5410			ng/L	*5000*		*108*	*80-129*			
Surrogate: Toluene-d8	4880			ng/L	*5000*		*97.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5130			ng/L	*5000*		*103*	*75-125*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Dissolved Gases - Quality Control

Batch BJH0481 - EPA 5030C (Purge and Trap)

Instrument: FID6 Analyst: PB

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0481-BLK1)				Prepared: 25-Aug-2021	Analyzed: 25-Aug-2021 10:05					
Methane	ND	0.65	ug/L							U
Ethane	ND	1.23	ug/L							U
Ethene	ND	1.14	ug/L							U
Acetylene	ND	1.06	ug/L							U
Surrogate: Propane	2190		ug/L	*1800*		*122*	*72-122*			
LCS (BJH0481-BS1)				Prepared: 25-Aug-2021	Analyzed: 25-Aug-2021 10:54					
Methane	615	0.65	ug/L	656		93.8	80-120			
Ethane	1260	1.23	ug/L	1230		102	80-120			
Ethene	1170	1.14	ug/L	1150		102	80-120			
Acetylene	1070	1.06	ug/L	1060		101	73-123			E
Surrogate: Propane	1990		ug/L	*1800*		*111*	*62-122*			
LCS Dup (BJH0481-BSD1)				Prepared: 25-Aug-2021	Analyzed: 25-Aug-2021 11:12					
Methane	612	0.65	ug/L	656		93.3	80-120	0.47	30	
Ethane	1230	1.23	ug/L	1230		99.6	80-120	2.53	30	
Ethene	1150	1.14	ug/L	1150		99.8	80-120	1.69	30	
Acetylene	1090	1.06	ug/L	1060		103	73-123	2.05	30	E
Surrogate: Propane	1800		ug/L	*1800*		*100*	*62-122*			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Semivolatile Organic Compounds - Quality Control

Batch BJH0569 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0569-BLK1)				Prepared: 24-Aug-2021 Analyzed: 03-Sep-2021 13:38							
Phenol	ND	0.01	0.2	ug/L							U
bis(2-chloroethyl) ether	ND	0.03	0.2	ug/L							U
2-Chlorophenol	ND	0.03	0.2	ug/L							U
1,3-Dichlorobenzene	ND	0.03	0.2	ug/L							U
1,4-Dichlorobenzene	ND	0.03	0.2	ug/L							U
1,2-Dichlorobenzene	ND	0.03	0.2	ug/L							U
Benzyl Alcohol	ND	0.02	0.2	ug/L							U
2,2'-Oxybis(1-chloropropane)	ND	0.03	0.2	ug/L							U
2-Methylphenol	ND	0.03	0.2	ug/L							U
Hexachloroethane	ND	0.04	0.2	ug/L							U
N-Nitroso-di-n-Propylamine	ND	0.04	0.2	ug/L							U
4-Methylphenol	ND	0.03	0.2	ug/L							U
Nitrobenzene	ND	0.03	0.2	ug/L							U
Isophorone	ND	0.03	0.2	ug/L							U
2-Nitrophenol	ND	0.04	1.0	ug/L							U
2,4-Dimethylphenol	ND	0.3	1.0	ug/L							U
Bis(2-Chloroethoxy)methane	ND	0.03	0.2	ug/L							U
2,4-Dichlorophenol	ND	0.1	1.0	ug/L							U
1,2,4-Trichlorobenzene	ND	0.03	0.2	ug/L							U
Naphthalene	ND	0.03	0.2	ug/L							U
Benzoic acid	ND	0.1	2.0	ug/L							U
4-Chloroaniline	ND	0.04	1.0	ug/L							U
Hexachlorobutadiene	ND	0.04	0.2	ug/L							U
4-Chloro-3-Methylphenol	ND	0.1	1.0	ug/L							U
2-Methylnaphthalene	ND	0.03	0.2	ug/L							U
Hexachlorocyclopentadiene	ND	0.1	1.0	ug/L							U
2,4,6-Trichlorophenol	ND	0.2	1.0	ug/L							U
2,4,5-Trichlorophenol	ND	0.1	1.0	ug/L							U
2-Chloronaphthalene	ND	0.03	0.2	ug/L							U
2-Nitroaniline	ND	0.2	1.0	ug/L							U
Acenaphthylene	ND	0.02	0.2	ug/L							U
Dimethylphthalate	ND	0.04	0.2	ug/L							U
2,6-Dinitrotoluene	ND	0.2	1.0	ug/L							U
Acenaphthene	ND	0.03	0.2	ug/L							U
3-Nitroaniline	ND	0.2	1.0	ug/L							U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Semivolatile Organic Compounds - Quality Control

Batch BJH0569 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0569-BLK1)				Prepared: 24-Aug-2021 Analyzed: 03-Sep-2021 13:38							
2,4-Dinitrophenol	ND	0.2	2.0	ug/L							U
Dibenzofuran	ND	0.02	0.2	ug/L							U
4-Nitrophenol	ND	0.06	1.0	ug/L							U
2,4-Dinitrotoluene	ND	0.1	1.0	ug/L							U
Fluorene	ND	0.02	0.2	ug/L							U
4-Chlorophenylphenyl ether	ND	0.02	0.2	ug/L							U
Diethyl phthalate	ND	0.06	0.2	ug/L							U
4-Nitroaniline	ND	0.2	1.0	ug/L							U
4,6-Dinitro-2-methylphenol	ND	0.4	2.0	ug/L							U
N-Nitrosodiphenylamine	ND	0.03	0.2	ug/L							U
4-Bromophenyl phenyl ether	ND	0.02	0.2	ug/L							U
Hexachlorobenzene	ND	0.04	0.2	ug/L							U
Pentachlorophenol	ND	0.1	1.0	ug/L							U
Phenanthrene	ND	0.02	0.2	ug/L							U
Anthracene	ND	0.03	0.2	ug/L							U
Carbazole	ND	0.04	0.2	ug/L							U
Di-n-Butylphthalate	ND	0.05	0.2	ug/L							U
Fluoranthene	ND	0.03	0.2	ug/L							U
Pyrene	ND	0.03	0.2	ug/L							U
Butylbenzylphthalate	ND	0.07	0.2	ug/L							U
Benzo(a)anthracene	ND	0.04	0.2	ug/L							U
3,3'-Dichlorobenzidine	ND	0.3	1.0	ug/L							U
Chrysene	ND	0.04	0.2	ug/L							U
bis(2-Ethylhexyl)phthalate	0.2	0.2	0.2	ug/L							
Di-n-Octylphthalate	ND	0.05	0.2	ug/L							U
Benzofluoranthenes, Total	ND	0.08	0.4	ug/L							U
Benzo(a)pyrene	ND	0.05	0.2	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.06	0.2	ug/L							U
Dibenzo(a,h)anthracene	ND	0.07	0.2	ug/L							U
Benzo(g,h,i)perylene	ND	0.04	0.2	ug/L							U
1-Methylnaphthalene	ND	0.03	0.2	ug/L							U
Surrogate: 2-Fluorophenol	2.40			ug/L	*7.50*		*32.0*	*30-160*			
Surrogate: Phenol-d5	1.36			ug/L	*7.50*		*18.1*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	5.35			ug/L	*7.50*		*71.3*	*30-160*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Semivolatile Organic Compounds - Quality Control

Batch BJH0569 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0569-BLK1)				Prepared: 24-Aug-2021 Analyzed: 03-Sep-2021 13:38							
Surrogate: 1,2-Dichlorobenzene-d4	3.15			ug/L	*5.00*		*63.1*	*30-160*			
Surrogate: Nitrobenzene-d5	3.73			ug/L	*5.00*		*74.6*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.90			ug/L	*5.00*		*77.9*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.62			ug/L	*7.50*		*88.3*	*30-160*			
Surrogate: p-Terphenyl-d14	4.66			ug/L	*5.00*		*93.2*	*30-160*			
LCS (BJH0569-BS1)				Prepared: 24-Aug-2021 Analyzed: 03-Sep-2021 14:16							
Phenol	1.2	0.01	0.2	ug/L	5.00		24.2	30-160			*
bis(2-chloroethyl) ether	4.4	0.03	0.2	ug/L	5.00		88.5	30-160			
2-Chlorophenol	3.5	0.03	0.2	ug/L	5.00		70.2	30-160			
1,3-Dichlorobenzene	3.5	0.03	0.2	ug/L	5.00		70.0	30-160			
1,4-Dichlorobenzene	3.8	0.03	0.2	ug/L	5.00		76.3	30-160			
1,2-Dichlorobenzene	3.6	0.03	0.2	ug/L	5.00		71.5	30-160			
Benzyl Alcohol	1.8	0.02	0.2	ug/L	5.00		35.9	30-160			
2,2'-Oxybis(1-chloropropane)	4.3	0.03	0.2	ug/L	5.00		85.2	30-160			
2-Methylphenol	2.7	0.03	0.2	ug/L	5.00		53.1	30-160			
Hexachloroethane	3.6	0.04	0.2	ug/L	5.00		72.5	30-160			
N-Nitroso-di-n-Propylamine	3.6	0.04	0.2	ug/L	5.00		71.9	30-160			
4-Methylphenol	2.3	0.03	0.2	ug/L	5.00		46.9	30-160			
Nitrobenzene	4.5	0.03	0.2	ug/L	5.00		89.4	30-160			
Isophorone	5.8	0.03	0.2	ug/L	5.00		115	30-160			
2-Nitrophenol	4.4	0.04	1.0	ug/L	5.00		88.5	30-160			Q
2,4-Dimethylphenol	9.2	0.3	1.0	ug/L	13.0		70.5	30-160			
Bis(2-Chloroethoxy)methane	4.2	0.03	0.2	ug/L	5.00		83.4	30-160			
2,4-Dichlorophenol	12.6	0.1	1.0	ug/L	13.0		97.3	30-160			
1,2,4-Trichlorobenzene	3.5	0.03	0.2	ug/L	5.00		70.0	30-160			
Naphthalene	3.7	0.03	0.2	ug/L	5.00		73.8	30-160			
Benzoic acid	5.0	0.1	2.0	ug/L	23.0		21.8	30-160			*
4-Chloroaniline	1.1	0.04	1.0	ug/L	13.0		8.34	30-160			*
Hexachlorobutadiene	3.3	0.04	0.2	ug/L	5.00		66.4	30-160			
4-Chloro-3-Methylphenol	11.8	0.1	1.0	ug/L	13.0		91.1	30-160			
2-Methylnaphthalene	3.5	0.03	0.2	ug/L	5.00		70.0	30-160			
Hexachlorocyclopentadiene	5.9	0.1	1.0	ug/L	13.0		45.4	30-160			
2,4,6-Trichlorophenol	13.8	0.2	1.0	ug/L	13.0		106	30-160			Q
2,4,5-Trichlorophenol	13.3	0.1	1.0	ug/L	13.0		102	30-160			

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Semivolatile Organic Compounds - Quality Control

Batch BJH0569 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0569-BS1)					Prepared: 24-Aug-2021 Analyzed: 03-Sep-2021 14:16						
2-Chloronaphthalene	4.4	0.03	0.2	ug/L	5.00		88.5	30-160			
2-Nitroaniline	12.9	0.2	1.0	ug/L	13.0		99.6	30-160			Q
Acenaphthylene	3.6	0.02	0.2	ug/L	5.00		72.5	30-160			
Dimethylphthalate	4.2	0.04	0.2	ug/L	5.00		83.0	30-160			
2,6-Dinitrotoluene	13.5	0.2	1.0	ug/L	13.0		104	30-160			
Acenaphthene	3.9	0.03	0.2	ug/L	5.00		78.8	30-160			
3-Nitroaniline	7.2	0.2	1.0	ug/L	13.0		55.5	30-160			
2,4-Dinitrophenol	19.4	0.2	2.0	ug/L	23.0		84.2	30-160			
Dibenzofuran	3.7	0.02	0.2	ug/L	5.00		74.7	30-160			
4-Nitrophenol	3.1	0.06	1.0	ug/L	13.0		23.5	30-160			*
2,4-Dinitrotoluene	12.9	0.1	1.0	ug/L	13.0		99.1	30-160			
Fluorene	3.8	0.02	0.2	ug/L	5.00		76.0	30-160			
4-Chlorophenylphenyl ether	4.1	0.02	0.2	ug/L	5.00		81.1	30-160			
Diethyl phthalate	4.3	0.06	0.2	ug/L	5.00		85.3	30-160			
4-Nitroaniline	9.5	0.2	1.0	ug/L	13.0		73.1	30-160			
4,6-Dinitro-2-methylphenol	22.0	0.4	2.0	ug/L	23.0		95.8	30-160			
N-Nitrosodiphenylamine	4.0	0.03	0.2	ug/L	5.00		79.4	30-160			
4-Bromophenyl phenyl ether	4.9	0.02	0.2	ug/L	5.00		97.7	30-160			
Hexachlorobenzene	4.6	0.04	0.2	ug/L	5.00		92.0	30-160			
Pentachlorophenol	10.1	0.1	1.0	ug/L	13.0		77.7	30-160			Q
Phenanthrene	3.9	0.02	0.2	ug/L	5.00		78.4	30-160			
Anthracene	3.7	0.03	0.2	ug/L	5.00		73.2	30-160			
Carbazole	3.9	0.04	0.2	ug/L	5.00		77.4	30-160			
Di-n-Butylphthalate	4.5	0.05	0.2	ug/L	5.00		89.0	30-160			
Fluoranthene	5.2	0.03	0.2	ug/L	5.00		104	30-160			Q
Pyrene	5.1	0.03	0.2	ug/L	5.00		102	30-160			
Butylbenzylphthalate	4.8	0.07	0.2	ug/L	5.00		96.3	30-160			Q
Benzo(a)anthracene	4.1	0.04	0.2	ug/L	5.00		81.3	30-160			
3,3'-Dichlorobenzidine	9.8	0.3	1.0	ug/L	13.0		75.4	30-160			
Chrysene	4.1	0.04	0.2	ug/L	5.00		82.3	30-160			
bis(2-Ethylhexyl)phthalate	5.0	0.2	0.2	ug/L	5.00		101	30-160			B
Di-n-Octylphthalate	4.3	0.05	0.2	ug/L	5.00		86.1	30-160			
Benzofluoranthenes, Total	7.9	0.08	0.4	ug/L	10.0		79.1	30-160			
Benzo(a)pyrene	3.9	0.05	0.2	ug/L	5.00		77.6	30-160			
Indeno(1,2,3-cd)pyrene	4.5	0.06	0.2	ug/L	5.00		89.9	30-160			

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Semivolatile Organic Compounds - Quality Control

Batch BJH0569 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0569-BS1)					Prepared: 24-Aug-2021 Analyzed: 03-Sep-2021 14:16						
Dibenzo(a,h)anthracene	4.4	0.07	0.2	ug/L	5.00		88.3	30-160			
Benzo(g,h,i)perylene	4.6	0.04	0.2	ug/L	5.00		92.7	30-160			
1-Methylnaphthalene	3.6	0.03	0.2	ug/L	5.00		71.7	30-160			
Surrogate: 2-Fluorophenol	2.89			ug/L	*7.50*		*38.5*	*30-160*			
Surrogate: Phenol-d5	1.76			ug/L	*7.50*		*23.4*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	6.13			ug/L	*7.50*		*81.7*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.49			ug/L	*5.00*		*69.8*	*30-160*			
Surrogate: Nitrobenzene-d5	4.48			ug/L	*5.00*		*89.6*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.42			ug/L	*5.00*		*88.5*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	7.15			ug/L	*7.50*		*95.3*	*30-160*			
Surrogate: p-Terphenyl-d14	5.15			ug/L	*5.00*		*103*	*30-160*			
LCS Dup (BJH0569-BSD1)					Prepared: 24-Aug-2021 Analyzed: 03-Sep-2021 14:53						
Phenol	1.4	0.01	0.2	ug/L	5.00		27.2	30-160	11.40	30	*
bis(2-chloroethyl) ether	4.8	0.03	0.2	ug/L	5.00		96.4	30-160	8.60	30	
2-Chlorophenol	3.9	0.03	0.2	ug/L	5.00		78.7	30-160	11.40	30	
1,3-Dichlorobenzene	3.8	0.03	0.2	ug/L	5.00		77.0	30-160	9.42	30	
1,4-Dichlorobenzene	4.4	0.03	0.2	ug/L	5.00		87.5	30-160	13.60	30	
1,2-Dichlorobenzene	3.9	0.03	0.2	ug/L	5.00		78.5	30-160	9.38	30	
Benzyl Alcohol	2.1	0.02	0.2	ug/L	5.00		41.3	30-160	14.00	30	
2,2'-Oxybis(1-chloropropane)	4.7	0.03	0.2	ug/L	5.00		93.3	30-160	9.13	30	
2-Methylphenol	3.0	0.03	0.2	ug/L	5.00		59.1	30-160	10.70	30	
Hexachloroethane	4.0	0.04	0.2	ug/L	5.00		80.0	30-160	9.78	30	
N-Nitroso-di-n-Propylamine	4.0	0.04	0.2	ug/L	5.00		79.3	30-160	9.82	30	
4-Methylphenol	2.6	0.03	0.2	ug/L	5.00		52.4	30-160	11.10	30	
Nitrobenzene	4.9	0.03	0.2	ug/L	5.00		97.1	30-160	8.21	30	
Isophorone	6.4	0.03	0.2	ug/L	5.00		129	30-160	11.40	30	
2-Nitrophenol	4.9	0.04	1.0	ug/L	5.00		97.0	30-160	9.21	30	Q
2,4-Dimethylphenol	10.7	0.3	1.0	ug/L	13.0		82.2	30-160	15.40	30	
Bis(2-Chloroethoxy)methane	4.6	0.03	0.2	ug/L	5.00		92.0	30-160	9.80	30	
2,4-Dichlorophenol	13.5	0.1	1.0	ug/L	13.0		104	30-160	6.42	30	
1,2,4-Trichlorobenzene	3.9	0.03	0.2	ug/L	5.00		77.9	30-160	10.70	30	
Naphthalene	4.1	0.03	0.2	ug/L	5.00		81.7	30-160	10.10	30	
Benzoic acid	6.1	0.1	2.0	ug/L	23.0		26.6	30-160	20.00	30	*
4-Chloroaniline	1.4	0.04	1.0	ug/L	13.0		10.8	30-160	25.50	30	*

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Semivolatile Organic Compounds - Quality Control

Batch BJH0569 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJH0569-BSD1)				Prepared: 24-Aug-2021 Analyzed: 03-Sep-2021 14:53							
Hexachlorobutadiene	3.9	0.04	0.2	ug/L	5.00		77.6	30-160	15.50	30	
4-Chloro-3-Methylphenol	13.6	0.1	1.0	ug/L	13.0		105	30-160	14.10	30	
2-Methylnaphthalene	3.9	0.03	0.2	ug/L	5.00		77.8	30-160	10.50	30	
Hexachlorocyclopentadiene	6.9	0.1	1.0	ug/L	13.0		53.1	30-160	15.70	30	
2,4,6-Trichlorophenol	15.0	0.2	1.0	ug/L	13.0		115	30-160	8.29	30	Q
2,4,5-Trichlorophenol	14.9	0.1	1.0	ug/L	13.0		115	30-160	11.50	30	
2-Chloronaphthalene	4.8	0.03	0.2	ug/L	5.00		95.7	30-160	7.83	30	
2-Nitroaniline	14.6	0.2	1.0	ug/L	13.0		113	30-160	12.40	30	Q
Acenaphthylene	3.9	0.02	0.2	ug/L	5.00		77.9	30-160	7.07	30	
Dimethylphthalate	4.5	0.04	0.2	ug/L	5.00		90.7	30-160	8.83	30	
2,6-Dinitrotoluene	15.3	0.2	1.0	ug/L	13.0		117	30-160	12.50	30	
Acenaphthene	4.4	0.03	0.2	ug/L	5.00		87.5	30-160	10.50	30	
3-Nitroaniline	8.4	0.2	1.0	ug/L	13.0		64.7	30-160	15.40	30	
2,4-Dinitrophenol	22.1	0.2	2.0	ug/L	23.0		96.1	30-160	13.30	30	
Dibenzofuran	4.1	0.02	0.2	ug/L	5.00		81.9	30-160	9.23	30	
4-Nitrophenol	4.0	0.06	1.0	ug/L	13.0		30.7	30-160	26.30	30	
2,4-Dinitrotoluene	14.7	0.1	1.0	ug/L	13.0		113	30-160	13.50	30	
Fluorene	4.1	0.02	0.2	ug/L	5.00		82.3	30-160	8.02	30	
4-Chlorophenylphenyl ether	4.5	0.02	0.2	ug/L	5.00		89.2	30-160	9.53	30	
Diethyl phthalate	4.8	0.06	0.2	ug/L	5.00		96.0	30-160	11.80	30	
4-Nitroaniline	11.2	0.2	1.0	ug/L	13.0		85.9	30-160	16.20	30	
4,6-Dinitro-2-methylphenol	24.9	0.4	2.0	ug/L	23.0		108	30-160	12.10	30	
N-Nitrosodiphenylamine	4.1	0.03	0.2	ug/L	5.00		82.8	30-160	4.19	30	
4-Bromophenyl phenyl ether	5.2	0.02	0.2	ug/L	5.00		103	30-160	5.74	30	
Hexachlorobenzene	4.9	0.04	0.2	ug/L	5.00		97.4	30-160	5.63	30	
Pentachlorophenol	11.4	0.1	1.0	ug/L	13.0		87.4	30-160	11.80	30	Q
Phenanthrene	4.4	0.02	0.2	ug/L	5.00		87.6	30-160	11.20	30	
Anthracene	4.1	0.03	0.2	ug/L	5.00		82.2	30-160	11.70	30	
Carbazole	4.3	0.04	0.2	ug/L	5.00		86.4	30-160	11.00	30	
Di-n-Butylphthalate	5.0	0.05	0.2	ug/L	5.00		101	30-160	12.50	30	
Fluoranthene	5.5	0.03	0.2	ug/L	5.00		111	30-160	6.74	30	Q
Pyrene	5.4	0.03	0.2	ug/L	5.00		109	30-160	6.05	30	
Butylbenzylphthalate	5.3	0.07	0.2	ug/L	5.00		105	30-160	8.86	30	Q
Benzo(a)anthracene	4.6	0.04	0.2	ug/L	5.00		92.4	30-160	12.70	30	
3,3'-Dichlorobenzidine	11.4	0.3	1.0	ug/L	13.0		87.8	30-160	15.30	30	

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Semivolatile Organic Compounds - Quality Control

Batch BJH0569 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJH0569-BSD1)					Prepared: 24-Aug-2021 Analyzed: 03-Sep-2021 14:53						
Chrysene	4.4	0.04	0.2	ug/L	5.00		88.5	30-160	7.25	30	
bis(2-Ethylhexyl)phthalate	5.5	0.2	0.2	ug/L	5.00		109	30-160	8.36	30	B
Di-n-Octylphthalate	4.7	0.05	0.2	ug/L	5.00		94.8	30-160	9.61	30	
Benzofluoranthenes, Total	8.8	0.08	0.4	ug/L	10.0		88.3	30-160	10.90	30	
Benzo(a)pyrene	4.3	0.05	0.2	ug/L	5.00		85.2	30-160	9.32	30	
Indeno(1,2,3-cd)pyrene	5.0	0.06	0.2	ug/L	5.00		99.0	30-160	9.62	30	
Dibenzo(a,h)anthracene	4.8	0.07	0.2	ug/L	5.00		95.3	30-160	7.56	30	
Benzo(g,h,i)perylene	5.0	0.04	0.2	ug/L	5.00		99.1	30-160	6.71	30	
1-Methylnaphthalene	4.0	0.03	0.2	ug/L	5.00		79.6	30-160	10.50	30	
Surrogate: 2-Fluorophenol	3.08			ug/L	*7.50*		*41.1*	*30-160*			
Surrogate: Phenol-d5	1.87			ug/L	*7.50*		*24.9*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	6.51			ug/L	*7.50*		*86.7*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.85			ug/L	*5.00*		*76.9*	*30-160*			
Surrogate: Nitrobenzene-d5	4.73			ug/L	*5.00*		*94.5*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.57			ug/L	*5.00*		*91.4*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	7.55			ug/L	*7.50*		*101*	*30-160*			
Surrogate: p-Terphenyl-d14	5.25			ug/L	*5.00*		*105*	*30-160*			

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Petroleum Hydrocarbons - Quality Control

Batch BJH0530 - EPA 3510C SepF

Instrument: FID4 Analyst: TWC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0530-BLK1)				Prepared: 23-Aug-2021 Analyzed: 08-Sep-2021 17:19						
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: o-Terphenyl	0.201		mg/L	*0.225*		*89.5*	*50-150*			
LCS (BJH0530-BS1)				Prepared: 23-Aug-2021 Analyzed: 08-Sep-2021 17:39						
Diesel Range Organics (C12-C24)	2.50	0.100	mg/L	3.00		83.4	56-120			
Surrogate: o-Terphenyl	0.204		mg/L	*0.225*		*90.8*	*50-150*			
LCS Dup (BJH0530-BSD1)				Prepared: 23-Aug-2021 Analyzed: 08-Sep-2021 17:59						
Diesel Range Organics (C12-C24)	1.81	0.100	mg/L	3.00		60.3	56-120	32.20	30	*
Surrogate: o-Terphenyl	0.125		mg/L	*0.225*		*55.6*	*50-150*			

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Aroclor PCB - Quality Control

Batch BJH0532 - EPA 3510C SepF

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0532-BLK1)				Prepared: 23-Aug-2021 Analyzed: 02-Sep-2021 14:39							
Aroclor 1016	ND	0.002	0.010	ug/L							U
Aroclor 1221	ND	0.002	0.010	ug/L							U
Aroclor 1232	ND	0.002	0.010	ug/L							U
Aroclor 1242	ND	0.002	0.010	ug/L							U
Aroclor 1248	ND	0.002	0.010	ug/L							U
Aroclor 1254	ND	0.002	0.010	ug/L							U
Aroclor 1260	ND	0.003	0.010	ug/L							U
Aroclor 1262	ND	0.003	0.010	ug/L							U
Aroclor 1268	ND	0.003	0.010	ug/L							U
Surrogate: Decachlorobiphenyl	0.0126			ug/L	*0.0200*		*62.9*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0140			ug/L	*0.0200*		*70.1*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0118			ug/L	*0.0200*		*58.8*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0130			ug/L	*0.0200*		*65.1*	*32-120*			
LCS (BJH0532-BS1)				Prepared: 23-Aug-2021 Analyzed: 02-Sep-2021 15:00							
Aroclor 1016 [2C]	0.043	0.002	0.010	ug/L	0.0500		85.2	54-120			
Aroclor 1260	0.041	0.003	0.010	ug/L	0.0500		81.5	51-128			
Surrogate: Decachlorobiphenyl	0.0130			ug/L	*0.0200*		*65.0*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0142			ug/L	*0.0200*		*70.8*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0122			ug/L	*0.0200*		*61.0*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0134			ug/L	*0.0200*		*66.8*	*32-120*			
LCS Dup (BJH0532-BSD1)				Prepared: 23-Aug-2021 Analyzed: 02-Sep-2021 15:20							
Aroclor 1016 [2C]	0.044	0.002	0.010	ug/L	0.0500		87.8	54-120	2.99	30	
Aroclor 1260	0.040	0.003	0.010	ug/L	0.0500		80.8	51-128	0.81	30	
Surrogate: Decachlorobiphenyl	0.0130			ug/L	*0.0200*		*65.0*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0144			ug/L	*0.0200*		*71.8*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0122			ug/L	*0.0200*		*60.9*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0136			ug/L	*0.0200*		*67.8*	*32-120*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Metals and Metallic Compounds - Quality Control

Batch BJH0598 - TWM EPA 7470A

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0598-BLK1)				Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 14:21							
Mercury	ND	0.000013	0.000100	mg/L							U
LCS (BJH0598-BS1)				Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 14:24							
Mercury	0.00166	0.000013	0.000100	mg/L	0.00200		82.8	80-120			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Metals and Metallic Compounds - Quality Control

Batch BJH0670 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0670-BLK1)					Prepared: 26-Aug-2021 Analyzed: 27-Aug-2021 17:36							
Barium	135	ND	0.114	0.500	ug/L							U
Barium	137	ND	0.0765	0.500	ug/L							U
Chromium	52	ND	0.260	0.500	ug/L							U
Chromium	53	ND	0.239	0.500	ug/L							U
Iron	54	ND	18.2	36.0	ug/L							U
Iron	57	ND	6.63	36.0	ug/L							U
Lead	208	ND	0.0513	0.100	ug/L							U
Manganese	55	0.429	0.142	0.500	ug/L							*, J
Silver	107	ND	0.0220	0.200	ug/L							U
Vanadium	51a	ND	0.0556	0.200	ug/L							U
Vanadium	51b	ND	0.0521	0.200	ug/L							U
Arsenic	75a	ND	0.0373	0.200	ug/L							U
Cadmium	111	ND	0.0300	0.100	ug/L							U
Cadmium	114	ND	0.0400	0.100	ug/L							U
Cobalt	59	ND	0.0178	0.200	ug/L							U
Copper	63	ND	0.173	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	ND	0.0792	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Selenium	78	ND	0.179	0.500	ug/L							U
Zinc	66	ND	2.92	6.00	ug/L							U
Zinc	67	ND	0.940	6.00	ug/L							U
LCS (BJH0670-BS1)					Prepared: 26-Aug-2021 Analyzed: 27-Aug-2021 17:41							
Barium	135	24.7	0.114	0.500	ug/L	25.0		98.7	80-120			
Barium	137	23.5	0.0765	0.500	ug/L	25.0		94.1	80-120			
Chromium	52	22.9	0.260	0.500	ug/L	25.0		91.5	80-120			
Chromium	53	24.6	0.239	0.500	ug/L	25.0		98.3	80-120			
Iron	54	4900	18.2	36.0	ug/L	5000		98.1	80-120			
Iron	57	4890	6.63	36.0	ug/L	5000		97.8	80-120			
Lead	208	24.7	0.0513	0.100	ug/L	25.0		98.9	80-120			
Manganese	55	24.9	0.142	0.500	ug/L	25.0		99.5	80-120			B
Silver	107	23.7	0.0220	0.200	ug/L	25.0		94.8	80-120			
Vanadium	51a	22.3	0.0556	0.200	ug/L	25.0		89.3	80-120			
Vanadium	51b	22.8	0.0521	0.200	ug/L	25.0		91.2	80-120			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Metals and Metallic Compounds - Quality Control

Batch BJH0670 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0670-BS1)						Prepared: 26-Aug-2021 Analyzed: 27-Aug-2021 17:41						
Arsenic	75a	24.6	0.0373	0.200	ug/L	25.0		98.5	80-120			
Cadmium	111	24.8	0.0300	0.100	ug/L	25.0		99.3	80-120			
Cadmium	114	24.9	0.0400	0.100	ug/L	25.0		99.7	80-120			
Cobalt	59	24.9	0.0178	0.200	ug/L	25.0		99.5	80-120			
Copper	63	25.2	0.173	0.500	ug/L	25.0		101	80-120			
Copper	65	25.2	0.350	0.500	ug/L	25.0		101	80-120			
Nickel	60	25.1	0.0792	0.500	ug/L	25.0		100	80-120			
Nickel	62	25.6	0.220	0.500	ug/L	25.0		102	80-120			
Selenium	78	75.4	0.179	0.500	ug/L	80.0		94.2	80-120			
Zinc	66	76.8	2.92	6.00	ug/L	80.0		96.0	80-120			
Zinc	67	74.0	0.940	6.00	ug/L	80.0		92.5	80-120			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJH0611 - TWM EPA 7470A

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0611-BLK1)				Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 15:33							
Mercury, Dissolved	0.000016	0.000013	0.000100	mg/L							J
LCS (BJH0611-BS1)				Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 15:36							
Mercury, Dissolved	0.00176	0.000013	0.000100	mg/L	0.00200		87.8	80-120			
Duplicate (BJH0611-DUP1)		**Source: 21H0222-02**		Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 15:45							
Mercury, Dissolved	0.000017	0.000013	0.000100	mg/L		0.000015			8.20	20	J
Matrix Spike (BJH0611-MS1)		**Source: 21H0222-02**		Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 15:47							
Mercury, Dissolved	0.000861	0.000013	0.000100	mg/L	0.00100	0.000015	84.6	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJH0611-MSD1)		**Source: 21H0222-02**		Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 15:50							
Mercury, Dissolved	0.000916	0.000013	0.000100	mg/L	0.00100	0.000015	90.0	75-125	6.16	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0013 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0013-BLK1)					Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 18:00							
Barium, Dissolved	135	ND	0.114	0.500	ug/L							U
Barium, Dissolved	137	ND	0.0765	0.500	ug/L							U
Chromium, Dissolved	52	ND	0.260	0.500	ug/L							U
Chromium, Dissolved	53	ND	0.239	0.500	ug/L							U
Iron, Dissolved	54	ND	18.2	36.0	ug/L							U
Iron, Dissolved	57	ND	6.63	20.0	ug/L							U
Lead, Dissolved	208	ND	0.0513	0.100	ug/L							U
Manganese, Dissolved	55	ND	0.142	0.500	ug/L							U
Silver, Dissolved	107	ND	0.0220	0.200	ug/L							U
Vanadium, Dissolved	51a	ND	0.0556	0.200	ug/L							U
Vanadium, Dissolved	51b	ND	0.0521	0.200	ug/L							U
Arsenic, Dissolved	75a	ND	0.0373	0.200	ug/L							U
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L							U
Cadmium, Dissolved	114	ND	0.0400	0.100	ug/L							U
Cobalt, Dissolved	59	ND	0.0178	0.200	ug/L							U
Copper, Dissolved	63	0.204	0.173	0.500	ug/L							J
Copper, Dissolved	65	ND	0.350	0.500	ug/L							U
Nickel, Dissolved	60	ND	0.0792	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
Selenium, Dissolved	78	ND	0.179	0.500	ug/L							U
Zinc, Dissolved	66	ND	2.92	6.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	6.00	ug/L							U
LCS (BJI0013-BS1)					Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 18:04							
Barium, Dissolved	135	23.9	0.114	0.500	ug/L	25.0		95.5	80-120			
Barium, Dissolved	137	23.7	0.0765	0.500	ug/L	25.0		94.9	80-120			
Chromium, Dissolved	52	24.2	0.260	0.500	ug/L	25.0		96.7	80-120			
Chromium, Dissolved	53	24.3	0.239	0.500	ug/L	25.0		97.3	80-120			
Iron, Dissolved	54	4700	18.2	36.0	ug/L	5000		94.0	80-120			
Iron, Dissolved	57	4660	6.63	20.0	ug/L	5000		93.1	80-120			
Lead, Dissolved	208	24.9	0.0513	0.100	ug/L	25.0		99.8	80-120			
Manganese, Dissolved	55	24.5	0.142	0.500	ug/L	25.0		98.0	80-120			
Silver, Dissolved	107	24.9	0.0220	0.200	ug/L	25.0		99.6	80-120			
Vanadium, Dissolved	51a	23.8	0.0556	0.200	ug/L	25.0		95.3	80-120			
Vanadium, Dissolved	51b	23.9	0.0521	0.200	ug/L	25.0		95.5	80-120			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0013 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0013-BS1)						Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 18:04						
Arsenic, Dissolved	75a	23.6	0.0373	0.200	ug/L	25.0		94.3	80-120			
Cadmium, Dissolved	111	24.2	0.0300	0.100	ug/L	25.0		96.9	80-120			
Cadmium, Dissolved	114	23.9	0.0400	0.100	ug/L	25.0		95.4	80-120			
Cobalt, Dissolved	59	24.5	0.0178	0.200	ug/L	25.0		98.1	80-120			
Copper, Dissolved	63	24.9	0.173	0.500	ug/L	25.0		99.6	80-120			
Copper, Dissolved	65	24.9	0.350	0.500	ug/L	25.0		99.6	80-120			
Nickel, Dissolved	60	24.8	0.0792	0.500	ug/L	25.0		99.4	80-120			
Nickel, Dissolved	62	24.4	0.220	0.500	ug/L	25.0		97.8	80-120			
Selenium, Dissolved	78	71.8	0.179	0.500	ug/L	80.0		89.8	80-120			
Zinc, Dissolved	66	74.0	2.92	6.00	ug/L	80.0		92.5	80-120			
Zinc, Dissolved	67	70.4	0.940	6.00	ug/L	80.0		88.0	80-120			
Duplicate (BJI0013-DUP1)			**Source: 21H0222-08**			Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 19:44						
Barium, Dissolved	135	6.04	0.114	0.500	ug/L		6.04			0.12	20	
Chromium, Dissolved	52	0.783	0.260	0.500	ug/L		0.743			5.24	20	
Iron, Dissolved	54	34.6	18.2	36.0	ug/L		33.8			2.27	20	J
Lead, Dissolved	208	ND	0.0513	0.100	ug/L		ND					U
Manganese, Dissolved	55	5.08	0.142	0.500	ug/L		5.05			0.63	20	
Silver, Dissolved	107	ND	0.0220	0.200	ug/L		ND					U
Vanadium, Dissolved	51a	3.48	0.0556	0.200	ug/L		3.49			0.29	20	
Arsenic, Dissolved	75a	0.731	0.0373	0.200	ug/L		0.716			2.07	20	
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L		ND					U
Cobalt, Dissolved	59	0.143	0.0178	0.200	ug/L		0.129			10.30	20	J
Copper, Dissolved	63	3.47	0.173	0.500	ug/L		3.33			4.17	20	
Nickel, Dissolved	60	1.75	0.0792	0.500	ug/L		1.72			2.13	20	
Selenium, Dissolved	78	0.438	0.179	0.500	ug/L		0.470			7.05	20	J
Zinc, Dissolved	66	ND	2.92	6.00	ug/L		ND					U
Matrix Spike (BJI0013-MS1)			**Source: 21H0222-08**			Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 19:30						
Barium, Dissolved	135	30.4	0.114	0.500	ug/L	25.0	6.04	97.6	75-125			
Chromium, Dissolved	52	21.6	0.260	0.500	ug/L	25.0	0.743	83.5	75-125			
Iron, Dissolved	54	4310	18.2	36.0	ug/L	5000	33.8	85.6	75-125			
Lead, Dissolved	208	24.4	0.0513	0.100	ug/L	25.0	ND	97.6	75-125			
Manganese, Dissolved	55	26.1	0.142	0.500	ug/L	25.0	5.05	84.1	75-125			
Silver, Dissolved	107	23.9	0.0220	0.200	ug/L	25.0	ND	95.8	75-125			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0013 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJI0013-MS1)			**Source: 21H0222-08**			Prepared: 01-Sep-2021		Analyzed: 01-Sep-2021 19:30				
Vanadium, Dissolved	51a	24.4	0.0556	0.200	ug/L	25.0	3.49	83.8	75-125			
Arsenic, Dissolved	75a	24.5	0.0373	0.200	ug/L	25.0	0.716	95.1	75-125			
Cadmium, Dissolved	111	23.2	0.0300	0.100	ug/L	25.0	ND	92.6	75-125			
Cobalt, Dissolved	59	24.3	0.0178	0.200	ug/L	25.0	0.129	96.9	75-125			
Copper, Dissolved	63	26.6	0.173	0.500	ug/L	25.0	3.33	93.1	75-125			
Nickel, Dissolved	60	25.5	0.0792	0.500	ug/L	25.0	1.72	95.0	75-125			
Selenium, Dissolved	78	72.1	0.179	0.500	ug/L	80.0	0.470	89.5	75-125			
Zinc, Dissolved	66	70.5	2.92	6.00	ug/L	80.0	ND	88.1	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJI0013-MSD1)			**Source: 21H0222-08**			Prepared: 01-Sep-2021		Analyzed: 01-Sep-2021 19:36				
Barium, Dissolved	135	31.8	0.114	0.500	ug/L	25.0	6.04	103	75-125	4.31	20	
Chromium, Dissolved	52	22.4	0.260	0.500	ug/L	25.0	0.743	86.7	75-125	3.57	20	
Iron, Dissolved	54	4360	18.2	36.0	ug/L	5000	33.8	86.5	75-125	1.03	20	
Lead, Dissolved	208	24.9	0.0513	0.100	ug/L	25.0	ND	99.7	75-125	2.17	20	
Manganese, Dissolved	55	27.0	0.142	0.500	ug/L	25.0	5.05	87.6	75-125	3.33	20	
Silver, Dissolved	107	24.5	0.0220	0.200	ug/L	25.0	ND	97.9	75-125	2.14	20	
Vanadium, Dissolved	51a	25.3	0.0556	0.200	ug/L	25.0	3.49	87.4	75-125	3.59	20	
Arsenic, Dissolved	75a	24.8	0.0373	0.200	ug/L	25.0	0.716	96.5	75-125	1.43	20	
Cadmium, Dissolved	111	24.1	0.0300	0.100	ug/L	25.0	ND	96.5	75-125	4.03	20	
Cobalt, Dissolved	59	24.9	0.0178	0.200	ug/L	25.0	0.129	99.0	75-125	2.22	20	
Copper, Dissolved	63	28.0	0.173	0.500	ug/L	25.0	3.33	98.5	75-125	4.98	20	
Nickel, Dissolved	60	25.9	0.0792	0.500	ug/L	25.0	1.72	96.6	75-125	1.62	20	
Selenium, Dissolved	78	73.3	0.179	0.500	ug/L	80.0	0.470	91.0	75-125	1.68	20	
Zinc, Dissolved	66	72.9	2.92	6.00	ug/L	80.0	ND	91.1	75-125	3.38	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Wet Chemistry - Quality Control

Batch BJH0486 - No Prep Wet Chem

Instrument: N/A

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0486-BLK1)				Prepared: 18-Aug-2021 Analyzed: 18-Aug-2021 17:44							
Sulfite	ND	1.4	1.4	mg/L							U
LCS (BJH0486-BS1)				Prepared: 18-Aug-2021 Analyzed: 18-Aug-2021 17:44							
Sulfite	4.4	1.4	1.4	mg/L	5.02		88.3	75-100			
Duplicate (BJH0486-DUP1)		**Source: 21H0222-01**		Prepared: 18-Aug-2021 Analyzed: 18-Aug-2021 17:44							
Sulfite	ND	1.4	1.4	mg/L		ND					U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Wet Chemistry - Quality Control

Batch BJH0487 - No Prep Wet Chem

Instrument: UV1800-2 Analyst: BF

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0487-BLK1)				Prepared: 18-Aug-2021 Analyzed: 18-Aug-2021 18:58							
Ferrous Iron	ND	0.040	0.040	mg/L							U
LCS (BJH0487-BS1)				Prepared: 18-Aug-2021 Analyzed: 18-Aug-2021 18:59							
Ferrous Iron	0.527	0.040	0.040	mg/L	0.500		105	90-110			
Duplicate (BJH0487-DUP2)		**Source: 21H0222-01RE1**		Prepared: 18-Aug-2021 Analyzed: 18-Aug-2021 19:26							
Ferrous Iron	33.7	0.800	0.800	mg/L		33.6			0.24	20	D
Matrix Spike (BJH0487-MS3)		**Source: 21H0222-01RE1**		Prepared: 18-Aug-2021 Analyzed: 18-Aug-2021 19:42							
Ferrous Iron	52.7	2.00	2.00	mg/L	20.0	33.6	95.4	75-125			D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Wet Chemistry - Quality Control

Batch BJH0508 - No Prep Wet Chem

Instrument: IC930 Analyst: BF

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0508-BLK1)				Prepared: 19-Aug-2021 Analyzed: 19-Aug-2021 16:03							
Chloride	ND	0.100	0.100	mg/L							U
Nitrate-N	ND	0.100	0.100	mg/L							U
Nitrite-N	ND	0.100	0.100	mg/L							U
Sulfate	ND	0.100	0.100	mg/L							U
LCS (BJH0508-BS1)				Prepared: 19-Aug-2021 Analyzed: 19-Aug-2021 16:23							
Chloride	4.85	0.100	0.100	mg/L	5.00		97.0	90-110			
Nitrate-N	4.69	0.100	0.100	mg/L	5.00		93.7	90-110			
Nitrite-N	5.37	0.100	0.100	mg/L	5.00		107	90-110			
Sulfate	4.92	0.100	0.100	mg/L	5.00		98.3	90-110			
Duplicate (BJH0508-DUP1)		**Source: 21H0222-01**		Prepared: 19-Aug-2021 Analyzed: 19-Aug-2021 17:03							
Chloride	4.66	0.100	0.100	mg/L		4.65			0.15	20	
Nitrate-N	ND	0.100	0.100	mg/L		ND					U
Nitrite-N	ND	0.100	0.100	mg/L		ND					U
Sulfate	1.03	0.100	0.100	mg/L		1.26			20.60	20	*
Matrix Spike (BJH0508-MS1)		**Source: 21H0222-01**		Prepared: 19-Aug-2021 Analyzed: 19-Aug-2021 17:23							
Chloride	6.73	0.100	0.100	mg/L	2.00	4.65	104	75-125			
Nitrate-N	1.86	0.100	0.100	mg/L	2.00	ND	93.2	75-125			
Nitrite-N	1.75	0.100	0.100	mg/L	2.01	ND	87.0	75-125			
Sulfate	3.09	0.100	0.100	mg/L	2.00	1.26	91.4	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

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Certified Analyses included in this Report

Analyte	Certifications
EPA 300.0 in Water	
Chloride	DoD-ELAP,WADOE,WA-DW,NELAP
Nitrate-N	DoD-ELAP,WADOE,WA-DW,NELAP
Nitrite-N	DoD-ELAP,WADOE,WA-DW,NELAP
Sulfate	DoD-ELAP,WADOE,WA-DW,NELAP
EPA 6020B in Water	
Silver-107	WADOE,WA-DW,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Silver-107	WA-DW,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
EPA 6020B UCT-KED in Water	
Arsenic-75a	WADOE,WA-DW,DoD-ELAP,ADEC,NELAP
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	NELAP,DoD-ELAP,WADOE
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP

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Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Zinc-66	WADOE,WA-DW,DoD-ELAP
Zinc-67	WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	DoD-ELAP,NELAP,WADOE
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
EPA 7470A in Water	
Mercury	WADOE,NELAP,DoD-ELAP
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8082A in Water	
Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC

Analytical Resources, Incorporated
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Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

EPA 8260D in Water

Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE

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Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE

EPA 8260D-SIM in Water

Acrylonitrile	NELAP,WADOE
Vinyl chloride	NELAP,WADOE

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Analytical Report

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1,1-Dichloroethene	NELAP,WADOE
cis-1,2-Dichloroethene	NELAP,WADOE
trans-1,2-Dichloroethene	NELAP,WADOE
Trichloroethene	NELAP,WADOE
Tetrachloroethene	NELAP,WADOE
1,1,2,2-Tetrachloroethane	NELAP,WADOE
1,2-Dichloroethane	NELAP,WADOE
Benzene	NELAP,WADOE

EPA 8270E in Water

Phenol	NELAP,DoD-ELAP
bis(2-chloroethyl) ether	NELAP,DoD-ELAP
2-Chlorophenol	NELAP,DoD-ELAP
1,3-Dichlorobenzene	NELAP,DoD-ELAP
1,4-Dichlorobenzene	NELAP,DoD-ELAP
1,2-Dichlorobenzene	NELAP,DoD-ELAP
Benzyl Alcohol	NELAP,DoD-ELAP
2,2'-Oxybis(1-chloropropane)	NELAP,DoD-ELAP
2-Methylphenol	NELAP,DoD-ELAP
Hexachloroethane	NELAP,DoD-ELAP
N-Nitroso-di-n-Propylamine	NELAP,DoD-ELAP
4-Methylphenol	NELAP,DoD-ELAP
Nitrobenzene	NELAP,DoD-ELAP
Isophorone	NELAP,DoD-ELAP
2-Nitrophenol	NELAP,DoD-ELAP
2,4-Dimethylphenol	NELAP,DoD-ELAP
Bis(2-Chloroethoxy)methane	NELAP,DoD-ELAP
2,4-Dichlorophenol	NELAP,DoD-ELAP
1,2,4-Trichlorobenzene	NELAP,DoD-ELAP
Naphthalene	NELAP,DoD-ELAP
Benzoic acid	NELAP,DoD-ELAP
4-Chloroaniline	NELAP,DoD-ELAP
Hexachlorobutadiene	NELAP,DoD-ELAP
4-Chloro-3-Methylphenol	NELAP,DoD-ELAP
2-Methylnaphthalene	NELAP,DoD-ELAP
Hexachlorocyclopentadiene	NELAP,DoD-ELAP
2,4,6-Trichlorophenol	NELAP,DoD-ELAP
2,4,5-Trichlorophenol	NELAP,DoD-ELAP
2-Chloronaphthalene	NELAP,DoD-ELAP
2-Nitroaniline	NELAP,DoD-ELAP

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Acenaphthylene	NELAP,DoD-ELAP
Dimethylphthalate	NELAP,DoD-ELAP
2,6-Dinitrotoluene	NELAP,DoD-ELAP
Acenaphthene	NELAP,DoD-ELAP
3-Nitroaniline	NELAP,DoD-ELAP
2,4-Dinitrophenol	NELAP,DoD-ELAP
Dibenzofuran	NELAP,DoD-ELAP
4-Nitrophenol	NELAP,DoD-ELAP
2,4-Dinitrotoluene	NELAP,DoD-ELAP
Fluorene	NELAP,DoD-ELAP
4-Chlorophenylphenyl ether	NELAP,DoD-ELAP
Diethyl phthalate	NELAP,DoD-ELAP
4-Nitroaniline	NELAP,DoD-ELAP
4,6-Dinitro-2-methylphenol	NELAP,DoD-ELAP
N-Nitrosodiphenylamine	NELAP,DoD-ELAP
4-Bromophenyl phenyl ether	NELAP,DoD-ELAP
Hexachlorobenzene	NELAP,DoD-ELAP
Pentachlorophenol	NELAP,DoD-ELAP
Phenanthrene	NELAP,DoD-ELAP
Anthracene	NELAP,DoD-ELAP
Carbazole	NELAP,DoD-ELAP
Di-n-Butylphthalate	NELAP,DoD-ELAP
Fluoranthene	NELAP,DoD-ELAP
Pyrene	NELAP,DoD-ELAP
Butylbenzylphthalate	NELAP,DoD-ELAP
Benzo(a)anthracene	NELAP,DoD-ELAP
3,3'-Dichlorobenzidine	NELAP,DoD-ELAP
Chrysene	NELAP,DoD-ELAP
bis(2-Ethylhexyl)phthalate	NELAP,DoD-ELAP
Di-n-Octylphthalate	NELAP,DoD-ELAP
Benzo(b)fluoranthene	NELAP,DoD-ELAP
Benzo(k)fluoranthene	NELAP,DoD-ELAP
Benzofluoranthenes, Total	NELAP
Benzo(a)pyrene	NELAP,DoD-ELAP
Indeno(1,2,3-cd)pyrene	NELAP,DoD-ELAP
Dibenzo(a,h)anthracene	NELAP,DoD-ELAP
Benzo(g,h,i)perylene	NELAP,DoD-ELAP
N-Nitrosodimethylamine	NELAP,DoD-ELAP
1-Methylnaphthalene	NELAP,DoD-ELAP

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EPA RSK-175 in Water

Methane	NELAP
Ethane	NELAP
Ethene	NELAP
Acetylene	NELAP

NWTPH-Dx in Water

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

NWTPHg in Water

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP

SM 3500-Fe B-97 in Water

Ferrous Iron	WADOE,NELAP

SM 4500-SO3 B-00 in Water

Sulfite	WADOE,NELAP

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Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	09-Sep-2021 18:27

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

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Notes and Definitions

*	Flagged value is not within established control limits.
B	This analyte was detected in the method blank.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
H	Hold time violation - Hold time was exceeded.
J	Estimated concentration value detected below the reporting limit.
M	Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
NRS	This surrogate not reported due to chromatographic interference
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
Y1	Raised reporting limit due to interference
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

10 September 2021

Meg Strong
Shannon & Wilson, Inc
400 N 34th St., Suite 100
Seattle, WA 98103-8636

RE: Lower Duwamish Q3

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
21H0230	N/A

Shelly Fishel

Digitally signed by Shelly Fishel
Date: 2021.09.10 08:20:55 -07'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Shelly Fishel, Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 211030	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: Shannon & Wilson	Phone: 206-695-6811	Date: 8/19/21	Ice Present?
Client Contact: Shoshana Howard		No. of Coolers:	Cooler Temps: 3.4; 4.4
Client Project Name: Lower Duwamish			
Client Project #: 21-1-12596-012	Samplers: DBS, MED		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	TPH-G	BTEX	HVOCs	Hexavalent Chromium	TPH-Dx	Total Metals / Diss. Metals	PCBs		Notes/Comments
MW-39-20211908	8/19	8:48AM	H_2O	11	✓	✓	✓	✓	✓	✓			① Arsenic, chromium, manganese, nickel, zinc
TB-3-20211908		9:14AM		5	✓	✓	✓			② (MED 8/19)			② Manganese
MW-43-20211908		11:20AM		11		✓	✓		✓	✓ ②	✓		
MW-67-20211908		2:57PM		4					✓		✓		
				MED	8/19								

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: DANIEL SCHWICHT	Printed Name: Dimitri Lomnitze	Printed Name:	Printed Name:
	Company:	Company: ART	Company:	Company:
	Date & Time: 19-AUG-2021 1623	Date & Time: 8/19/21 1623	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

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Analytical Chemists and Consultants

Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-39-20211908	21H0230-01	Water	19-Aug-2021 08:48	19-Aug-2021 16:23
MW-39-20211908	21H0230-02	Water	19-Aug-2021 08:48	19-Aug-2021 16:23
TB-3-20211908	21H0230-03	Water	19-Aug-2021 09:14	19-Aug-2021 16:23
MW-43-20211908	21H0230-04	Water	19-Aug-2021 11:20	19-Aug-2021 16:23
MW-43-20211908	21H0230-05	Water	19-Aug-2021 08:48	19-Aug-2021 16:23
MW-67-20211908	21H0230-06	Water	19-Aug-2021 14:57	19-Aug-2021 16:23

Analytical Resources, Incorporated
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Analytical Report

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Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish Q3
Work Order: 21H0230

Sample receipt

Samples as listed on the preceding page were received 19-Aug-2021 16:23 under ARI work order 21H0230. For details regarding sample receipt, please refer to the Cooler Receipt Form.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Gasoline by NWTPH-g (GC/MS)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Volatiles - EPA Method SW8260D

The sample(s) were analyzed within the recommended holding times.

Analytical Resources, Incorporated
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Analytical Report

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Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Volatiles - EPA Method 8260D-SIM (Selected Ion Monitoring)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Total and Dissolved Metals - EPA Method 6020B

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits except Total Manganese. All samples which contain analyte have been flagged with a "B" qualifier.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0230-02 in Dissolved Metals batch BJI0014. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within control limits except Dissolved Manganese and Dissolved Chromium in the MS and have been flagged..

Wet Chemistry

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

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The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0230-01 in Hexavalent Chromium batch BJH0520. The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries were within control limits. The BS/BSD relative percent difference (RPD) was out of control limits and has been flagged. BJH0530-BSD1 leaked during the extraction process on the first shake out. Lost ~3-5% of solution.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/19/2021 05:36:00PM

WORK ORDER

21H0230

Client: Shannon & Wilson, Inc
Project Manager: Shelly Fishel
Project: Lower Duwamish Q3
Project Number: 21-1-12596-012

Preservation Confirmation

Container ID	Container Type	pH
21H0230-01 A	Glass NM, Amber, 500 mL	
21H0230-01 B	Glass NM, Amber, 500 mL	
21H0230-01 C	Glass NM, Amber, 250 mL	
21H0230-01 C 01	Glass NM, Amber, 250 mL	
21H0230-01 D	VOA Vial, Clear, 40 mL, HCL	
21H0230-01 E	VOA Vial, Clear, 40 mL, HCL	
21H0230-01 F	VOA Vial, Clear, 40 mL, HCL	
21H0230-01 G	VOA Vial, Clear, 40 mL, HCL	
21H0230-01 H	VOA Vial, Clear, 40 mL, HCL	
21H0230-01 I	VOA Vial, Clear, 40 mL, HCL	
21H0230-01 J	VOA Vial, Clear, 40 mL, HCL	
21H0230-02 A	HDPE NM, 500 mL	
21H0230-03 A	VOA Vial, Clear, 40 mL, HCL	
21H0230-03 B	VOA Vial, Clear, 40 mL, HCL	
21H0230-03 C	VOA Vial, Clear, 40 mL, HCL	
21H0230-03 D	VOA Vial, Clear, 40 mL, HCL	
21H0230-03 E	VOA Vial, Clear, 40 mL, HCL	
21H0230-04 A	Glass NM, Amber, 1000 mL	
21H0230-04 B	Glass NM, Amber, 1000 mL	
21H0230-04 C	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21H0230-04 D	Glass NM, Amber, 500 mL	
21H0230-04 E	Glass NM, Amber, 500 mL	
21H0230-04 F	VOA Vial, Clear, 40 mL, HCL	
21H0230-04 G	VOA Vial, Clear, 40 mL, HCL	
21H0230-04 H	VOA Vial, Clear, 40 mL, HCL	
21H0230-04 I	VOA Vial, Clear, 40 mL, HCL	
21H0230-04 J	VOA Vial, Clear, 40 mL, HCL	
21H0230-05 A	HDPE NM, 500 mL	
21H0230-06 A	Glass NM, Amber, 1000 mL	
21H0230-06 B	Glass NM, Amber, 1000 mL	
21H0230-06 C	Glass NM, Amber, 500 mL	
21H0230-06 D	Glass NM, Amber, 500 mL	

DL
Preservation Confirmed By

08/19/21
Date

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Shannon & Wilson Project Name: Lacepa Duwamish

COC No(s): _____ NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 21H0230 Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1623 5.4 4.4 ____ ____ ____ ____

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 5706

Cooler Accepted by: DL Date: 08/19/21 Time: 1623

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	YES	NO
How were bottles sealed in plastic bags?	Individually	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA	_____	

Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: DL Date: 08/19/21 Time: 1642 Labels checked by: _____

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

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Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

MW-39-20211908

21H0230-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/19/2021 08:48

Instrument: NT2 Analyst: PKC — Analyzed: 08/24/2021 23:16

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0230-01 G

Preparation Batch: BJH0621 — Sample Size: 10 mL

Prepared: 08/24/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*105*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*90.4*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*105*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

MW-39-20211908

21H0230-01 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/19/2021 08:48

Instrument: NT2 Analyst: PKC — Analyzed: 08/24/2021 23:16

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0230-01 G

Preparation Batch: BJH0622 — Sample Size: 10 mL

Prepared: 08/24/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*96.0*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*90.4*	*%*	

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MW-39-20211908

21H0230-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/19/2021 08:48

Instrument: NT16 Analyst: PB — Analyzed: 08/23/2021 23:47

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0230-01 D

Preparation Batch: BJH0584 — Sample Size: 10 mL

Prepared: 08/23/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*105*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*95.3*	*%*	

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MW-39-20211908

21H0230-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/19/2021 08:48

Instrument: FID4 Analyst: TWC — Analyzed: 09/08/2021 19:40

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0230-01 A 01

Preparation Batch: BJH0530 — Sample Size: 500 mL

Prepared: 08/23/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*92.4*	*%*	

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MW-39-20211908

21H0230-01 (Water)

Wet Chemistry

Method: SM 3500-Cr B-09 — Sampled: 08/19/2021 08:48

Instrument: UV1800-2 Analyst: DOE — Analyzed: 08/19/2021 17:56

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0230-01 C 01

Preparation Batch: BJH0520 — Sample Size: 40 mL

Prepared: 08/19/2021 — Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexavalent Chromium	1854-02-99	1.25	0.013	0.013	0.013	mg/L	D

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MW-39-20211908

21H0230-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/19/2021 08:48

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/01/2021 20:43

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0230-02 A 02

Preparation Batch: BJI0014 — Sample Size: 25 mL — Filtration Batch: BJH0538

Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/20/2021 12:30

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.260	0.500	11.8	ug/L	
Manganese, Dissolved	7439-96-5	1	0.142	0.500	1.15	ug/L	

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MW-39-20211908

21H0230-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/19/2021 08:48

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 18:58

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0230-02 A 02

Preparation Batch: BJI0014 — Sample Size: 25 mL — Filtration Batch: BJH0538

Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/20/2021 12:30

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	10	0.373	2.00	1.81	ug/L	J, D
Nickel, Dissolved	7440-02-0	10	0.792	5.00	2.25	ug/L	J, D
Zinc, Dissolved	7440-66-6	10	29.2	60.0	ND	ug/L	U

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TB-3-20211908

21H0230-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/19/2021 09:14

Instrument: NT2 Analyst: PKC — Analyzed: 08/24/2021 18:42

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0230-03 C

Preparation Batch: BJH0621 — Sample Size: 10 mL

Prepared: 08/24/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.08	ug/L	J
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*109*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.3*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*88.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*106*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

TB-3-20211908

21H0230-03 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/19/2021 09:14

Instrument: NT2 Analyst: PKC — Analyzed: 08/24/2021 18:42

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0230-03 C

Preparation Batch: BJH0622 — Sample Size: 10 mL

Prepared: 08/24/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*96.3*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*88.9*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

TB-3-20211908

21H0230-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/19/2021 09:14

Instrument: NT16 Analyst: PB — Analyzed: 08/24/2021 00:07

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0230-03 B

Preparation Batch: BJH0584 — Sample Size: 10 mL

Prepared: 08/23/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*102*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*94.4*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

MW-43-20211908

21H0230-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/19/2021 11:20

Instrument: NT2 Analyst: PKC — Analyzed: 08/24/2021 23:37

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0230-04 J

Preparation Batch: BJH0621 — Sample Size: 10 mL

Prepared: 08/24/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	0.25	ug/L	
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	0.11	ug/L	J
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*102*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*92.2*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*103*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

MW-43-20211908

21H0230-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/19/2021 11:20
Instrument: FID4 Analyst: TWC — Analyzed: 09/08/2021 20:00

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0230-04 D 01
Preparation Batch: BJH0530 — Sample Size: 500 mL
Prepared: 08/23/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.102	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*93.9*	*%*	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

MW-43-20211908

21H0230-04 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/19/2021 11:20
Instrument: ECD7 Analyst: JGR — Analyzed: 09/02/2021 16:01

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0230-04 A 01
	Preparation Batch: BJH0532	Sample Size: 1000 mL	
	Prepared: 08/23/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0230-04 A 01
	Cleanup Batch: CJI0015	Initial Volume: 0.5 mL	
	Cleaned: 02-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0230-04 A 01
	Cleanup Batch: CJI0013	Initial Volume: 0.5 mL	
	Cleaned: 02-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0230-04 A 01
	Cleanup Batch: CJI0014	Initial Volume: 0.5 mL	
	Cleaned: 02-Sep-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*72.2*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*73.7*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*67.7*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*70.0*	*%*	

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Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

MW-43-20211908

21H0230-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/19/2021 11:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/30/2021 20:04

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0230-04 C 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	2	0.284	1.00	227	ug/L	B, D

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

MW-43-20211908

21H0230-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/19/2021 08:48
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/01/2021 19:54

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0230-05 A 02
Preparation Batch: BJI0014 — Sample Size: 25 mL — Filtration Batch: BJH0538
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/20/2021 12:30

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	10	1.42	5.00	228	ug/L	D

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

MW-67-20211908

21H0230-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/19/2021 14:57

Instrument: FID4 Analyst: TWC — Analyzed: 09/08/2021 20:20

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0230-06 C 01

Preparation Batch: BJH0530 — Sample Size: 500 mL

Prepared: 08/23/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.214	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*81.8*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

MW-67-20211908

21H0230-06 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/19/2021 14:57
Instrument: ECD7 Analyst: JGR — Analyzed: 09/02/2021 16:22

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0230-06 A 01
	Preparation Batch: BJH0532	Sample Size: 1000 mL	
	Prepared: 08/23/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0230-06 A 01
	Cleanup Batch: CJI0015	Initial Volume: 0.5 mL	
	Cleaned: 02-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0230-06 A 01
	Cleanup Batch: CJI0013	Initial Volume: 0.5 mL	
	Cleaned: 02-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0230-06 A 01
	Cleanup Batch: CJI0014	Initial Volume: 0.5 mL	
	Cleaned: 02-Sep-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*84.0*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*74.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*79.9*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*69.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

Volatile Organic Compounds - Quality Control

Batch BJH0621 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0621-BLK1)				Prepared: 24-Aug-2021 Analyzed: 24-Aug-2021 17:38							
Vinyl Chloride	ND	0.08	0.20	ug/L							U
1,1-Dichloroethene	ND	0.08	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.07	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Benzene	ND	0.05	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
Toluene	ND	0.05	0.20	ug/L							U
Tetrachloroethene	ND	0.09	0.20	ug/L							U
Ethylbenzene	ND	0.05	0.20	ug/L							U
m,p-Xylene	ND	0.14	0.40	ug/L							U
o-Xylene	ND	0.08	0.20	ug/L							U
Xylenes, total	ND	0.22	0.60	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.08			ug/L	*5.00*		*102*	*80-129*			
Surrogate: Toluene-d8	4.80			ug/L	*5.00*		*95.9*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.56			ug/L	*5.00*		*91.2*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.24			ug/L	*5.00*		*105*	*80-120*			
LCS (BJH0621-BS1)				Prepared: 24-Aug-2021 Analyzed: 24-Aug-2021 16:34							
Vinyl Chloride	9.62	0.08	0.20	ug/L	10.0		96.2	66-133			
1,1-Dichloroethene	9.76	0.08	0.20	ug/L	10.0		97.6	69-135			
trans-1,2-Dichloroethene	9.50	0.07	0.20	ug/L	10.0		95.0	78-128			
cis-1,2-Dichloroethene	10.3	0.08	0.20	ug/L	10.0		103	80-121			
Benzene	10.8	0.05	0.20	ug/L	10.0		108	80-120			
Trichloroethene	10.5	0.07	0.20	ug/L	10.0		105	80-120			
Toluene	10.2	0.05	0.20	ug/L	10.0		102	80-120			
Tetrachloroethene	10.4	0.09	0.20	ug/L	10.0		104	80-120			
Ethylbenzene	10.8	0.05	0.20	ug/L	10.0		108	80-120			
m,p-Xylene	23.0	0.14	0.40	ug/L	20.0		115	80-121			
o-Xylene	10.6	0.08	0.20	ug/L	10.0		106	80-121			
Xylenes, total	33.5	0.22	0.60	ug/L	30.0		112	76-127			
Surrogate: 1,2-Dichloroethane-d4	4.73			ug/L	*5.00*		*94.6*	*80-129*			
Surrogate: Toluene-d8	5.09			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.27			ug/L	*5.00*		*105*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.10			ug/L	*5.00*		*102*	*80-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

Volatile Organic Compounds - Quality Control

Batch BJH0621 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJH0621-BSD1)				Prepared: 24-Aug-2021 Analyzed: 24-Aug-2021 16:55							
Vinyl Chloride	9.92	0.08	0.20	ug/L	10.0		99.2	66-133	3.08	30	
1,1-Dichloroethene	10.1	0.08	0.20	ug/L	10.0		101	69-135	3.60	30	
trans-1,2-Dichloroethene	9.55	0.07	0.20	ug/L	10.0		95.5	78-128	0.54	30	
cis-1,2-Dichloroethene	10.5	0.08	0.20	ug/L	10.0		105	80-121	2.21	30	
Benzene	11.0	0.05	0.20	ug/L	10.0		110	80-120	1.77	30	
Trichloroethene	10.5	0.07	0.20	ug/L	10.0		105	80-120	0.63	30	
Toluene	10.5	0.05	0.20	ug/L	10.0		105	80-120	2.23	30	
Tetrachloroethene	10.6	0.09	0.20	ug/L	10.0		106	80-120	1.50	30	
Ethylbenzene	10.8	0.05	0.20	ug/L	10.0		108	80-120	0.20	30	
m,p-Xylene	23.3	0.14	0.40	ug/L	20.0		117	80-121	1.56	30	
o-Xylene	10.6	0.08	0.20	ug/L	10.0		106	80-121	0.54	30	
Xylenes, total	34.0	0.22	0.60	ug/L	30.0		113	76-127	1.24	30	
Surrogate: 1,2-Dichloroethane-d4	4.70			ug/L	*5.00*		*94.0*	*80-129*			
Surrogate: Toluene-d8	5.06			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.12			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.08			ug/L	*5.00*		*102*	*80-120*			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

Volatile Organic Compounds - Quality Control

Batch BJH0622 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0622-BLK1)				Prepared: 24-Aug-2021	Analyzed: 24-Aug-2021 17:38					
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.80		ug/L	*5.00*		*95.9*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.56		ug/L	*5.00*		*91.2*	*80-120*			
LCS (BJH0622-BS1)				Prepared: 24-Aug-2021	Analyzed: 24-Aug-2021 15:52					
Gasoline Range Organics (Tol-Nap)	1090	100	ug/L	1000		109	72-128			
Surrogate: Toluene-d8	5.08		ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.19		ug/L	*5.00*		*104*	*80-120*			
LCS Dup (BJH0622-BSD1)				Prepared: 24-Aug-2021	Analyzed: 24-Aug-2021 16:13					
Gasoline Range Organics (Tol-Nap)	1160	100	ug/L	1000		116	72-128	6.13	30	
Surrogate: Toluene-d8	5.06		ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.26		ug/L	*5.00*		*105*	*80-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

Volatile Organic Compounds - SIM - Quality Control

Batch BJH0584 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0584-BLK1)				Prepared: 23-Aug-2021 Analyzed: 23-Aug-2021 15:54							
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	5180			ng/L	*5000*		*104*	*80-129*			
Surrogate: Toluene-d8	5100			ng/L	*5000*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4760			ng/L	*5000*		*95.2*	*75-125*			
LCS (BJH0584-BS1)				Prepared: 23-Aug-2021 Analyzed: 23-Aug-2021 14:53							
Vinyl chloride	2080	5.01	20.0	ng/L	2000		104	62-141			
Surrogate: 1,2-Dichloroethane-d4	5100			ng/L	*5000*		*102*	*80-129*			
Surrogate: Toluene-d8	4710			ng/L	*5000*		*94.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5880			ng/L	*5000*		*118*	*75-125*			
LCS Dup (BJH0584-BSD1)				Prepared: 23-Aug-2021 Analyzed: 23-Aug-2021 15:33							
Vinyl chloride	2190	5.01	20.0	ng/L	2000		110	62-141	5.42	30	
Surrogate: 1,2-Dichloroethane-d4	5190			ng/L	*5000*		*104*	*80-129*			
Surrogate: Toluene-d8	4640			ng/L	*5000*		*92.9*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5920			ng/L	*5000*		*118*	*75-125*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

Petroleum Hydrocarbons - Quality Control

Batch BJH0530 - EPA 3510C SepF

Instrument: FID4 Analyst: TWC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0530-BLK1)				Prepared: 23-Aug-2021 Analyzed: 08-Sep-2021 17:19						
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: o-Terphenyl	0.201		mg/L	*0.225*		*89.5*	*50-150*			
LCS (BJH0530-BS1)				Prepared: 23-Aug-2021 Analyzed: 08-Sep-2021 17:39						
Diesel Range Organics (C12-C24)	2.50	0.100	mg/L	3.00		83.4	56-120			
Surrogate: o-Terphenyl	0.204		mg/L	*0.225*		*90.8*	*50-150*			
LCS Dup (BJH0530-BSD1)				Prepared: 23-Aug-2021 Analyzed: 08-Sep-2021 17:59						
Diesel Range Organics (C12-C24)	1.81	0.100	mg/L	3.00		60.3	56-120	32.20	30	*
Surrogate: o-Terphenyl	0.125		mg/L	*0.225*		*55.6*	*50-150*			

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

Aroclor PCB - Quality Control

Batch BJH0532 - EPA 3510C SepF

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0532-BLK1)				Prepared: 23-Aug-2021 Analyzed: 02-Sep-2021 14:39							
Aroclor 1016	ND	0.002	0.010	ug/L							U
Aroclor 1221	ND	0.002	0.010	ug/L							U
Aroclor 1232	ND	0.002	0.010	ug/L							U
Aroclor 1242	ND	0.002	0.010	ug/L							U
Aroclor 1248	ND	0.002	0.010	ug/L							U
Aroclor 1254	ND	0.002	0.010	ug/L							U
Aroclor 1260	ND	0.003	0.010	ug/L							U
Aroclor 1262	ND	0.003	0.010	ug/L							U
Aroclor 1268	ND	0.003	0.010	ug/L							U
Surrogate: Decachlorobiphenyl	0.0126			ug/L	*0.0200*		*62.9*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0140			ug/L	*0.0200*		*70.1*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0118			ug/L	*0.0200*		*58.8*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0130			ug/L	*0.0200*		*65.1*	*32-120*			
LCS (BJH0532-BS1)				Prepared: 23-Aug-2021 Analyzed: 02-Sep-2021 15:00							
Aroclor 1016 [2C]	0.043	0.002	0.010	ug/L	0.0500		85.2	54-120			
Aroclor 1260	0.041	0.003	0.010	ug/L	0.0500		81.5	51-128			
Surrogate: Decachlorobiphenyl	0.0130			ug/L	*0.0200*		*65.0*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0142			ug/L	*0.0200*		*70.8*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0122			ug/L	*0.0200*		*61.0*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0134			ug/L	*0.0200*		*66.8*	*32-120*			
LCS Dup (BJH0532-BSD1)				Prepared: 23-Aug-2021 Analyzed: 02-Sep-2021 15:20							
Aroclor 1016 [2C]	0.044	0.002	0.010	ug/L	0.0500		87.8	54-120	2.99	30	
Aroclor 1260	0.040	0.003	0.010	ug/L	0.0500		80.8	51-128	0.81	30	
Surrogate: Decachlorobiphenyl	0.0130			ug/L	*0.0200*		*65.0*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0144			ug/L	*0.0200*		*71.8*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0122			ug/L	*0.0200*		*60.9*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0136			ug/L	*0.0200*		*67.8*	*32-120*			

Draft for Public Comment

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

Metals and Metallic Compounds - Quality Control

Batch BJH0670 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0670-BLK1)					Prepared: 26-Aug-2021 Analyzed: 27-Aug-2021 17:36							
Manganese	55	0.429	0.142	0.500	ug/L							*, J
LCS (BJH0670-BS1)					Prepared: 26-Aug-2021 Analyzed: 27-Aug-2021 17:41							
Manganese	55	24.9	0.142	0.500	ug/L	25.0		99.5	80-120			B

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0014 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0014-BLK1)					Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 18:09							
Chromium, Dissolved	52	ND	0.260	0.500	ug/L							U
Chromium, Dissolved	53	ND	0.239	0.500	ug/L							U
Manganese, Dissolved	55	ND	0.142	0.500	ug/L							U
Arsenic, Dissolved	75a	ND	0.0373	0.200	ug/L							U
Nickel, Dissolved	60	ND	0.0792	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
Zinc, Dissolved	66	ND	2.92	6.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	6.00	ug/L							U
LCS (BJI0014-BS1)					Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 18:13							
Chromium, Dissolved	52	24.5	0.260	0.500	ug/L	25.0		97.8	80-120			
Chromium, Dissolved	53	24.9	0.239	0.500	ug/L	25.0		99.7	80-120			
Manganese, Dissolved	55	25.0	0.142	0.500	ug/L	25.0		99.9	80-120			
Arsenic, Dissolved	75a	23.7	0.0373	0.200	ug/L	25.0		94.6	80-120			
Nickel, Dissolved	60	25.1	0.0792	0.500	ug/L	25.0		100	80-120			
Nickel, Dissolved	62	24.3	0.220	0.500	ug/L	25.0		97.4	80-120			
Zinc, Dissolved	66	75.0	2.92	6.00	ug/L	80.0		93.8	80-120			
Zinc, Dissolved	67	71.7	0.940	6.00	ug/L	80.0		89.6	80-120			
Duplicate (BJI0014-DUP1)			**Source: 21H0230-02**		Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 20:48							
Chromium, Dissolved	52	11.4	0.260	0.500	ug/L		11.8			2.90	20	
Manganese, Dissolved	55	1.21	0.142	0.500	ug/L		1.15			4.75	20	
Duplicate (BJI0014-DUP2)			**Source: 21H0230-02**		Prepared: 01-Sep-2021 Analyzed: 02-Sep-2021 19:04							
Arsenic, Dissolved	75a	1.68	0.373	2.00	ug/L		1.81			7.45	20	J, D
Nickel, Dissolved	60	2.53	0.792	5.00	ug/L		2.25			11.70	20	J, D
Zinc, Dissolved	66	ND	29.2	60.0	ug/L		ND					U
Matrix Spike (BJI0014-MS1)			**Source: 21H0230-02**		Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 20:53							
Chromium, Dissolved	52	30.2	0.260	0.500	ug/L	25.0	11.8	73.6	75-125			*
Manganese, Dissolved	55	19.3	0.142	0.500	ug/L	25.0	1.15	72.6	75-125			*

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike (BJI0014-MS2)			**Source: 21H0230-02**		Prepared: 01-Sep-2021 Analyzed: 02-Sep-2021 19:10							
Arsenic, Dissolved	75a	26.5	0.373	2.00	ug/L	25.0	1.81	98.8	75-125			D
Nickel, Dissolved	60	26.8	0.792	5.00	ug/L	25.0	2.25	98.2	75-125			D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0014 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJI0014-MS2)			**Source: 21H0230-02**			Prepared: 01-Sep-2021		Analyzed: 02-Sep-2021 19:10				
Zinc, Dissolved	66	72.4	29.2	60.0	ug/L	80.0	ND	90.5	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJI0014-MSD1)			**Source: 21H0230-02**			Prepared: 01-Sep-2021		Analyzed: 01-Sep-2021 20:59				
Chromium, Dissolved	52	30.9	0.260	0.500	ug/L	25.0	11.8	76.5	75-125	2.34	20	
Manganese, Dissolved	55	20.0	0.142	0.500	ug/L	25.0	1.15	75.5	75-125	3.69	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJI0014-MSD2)			**Source: 21H0230-02**			Prepared: 01-Sep-2021		Analyzed: 02-Sep-2021 19:16				
Arsenic, Dissolved	75a	26.5	0.373	2.00	ug/L	25.0	1.81	98.8	75-125	0.04	20	D
Nickel, Dissolved	60	26.4	0.792	5.00	ug/L	25.0	2.25	96.6	75-125	1.47	20	D
Zinc, Dissolved	66	80.9	29.2	60.0	ug/L	80.0	ND	101	75-125	11.10	20	D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

Wet Chemistry - Quality Control

Batch BJH0520 - No Prep Wet Chem

Instrument: UV1800-2 Analyst: DOE

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0520-BLK1)				Prepared: 19-Aug-2021 Analyzed: 19-Aug-2021 17:55							
Hexavalent Chromium	ND	0.013	0.013	mg/L							U
LCS (BJH0520-BS1)				Prepared: 19-Aug-2021 Analyzed: 19-Aug-2021 17:55							
Hexavalent Chromium	0.625	0.013	0.013	mg/L	0.625		100	85-115			D
Duplicate (BJH0520-DUP1)		**Source: 21H0230-01**		Prepared: 19-Aug-2021 Analyzed: 19-Aug-2021 17:57							
Hexavalent Chromium	0.013	0.013	0.013	mg/L		0.013			0.56	20	D
Matrix Spike (BJH0520-MS1)		**Source: 21H0230-01**		Prepared: 19-Aug-2021 Analyzed: 19-Aug-2021 17:58							
Hexavalent Chromium	0.075	0.013	0.013	mg/L	0.0625	0.013	100	85-115			D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

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Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Manganese-55	NELAP,WADOE,DoD-ELAP
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Manganese-55	NELAP,WADOE,DoD-ELAP
EPA 6020B UCT-KED in Water	
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
EPA 8082A in Water	
Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
EPA 8260D in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE

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Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE

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1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE

EPA 8260D-SIM in Water

Acrylonitrile	NELAP,WADOE
Vinyl chloride	NELAP,WADOE
1,1-Dichloroethene	NELAP,WADOE
cis-1,2-Dichloroethene	NELAP,WADOE
trans-1,2-Dichloroethene	NELAP,WADOE
Trichloroethene	NELAP,WADOE
Tetrachloroethene	NELAP,WADOE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

1,1,2,2-Tetrachloroethane	NELAP,WADOE
1,2-Dichloroethane	NELAP,WADOE
Benzene	NELAP,WADOE

NWTPH-Dx in Water

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

NWTPHg in Water

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP

SM 3500-Cr B-09 in Water

Hexavalent Chromium	WADOE,NELAP

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	10-Sep-2021 08:08

Notes and Definitions

*	Flagged value is not within established control limits.
B	This analyte was detected in the method blank.
D	The reported value is from a dilution
J	Estimated concentration value detected below the reporting limit.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
Y1	Raised reporting limit due to interference
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

28 September 2021

Meg Strong
Shannon & Wilson, Inc
400 N 34th St., Suite 100
Seattle, WA 98103-8636

RE: Lower Duwamish Q3

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
21H0248	N/A

Shelly Fishel Digitally signed by Shelly Fishel Date: 2021.09.28 11:46:24 -07'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Shelly Fishel, Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21H0248	Turn-around Requested: Standard
ARI Client Company: Shannon + Wilson	Phone:
Client Contact: Shoshana Howard	
Client Project Name: Lower Duwamish	
Client Project #: 21-1-12596-012	Samplers: DES, MEP
Page: 1 of 1	
Date: 8/20/21	Ice Present?
No. of Coolers:	Cooler Temps: See CRF

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	TPH-G	TPH-Dx	BTEX	HVOCs	MTBE	PAHs	Full List SVOCs	Limited SVOCs	PCB Aroclors	Metals (Total + Dissolved)	Hexavalent Chromium	Natural Attenuation Parameters			Notes/Comments
					Analysis Requested														
EB-1-20212008	8/20/21	8:13	W	17	✓	✓	✓	✓		✓		✓	✓	✓(1)					(1) Arsenic, barium, chromium, manganese, nickle, cadmium, cobalt, copper, iron, lead, mercury, selenium, silver, vanadium, zinc
TB-4-20212008	↓	8:23	↓	5	✓		✓	✓											(2) Arsenic, chromium, manganese, nickel, zinc
MW-39-20212008		9:14		3									✓	✓(2)					*Total metals only*
MW-44-20212008		10:25		11		✓	✓	✓					✓	✓(2)					(3) Manganese, mercury
MW-54-20212008		11:46		15		✓	✓	✓		✓		✓	✓	✓(1)					(4) Manganese
MW-30-20212008		13:39		18	✓	✓		✓						✓(4)		✓			(5) Cobalt
MW-15-20212008		15:11		18	✓	✓		✓						✓(5)		✓			
MW-100-20212008		15:26		11	✓	✓		✓						✓(5)					

Comments/Special Instructions
* Lab to filter for dissolved metals

Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)	(Signature)	(Signature)	(Signature)
Printed Name: DANIEL SCHWICHT	Printed Name: Dimitri Lomidze	Printed Name:	Printed Name:
Company:	Company: ARI	Company:	Company:
Date & Time: 20-AUG-2021 16:19	Date & Time: 08/20/21 1619	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-30-20212008	21H0248-01	Water	20-Aug-2021 13:39	20-Aug-2021 16:19
MW-30-20212008	21H0248-02	Water	20-Aug-2021 13:39	20-Aug-2021 16:19
MW-15-20212008	21H0248-03	Water	20-Aug-2021 15:11	20-Aug-2021 16:19
MW-15-20212008	21H0248-04	Water	20-Aug-2021 15:11	20-Aug-2021 16:19
EB-1-20212008	21H0248-05	Water	20-Aug-2021 08:13	20-Aug-2021 16:19
EB-1-20212008	21H0248-06	Water	20-Aug-2021 08:13	20-Aug-2021 16:19
TB-4-20212008	21H0248-07	Water	20-Aug-2021 08:23	20-Aug-2021 16:19
MW-39-20212008	21H0248-08	Water	20-Aug-2021 09:14	20-Aug-2021 16:19
MW-44-20212008	21H0248-09	Water	20-Aug-2021 10:25	20-Aug-2021 16:19
MW-44-20212008	21H0248-10	Water	20-Aug-2021 10:25	20-Aug-2021 16:19
MW-54-20212008	21H0248-11	Water	20-Aug-2021 11:46	20-Aug-2021 16:19
MW-54-20212008	21H0248-12	Water	20-Aug-2021 11:46	20-Aug-2021 16:19
MW-100-20212008	21H0248-13	Water	20-Aug-2021 15:26	20-Aug-2021 16:19
MW-100-20212008	21H0248-14	Water	20-Aug-2021 15:26	20-Aug-2021 16:19

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish Q3
Work Order: 21H0248

Sample receipt

Samples as listed on the preceding page were received 20-Aug-2021 16:19 under ARI work order 21H0248. For details regarding sample receipt, please refer to the Cooler Receipt Form.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Gasoline by NWTPH-g (GC/MS)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Volatiles - EPA Method SW8260D

The sample(s) were analyzed within the recommended holding times.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Volatiles - EPA Method 8260D-SIM (Selected Ion Monitoring)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Semivolatiles - EPA Method SW8270E

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirementsexcept Pentachlorophenol which was out of control low and Butylbenzylphthalate which was out of control high in the initial calibration verification (SJI0045-ICV1). All samples which contain analyte have been flagged with a "Q" qualifier. Pentachlorophenol was also out of control low in the low concetration verification (SJI0045-LCV1).

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except Phenol-d5 which was out of control low in samples 21H0248-06 and 21H0248-11 as well as the method blank (BJH0569-BLK1), blank spike (BJH0569-BS1) and blank spike duplicate (BJH0569-BSD1). 2-Fluorophenol was out of control low in sample 21H0248-11. Deviations have been flagged.

The method blank(s) were clean at the reporting limits except bis(2-Ethylhexyl)phthalate. All samples which contain analyte have been flagged with a "B" qualifier.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits except Benzoic Acid which was out of control low and has been flagged .

Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Total and Dissolved Metals - EPA Method 6020B

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits except Manganese. All samples which contain analyte have been flagged with a "B" qualifier.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0248-11 in Total Metals batch BJH0670 and in association with sample 21H0248-12 in Dissolved Metals batch BJI0015. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times except Sulfite. The Sulfite holding time was exceeded upon sample receipt and has been flagged.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits except Sulfate. All samples which contain analyte have been flagged with a "B" qualifier.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0248-01 in batch BJH0548, Anions batch BJH0549 and Ferrous Iron batch BJH0550. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike (MS) percent recoveries were within advisory control limits except Nitrite which was out of control low and has been flagged.

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Volatile Gases - MEE by RSK175

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Total and Dissolved Mercury - EPA Method 7470/7471

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Sample specific QC was performed in association with sample 21H0248-05 in Total Mercury batch BJH0598 and in association with sample 21H0248-06 in Dissolved Mercury batch BJH0799. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

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Analytical Chemists and Consultants

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WORK ORDER

21H0248

Client: Shannon & Wilson, Inc **Project Manager:** Shelly Fishel

Project: Lower Duwamish Q3 **Project Number:** 21-1-12596-012

Preservation Confirmation

Container ID	Container Type	pH	
21H0248-01 A	HDPE NM, 500 mL		
21H0248-01 B	Small OJ, 500 mL		
21H0248-01 C	Small OJ, 500 mL		
21H0248-01 D	Small OJ, 500 mL, EDTA		
21H0248-01 E	Glass NM, Amber, 500 mL, HCl	Lab to verify preservation	
21H0248-01 F	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass (P)
21H0248-01 G	Glass NM, Amber, 500 mL		
21H0248-01 H	Glass NM, Amber, 500 mL		
21H0248-01 I	VOA Vial, Clear, 40 mL, HCL		
21H0248-01 J	VOA Vial, Clear, 40 mL, HCL		
21H0248-01 K	VOA Vial, Clear, 40 mL, HCL		
21H0248-01 L	VOA Vial, Clear, 40 mL, HCL		
21H0248-01 M	VOA Vial, Clear, 40 mL, HCL		
21H0248-01 N	VOA Vial, Clear, 40 mL, HCL		
21H0248-01 O	VOA Vial, Clear, 40 mL, HCL		
21H0248-01 P	VOA Vial, Clear, 40 mL, HCL		
21H0248-01 Q	VOA Vial, Clear, 40 mL, HCL		
21H0248-02 A	HDPE NM, 500 mL	>2	Fail (F)
21H0248-03 A	HDPE NM, 500 mL		
21H0248-03 B	Small OJ, 500 mL		
21H0248-03 C	Small OJ, 500 mL		
21H0248-03 D	Small OJ, 500 mL, EDTA		
21H0248-03 E	Glass NM, Amber, 500 mL, HCl	Lab to verify preservation	
21H0248-03 F	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21H0248-03 G	Glass NM, Amber, 500 mL		
21H0248-03 H	Glass NM, Amber, 500 mL		
21H0248-03 I	VOA Vial, Clear, 40 mL, HCL		
21H0248-03 J	VOA Vial, Clear, 40 mL, HCL		
21H0248-03 K	VOA Vial, Clear, 40 mL, HCL		
21H0248-03 L	VOA Vial, Clear, 40 mL, HCL		
21H0248-03 M	VOA Vial, Clear, 40 mL, HCL		
21H0248-03 N	VOA Vial, Clear, 40 mL, HCL		
21H0248-03 O	VOA Vial, Clear, 40 mL, HCL		
21H0248-03 P	VOA Vial, Clear, 40 mL, HCL		
21H0248-03 Q	VOA Vial, Clear, 40 mL, HCL		

Reviewed By _____ Date _____

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

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WORK ORDER

21H0248

Client: Shannon & Wilson, Inc | **Project Manager:** Shelly Fishel

Project: Lower Duwamish Q3 | **Project Number:** 21-1-12596-012

21H0248-04 A	HDPE NM, 500 mL	>2	Fail (F)
21H0248-05 A	Glass NM, Amber, 1000 mL		
21H0248-05 B	Glass NM, Amber, 1000 mL		
21H0248-05 C	Glass NM, Amber, 500 mL		
21H0248-05 D	Glass NM, Amber, 500 mL		
21H0248-05 E	Glass NM, Amber, 500 mL		
21H0248-05 F	Glass NM, Amber, 500 mL		
21H0248-05 G	Glass NM, Amber, 500 mL		
21H0248-05 H	Glass NM, Amber, 500 mL		
21H0248-05 I	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass (P)
21H0248-05 J	VOA Vial, Clear, 40 mL, HCL		
21H0248-05 K	VOA Vial, Clear, 40 mL, HCL		
21H0248-05 L	VOA Vial, Clear, 40 mL, HCL		
21H0248-05 M	VOA Vial, Clear, 40 mL, HCL		
21H0248-05 N	VOA Vial, Clear, 40 mL, HCL		
21H0248-05 O	VOA Vial, Clear, 40 mL, HCL		
21H0248-05 P	VOA Vial, Clear, 40 mL, HCL		
21H0248-06 A	HDPE NM, 500 mL	>2	F
21H0248-07 A	VOA Vial, Clear, 40 mL, HCL		
21H0248-07 B	VOA Vial, Clear, 40 mL, HCL		
21H0248-07 C	VOA Vial, Clear, 40 mL, HCL		
21H0248-07 D	VOA Vial, Clear, 40 mL, HCL		
21H0248-07 E	VOA Vial, Clear, 40 mL, HCL		
21H0248-08 A	Glass NM, Amber, 1000 mL		
21H0248-08 B	Glass NM, Amber, 1000 mL		
21H0248-08 C	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21H0248-09 A	Glass NM, Amber, 1000 mL		
21H0248-09 B	Glass NM, Amber, 1000 mL		
21H0248-09 C	Glass NM, Amber, 500 mL		
21H0248-09 D	Glass NM, Amber, 500 mL		
21H0248-09 E	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21H0248-09 F	VOA Vial, Clear, 40 mL, HCL	Bubble	
21H0248-09 G	VOA Vial, Clear, 40 mL, HCL		
21H0248-09 H	VOA Vial, Clear, 40 mL, HCL		
21H0248-09 I	VOA Vial, Clear, 40 mL, HCL		
21H0248-09 J	VOA Vial, Clear, 40 mL, HCL		
21H0248-10 A	HDPE NM, 500 mL	>2	F

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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WORK ORDER

21H0248

Client: Shannon & Wilson, Inc
Project Manager: Shelly Fishel

Project: Lower Duwamish Q3
Project Number: 21-1-12596-012

21H0248-11 A	Glass NM, Amber, 1000 mL		
21H0248-11 B	Glass NM, Amber, 1000 mL		
21H0248-11 C	Glass NM, Amber, 500 mL		
21H0248-11 D	Glass NM, Amber, 500 mL		
21H0248-11 E	Glass NM, Amber, 500 mL		
21H0248-11 F	Glass NM, Amber, 500 mL		
21H0248-11 G	Glass NM, Amber, 500 mL		
21H0248-11 H	Glass NM, Amber, 500 mL		
21H0248-11 I	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass (P)
21H0248-11 J	VOA Vial, Clear, 40 mL, HCL		
21H0248-11 K	VOA Vial, Clear, 40 mL, HCL		
21H0248-11 L	VOA Vial, Clear, 40 mL, HCL		
21H0248-11 M	VOA Vial, Clear, 40 mL, HCL		
21H0248-11 N	VOA Vial, Clear, 40 mL, HCL		
21H0248-12 A	HDPE NM, 500 mL	>2	Fail (F)
21H0248-13 A	Glass NM, Amber, 500 mL		
21H0248-13 B	Glass NM, Amber, 500 mL		
21H0248-13 C	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21H0248-13 D	VOA Vial, Clear, 40 mL, HCL		
21H0248-13 E	VOA Vial, Clear, 40 mL, HCL		
21H0248-13 F	VOA Vial, Clear, 40 mL, HCL		
21H0248-13 G	VOA Vial, Clear, 40 mL, HCL		
21H0248-13 H	VOA Vial, Clear, 40 mL, HCL		
21H0248-13 I	VOA Vial, Clear, 40 mL, HCL		
21H0248-13 J	VOA Vial, Clear, 40 mL, HCL		
21H0248-14 A	HDPE NM, 500 mL	>2	F

Preservation Confirmed By

08/20/2021
Date

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Shannon & Wilson
Project Name: Lower Duwamish
COC No(s): ~~NA~~
Delivered by: Fed-Ex UPS Courier ~~Hand Delivered~~ Other:
Assigned ARI Job No: 21H0248
Tracking No: ~~NA~~

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry): 4.3 5.0 2.4 4.8

Time: 1619

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: DOO 5206

Cooler Accepted by: DL Date: 08/20/21 Time: 1619

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? ...	Bubble Wrap ~~Wet Ice~~ Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
How were bottles sealed in plastic bags?	Individually	(Grouped)	Not
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ...	NA	(YES)	NO
Were all VOC vials free of air bubbles?	NA	YES	(NO)
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	NA	08/13/2021	

Were the sample(s) split by ARI? (NA) YES Date/Time: Equipment: Split by:

Samples Logged by: JG Date: 08/20/2021 Time: 1655 Labels checked by: JG

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

vials w/ air bubbles marked on preservation sheet, lab to determine sizes.

By: JG Date:

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

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WORK ORDER

21H0248

Client: Shannon & Wilson, Inc
Project Manager: Shelly Fishel
Project: Lower Duwamish Q3
Project Number: 21-1-12596-012

Preservation Confirmation

Container ID	Container Type	pH
21H0248-01 A	HDPE NM, 500 mL	
21H0248-01 B	Small OJ, 500 mL	
21H0248-01 C	Small OJ, 500 mL	
21H0248-01 D	Small OJ, 500 mL, EDTA	
21H0248-01 E	Glass NM, Amber, 500 mL, HCl	Lab to verify preservation (1)
21H0248-01 F	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass (P)
21H0248-01 G	Glass NM, Amber, 500 mL	
21H0248-01 H	Glass NM, Amber, 500 mL	
21H0248-01 I	VOA Vial, Clear, 40 mL, HCL	
21H0248-01 J	VOA Vial, Clear, 40 mL, HCL	
21H0248-01 K	VOA Vial, Clear, 40 mL, HCL	
21H0248-01 L	VOA Vial, Clear, 40 mL, HCL	
21H0248-01 M	VOA Vial, Clear, 40 mL, HCL	
21H0248-01 N	VOA Vial, Clear, 40 mL, HCL	
21H0248-01 O	VOA Vial, Clear, 40 mL, HCL	
21H0248-01 P	VOA Vial, Clear, 40 mL, HCL	
21H0248-01 Q	VOA Vial, Clear, 40 mL, HCL	
21H0248-02 A	HDPE NM, 500 mL	>2 Fail (F)
21H0248-03 A	HDPE NM, 500 mL	
21H0248-03 B	Small OJ, 500 mL	
21H0248-03 C	Small OJ, 500 mL	
21H0248-03 D	Small OJ, 500 mL, EDTA	
21H0248-03 E	Glass NM, Amber, 500 mL, HCl	Lab to verify preservation (1)
21H0248-03 F	HDPE NM, 500 mL, 1:1 HNO3	<2 P
21H0248-03 G	Glass NM, Amber, 500 mL	
21H0248-03 H	Glass NM, Amber, 500 mL	
21H0248-03 I	VOA Vial, Clear, 40 mL, HCL	
21H0248-03 J	VOA Vial, Clear, 40 mL, HCL	
21H0248-03 K	VOA Vial, Clear, 40 mL, HCL	
21H0248-03 L	VOA Vial, Clear, 40 mL, HCL	
21H0248-03 M	VOA Vial, Clear, 40 mL, HCL	
21H0248-03 N	VOA Vial, Clear, 40 mL, HCL	
21H0248-03 O	VOA Vial, Clear, 40 mL, HCL	
21H0248-03 P	VOA Vial, Clear, 40 mL, HCL	
21H0248-03 Q	VOA Vial, Clear, 40 mL, HCL	

Reviewed By

Date

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

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WORK ORDER

21H0248

Client: Shannon & Wilson, Inc | **Project Manager:** Shelly Fishel

Project: Lower Duwamish Q3 | **Project Number:** 21-1-12596-012

21H0248-04 A	HDPE NM, 500 mL	>2	Fail (F)
21H0248-05 A	Glass NM, Amber, 1000 mL		
21H0248-05 B	Glass NM, Amber, 1000 mL		
21H0248-05 C	Glass NM, Amber, 500 mL		
21H0248-05 D	Glass NM, Amber, 500 mL		
21H0248-05 E	Glass NM, Amber, 500 mL		
21H0248-05 F	Glass NM, Amber, 500 mL		
21H0248-05 G	Glass NM, Amber, 500 mL		
21H0248-05 H	Glass NM, Amber, 500 mL		
21H0248-05 I	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass (P)
21H0248-05 J	VOA Vial, Clear, 40 mL, HCL		
21H0248-05 K	VOA Vial, Clear, 40 mL, HCL		
21H0248-05 L	VOA Vial, Clear, 40 mL, HCL		
21H0248-05 M	VOA Vial, Clear, 40 mL, HCL		
21H0248-05 N	VOA Vial, Clear, 40 mL, HCL		
21H0248-05 O	VOA Vial, Clear, 40 mL, HCL		
21H0248-05 P	VOA Vial, Clear, 40 mL, HCL		
21H0248-06 A	HDPE NM, 500 mL	>2	F
21H0248-07 A	VOA Vial, Clear, 40 mL, HCL		
21H0248-07 B	VOA Vial, Clear, 40 mL, HCL		
21H0248-07 C	VOA Vial, Clear, 40 mL, HCL		
21H0248-07 D	VOA Vial, Clear, 40 mL, HCL		
21H0248-07 E	VOA Vial, Clear, 40 mL, HCL		
21H0248-08 A	Glass NM, Amber, 1000 mL		
21H0248-08 B	Glass NM, Amber, 1000 mL		
21H0248-08 C	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21H0248-09 A	Glass NM, Amber, 1000 mL		
21H0248-09 B	Glass NM, Amber, 1000 mL		
21H0248-09 C	Glass NM, Amber, 500 mL		
21H0248-09 D	Glass NM, Amber, 500 mL		
21H0248-09 E	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21H0248-09 F	VOA Vial, Clear, 40 mL, HCL	Dubble	
21H0248-09 G	VOA Vial, Clear, 40 mL, HCL		
21H0248-09 H	VOA Vial, Clear, 40 mL, HCL		
21H0248-09 I	VOA Vial, Clear, 40 mL, HCL		
21H0248-09 J	VOA Vial, Clear, 40 mL, HCL		
21H0248-10 A	HDPE NM, 500 mL	>2	F

Reviewed By _____ Date _____

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

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WORK ORDER

21H0248

Client: Shannon & Wilson, Inc | **Project Manager:** Shelly Fishel

Project: Lower Duwamish Q3 | **Project Number:** 21-1-12596-012

21H0248-11 A	Glass NM, Amber, 1000 mL		
21H0248-11 B	Glass NM, Amber, 1000 mL		
21H0248-11 C	Glass NM, Amber, 500 mL		
21H0248-11 D	Glass NM, Amber, 500 mL		
21H0248-11 E	Glass NM, Amber, 500 mL		
21H0248-11 F	Glass NM, Amber, 500 mL		
21H0248-11 G	Glass NM, Amber, 500 mL		
21H0248-11 H	Glass NM, Amber, 500 mL		
21H0248-11 I	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass (P)
21H0248-11 J	VOA Vial, Clear, 40 mL, HCL		
21H0248-11 K	VOA Vial, Clear, 40 mL, HCL		
21H0248-11 L	VOA Vial, Clear, 40 mL, HCL		
21H0248-11 M	VOA Vial, Clear, 40 mL, HCL		
21H0248-11 N	VOA Vial, Clear, 40 mL, HCL		
21H0248-12 A	HDPE NM, 500 mL	>2	Fail (F)
21H0248-13 A	Glass NM, Amber, 500 mL		
21H0248-13 B	Glass NM, Amber, 500 mL		
21H0248-13 C	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21H0248-13 D	VOA Vial, Clear, 40 mL, HCL		
21H0248-13 E	VOA Vial, Clear, 40 mL, HCL		
21H0248-13 F	VOA Vial, Clear, 40 mL, HCL		
21H0248-13 G	VOA Vial, Clear, 40 mL, HCL		
21H0248-13 H	VOA Vial, Clear, 40 mL, HCL		
21H0248-13 I	VOA Vial, Clear, 40 mL, HCL		
21H0248-13 J	VOA Vial, Clear, 40 mL, HCL		
21H0248-14 A	HDPE NM, 500 mL	>2	F

TB
Preservation Confirmed By

08/20/2021
Date

(1) pH<2
Significant headspace
08/20/21 CKL

Reviewed By

Date

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Analytical Chemists and Consultants

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WORK ORDER

21H0248

Client: Shannon & Wilson, Inc | **Project Manager:** Shelly Fishel

Project: Lower Duwamish Q3 | **Project Number:** 21-1-12596-012

Preservation Confirmation

Container ID	Container Type	pH
21H0248-01 A	HDPE NM, 500 mL	
21H0248-01 B	Small OJ, 500 mL	
21H0248-01 C	Small OJ, 500 mL	
21H0248-01 D	Small OJ, 500 mL, EDTA	
21H0248-01 E	Glass NM, Amber, 500 mL, HCl	Lab to verify preservation
21H0248-01 F	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass (P)
21H0248-01 G	Glass NM, Amber, 500 mL	
21H0248-01 H	Glass NM, Amber, 500 mL	
21H0248-01 I	VOA Vial, Clear, 40 mL, HCL	
21H0248-01 J	VOA Vial, Clear, 40 mL, HCL	
21H0248-01 K	VOA Vial, Clear, 40 mL, HCL	
21H0248-01 L	VOA Vial, Clear, 40 mL, HCL	
21H0248-01 M	VOA Vial, Clear, 40 mL, HCL	
21H0248-01 N	VOA Vial, Clear, 40 mL, HCL	
21H0248-01 O	VOA Vial, Clear, 40 mL, HCL	
21H0248-01 P	VOA Vial, Clear, 40 mL, HCL	
21H0248-01 Q	VOA Vial, Clear, 40 mL, HCL	
21H0248-02 A	HDPE NM, 500 mL	>2 Fail (F)(1)
21H0248-03 A	HDPE NM, 500 mL	
21H0248-03 B	Small OJ, 500 mL	
21H0248-03 C	Small OJ, 500 mL	
21H0248-03 D	Small OJ, 500 mL, EDTA	
21H0248-03 E	Glass NM, Amber, 500 mL, HCl	Lab to verify preservation
21H0248-03 F	HDPE NM, 500 mL, 1:1 HNO3	<2 P
21H0248-03 G	Glass NM, Amber, 500 mL	
21H0248-03 H	Glass NM, Amber, 500 mL	
21H0248-03 I	VOA Vial, Clear, 40 mL, HCL	
21H0248-03 J	VOA Vial, Clear, 40 mL, HCL	
21H0248-03 K	VOA Vial, Clear, 40 mL, HCL	
21H0248-03 L	VOA Vial, Clear, 40 mL, HCL	
21H0248-03 M	VOA Vial, Clear, 40 mL, HCL	
21H0248-03 N	VOA Vial, Clear, 40 mL, HCL	
21H0248-03 O	VOA Vial, Clear, 40 mL, HCL	
21H0248-03 P	VOA Vial, Clear, 40 mL, HCL	
21H0248-03 Q	VOA Vial, Clear, 40 mL, HCL	

Reviewed By _____ Date _____

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Analytical Chemists and Consultants

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WORK ORDER

21H0248

Client: Shannon & Wilson, Inc | **Project Manager:** Shelly Fishel

Project: Lower Duwamish Q3 | **Project Number:** 21-1-12596-012

21H0248-04 A	HDPE NM, 500 mL	>2	Fail (F) (1)
21H0248-05 A	Glass NM, Amber, 1000 mL		
21H0248-05 B	Glass NM, Amber, 1000 mL		
21H0248-05 C	Glass NM, Amber, 500 mL		
21H0248-05 D	Glass NM, Amber, 500 mL		
21H0248-05 E	Glass NM, Amber, 500 mL		
21H0248-05 F	Glass NM, Amber, 500 mL		
21H0248-05 G	Glass NM, Amber, 500 mL		
21H0248-05 H	Glass NM, Amber, 500 mL		
21H0248-05 I	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass (P)
21H0248-05 J	VOA Vial, Clear, 40 mL, HCL		
21H0248-05 K	VOA Vial, Clear, 40 mL, HCL		
21H0248-05 L	VOA Vial, Clear, 40 mL, HCL		
21H0248-05 M	VOA Vial, Clear, 40 mL, HCL		
21H0248-05 N	VOA Vial, Clear, 40 mL, HCL		
21H0248-05 O	VOA Vial, Clear, 40 mL, HCL		
21H0248-05 P	VOA Vial, Clear, 40 mL, HCL		
21H0248-06 A	HDPE NM, 500 mL	>2	F (1)
21H0248-07 A	VOA Vial, Clear, 40 mL, HCL		
21H0248-07 B	VOA Vial, Clear, 40 mL, HCL		
21H0248-07 C	VOA Vial, Clear, 40 mL, HCL		
21H0248-07 D	VOA Vial, Clear, 40 mL, HCL		
21H0248-07 E	VOA Vial, Clear, 40 mL, HCL		
21H0248-08 A	Glass NM, Amber, 1000 mL		
21H0248-08 B	Glass NM, Amber, 1000 mL		
21H0248-08 C	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21H0248-09 A	Glass NM, Amber, 1000 mL		
21H0248-09 B	Glass NM, Amber, 1000 mL		
21H0248-09 C	Glass NM, Amber, 500 mL		
21H0248-09 D	Glass NM, Amber, 500 mL		
21H0248-09 E	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21H0248-09 F	VOA Vial, Clear, 40 mL, HCL	Bubble	
21H0248-09 G	VOA Vial, Clear, 40 mL, HCL		
21H0248-09 H	VOA Vial, Clear, 40 mL, HCL		
21H0248-09 I	VOA Vial, Clear, 40 mL, HCL		
21H0248-09 J	VOA Vial, Clear, 40 mL, HCL		
21H0248-10 A	HDPE NM, 500 mL	>2	F (1)

Reviewed By _____ Date _____

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

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WORK ORDER

21H0248

Client: Shannon & Wilson, Inc | **Project Manager:** Shelly Fishel

Project: Lower Duwamish Q3 | **Project Number:** 21-1-12596-012

21H0248-11 A	Glass NM, Amber, 1000 mL		
21H0248-11 B	Glass NM, Amber, 1000 mL		
21H0248-11 C	Glass NM, Amber, 500 mL		
21H0248-11 D	Glass NM, Amber, 500 mL		
21H0248-11 E	Glass NM, Amber, 500 mL		
21H0248-11 F	Glass NM, Amber, 500 mL		
21H0248-11 G	Glass NM, Amber, 500 mL		
21H0248-11 H	Glass NM, Amber, 500 mL		
21H0248-11 I	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass (P)
21H0248-11 J	VOA Vial, Clear, 40 mL, HCL		
21H0248-11 K	VOA Vial, Clear, 40 mL, HCL		
21H0248-11 L	VOA Vial, Clear, 40 mL, HCL		
21H0248-11 M	VOA Vial, Clear, 40 mL, HCL		
21H0248-11 N	VOA Vial, Clear, 40 mL, HCL		
21H0248-12 A	HDPE NM, 500 mL	>2	Fail (F) (1)
21H0248-13 A	Glass NM, Amber, 500 mL		
21H0248-13 B	Glass NM, Amber, 500 mL		
21H0248-13 C	HDPE NM, 500 mL, 1:1 HNO3	<2	P
21H0248-13 D	VOA Vial, Clear, 40 mL, HCL		
21H0248-13 E	VOA Vial, Clear, 40 mL, HCL		
21H0248-13 F	VOA Vial, Clear, 40 mL, HCL		
21H0248-13 G	VOA Vial, Clear, 40 mL, HCL		
21H0248-13 H	VOA Vial, Clear, 40 mL, HCL		
21H0248-13 I	VOA Vial, Clear, 40 mL, HCL		
21H0248-13 J	VOA Vial, Clear, 40 mL, HCL		
21H0248-14 A	HDPE NM, 500 mL	>2	F (1)

Preservation Confirmed By

08/20/2021
Date

(1) Filtered at 0.45 um and preserved to pH < 2.0 with 0.75ml conc. HNO_3 (7697)
ML 081231 21.

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-30-20212008

21H0248-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/20/2021 13:39

Instrument: NT3 Analyst: PKC — Analyzed: 08/31/2021 18:35

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-01 N

Preparation Batch: BJH0800 — Sample Size: 10 mL

Prepared: 08/31/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*94.4*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.3*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*97.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.5*	*%*	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-30-20212008

21H0248-01 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/20/2021 13:39

Instrument: NT3 Analyst: PKC — Analyzed: 08/31/2021 18:35

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-01 N

Preparation Batch: BJH0800 — Sample Size: 10 mL

Prepared: 08/31/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*98.3*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*97.8*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-30-20212008

21H0248-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/20/2021 13:39

Instrument: NT16 Analyst: PB — Analyzed: 08/27/2021 17:04

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-01 Q

Preparation Batch: BJH0715 — Sample Size: 10 mL

Prepared: 08/27/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*105*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.8*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-30-20212008

21H0248-01 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 08/20/2021 13:39

Instrument: FID6 Analyst: PB — Analyzed: 08/25/2021 14:41

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-01 O

Preparation Batch: BJH0481 — Sample Size: 10 mL

Prepared: 08/25/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	1110	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*72-122 %*	*91.1*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-30-20212008

21H0248-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/20/2021 13:39
Instrument: FID4 Analyst: TWC — Analyzed: 09/10/2021 15:31

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0248-01 G 01
Preparation Batch: BJH0572 — Sample Size: 460 mL
Prepared: 08/25/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.109	0.910	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.217	0.277	mg/L	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*103*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-30-20212008

21H0248-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/20/2021 13:39

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/31/2021 00:17

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-01 F 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	10	1.42	5.00	644	ug/L	B, D

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-30-20212008

21H0248-01 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 08/20/2021 13:39

Instrument: IC930 Analyst: CKI — Analyzed: 08/20/2021 20:13

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0248-01 C

Preparation Batch: BJH0549 — Sample Size: 10 mL

Prepared: 08/20/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	0.100	0.100	6.43	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	0.100	ND	mg/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-30-20212008

21H0248-01 (Water)

Wet Chemistry

Method: SM 4500-SO3 B-00 — Sampled: 08/20/2021 13:39

Instrument: N/A Analyst: UW — Analyzed: 08/20/2021 17:17

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0248-01

Preparation Batch: BJH0548 — Sample Size: 50 mL

Prepared: 08/20/2021 — Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfite	14265-45-3	1	1.4	1.4	ND	mg/L	H, U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-30-20212008

21H0248-01RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 08/20/2021 13:39

Instrument: IC930 Analyst: CDE — Analyzed: 09/02/2021 23:34

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0248-01RE1 C

Preparation Batch: BJH0549 — Sample Size: 10 mL

Prepared: 08/20/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	10	1.00	1.00	40.8	mg/L	B, D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-30-20212008

21H0248-01RE1 (Water)

Wet Chemistry

Method: SM 3500-Fe B-97 — Sampled: 08/20/2021 13:39

Instrument: UV1800-2 Analyst: CKI — Analyzed: 08/20/2021 20:53

Sample Preparation: Preparation Method: SM 3500-Fe B — Extract ID: 21H0248-01RE1 E

Preparation Batch: BJH0550 — Sample Size: 5 mL

Prepared: 08/20/2021 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ferrous Iron		50	2.00	2.00	24.6	mg/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-30-20212008

21H0248-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/20/2021 13:39
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/01/2021 21:57

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-02 A 02
Preparation Batch: BJI0015 — Sample Size: 25 mL — Filtration Batch: BJH0559
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/23/2021 10:01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	10	1.42	5.00	647	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-15-20212008

21H0248-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/20/2021 15:11

Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 18:55

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-03 K

Preparation Batch: BJI0032 — Sample Size: 10 mL

Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*88.1*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*95.1*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*88.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.5*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-15-20212008

21H0248-03 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/20/2021 15:11

Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 18:55

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-03 K

Preparation Batch: BJI0032 — Sample Size: 10 mL

Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*95.1*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*88.8*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-15-20212008

21H0248-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/20/2021 15:11

Instrument: NT16 Analyst: PB — Analyzed: 08/27/2021 17:25

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-03 M

Preparation Batch: BJH0715 — Sample Size: 10 mL

Prepared: 08/27/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*104*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-15-20212008

21H0248-03 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 08/20/2021 15:11

Instrument: FID6 Analyst: PB — Analyzed: 08/25/2021 14:59

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-03 J

Preparation Batch: BJH0481 — Sample Size: 10 mL

Prepared: 08/25/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	97.8	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*72-122 %*	*85.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-15-20212008

21H0248-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/20/2021 15:11
Instrument: FID4 Analyst: TWC — Analyzed: 09/10/2021 15:51

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0248-03 G 01
Preparation Batch: BJH0572 — Sample Size: 465 mL
Prepared: 08/25/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.108	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.215	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*108*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-15-20212008

21H0248-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/20/2021 15:11
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/27/2021 21:05

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-03 F 01
Preparation Batch: BJH0670 — Sample Size: 25 mL
Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cobalt	7440-48-4	1	0.0178	0.200	6.59	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-15-20212008

21H0248-03 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 08/20/2021 15:11
Instrument: IC930 Analyst: CKI — Analyzed: 08/20/2021 21:13

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0248-03 C
Preparation Batch: BJH0549 — Sample Size: 10 mL
Prepared: 08/20/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	0.100	0.100	3.05	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	2.46	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	0.100	ND	mg/L	U

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-15-20212008

21H0248-03 (Water)

Wet Chemistry

Method: SM 3500-Fe B-97 — Sampled: 08/20/2021 15:11

Instrument: UV1800-2 Analyst: CKI — Analyzed: 08/20/2021 20:32

Sample Preparation: Preparation Method: SM 3500-Fe B — Extract ID: 21H0248-03 E

Preparation Batch: BJH0550 — Sample Size: 5 mL

Prepared: 08/20/2021 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ferrous Iron		1	0.040	0.040	0.055	mg/L	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-15-20212008

21H0248-03 (Water)

Wet Chemistry

Method: SM 4500-SO3 B-00 — Sampled: 08/20/2021 15:11

Instrument: N/A Analyst: UW — Analyzed: 08/20/2021 17:17

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0248-03

Preparation Batch: BJH0548 — Sample Size: 50 mL

Prepared: 08/20/2021 — Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfite	14265-45-3	1	1.4	1.4	ND	mg/L	H, U

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-15-20212008

21H0248-03RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 08/20/2021 15:11
Instrument: IC930 Analyst: CDE — Analyzed: 09/03/2021 01:13

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0248-03RE1 C
Preparation Batch: BJH0549 — Sample Size: 10 mL
Prepared: 08/20/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	5	0.500	0.500	19.3	mg/L	B, D

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-15-20212008

21H0248-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/20/2021 15:11
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 18:48

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-04 A 02
Preparation Batch: BJI0015 — Sample Size: 25 mL — Filtration Batch: BJH0559
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/23/2021 10:01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	1	0.142	0.500	4.88	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-15-20212008

21H0248-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/20/2021 15:11
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 18:48

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-04 A 02
Preparation Batch: BJI0015 — Sample Size: 25 mL — Filtration Batch: BJH0559
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/23/2021 10:01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	0.188	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

EB-1-20212008

21H0248-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/20/2021 08:13
Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 16:05

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-05 K
Preparation Batch: BJI0032 — Sample Size: 10 mL
Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*91.4*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*93.2*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*92.5*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

EB-1-20212008

21H0248-05 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/20/2021 08:13
Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 16:05

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-05 K
Preparation Batch: BJI0032 — Sample Size: 10 mL
Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*93.2*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*92.5*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

EB-1-20212008

21H0248-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/20/2021 08:13

Instrument: NT16 Analyst: PB — Analyzed: 08/27/2021 17:45

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-05 M

Preparation Batch: BJH0715 — Sample Size: 10 mL

Prepared: 08/27/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*105*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

EB-1-20212008

21H0248-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/20/2021 08:13
Instrument: NT10 Analyst: VTS — Analyzed: 09/03/2021 16:09

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0248-05 A 01
Preparation Batch: BJH0569 — Sample Size: 1000 mL
Prepared: 08/24/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Surrogate: 2-Fluorophenol				*30-160 %*	*32.4*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*17.5*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*73.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*71.2*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*81.6*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*81.6*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*95.3*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*100*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

EB-1-20212008

21H0248-05 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/20/2021 08:13
Instrument: NT11 Analyst: VTS — Analyzed: 09/01/2021 17:31

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJH0640; Prepared: 08/26/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21H0248-05 D 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJH0299; Cleaned: 31-Aug-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21H0248-05 D 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.008	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.004	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.003	ug/L	J
Acenaphthylene	208-96-8	1	0.002	0.010	0.046	ug/L	
Acenaphthene	83-32-9	1	0.003	0.010	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.002	0.010	0.003	ug/L	J
Fluorene	86-73-7	1	0.002	0.010	0.003	ug/L	J
Phenanthrene	85-01-8	1	0.001	0.010	0.011	ug/L	
Anthracene	120-12-7	1	0.001	0.010	0.003	ug/L	J
Carbazole	86-74-8	1	0.001	0.010	0.004	ug/L	J
Fluoranthene	206-44-0	1	0.002	0.010	0.003	ug/L	J
Pyrene	129-00-0	1	0.001	0.010	0.002	ug/L	J
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*84.1*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*80.6*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*94.2*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

EB-1-20212008

21H0248-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/20/2021 08:13
Instrument: FID4 Analyst: TWC — Analyzed: 09/10/2021 16:11

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0248-05 C 01
Preparation Batch: BJH0572 — Sample Size: 500 mL
Prepared: 08/25/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*105*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

EB-1-20212008

21H0248-05 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/20/2021 08:13
Instrument: ECD7 Analyst: JGR — Analyzed: 09/12/2021 00:13

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0248-05 B 01
	Preparation Batch: BJH0571	Sample Size: 1000 mL	
	Prepared: 08/27/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0248-05 B 01
	Cleanup Batch: CJI0085	Initial Volume: 0.5 mL	
	Cleaned: 10-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0248-05 B 01
	Cleanup Batch: CJI0083	Initial Volume: 0.5 uL	
	Cleaned: 10-Sep-2021	Final Volume: 0.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0248-05 B 01
	Cleanup Batch: CJI0084	Initial Volume: 0.5 uL	
	Cleaned: 10-Sep-2021	Final Volume: 0.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*68.8*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*70.1*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*61.7*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*65.5*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

EB-1-20212008

21H0248-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/20/2021 08:13

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/27/2021 19:06

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-05 I 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.114	0.500	ND	ug/L	U
Chromium	7440-47-3	1	0.260	0.500	ND	ug/L	U
Iron	7439-89-6	1	18.2	36.0	26.5	ug/L	J
Lead	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium	7440-62-2	1	0.0556	0.200	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

EB-1-20212008

21H0248-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/20/2021 08:13
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/27/2021 19:06

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-05 I 01
Preparation Batch: BJH0670 — Sample Size: 25 mL
Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	ND	ug/L	U
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt	7440-48-4	1	0.0178	0.200	ND	ug/L	U
Copper	7440-50-8	1	0.173	0.500	ND	ug/L	U
Nickel	7440-02-0	1	0.0792	0.500	ND	ug/L	U
Selenium	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

EB-1-20212008

21H0248-05 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/20/2021 08:13
Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 14:26

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0248-05 I
Preparation Batch: BJH0598 — Sample Size: 20 mL
Prepared: 08/24/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

EB-1-20212008

21H0248-05RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/20/2021 08:13
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/31/2021 19:39

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-05RE1 I 02
Preparation Batch: BJH0792 — Sample Size: 25 mL
Prepared: 08/31/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	1	0.142	0.500	0.213	ug/L	J

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

EB-1-20212008

21H0248-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/20/2021 08:13

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/01/2021 22:58

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-06 A 02

Preparation Batch: BJI0015 — Sample Size: 25 mL — Filtration Batch: BJH0559

Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/23/2021 10:01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.114	0.500	ND	ug/L	U
Chromium, Dissolved	7440-47-3	1	0.260	0.500	ND	ug/L	U
Iron, Dissolved	7439-89-6	1	18.2	36.0	ND	ug/L	U
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	1	0.142	0.500	ND	ug/L	U
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0556	0.200	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

EB-1-20212008

21H0248-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/20/2021 08:13
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/01/2021 22:58

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-06 A 02
Preparation Batch: BJI0015 — Sample Size: 25 mL — Filtration Batch: BJH0559
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/23/2021 10:01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	ND	ug/L	U
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.173	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	ND	ug/L	U
Selenium, Dissolved	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

EB-1-20212008

21H0248-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/20/2021 08:13
Instrument: HYDRA Analyst: ML — Analyzed: 09/01/2021 16:08

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0248-06 A 01
Preparation Batch: BJH0799 — Sample Size: 20 mL — Filtration Batch: BJH0559
Prepared: 08/31/2021 — Final Volume: 20 mL — Filtration Date: 08/23/2021 10:01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

TB-4-20212008

21H0248-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/20/2021 08:23

Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 16:30

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-07 C

Preparation Batch: BJI0032 — Sample Size: 10 mL

Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.11	ug/L	J
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*89.0*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*90.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.7*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*96.3*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

TB-4-20212008

21H0248-07 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/20/2021 08:23

Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 16:30

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-07 C

Preparation Batch: BJI0032 — Sample Size: 10 mL

Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*90.8*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*95.7*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

TB-4-20212008

21H0248-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/20/2021 08:23

Instrument: NT16 Analyst: PB — Analyzed: 08/27/2021 18:05

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-07 B

Preparation Batch: BJH0715 — Sample Size: 10 mL

Prepared: 08/27/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*105*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-39-20212008

21H0248-08 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/20/2021 09:14
Instrument: ECD7 Analyst: JGR — Analyzed: 09/12/2021 00:33

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0248-08 A 01
	Preparation Batch: BJH0571	Sample Size: 1000 mL	
	Prepared: 08/27/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0248-08 A 01
	Cleanup Batch: CJI0085	Initial Volume: 0.5 mL	
	Cleaned: 10-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0248-08 A 01
	Cleanup Batch: CJI0083	Initial Volume: 0.5 uL	
	Cleaned: 10-Sep-2021	Final Volume: 0.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0248-08 A 01
	Cleanup Batch: CJI0084	Initial Volume: 0.5 uL	
	Cleaned: 10-Sep-2021	Final Volume: 0.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*79.2*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*71.0*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*68.4*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*66.6*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-39-20212008

21H0248-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/20/2021 09:14
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/31/2021 01:12

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-08 C 01
Preparation Batch: BJH0670 — Sample Size: 25 mL
Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	10	2.60	5.00	14.9	ug/L	D
Manganese	7439-96-5	10	1.42	5.00	26.7	ug/L	B, D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-39-20212008

21H0248-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/20/2021 09:14
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/31/2021 01:12

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-08 C 01
Preparation Batch: BJH0670 — Sample Size: 25 mL
Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	10	0.373	2.00	2.48	ug/L	D
Nickel	7440-02-0	10	0.792	5.00	1.72	ug/L	J, D
Zinc	7440-66-6	10	29.2	60.0	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-44-20212008

21H0248-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/20/2021 10:25

Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 19:20

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-09 I

Preparation Batch: BJI0032 — Sample Size: 10 mL

Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*93.6*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*94.1*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*94.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-44-20212008

21H0248-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/20/2021 10:25

Instrument: NT16 Analyst: PB — Analyzed: 08/27/2021 18:25

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-09 G

Preparation Batch: BJH0715 — Sample Size: 10 mL

Prepared: 08/27/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*108*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-44-20212008

21H0248-09 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/20/2021 10:25

Instrument: FID4 Analyst: TWC — Analyzed: 09/10/2021 16:31

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0248-09 C 01

Preparation Batch: BJH0572 — Sample Size: 500 mL

Prepared: 08/25/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*90.4*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-44-20212008

21H0248-09 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/20/2021 10:25
Instrument: ECD7 Analyst: JGR — Analyzed: 09/12/2021 00:54

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0248-09 A 01
	Preparation Batch: BJH0571	Sample Size: 1000 mL	
	Prepared: 08/27/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0248-09 A 01
	Cleanup Batch: CJI0085	Initial Volume: 0.5 mL	
	Cleaned: 10-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0248-09 A 01
	Cleanup Batch: CJI0083	Initial Volume: 0.5 uL	
	Cleaned: 10-Sep-2021	Final Volume: 0.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0248-09 A 01
	Cleanup Batch: CJI0084	Initial Volume: 0.5 uL	
	Cleaned: 10-Sep-2021	Final Volume: 0.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*78.4*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*75.4*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*66.4*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*71.4*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-44-20212008

21H0248-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/20/2021 10:25

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/31/2021 01:25

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-09 E 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	10	1.42	5.00	331	ug/L	B, D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-44-20212008

21H0248-09 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/20/2021 10:25

Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 14:56

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0248-09 E

Preparation Batch: BJH0598 — Sample Size: 20 mL

Prepared: 08/24/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	0.000023	mg/L	J

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-44-20212008

21H0248-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/20/2021 10:25
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/01/2021 22:06

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-10 A 02
Preparation Batch: BJI0015 — Sample Size: 25 mL — Filtration Batch: BJH0559
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/23/2021 10:01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	10	1.42	5.00	332	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-44-20212008

21H0248-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/20/2021 10:25
Instrument: HYDRA Analyst: ML — Analyzed: 09/01/2021 16:17

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0248-10 A 01
Preparation Batch: BJH0799 — Sample Size: 20 mL — Filtration Batch: BJH0559
Prepared: 08/31/2021 — Final Volume: 20 mL — Filtration Date: 08/23/2021 10:01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-54-20212008

21H0248-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/20/2021 11:46

Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 19:46

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-11 M

Preparation Batch: BJI0032 — Sample Size: 10 mL

Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	0.14	ug/L	J
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*83.5*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*93.5*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*89.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*92.5*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-54-20212008

21H0248-11 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/20/2021 11:46

Instrument: NT16 Analyst: PB — Analyzed: 08/27/2021 18:46

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-11 J

Preparation Batch: BJH0715 — Sample Size: 10 mL

Prepared: 08/27/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*104*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.2*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-54-20212008

21H0248-11 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/20/2021 11:46
Instrument: NT10 Analyst: VTS — Analyzed: 09/03/2021 16:47

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0248-11 A 01
Preparation Batch: BJH0569 — Sample Size: 1000 mL
Prepared: 08/24/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Surrogate: 2-Fluorophenol				*30-160 %*	*23.9*	*%*	*
Surrogate: Phenol-d5				*30-160 %*	*13.7*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*56.2*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*53.3*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*65.3*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*66.5*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*73.4*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*75.3*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-54-20212008

21H0248-11 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/20/2021 11:46
Instrument: NT11 Analyst: VTS — Analyzed: 09/10/2021 11:03

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJH0570; Prepared: 08/25/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21H0248-11 C 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJI0077; Cleaned: 09-Sep-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21H0248-11 C 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.003	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.001	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.001	ug/L	J
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.002	0.010	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.010	ND	ug/L	U
Phenanthrene	85-01-8	1	0.001	0.010	ND	ug/L	U
Anthracene	120-12-7	1	0.001	0.010	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.010	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*72.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*64.8*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*83.5*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-54-20212008

21H0248-11 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/20/2021 11:46
Instrument: FID4 Analyst: TWC — Analyzed: 09/10/2021 16:52

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0248-11 D 01
Preparation Batch: BJH0572 — Sample Size: 460 mL
Prepared: 08/25/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.109	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.217	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*98.9*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-54-20212008

21H0248-11 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/20/2021 11:46
Instrument: ECD7 Analyst: JGR — Analyzed: 09/12/2021 01:14

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0248-11 B 01
	Preparation Batch: BJH0571	Sample Size: 1000 mL	
	Prepared: 08/27/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0248-11 B 01
	Cleanup Batch: CJI0085	Initial Volume: 0.5 mL	
	Cleaned: 10-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0248-11 B 01
	Cleanup Batch: CJI0083	Initial Volume: 0.5 uL	
	Cleaned: 10-Sep-2021	Final Volume: 0.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0248-11 B 01
	Cleanup Batch: CJI0084	Initial Volume: 0.5 uL	
	Cleaned: 10-Sep-2021	Final Volume: 0.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*81.9*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*70.3*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*74.2*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*64.4*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-54-20212008

21H0248-11 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/20/2021 11:46
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/27/2021 19:11

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-11 I 01
Preparation Batch: BJH0670 — Sample Size: 25 mL
Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0765	0.500	17.1	ug/L	
Chromium	7440-47-3	2	0.520	1.00	ND	ug/L	U
Iron	7439-89-6	2	36.4	72.0	ND	ug/L	U
Lead	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese	7439-96-5	2	0.284	1.00	43.1	ug/L	B, D
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium	7440-62-2	2	0.111	0.400	12.7	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-54-20212008

21H0248-11 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/20/2021 11:46
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/27/2021 19:11

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-11 I 01
Preparation Batch: BJH0670 — Sample Size: 25 mL
Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	3.38	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt	7440-48-4	1	0.0178	0.200	0.0600	ug/L	J
Copper	7440-50-8	1	0.173	0.500	1.04	ug/L	
Nickel	7440-02-0	1	0.0792	0.500	0.508	ug/L	
Selenium	7782-49-2	1	0.179	0.500	1.77	ug/L	
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-54-20212008

21H0248-11 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/20/2021 11:46
Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 14:59

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0248-11 I
Preparation Batch: BJH0598 — Sample Size: 20 mL
Prepared: 08/24/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	0.000018	mg/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-54-20212008

21H0248-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/20/2021 11:46

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/01/2021 23:02

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-12 A 02

Preparation Batch: BJI0015 — Sample Size: 25 mL — Filtration Batch: BJH0559

Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/23/2021 10:01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.114	0.500	17.6	ug/L	
Chromium, Dissolved	7440-47-3	1	0.260	0.500	ND	ug/L	U
Iron, Dissolved	7439-89-6	1	18.2	36.0	ND	ug/L	U
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	1	0.142	0.500	37.1	ug/L	
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0556	0.200	11.7	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-54-20212008

21H0248-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/20/2021 11:46
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/01/2021 23:02

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-12 A 02
Preparation Batch: BJI0015 — Sample Size: 25 mL — Filtration Batch: BJH0559
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/23/2021 10:01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	3.05	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	0.0500	ug/L	J
Copper, Dissolved	7440-50-8	1	0.173	0.500	0.860	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	0.489	ug/L	J
Selenium, Dissolved	7782-49-2	1	0.179	0.500	1.66	ug/L	
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-54-20212008

21H0248-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/20/2021 11:46
Instrument: HYDRA Analyst: ML — Analyzed: 09/01/2021 16:19

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0248-12 A 01
Preparation Batch: BJH0799 — Sample Size: 20 mL — Filtration Batch: BJH0559
Prepared: 08/31/2021 — Final Volume: 20 mL — Filtration Date: 08/23/2021 10:01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-100-20212008

21H0248-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/20/2021 15:26

Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 20:11

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-13 F

Preparation Batch: BJI0032 — Sample Size: 10 mL

Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*95.0*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*94.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*94.0*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*97.3*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-100-20212008

21H0248-13 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/20/2021 15:26
Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 20:11

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-13 F
Preparation Batch: BJI0032 — Sample Size: 10 mL
Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*94.0*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*94.0*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-100-20212008

21H0248-13 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/20/2021 15:26
Instrument: NT16 Analyst: PB — Analyzed: 08/27/2021 19:06

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0248-13 D
Preparation Batch: BJH0715 — Sample Size: 10 mL
Prepared: 08/27/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*104*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.6*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-100-20212008

21H0248-13 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/20/2021 15:26
Instrument: FID4 Analyst: TWC — Analyzed: 09/10/2021 17:12

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0248-13 A 01
Preparation Batch: BJH0572 — Sample Size: 500 mL
Prepared: 08/25/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*98.5*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-100-20212008

21H0248-13 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/20/2021 15:26

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/27/2021 21:16

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-13 C 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cobalt	7440-48-4	1	0.0178	0.200	5.13	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

MW-100-20212008

21H0248-14 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/20/2021 15:26
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 18:52

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0248-14 A 02
Preparation Batch: BJI0015 — Sample Size: 25 mL — Filtration Batch: BJH0559
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/23/2021 10:01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	0.188	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Volatile Organic Compounds - Quality Control

Batch BJH0800 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0800-BLK1)				Prepared: 31-Aug-2021 Analyzed: 31-Aug-2021 12:22							
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							U
Surrogate: Toluene-d8	4.82			ug/L	*5.00*		*96.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.76			ug/L	*5.00*		*95.1*	*80-120*			
Blank (BJH0800-BLK2)				Prepared: 31-Aug-2021 Analyzed: 31-Aug-2021 12:22							
Vinyl Chloride	ND	0.08	0.20	ug/L							U
1,1-Dichloroethene	ND	0.08	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.07	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
Tetrachloroethene	ND	0.09	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.69			ug/L	*5.00*		*93.7*	*80-129*			
Surrogate: Toluene-d8	4.82			ug/L	*5.00*		*96.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.76			ug/L	*5.00*		*95.1*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.55			ug/L	*5.00*		*90.9*	*80-120*			
LCS (BJH0800-BS1)				Prepared: 31-Aug-2021 Analyzed: 31-Aug-2021 10:16							
Gasoline Range Organics (Tol-Nap)	1110		100	ug/L	1000		111	72-128			
Surrogate: Toluene-d8	4.97			ug/L	*5.00*		*99.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.94			ug/L	*5.00*		*98.7*	*80-120*			
LCS (BJH0800-BS2)				Prepared: 31-Aug-2021 Analyzed: 31-Aug-2021 10:41							
Vinyl Chloride	9.59	0.08	0.20	ug/L	10.0		95.9	66-133			
1,1-Dichloroethene	9.28	0.08	0.20	ug/L	10.0		92.8	69-135			
trans-1,2-Dichloroethene	8.54	0.07	0.20	ug/L	10.0		85.4	78-128			
cis-1,2-Dichloroethene	8.67	0.08	0.20	ug/L	10.0		86.7	80-121			
Trichloroethene	8.93	0.07	0.20	ug/L	10.0		89.3	80-120			
Tetrachloroethene	9.23	0.09	0.20	ug/L	10.0		92.3	80-120			
Surrogate: 1,2-Dichloroethane-d4	4.71			ug/L	*5.00*		*94.2*	*80-129*			
Surrogate: Toluene-d8	5.08			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.86			ug/L	*5.00*		*97.2*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.70			ug/L	*5.00*		*94.1*	*80-120*			
LCS Dup (BJH0800-BSD1)				Prepared: 31-Aug-2021 Analyzed: 31-Aug-2021 11:07							

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Volatile Organic Compounds - Quality Control

Batch BJH0800 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJH0800-BSD1)					Prepared: 31-Aug-2021 Analyzed: 31-Aug-2021 11:07						
Gasoline Range Organics (Tol-Nap)	1040		100	ug/L	1000		104	72-128	7.17	30	
Surrogate: Toluene-d8	4.93			ug/L	*5.00*		*98.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.77			ug/L	*5.00*		*95.5*	*80-120*			
LCS Dup (BJH0800-BSD2)					Prepared: 31-Aug-2021 Analyzed: 31-Aug-2021 11:32						
Vinyl Chloride	9.65	0.08	0.20	ug/L	10.0		96.5	66-133	0.69	30	
1,1-Dichloroethene	9.36	0.08	0.20	ug/L	10.0		93.6	69-135	0.90	30	
trans-1,2-Dichloroethene	8.44	0.07	0.20	ug/L	10.0		84.4	78-128	1.28	30	
cis-1,2-Dichloroethene	9.02	0.08	0.20	ug/L	10.0		90.2	80-121	3.96	30	
Trichloroethene	8.86	0.07	0.20	ug/L	10.0		88.6	80-120	0.83	30	
Tetrachloroethene	9.11	0.09	0.20	ug/L	10.0		91.1	80-120	1.33	30	
Surrogate: 1,2-Dichloroethane-d4	4.61			ug/L	*5.00*		*92.1*	*80-129*			
Surrogate: Toluene-d8	4.87			ug/L	*5.00*		*97.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.91			ug/L	*5.00*		*98.1*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.77			ug/L	*5.00*		*95.3*	*80-120*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Volatile Organic Compounds - Quality Control

Batch BJI0032 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0032-BLK1)				Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 15:40							
Vinyl Chloride	ND	0.08	0.20	ug/L							U
1,1-Dichloroethene	ND	0.08	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.07	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Benzene	ND	0.05	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
Toluene	ND	0.05	0.20	ug/L							U
Tetrachloroethene	ND	0.09	0.20	ug/L							U
Ethylbenzene	ND	0.05	0.20	ug/L							U
m,p-Xylene	ND	0.14	0.40	ug/L							U
o-Xylene	ND	0.08	0.20	ug/L							U
Xylenes, total	ND	0.22	0.60	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.53			ug/L	*5.00*		*90.6*	*80-129*			
Surrogate: Toluene-d8	4.63			ug/L	*5.00*		*92.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.87			ug/L	*5.00*		*97.4*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.62			ug/L	*5.00*		*92.4*	*80-120*			
Blank (BJI0032-BLK2)				Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 15:40							
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							U
Surrogate: Toluene-d8	4.63			ug/L	*5.00*		*92.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.87			ug/L	*5.00*		*97.4*	*80-120*			
LCS (BJI0032-BS1)				Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 13:34							
Vinyl Chloride	9.93	0.08	0.20	ug/L	10.0		99.3	66-133			
1,1-Dichloroethene	10.2	0.08	0.20	ug/L	10.0		102	69-135			
trans-1,2-Dichloroethene	9.32	0.07	0.20	ug/L	10.0		93.2	78-128			
cis-1,2-Dichloroethene	9.65	0.08	0.20	ug/L	10.0		96.5	80-121			
Benzene	9.96	0.05	0.20	ug/L	10.0		99.6	80-120			
Trichloroethene	9.74	0.07	0.20	ug/L	10.0		97.4	80-120			
Toluene	10.0	0.05	0.20	ug/L	10.0		100	80-120			
Tetrachloroethene	10.8	0.09	0.20	ug/L	10.0		108	80-120			
Ethylbenzene	10.6	0.05	0.20	ug/L	10.0		106	80-120			
m,p-Xylene	21.1	0.14	0.40	ug/L	20.0		105	80-121			
o-Xylene	10.4	0.08	0.20	ug/L	10.0		104	80-121			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Volatile Organic Compounds - Quality Control

Batch BJI0032 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0032-BS1)					Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 13:34						
Xylenes, total	31.4	0.22	0.60	ug/L	30.0		105	76-127			
Surrogate: 1,2-Dichloroethane-d4	4.70			ug/L	*5.00*		*94.0*	*80-129*			
Surrogate: Toluene-d8	4.85			ug/L	*5.00*		*97.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.65			ug/L	*5.00*		*93.0*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.84			ug/L	*5.00*		*96.8*	*80-120*			
LCS (BJI0032-BS2)					Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 13:59						
Gasoline Range Organics (Tol-Nap)	1120		100	ug/L	1000		112	72-128			
Surrogate: Toluene-d8	4.60			ug/L	*5.00*		*92.1*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.57			ug/L	*5.00*		*91.4*	*80-120*			
LCS Dup (BJI0032-BSD1)					Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 14:24						
Vinyl Chloride	9.52	0.08	0.20	ug/L	10.0		95.2	66-133	4.21	30	
1,1-Dichloroethene	9.48	0.08	0.20	ug/L	10.0		94.8	69-135	7.14	30	
trans-1,2-Dichloroethene	8.82	0.07	0.20	ug/L	10.0		88.2	78-128	5.53	30	
cis-1,2-Dichloroethene	9.31	0.08	0.20	ug/L	10.0		93.1	80-121	3.64	30	
Benzene	9.52	0.05	0.20	ug/L	10.0		95.2	80-120	4.55	30	
Trichloroethene	9.64	0.07	0.20	ug/L	10.0		96.4	80-120	1.01	30	
Toluene	9.63	0.05	0.20	ug/L	10.0		96.3	80-120	4.15	30	
Tetrachloroethene	10.6	0.09	0.20	ug/L	10.0		106	80-120	2.00	30	
Ethylbenzene	10.5	0.05	0.20	ug/L	10.0		105	80-120	1.48	30	
m,p-Xylene	20.2	0.14	0.40	ug/L	20.0		101	80-121	4.29	30	
o-Xylene	9.99	0.08	0.20	ug/L	10.0		99.9	80-121	3.66	30	
Xylenes, total	30.2	0.22	0.60	ug/L	30.0		101	76-127	4.08	30	
Surrogate: 1,2-Dichloroethane-d4	4.39			ug/L	*5.00*		*87.9*	*80-129*			
Surrogate: Toluene-d8	4.66			ug/L	*5.00*		*93.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.77			ug/L	*5.00*		*95.3*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.75			ug/L	*5.00*		*94.9*	*80-120*			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Volatile Organic Compounds - SIM - Quality Control

Batch BJH0715 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0715-BLK1)					Prepared: 27-Aug-2021 Analyzed: 27-Aug-2021 11:20						
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	5090			ng/L	*5000*		*102*	*80-129*			
Surrogate: Toluene-d8	5000			ng/L	*5000*		*100*	*80-120*			
LCS (BJH0715-BS1)					Prepared: 27-Aug-2021 Analyzed: 27-Aug-2021 10:24						
Vinyl chloride	1940	5.01	20.0	ng/L	2000		96.9	62-141			
Surrogate: 1,2-Dichloroethane-d4	5480			ng/L	*5000*		*110*	*80-129*			
Surrogate: Toluene-d8	4700			ng/L	*5000*		*93.9*	*80-120*			
LCS Dup (BJH0715-BSD1)					Prepared: 27-Aug-2021 Analyzed: 27-Aug-2021 11:00						
Vinyl chloride	2240	5.01	20.0	ng/L	2000		112	62-141	14.50	30	
Surrogate: 1,2-Dichloroethane-d4	5380			ng/L	*5000*		*108*	*80-129*			
Surrogate: Toluene-d8	4750			ng/L	*5000*		*95.0*	*80-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Dissolved Gases - Quality Control

Batch BJH0481 - EPA 5030C (Purge and Trap)

Instrument: FID6 Analyst: PB

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0481-BLK1)				Prepared: 25-Aug-2021	Analyzed: 25-Aug-2021 10:05					
Methane	ND	0.65	ug/L							U
Ethane	ND	1.23	ug/L							U
Ethene	ND	1.14	ug/L							U
Acetylene	ND	1.06	ug/L							U
Surrogate: Propane	2190		ug/L	*1800*		*122*	*72-122*			
LCS (BJH0481-BS1)				Prepared: 25-Aug-2021	Analyzed: 25-Aug-2021 10:54					
Methane	615	0.65	ug/L	656		93.8	80-120			
Ethane	1260	1.23	ug/L	1230		102	80-120			
Ethene	1170	1.14	ug/L	1150		102	80-120			
Acetylene	1070	1.06	ug/L	1060		101	73-123			E
Surrogate: Propane	1990		ug/L	*1800*		*111*	*62-122*			
LCS Dup (BJH0481-BSD1)				Prepared: 25-Aug-2021	Analyzed: 25-Aug-2021 11:12					
Methane	612	0.65	ug/L	656		93.3	80-120	0.47	30	
Ethane	1230	1.23	ug/L	1230		99.6	80-120	2.53	30	
Ethene	1150	1.14	ug/L	1150		99.8	80-120	1.69	30	
Acetylene	1090	1.06	ug/L	1060		103	73-123	2.05	30	E
Surrogate: Propane	1800		ug/L	*1800*		*100*	*62-122*			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Semivolatile Organic Compounds - Quality Control

Batch BJH0569 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0569-BLK1)				Prepared: 24-Aug-2021 Analyzed: 03-Sep-2021 13:38							
1,4-Dichlorobenzene	ND	0.03	0.2	ug/L							U
1,2-Dichlorobenzene	ND	0.03	0.2	ug/L							U
2,4-Dimethylphenol	ND	0.3	1.0	ug/L							U
Benzoic acid	ND	0.1	2.0	ug/L							U
N-Nitrosodiphenylamine	ND	0.03	0.2	ug/L							U
Pentachlorophenol	ND	0.1	1.0	ug/L							U
Di-n-Butylphthalate	ND	0.05	0.2	ug/L							U
Butylbenzylphthalate	ND	0.07	0.2	ug/L							U
bis(2-Ethylhexyl)phthalate	0.2	0.2	0.2	ug/L							
Surrogate: 2-Fluorophenol	2.40			ug/L	*7.50*		*32.0*	*30-160*			
Surrogate: Phenol-d5	1.36			ug/L	*7.50*		*18.1*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	5.35			ug/L	*7.50*		*71.3*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.15			ug/L	*5.00*		*63.1*	*30-160*			
Surrogate: Nitrobenzene-d5	3.73			ug/L	*5.00*		*74.6*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.90			ug/L	*5.00*		*77.9*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.62			ug/L	*7.50*		*88.3*	*30-160*			
Surrogate: p-Terphenyl-d14	4.66			ug/L	*5.00*		*93.2*	*30-160*			
LCS (BJH0569-BS1)				Prepared: 24-Aug-2021 Analyzed: 03-Sep-2021 14:16							
1,4-Dichlorobenzene	3.8	0.03	0.2	ug/L	5.00		76.3	30-160			
1,2-Dichlorobenzene	3.6	0.03	0.2	ug/L	5.00		71.5	30-160			
2,4-Dimethylphenol	9.2	0.3	1.0	ug/L	13.0		70.5	30-160			
Benzoic acid	5.0	0.1	2.0	ug/L	23.0		21.8	30-160			*
N-Nitrosodiphenylamine	4.0	0.03	0.2	ug/L	5.00		79.4	30-160			
Pentachlorophenol	10.1	0.1	1.0	ug/L	13.0		77.7	30-160			Q
Di-n-Butylphthalate	4.5	0.05	0.2	ug/L	5.00		89.0	30-160			
Butylbenzylphthalate	4.8	0.07	0.2	ug/L	5.00		96.3	30-160			Q
bis(2-Ethylhexyl)phthalate	5.0	0.2	0.2	ug/L	5.00		101	30-160			B
Surrogate: 2-Fluorophenol	2.89			ug/L	*7.50*		*38.5*	*30-160*			
Surrogate: Phenol-d5	1.76			ug/L	*7.50*		*23.4*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	6.13			ug/L	*7.50*		*81.7*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.49			ug/L	*5.00*		*69.8*	*30-160*			
Surrogate: Nitrobenzene-d5	4.48			ug/L	*5.00*		*89.6*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.42			ug/L	*5.00*		*88.5*	*30-160*			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Semivolatile Organic Compounds - Quality Control

Batch BJH0569 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0569-BS1)					Prepared: 24-Aug-2021 Analyzed: 03-Sep-2021 14:16						
Surrogate: 2,4,6-Tribromophenol	7.15			ug/L	*7.50*		*95.3*	*30-160*			
Surrogate: p-Terphenyl-d14	5.15			ug/L	*5.00*		*103*	*30-160*			
LCS Dup (BJH0569-BSD1)					Prepared: 24-Aug-2021 Analyzed: 03-Sep-2021 14:53						
1,4-Dichlorobenzene	4.4	0.03	0.2	ug/L	5.00		87.5	30-160	13.60	30	
1,2-Dichlorobenzene	3.9	0.03	0.2	ug/L	5.00		78.5	30-160	9.38	30	
2,4-Dimethylphenol	10.7	0.3	1.0	ug/L	13.0		82.2	30-160	15.40	30	
Benzoic acid	6.1	0.1	2.0	ug/L	23.0		26.6	30-160	20.00	30	*
N-Nitrosodiphenylamine	4.1	0.03	0.2	ug/L	5.00		82.8	30-160	4.19	30	
Pentachlorophenol	11.4	0.1	1.0	ug/L	13.0		87.4	30-160	11.80	30	Q
Di-n-Butylphthalate	5.0	0.05	0.2	ug/L	5.00		101	30-160	12.50	30	
Butylbenzylphthalate	5.3	0.07	0.2	ug/L	5.00		105	30-160	8.86	30	Q
bis(2-Ethylhexyl)phthalate	5.5	0.2	0.2	ug/L	5.00		109	30-160	8.36	30	B
Surrogate: 2-Fluorophenol	3.08			ug/L	*7.50*		*41.1*	*30-160*			
Surrogate: Phenol-d5	1.87			ug/L	*7.50*		*24.9*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	6.51			ug/L	*7.50*		*86.7*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.85			ug/L	*5.00*		*76.9*	*30-160*			
Surrogate: Nitrobenzene-d5	4.73			ug/L	*5.00*		*94.5*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.57			ug/L	*5.00*		*91.4*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	7.55			ug/L	*7.50*		*101*	*30-160*			
Surrogate: p-Terphenyl-d14	5.25			ug/L	*5.00*		*105*	*30-160*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0570 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0570-BLK1)				Prepared: 25-Aug-2021 Analyzed: 10-Sep-2021 09:33							
Naphthalene	0.002	0.001	0.010	ug/L							J
2-Methylnaphthalene	0.001	0.001	0.010	ug/L							J
1-Methylnaphthalene	ND	0.0009	0.010	ug/L							U
Acenaphthylene	ND	0.002	0.010	ug/L							U
Acenaphthene	ND	0.003	0.010	ug/L							U
Dibenzofuran	ND	0.002	0.010	ug/L							U
Fluorene	ND	0.002	0.010	ug/L							U
Phenanthrene	ND	0.001	0.010	ug/L							U
Anthracene	ND	0.001	0.010	ug/L							U
Carbazole	ND	0.001	0.010	ug/L							U
Fluoranthene	ND	0.002	0.010	ug/L							U
Pyrene	ND	0.001	0.010	ug/L							U
Benzo(a)anthracene	ND	0.0008	0.010	ug/L							U
Chrysene	ND	0.0009	0.010	ug/L							U
Benzo(b)fluoranthene	ND	0.0005	0.010	ug/L							U
Benzo(k)fluoranthene	ND	0.003	0.010	ug/L							U
Benzo(j)fluoranthene	ND	0.002	0.010	ug/L							U
Benzofluoranthenes, Total	ND	0.004	0.010	ug/L							U
Benzo(a)pyrene	ND	0.002	0.010	ug/L							U
Perylene	ND	0.006	0.010	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.001	0.010	ug/L							U
Dibenzo(a,h)anthracene	ND	0.001	0.010	ug/L							U
Benzo(g,h,i)perylene	ND	0.001	0.010	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	0.225			ug/L	*0.300*		*74.9*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.177			ug/L	*0.300*		*59.0*	*29-120*			
Surrogate: Fluoranthene-d10	0.244			ug/L	*0.300*		*81.3*	*57-120*			
LCS (BJH0570-BS1)				Prepared: 25-Aug-2021 Analyzed: 10-Sep-2021 10:03							
Naphthalene	0.234	0.001	0.010	ug/L	0.300		78.0	37-120			
2-Methylnaphthalene	0.239	0.001	0.010	ug/L	0.300		79.6	37-120			
1-Methylnaphthalene	0.239	0.0009	0.010	ug/L	0.300		79.7	29-120			
Acenaphthylene	0.211	0.002	0.010	ug/L	0.300		70.3	41-120			
Acenaphthene	0.217	0.003	0.010	ug/L	0.300		72.3	41-120			
Dibenzofuran	0.223	0.002	0.010	ug/L	0.300		74.3	38-120			
Fluorene	0.238	0.002	0.010	ug/L	0.300		79.3	43-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0570 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0570-BS1)					Prepared: 25-Aug-2021 Analyzed: 10-Sep-2021 10:03						
Phenanthrene	0.241	0.001	0.010	ug/L	0.300		80.4	41-120			
Anthracene	0.206	0.001	0.010	ug/L	0.300		68.6	40-120			
Carbazole	0.237	0.001	0.010	ug/L	0.300		78.9	30-160			
Fluoranthene	0.245	0.002	0.010	ug/L	0.300		81.8	45-120			
Pyrene	0.243	0.001	0.010	ug/L	0.300		81.0	41-120			
Benzo(a)anthracene	0.224	0.0008	0.010	ug/L	0.300		74.5	42-120			
Chrysene	0.231	0.0009	0.010	ug/L	0.300		76.9	44-120			
Benzo(b)fluoranthene	0.240	0.0005	0.010	ug/L	0.300		80.1	44-120			
Benzo(k)fluoranthene	0.246	0.003	0.010	ug/L	0.300		81.9	50-120			
Benzo(j)fluoranthene	0.262	0.002	0.010	ug/L	0.300		87.4	39-160			
Benzofluoranthenes, Total	0.748	0.004	0.010	ug/L	0.900		83.1	46-120			
Benzo(a)pyrene	0.197	0.002	0.010	ug/L	0.300		65.6	35-120			
Perylene	0.192	0.006	0.010	ug/L	0.300		64.0	30-160			
Indeno(1,2,3-cd)pyrene	0.206	0.001	0.010	ug/L	0.300		68.6	37-120			
Dibenzo(a,h)anthracene	0.203	0.001	0.010	ug/L	0.300		67.7	34-120			
Benzo(g,h,i)perylene	0.203	0.001	0.010	ug/L	0.300		67.7	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.249			ug/L	*0.300*		*83.0*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.217			ug/L	*0.300*		*72.5*	*29-120*			
Surrogate: Fluoranthene-d10	0.262			ug/L	*0.300*		*87.3*	*57-120*			
LCS Dup (BJH0570-BSD1)					Prepared: 25-Aug-2021 Analyzed: 10-Sep-2021 10:33						
Naphthalene	0.243	0.001	0.010	ug/L	0.300		81.1	37-120	3.88	30	
2-Methylnaphthalene	0.246	0.001	0.010	ug/L	0.300		82.2	37-120	3.15	30	
1-Methylnaphthalene	0.246	0.0009	0.010	ug/L	0.300		82.0	29-120	2.85	30	
Acenaphthylene	0.221	0.002	0.010	ug/L	0.300		73.7	41-120	4.67	30	
Acenaphthene	0.228	0.003	0.010	ug/L	0.300		76.0	41-120	4.97	30	
Dibenzofuran	0.235	0.002	0.010	ug/L	0.300		78.5	38-120	5.52	30	
Fluorene	0.249	0.002	0.010	ug/L	0.300		82.9	43-120	4.48	30	
Phenanthrene	0.247	0.001	0.010	ug/L	0.300		82.4	41-120	2.42	30	
Anthracene	0.219	0.001	0.010	ug/L	0.300		73.1	40-120	6.26	30	
Carbazole	0.245	0.001	0.010	ug/L	0.300		81.6	30-160	3.34	30	
Fluoranthene	0.247	0.002	0.010	ug/L	0.300		82.5	45-120	0.81	30	
Pyrene	0.246	0.001	0.010	ug/L	0.300		82.1	41-120	1.31	30	
Benzo(a)anthracene	0.237	0.0008	0.010	ug/L	0.300		78.9	42-120	5.67	30	
Chrysene	0.241	0.0009	0.010	ug/L	0.300		80.4	44-120	4.48	30	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0570 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJH0570-BSD1)					Prepared: 25-Aug-2021 Analyzed: 10-Sep-2021 10:33						
Benzo(b)fluoranthene	0.251	0.0005	0.010	ug/L	0.300		83.8	44-120	4.53	30	
Benzo(k)fluoranthene	0.260	0.003	0.010	ug/L	0.300		86.5	50-120	5.47	30	
Benzo(j)fluoranthene	0.275	0.002	0.010	ug/L	0.300		91.8	39-160	4.95	30	
Benzofluoranthenes, Total	0.786	0.004	0.010	ug/L	0.900		87.4	46-120	4.99	30	
Benzo(a)pyrene	0.214	0.002	0.010	ug/L	0.300		71.2	35-120	8.24	30	
Perylene	0.182	0.006	0.010	ug/L	0.300		60.8	30-160	5.11	30	
Indeno(1,2,3-cd)pyrene	0.222	0.001	0.010	ug/L	0.300		73.9	37-120	7.35	30	
Dibenzo(a,h)anthracene	0.219	0.001	0.010	ug/L	0.300		73.1	34-120	7.69	30	
Benzo(g,h,i)perylene	0.217	0.001	0.010	ug/L	0.300		72.2	38-120	6.43	30	
Surrogate: 2-Methylnaphthalene-d10	0.246			ug/L	*0.300*		*81.9*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.218			ug/L	*0.300*		*72.6*	*29-120*			
Surrogate: Fluoranthene-d10	0.255			ug/L	*0.300*		*85.0*	*57-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0640 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0640-BLK1)				Prepared: 26-Aug-2021 Analyzed: 01-Sep-2021 16:01							
Naphthalene	ND	0.001	0.010	ug/L							U
2-Methylnaphthalene	ND	0.001	0.010	ug/L							U
1-Methylnaphthalene	ND	0.0009	0.010	ug/L							U
Acenaphthylene	ND	0.002	0.010	ug/L							U
Acenaphthene	ND	0.003	0.010	ug/L							U
Dibenzofuran	ND	0.002	0.010	ug/L							U
Fluorene	ND	0.002	0.010	ug/L							U
Phenanthrene	ND	0.001	0.010	ug/L							U
Anthracene	ND	0.001	0.010	ug/L							U
Carbazole	ND	0.001	0.010	ug/L							U
Fluoranthene	ND	0.002	0.010	ug/L							U
Pyrene	ND	0.001	0.010	ug/L							U
Benzo(a)anthracene	ND	0.0008	0.010	ug/L							U
Chrysene	ND	0.0009	0.010	ug/L							U
Benzo(b)fluoranthene	ND	0.0005	0.010	ug/L							U
Benzo(k)fluoranthene	ND	0.003	0.010	ug/L							U
Benzo(j)fluoranthene	ND	0.002	0.010	ug/L							U
Benzofluoranthenes, Total	ND	0.004	0.010	ug/L							U
Benzo(a)pyrene	ND	0.002	0.010	ug/L							U
Perylene	ND	0.006	0.010	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.001	0.010	ug/L							U
Dibenzo(a,h)anthracene	ND	0.001	0.010	ug/L							U
Benzo(g,h,i)perylene	ND	0.001	0.010	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	0.231			ug/L	*0.300*		*77.1*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.201			ug/L	*0.300*		*67.0*	*29-120*			
Surrogate: Fluoranthene-d10	0.254			ug/L	*0.300*		*84.7*	*57-120*			
LCS (BJH0640-BS1)				Prepared: 26-Aug-2021 Analyzed: 01-Sep-2021 16:31							
Naphthalene	0.243	0.001	0.010	ug/L	0.300		80.9	37-120			
2-Methylnaphthalene	0.250	0.001	0.010	ug/L	0.300		83.3	37-120			
1-Methylnaphthalene	0.250	0.0009	0.010	ug/L	0.300		83.4	29-120			
Acenaphthylene	0.239	0.002	0.010	ug/L	0.300		79.6	41-120			
Acenaphthene	0.234	0.003	0.010	ug/L	0.300		78.0	41-120			
Dibenzofuran	0.239	0.002	0.010	ug/L	0.300		79.7	38-120			
Fluorene	0.257	0.002	0.010	ug/L	0.300		85.5	43-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0640 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0640-BS1)					Prepared: 26-Aug-2021 Analyzed: 01-Sep-2021 16:31						
Phenanthrene	0.259	0.001	0.010	ug/L	0.300		86.5	41-120			
Anthracene	0.228	0.001	0.010	ug/L	0.300		75.9	40-120			
Carbazole	0.264	0.001	0.010	ug/L	0.300		88.0	30-160			
Fluoranthene	0.264	0.002	0.010	ug/L	0.300		87.8	45-120			
Pyrene	0.264	0.001	0.010	ug/L	0.300		88.2	41-120			
Benzo(a)anthracene	0.255	0.0008	0.010	ug/L	0.300		84.8	42-120			
Chrysene	0.250	0.0009	0.010	ug/L	0.300		83.3	44-120			
Benzo(b)fluoranthene	0.253	0.0005	0.010	ug/L	0.300		84.3	44-120			
Benzo(k)fluoranthene	0.263	0.003	0.010	ug/L	0.300		87.7	50-120			
Benzo(j)fluoranthene	0.270	0.002	0.010	ug/L	0.300		90.0	39-160			
Benzofluoranthenes, Total	0.786	0.004	0.010	ug/L	0.900		87.3	46-120			
Benzo(a)pyrene	0.242	0.002	0.010	ug/L	0.300		80.6	35-120			
Perylene	0.241	0.006	0.010	ug/L	0.300		80.5	30-160			
Indeno(1,2,3-cd)pyrene	0.242	0.001	0.010	ug/L	0.300		80.5	37-120			
Dibenzo(a,h)anthracene	0.241	0.001	0.010	ug/L	0.300		80.2	34-120			
Benzo(g,h,i)perylene	0.234	0.001	0.010	ug/L	0.300		77.9	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.256			ug/L	*0.300*		*85.4*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.245			ug/L	*0.300*		*81.6*	*29-120*			
Surrogate: Fluoranthene-d10	0.277			ug/L	*0.300*		*92.3*	*57-120*			
LCS Dup (BJH0640-BSD1)					Prepared: 26-Aug-2021 Analyzed: 01-Sep-2021 17:01						
Naphthalene	0.241	0.001	0.010	ug/L	0.300		80.2	37-120	0.91	30	
2-Methylnaphthalene	0.248	0.001	0.010	ug/L	0.300		82.7	37-120	0.73	30	
1-Methylnaphthalene	0.247	0.0009	0.010	ug/L	0.300		82.5	29-120	1.09	30	
Acenaphthylene	0.242	0.002	0.010	ug/L	0.300		80.6	41-120	1.27	30	
Acenaphthene	0.237	0.003	0.010	ug/L	0.300		78.8	41-120	1.10	30	
Dibenzofuran	0.244	0.002	0.010	ug/L	0.300		81.3	38-120	1.98	30	
Fluorene	0.263	0.002	0.010	ug/L	0.300		87.5	43-120	2.33	30	
Phenanthrene	0.264	0.001	0.010	ug/L	0.300		88.0	41-120	1.73	30	
Anthracene	0.246	0.001	0.010	ug/L	0.300		82.1	40-120	7.80	30	
Carbazole	0.272	0.001	0.010	ug/L	0.300		90.7	30-160	2.97	30	
Fluoranthene	0.272	0.002	0.010	ug/L	0.300		90.8	45-120	3.28	30	
Pyrene	0.273	0.001	0.010	ug/L	0.300		91.0	41-120	3.11	30	
Benzo(a)anthracene	0.266	0.0008	0.010	ug/L	0.300		88.8	42-120	4.53	30	
Chrysene	0.253	0.0009	0.010	ug/L	0.300		84.3	44-120	1.25	30	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0640 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJH0640-BSD1)				Prepared: 26-Aug-2021 Analyzed: 01-Sep-2021 17:01							
Benzo(b)fluoranthene	0.225	0.0005	0.010	ug/L	0.300		75.0	44-120	11.70	30	
Benzo(k)fluoranthene	0.301	0.003	0.010	ug/L	0.300		100	50-120	13.60	30	
Benzo(j)fluoranthene	0.274	0.002	0.010	ug/L	0.300		91.4	39-160	1.56	30	
Benzofluoranthenes, Total	0.801	0.004	0.010	ug/L	0.900		88.9	46-120	1.85	30	
Benzo(a)pyrene	0.251	0.002	0.010	ug/L	0.300		83.5	35-120	3.54	30	
Perylene	0.248	0.006	0.010	ug/L	0.300		82.6	30-160	2.60	30	
Indeno(1,2,3-cd)pyrene	0.248	0.001	0.010	ug/L	0.300		82.7	37-120	2.58	30	
Dibenzo(a,h)anthracene	0.248	0.001	0.010	ug/L	0.300		82.7	34-120	3.07	30	
Benzo(g,h,i)perylene	0.238	0.001	0.010	ug/L	0.300		79.4	38-120	1.91	30	
Surrogate: 2-Methylnaphthalene-d10	0.252			ug/L	*0.300*		*84.2*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.250			ug/L	*0.300*		*83.5*	*29-120*			
Surrogate: Fluoranthene-d10	0.282			ug/L	*0.300*		*94.0*	*57-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Petroleum Hydrocarbons - Quality Control

Batch BJH0572 - EPA 3510C SepF

Instrument: FID4 Analyst: TWC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0572-BLK1)				Prepared: 25-Aug-2021 Analyzed: 10-Sep-2021 14:31						
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: o-Terphenyl	0.210		mg/L	*0.225*		*93.2*	*50-150*			
LCS (BJH0572-BS1)				Prepared: 25-Aug-2021 Analyzed: 10-Sep-2021 14:51						
Diesel Range Organics (C12-C24)	3.01	0.100	mg/L	3.00		100	56-120			
Surrogate: o-Terphenyl	0.246		mg/L	*0.225*		*109*	*50-150*			
LCS Dup (BJH0572-BSD1)				Prepared: 25-Aug-2021 Analyzed: 10-Sep-2021 15:11						
Diesel Range Organics (C12-C24)	2.76	0.100	mg/L	3.00		92.0	56-120	8.76	30	
Surrogate: o-Terphenyl	0.223		mg/L	*0.225*		*99.0*	*50-150*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Aroclor PCB - Quality Control

Batch BJH0571 - EPA 3510C SepF

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0571-BLK1)				Prepared: 27-Aug-2021 Analyzed: 11-Sep-2021 23:11							
Aroclor 1016	ND	0.002	0.010	ug/L							U
Aroclor 1221	ND	0.002	0.010	ug/L							U
Aroclor 1232	ND	0.002	0.010	ug/L							U
Aroclor 1242	ND	0.002	0.010	ug/L							U
Aroclor 1248	ND	0.002	0.010	ug/L							U
Aroclor 1254	ND	0.002	0.010	ug/L							U
Aroclor 1260	ND	0.003	0.010	ug/L							U
Aroclor 1262	ND	0.003	0.010	ug/L							U
Aroclor 1268	ND	0.003	0.010	ug/L							U
Surrogate: Decachlorobiphenyl	0.0168			ug/L	*0.0200*		*83.8*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0137			ug/L	*0.0200*		*68.4*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0124			ug/L	*0.0200*		*62.1*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0126			ug/L	*0.0200*		*63.0*	*32-120*			
LCS (BJH0571-BS1)				Prepared: 27-Aug-2021 Analyzed: 11-Sep-2021 23:32							
Aroclor 1016 [2C]	0.042	0.002	0.010	ug/L	0.0500		83.0	54-120			
Aroclor 1260	0.054	0.003	0.010	ug/L	0.0500		108	51-128			
Surrogate: Decachlorobiphenyl	0.0151			ug/L	*0.0200*		*75.7*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0138			ug/L	*0.0200*		*69.1*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0130			ug/L	*0.0200*		*64.8*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0133			ug/L	*0.0200*		*66.6*	*32-120*			
LCS Dup (BJH0571-BSD1)				Prepared: 27-Aug-2021 Analyzed: 11-Sep-2021 23:52							
Aroclor 1016 [2C]	0.041	0.002	0.010	ug/L	0.0500		81.0	54-120	2.45	30	
Aroclor 1260	0.051	0.003	0.010	ug/L	0.0500		103	51-128	5.31	30	
Surrogate: Decachlorobiphenyl	0.0160			ug/L	*0.0200*		*80.0*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0138			ug/L	*0.0200*		*69.0*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0146			ug/L	*0.0200*		*73.1*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0127			ug/L	*0.0200*		*63.3*	*32-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Metals and Metallic Compounds - Quality Control

Batch BJH0598 - TWM EPA 7470A

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0598-BLK1)				Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 14:21							
Mercury	ND	0.000013	0.000100	mg/L							U
LCS (BJH0598-BS1)				Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 14:24							
Mercury	0.00166	0.000013	0.000100	mg/L	0.00200		82.8	80-120			
Duplicate (BJH0598-DUP1)		**Source: 21H0248-05**		Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 14:28							
Mercury	0.000016	0.000013	0.000100	mg/L		ND					J
Matrix Spike (BJH0598-MS1)		**Source: 21H0248-05**		Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 14:31							
Mercury	0.000966	0.000013	0.000100	mg/L	0.00100	ND	96.6	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJH0598-MSD1)		**Source: 21H0248-05**		Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 14:33							
Mercury	0.000933	0.000013	0.000100	mg/L	0.00100	ND	93.3	75-125	3.51	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Metals and Metallic Compounds - Quality Control

Batch BJH0670 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0670-BLK1)					Prepared: 26-Aug-2021 Analyzed: 27-Aug-2021 17:36							
Barium	135	ND	0.114	0.500	ug/L							U
Barium	137	ND	0.0765	0.500	ug/L							U
Chromium	52	ND	0.260	0.500	ug/L							U
Chromium	53	ND	0.239	0.500	ug/L							U
Iron	54	ND	18.2	36.0	ug/L							U
Iron	57	ND	6.63	36.0	ug/L							U
Lead	208	ND	0.0513	0.100	ug/L							U
Manganese	55	0.429	0.142	0.500	ug/L							*, J
Silver	107	ND	0.0220	0.200	ug/L							U
Vanadium	51a	ND	0.0556	0.200	ug/L							U
Vanadium	51b	ND	0.0521	0.200	ug/L							U
Arsenic	75a	ND	0.0373	0.200	ug/L							U
Cadmium	111	ND	0.0300	0.100	ug/L							U
Cadmium	114	ND	0.0400	0.100	ug/L							U
Cobalt	59	ND	0.0178	0.200	ug/L							U
Copper	63	ND	0.173	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	ND	0.0792	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Selenium	78	ND	0.179	0.500	ug/L							U
Zinc	66	ND	2.92	6.00	ug/L							U
Zinc	67	ND	0.940	6.00	ug/L							U
LCS (BJH0670-BS1)					Prepared: 26-Aug-2021 Analyzed: 27-Aug-2021 17:41							
Barium	135	24.7	0.114	0.500	ug/L	25.0		98.7	80-120			
Barium	137	23.5	0.0765	0.500	ug/L	25.0		94.1	80-120			
Chromium	52	22.9	0.260	0.500	ug/L	25.0		91.5	80-120			
Chromium	53	24.6	0.239	0.500	ug/L	25.0		98.3	80-120			
Iron	54	4900	18.2	36.0	ug/L	5000		98.1	80-120			
Iron	57	4890	6.63	36.0	ug/L	5000		97.8	80-120			
Lead	208	24.7	0.0513	0.100	ug/L	25.0		98.9	80-120			
Manganese	55	24.9	0.142	0.500	ug/L	25.0		99.5	80-120			B
Silver	107	23.7	0.0220	0.200	ug/L	25.0		94.8	80-120			
Vanadium	51a	22.3	0.0556	0.200	ug/L	25.0		89.3	80-120			
Vanadium	51b	22.8	0.0521	0.200	ug/L	25.0		91.2	80-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Metals and Metallic Compounds - Quality Control

Batch BJH0670 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0670-BS1)						Prepared: 26-Aug-2021 Analyzed: 27-Aug-2021 17:41						
Arsenic	75a	24.6	0.0373	0.200	ug/L	25.0		98.5	80-120			
Cadmium	111	24.8	0.0300	0.100	ug/L	25.0		99.3	80-120			
Cadmium	114	24.9	0.0400	0.100	ug/L	25.0		99.7	80-120			
Cobalt	59	24.9	0.0178	0.200	ug/L	25.0		99.5	80-120			
Copper	63	25.2	0.173	0.500	ug/L	25.0		101	80-120			
Copper	65	25.2	0.350	0.500	ug/L	25.0		101	80-120			
Nickel	60	25.1	0.0792	0.500	ug/L	25.0		100	80-120			
Nickel	62	25.6	0.220	0.500	ug/L	25.0		102	80-120			
Selenium	78	75.4	0.179	0.500	ug/L	80.0		94.2	80-120			
Zinc	66	76.8	2.92	6.00	ug/L	80.0		96.0	80-120			
Zinc	67	74.0	0.940	6.00	ug/L	80.0		92.5	80-120			
Duplicate (BJH0670-DUP1)			**Source: 21H0248-11**			Prepared: 26-Aug-2021 Analyzed: 27-Aug-2021 19:15						
Barium	137	17.0	0.0765	0.500	ug/L		17.1			0.24	20	
Lead	208	ND	0.0513	0.100	ug/L		ND					U
Silver	107	ND	0.0220	0.200	ug/L		ND					U
Arsenic	75a	3.31	0.0373	0.200	ug/L		3.38			1.88	20	
Cadmium	111	ND	0.0300	0.100	ug/L		ND					U
Cobalt	59	0.0650	0.0178	0.200	ug/L		0.0600			8.00	20	J
Copper	63	1.09	0.173	0.500	ug/L		1.04			4.22	20	
Nickel	60	0.549	0.0792	0.500	ug/L		0.508			7.76	20	
Selenium	78	1.61	0.179	0.500	ug/L		1.77			9.35	20	
Zinc	66	ND	2.92	6.00	ug/L		ND					U
Duplicate (BJH0670-DUP2)			**Source: 21H0248-11**			Prepared: 26-Aug-2021 Analyzed: 31-Aug-2021 18:58						
Chromium	52	ND	0.520	1.00	ug/L		ND					U
Iron	54	ND	36.4	72.0	ug/L		ND					U
Manganese	55	43.4	0.284	1.00	ug/L		43.1			0.62	20	B, D
Vanadium	51a	12.7	0.111	0.400	ug/L		12.7			0.09	20	D
Matrix Spike (BJH0670-MS1)			**Source: 21H0248-11**			Prepared: 26-Aug-2021 Analyzed: 27-Aug-2021 19:20						
Barium	137	41.7	0.0765	0.500	ug/L	25.0	17.1	98.7	75-125			
Lead	208	21.9	0.0513	0.100	ug/L	25.0	ND	87.7	75-125			
Silver	107	21.1	0.0220	0.200	ug/L	25.0	ND	84.4	75-125			
Arsenic	75a	28.0	0.0373	0.200	ug/L	25.0	3.38	98.7	75-125			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Metals and Metallic Compounds - Quality Control

Batch BJH0670 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJH0670-MS1)			**Source: 21H0248-11**			Prepared: 26-Aug-2021		Analyzed: 27-Aug-2021 19:20				
Cadmium	111	22.5	0.0300	0.100	ug/L	25.0	ND	90.2	75-125			
Cobalt	59	25.1	0.0178	0.200	ug/L	25.0	0.0600	100	75-125			
Copper	63	24.3	0.173	0.500	ug/L	25.0	1.04	92.9	75-125			
Nickel	60	24.7	0.0792	0.500	ug/L	25.0	0.508	96.7	75-125			
Selenium	78	71.4	0.179	0.500	ug/L	80.0	1.77	87.0	75-125			
Zinc	66	66.5	2.92	6.00	ug/L	80.0	ND	83.1	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike (BJH0670-MS2)			**Source: 21H0248-11**			Prepared: 26-Aug-2021		Analyzed: 31-Aug-2021 19:03				
Chromium	52	23.1	0.520	1.00	ug/L	25.0	ND	92.4	75-125			D
Iron	54	4420	36.4	72.0	ug/L	5000	ND	88.5	75-125			D
Manganese	55	66.2	0.284	1.00	ug/L	25.0	43.1	92.2	75-125			B, D
Vanadium	51a	35.7	0.111	0.400	ug/L	25.0	12.7	92.1	75-125			D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJH0670-MSD1)			**Source: 21H0248-11**			Prepared: 26-Aug-2021		Analyzed: 27-Aug-2021 19:26				
Barium	137	43.1	0.0765	0.500	ug/L	25.0	17.1	104	75-125	3.10	20	
Lead	208	22.2	0.0513	0.100	ug/L	25.0	ND	88.7	75-125	1.15	20	
Silver	107	21.3	0.0220	0.200	ug/L	25.0	ND	85.3	75-125	0.99	20	
Arsenic	75a	28.3	0.0373	0.200	ug/L	25.0	3.38	99.8	75-125	1.00	20	
Cadmium	111	22.6	0.0300	0.100	ug/L	25.0	ND	90.3	75-125	0.12	20	
Cobalt	59	25.5	0.0178	0.200	ug/L	25.0	0.0600	102	75-125	1.48	20	
Copper	63	24.7	0.173	0.500	ug/L	25.0	1.04	94.5	75-125	1.60	20	
Nickel	60	24.7	0.0792	0.500	ug/L	25.0	0.508	96.8	75-125	0.09	20	
Selenium	78	73.8	0.179	0.500	ug/L	80.0	1.77	90.0	75-125	3.34	20	
Zinc	66	66.2	2.92	6.00	ug/L	80.0	ND	82.8	75-125	0.32	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJH0670-MSD2)			**Source: 21H0248-11**			Prepared: 26-Aug-2021		Analyzed: 31-Aug-2021 19:07				
Chromium	52	23.1	0.520	1.00	ug/L	25.0	ND	92.5	75-125	0.14	20	D
Iron	54	4420	36.4	72.0	ug/L	5000	ND	88.4	75-125	0.07	20	D
Manganese	55	68.0	0.284	1.00	ug/L	25.0	43.1	99.6	75-125	2.73	20	B, D
Vanadium	51a	36.3	0.111	0.400	ug/L	25.0	12.7	94.6	75-125	1.73	20	D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Metals and Metallic Compounds - Quality Control

Batch BJH0792 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0792-BLK1)					Prepared: 31-Aug-2021 Analyzed: 31-Aug-2021 17:37							
Manganese	55	ND	0.142	0.500	ug/L							U
LCS (BJH0792-BS1)					Prepared: 31-Aug-2021 Analyzed: 31-Aug-2021 17:42							
Manganese	55	24.5	0.142	0.500	ug/L	25.0		98.0	80-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJH0799 - TWM EPA 7470A

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0799-BLK1)				Prepared: 31-Aug-2021 Analyzed: 01-Sep-2021 16:03							
Mercury, Dissolved	ND	0.000013	0.000100	mg/L							U
LCS (BJH0799-BS1)				Prepared: 31-Aug-2021 Analyzed: 01-Sep-2021 16:05							
Mercury, Dissolved	0.00184	0.000013	0.000100	mg/L	0.00200		92.2	80-120			
Duplicate (BJH0799-DUP1)		**Source: 21H0248-06**		Prepared: 31-Aug-2021 Analyzed: 01-Sep-2021 16:10							
Mercury, Dissolved	ND	0.000013	0.000100	mg/L		ND					U
Matrix Spike (BJH0799-MS1)		**Source: 21H0248-06**		Prepared: 31-Aug-2021 Analyzed: 01-Sep-2021 16:12							
Mercury, Dissolved	0.000949	0.000013	0.000100	mg/L	0.00100	ND	94.9	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJH0799-MSD1)		**Source: 21H0248-06**		Prepared: 31-Aug-2021 Analyzed: 01-Sep-2021 16:15							
Mercury, Dissolved	0.000926	0.000013	0.000100	mg/L	0.00100	ND	92.6	75-125	2.49	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0015 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0015-BLK1)					Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 21:39							
Barium, Dissolved	135	ND	0.114	0.500	ug/L							U
Barium, Dissolved	137	ND	0.0765	0.500	ug/L							U
Chromium, Dissolved	52	ND	0.260	0.500	ug/L							U
Chromium, Dissolved	53	ND	0.239	0.500	ug/L							U
Lead, Dissolved	208	ND	0.0513	0.100	ug/L							U
Manganese, Dissolved	55	ND	0.142	0.500	ug/L							U
Silver, Dissolved	107	ND	0.0220	0.200	ug/L							U
Vanadium, Dissolved	51a	ND	0.0556	0.200	ug/L							U
Vanadium, Dissolved	51b	ND	0.0521	0.200	ug/L							U
Arsenic, Dissolved	75a	ND	0.0373	0.200	ug/L							U
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L							U
Cadmium, Dissolved	114	ND	0.0400	0.100	ug/L							U
Cobalt, Dissolved	59	ND	0.0178	0.200	ug/L							U
Copper, Dissolved	63	ND	0.173	0.500	ug/L							U
Copper, Dissolved	65	ND	0.350	0.500	ug/L							U
Nickel, Dissolved	60	ND	0.0792	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
Selenium, Dissolved	78	ND	0.179	0.500	ug/L							U
Zinc, Dissolved	66	ND	2.92	6.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	6.00	ug/L							U
Blank (BJI0015-BLK2)					Prepared: 01-Sep-2021 Analyzed: 02-Sep-2021 17:28							
Iron, Dissolved	54	ND	18.2	36.0	ug/L							U
Iron, Dissolved	57	ND	6.63	20.0	ug/L							U
LCS (BJI0015-BS1)					Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 21:44							
Barium, Dissolved	135	24.0	0.114	0.500	ug/L	25.0		96.2	80-120			
Barium, Dissolved	137	24.0	0.0765	0.500	ug/L	25.0		96.1	80-120			
Chromium, Dissolved	52	24.3	0.260	0.500	ug/L	25.0		97.1	80-120			
Chromium, Dissolved	53	24.1	0.239	0.500	ug/L	25.0		96.3	80-120			
Lead, Dissolved	208	23.8	0.0513	0.100	ug/L	25.0		95.3	80-120			
Manganese, Dissolved	55	24.5	0.142	0.500	ug/L	25.0		97.8	80-120			
Silver, Dissolved	107	24.4	0.0220	0.200	ug/L	25.0		97.6	80-120			
Vanadium, Dissolved	51a	23.9	0.0556	0.200	ug/L	25.0		95.7	80-120			
Vanadium, Dissolved	51b	23.9	0.0521	0.200	ug/L	25.0		95.5	80-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0015 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0015-BS1)						Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 21:44						
Arsenic, Dissolved	75a	23.1	0.0373	0.200	ug/L	25.0		92.4	80-120			
Cadmium, Dissolved	111	23.4	0.0300	0.100	ug/L	25.0		93.5	80-120			
Cadmium, Dissolved	114	23.0	0.0400	0.100	ug/L	25.0		92.1	80-120			
Cobalt, Dissolved	59	23.5	0.0178	0.200	ug/L	25.0		93.9	80-120			
Copper, Dissolved	63	23.3	0.173	0.500	ug/L	25.0		93.1	80-120			
Copper, Dissolved	65	23.3	0.350	0.500	ug/L	25.0		93.1	80-120			
Nickel, Dissolved	60	23.5	0.0792	0.500	ug/L	25.0		94.0	80-120			
Nickel, Dissolved	62	23.1	0.220	0.500	ug/L	25.0		92.5	80-120			
Selenium, Dissolved	78	73.8	0.179	0.500	ug/L	80.0		92.2	80-120			
Zinc, Dissolved	66	72.2	2.92	6.00	ug/L	80.0		90.2	80-120			
Zinc, Dissolved	67	69.1	0.940	6.00	ug/L	80.0		86.4	80-120			
LCS (BJI0015-BS2)						Prepared: 01-Sep-2021 Analyzed: 02-Sep-2021 17:32						
Iron, Dissolved	54	4680	18.2	36.0	ug/L	5000		93.6	80-120			
Iron, Dissolved	57	4670	6.63	20.0	ug/L	5000		93.5	80-120			
Duplicate (BJI0015-DUP1)			**Source: 21H0248-12**			Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 23:06						
Barium, Dissolved	135	17.4	0.114	0.500	ug/L		17.6			1.09	20	
Chromium, Dissolved	52	ND	0.260	0.500	ug/L		ND					U
Iron, Dissolved	54	ND	18.2	36.0	ug/L		ND					U
Lead, Dissolved	208	ND	0.0513	0.100	ug/L		ND					U
Manganese, Dissolved	55	36.3	0.142	0.500	ug/L		37.1			2.19	20	
Silver, Dissolved	107	ND	0.0220	0.200	ug/L		ND					U
Vanadium, Dissolved	51a	11.5	0.0556	0.200	ug/L		11.7			1.94	20	
Arsenic, Dissolved	75a	3.12	0.0373	0.200	ug/L		3.05			2.04	20	
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L		ND					U
Cobalt, Dissolved	59	0.0560	0.0178	0.200	ug/L		0.0500			11.30	20	J
Copper, Dissolved	63	0.854	0.173	0.500	ug/L		0.860			0.70	20	
Nickel, Dissolved	60	0.498	0.0792	0.500	ug/L		0.489			1.82	20	J
Selenium, Dissolved	78	1.68	0.179	0.500	ug/L		1.66			1.26	20	
Zinc, Dissolved	66	ND	2.92	6.00	ug/L		ND					U
Matrix Spike (BJI0015-MS1)			**Source: 21H0248-12**			Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 23:11						
Barium, Dissolved	135	42.8	0.114	0.500	ug/L	25.0	17.6	101	75-125			
Chromium, Dissolved	52	21.2	0.260	0.500	ug/L	25.0	ND	84.9	75-125			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0015 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJI0015-MS1)			**Source: 21H0248-12**			Prepared: 01-Sep-2021		Analyzed: 01-Sep-2021 23:11				
Iron, Dissolved	54	4150	18.2	36.0	ug/L	5000	ND	82.9	75-125			
Lead, Dissolved	208	24.6	0.0513	0.100	ug/L	25.0	ND	98.5	75-125			
Manganese, Dissolved	55	58.6	0.142	0.500	ug/L	25.0	37.1	85.9	75-125			
Silver, Dissolved	107	23.0	0.0220	0.200	ug/L	25.0	ND	92.0	75-125			
Vanadium, Dissolved	51a	33.3	0.0556	0.200	ug/L	25.0	11.7	86.3	75-125			
Arsenic, Dissolved	75a	27.0	0.0373	0.200	ug/L	25.0	3.05	95.7	75-125			
Cadmium, Dissolved	111	23.0	0.0300	0.100	ug/L	25.0	ND	91.9	75-125			
Cobalt, Dissolved	59	24.5	0.0178	0.200	ug/L	25.0	0.0500	98.0	75-125			
Copper, Dissolved	63	23.7	0.173	0.500	ug/L	25.0	0.860	91.3	75-125			
Nickel, Dissolved	60	24.2	0.0792	0.500	ug/L	25.0	0.489	94.9	75-125			
Selenium, Dissolved	78	71.4	0.179	0.500	ug/L	80.0	1.66	87.2	75-125			
Zinc, Dissolved	66	66.6	2.92	6.00	ug/L	80.0	ND	83.2	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BJI0015-MSD1)			**Source: 21H0248-12**			Prepared: 01-Sep-2021		Analyzed: 01-Sep-2021 23:17				
Barium, Dissolved	135	42.0	0.114	0.500	ug/L	25.0	17.6	97.6	75-125	2.03	20	
Chromium, Dissolved	52	20.7	0.260	0.500	ug/L	25.0	ND	82.9	75-125	2.35	20	
Iron, Dissolved	54	4030	18.2	36.0	ug/L	5000	ND	80.6	75-125	2.82	20	
Lead, Dissolved	208	24.2	0.0513	0.100	ug/L	25.0	ND	96.8	75-125	1.76	20	
Manganese, Dissolved	55	57.5	0.142	0.500	ug/L	25.0	37.1	81.4	75-125	1.91	20	
Silver, Dissolved	107	22.5	0.0220	0.200	ug/L	25.0	ND	90.1	75-125	2.07	20	
Vanadium, Dissolved	51a	32.5	0.0556	0.200	ug/L	25.0	11.7	83.3	75-125	2.23	20	
Arsenic, Dissolved	75a	26.8	0.0373	0.200	ug/L	25.0	3.05	94.9	75-125	0.73	20	
Cadmium, Dissolved	111	22.1	0.0300	0.100	ug/L	25.0	ND	88.6	75-125	3.73	20	
Cobalt, Dissolved	59	24.3	0.0178	0.200	ug/L	25.0	0.0500	97.1	75-125	0.96	20	
Copper, Dissolved	63	23.5	0.173	0.500	ug/L	25.0	0.860	90.7	75-125	0.67	20	
Nickel, Dissolved	60	24.0	0.0792	0.500	ug/L	25.0	0.489	94.0	75-125	0.97	20	
Selenium, Dissolved	78	69.6	0.179	0.500	ug/L	80.0	1.66	84.9	75-125	2.59	20	
Zinc, Dissolved	66	66.3	2.92	6.00	ug/L	80.0	ND	82.8	75-125	0.42	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Wet Chemistry - Quality Control

Batch BJH0548 - No Prep Wet Chem

Instrument: N/A

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0548-BLK1)				Prepared: 20-Aug-2021 Analyzed: 20-Aug-2021 17:17							
Sulfite	ND	1.4	1.4	mg/L							U
LCS (BJH0548-BS1)				Prepared: 20-Aug-2021 Analyzed: 20-Aug-2021 17:17							
Sulfite	4.2	1.4	1.4	mg/L	4.97		85.2	75-100			
Duplicate (BJH0548-DUP1)		**Source: 21H0248-01**		Prepared: 20-Aug-2021 Analyzed: 20-Aug-2021 17:17							
Sulfite	ND	1.4	1.4	mg/L		ND					H, U

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Wet Chemistry - Quality Control

Batch BJH0549 - No Prep Wet Chem

Instrument: IC930 Analyst: CKI

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0549-BLK1)				Prepared: 20-Aug-2021 Analyzed: 20-Aug-2021 19:33							
Chloride	ND	0.100	0.100	mg/L							U
Nitrate-N	ND	0.100	0.100	mg/L							U
Nitrite-N	ND	0.100	0.100	mg/L							U
Blank (BJH0549-BLK2)				Prepared: 20-Aug-2021 Analyzed: 02-Sep-2021 19:16							
Sulfate	0.174	0.100	0.100	mg/L							
LCS (BJH0549-BS1)				Prepared: 20-Aug-2021 Analyzed: 20-Aug-2021 19:53							
Chloride	4.80	0.100	0.100	mg/L	5.00		95.9	90-110			
Nitrate-N	4.64	0.100	0.100	mg/L	5.00		92.7	90-110			
Nitrite-N	5.34	0.100	0.100	mg/L	5.00		107	90-110			
LCS (BJH0549-BS2)				Prepared: 20-Aug-2021 Analyzed: 02-Sep-2021 19:36							
Sulfate	5.06	0.100	0.100	mg/L	5.00		101	90-110			B
Duplicate (BJH0549-DUP1)		**Source: 21H0248-01**		Prepared: 20-Aug-2021 Analyzed: 20-Aug-2021 20:33							
Chloride	6.44	0.100	0.100	mg/L		6.43			0.06	20	
Nitrate-N	ND	0.100	0.100	mg/L		ND					U
Nitrite-N	ND	0.100	0.100	mg/L		ND					U
Duplicate (BJH0549-DUP2)		**Source: 21H0248-01RE1**		Prepared: 20-Aug-2021 Analyzed: 02-Sep-2021 23:54							
Sulfate	40.8	1.00	1.00	mg/L		40.8			0.03	20	B, D
Matrix Spike (BJH0549-MS1)		**Source: 21H0248-01**		Prepared: 20-Aug-2021 Analyzed: 20-Aug-2021 20:53							
Chloride	8.51	0.100	0.100	mg/L	2.00	6.43	104	75-125			
Nitrate-N	1.85	0.100	0.100	mg/L	2.00	ND	92.3	75-125			
Nitrite-N	1.26	0.100	0.100	mg/L	2.01	ND	63.0	75-125			*

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike (BJH0549-MS2)		**Source: 21H0248-01RE1**		Prepared: 20-Aug-2021 Analyzed: 03-Sep-2021 00:13							
Sulfate	92.1	2.00	2.00	mg/L	50.0	40.8	103	75-125			B, D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Wet Chemistry - Quality Control

Batch BJH0550 - SM 3500-Fe B

Instrument: UV1800-2 Analyst: CKI

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0550-BLK1)				Prepared: 20-Aug-2021 Analyzed: 20-Aug-2021 20:28							
Ferrous Iron	ND	0.040	0.040	mg/L							U
LCS (BJH0550-BS1)				Prepared: 20-Aug-2021 Analyzed: 20-Aug-2021 20:29							
Ferrous Iron	0.455	0.040	0.040	mg/L	0.500		91.0	90-110			
Duplicate (BJH0550-DUP2)		**Source: 21H0248-01RE1**		Prepared: 20-Aug-2021 Analyzed: 20-Aug-2021 20:54							
Ferrous Iron	26.4	2.00	2.00	mg/L		24.6			7.06	20	D
Matrix Spike (BJH0550-MS3)		**Source: 21H0248-01RE1**		Prepared: 20-Aug-2021 Analyzed: 20-Aug-2021 21:14							
Ferrous Iron	39.5	2.00	2.00	mg/L	20.0	24.6	74.3	75-125			HC, D

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Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Certified Analyses included in this Report

Analyte	Certifications
EPA 300.0 in Water	
Chloride	DoD-ELAP,WADOE,WA-DW,NELAP
Nitrate-N	DoD-ELAP,WADOE,WA-DW,NELAP
Nitrite-N	DoD-ELAP,WADOE,WA-DW,NELAP
Sulfate	DoD-ELAP,WADOE,WA-DW,NELAP
EPA 6020B in Water	
Silver-107	WADOE,WA-DW,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Silver-107	WA-DW,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
EPA 6020B UCT-KED in Water	
Arsenic-75a	WADOE,WA-DW,DoD-ELAP,ADEC,NELAP
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	NELAP,DoD-ELAP,WADOE
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
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Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Zinc-66	WADOE,WA-DW,DoD-ELAP
Zinc-67	WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	DoD-ELAP,NELAP,WADOE
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
EPA 7470A in Water	
Mercury	WADOE,NELAP,DoD-ELAP
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8082A in Water	
Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

EPA 8260D in Water

Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE

EPA 8260D-SIM in Water

Acrylonitrile	NELAP,WADOE
Vinyl chloride	NELAP,WADOE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

1,1-Dichloroethene	NELAP,WADOE
cis-1,2-Dichloroethene	NELAP,WADOE
trans-1,2-Dichloroethene	NELAP,WADOE
Trichloroethene	NELAP,WADOE
Tetrachloroethene	NELAP,WADOE
1,1,2,2-Tetrachloroethane	NELAP,WADOE
1,2-Dichloroethane	NELAP,WADOE
Benzene	NELAP,WADOE

EPA 8270E in Water

Phenol	NELAP,DoD-ELAP
bis(2-chloroethyl) ether	NELAP,DoD-ELAP
2-Chlorophenol	NELAP,DoD-ELAP
1,3-Dichlorobenzene	NELAP,DoD-ELAP
1,4-Dichlorobenzene	NELAP,DoD-ELAP
1,2-Dichlorobenzene	NELAP,DoD-ELAP
Benzyl Alcohol	NELAP,DoD-ELAP
2,2'-Oxybis(1-chloropropane)	NELAP,DoD-ELAP
2-Methylphenol	NELAP,DoD-ELAP
Hexachloroethane	NELAP,DoD-ELAP
N-Nitroso-di-n-Propylamine	NELAP,DoD-ELAP
4-Methylphenol	NELAP,DoD-ELAP
Nitrobenzene	NELAP,DoD-ELAP
Isophorone	NELAP,DoD-ELAP
2-Nitrophenol	NELAP,DoD-ELAP
2,4-Dimethylphenol	NELAP,DoD-ELAP
Bis(2-Chloroethoxy)methane	NELAP,DoD-ELAP
2,4-Dichlorophenol	NELAP,DoD-ELAP
1,2,4-Trichlorobenzene	NELAP,DoD-ELAP
Naphthalene	NELAP,DoD-ELAP
Benzoic acid	NELAP,DoD-ELAP
4-Chloroaniline	NELAP,DoD-ELAP
Hexachlorobutadiene	NELAP,DoD-ELAP
4-Chloro-3-Methylphenol	NELAP,DoD-ELAP
2-Methylnaphthalene	NELAP,DoD-ELAP
Hexachlorocyclopentadiene	NELAP,DoD-ELAP
2,4,6-Trichlorophenol	NELAP,DoD-ELAP
2,4,5-Trichlorophenol	NELAP,DoD-ELAP
2-Chloronaphthalene	NELAP,DoD-ELAP
2-Nitroaniline	NELAP,DoD-ELAP

Analytical Resources, Incorporated
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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Acenaphthylene	NELAP,DoD-ELAP
Dimethylphthalate	NELAP,DoD-ELAP
2,6-Dinitrotoluene	NELAP,DoD-ELAP
Acenaphthene	NELAP,DoD-ELAP
3-Nitroaniline	NELAP,DoD-ELAP
2,4-Dinitrophenol	NELAP,DoD-ELAP
Dibenzofuran	NELAP,DoD-ELAP
4-Nitrophenol	NELAP,DoD-ELAP
2,4-Dinitrotoluene	NELAP,DoD-ELAP
Fluorene	NELAP,DoD-ELAP
4-Chlorophenylphenyl ether	NELAP,DoD-ELAP
Diethyl phthalate	NELAP,DoD-ELAP
4-Nitroaniline	NELAP,DoD-ELAP
4,6-Dinitro-2-methylphenol	NELAP,DoD-ELAP
N-Nitrosodiphenylamine	NELAP,DoD-ELAP
4-Bromophenyl phenyl ether	NELAP,DoD-ELAP
Hexachlorobenzene	NELAP,DoD-ELAP
Pentachlorophenol	NELAP,DoD-ELAP
Phenanthrene	NELAP,DoD-ELAP
Anthracene	NELAP,DoD-ELAP
Carbazole	NELAP,DoD-ELAP
Di-n-Butylphthalate	NELAP,DoD-ELAP
Fluoranthene	NELAP,DoD-ELAP
Pyrene	NELAP,DoD-ELAP
Butylbenzylphthalate	NELAP,DoD-ELAP
Benzo(a)anthracene	NELAP,DoD-ELAP
3,3'-Dichlorobenzidine	NELAP,DoD-ELAP
Chrysene	NELAP,DoD-ELAP
bis(2-Ethylhexyl)phthalate	NELAP,DoD-ELAP
Di-n-Octylphthalate	NELAP,DoD-ELAP
Benzo(b)fluoranthene	NELAP,DoD-ELAP
Benzo(k)fluoranthene	NELAP,DoD-ELAP
Benzofluoranthenes, Total	NELAP
Benzo(a)pyrene	NELAP,DoD-ELAP
Indeno(1,2,3-cd)pyrene	NELAP,DoD-ELAP
Dibenzo(a,h)anthracene	NELAP,DoD-ELAP
Benzo(g,h,i)perylene	NELAP,DoD-ELAP
N-Nitrosodimethylamine	NELAP,DoD-ELAP
1-Methylnaphthalene	NELAP,DoD-ELAP

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

EPA 8270E-SIM in Water

Naphthalene	ADEC,DoD-ELAP,NELAP,WADOE
2-Methylnaphthalene	ADEC,DoD-ELAP,NELAP
1-Methylnaphthalene	ADEC,DoD-ELAP,NELAP,WADOE
Biphenyl	NELAP
Acenaphthylene	ADEC,DoD-ELAP,NELAP,WADOE
Acenaphthene	ADEC,DoD-ELAP,NELAP,WADOE
Dibenzofuran	ADEC,DoD-ELAP,NELAP
Fluorene	ADEC,DoD-ELAP,NELAP,WADOE
Phenanthrene	ADEC,DoD-ELAP,NELAP,WADOE
Anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Carbazole	NELAP
Fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(a)anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Chrysene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(b)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(k)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(j)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(e)pyrene	NELAP
Benzo(a)pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Perylene	ADEC,NELAP
Indeno(1,2,3-cd)pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Dibenzo(a,h)anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(g,h,i)perylene	ADEC,DoD-ELAP,NELAP,WADOE

EPA RSK-175 in Water

Methane	NELAP
Ethane	NELAP
Ethene	NELAP
Acetylene	NELAP

NWTPH-Dx in Water

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

NWTPHg in Water

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP

SM 3500-Fe B-97 in Water

Ferrous Iron	WADOE,NELAP

SM 4500-SO3 B-00 in Water

Sulfite	WADOE,NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 10:53

Notes and Definitions

*	Flagged value is not within established control limits.
B	This analyte was detected in the method blank.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
H	Hold time violation - Hold time was exceeded.
HC	The natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
J	Estimated concentration value detected below the reporting limit.
M	Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
NRS	This surrogate not reported due to chromatographic interference
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
Y1	Raised reporting limit due to interference
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

17 September 2021

Meg Strong
Shannon & Wilson, Inc
400 N 34th St., Suite 100
Seattle, WA 98103-8636

RE: Lower Duwamish Q3

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
21H0282	N/A

Shelly Fishel

Digitally signed by Shelly Fishel
Date: 2021.09.17 16:57:21 -07'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Shelly Fishel, Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21H0282	Turn-around Requested: STANDARD
ARI Client Company: STANNON & WILSON	Phone:
Client Contact: SHOSHANA HOWARD	
Client Project Name: LOWER DUWAMISH	
Client Project #: 21-1-12596-012	Samplers: KWP, DES

Page: 1 of 1	
Date: 23-AUG-2021	Ice Present?
No. of Coolers:	Cooler Temps: 0.1; 4.2; 5.1

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	TPH-G	TPH-Dx	BTEX	HVOCs	MTBE	PAHs	FULL LIST SVOCs	LIMITED SVOCs	PCB AROCLORS	METALS (TOTAL & DISSOLVED)	HEX. CHROME	NAT'L ATTEN. PARAMETERS			Notes/Comments
					Analysis Requested														
TB-5-20212308	23-AUG-21	10:16	W	5	✓	X	✓	✓		X		X	X						ONLY TPH-G, BTEX, & HVOCs (DES)
MW-66		09:55		15	✓		✓	✓		✓			✓	✓					
MW-102		10:10		15	✓		✓	✓		✓			✓	✓					
MW-70		14:06		17	✓	✓	✓	✓		✓			✓	✓					

Comments/Special Instructions
*LAB TO FILTER FOR DISSOLVED METALS

	Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)				
Printed Name:	DANIEL SCHWICHT	Dim'tr. Lomnadze		
Company:		ARE		
Date & Time:	23-AUG-2021 1544	08/23/21 @ 1544		

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

RE: LDW Q3 Sample Receipt 21H0282

Shoshana Howard <SKH@shanwil.com>

Thu 8/26/2021 11:51 AM

To: Shelly Fishel <shelly.fishel@arilabs.com>

Hi Shelly,

Log-in looks good. Yes, all metals when none listed.
I see that the field team marked MW-66 and MW-102 to be analyzed for TPH-G, but they should not have included that analysis. Can you remove? Do you have enough sample volume to complete TPH-Dx? That is what they should have marked/collected (rather than Gx).

Thanks!
Shoshana

Shoshana Howard, PE | Senior Engineer
400 N. 34th St., Suite 100
Seattle, WA 98103-8636
www.shannonwilson.com
Phone: (206) 632-8020 Fax: (206) 695-6777
Direct: (206) 695-6811 skh@shanwil.com

From: Shelly Fishel <shelly.fishel@arilabs.com>
Sent: Tuesday, August 24, 2021 6:31 PM
To: Shoshana Howard <SKH@shanwil.com>
Subject: LDW Q3 Sample Receipt 21H0282

Hello Shoshana,

ARI received three monitoring well samples and one trip blank August 23, 2021. The samples were intact and within temperature compliance. Receiving documents are attached. Please review for accuracy. No individual metals were indicated so the full group was logged. Let me know if we need any corrections. Have a wonderful day!

Be safe and stay healthy!

Regards,

Shelly Fishel

Project Manager

Analytical Resources, Inc.
4611 S. 134th Place, Suite 100

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-5-20212308	21H0282-01	Water	23-Aug-2021 10:16	23-Aug-2021 15:44
MW-66-20212308	21H0282-02	Water	23-Aug-2021 09:55	23-Aug-2021 15:44
MW-66-20212308	21H0282-03	Water	23-Aug-2021 09:55	23-Aug-2021 15:44
MW-102-20212308	21H0282-04	Water	23-Aug-2021 10:10	23-Aug-2021 15:44
MW-102-20212308	21H0282-05	Water	23-Aug-2021 10:10	23-Aug-2021 15:44
MW-70-20212308	21H0282-06	Water	23-Aug-2021 14:06	23-Aug-2021 15:44
MW-70-20212308	21H0282-07	Water	23-Aug-2021 14:06	23-Aug-2021 15:44

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish Q3
Work Order: 21H0282

Sample receipt

Samples as listed on the preceding page were received 23-Aug-2021 15:44 under ARI work order 21H0282. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Gasoline by NWTPH-g (GC/MS)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

No matrix QC volume was provided.

Volatiles - EPA Method SW8260D

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

No matrix QC volume was provided.

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Volatiles - EPA Method 8260D-SIM (Selected Ion Monitoring)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

No matrix QC volume was provided.

Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike/blank spike duplicate (BS/BSD aka LCS/LCSD) percent recoveries and RPD were within control limits.

No matrix QC volume was provided.

Total and Dissolved Metals - EPA Method 6020B

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits except Manganese. All samples which contain analyte have been flagged with a "B" qualifier.

The blank spike (BS/LCS) percent recoveries were within control limits.

Analytical Resources, Incorporated
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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Sample specific QC was performed in association with sample 21H0248-11 in Total Metals batch BJH0670. This sample is from the same client and project. Sample specific QC was performed in association with sample 21H0282-03 in Dissolved Metals batch BJI0069. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits.The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Total and Dissolved Mercury - EPA Method 7470/7471

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0248-05 in Total Mercury batch BJH0598. This sample is from the same client and project. Sample specific QC was performed in association with sample 21H0282-03 in Dissolved Mercury batch BJI0075. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits.The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike/blank spike duplicate (BS/BSD aka LCS/LCSD) percent recoveries and RPD were within control limits except BJH0731-BS1 which was out of control high and has been flagged..

No matrix QC volume was provided.

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Printed: 8/24/2021 10:54:13AM

WORK ORDER

21H0282

Client: Shannon & Wilson, Inc
Project Manager: Shelly Fishel
Project: Lower Duwamish Q3
Project Number: 21-1-12596-012

Preservation Confirmation

Container ID	Container Type	pH
21H0282-01 A	VOA Vial, Clear, 40 mL, HCL	
21H0282-01 B	VOA Vial, Clear, 40 mL, HCL	
21H0282-01 C	VOA Vial, Clear, 40 mL, HCL	
21H0282-01 D	VOA Vial, Clear, 40 mL, HCL	
21H0282-01 E	VOA Vial, Clear, 40 mL, HCL	
21H0282-02 A	Glass NM, Amber, 1000 mL	
21H0282-02 B	Glass NM, Amber, 1000 mL	
21H0282-02 C	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21H0282-02 D	Glass NM, Amber, 500 mL	
21H0282-02 E	Glass NM, Amber, 500 mL	
21H0282-02 F	Glass NM, Amber, 500 mL	
21H0282-02 G	Glass NM, Amber, 500 mL	
21H0282-02 H	VOA Vial, Clear, 40 mL, HCL	
21H0282-02 I	VOA Vial, Clear, 40 mL, HCL	
21H0282-02 J	VOA Vial, Clear, 40 mL, HCL	
21H0282-02 K	VOA Vial, Clear, 40 mL, HCL	
21H0282-02 L	VOA Vial, Clear, 40 mL, HCL	
21H0282-03 A	HDPE NM, 500 mL	
21H0282-04 A	Glass NM, Amber, 1000 mL	
21H0282-04 B	Glass NM, Amber, 1000 mL	
21H0282-04 C	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21H0282-04 D	Glass NM, Amber, 500 mL	
21H0282-04 E	Glass NM, Amber, 500 mL	
21H0282-04 F	Glass NM, Amber, 500 mL	
21H0282-04 G	Glass NM, Amber, 500 mL	
21H0282-04 H	VOA Vial, Clear, 40 mL, HCL	
21H0282-04 I	VOA Vial, Clear, 40 mL, HCL	
21H0282-04 J	VOA Vial, Clear, 40 mL, HCL	
21H0282-04 K	VOA Vial, Clear, 40 mL, HCL	
21H0282-04 L	VOA Vial, Clear, 40 mL, HCL	
21H0282-05 A	HDPE NM, 500 mL	
21H0282-06 A	Glass NM, Amber, 1000 mL	
21H0282-06 B	Glass NM, Amber, 1000 mL	
21H0282-06 C	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21H0282-06 D	Glass NM, Amber, 500 mL	

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/24/2021 10:54:13AM

WORK ORDER

21H0282

Client: Shannon & Wilson, Inc | **Project Manager: Shelly Fishel**

Project: Lower Duwamish Q3 | **Project Number: 21-1-12596-012**

21H0282-06 E	Glass NM, Amber, 500 mL
21H0282-06 F	Glass NM, Amber, 500 mL
21H0282-06 G	Glass NM, Amber, 500 mL
21H0282-06 H	Glass NM, Amber, 500 mL
21H0282-06 I	Glass NM, Amber, 500 mL
21H0282-06 J	VOA Vial, Clear, 40 mL, HCL
21H0282-06 K	VOA Vial, Clear, 40 mL, HCL
21H0282-06 L	VOA Vial, Clear, 40 mL, HCL
21H0282-06 M	VOA Vial, Clear, 40 mL, HCL
21H0282-06 N	VOA Vial, Clear, 40 mL, HCL
21H0282-06 O	VOA Vial, Clear, 40 mL, HCL
21H0282-06 P	VOA Vial, Clear, 40 mL, HCL
21H0282-07 A	HDPE NM, 500 mL

DL
Preservation Confirmed By

08/24/21
Date

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Shannon & Wilson Project Name: Lower Duwamish

COC No(s): ~~NA~~ Delivered by: Fed-Ex UPS Courier Hand Delivered Other: ____

Assigned ARI Job No: 21H0282 Tracking No: ____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1544 2.1 4.2 5.1

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D00 5206

Cooler Accepted by: DL Date: 08/23/21 Time: 1544

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? ... Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other: ____			
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
How were bottles sealed in plastic bags?	Individually	Grouped	(Not)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		YES	(NO)
Did the number of containers listed on COC match with the number of containers received?		YES	(NO)
Did all bottle labels and tags agree with custody papers?		YES	(NO)
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ...	NA	(YES)	NO
Were all VOC vials free of air bubbles?	NA	(YES)	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	NA	08/13/21	

Were the sample(s) split by ARI? (NA) YES Date/Time: ____ Equipment: ____ Split by: ____

Samples Logged by: DL Date: 08/24/21 Time: 0951 Labels checked by: ____

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

- The T.Metals & D.Metals for sample "MW-70" didn't have labels, used Process of elimination to identify them.
- Samples "MW-66" & "MW-102" list 15 containers each, however only 13 of each made it to ARI.

By: DL Date: 08/24/21

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

TB-5-20212308

21H0282-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/23/2021 10:16

Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 16:55

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0282-01 A

Preparation Batch: BJI0032 — Sample Size: 10 mL

Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.09	ug/L	J
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*97.5*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*92.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*91.4*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*96.1*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

TB-5-20212308

21H0282-01 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/23/2021 10:16

Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 16:55

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0282-01 A

Preparation Batch: BJI0032 — Sample Size: 10 mL

Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*92.8*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*91.4*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-66-20212308

21H0282-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/23/2021 09:55

Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 20:36

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0282-02 H

Preparation Batch: BJI0032 — Sample Size: 10 mL

Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*81.3*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*93.5*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*90.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*90.2*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-66-20212308

21H0282-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/23/2021 09:55

Instrument: NT16 Analyst: KOTT — Analyzed: 08/30/2021 12:56

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0282-02 L

Preparation Batch: BJH0756 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*100*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*95.2*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*92.1*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-66-20212308

21H0282-02 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/23/2021 09:55
Instrument: NT11 Analyst: VTS — Analyzed: 09/01/2021 18:01

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJH0640; Prepared: 08/26/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21H0282-02 D 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJH0299; Cleaned: 31-Aug-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21H0282-02 D 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.002	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.002	0.010	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.010	ND	ug/L	U
Phenanthrene	85-01-8	1	0.001	0.010	0.002	ug/L	J
Anthracene	120-12-7	1	0.001	0.010	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.010	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*79.0*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*76.7*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*90.0*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-66-20212308

21H0282-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/23/2021 09:55
Instrument: FID4 Analyst: TWC — Analyzed: 09/13/2021 23:56

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0282-02 F 01
Preparation Batch: BJH0731 — Sample Size: 495 mL
Prepared: 08/30/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.101	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.202	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*118*	*%*	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-66-20212308

21H0282-02 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/23/2021 09:55
Instrument: ECD7 Analyst: JGR — Analyzed: 09/15/2021 22:03

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0282-02 A 01
	Preparation Batch: BJH0666	Sample Size: 1000 mL	
	Prepared: 08/30/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0282-02 A 01
	Cleanup Batch: CJI0111	Initial Volume: 0.5 mL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0282-02 A 01
	Cleanup Batch: CJI0109	Initial Volume: 0.5 uL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0282-02 A 01
	Cleanup Batch: CJI0110	Initial Volume: 0.5 uL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*82.5*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*72.1*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*79.9*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*68.3*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-66-20212308

21H0282-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/23/2021 09:55

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/31/2021 00:35

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0282-02 C 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.114	0.500	3.62	ug/L	
Chromium	7440-47-3	1	0.260	0.500	ND	ug/L	U
Iron	7439-89-6	1	18.2	36.0	6840	ug/L	
Lead	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium	7440-62-2	1	0.0556	0.200	1.25	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-66-20212308

21H0282-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/23/2021 09:55

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/27/2021 20:15

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0282-02 C 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	1.54	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt	7440-48-4	1	0.0178	0.200	0.757	ug/L	
Copper	7440-50-8	1	0.173	0.500	0.449	ug/L	J
Nickel	7440-02-0	1	0.0792	0.500	0.814	ug/L	
Selenium	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-66-20212308

21H0282-02 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/23/2021 09:55

Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 15:01

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0282-02 C

Preparation Batch: BJH0598 — Sample Size: 20 mL

Prepared: 08/24/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	0.000018	mg/L	J

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-66-20212308

21H0282-02RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/23/2021 09:55

Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/31/2021 00:22

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0282-02RE1 C 01

Preparation Batch: BJH0670 — Sample Size: 25 mL

Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	10	1.42	5.00	1050	ug/L	B, D

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-66-20212308

21H0282-03 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/23/2021 09:55

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 20:00

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0282-03 A 02

Preparation Batch: BJI0069 — Sample Size: 25 mL — Filtration Batch: BJH0612

Prepared: 09/02/2021 — Final Volume: 25 mL — Filtration Date: 08/24/2021 14:46

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.114	0.500	2.79	ug/L	
Chromium, Dissolved	7440-47-3	1	0.260	0.500	ND	ug/L	U
Iron, Dissolved	7439-89-6	10	182	360	4010	ug/L	D
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	10	1.42	5.00	1040	ug/L	D
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0556	0.200	0.0660	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-66-20212308

21H0282-03 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/23/2021 09:55

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 20:00

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0282-03 A 02

Preparation Batch: BJI0069 — Sample Size: 25 mL — Filtration Batch: BJH0612

Prepared: 09/02/2021 — Final Volume: 25 mL — Filtration Date: 08/24/2021 14:46

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.657	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	0.648	ug/L	
Copper, Dissolved	7440-50-8	1	0.173	0.500	0.241	ug/L	J
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	0.671	ug/L	
Selenium, Dissolved	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-66-20212308

21H0282-03 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/23/2021 09:55
Instrument: HYDRA Analyst: ML — Analyzed: 09/07/2021 14:00

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0282-03 A 01
Preparation Batch: BJI0075 — Sample Size: 20 mL — Filtration Batch: BJH0612
Prepared: 09/02/2021 — Final Volume: 20 mL — Filtration Date: 08/24/2021 14:46

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	0.000036	mg/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-102-20212308

21H0282-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/23/2021 10:10
Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 21:01

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0282-04 K
Preparation Batch: BJI0032 — Sample Size: 10 mL
Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*85.8*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*93.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.0*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*95.6*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-102-20212308

21H0282-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/23/2021 10:10
Instrument: NT16 Analyst: KOTT — Analyzed: 08/30/2021 13:16

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0282-04 H
Preparation Batch: BJH0756 — Sample Size: 10 mL
Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*102*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.1*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*92.8*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-102-20212308

21H0282-04 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/23/2021 10:10
Instrument: NT11 Analyst: VTS — Analyzed: 09/01/2021 18:31

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJH0640; Prepared: 08/26/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21H0282-04 D 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJH0299; Cleaned: 31-Aug-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21H0282-04 D 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.001	0.010	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.002	0.010	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.010	ND	ug/L	U
Phenanthrene	85-01-8	1	0.001	0.010	0.002	ug/L	J
Anthracene	120-12-7	1	0.001	0.010	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.010	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*81.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*79.8*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*94.6*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-102-20212308

21H0282-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/23/2021 10:10

Instrument: FID4 Analyst: TWC — Analyzed: 09/14/2021 00:16

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0282-04 F 01

Preparation Batch: BJH0731 — Sample Size: 490 mL

Prepared: 08/30/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.102	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.204	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*106*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-102-20212308

21H0282-04 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/23/2021 10:10
Instrument: ECD7 Analyst: JGR — Analyzed: 09/15/2021 22:24

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0282-04 A 01
	Preparation Batch: BJH0666	Sample Size: 1000 mL	
	Prepared: 08/30/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0282-04 A 01
	Cleanup Batch: CJI0111	Initial Volume: 0.5 mL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0282-04 A 01
	Cleanup Batch: CJI0109	Initial Volume: 0.5 uL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0282-04 A 01
	Cleanup Batch: CJI0110	Initial Volume: 0.5 uL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*81.7*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*71.0*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*79.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*64.8*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-102-20212308

21H0282-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/23/2021 10:10
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/31/2021 00:41

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0282-04 C 01
Preparation Batch: BJH0670 — Sample Size: 25 mL
Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.114	0.500	3.15	ug/L	
Chromium	7440-47-3	1	0.260	0.500	ND	ug/L	U
Iron	7439-89-6	1	18.2	36.0	4950	ug/L	
Lead	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium	7440-62-2	1	0.0556	0.200	0.607	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-102-20212308

21H0282-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/23/2021 10:10
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/27/2021 20:19

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0282-04 C 01
Preparation Batch: BJH0670 — Sample Size: 25 mL
Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	1.04	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt	7440-48-4	1	0.0178	0.200	0.616	ug/L	
Copper	7440-50-8	1	0.173	0.500	0.667	ug/L	
Nickel	7440-02-0	1	0.0792	0.500	0.675	ug/L	
Selenium	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-102-20212308

21H0282-04 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/23/2021 10:10
Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 15:03

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0282-04 C
Preparation Batch: BJH0598 — Sample Size: 20 mL
Prepared: 08/24/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	0.000018	mg/L	J

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
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Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

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21H0282-04RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/23/2021 10:10
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/31/2021 00:26

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0282-04RE1 C 01
Preparation Batch: BJH0670 — Sample Size: 25 mL
Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	10	1.42	5.00	981	ug/L	B, D

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

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21H0282-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/23/2021 10:10
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 19:29

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0282-05 A 02
Preparation Batch: BJI0069 — Sample Size: 25 mL — Filtration Batch: BJH0612
Prepared: 09/02/2021 — Final Volume: 25 mL — Filtration Date: 08/24/2021 14:46

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.114	0.500	2.79	ug/L	
Chromium, Dissolved	7440-47-3	1	0.260	0.500	ND	ug/L	U
Iron, Dissolved	7439-89-6	1	6.63	20.0	1930	ug/L	
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	10	1.42	5.00	988	ug/L	D
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0556	0.200	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-102-20212308

21H0282-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/23/2021 10:10
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 19:29

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0282-05 A 02
Preparation Batch: BJI0069 — Sample Size: 25 mL — Filtration Batch: BJH0612
Prepared: 09/02/2021 — Final Volume: 25 mL — Filtration Date: 08/24/2021 14:46

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.568	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	0.590	ug/L	
Copper, Dissolved	7440-50-8	1	0.173	0.500	0.194	ug/L	J
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	0.692	ug/L	
Selenium, Dissolved	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-102-20212308

21H0282-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/23/2021 10:10
Instrument: HYDRA Analyst: ML — Analyzed: 09/07/2021 14:09

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0282-05 A 01
Preparation Batch: BJI0075 — Sample Size: 20 mL — Filtration Batch: BJH0612
Prepared: 09/02/2021 — Final Volume: 20 mL — Filtration Date: 08/24/2021 14:46

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	0.000035	mg/L	J

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-70-20212308

21H0282-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/23/2021 14:06

Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 21:26

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0282-06 N

Preparation Batch: BJI0032 — Sample Size: 10 mL

Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	0.08	ug/L	J
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	1.72	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.14	ug/L	J
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	0.15	ug/L	J
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	0.22	ug/L	J
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*88.1*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*94.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*88.6*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*93.4*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-70-20212308

21H0282-06 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/23/2021 14:06

Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 21:26

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0282-06 N

Preparation Batch: BJI0032 — Sample Size: 10 mL

Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	293	ug/L	
HC ID: GAS						
Surrogate: Toluene-d8			*80-120 %*	*94.6*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*88.6*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-70-20212308

21H0282-06 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/23/2021 14:06
Instrument: NT11 Analyst: VTS — Analyzed: 09/01/2021 19:01

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0282-06 D 01
Preparation Batch: BJH0640 — Sample Size: 500 mL
Prepared: 08/26/2021 — Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 21H0282-06 D 01
Cleanup Batch: CJH0299 — Initial Volume: 0.5 mL
Cleaned: 31-Aug-2021 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.135	ug/L	
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.046	ug/L	
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.155	ug/L	
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	0.349	ug/L	
Dibenzofuran	132-64-9	1	0.002	0.010	0.260	ug/L	
Fluorene	86-73-7	1	0.002	0.010	0.366	ug/L	
Phenanthrene	85-01-8	1	0.001	0.010	0.604	ug/L	
Anthracene	120-12-7	1	0.001	0.010	0.132	ug/L	
Carbazole	86-74-8	1	0.001	0.010	0.093	ug/L	
Fluoranthene	206-44-0	1	0.002	0.010	0.154	ug/L	
Pyrene	129-00-0	1	0.001	0.010	0.085	ug/L	
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	0.006	ug/L	J
Chrysene	218-01-9	1	0.0009	0.010	0.006	ug/L	J
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*92.9*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*73.2*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*87.1*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-70-20212308

21H0282-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/23/2021 14:06
Instrument: FID4 Analyst: TWC — Analyzed: 09/13/2021 18:34

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0282-06 F 01
Preparation Batch: BJH0664 — Sample Size: 500 mL
Prepared: 08/27/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	1.08	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*107*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-70-20212308

21H0282-06 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/23/2021 14:06
Instrument: ECD7 Analyst: JGR — Analyzed: 09/15/2021 22:44

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0282-06 A 01
	Preparation Batch: BJH0666	Sample Size: 1000 mL	
	Prepared: 08/30/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0282-06 A 01
	Cleanup Batch: CJI0111	Initial Volume: 0.5 mL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0282-06 A 01
	Cleanup Batch: CJI0109	Initial Volume: 0.5 uL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0282-06 A 01
	Cleanup Batch: CJI0110	Initial Volume: 0.5 uL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*69.7*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*63.5*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*66.5*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*69.7*	*%*	

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Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-70-20212308

21H0282-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/23/2021 14:06
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/31/2021 00:47

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0282-06 C 01
Preparation Batch: BJH0670 — Sample Size: 25 mL
Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	2	0.228	1.00	11.3	ug/L	D
Chromium	7440-47-3	2	0.520	1.00	1.67	ug/L	D
Iron	7439-89-6	2	36.4	72.0	17400	ug/L	D
Lead	7439-92-1	1	0.0513	0.100	0.132	ug/L	
Manganese	7439-96-5	10	1.42	5.00	1170	ug/L	B, D
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium	7440-62-2	2	0.111	0.400	8.86	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-70-20212308

21H0282-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/23/2021 14:06
Instrument: ICPMS1 Analyst: MCB — Analyzed: 08/27/2021 20:24

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0282-06 C 01
Preparation Batch: BJH0670 — Sample Size: 25 mL
Prepared: 08/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	0.784	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt	7440-48-4	1	0.0178	0.200	0.189	ug/L	J
Copper	7440-50-8	1	0.173	0.500	0.718	ug/L	
Nickel	7440-02-0	1	0.0792	0.500	0.273	ug/L	J
Selenium	7782-49-2	1	0.179	0.500	0.271	ug/L	J
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-70-20212308

21H0282-06 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/23/2021 14:06
Instrument: HYDRA Analyst: ML — Analyzed: 08/26/2021 15:05

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0282-06 C
Preparation Batch: BJH0598 — Sample Size: 20 mL
Prepared: 08/24/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	0.000018	mg/L	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-70-20212308

21H0282-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/23/2021 14:06
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 19:35

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0282-07 A 02
Preparation Batch: BJI0069 — Sample Size: 25 mL — Filtration Batch: BJH0612
Prepared: 09/02/2021 — Final Volume: 25 mL — Filtration Date: 08/24/2021 14:46

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.114	0.500	1.96	ug/L	
Chromium, Dissolved	7440-47-3	1	0.260	0.500	0.486	ug/L	J
Iron, Dissolved	7439-89-6	1	18.2	36.0	3780	ug/L	
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	10	1.42	5.00	1160	ug/L	D
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0556	0.200	0.640	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-70-20212308

21H0282-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/23/2021 14:06
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 19:35

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0282-07 A 02
Preparation Batch: BJI0069 — Sample Size: 25 mL — Filtration Batch: BJH0612
Prepared: 09/02/2021 — Final Volume: 25 mL — Filtration Date: 08/24/2021 14:46

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.471	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	0.134	ug/L	J
Copper, Dissolved	7440-50-8	1	0.173	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	0.109	ug/L	J
Selenium, Dissolved	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

MW-70-20212308

21H0282-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/23/2021 14:06
Instrument: HYDRA Analyst: ML — Analyzed: 09/07/2021 14:12

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0282-07 A 01
Preparation Batch: BJI0075 — Sample Size: 20 mL — Filtration Batch: BJH0612
Prepared: 09/02/2021 — Final Volume: 20 mL — Filtration Date: 08/24/2021 14:46

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	0.000041	mg/L	J

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Volatile Organic Compounds - Quality Control

Batch BJI0032 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0032-BLK1)				Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 15:40							
Vinyl Chloride	ND	0.08	0.20	ug/L							U
1,1-Dichloroethene	ND	0.08	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.07	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Benzene	ND	0.05	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
Toluene	ND	0.05	0.20	ug/L							U
Tetrachloroethene	ND	0.09	0.20	ug/L							U
Ethylbenzene	ND	0.05	0.20	ug/L							U
m,p-Xylene	ND	0.14	0.40	ug/L							U
o-Xylene	ND	0.08	0.20	ug/L							U
Xylenes, total	ND	0.22	0.60	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.53			ug/L	*5.00*		*90.6*	*80-129*			
Surrogate: Toluene-d8	4.63			ug/L	*5.00*		*92.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.87			ug/L	*5.00*		*97.4*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.62			ug/L	*5.00*		*92.4*	*80-120*			
Blank (BJI0032-BLK2)				Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 15:40							
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							U
Surrogate: Toluene-d8	4.63			ug/L	*5.00*		*92.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.87			ug/L	*5.00*		*97.4*	*80-120*			
LCS (BJI0032-BS1)				Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 13:34							
Vinyl Chloride	9.93	0.08	0.20	ug/L	10.0		99.3	66-133			
1,1-Dichloroethene	10.2	0.08	0.20	ug/L	10.0		102	69-135			
trans-1,2-Dichloroethene	9.32	0.07	0.20	ug/L	10.0		93.2	78-128			
cis-1,2-Dichloroethene	9.65	0.08	0.20	ug/L	10.0		96.5	80-121			
Benzene	9.96	0.05	0.20	ug/L	10.0		99.6	80-120			
Trichloroethene	9.74	0.07	0.20	ug/L	10.0		97.4	80-120			
Toluene	10.0	0.05	0.20	ug/L	10.0		100	80-120			
Tetrachloroethene	10.8	0.09	0.20	ug/L	10.0		108	80-120			
Ethylbenzene	10.6	0.05	0.20	ug/L	10.0		106	80-120			
m,p-Xylene	21.1	0.14	0.40	ug/L	20.0		105	80-121			
o-Xylene	10.4	0.08	0.20	ug/L	10.0		104	80-121			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Volatile Organic Compounds - Quality Control

Batch BJI0032 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0032-BS1)				Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 13:34							
Xylenes, total	31.4	0.22	0.60	ug/L	30.0		105	76-127			
Surrogate: 1,2-Dichloroethane-d4	4.70			ug/L	*5.00*		*94.0*	*80-129*			
Surrogate: Toluene-d8	4.85			ug/L	*5.00*		*97.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.65			ug/L	*5.00*		*93.0*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.84			ug/L	*5.00*		*96.8*	*80-120*			
LCS (BJI0032-BS2)				Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 13:59							
Gasoline Range Organics (Tol-Nap)	1120		100	ug/L	1000		112	72-128			
Surrogate: Toluene-d8	4.60			ug/L	*5.00*		*92.1*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.57			ug/L	*5.00*		*91.4*	*80-120*			
LCS Dup (BJI0032-BSD1)				Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 14:24							
Vinyl Chloride	9.52	0.08	0.20	ug/L	10.0		95.2	66-133	4.21	30	
1,1-Dichloroethene	9.48	0.08	0.20	ug/L	10.0		94.8	69-135	7.14	30	
trans-1,2-Dichloroethene	8.82	0.07	0.20	ug/L	10.0		88.2	78-128	5.53	30	
cis-1,2-Dichloroethene	9.31	0.08	0.20	ug/L	10.0		93.1	80-121	3.64	30	
Benzene	9.52	0.05	0.20	ug/L	10.0		95.2	80-120	4.55	30	
Trichloroethene	9.64	0.07	0.20	ug/L	10.0		96.4	80-120	1.01	30	
Toluene	9.63	0.05	0.20	ug/L	10.0		96.3	80-120	4.15	30	
Tetrachloroethene	10.6	0.09	0.20	ug/L	10.0		106	80-120	2.00	30	
Ethylbenzene	10.5	0.05	0.20	ug/L	10.0		105	80-120	1.48	30	
m,p-Xylene	20.2	0.14	0.40	ug/L	20.0		101	80-121	4.29	30	
o-Xylene	9.99	0.08	0.20	ug/L	10.0		99.9	80-121	3.66	30	
Xylenes, total	30.2	0.22	0.60	ug/L	30.0		101	76-127	4.08	30	
Surrogate: 1,2-Dichloroethane-d4	4.39			ug/L	*5.00*		*87.9*	*80-129*			
Surrogate: Toluene-d8	4.66			ug/L	*5.00*		*93.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.77			ug/L	*5.00*		*95.3*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.75			ug/L	*5.00*		*94.9*	*80-120*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Volatile Organic Compounds - SIM - Quality Control

Batch BJH0756 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: KOTT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0756-BLK1)				Prepared: 30-Aug-2021 Analyzed: 30-Aug-2021 12:02							
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	5070			ng/L	*5000*		*101*	*80-129*			
Surrogate: Toluene-d8	5020			ng/L	*5000*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4710			ng/L	*5000*		*94.3*	*75-125*			
LCS (BJH0756-BS1)				Prepared: 30-Aug-2021 Analyzed: 30-Aug-2021 11:21							
Vinyl chloride	1730	5.01	20.0	ng/L	2000		86.7	62-141			
Surrogate: 1,2-Dichloroethane-d4	5080			ng/L	*5000*		*102*	*80-129*			
Surrogate: Toluene-d8	4680			ng/L	*5000*		*93.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5670			ng/L	*5000*		*113*	*75-125*			
LCS Dup (BJH0756-BSD1)				Prepared: 30-Aug-2021 Analyzed: 30-Aug-2021 11:42							
Vinyl chloride	1670	5.01	20.0	ng/L	2000		83.3	62-141	4.08	30	
Surrogate: 1,2-Dichloroethane-d4	5160			ng/L	*5000*		*103*	*80-129*			
Surrogate: Toluene-d8	4750			ng/L	*5000*		*95.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5520			ng/L	*5000*		*110*	*75-125*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0640 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0640-BLK1)				Prepared: 26-Aug-2021 Analyzed: 01-Sep-2021 16:01							
Naphthalene	ND	0.001	0.010	ug/L							U
2-Methylnaphthalene	ND	0.001	0.010	ug/L							U
1-Methylnaphthalene	ND	0.0009	0.010	ug/L							U
Acenaphthylene	ND	0.002	0.010	ug/L							U
Acenaphthene	ND	0.003	0.010	ug/L							U
Dibenzofuran	ND	0.002	0.010	ug/L							U
Fluorene	ND	0.002	0.010	ug/L							U
Phenanthrene	ND	0.001	0.010	ug/L							U
Anthracene	ND	0.001	0.010	ug/L							U
Carbazole	ND	0.001	0.010	ug/L							U
Fluoranthene	ND	0.002	0.010	ug/L							U
Pyrene	ND	0.001	0.010	ug/L							U
Benzo(a)anthracene	ND	0.0008	0.010	ug/L							U
Chrysene	ND	0.0009	0.010	ug/L							U
Benzo(b)fluoranthene	ND	0.0005	0.010	ug/L							U
Benzo(k)fluoranthene	ND	0.003	0.010	ug/L							U
Benzo(j)fluoranthene	ND	0.002	0.010	ug/L							U
Benzofluoranthenes, Total	ND	0.004	0.010	ug/L							U
Benzo(a)pyrene	ND	0.002	0.010	ug/L							U
Perylene	ND	0.006	0.010	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.001	0.010	ug/L							U
Dibenzo(a,h)anthracene	ND	0.001	0.010	ug/L							U
Benzo(g,h,i)perylene	ND	0.001	0.010	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	0.231			ug/L	*0.300*		*77.1*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.201			ug/L	*0.300*		*67.0*	*29-120*			
Surrogate: Fluoranthene-d10	0.254			ug/L	*0.300*		*84.7*	*57-120*			
LCS (BJH0640-BS1)				Prepared: 26-Aug-2021 Analyzed: 01-Sep-2021 16:31							
Naphthalene	0.243	0.001	0.010	ug/L	0.300		80.9	37-120			
2-Methylnaphthalene	0.250	0.001	0.010	ug/L	0.300		83.3	37-120			
1-Methylnaphthalene	0.250	0.0009	0.010	ug/L	0.300		83.4	29-120			
Acenaphthylene	0.239	0.002	0.010	ug/L	0.300		79.6	41-120			
Acenaphthene	0.234	0.003	0.010	ug/L	0.300		78.0	41-120			
Dibenzofuran	0.239	0.002	0.010	ug/L	0.300		79.7	38-120			
Fluorene	0.257	0.002	0.010	ug/L	0.300		85.5	43-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0640 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0640-BS1)					Prepared: 26-Aug-2021 Analyzed: 01-Sep-2021 16:31						
Phenanthrene	0.259	0.001	0.010	ug/L	0.300		86.5	41-120			
Anthracene	0.228	0.001	0.010	ug/L	0.300		75.9	40-120			
Carbazole	0.264	0.001	0.010	ug/L	0.300		88.0	30-160			
Fluoranthene	0.264	0.002	0.010	ug/L	0.300		87.8	45-120			
Pyrene	0.264	0.001	0.010	ug/L	0.300		88.2	41-120			
Benzo(a)anthracene	0.255	0.0008	0.010	ug/L	0.300		84.8	42-120			
Chrysene	0.250	0.0009	0.010	ug/L	0.300		83.3	44-120			
Benzo(b)fluoranthene	0.253	0.0005	0.010	ug/L	0.300		84.3	44-120			
Benzo(k)fluoranthene	0.263	0.003	0.010	ug/L	0.300		87.7	50-120			
Benzo(j)fluoranthene	0.270	0.002	0.010	ug/L	0.300		90.0	39-160			
Benzofluoranthenes, Total	0.786	0.004	0.010	ug/L	0.900		87.3	46-120			
Benzo(a)pyrene	0.242	0.002	0.010	ug/L	0.300		80.6	35-120			
Perylene	0.241	0.006	0.010	ug/L	0.300		80.5	30-160			
Indeno(1,2,3-cd)pyrene	0.242	0.001	0.010	ug/L	0.300		80.5	37-120			
Dibenzo(a,h)anthracene	0.241	0.001	0.010	ug/L	0.300		80.2	34-120			
Benzo(g,h,i)perylene	0.234	0.001	0.010	ug/L	0.300		77.9	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.256			ug/L	*0.300*		*85.4*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.245			ug/L	*0.300*		*81.6*	*29-120*			
Surrogate: Fluoranthene-d10	0.277			ug/L	*0.300*		*92.3*	*57-120*			
LCS Dup (BJH0640-BSD1)					Prepared: 26-Aug-2021 Analyzed: 01-Sep-2021 17:01						
Naphthalene	0.241	0.001	0.010	ug/L	0.300		80.2	37-120	0.91	30	
2-Methylnaphthalene	0.248	0.001	0.010	ug/L	0.300		82.7	37-120	0.73	30	
1-Methylnaphthalene	0.247	0.0009	0.010	ug/L	0.300		82.5	29-120	1.09	30	
Acenaphthylene	0.242	0.002	0.010	ug/L	0.300		80.6	41-120	1.27	30	
Acenaphthene	0.237	0.003	0.010	ug/L	0.300		78.8	41-120	1.10	30	
Dibenzofuran	0.244	0.002	0.010	ug/L	0.300		81.3	38-120	1.98	30	
Fluorene	0.263	0.002	0.010	ug/L	0.300		87.5	43-120	2.33	30	
Phenanthrene	0.264	0.001	0.010	ug/L	0.300		88.0	41-120	1.73	30	
Anthracene	0.246	0.001	0.010	ug/L	0.300		82.1	40-120	7.80	30	
Carbazole	0.272	0.001	0.010	ug/L	0.300		90.7	30-160	2.97	30	
Fluoranthene	0.272	0.002	0.010	ug/L	0.300		90.8	45-120	3.28	30	
Pyrene	0.273	0.001	0.010	ug/L	0.300		91.0	41-120	3.11	30	
Benzo(a)anthracene	0.266	0.0008	0.010	ug/L	0.300		88.8	42-120	4.53	30	
Chrysene	0.253	0.0009	0.010	ug/L	0.300		84.3	44-120	1.25	30	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0640 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJH0640-BSD1)					Prepared: 26-Aug-2021 Analyzed: 01-Sep-2021 17:01						
Benzo(b)fluoranthene	0.225	0.0005	0.010	ug/L	0.300		75.0	44-120	11.70	30	
Benzo(k)fluoranthene	0.301	0.003	0.010	ug/L	0.300		100	50-120	13.60	30	
Benzo(j)fluoranthene	0.274	0.002	0.010	ug/L	0.300		91.4	39-160	1.56	30	
Benzofluoranthenes, Total	0.801	0.004	0.010	ug/L	0.900		88.9	46-120	1.85	30	
Benzo(a)pyrene	0.251	0.002	0.010	ug/L	0.300		83.5	35-120	3.54	30	
Perylene	0.248	0.006	0.010	ug/L	0.300		82.6	30-160	2.60	30	
Indeno(1,2,3-cd)pyrene	0.248	0.001	0.010	ug/L	0.300		82.7	37-120	2.58	30	
Dibenzo(a,h)anthracene	0.248	0.001	0.010	ug/L	0.300		82.7	34-120	3.07	30	
Benzo(g,h,i)perylene	0.238	0.001	0.010	ug/L	0.300		79.4	38-120	1.91	30	
Surrogate: 2-Methylnaphthalene-d10	0.252			ug/L	*0.300*		*84.2*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.250			ug/L	*0.300*		*83.5*	*29-120*			
Surrogate: Fluoranthene-d10	0.282			ug/L	*0.300*		*94.0*	*57-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Petroleum Hydrocarbons - Quality Control

Batch BJH0664 - EPA 3510C SepF

Instrument: FID4 Analyst: TWC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0664-BLK1)				Prepared: 27-Aug-2021 Analyzed: 13-Sep-2021 17:34						
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: o-Terphenyl	0.256		mg/L	*0.225*		*114*	*50-150*			
LCS (BJH0664-BS1)				Prepared: 27-Aug-2021 Analyzed: 13-Sep-2021 17:54						
Diesel Range Organics (C12-C24)	2.88	0.100	mg/L	3.00		95.9	56-120			
Surrogate: o-Terphenyl	0.243		mg/L	*0.225*		*108*	*50-150*			
LCS Dup (BJH0664-BSD1)				Prepared: 27-Aug-2021 Analyzed: 13-Sep-2021 18:14						
Diesel Range Organics (C12-C24)	3.57	0.100	mg/L	3.00		119	56-120	21.60	30	
Surrogate: o-Terphenyl	0.283		mg/L	*0.225*		*126*	*50-150*			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Petroleum Hydrocarbons - Quality Control

Batch BJH0731 - EPA 3510C SepF

Instrument: FID4 Analyst: TWC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0731-BLK1)				Prepared: 30-Aug-2021 Analyzed: 13-Sep-2021 22:56						
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: o-Terphenyl	0.272		mg/L	*0.225*		*121*	*50-150*			
LCS (BJH0731-BS1)				Prepared: 30-Aug-2021 Analyzed: 13-Sep-2021 23:16						
Diesel Range Organics (C12-C24)	3.64	0.100	mg/L	3.00		121	56-120			*
Surrogate: o-Terphenyl	0.305		mg/L	*0.225*		*136*	*50-150*			
LCS Dup (BJH0731-BSD1)				Prepared: 30-Aug-2021 Analyzed: 13-Sep-2021 23:36						
Diesel Range Organics (C12-C24)	3.54	0.100	mg/L	3.00		118	56-120	2.82	30	
Surrogate: o-Terphenyl	0.284		mg/L	*0.225*		*126*	*50-150*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Aroclor PCB - Quality Control

Batch BJH0666 - EPA 3510C SepF

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0666-BLK1)				Prepared: 30-Aug-2021 Analyzed: 15-Sep-2021 20:41							
Aroclor 1016	ND	0.002	0.010	ug/L							U
Aroclor 1221	ND	0.002	0.010	ug/L							U
Aroclor 1232	ND	0.002	0.010	ug/L							U
Aroclor 1242	ND	0.002	0.010	ug/L							U
Aroclor 1248	ND	0.002	0.010	ug/L							U
Aroclor 1254	ND	0.002	0.010	ug/L							U
Aroclor 1260	ND	0.003	0.010	ug/L							U
Aroclor 1262	ND	0.003	0.010	ug/L							U
Aroclor 1268	ND	0.003	0.010	ug/L							U
Surrogate: Decachlorobiphenyl	0.0165			ug/L	*0.0200*		*82.6*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0142			ug/L	*0.0200*		*71.2*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0162			ug/L	*0.0200*		*80.9*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0129			ug/L	*0.0200*		*64.7*	*32-120*			
LCS (BJH0666-BS1)				Prepared: 30-Aug-2021 Analyzed: 15-Sep-2021 21:02							
Aroclor 1016 [2C]	0.038	0.002	0.010	ug/L	0.0500		75.9	54-120			
Aroclor 1260 [2C]	0.038	0.003	0.010	ug/L	0.0500		75.6	51-128			
Surrogate: Decachlorobiphenyl	0.0155			ug/L	*0.0200*		*77.4*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0132			ug/L	*0.0200*		*65.8*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0148			ug/L	*0.0200*		*74.0*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0124			ug/L	*0.0200*		*62.2*	*32-120*			
LCS Dup (BJH0666-BSD1)				Prepared: 30-Aug-2021 Analyzed: 15-Sep-2021 21:22							
Aroclor 1016 [2C]	0.039	0.002	0.010	ug/L	0.0500		78.6	54-120	3.43	30	
Aroclor 1260	0.039	0.003	0.010	ug/L	0.0500		78.3	51-128	7.06	30	
Surrogate: Decachlorobiphenyl	0.0150			ug/L	*0.0200*		*75.2*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0138			ug/L	*0.0200*		*69.1*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0146			ug/L	*0.0200*		*72.9*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0130			ug/L	*0.0200*		*65.1*	*32-120*			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Metals and Metallic Compounds - Quality Control

Batch BJH0598 - TWM EPA 7470A

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0598-BLK1)				Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 14:21							
Mercury	ND	0.000013	0.000100	mg/L							U
LCS (BJH0598-BS1)				Prepared: 24-Aug-2021 Analyzed: 26-Aug-2021 14:24							
Mercury	0.00166	0.000013	0.000100	mg/L	0.00200		82.8	80-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Metals and Metallic Compounds - Quality Control

Batch BJH0670 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0670-BLK1)					Prepared: 26-Aug-2021 Analyzed: 27-Aug-2021 17:36							
Barium	135	ND	0.114	0.500	ug/L							U
Barium	137	ND	0.0765	0.500	ug/L							U
Chromium	52	ND	0.260	0.500	ug/L							U
Chromium	53	ND	0.239	0.500	ug/L							U
Iron	54	ND	18.2	36.0	ug/L							U
Iron	57	ND	6.63	36.0	ug/L							U
Lead	208	ND	0.0513	0.100	ug/L							U
Manganese	55	0.429	0.142	0.500	ug/L							*, J
Silver	107	ND	0.0220	0.200	ug/L							U
Vanadium	51a	ND	0.0556	0.200	ug/L							U
Vanadium	51b	ND	0.0521	0.200	ug/L							U
Arsenic	75a	ND	0.0373	0.200	ug/L							U
Cadmium	111	ND	0.0300	0.100	ug/L							U
Cadmium	114	ND	0.0400	0.100	ug/L							U
Cobalt	59	ND	0.0178	0.200	ug/L							U
Copper	63	ND	0.173	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	ND	0.0792	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Selenium	78	ND	0.179	0.500	ug/L							U
Zinc	66	ND	2.92	6.00	ug/L							U
Zinc	67	ND	0.940	6.00	ug/L							U
LCS (BJH0670-BS1)					Prepared: 26-Aug-2021 Analyzed: 27-Aug-2021 17:41							
Barium	135	24.7	0.114	0.500	ug/L	25.0		98.7	80-120			
Barium	137	23.5	0.0765	0.500	ug/L	25.0		94.1	80-120			
Chromium	52	22.9	0.260	0.500	ug/L	25.0		91.5	80-120			
Chromium	53	24.6	0.239	0.500	ug/L	25.0		98.3	80-120			
Iron	54	4900	18.2	36.0	ug/L	5000		98.1	80-120			
Iron	57	4890	6.63	36.0	ug/L	5000		97.8	80-120			
Lead	208	24.7	0.0513	0.100	ug/L	25.0		98.9	80-120			
Manganese	55	24.9	0.142	0.500	ug/L	25.0		99.5	80-120			B
Silver	107	23.7	0.0220	0.200	ug/L	25.0		94.8	80-120			
Vanadium	51a	22.3	0.0556	0.200	ug/L	25.0		89.3	80-120			
Vanadium	51b	22.8	0.0521	0.200	ug/L	25.0		91.2	80-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Metals and Metallic Compounds - Quality Control

Batch BJH0670 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0670-BS1)						Prepared: 26-Aug-2021 Analyzed: 27-Aug-2021 17:41						
Arsenic	75a	24.6	0.0373	0.200	ug/L	25.0		98.5	80-120			
Cadmium	111	24.8	0.0300	0.100	ug/L	25.0		99.3	80-120			
Cadmium	114	24.9	0.0400	0.100	ug/L	25.0		99.7	80-120			
Cobalt	59	24.9	0.0178	0.200	ug/L	25.0		99.5	80-120			
Copper	63	25.2	0.173	0.500	ug/L	25.0		101	80-120			
Copper	65	25.2	0.350	0.500	ug/L	25.0		101	80-120			
Nickel	60	25.1	0.0792	0.500	ug/L	25.0		100	80-120			
Nickel	62	25.6	0.220	0.500	ug/L	25.0		102	80-120			
Selenium	78	75.4	0.179	0.500	ug/L	80.0		94.2	80-120			
Zinc	66	76.8	2.92	6.00	ug/L	80.0		96.0	80-120			
Zinc	67	74.0	0.940	6.00	ug/L	80.0		92.5	80-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0069 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0069-BLK1)					Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 16:18							
Barium, Dissolved	135	ND	0.114	0.500	ug/L							U
Barium, Dissolved	137	ND	0.0765	0.500	ug/L							U
Chromium, Dissolved	52	ND	0.260	0.500	ug/L							U
Chromium, Dissolved	53	ND	0.239	0.500	ug/L							U
Iron, Dissolved	54	ND	18.2	36.0	ug/L							U
Iron, Dissolved	57	ND	6.63	20.0	ug/L							U
Lead, Dissolved	208	ND	0.0513	0.100	ug/L							U
Manganese, Dissolved	55	ND	0.142	0.500	ug/L							U
Silver, Dissolved	107	ND	0.0220	0.200	ug/L							U
Vanadium, Dissolved	51a	ND	0.0556	0.200	ug/L							U
Vanadium, Dissolved	51b	ND	0.0521	0.200	ug/L							U
Arsenic, Dissolved	75a	ND	0.0373	0.200	ug/L							U
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L							U
Cadmium, Dissolved	114	ND	0.0400	0.100	ug/L							U
Cobalt, Dissolved	59	ND	0.0178	0.200	ug/L							U
Copper, Dissolved	63	0.234	0.173	0.500	ug/L							J
Copper, Dissolved	65	ND	0.350	0.500	ug/L							U
Nickel, Dissolved	60	ND	0.0792	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
Selenium, Dissolved	78	ND	0.179	0.500	ug/L							U
Zinc, Dissolved	66	ND	2.92	6.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	6.00	ug/L							U
LCS (BJI0069-BS1)					Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 16:22							
Barium, Dissolved	135	24.0	0.114	0.500	ug/L	25.0		96.2	80-120			
Barium, Dissolved	137	23.9	0.0765	0.500	ug/L	25.0		95.6	80-120			
Chromium, Dissolved	52	23.9	0.260	0.500	ug/L	25.0		95.7	80-120			
Chromium, Dissolved	53	24.8	0.239	0.500	ug/L	25.0		99.1	80-120			
Iron, Dissolved	54	4850	18.2	36.0	ug/L	5000		97.0	80-120			
Iron, Dissolved	57	4860	6.63	20.0	ug/L	5000		97.2	80-120			
Lead, Dissolved	208	25.3	0.0513	0.100	ug/L	25.0		101	80-120			
Manganese, Dissolved	55	24.1	0.142	0.500	ug/L	25.0		96.4	80-120			
Silver, Dissolved	107	24.6	0.0220	0.200	ug/L	25.0		98.6	80-120			
Vanadium, Dissolved	51a	23.3	0.0556	0.200	ug/L	25.0		93.3	80-120			
Vanadium, Dissolved	51b	23.6	0.0521	0.200	ug/L	25.0		94.3	80-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0069 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0069-BS1)						Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 16:22						
Arsenic, Dissolved	75a	23.8	0.0373	0.200	ug/L	25.0		95.1	80-120			
Cadmium, Dissolved	111	24.3	0.0300	0.100	ug/L	25.0		97.3	80-120			
Cadmium, Dissolved	114	24.1	0.0400	0.100	ug/L	25.0		96.4	80-120			
Cobalt, Dissolved	59	24.7	0.0178	0.200	ug/L	25.0		99.0	80-120			
Copper, Dissolved	63	24.8	0.173	0.500	ug/L	25.0		99.2	80-120			
Copper, Dissolved	65	24.9	0.350	0.500	ug/L	25.0		99.7	80-120			
Nickel, Dissolved	60	24.8	0.0792	0.500	ug/L	25.0		99.3	80-120			
Nickel, Dissolved	62	24.5	0.220	0.500	ug/L	25.0		97.8	80-120			
Selenium, Dissolved	78	72.2	0.179	0.500	ug/L	80.0		90.2	80-120			
Zinc, Dissolved	66	74.3	2.92	6.00	ug/L	80.0		92.9	80-120			
Zinc, Dissolved	67	70.9	0.940	6.00	ug/L	80.0		88.6	80-120			
Duplicate (BJI0069-DUP1)			**Source: 21H0282-03**			Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 20:07						
Barium, Dissolved	135	2.71	0.114	0.500	ug/L		2.79			2.87	20	
Chromium, Dissolved	52	ND	0.260	0.500	ug/L		ND					U
Lead, Dissolved	208	ND	0.0513	0.100	ug/L		ND					U
Silver, Dissolved	107	ND	0.0220	0.200	ug/L		ND					U
Vanadium, Dissolved	51a	0.0680	0.0556	0.200	ug/L		0.0660			2.99	20	J
Arsenic, Dissolved	75a	0.683	0.0373	0.200	ug/L		0.657			3.88	20	
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L		ND					U
Cobalt, Dissolved	59	0.651	0.0178	0.200	ug/L		0.648			0.46	20	
Copper, Dissolved	63	0.191	0.173	0.500	ug/L		0.241			23.10	20	L, J
Nickel, Dissolved	60	0.657	0.0792	0.500	ug/L		0.671			2.11	20	
Selenium, Dissolved	78	ND	0.179	0.500	ug/L		ND					U
Zinc, Dissolved	66	ND	2.92	6.00	ug/L		ND					U
Duplicate (BJI0069-DUP2)			**Source: 21H0282-03**			Prepared: 02-Sep-2021 Analyzed: 03-Sep-2021 18:00						
Iron, Dissolved	54	4060	182	360	ug/L		4010			1.26	20	D
Manganese, Dissolved	55	1060	1.42	5.00	ug/L		1040			1.16	20	D
Matrix Spike (BJI0069-MS1)			**Source: 21H0282-03**			Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 20:12						
Barium, Dissolved	135	26.8	0.114	0.500	ug/L	25.0	2.79	95.9	75-125			
Chromium, Dissolved	52	20.2	0.260	0.500	ug/L	25.0	ND	80.6	75-125			
Lead, Dissolved	208	24.7	0.0513	0.100	ug/L	25.0	ND	98.7	75-125			
Silver, Dissolved	107	23.5	0.0220	0.200	ug/L	25.0	ND	94.0	75-125			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0069 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJI0069-MS1)			**Source: 21H0282-03**			Prepared: 02-Sep-2021		Analyzed: 02-Sep-2021 20:12				
Vanadium, Dissolved	51a	20.0	0.0556	0.200	ug/L	25.0	0.0660	79.7	75-125			
Arsenic, Dissolved	75a	24.0	0.0373	0.200	ug/L	25.0	0.657	93.3	75-125			
Cadmium, Dissolved	111	23.5	0.0300	0.100	ug/L	25.0	ND	94.0	75-125			
Cobalt, Dissolved	59	25.1	0.0178	0.200	ug/L	25.0	0.648	97.9	75-125			
Copper, Dissolved	63	24.2	0.173	0.500	ug/L	25.0	0.241	95.9	75-125			
Nickel, Dissolved	60	24.6	0.0792	0.500	ug/L	25.0	0.671	95.9	75-125			
Selenium, Dissolved	78	69.9	0.179	0.500	ug/L	80.0	ND	87.4	75-125			
Zinc, Dissolved	66	71.3	2.92	6.00	ug/L	80.0	ND	89.1	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike (BJI0069-MS2)			**Source: 21H0282-03**			Prepared: 02-Sep-2021		Analyzed: 03-Sep-2021 18:05				
Iron, Dissolved	54	8930	182	360	ug/L	5000	4010	98.5	75-125			D
Manganese, Dissolved	55	1090	1.42	5.00	ug/L	25.0	1040	183	75-125			HC, D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJI0069-MSD1)			**Source: 21H0282-03**			Prepared: 02-Sep-2021		Analyzed: 02-Sep-2021 20:17				
Barium, Dissolved	135	26.9	0.114	0.500	ug/L	25.0	2.79	96.6	75-125	0.69	20	
Chromium, Dissolved	52	20.4	0.260	0.500	ug/L	25.0	ND	81.7	75-125	1.33	20	
Lead, Dissolved	208	25.0	0.0513	0.100	ug/L	25.0	ND	99.9	75-125	1.24	20	
Silver, Dissolved	107	23.8	0.0220	0.200	ug/L	25.0	ND	95.2	75-125	1.27	20	
Vanadium, Dissolved	51a	20.3	0.0556	0.200	ug/L	25.0	0.0660	81.1	75-125	1.77	20	
Arsenic, Dissolved	75a	24.3	0.0373	0.200	ug/L	25.0	0.657	94.6	75-125	1.37	20	
Cadmium, Dissolved	111	23.2	0.0300	0.100	ug/L	25.0	ND	92.9	75-125	1.21	20	
Cobalt, Dissolved	59	25.4	0.0178	0.200	ug/L	25.0	0.648	98.9	75-125	1.03	20	
Copper, Dissolved	63	24.3	0.173	0.500	ug/L	25.0	0.241	96.2	75-125	0.31	20	
Nickel, Dissolved	60	25.2	0.0792	0.500	ug/L	25.0	0.671	98.0	75-125	2.10	20	
Selenium, Dissolved	78	71.9	0.179	0.500	ug/L	80.0	ND	89.9	75-125	2.77	20	
Zinc, Dissolved	66	72.8	2.92	6.00	ug/L	80.0	ND	91.0	75-125	2.09	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJI0069-MSD2)			**Source: 21H0282-03**			Prepared: 02-Sep-2021		Analyzed: 03-Sep-2021 18:10				
Iron, Dissolved	54	8880	182	360	ug/L	5000	4010	97.5	75-125	0.60	20	D
Manganese, Dissolved	55	1070	1.42	5.00	ug/L	25.0	1040	102	75-125	1.87	20	HC, D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0075 - TWM EPA 7470A

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0075-BLK1)				Prepared: 02-Sep-2021 Analyzed: 07-Sep-2021 13:55							
Mercury, Dissolved	0.000039	0.000013	0.000100	mg/L							J
LCS (BJI0075-BS1)				Prepared: 02-Sep-2021 Analyzed: 07-Sep-2021 13:58							
Mercury, Dissolved	0.00175	0.000013	0.000100	mg/L	0.00200		87.7	80-120			
Duplicate (BJI0075-DUP1)		**Source: 21H0282-03**		Prepared: 02-Sep-2021 Analyzed: 07-Sep-2021 14:02							
Mercury, Dissolved	0.000028	0.000013	0.000100	mg/L		0.000036			24.90	20	L, J
Matrix Spike (BJI0075-MS1)		**Source: 21H0282-03**		Prepared: 02-Sep-2021 Analyzed: 07-Sep-2021 14:05							
Mercury, Dissolved	0.000903	0.000013	0.000100	mg/L	0.00100	0.000036	86.7	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJI0075-MSD1)		**Source: 21H0282-03**		Prepared: 02-Sep-2021 Analyzed: 07-Sep-2021 14:07							
Mercury, Dissolved	0.000894	0.000013	0.000100	mg/L	0.00100	0.000036	85.8	75-125	1.00	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Silver-107	WADOE,WA-DW,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Silver-107	WA-DW,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
EPA 6020B UCT-KED in Water	
Arsenic-75a	WADOE,WA-DW,DoD-ELAP,ADEC,NELAP
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	NELAP,DoD-ELAP,WADOE
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Zinc-66	WADOE,WA-DW,DoD-ELAP
Zinc-67	WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	DoD-ELAP,NELAP,WADOE
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
EPA 7470A in Water	
Mercury	WADOE,NELAP,DoD-ELAP
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8082A in Water	
Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
EPA 8260D in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE

EPA 8260D-SIM in Water

Acrylonitrile	NELAP,WADOE
Vinyl chloride	NELAP,WADOE
1,1-Dichloroethene	NELAP,WADOE
cis-1,2-Dichloroethene	NELAP,WADOE
trans-1,2-Dichloroethene	NELAP,WADOE
Trichloroethene	NELAP,WADOE
Tetrachloroethene	NELAP,WADOE
1,1,2,2-Tetrachloroethane	NELAP,WADOE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

1,2-Dichloroethane	NELAP,WADOE
Benzene	NELAP,WADOE

EPA 8270E-SIM in Water

Naphthalene	ADEC,DoD-ELAP,NELAP,WADOE
2-Methylnaphthalene	ADEC,DoD-ELAP,NELAP
1-Methylnaphthalene	ADEC,DoD-ELAP,NELAP,WADOE
Biphenyl	NELAP
Acenaphthylene	ADEC,DoD-ELAP,NELAP,WADOE
Acenaphthene	ADEC,DoD-ELAP,NELAP,WADOE
Dibenzofuran	ADEC,DoD-ELAP,NELAP
Fluorene	ADEC,DoD-ELAP,NELAP,WADOE
Phenanthrene	ADEC,DoD-ELAP,NELAP,WADOE
Anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Carbazole	NELAP
Fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(a)anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Chrysene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(b)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(k)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(j)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(e)pyrene	NELAP
Benzo(a)pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Perylene	ADEC,NELAP
Indeno(1,2,3-cd)pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Dibenzo(a,h)anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(g,h,i)perylene	ADEC,DoD-ELAP,NELAP,WADOE

NWTPH-Dx in Water

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

NWTPHg in Water

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	17-Sep-2021 16:42

Notes and Definitions

*	Flagged value is not within established control limits.
B	This analyte was detected in the method blank.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
HC	The natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
J	Estimated concentration value detected below the reporting limit.
L	Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to +/- RL instead of 20% RPD
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
Y1	Raised reporting limit due to interference
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

21 September 2021

Meg Strong
Shannon & Wilson, Inc
400 N 34th St., Suite 100
Seattle, WA 98103-8636

RE: Lower Duwamish Q3

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
21H0291	N/A

Shelly Fishel

Digitally signed by Shelly Fishel
Date: 2021.09.21 17:32:25 -07'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

Shelly Fishel, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21H0291	Turn-around Requested: STANDARD
ARI Client Company: SHANNON & WILSON	Phone:
Client Contact: SHOSHANA HOWARD	
Client Project Name: LOWER DUWAMISH	
Client Project #: 21-1-12596-012	Samplers: KWP, DES

Page: 1 of 1	
Date: 24-AUG-2021	Ice Present?
No. of Coolers:	Cooler Temps: 2.3; 3.3; 5.2

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	TPH-G	TPH-Dx	BTEX	HVOCs	MTBE	PAHs	Full List SVOCs	Limited SVOCs	PCB Aroclors	Metals (Total & Dissolved)	Hex Chrome	Arsenic			Notes/Comments
TB-6-20212408	24-AUG-21	0859	W	5	✓		✓	✓											
MW-25-20212408		0911		9				✓		✓						✓			
MW-48-20212408		1003		3			✓												
MW-55-20212408		~~1037~~ 1106 (DES)		12		✓	✓	✓		✓				✓	✓				
MW-51-20212408		1320		11	✓			✓				✓	✓						
MW-69-20212408		1451		15	✓	✓	✓	✓				✓	✓	✓					

Comments/Special Instructions
* LAB TO FILTER FOR DISSOLVED METALS

	Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)		D. Lomax		
Printed Name:	KIRK PINKSTON	Dimitri Lomnitz		
Company:	Shannon & Wilson	ARI		
Date & Time:	4:33 8/24/21	08/24/21 1633		

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-6-20212408	21H0291-01	Water	24-Aug-2021 09:11	24-Aug-2021 16:33
MW-25-20212408	21H0291-02	Water	24-Aug-2021 09:11	24-Aug-2021 16:33
MW-25-20212408	21H0291-03	Water	24-Aug-2021 09:11	24-Aug-2021 16:33
MW-48-20212408	21H0291-04	Water	24-Aug-2021 10:03	24-Aug-2021 16:33
MW-55-20212408	21H0291-05	Water	24-Aug-2021 11:06	24-Aug-2021 16:33
MW-55-20212408	21H0291-06	Water	24-Aug-2021 11:06	24-Aug-2021 16:33
MW-51-20212408	21H0291-07	Water	24-Aug-2021 13:20	24-Aug-2021 16:33
MW-69-20212408	21H0291-08	Water	24-Aug-2021 14:51	24-Aug-2021 16:33
MW-69-20212408	21H0291-09	Water	24-Aug-2021 14:51	24-Aug-2021 16:33

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish Q3
Work Order: 21H0291

Sample receipt

Samples as listed on the preceding page were received 24-Aug-2021 16:33 under ARI work order 21H0291. For details regarding sample receipt, please refer to the Cooler Receipt Form.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Gasoline by NWTPH-g (GC/MS)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Volatiles - EPA Method SW8260D

The sample(s) were analyzed within the recommended holding times.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Volatiles - EPA Method 8260D-SIM (Selected Ion Monitoring)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Total and Dissolved Metals - EPA Method 6020B

The sample(s) were digested and analyzed within the recommended holding times.

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0291-08 in Total Metals batch BJH0141 and in association with sample 21H0291-09 in Dissovled Metals batch BJI0016. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0291-05 in Hexavalent Chromium batch BJH0628. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike (MS) and post prepartation spike (PS) were out of control low and have been flagged.

Total Mercury - EPA Method 7470/7471

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0291-05 in Total Mercury batch BJH0743. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Semivolatiles - EPA Method SW8270E

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except Phenol-d5 which was out of control low in sample 21H0291-08, method blank BJH0669-BLK1 and blank spike duplicate BJH0669-BSD1 and have been flagged.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits except Benzoic Acid which was out of control low in BJH0669-BS1 and BJH0669-BSD1 and have been flagged.

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Analytical Chemists and Consultants

Printed: 8/24/2021 5:45:13PM

WORK ORDER

21H0291

Client: Shannon & Wilson, Inc	**Project Manager: Shelly Fishel**
Project: Lower Duwamish Q3	**Project Number: 21-1-12596-012**

Preservation Confirmation

Container ID	Container Type	pH	
21H0291-01 A	VOA Vial, Clear, 40 mL, HCL		
21H0291-01 B	VOA Vial, Clear, 40 mL, HCL		
21H0291-01 C	VOA Vial, Clear, 40 mL, HCL		
21H0291-01 D	VOA Vial, Clear, 40 mL, HCL		
21H0291-01 E	VOA Vial, Clear, 40 mL, HCL		
21H0291-02 A	Glass NM, Amber, 500 mL		
21H0291-02 B	Glass NM, Amber, 500 mL		
21H0291-02 C	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0291-02 D	VOA Vial, Clear, 40 mL, HCL		
21H0291-02 E	VOA Vial, Clear, 40 mL, HCL		
21H0291-02 F	VOA Vial, Clear, 40 mL, HCL		
21H0291-02 G	VOA Vial, Clear, 40 mL, HCL		
21H0291-02 H	VOA Vial, Clear, 40 mL, HCL		
21H0291-03 A	HDPE NM, 500 mL	>2	Fail
21H0291-04 A	VOA Vial, Clear, 40 mL, HCL		
21H0291-04 B	VOA Vial, Clear, 40 mL, HCL		
21H0291-04 C	VOA Vial, Clear, 40 mL, HCL		
21H0291-05 A	Glass NM, Amber, 500 mL		
21H0291-05 B	Glass NM, Amber, 500 mL		
21H0291-05 C	Glass NM, Amber, 500 mL		
21H0291-05 D	Glass NM, Amber, 500 mL		
21H0291-05 E	Glass NM, Amber, 250 mL		
21H0291-05 F	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0291-05 G	VOA Vial, Clear, 40 mL, HCL		
21H0291-05 H	VOA Vial, Clear, 40 mL, HCL		
21H0291-05 I	VOA Vial, Clear, 40 mL, HCL		
21H0291-05 J	VOA Vial, Clear, 40 mL, HCL		
21H0291-05 K	VOA Vial, Clear, 40 mL, HCL		
21H0291-06 A	HDPE NM, 500 mL	>2	Fail
21H0291-07 A	Glass NM, Amber, 1000 mL		
21H0291-07 B	Glass NM, Amber, 1000 mL		
21H0291-07 C	Glass NM, Amber, 500 mL		
21H0291-07 D	Glass NM, Amber, 500 mL		
21H0291-07 E	VOA Vial, Clear, 40 mL, HCL		
21H0291-07 F	VOA Vial, Clear, 40 mL, HCL		

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/24/2021 5:45:13PM

WORK ORDER

21H0291

Client: Shannon & Wilson, Inc | **Project Manager: Shelly Fishel**

Project: Lower Duwamish Q3 | **Project Number: 21-1-12596-012**

21H0291-07 G	VOA Vial, Clear, 40 mL, HCL		
21H0291-07 H	VOA Vial, Clear, 40 mL, HCL		
21H0291-07 I	VOA Vial, Clear, 40 mL, HCL		
21H0291-07 J	VOA Vial, Clear, 40 mL, HCL		
21H0291-07 K	VOA Vial, Clear, 40 mL, HCL		
21H0291-08 A	Glass NM, Amber, 1000 mL		
21H0291-08 B	Glass NM, Amber, 1000 mL		
21H0291-08 C	Glass NM, Amber, 500 mL		
21H0291-08 D	Glass NM, Amber, 500 mL		
21H0291-08 E	Glass NM, Amber, 500 mL		
21H0291-08 F	Glass NM, Amber, 500 mL		
21H0291-08 G	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0291-08 H	VOA Vial, Clear, 40 mL, HCL		
21H0291-08 I	VOA Vial, Clear, 40 mL, HCL		
21H0291-08 J	VOA Vial, Clear, 40 mL, HCL		
21H0291-08 K	VOA Vial, Clear, 40 mL, HCL		
21H0291-08 L	VOA Vial, Clear, 40 mL, HCL		
21H0291-08 M	VOA Vial, Clear, 40 mL, HCL		
21H0291-08 N	VOA Vial, Clear, 40 mL, HCL		
21H0291-09 A	HDPE NM, 500 mL	72	Pass

Preservation Confirmed By

08/24/2021
Date

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Shannon & Wilson Project Name: Lower Duwamish

COC No(s): _____ (NA) Delivered by: Fed-Ex UPS Courier Hand-Delivered Other: _____

Assigned ARI Job No: 21H0291 Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1633 2.3 3.3 5.2 ____ ____ ____

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 5206

Cooler Accepted by: DL Date: 08/24/21 Time: 1633

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	(Bubble Wrap) (Wet Ice) Gel Packs (Baggies) Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
How were bottles sealed in plastic bags?	Individually	Grouped	(Not)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	(YES)	NO
Were all VOC vials free of air bubbles?	NA	(YES)	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	NA	08/13/2021	

Were the sample(s) split by ARI? (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JSm Date: 08/24/2021 Time: 1728 Labels checked by: JSm

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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WORK ORDER

21H0291

Client: Shannon & Wilson, Inc	**Project Manager: Shelly Fishel**
Project: Lower Duwamish Q3	**Project Number: 21-1-12596-012**

Preservation Confirmation

Container ID	Container Type	pH	
21H0291-01 A	VOA Vial, Clear, 40 mL, HCL		
21H0291-01 B	VOA Vial, Clear, 40 mL, HCL		
21H0291-01 C	VOA Vial, Clear, 40 mL, HCL		
21H0291-01 D	VOA Vial, Clear, 40 mL, HCL		
21H0291-01 E	VOA Vial, Clear, 40 mL, HCL		
21H0291-02 A	Glass NM, Amber, 500 mL		
21H0291-02 B	Glass NM, Amber, 500 mL		
21H0291-02 C	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0291-02 D	VOA Vial, Clear, 40 mL, HCL		
21H0291-02 E	VOA Vial, Clear, 40 mL, HCL		
21H0291-02 F	VOA Vial, Clear, 40 mL, HCL		
21H0291-02 G	VOA Vial, Clear, 40 mL, HCL		
21H0291-02 H	VOA Vial, Clear, 40 mL, HCL		
21H0291-03 A	HDPE NM, 500 mL	>2	Fail (1)
21H0291-04 A	VOA Vial, Clear, 40 mL, HCL		
21H0291-04 B	VOA Vial, Clear, 40 mL, HCL		
21H0291-04 C	VOA Vial, Clear, 40 mL, HCL		
21H0291-05 A	Glass NM, Amber, 500 mL		
21H0291-05 B	Glass NM, Amber, 500 mL		
21H0291-05 C	Glass NM, Amber, 500 mL		
21H0291-05 D	Glass NM, Amber, 500 mL		
21H0291-05 E	Glass NM, Amber, 250 mL		
21H0291-05 F	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0291-05 G	VOA Vial, Clear, 40 mL, HCL		
21H0291-05 H	VOA Vial, Clear, 40 mL, HCL		
21H0291-05 I	VOA Vial, Clear, 40 mL, HCL		
21H0291-05 J	VOA Vial, Clear, 40 mL, HCL		
21H0291-05 K	VOA Vial, Clear, 40 mL, HCL		
21H0291-06 A	HDPE NM, 500 mL	>2	Fail (1)
21H0291-07 A	Glass NM, Amber, 1000 mL		
21H0291-07 B	Glass NM, Amber, 1000 mL		
21H0291-07 C	Glass NM, Amber, 500 mL		
21H0291-07 D	Glass NM, Amber, 500 mL		
21H0291-07 E	VOA Vial, Clear, 40 mL, HCL		
21H0291-07 F	VOA Vial, Clear, 40 mL, HCL		

Reviewed By

Date

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/24/2021 5:45:13PM

WORK ORDER

21H0291

Client: Shannon & Wilson, Inc	**Project Manager: Shelly Fishel**
Project: Lower Duwamish Q3	**Project Number: 21-1-12596-012**

21H0291-07 G	VOA Vial, Clear, 40 mL, HCL		
21H0291-07 H	VOA Vial, Clear, 40 mL, HCL		
21H0291-07 I	VOA Vial, Clear, 40 mL, HCL		
21H0291-07 J	VOA Vial, Clear, 40 mL, HCL		
21H0291-07 K	VOA Vial, Clear, 40 mL, HCL		
21H0291-08 A	Glass NM, Amber, 1000 mL		
21H0291-08 B	Glass NM, Amber, 1000 mL		
21H0291-08 C	Glass NM, Amber, 500 mL		
21H0291-08 D	Glass NM, Amber, 500 mL		
21H0291-08 E	Glass NM, Amber, 500 mL		
21H0291-08 F	Glass NM, Amber, 500 mL		
21H0291-08 G	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0291-08 H	VOA Vial, Clear, 40 mL, HCL		
21H0291-08 I	VOA Vial, Clear, 40 mL, HCL		
21H0291-08 J	VOA Vial, Clear, 40 mL, HCL		
21H0291-08 K	VOA Vial, Clear, 40 mL, HCL		
21H0291-08 L	VOA Vial, Clear, 40 mL, HCL		
21H0291-08 M	VOA Vial, Clear, 40 mL, HCL		
21H0291-08 N	VOA Vial, Clear, 40 mL, HCL		
21H0291-09 A	HDPE NM, 500 mL	72	Fail (1)

Preservation Confirmed By

08/24/2021
Date

(1) Filtered at 0.45um and preserved to pH <2.0 with 0.75ml conc. HNO_3 (7649).
MI 08/26/21

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

TB-6-20212408

21H0291-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/24/2021 09:11

Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 18:30

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0291-01 C

Preparation Batch: BJI0032 — Sample Size: 10 mL

Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.11	ug/L	J
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*82.4*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*93.4*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*91.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*93.3*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

TB-6-20212408

21H0291-01 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/24/2021 09:11

Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 18:30

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0291-01 C

Preparation Batch: BJI0032 — Sample Size: 10 mL

Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*93.4*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*91.9*	*%*	

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

TB-6-20212408

21H0291-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/24/2021 09:11

Instrument: NT16 Analyst: KOTT — Analyzed: 08/30/2021 13:57

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0291-01 A

Preparation Batch: BJH0756 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*102*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.4*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*93.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-25-20212408

21H0291-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/24/2021 09:11

Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 22:19

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0291-02 F

Preparation Batch: BJI0032 — Sample Size: 10 mL

Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*88.2*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*92.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*92.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*93.4*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-25-20212408

21H0291-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/24/2021 09:11

Instrument: NT16 Analyst: KOTT — Analyzed: 08/30/2021 14:17

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0291-02 D

Preparation Batch: BJH0756 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	5.23	ng/L	J
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*93.6*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-25-20212408

21H0291-02 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/24/2021 09:11
Instrument: NT11 Analyst: VTS — Analyzed: 09/01/2021 19:32

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJH0640; Prepared: 08/26/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21H0291-02 A 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJH0299; Cleaned: 31-Aug-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21H0291-02 A 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.004	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.002	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.002	ug/L	J
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	0.344	ug/L	
Dibenzofuran	132-64-9	1	0.002	0.010	0.002	ug/L	J
Fluorene	86-73-7	1	0.002	0.010	0.007	ug/L	J
Phenanthrene	85-01-8	1	0.001	0.010	0.136	ug/L	
Anthracene	120-12-7	1	0.001	0.010	0.012	ug/L	
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	0.022	ug/L	
Pyrene	129-00-0	1	0.001	0.010	0.013	ug/L	
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	0.001	ug/L	J
Chrysene	218-01-9	1	0.0009	0.010	0.002	ug/L	J
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*79.7*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*77.8*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*94.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-25-20212408

21H0291-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/24/2021 09:11

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 20:13

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0291-02 C 01

Preparation Batch: BJI0141 — Sample Size: 25 mL

Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	20.1	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-25-20212408

21H0291-03 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/24/2021 09:11
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/03/2021 01:42

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0291-03 A 02
Preparation Batch: BJI0016 — Sample Size: 25 mL — Filtration Batch: BJH0667
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	1.94	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-48-20212408

21H0291-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/24/2021 10:03

Instrument: NT3 Analyst: PKC — Analyzed: 09/01/2021 22:45

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0291-04 A

Preparation Batch: BJI0032 — Sample Size: 10 mL

Prepared: 09/01/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.76	ug/L	
Ethylbenzene	100-41-4	1	0.05	0.20	0.05	ug/L	J
m,p-Xylene	179601-23-1	1	0.14	0.40	0.19	ug/L	J
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	0.24	ug/L	J
Surrogate: Toluene-d8				*80-120 %*	*94.5*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*92.1*	*%*	

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-55-20212408

21H0291-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/24/2021 11:06
Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 15:26

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0291-05 I
Preparation Batch: BJI0049 — Sample Size: 10 mL
Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.06	ug/L	J
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*90.6*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*92.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.0*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*94.0*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-55-20212408

21H0291-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/24/2021 11:06

Instrument: NT16 Analyst: KOTT — Analyzed: 08/30/2021 14:37

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0291-05 G

Preparation Batch: BJH0756 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*93.5*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-55-20212408

21H0291-05 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/24/2021 11:06
Instrument: NT11 Analyst: VTS — Analyzed: 09/01/2021 20:01

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJH0640; Prepared: 08/26/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21H0291-05 A 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJH0299; Cleaned: 31-Aug-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21H0291-05 A 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.004	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.002	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.002	ug/L	J
Acenaphthylene	208-96-8	1	0.002	0.010	0.002	ug/L	J
Acenaphthene	83-32-9	1	0.003	0.010	0.208	ug/L	
Dibenzofuran	132-64-9	1	0.002	0.010	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.010	0.004	ug/L	J
Phenanthrene	85-01-8	1	0.001	0.010	0.027	ug/L	
Anthracene	120-12-7	1	0.001	0.010	0.003	ug/L	J
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	0.007	ug/L	J
Pyrene	129-00-0	1	0.001	0.010	0.004	ug/L	J
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	0.009	ug/L	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*69.9*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*62.0*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*82.9*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-55-20212408

21H0291-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/24/2021 11:06
Instrument: FID4 Analyst: TWC — Analyzed: 09/13/2021 18:54

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0291-05 C 01
Preparation Batch: BJH0664 — Sample Size: 495 mL
Prepared: 08/27/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.101	0.136	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.202	0.266	mg/L	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*131*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-55-20212408

21H0291-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/24/2021 11:06

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 16:46

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0291-05 F 01

Preparation Batch: BJI0141 — Sample Size: 25 mL

Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.114	0.500	5.17	ug/L	
Chromium	7440-47-3	1	0.260	0.500	0.407	ug/L	J
Iron	7439-89-6	1	18.2	36.0	15700	ug/L	
Lead	7439-92-1	1	0.0513	0.100	0.0520	ug/L	J
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium	7440-62-2	1	0.0556	0.200	5.14	ug/L	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-55-20212408

21H0291-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/24/2021 11:06

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 16:46

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0291-05 F 01

Preparation Batch: BJI0141 — Sample Size: 25 mL

Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	3.08	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt	7440-48-4	1	0.0178	0.200	0.260	ug/L	
Copper	7440-50-8	1	0.173	0.500	1.67	ug/L	
Nickel	7440-02-0	1	0.0792	0.500	0.493	ug/L	J
Selenium	7782-49-2	1	0.179	0.500	0.206	ug/L	J
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-55-20212408

21H0291-05 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/24/2021 11:06
Instrument: HYDRA Analyst: ML — Analyzed: 09/01/2021 14:44

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0291-05 F
Preparation Batch: BJH0743 — Sample Size: 20 mL
Prepared: 08/30/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-55-20212408

21H0291-05 (Water)

Wet Chemistry

Method: SM 3500-Cr B-09 — Sampled: 08/24/2021 11:06

Instrument: UV1800-2 Analyst: BF — Analyzed: 08/24/2021 18:40

Sample Preparation: Preparation Method: SM 5310 A-00, 0.45um filtration — Extract ID: 21H0291-05 E 01

Preparation Batch: BJH0625 — Sample Size: 40 mL

Prepared: 08/24/2021 — Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexavalent Chromium	1854-02-99	1.25	0.013	0.013	ND	mg/L	U

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-55-20212408

21H0291-05RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/24/2021 11:06

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 20:22

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0291-05RE1 F 01

Preparation Batch: BJI0141 — Sample Size: 25 mL

Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	5	0.710	2.50	387	ug/L	D

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-55-20212408

21H0291-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/24/2021 11:06
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 01:15

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0291-06 A 02
Preparation Batch: BJI0016 — Sample Size: 25 mL — Filtration Batch: BJH0667
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.114	0.500	0.206	ug/L	J
Chromium, Dissolved	7440-47-3	1	0.260	0.500	ND	ug/L	U
Iron, Dissolved	7439-89-6	1	18.2	36.0	81.9	ug/L	
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	5	0.710	2.50	309	ug/L	D
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0556	0.200	0.0750	ug/L	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

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21H0291-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/24/2021 11:06
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 01:15

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0291-06 A 02
Preparation Batch: BJI0016 — Sample Size: 25 mL — Filtration Batch: BJH0667
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.634	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	0.147	ug/L	J
Copper, Dissolved	7440-50-8	1	0.173	0.500	0.194	ug/L	J
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	0.332	ug/L	J
Selenium, Dissolved	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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21H0291-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/24/2021 11:06
Instrument: HYDRA Analyst: ML — Analyzed: 09/07/2021 14:33

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0291-06 A 01
Preparation Batch: BJI0076 — Sample Size: 20 mL — Filtration Batch: BJH0667
Prepared: 09/02/2021 — Final Volume: 20 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-51-20212408

21H0291-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/24/2021 13:20
Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 15:51

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0291-07 H
Preparation Batch: BJI0049 — Sample Size: 10 mL
Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	0.16	ug/L	J
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	0.63	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	0.32	ug/L	
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*92.5*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*94.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*92.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*94.4*	*%*	

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Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-51-20212408

21H0291-07 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/24/2021 13:20

Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 15:51

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0291-07 H

Preparation Batch: BJI0049 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*94.7*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*92.9*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-51-20212408

21H0291-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/24/2021 13:20
Instrument: NT10 Analyst: VTS — Analyzed: 09/19/2021 02:54

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0291-07 B 01
Preparation Batch: BJH0669 — Sample Size: 1000 mL
Prepared: 08/31/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Surrogate: 2-Fluorophenol				*30-160 %*	*52.0*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*32.3*	*%*	
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*97.2*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*78.5*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*86.3*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*83.6*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*88.0*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*73.5*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-51-20212408

21H0291-07 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/24/2021 13:20
Instrument: ECD7 Analyst: JGR — Analyzed: 09/15/2021 23:05

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0291-07 A 01
	Preparation Batch: BJH0666	Sample Size: 1000 mL	
	Prepared: 08/30/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0291-07 A 01
	Cleanup Batch: CJI0111	Initial Volume: 0.5 mL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0291-07 A 01
	Cleanup Batch: CJI0109	Initial Volume: 0.5 uL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0291-07 A 01
	Cleanup Batch: CJI0110	Initial Volume: 0.5 uL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*75.0*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*66.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*73.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*62.1*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-69-20212408

21H0291-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/24/2021 14:51
Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 16:17

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0291-08 L
Preparation Batch: BJI0049 — Sample Size: 10 mL
Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	0.09	ug/L	J
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	1.86	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.16	ug/L	J
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	0.05	ug/L	J
m,p-Xylene	179601-23-1	1	0.14	0.40	0.24	ug/L	J
o-Xylene	95-47-6	1	0.08	0.20	0.10	ug/L	J
Xylenes, total	1330-20-7	1	0.22	0.60	0.34	ug/L	J
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*94.5*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*94.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*90.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*95.9*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-69-20212408

21H0291-08 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/24/2021 14:51

Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 16:17

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0291-08 L

Preparation Batch: BJI0049 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	348	ug/L	
HC ID: GAS						
Surrogate: Toluene-d8			*80-120 %*	*94.0*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*90.8*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-69-20212408

21H0291-08 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/24/2021 14:51

Instrument: NT10 Analyst: VTS — Analyzed: 09/19/2021 03:32

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0291-08 B 01

Preparation Batch: BJH0669 — Sample Size: 1000 mL

Prepared: 08/31/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	5.9	ug/L	
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	1.3	ug/L	
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Surrogate: 2-Fluorophenol				*30-160 %*	*44.6*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*26.0*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*89.5*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*69.6*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*79.0*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*88.5*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*95.3*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*67.1*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-69-20212408

21H0291-08 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/24/2021 14:51
Instrument: FID4 Analyst: TWC — Analyzed: 09/13/2021 19:15

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0291-08 C 01
Preparation Batch: BJH0664 — Sample Size: 500 mL
Prepared: 08/27/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	1.34	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*134*	*%*	

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Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-69-20212408

21H0291-08 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/24/2021 14:51
Instrument: ECD7 Analyst: JGR — Analyzed: 09/15/2021 23:25

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0291-08 A 01
	Preparation Batch: BJH0666	Sample Size: 1000 mL	
	Prepared: 08/30/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0291-08 A 01
	Cleanup Batch: CJI0111	Initial Volume: 0.5 mL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0291-08 A 01
	Cleanup Batch: CJI0109	Initial Volume: 0.5 uL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0291-08 A 01
	Cleanup Batch: CJI0110	Initial Volume: 0.5 uL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*72.0*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*63.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*70.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*69.3*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-69-20212408

21H0291-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/24/2021 14:51

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 17:33

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0291-08 G 01

Preparation Batch: BJI0141 — Sample Size: 25 mL

Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.114	0.500	12.4	ug/L	
Chromium	7440-47-3	1	0.260	0.500	1.41	ug/L	
Iron	7439-89-6	1	18.2	36.0	17400	ug/L	
Lead	7439-92-1	1	0.0513	0.100	0.162	ug/L	
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium	7440-62-2	1	0.0556	0.200	8.54	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-69-20212408

21H0291-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/24/2021 14:51
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 17:33

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0291-08 G 01
Preparation Batch: BJI0141 — Sample Size: 25 mL
Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	0.852	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt	7440-48-4	1	0.0178	0.200	0.222	ug/L	
Copper	7440-50-8	1	0.173	0.500	0.757	ug/L	
Nickel	7440-02-0	1	0.0792	0.500	0.502	ug/L	
Selenium	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-69-20212408

21H0291-08 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/24/2021 14:51
Instrument: HYDRA Analyst: ML — Analyzed: 09/01/2021 14:53

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0291-08 G
Preparation Batch: BJH0743 — Sample Size: 20 mL
Prepared: 08/30/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-69-20212408

21H0291-08RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/24/2021 14:51
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 20:30

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0291-08RE1 G 01
Preparation Batch: BJI0141 — Sample Size: 25 mL
Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	10	1.42	5.00	1300	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-69-20212408

21H0291-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/24/2021 14:51
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 01:19

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0291-09 A 02
Preparation Batch: BJI0016 — Sample Size: 25 mL — Filtration Batch: BJH0667
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.114	0.500	1.92	ug/L	
Chromium, Dissolved	7440-47-3	1	0.260	0.500	0.549	ug/L	
Iron, Dissolved	7439-89-6	1	18.2	36.0	4530	ug/L	
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	10	1.42	5.00	1130	ug/L	D
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0556	0.200	0.675	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-69-20212408

21H0291-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/24/2021 14:51
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 01:19

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0291-09 A 02
Preparation Batch: BJI0016 — Sample Size: 25 mL — Filtration Batch: BJH0667
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.473	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	0.147	ug/L	J
Copper, Dissolved	7440-50-8	1	0.173	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	0.139	ug/L	J
Selenium, Dissolved	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

MW-69-20212408

21H0291-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/24/2021 14:51
Instrument: HYDRA Analyst: ML — Analyzed: 09/07/2021 14:35

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0291-09 A 01
Preparation Batch: BJI0076 — Sample Size: 20 mL — Filtration Batch: BJH0667
Prepared: 09/02/2021 — Final Volume: 20 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Volatile Organic Compounds - Quality Control

Batch BJI0032 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0032-BLK1)				Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 15:40							
Vinyl Chloride	ND	0.08	0.20	ug/L							U
1,1-Dichloroethene	ND	0.08	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.07	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Benzene	ND	0.05	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
Toluene	ND	0.05	0.20	ug/L							U
Tetrachloroethene	ND	0.09	0.20	ug/L							U
Ethylbenzene	ND	0.05	0.20	ug/L							U
m,p-Xylene	ND	0.14	0.40	ug/L							U
o-Xylene	ND	0.08	0.20	ug/L							U
Xylenes, total	ND	0.22	0.60	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.53			ug/L	*5.00*		*90.6*	*80-129*			
Surrogate: Toluene-d8	4.63			ug/L	*5.00*		*92.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.87			ug/L	*5.00*		*97.4*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.62			ug/L	*5.00*		*92.4*	*80-120*			
Blank (BJI0032-BLK2)				Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 15:40							
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							U
Surrogate: Toluene-d8	4.63			ug/L	*5.00*		*92.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.87			ug/L	*5.00*		*97.4*	*80-120*			
LCS (BJI0032-BS1)				Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 13:34							
Vinyl Chloride	9.93	0.08	0.20	ug/L	10.0		99.3	66-133			
1,1-Dichloroethene	10.2	0.08	0.20	ug/L	10.0		102	69-135			
trans-1,2-Dichloroethene	9.32	0.07	0.20	ug/L	10.0		93.2	78-128			
cis-1,2-Dichloroethene	9.65	0.08	0.20	ug/L	10.0		96.5	80-121			
Benzene	9.96	0.05	0.20	ug/L	10.0		99.6	80-120			
Trichloroethene	9.74	0.07	0.20	ug/L	10.0		97.4	80-120			
Toluene	10.0	0.05	0.20	ug/L	10.0		100	80-120			
Tetrachloroethene	10.8	0.09	0.20	ug/L	10.0		108	80-120			
Ethylbenzene	10.6	0.05	0.20	ug/L	10.0		106	80-120			
m,p-Xylene	21.1	0.14	0.40	ug/L	20.0		105	80-121			
o-Xylene	10.4	0.08	0.20	ug/L	10.0		104	80-121			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Volatile Organic Compounds - Quality Control

Batch BJI0032 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0032-BS1)					Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 13:34						
Xylenes, total	31.4	0.22	0.60	ug/L	30.0		105	76-127			
Surrogate: 1,2-Dichloroethane-d4	4.70			ug/L	*5.00*		*94.0*	*80-129*			
Surrogate: Toluene-d8	4.85			ug/L	*5.00*		*97.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.65			ug/L	*5.00*		*93.0*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.84			ug/L	*5.00*		*96.8*	*80-120*			
LCS (BJI0032-BS2)					Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 13:59						
Gasoline Range Organics (Tol-Nap)	1120		100	ug/L	1000		112	72-128			
Surrogate: Toluene-d8	4.60			ug/L	*5.00*		*92.1*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.57			ug/L	*5.00*		*91.4*	*80-120*			
LCS Dup (BJI0032-BSD1)					Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 14:24						
Vinyl Chloride	9.52	0.08	0.20	ug/L	10.0		95.2	66-133	4.21	30	
1,1-Dichloroethene	9.48	0.08	0.20	ug/L	10.0		94.8	69-135	7.14	30	
trans-1,2-Dichloroethene	8.82	0.07	0.20	ug/L	10.0		88.2	78-128	5.53	30	
cis-1,2-Dichloroethene	9.31	0.08	0.20	ug/L	10.0		93.1	80-121	3.64	30	
Benzene	9.52	0.05	0.20	ug/L	10.0		95.2	80-120	4.55	30	
Trichloroethene	9.64	0.07	0.20	ug/L	10.0		96.4	80-120	1.01	30	
Toluene	9.63	0.05	0.20	ug/L	10.0		96.3	80-120	4.15	30	
Tetrachloroethene	10.6	0.09	0.20	ug/L	10.0		106	80-120	2.00	30	
Ethylbenzene	10.5	0.05	0.20	ug/L	10.0		105	80-120	1.48	30	
m,p-Xylene	20.2	0.14	0.40	ug/L	20.0		101	80-121	4.29	30	
o-Xylene	9.99	0.08	0.20	ug/L	10.0		99.9	80-121	3.66	30	
Xylenes, total	30.2	0.22	0.60	ug/L	30.0		101	76-127	4.08	30	
Surrogate: 1,2-Dichloroethane-d4	4.39			ug/L	*5.00*		*87.9*	*80-129*			
Surrogate: Toluene-d8	4.66			ug/L	*5.00*		*93.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.77			ug/L	*5.00*		*95.3*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.75			ug/L	*5.00*		*94.9*	*80-120*			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Volatile Organic Compounds - Quality Control

Batch BJI0049 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0049-BLK1)				Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 13:20							
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							U
Surrogate: Toluene-d8	4.68			ug/L	*5.00*		*93.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.66			ug/L	*5.00*		*93.3*	*80-120*			
Blank (BJI0049-BLK2)				Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 13:20							
Vinyl Chloride	ND	0.08	0.20	ug/L							U
1,1-Dichloroethene	ND	0.08	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.07	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Benzene	ND	0.05	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
Toluene	ND	0.05	0.20	ug/L							U
Tetrachloroethene	ND	0.09	0.20	ug/L							U
Ethylbenzene	ND	0.05	0.20	ug/L							U
m,p-Xylene	ND	0.14	0.40	ug/L							U
o-Xylene	ND	0.08	0.20	ug/L							U
Xylenes, total	ND	0.22	0.60	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.67			ug/L	*5.00*		*93.5*	*80-129*			
Surrogate: Toluene-d8	4.68			ug/L	*5.00*		*93.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.66			ug/L	*5.00*		*93.3*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.79			ug/L	*5.00*		*95.7*	*80-120*			
LCS (BJI0049-BS1)				Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 10:23							
Gasoline Range Organics (Tol-Nap)	1040		100	ug/L	1000		104	72-128			
Surrogate: Toluene-d8	4.75			ug/L	*5.00*		*95.1*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.73			ug/L	*5.00*		*94.6*	*80-120*			
LCS (BJI0049-BS2)				Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 10:49							
Vinyl Chloride	9.73	0.08	0.20	ug/L	10.0		97.3	66-133			
1,1-Dichloroethene	9.36	0.08	0.20	ug/L	10.0		93.6	69-135			
trans-1,2-Dichloroethene	8.70	0.07	0.20	ug/L	10.0		87.0	78-128			
cis-1,2-Dichloroethene	9.26	0.08	0.20	ug/L	10.0		92.6	80-121			
Benzene	9.38	0.05	0.20	ug/L	10.0		93.8	80-120			
Trichloroethene	9.06	0.07	0.20	ug/L	10.0		90.6	80-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Volatile Organic Compounds - Quality Control

Batch BJI0049 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0049-BS2)					Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 10:49						
Toluene	9.25	0.05	0.20	ug/L	10.0		92.5	80-120			
Tetrachloroethene	9.64	0.09	0.20	ug/L	10.0		96.4	80-120			
Ethylbenzene	9.94	0.05	0.20	ug/L	10.0		99.4	80-120			
m,p-Xylene	19.3	0.14	0.40	ug/L	20.0		96.7	80-121			
o-Xylene	9.56	0.08	0.20	ug/L	10.0		95.6	80-121			
Xylenes, total	28.9	0.22	0.60	ug/L	30.0		96.3	76-127			
Surrogate: 1,2-Dichloroethane-d4	4.41			ug/L	*5.00*		*88.3*	*80-129*			
Surrogate: Toluene-d8	4.61			ug/L	*5.00*		*92.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.58			ug/L	*5.00*		*91.6*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.64			ug/L	*5.00*		*92.8*	*80-120*			
LCS Dup (BJI0049-BSD1)					Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 11:14						
Gasoline Range Organics (Tol-Nap)	1070		100	ug/L	1000		107	72-128	2.46	30	
Surrogate: Toluene-d8	4.75			ug/L	*5.00*		*95.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.57			ug/L	*5.00*		*91.4*	*80-120*			
LCS Dup (BJI0049-BSD2)					Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 11:39						
Vinyl Chloride	10.6	0.08	0.20	ug/L	10.0		106	66-133	8.09	30	
1,1-Dichloroethene	9.97	0.08	0.20	ug/L	10.0		99.7	69-135	6.37	30	
trans-1,2-Dichloroethene	9.40	0.07	0.20	ug/L	10.0		94.0	78-128	7.81	30	
cis-1,2-Dichloroethene	9.53	0.08	0.20	ug/L	10.0		95.3	80-121	2.88	30	
Benzene	9.79	0.05	0.20	ug/L	10.0		97.9	80-120	4.33	30	
Trichloroethene	9.97	0.07	0.20	ug/L	10.0		99.7	80-120	9.53	30	
Toluene	9.82	0.05	0.20	ug/L	10.0		98.2	80-120	5.89	30	
Tetrachloroethene	10.8	0.09	0.20	ug/L	10.0		108	80-120	11.60	30	
Ethylbenzene	10.8	0.05	0.20	ug/L	10.0		108	80-120	8.49	30	
m,p-Xylene	20.9	0.14	0.40	ug/L	20.0		104	80-121	7.76	30	
o-Xylene	10.2	0.08	0.20	ug/L	10.0		102	80-121	5.97	30	
Xylenes, total	31.0	0.22	0.60	ug/L	30.0		103	76-127	7.17	30	
Surrogate: 1,2-Dichloroethane-d4	4.27			ug/L	*5.00*		*85.5*	*80-129*			
Surrogate: Toluene-d8	4.72			ug/L	*5.00*		*94.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.88			ug/L	*5.00*		*97.6*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.55			ug/L	*5.00*		*91.0*	*80-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Volatile Organic Compounds - SIM - Quality Control

Batch BJH0756 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: KOTT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0756-BLK1)				Prepared: 30-Aug-2021 Analyzed: 30-Aug-2021 12:02							
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	5070			ng/L	*5000*		*101*	*80-129*			
Surrogate: Toluene-d8	5020			ng/L	*5000*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4710			ng/L	*5000*		*94.3*	*75-125*			
LCS (BJH0756-BS1)				Prepared: 30-Aug-2021 Analyzed: 30-Aug-2021 11:21							
Vinyl chloride	1730	5.01	20.0	ng/L	2000		86.7	62-141			
Surrogate: 1,2-Dichloroethane-d4	5080			ng/L	*5000*		*102*	*80-129*			
Surrogate: Toluene-d8	4680			ng/L	*5000*		*93.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5670			ng/L	*5000*		*113*	*75-125*			
LCS Dup (BJH0756-BSD1)				Prepared: 30-Aug-2021 Analyzed: 30-Aug-2021 11:42							
Vinyl chloride	1670	5.01	20.0	ng/L	2000		83.3	62-141	4.08	30	
Surrogate: 1,2-Dichloroethane-d4	5160			ng/L	*5000*		*103*	*80-129*			
Surrogate: Toluene-d8	4750			ng/L	*5000*		*95.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5520			ng/L	*5000*		*110*	*75-125*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Semivolatile Organic Compounds - Quality Control

Batch BJH0669 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0669-BLK1)				Prepared: 31-Aug-2021 Analyzed: 19-Sep-2021 01:01							
1,4-Dichlorobenzene	ND	0.03	0.2	ug/L							U
1,2-Dichlorobenzene	ND	0.03	0.2	ug/L							U
2,4-Dimethylphenol	ND	0.3	1.0	ug/L							U
Benzoic acid	ND	0.1	2.0	ug/L							U
N-Nitrosodiphenylamine	ND	0.03	0.2	ug/L							U
Pentachlorophenol	ND	0.1	1.0	ug/L							U
Di-n-Butylphthalate	ND	0.05	0.2	ug/L							U
Butylbenzylphthalate	ND	0.07	0.2	ug/L							U
bis(2-Ethylhexyl)phthalate	ND	0.2	0.2	ug/L							U
Surrogate: 2-Fluorophenol	3.14			ug/L	*7.50*		*41.9*	*30-160*			
Surrogate: Phenol-d5	1.85			ug/L	*7.50*		*24.7*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	5.97			ug/L	*7.50*		*79.6*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.16			ug/L	*5.00*		*63.1*	*30-160*			
Surrogate: Nitrobenzene-d5	3.61			ug/L	*5.00*		*72.2*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.43			ug/L	*5.00*		*68.6*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	4.68			ug/L	*7.50*		*62.4*	*30-160*			
Surrogate: p-Terphenyl-d14	2.93			ug/L	*5.00*		*58.6*	*30-160*			
LCS (BJH0669-BS1)				Prepared: 31-Aug-2021 Analyzed: 19-Sep-2021 01:39							
1,4-Dichlorobenzene	3.5	0.03	0.2	ug/L	5.00		70.5	30-160			
1,2-Dichlorobenzene	3.3	0.03	0.2	ug/L	5.00		65.9	30-160			
2,4-Dimethylphenol	7.3	0.3	1.0	ug/L	13.0		56.1	30-160			
Benzoic acid	6.0	0.1	2.0	ug/L	23.0		25.9	30-160			*
N-Nitrosodiphenylamine	4.0	0.03	0.2	ug/L	5.00		79.5	30-160			
Pentachlorophenol	8.1	0.1	1.0	ug/L	13.0		62.4	30-160			
Di-n-Butylphthalate	4.7	0.05	0.2	ug/L	5.00		93.3	30-160			
Butylbenzylphthalate	4.0	0.07	0.2	ug/L	5.00		80.8	30-160			
bis(2-Ethylhexyl)phthalate	3.6	0.2	0.2	ug/L	5.00		71.7	30-160			
Surrogate: 2-Fluorophenol	3.62			ug/L	*7.50*		*48.3*	*30-160*			
Surrogate: Phenol-d5	2.35			ug/L	*7.50*		*31.3*	*30-160*			
Surrogate: 2-Chlorophenol-d4	6.03			ug/L	*7.50*		*80.3*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.51			ug/L	*5.00*		*70.1*	*30-160*			
Surrogate: Nitrobenzene-d5	4.27			ug/L	*5.00*		*85.4*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.97			ug/L	*5.00*		*79.4*	*30-160*			

Draft for Public Comment

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Semivolatile Organic Compounds - Quality Control

Batch BJH0669 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0669-BS1)					Prepared: 31-Aug-2021 Analyzed: 19-Sep-2021 01:39						
Surrogate: 2,4,6-Tribromophenol	5.89			ug/L	*7.50*		*78.5*	*30-160*			
Surrogate: p-Terphenyl-d14	3.69			ug/L	*5.00*		*73.7*	*30-160*			
LCS Dup (BJH0669-BSD1)					Prepared: 31-Aug-2021 Analyzed: 19-Sep-2021 02:16						
1,4-Dichlorobenzene	3.6	0.03	0.2	ug/L	5.00		72.4	30-160	2.73	30	
1,2-Dichlorobenzene	3.3	0.03	0.2	ug/L	5.00		65.7	30-160	0.39	30	
2,4-Dimethylphenol	8.1	0.3	1.0	ug/L	13.0		62.2	30-160	10.30	30	
Benzoic acid	5.8	0.1	2.0	ug/L	23.0		25.1	30-160	3.05	30	*
N-Nitrosodiphenylamine	4.0	0.03	0.2	ug/L	5.00		80.3	30-160	1.08	30	
Pentachlorophenol	8.9	0.1	1.0	ug/L	13.0		68.2	30-160	8.91	30	
Di-n-Butylphthalate	4.6	0.05	0.2	ug/L	5.00		92.7	30-160	0.65	30	
Butylbenzylphthalate	4.0	0.07	0.2	ug/L	5.00		79.2	30-160	1.94	30	
bis(2-Ethylhexyl)phthalate	3.4	0.2	0.2	ug/L	5.00		68.1	30-160	5.09	30	
Surrogate: 2-Fluorophenol	2.98			ug/L	*7.50*		*39.7*	*30-160*			
Surrogate: Phenol-d5	1.93			ug/L	*7.50*		*25.7*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	6.40			ug/L	*7.50*		*85.3*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.38			ug/L	*5.00*		*67.5*	*30-160*			
Surrogate: Nitrobenzene-d5	4.03			ug/L	*5.00*		*80.6*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.81			ug/L	*5.00*		*76.3*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	5.97			ug/L	*7.50*		*79.6*	*30-160*			
Surrogate: p-Terphenyl-d14	3.69			ug/L	*5.00*		*73.8*	*30-160*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0640 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0640-BLK1)				Prepared: 26-Aug-2021 Analyzed: 01-Sep-2021 16:01							
Naphthalene	ND	0.001	0.010	ug/L							U
2-Methylnaphthalene	ND	0.001	0.010	ug/L							U
1-Methylnaphthalene	ND	0.0009	0.010	ug/L							U
Acenaphthylene	ND	0.002	0.010	ug/L							U
Acenaphthene	ND	0.003	0.010	ug/L							U
Dibenzofuran	ND	0.002	0.010	ug/L							U
Fluorene	ND	0.002	0.010	ug/L							U
Phenanthrene	ND	0.001	0.010	ug/L							U
Anthracene	ND	0.001	0.010	ug/L							U
Carbazole	ND	0.001	0.010	ug/L							U
Fluoranthene	ND	0.002	0.010	ug/L							U
Pyrene	ND	0.001	0.010	ug/L							U
Benzo(a)anthracene	ND	0.0008	0.010	ug/L							U
Chrysene	ND	0.0009	0.010	ug/L							U
Benzo(b)fluoranthene	ND	0.0005	0.010	ug/L							U
Benzo(k)fluoranthene	ND	0.003	0.010	ug/L							U
Benzo(j)fluoranthene	ND	0.002	0.010	ug/L							U
Benzofluoranthenes, Total	ND	0.004	0.010	ug/L							U
Benzo(a)pyrene	ND	0.002	0.010	ug/L							U
Perylene	ND	0.006	0.010	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.001	0.010	ug/L							U
Dibenzo(a,h)anthracene	ND	0.001	0.010	ug/L							U
Benzo(g,h,i)perylene	ND	0.001	0.010	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	0.231			ug/L	*0.300*		*77.1*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.201			ug/L	*0.300*		*67.0*	*29-120*			
Surrogate: Fluoranthene-d10	0.254			ug/L	*0.300*		*84.7*	*57-120*			
LCS (BJH0640-BS1)				Prepared: 26-Aug-2021 Analyzed: 01-Sep-2021 16:31							
Naphthalene	0.243	0.001	0.010	ug/L	0.300		80.9	37-120			
2-Methylnaphthalene	0.250	0.001	0.010	ug/L	0.300		83.3	37-120			
1-Methylnaphthalene	0.250	0.0009	0.010	ug/L	0.300		83.4	29-120			
Acenaphthylene	0.239	0.002	0.010	ug/L	0.300		79.6	41-120			
Acenaphthene	0.234	0.003	0.010	ug/L	0.300		78.0	41-120			
Dibenzofuran	0.239	0.002	0.010	ug/L	0.300		79.7	38-120			
Fluorene	0.257	0.002	0.010	ug/L	0.300		85.5	43-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0640 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0640-BS1)					Prepared: 26-Aug-2021 Analyzed: 01-Sep-2021 16:31						
Phenanthrene	0.259	0.001	0.010	ug/L	0.300		86.5	41-120			
Anthracene	0.228	0.001	0.010	ug/L	0.300		75.9	40-120			
Carbazole	0.264	0.001	0.010	ug/L	0.300		88.0	30-160			
Fluoranthene	0.264	0.002	0.010	ug/L	0.300		87.8	45-120			
Pyrene	0.264	0.001	0.010	ug/L	0.300		88.2	41-120			
Benzo(a)anthracene	0.255	0.0008	0.010	ug/L	0.300		84.8	42-120			
Chrysene	0.250	0.0009	0.010	ug/L	0.300		83.3	44-120			
Benzo(b)fluoranthene	0.253	0.0005	0.010	ug/L	0.300		84.3	44-120			
Benzo(k)fluoranthene	0.263	0.003	0.010	ug/L	0.300		87.7	50-120			
Benzo(j)fluoranthene	0.270	0.002	0.010	ug/L	0.300		90.0	39-160			
Benzofluoranthenes, Total	0.786	0.004	0.010	ug/L	0.900		87.3	46-120			
Benzo(a)pyrene	0.242	0.002	0.010	ug/L	0.300		80.6	35-120			
Perylene	0.241	0.006	0.010	ug/L	0.300		80.5	30-160			
Indeno(1,2,3-cd)pyrene	0.242	0.001	0.010	ug/L	0.300		80.5	37-120			
Dibenzo(a,h)anthracene	0.241	0.001	0.010	ug/L	0.300		80.2	34-120			
Benzo(g,h,i)perylene	0.234	0.001	0.010	ug/L	0.300		77.9	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.256			ug/L	*0.300*		*85.4*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.245			ug/L	*0.300*		*81.6*	*29-120*			
Surrogate: Fluoranthene-d10	0.277			ug/L	*0.300*		*92.3*	*57-120*			
LCS Dup (BJH0640-BSD1)					Prepared: 26-Aug-2021 Analyzed: 01-Sep-2021 17:01						
Naphthalene	0.241	0.001	0.010	ug/L	0.300		80.2	37-120	0.91	30	
2-Methylnaphthalene	0.248	0.001	0.010	ug/L	0.300		82.7	37-120	0.73	30	
1-Methylnaphthalene	0.247	0.0009	0.010	ug/L	0.300		82.5	29-120	1.09	30	
Acenaphthylene	0.242	0.002	0.010	ug/L	0.300		80.6	41-120	1.27	30	
Acenaphthene	0.237	0.003	0.010	ug/L	0.300		78.8	41-120	1.10	30	
Dibenzofuran	0.244	0.002	0.010	ug/L	0.300		81.3	38-120	1.98	30	
Fluorene	0.263	0.002	0.010	ug/L	0.300		87.5	43-120	2.33	30	
Phenanthrene	0.264	0.001	0.010	ug/L	0.300		88.0	41-120	1.73	30	
Anthracene	0.246	0.001	0.010	ug/L	0.300		82.1	40-120	7.80	30	
Carbazole	0.272	0.001	0.010	ug/L	0.300		90.7	30-160	2.97	30	
Fluoranthene	0.272	0.002	0.010	ug/L	0.300		90.8	45-120	3.28	30	
Pyrene	0.273	0.001	0.010	ug/L	0.300		91.0	41-120	3.11	30	
Benzo(a)anthracene	0.266	0.0008	0.010	ug/L	0.300		88.8	42-120	4.53	30	
Chrysene	0.253	0.0009	0.010	ug/L	0.300		84.3	44-120	1.25	30	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0640 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJH0640-BSD1)					Prepared: 26-Aug-2021 Analyzed: 01-Sep-2021 17:01						
Benzo(b)fluoranthene	0.225	0.0005	0.010	ug/L	0.300		75.0	44-120	11.70	30	
Benzo(k)fluoranthene	0.301	0.003	0.010	ug/L	0.300		100	50-120	13.60	30	
Benzo(j)fluoranthene	0.274	0.002	0.010	ug/L	0.300		91.4	39-160	1.56	30	
Benzofluoranthenes, Total	0.801	0.004	0.010	ug/L	0.900		88.9	46-120	1.85	30	
Benzo(a)pyrene	0.251	0.002	0.010	ug/L	0.300		83.5	35-120	3.54	30	
Perylene	0.248	0.006	0.010	ug/L	0.300		82.6	30-160	2.60	30	
Indeno(1,2,3-cd)pyrene	0.248	0.001	0.010	ug/L	0.300		82.7	37-120	2.58	30	
Dibenzo(a,h)anthracene	0.248	0.001	0.010	ug/L	0.300		82.7	34-120	3.07	30	
Benzo(g,h,i)perylene	0.238	0.001	0.010	ug/L	0.300		79.4	38-120	1.91	30	
Surrogate: 2-Methylnaphthalene-d10	0.252			ug/L	*0.300*		*84.2*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.250			ug/L	*0.300*		*83.5*	*29-120*			
Surrogate: Fluoranthene-d10	0.282			ug/L	*0.300*		*94.0*	*57-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Petroleum Hydrocarbons - Quality Control

Batch BJH0664 - EPA 3510C SepF

Instrument: FID4 Analyst: TWC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0664-BLK1)				Prepared: 27-Aug-2021	Analyzed: 13-Sep-2021 17:34					
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: o-Terphenyl	0.256		mg/L	*0.225*		*114*	*50-150*			
LCS (BJH0664-BS1)				Prepared: 27-Aug-2021	Analyzed: 13-Sep-2021 17:54					
Diesel Range Organics (C12-C24)	2.88	0.100	mg/L	3.00		95.9	56-120			
Surrogate: o-Terphenyl	0.243		mg/L	*0.225*		*108*	*50-150*			
LCS Dup (BJH0664-BSD1)				Prepared: 27-Aug-2021	Analyzed: 13-Sep-2021 18:14					
Diesel Range Organics (C12-C24)	3.57	0.100	mg/L	3.00		119	56-120	21.60	30	
Surrogate: o-Terphenyl	0.283		mg/L	*0.225*		*126*	*50-150*			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Aroclor PCB - Quality Control

Batch BJH0666 - EPA 3510C SepF

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0666-BLK1)				Prepared: 30-Aug-2021 Analyzed: 15-Sep-2021 20:41							
Aroclor 1016	ND	0.002	0.010	ug/L							U
Aroclor 1221	ND	0.002	0.010	ug/L							U
Aroclor 1232	ND	0.002	0.010	ug/L							U
Aroclor 1242	ND	0.002	0.010	ug/L							U
Aroclor 1248	ND	0.002	0.010	ug/L							U
Aroclor 1254	ND	0.002	0.010	ug/L							U
Aroclor 1260	ND	0.003	0.010	ug/L							U
Aroclor 1262	ND	0.003	0.010	ug/L							U
Aroclor 1268	ND	0.003	0.010	ug/L							U
Surrogate: Decachlorobiphenyl	0.0165			ug/L	*0.0200*		*82.6*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0142			ug/L	*0.0200*		*71.2*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0162			ug/L	*0.0200*		*80.9*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0129			ug/L	*0.0200*		*64.7*	*32-120*			
LCS (BJH0666-BS1)				Prepared: 30-Aug-2021 Analyzed: 15-Sep-2021 21:02							
Aroclor 1016 [2C]	0.038	0.002	0.010	ug/L	0.0500		75.9	54-120			
Aroclor 1260 [2C]	0.038	0.003	0.010	ug/L	0.0500		75.6	51-128			
Surrogate: Decachlorobiphenyl	0.0155			ug/L	*0.0200*		*77.4*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0132			ug/L	*0.0200*		*65.8*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0148			ug/L	*0.0200*		*74.0*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0124			ug/L	*0.0200*		*62.2*	*32-120*			
LCS Dup (BJH0666-BSD1)				Prepared: 30-Aug-2021 Analyzed: 15-Sep-2021 21:22							
Aroclor 1016 [2C]	0.039	0.002	0.010	ug/L	0.0500		78.6	54-120	3.43	30	
Aroclor 1260	0.039	0.003	0.010	ug/L	0.0500		78.3	51-128	7.06	30	
Surrogate: Decachlorobiphenyl	0.0150			ug/L	*0.0200*		*75.2*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0138			ug/L	*0.0200*		*69.1*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0146			ug/L	*0.0200*		*72.9*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0130			ug/L	*0.0200*		*65.1*	*32-120*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Metals and Metallic Compounds - Quality Control

Batch BJH0743 - TWM EPA 7470A

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0743-BLK1)				Prepared: 30-Aug-2021 Analyzed: 01-Sep-2021 14:39							
Mercury	ND	0.000013	0.000100	mg/L							U
LCS (BJH0743-BS1)				Prepared: 30-Aug-2021 Analyzed: 01-Sep-2021 14:42							
Mercury	0.00189	0.000013	0.000100	mg/L	0.00200		94.6	80-120			
Duplicate (BJH0743-DUP1)		**Source: 21H0291-05**		Prepared: 30-Aug-2021 Analyzed: 01-Sep-2021 14:46							
Mercury	ND	0.000013	0.000100	mg/L		ND					U
Matrix Spike (BJH0743-MS1)		**Source: 21H0291-05**		Prepared: 30-Aug-2021 Analyzed: 01-Sep-2021 14:49							
Mercury	0.000854	0.000013	0.000100	mg/L	0.00100	ND	85.4	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJH0743-MSD1)		**Source: 21H0291-05**		Prepared: 30-Aug-2021 Analyzed: 01-Sep-2021 14:51							
Mercury	0.000915	0.000013	0.000100	mg/L	0.00100	ND	91.4	75-125	6.82	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Metals and Metallic Compounds - Quality Control

Batch BJI0141 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0141-BLK1)					Prepared: 06-Sep-2021 Analyzed: 07-Sep-2021 16:02							
Barium	135	ND	0.114	0.500	ug/L							U
Barium	137	ND	0.0765	0.500	ug/L							U
Chromium	52	ND	0.260	0.500	ug/L							U
Chromium	53	ND	0.239	0.500	ug/L							U
Iron	54	ND	18.2	36.0	ug/L							U
Iron	57	ND	6.63	36.0	ug/L							U
Lead	208	ND	0.0513	0.100	ug/L							U
Manganese	55	ND	0.142	0.500	ug/L							U
Silver	107	ND	0.0220	0.200	ug/L							U
Vanadium	51a	ND	0.0556	0.200	ug/L							U
Vanadium	51b	ND	0.0521	0.200	ug/L							U
Arsenic	75a	ND	0.0373	0.200	ug/L							U
Cadmium	111	ND	0.0300	0.100	ug/L							U
Cadmium	114	ND	0.0400	0.100	ug/L							U
Cobalt	59	ND	0.0178	0.200	ug/L							U
Copper	63	ND	0.173	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	ND	0.0792	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Selenium	78	ND	0.179	0.500	ug/L							U
Zinc	66	ND	2.92	6.00	ug/L							U
Zinc	67	ND	0.940	6.00	ug/L							U
LCS (BJI0141-BS1)					Prepared: 06-Sep-2021 Analyzed: 07-Sep-2021 16:06							
Barium	135	24.5	0.114	0.500	ug/L	25.0		98.0	80-120			
Barium	137	24.5	0.0765	0.500	ug/L	25.0		98.1	80-120			
Chromium	52	23.7	0.260	0.500	ug/L	25.0		94.9	80-120			
Chromium	53	25.1	0.239	0.500	ug/L	25.0		100	80-120			
Iron	54	5050	18.2	36.0	ug/L	5000		101	80-120			
Iron	57	5040	6.63	36.0	ug/L	5000		101	80-120			
Lead	208	25.5	0.0513	0.100	ug/L	25.0		102	80-120			
Manganese	55	24.0	0.142	0.500	ug/L	25.0		96.0	80-120			
Silver	107	24.2	0.0220	0.200	ug/L	25.0		96.8	80-120			
Vanadium	51a	23.1	0.0556	0.200	ug/L	25.0		92.6	80-120			
Vanadium	51b	23.5	0.0521	0.200	ug/L	25.0		94.2	80-120			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Metals and Metallic Compounds - Quality Control

Batch BJI0141 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0141-BS1)					Prepared: 06-Sep-2021 Analyzed: 07-Sep-2021 16:06							
Arsenic	75a	24.6	0.0373	0.200	ug/L	25.0		98.5	80-120			
Cadmium	111	24.5	0.0300	0.100	ug/L	25.0		98.1	80-120			
Cadmium	114	24.7	0.0400	0.100	ug/L	25.0		98.7	80-120			
Cobalt	59	25.1	0.0178	0.200	ug/L	25.0		100	80-120			
Copper	63	25.0	0.173	0.500	ug/L	25.0		100	80-120			
Copper	65	25.1	0.350	0.500	ug/L	25.0		100	80-120			
Nickel	60	25.0	0.0792	0.500	ug/L	25.0		99.9	80-120			
Nickel	62	25.1	0.220	0.500	ug/L	25.0		100	80-120			
Selenium	78	76.6	0.179	0.500	ug/L	80.0		95.7	80-120			
Zinc	66	76.6	2.92	6.00	ug/L	80.0		95.7	80-120			
Zinc	67	76.5	0.940	6.00	ug/L	80.0		95.7	80-120			
Duplicate (BJI0141-DUP1)			**Source: 21H0291-08**		Prepared: 06-Sep-2021 Analyzed: 07-Sep-2021 17:40							
Barium	135	12.8	0.114	0.500	ug/L		12.4			3.68	20	
Chromium	52	1.47	0.260	0.500	ug/L		1.41			4.17	20	
Iron	54	18000	18.2	36.0	ug/L		17400			3.51	20	
Lead	208	0.168	0.0513	0.100	ug/L		0.162			3.64	20	
Silver	107	ND	0.0220	0.200	ug/L		ND					U
Vanadium	51a	8.86	0.0556	0.200	ug/L		8.54			3.67	20	
Arsenic	75a	0.909	0.0373	0.200	ug/L		0.852			6.47	20	
Cadmium	111	ND	0.0300	0.100	ug/L		ND					U
Cobalt	59	0.227	0.0178	0.200	ug/L		0.222			2.23	20	
Copper	63	0.642	0.173	0.500	ug/L		0.757			16.40	20	
Nickel	60	0.339	0.0792	0.500	ug/L		0.502			38.80	20	L, J
Selenium	78	0.212	0.179	0.500	ug/L		ND					J
Zinc	66	ND	2.92	6.00	ug/L		ND					U
Duplicate (BJI0141-DUP2)			**Source: 21H0291-08RE1**		Prepared: 06-Sep-2021 Analyzed: 07-Sep-2021 20:34							
Manganese	55	1360	1.42	5.00	ug/L		1300			4.83	20	D
Matrix Spike (BJI0141-MS1)			**Source: 21H0291-08**		Prepared: 06-Sep-2021 Analyzed: 07-Sep-2021 17:45							
Barium	135	37.7	0.114	0.500	ug/L	25.0	12.4	101	75-125			
Chromium	52	21.2	0.260	0.500	ug/L	25.0	1.41	79.3	75-125			
Iron	54	21800	18.2	36.0	ug/L	5000	17400	87.7	75-125			
Lead	208	24.8	0.0513	0.100	ug/L	25.0	0.162	98.4	75-125			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Metals and Metallic Compounds - Quality Control

Batch BJI0141 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJI0141-MS1)			**Source: 21H0291-08**			Prepared: 06-Sep-2021	Analyzed: 07-Sep-2021 17:45					
Silver	107	22.7	0.0220	0.200	ug/L	25.0	ND	90.7	75-125			
Vanadium	51a	28.5	0.0556	0.200	ug/L	25.0	8.54	80.0	75-125			
Arsenic	75a	25.6	0.0373	0.200	ug/L	25.0	0.852	99.0	75-125			
Cadmium	111	23.6	0.0300	0.100	ug/L	25.0	ND	94.3	75-125			
Cobalt	59	25.3	0.0178	0.200	ug/L	25.0	0.222	100	75-125			
Copper	63	24.7	0.173	0.500	ug/L	25.0	0.757	95.8	75-125			
Nickel	60	24.7	0.0792	0.500	ug/L	25.0	0.502	96.9	75-125			
Selenium	78	72.5	0.179	0.500	ug/L	80.0	ND	90.6	75-125			
Zinc	66	70.3	2.92	6.00	ug/L	80.0	ND	87.9	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike (BJI0141-MS2)			**Source: 21H0291-08RE1**			Prepared: 06-Sep-2021	Analyzed: 07-Sep-2021 20:38					
Manganese	55	1330	1.42	5.00	ug/L	25.0	1300	131	75-125			HC, D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJI0141-MSD1)			**Source: 21H0291-08**			Prepared: 06-Sep-2021	Analyzed: 07-Sep-2021 17:51					
Barium	135	37.2	0.114	0.500	ug/L	25.0	12.4	99.3	75-125	1.38	20	
Chromium	52	21.1	0.260	0.500	ug/L	25.0	1.41	78.6	75-125	0.89	20	
Iron	54	21300	18.2	36.0	ug/L	5000	17400	78.6	75-125	2.10	20	
Lead	208	24.6	0.0513	0.100	ug/L	25.0	0.162	97.8	75-125	0.63	20	
Silver	107	22.3	0.0220	0.200	ug/L	25.0	ND	89.1	75-125	1.69	20	
Vanadium	51a	28.2	0.0556	0.200	ug/L	25.0	8.54	78.6	75-125	1.29	20	
Arsenic	75a	25.1	0.0373	0.200	ug/L	25.0	0.852	97.1	75-125	1.91	20	
Cadmium	111	22.9	0.0300	0.100	ug/L	25.0	ND	91.6	75-125	2.93	20	
Cobalt	59	25.4	0.0178	0.200	ug/L	25.0	0.222	101	75-125	0.29	20	
Copper	63	24.4	0.173	0.500	ug/L	25.0	0.757	94.7	75-125	1.08	20	
Nickel	60	24.9	0.0792	0.500	ug/L	25.0	0.502	97.7	75-125	0.76	20	
Selenium	78	72.3	0.179	0.500	ug/L	80.0	ND	90.3	75-125	0.29	20	
Zinc	66	70.7	2.92	6.00	ug/L	80.0	ND	88.3	75-125	0.52	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJI0141-MSD2)			**Source: 21H0291-08RE1**			Prepared: 06-Sep-2021	Analyzed: 07-Sep-2021 20:42					
Manganese	55	1290	1.42	5.00	ug/L	25.0	1300	-13.8	75-125	2.76	20	HC, D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0016 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0016-BLK1)					Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 21:48							
Barium, Dissolved	135	ND	0.114	0.500	ug/L							U
Barium, Dissolved	137	ND	0.0765	0.500	ug/L							U
Chromium, Dissolved	52	ND	0.260	0.500	ug/L							U
Chromium, Dissolved	53	ND	0.239	0.500	ug/L							U
Lead, Dissolved	208	ND	0.0513	0.100	ug/L							U
Manganese, Dissolved	55	ND	0.142	0.500	ug/L							U
Silver, Dissolved	107	ND	0.0220	0.200	ug/L							U
Vanadium, Dissolved	51a	ND	0.0556	0.200	ug/L							U
Vanadium, Dissolved	51b	ND	0.0521	0.200	ug/L							U
Arsenic, Dissolved	75a	ND	0.0373	0.200	ug/L							U
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L							U
Cadmium, Dissolved	114	ND	0.0400	0.100	ug/L							U
Cobalt, Dissolved	59	ND	0.0178	0.200	ug/L							U
Copper, Dissolved	63	ND	0.173	0.500	ug/L							U
Copper, Dissolved	65	ND	0.350	0.500	ug/L							U
Nickel, Dissolved	60	ND	0.0792	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
Selenium, Dissolved	78	ND	0.179	0.500	ug/L							U
Zinc, Dissolved	66	ND	2.92	6.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	6.00	ug/L							U
Blank (BJI0016-BLK2)					Prepared: 01-Sep-2021 Analyzed: 02-Sep-2021 17:37							
Iron, Dissolved	54	ND	18.2	36.0	ug/L							U
Iron, Dissolved	57	ND	6.63	20.0	ug/L							U
LCS (BJI0016-BS1)					Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 21:53							
Barium, Dissolved	135	24.7	0.114	0.500	ug/L	25.0		99.0	80-120			
Barium, Dissolved	137	24.7	0.0765	0.500	ug/L	25.0		98.7	80-120			
Chromium, Dissolved	52	24.9	0.260	0.500	ug/L	25.0		99.8	80-120			
Chromium, Dissolved	53	24.6	0.239	0.500	ug/L	25.0		98.3	80-120			
Lead, Dissolved	208	24.5	0.0513	0.100	ug/L	25.0		98.1	80-120			
Manganese, Dissolved	55	24.9	0.142	0.500	ug/L	25.0		99.6	80-120			
Silver, Dissolved	107	25.0	0.0220	0.200	ug/L	25.0		100	80-120			
Vanadium, Dissolved	51a	24.5	0.0556	0.200	ug/L	25.0		98.1	80-120			
Vanadium, Dissolved	51b	24.4	0.0521	0.200	ug/L	25.0		97.7	80-120			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0016 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0016-BS1)						Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 21:53						
Arsenic, Dissolved	75a	23.7	0.0373	0.200	ug/L	25.0		94.9	80-120			
Cadmium, Dissolved	111	24.1	0.0300	0.100	ug/L	25.0		96.3	80-120			
Cadmium, Dissolved	114	23.6	0.0400	0.100	ug/L	25.0		94.2	80-120			
Cobalt, Dissolved	59	23.9	0.0178	0.200	ug/L	25.0		95.5	80-120			
Copper, Dissolved	63	23.8	0.173	0.500	ug/L	25.0		95.1	80-120			
Copper, Dissolved	65	23.7	0.350	0.500	ug/L	25.0		94.8	80-120			
Nickel, Dissolved	60	23.7	0.0792	0.500	ug/L	25.0		94.9	80-120			
Nickel, Dissolved	62	23.3	0.220	0.500	ug/L	25.0		93.4	80-120			
Selenium, Dissolved	78	73.2	0.179	0.500	ug/L	80.0		91.5	80-120			
Zinc, Dissolved	66	74.1	2.92	6.00	ug/L	80.0		92.6	80-120			
Zinc, Dissolved	67	71.2	0.940	6.00	ug/L	80.0		89.0	80-120			
LCS (BJI0016-BS2)						Prepared: 01-Sep-2021 Analyzed: 02-Sep-2021 17:41						
Iron, Dissolved	54	4820	18.2	36.0	ug/L	5000		96.4	80-120			
Iron, Dissolved	57	4820	6.63	20.0	ug/L	5000		96.4	80-120			
Duplicate (BJI0016-DUP1)			**Source: 21H0291-09**			Prepared: 01-Sep-2021 Analyzed: 02-Sep-2021 01:24						
Barium, Dissolved	135	2.03	0.114	0.500	ug/L		1.92			5.27	20	
Chromium, Dissolved	52	0.559	0.260	0.500	ug/L		0.549			1.81	20	
Iron, Dissolved	54	4640	18.2	36.0	ug/L		4530			2.39	20	
Lead, Dissolved	208	ND	0.0513	0.100	ug/L		ND					U
Silver, Dissolved	107	ND	0.0220	0.200	ug/L		ND					U
Vanadium, Dissolved	51a	0.711	0.0556	0.200	ug/L		0.675			5.19	20	
Arsenic, Dissolved	75a	0.469	0.0373	0.200	ug/L		0.473			0.85	20	
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L		ND					U
Cobalt, Dissolved	59	0.148	0.0178	0.200	ug/L		0.147			0.68	20	J
Copper, Dissolved	63	ND	0.173	0.500	ug/L		ND					U
Nickel, Dissolved	60	0.152	0.0792	0.500	ug/L		0.139			8.93	20	J
Selenium, Dissolved	78	ND	0.179	0.500	ug/L		ND					U
Zinc, Dissolved	66	ND	2.92	6.00	ug/L		ND					U
Duplicate (BJI0016-DUP2)			**Source: 21H0291-09**			Prepared: 01-Sep-2021 Analyzed: 03-Sep-2021 19:31						
Manganese, Dissolved	55	1180	1.42	5.00	ug/L		1130			4.15	20	D
Matrix Spike (BJI0016-MS1)			**Source: 21H0291-09**			Prepared: 01-Sep-2021 Analyzed: 02-Sep-2021 01:29						
Barium, Dissolved	135	27.2	0.114	0.500	ug/L	25.0	1.92	101	75-125			

Draft for Public Comment

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0016 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJI0016-MS1)			**Source: 21H0291-09**		Prepared: 01-Sep-2021	Analyzed: 02-Sep-2021 01:29						
Chromium, Dissolved	52	21.2	0.260	0.500	ug/L	25.0	0.549	82.5	75-125			
Iron, Dissolved	54	8600	18.2	36.0	ug/L	5000	4530	81.5	75-125			
Lead, Dissolved	208	26.7	0.0513	0.100	ug/L	25.0	ND	107	75-125			
Silver, Dissolved	107	23.9	0.0220	0.200	ug/L	25.0	ND	95.7	75-125			
Vanadium, Dissolved	51a	21.6	0.0556	0.200	ug/L	25.0	0.675	83.6	75-125			
Arsenic, Dissolved	75a	24.6	0.0373	0.200	ug/L	25.0	0.473	96.7	75-125			
Cadmium, Dissolved	111	23.8	0.0300	0.100	ug/L	25.0	ND	95.3	75-125			
Cobalt, Dissolved	59	24.8	0.0178	0.200	ug/L	25.0	0.147	98.5	75-125			
Copper, Dissolved	63	23.7	0.173	0.500	ug/L	25.0	ND	94.9	75-125			
Nickel, Dissolved	60	24.3	0.0792	0.500	ug/L	25.0	0.139	96.7	75-125			
Selenium, Dissolved	78	71.3	0.179	0.500	ug/L	80.0	ND	89.1	75-125			
Zinc, Dissolved	66	70.5	2.92	6.00	ug/L	80.0	ND	88.2	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike (BJI0016-MS2)			**Source: 21H0291-09**		Prepared: 01-Sep-2021	Analyzed: 03-Sep-2021 19:35						
Manganese, Dissolved	55	1200	1.42	5.00	ug/L	25.0	1130	285	75-125			HC, D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJI0016-MSD1)			**Source: 21H0291-09**		Prepared: 01-Sep-2021	Analyzed: 02-Sep-2021 01:35						
Barium, Dissolved	135	27.1	0.114	0.500	ug/L	25.0	1.92	101	75-125	0.08	20	
Chromium, Dissolved	52	21.3	0.260	0.500	ug/L	25.0	0.549	83.1	75-125	0.73	20	
Iron, Dissolved	54	8590	18.2	36.0	ug/L	5000	4530	81.3	75-125	0.11	20	
Lead, Dissolved	208	26.2	0.0513	0.100	ug/L	25.0	ND	105	75-125	1.85	20	
Silver, Dissolved	107	24.1	0.0220	0.200	ug/L	25.0	ND	96.4	75-125	0.68	20	
Vanadium, Dissolved	51a	21.8	0.0556	0.200	ug/L	25.0	0.675	84.5	75-125	0.93	20	
Arsenic, Dissolved	75a	24.4	0.0373	0.200	ug/L	25.0	0.473	95.9	75-125	0.83	20	
Cadmium, Dissolved	111	23.8	0.0300	0.100	ug/L	25.0	ND	95.2	75-125	0.03	20	
Cobalt, Dissolved	59	24.9	0.0178	0.200	ug/L	25.0	0.147	99.2	75-125	0.73	20	
Copper, Dissolved	63	23.9	0.173	0.500	ug/L	25.0	ND	95.7	75-125	0.81	20	
Nickel, Dissolved	60	24.6	0.0792	0.500	ug/L	25.0	0.139	97.8	75-125	1.15	20	
Selenium, Dissolved	78	71.4	0.179	0.500	ug/L	80.0	ND	89.2	75-125	0.14	20	
Zinc, Dissolved	66	70.2	2.92	6.00	ug/L	80.0	ND	87.8	75-125	0.45	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJI0016-MSD2)			**Source: 21H0291-09**		Prepared: 01-Sep-2021	Analyzed: 03-Sep-2021 19:40						

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0016 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BJI0016-MSD2)			**Source: 21H0291-09**			Prepared: 01-Sep-2021	Analyzed: 03-Sep-2021 19:40					
Manganese, Dissolved	55	1220	1.42	5.00	ug/L	25.0	1130	343	75-125	1.21	20	HC, D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Draft for Public Comment

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0076 - TWM EPA 7470A

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0076-BLK1)				Prepared: 02-Sep-2021 Analyzed: 07-Sep-2021 14:14							
Mercury, Dissolved	ND	0.000013	0.000100	mg/L							U
LCS (BJI0076-BS1)				Prepared: 02-Sep-2021 Analyzed: 07-Sep-2021 14:16							
Mercury, Dissolved	0.00173	0.000013	0.000100	mg/L	0.00200		86.3	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Wet Chemistry - Quality Control

Batch BJH0625 - SM 5310 A-00, 0.45um filtration

Instrument: UV1800-2 Analyst: BF

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0625-BLK1)				Prepared: 24-Aug-2021 Analyzed: 24-Aug-2021 18:39							
Hexavalent Chromium	ND	0.013	0.013	mg/L							U
LCS (BJH0625-BS1)				Prepared: 24-Aug-2021 Analyzed: 24-Aug-2021 18:39							
Hexavalent Chromium	0.587	0.013	0.013	mg/L	0.625		93.9	85-115			D
Duplicate (BJH0625-DUP1)		**Source: 21H0291-05**		Prepared: 24-Aug-2021 Analyzed: 24-Aug-2021 18:40							
Hexavalent Chromium	ND	0.013	0.013	mg/L		ND					U
Matrix Spike (BJH0625-MS1)		**Source: 21H0291-05**		Prepared: 24-Aug-2021 Analyzed: 24-Aug-2021 18:40							
Hexavalent Chromium	ND	0.013	0.013	mg/L	0.0625	ND		85-115			*, K, U
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Post Spike (BJH0625-PS1)		**Source: 21H0291-05**		Prepared: 24-Aug-2021 Analyzed: 24-Aug-2021 18:52							
Hexavalent Chromium	0.0006			mg/L	0.0298	ND	2.02	85-115			*

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Silver-107	WADOE,WA-DW,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Silver-107	WA-DW,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
EPA 6020B UCT-KED in Water	
Arsenic-75a	WADOE,WA-DW,DoD-ELAP,ADEC,NELAP
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	NELAP,DoD-ELAP,WADOE
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Zinc-66	WADOE,WA-DW,DoD-ELAP
Zinc-67	WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC

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Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	DoD-ELAP,NELAP,WADOE
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
EPA 7470A in Water	
Mercury	WADOE,NELAP,DoD-ELAP
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8082A in Water	
Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
EPA 8260D in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE

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Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE

EPA 8260D-SIM in Water

Acrylonitrile	NELAP,WADOE
Vinyl chloride	NELAP,WADOE
1,1-Dichloroethene	NELAP,WADOE
cis-1,2-Dichloroethene	NELAP,WADOE
trans-1,2-Dichloroethene	NELAP,WADOE
Trichloroethene	NELAP,WADOE
Tetrachloroethene	NELAP,WADOE
1,1,2,2-Tetrachloroethane	NELAP,WADOE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

1,2-Dichloroethane	NELAP,WADOE
Benzene	NELAP,WADOE

EPA 8270E in Water

Phenol	NELAP,DoD-ELAP
bis(2-chloroethyl) ether	NELAP,DoD-ELAP
2-Chlorophenol	NELAP,DoD-ELAP
1,3-Dichlorobenzene	NELAP,DoD-ELAP
1,4-Dichlorobenzene	NELAP,DoD-ELAP
1,2-Dichlorobenzene	NELAP,DoD-ELAP
Benzyl Alcohol	NELAP,DoD-ELAP
2,2'-Oxybis(1-chloropropane)	NELAP,DoD-ELAP
2-Methylphenol	NELAP,DoD-ELAP
Hexachloroethane	NELAP,DoD-ELAP
N-Nitroso-di-n-Propylamine	NELAP,DoD-ELAP
4-Methylphenol	NELAP,DoD-ELAP
Nitrobenzene	NELAP,DoD-ELAP
Isophorone	NELAP,DoD-ELAP
2-Nitrophenol	NELAP,DoD-ELAP
2,4-Dimethylphenol	NELAP,DoD-ELAP
Bis(2-Chloroethoxy)methane	NELAP,DoD-ELAP
2,4-Dichlorophenol	NELAP,DoD-ELAP
1,2,4-Trichlorobenzene	NELAP,DoD-ELAP
Naphthalene	NELAP,DoD-ELAP
Benzoic acid	NELAP,DoD-ELAP
4-Chloroaniline	NELAP,DoD-ELAP
Hexachlorobutadiene	NELAP,DoD-ELAP
4-Chloro-3-Methylphenol	NELAP,DoD-ELAP
2-Methylnaphthalene	NELAP,DoD-ELAP
Hexachlorocyclopentadiene	NELAP,DoD-ELAP
2,4,6-Trichlorophenol	NELAP,DoD-ELAP
2,4,5-Trichlorophenol	NELAP,DoD-ELAP
2-Chloronaphthalene	NELAP,DoD-ELAP
2-Nitroaniline	NELAP,DoD-ELAP
Acenaphthylene	NELAP,DoD-ELAP
Dimethylphthalate	NELAP,DoD-ELAP
2,6-Dinitrotoluene	NELAP,DoD-ELAP
Acenaphthene	NELAP,DoD-ELAP
3-Nitroaniline	NELAP,DoD-ELAP
2,4-Dinitrophenol	NELAP,DoD-ELAP

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Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Dibenzofuran	NELAP,DoD-ELAP
4-Nitrophenol	NELAP,DoD-ELAP
2,4-Dinitrotoluene	NELAP,DoD-ELAP
Fluorene	NELAP,DoD-ELAP
4-Chlorophenylphenyl ether	NELAP,DoD-ELAP
Diethyl phthalate	NELAP,DoD-ELAP
4-Nitroaniline	NELAP,DoD-ELAP
4,6-Dinitro-2-methylphenol	NELAP,DoD-ELAP
N-Nitrosodiphenylamine	NELAP,DoD-ELAP
4-Bromophenyl phenyl ether	NELAP,DoD-ELAP
Hexachlorobenzene	NELAP,DoD-ELAP
Pentachlorophenol	NELAP,DoD-ELAP
Phenanthrene	NELAP,DoD-ELAP
Anthracene	NELAP,DoD-ELAP
Carbazole	NELAP,DoD-ELAP
Di-n-Butylphthalate	NELAP,DoD-ELAP
Fluoranthene	NELAP,DoD-ELAP
Pyrene	NELAP,DoD-ELAP
Butylbenzylphthalate	NELAP,DoD-ELAP
Benzo(a)anthracene	NELAP,DoD-ELAP
3,3'-Dichlorobenzidine	NELAP,DoD-ELAP
Chrysene	NELAP,DoD-ELAP
bis(2-Ethylhexyl)phthalate	NELAP,DoD-ELAP
Di-n-Octylphthalate	NELAP,DoD-ELAP
Benzo(b)fluoranthene	NELAP,DoD-ELAP
Benzo(k)fluoranthene	NELAP,DoD-ELAP
Benzofluoranthenes, Total	NELAP
Benzo(a)pyrene	NELAP,DoD-ELAP
Indeno(1,2,3-cd)pyrene	NELAP,DoD-ELAP
Dibenzo(a,h)anthracene	NELAP,DoD-ELAP
Benzo(g,h,i)perylene	NELAP,DoD-ELAP
N-Nitrosodimethylamine	NELAP,DoD-ELAP
1-Methylnaphthalene	NELAP,DoD-ELAP

EPA 8270E-SIM in Water

Naphthalene	ADEC,DoD-ELAP,NELAP,WADOE
2-Methylnaphthalene	ADEC,DoD-ELAP,NELAP
1-Methylnaphthalene	ADEC,DoD-ELAP,NELAP,WADOE
Biphenyl	NELAP
Acenaphthylene	ADEC,DoD-ELAP,NELAP,WADOE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Acenaphthene	ADEC,DoD-ELAP,NELAP,WADOE
Dibenzofuran	ADEC,DoD-ELAP,NELAP
Fluorene	ADEC,DoD-ELAP,NELAP,WADOE
Phenanthrene	ADEC,DoD-ELAP,NELAP,WADOE
Anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Carbazole	NELAP
Fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(a)anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Chrysene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(b)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(k)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(j)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(e)pyrene	NELAP
Benzo(a)pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Perylene	ADEC,NELAP
Indeno(1,2,3-cd)pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Dibenzo(a,h)anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(g,h,i)perylene	ADEC,DoD-ELAP,NELAP,WADOE

NWTPH-Dx in Water

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

NWTPHg in Water

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP

SM 3500-Cr B-09 in Water

Hexavalent Chromium	WADOE,NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Sep-2021 16:57

Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
HC	The natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
J	Estimated concentration value detected below the reporting limit.
K	Hexavalent Chromium post spike performed on a pH adjusted sample to verify matrix interference.
L	Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to +/- RL instead of 20% RPD
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

28 September 2021

Meg Strong
Shannon & Wilson, Inc
400 N 34th St., Suite 100
Seattle, WA 98103-8636

RE: Lower Duwamish Q3

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
21H0304	N/A

Shelly Fishel
Digitally signed by Shelly Fishel
Date: 2021.09.28 15:08:06 -07'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Shelly Fishel, Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21H0304	Turn-around Requested: STANDARD
ARI Client Company: SHANNON & WILSON	Phone:
Client Contact: SHOSHANA HOWARD	
Client Project Name: LOWER DUWAMISH	
Client Project #: 21-1-12596-012	Samplers: KWP, DES

Page: 1 of 1	
Date: 25-AUG-2021	Ice Present? Yes
No. of Coolers: 4	Cooler Temps: See CRF

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID (DOE)	Date	Time	Matrix	No. Containers	TPH-G	TPH-Dx	BTEX	HVOCs	MTBE	PAHs	Full List SVOCs	LTSVOCs	PCB Aroclors	Metals (Total & Dissolved)	HEM Chlene	Nat'l Atten. Param.			Notes/Comments
TB-7-20212508	25-AUG-21	0850	W	5	✓		✓	✓											
MW-24-20212508		0900		11				✓				✓	✓	①					
MW-49-20212508		1020		7			✓	✓						②					
MW-59-20212508		1112		11		✓	✓	✓		✓				✓					
EB-2-20212508		1200		17															
MW-23-20212508		1328		19		✓		✓					✓	③	✓	✓			
MW-58-20212508	↓	1500	↓	18		✓	✓	✓		✓				✓		✓			

① ARSENIC
② ARSENIC, Mn, Ni, Cd, Cu, Pb, Hg, Se, Ag, Zn.
③ As, Cr, Mn,

Comments/Special Instructions
* LAB TO FILTER FOR DISSOLVED METALS

	Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)	Kirk Parkhurst			
Printed Name:	Kirk Parkhurst			
Company:	Shannon & Wilson	ARI		
Date & Time:	4:13 8/25/2021	08/25/2021 1613		

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

RE: LDW Sample Receipt Issues

Shoshana Howard <SKH@shanwil.com>

Thu 8/26/2021 12:26 PM

To: Shelly Fishel <shelly.fishel@arilabs.com>

Hi Shelly,

The equipment blank should be run for TPH-G, TPH-Dx, BTEX, HVOCs, PAHs, Limited SVOCs, PCBs, and total/dissolved metals (the project list).

MW-23 should be run for TPH-Dx. I do see TPH-Dx marked on the COC for MW-23.

Thanks!
Shoshana

Shoshana Howard, PE | Senior Engineer
400 N. 34th St., Suite 100
Seattle, WA 98103-8636
www.shannonwilson.com
Phone: (206) 632-8020 Fax: (206) 695-6777
Direct: (206) 695-6811 skh@shanwil.com

From: Shelly Fishel <shelly.fishel@arilabs.com>
Sent: Wednesday, August 25, 2021 4:48 PM
To: Shoshana Howard <SKH@shanwil.com>
Subject: LDW Sample Receipt Issues

Hi Shoshana,

We have just received samples for today. We have a couple of issues.

- The equipment blank does not indicate any analyses requested
- MW-23 we received bottles for NWTPH-Dx but it is not indicated on the COC

Please advise how you would like for us to proceed. Thanks!!

Be safe and stay healthy!

Regards,

Shelly Fishel

Project Manager

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-7-20212508	21H0304-01	Water	25-Aug-2021 08:50	25-Aug-2021 16:13
MW-24-20212508	21H0304-02	Water	25-Aug-2021 09:00	25-Aug-2021 16:13
MW-24-20212508	21H0304-03	Water	25-Aug-2021 09:00	25-Aug-2021 16:13
MW-49-20212508	21H0304-04	Water	25-Aug-2021 10:20	25-Aug-2021 16:13
MW-49-20212508	21H0304-05	Water	25-Aug-2021 10:20	25-Aug-2021 16:13
MW-59-20212508	21H0304-06	Water	25-Aug-2021 11:12	25-Aug-2021 16:13
MW-59-20212508	21H0304-07	Water	25-Aug-2021 11:12	25-Aug-2021 16:13
EB-2-20212508	21H0304-08	Water	25-Aug-2021 12:00	25-Aug-2021 16:13
EB-2-20212508	21H0304-09	Water	25-Aug-2021 12:00	25-Aug-2021 16:13
MW-23-20212508	21H0304-10	Water	25-Aug-2021 13:28	25-Aug-2021 16:13
MW-23-20212508	21H0304-11	Water	25-Aug-2021 13:28	25-Aug-2021 16:13
MW-58-20212508	21H0304-12	Water	25-Aug-2021 15:00	25-Aug-2021 16:13
MW-58-20212508	21H0304-13	Water	25-Aug-2021 15:00	25-Aug-2021 16:13

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish Q3
Work Order: 21H0304

Sample receipt

Samples as listed on the preceding page were received 25-Aug-2021 16:13 under ARI work order 21H0304. For details regarding sample receipt, please refer to the Cooler Receipt Form.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except Decachlorobiphenyl which was out of control low on both columns in the blank spike duplicate (BJI0002-BSD1) and have been flagged.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits except Aroclor 1260 percent recovery which was out of control low in the blank spike duplicate (BJI0002-BSD1) causing the RPD to fail high. Deviations have been flagged.

No additional volume provided for matrix QC.

Gasoline by NWTPH-g (GC/MS)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

No additional volume provided for matrix QC.

Volatiles - EPA Method SW8260D

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except 1,2-Dichloroethane-d4 which was out of control high in sample 21H0304-12 and has been flagged.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

No additional volume provided for matrix QC.

Volatiles - EPA Method 8260D-SIM (Selected Ion Monitoring)

The sample(s) were analyzed within the recommended holding times. 8260D-SIM Vinyl Chloride analysis was not performed for the equipment blank sample 21H0304-08 due to laboratory error.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except 1,2-Dichloroethane-d4 and 4-Bromofluorobenzene which were out of control high in sample 21H0304-12 and have been flagged.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

No additional volume provided for matrix QC.

Semivolatiles - EPA Method SW8270E

The sample(s) were extracted and analyzed within the recommended holding times.

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except Phenol-d5 which was out of control low in sample 21H0304-02, the method blanks (BJH0669-BLK1 and BJI0012-BLK1), the blank spike (BJI0012-BS1) and the blank spike duplicates (BJH0669-BSD1 and BJI0012-BSD1) which were out of control low and have been flagged.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits except Benzoic Acid percent recoveries which were out of control low in blank spike (BJI0012-BS1) and blank spike duplicate (BJI0012-BSD1) and have been flagged.

No additional volume provided for matrix QC.

Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

No additional volume provided for matrix QC.

Total and Dissolved Metals - EPA Method 6020B

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0291-08 in Total Metals batch BJI0141 and in association

with sample 21H0291-09 in Dissolved Metals batch BJI0016. These were samples from the same project. The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times except Sulifte and Chloride. The Sulfite holding time was exceeded upon sample receipt. Chloride analysis took two and three reanalyses to achieve results within the calibration range which exceeded the holding time. Deviations have been flagged.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0304-10 in Hexavalent Chromium batch BJH0653, in Ferrous Iron batch BJH0650 and Sulfite batch BJH0304. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike (MS) percent recoveries were within advisory control limits except Hexavalent Chromium which was out of control low. A post prepartion spike (PS) which also failed low. Deviations have been flagged.

Total Mercury - EPA Method 7470/7471

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0304-05 in Dissolved Mercury batch BJI0076. Total Mercury QC was performed in association with sample 21H0291-05 in batch BJH0743. This sample is from the same project. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits except Diesel Range Organics which were out of control high in the blank spike (BJH0731-BS1) and has been flagged.

No additional volume provided for matrix QC.

Volatile Gases - MEE by RSK175

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

No additional volume provided for matrix QC.

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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WORK ORDER

21H0304

Client: Shannon & Wilson, Inc
Project Manager: Shelly Fishel
Project: Lower Duwamish Q3
Project Number: 21-1-12596-012

Preservation Confirmation

Container ID	Container Type	pH	
21H0304-01 A	VOA Vial, Clear, 40 mL, HCL	Bubble	
21H0304-01 B	VOA Vial, Clear, 40 mL, HCL		
21H0304-01 C	VOA Vial, Clear, 40 mL, HCL		
21H0304-01 D	VOA Vial, Clear, 40 mL, HCL		
21H0304-01 E	VOA Vial, Clear, 40 mL, HCL		
21H0304-02 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0304-02 B	Glass NM, Amber, 1000 mL		
21H0304-02 C	Glass NM, Amber, 1000 mL		
21H0304-02 D	Glass NM, Amber, 500 mL		
21H0304-02 E	Glass NM, Amber, 500 mL		
21H0304-02 F	VOA Vial, Clear, 40 mL, HCL		
21H0304-02 G	VOA Vial, Clear, 40 mL, HCL		
21H0304-02 H	VOA Vial, Clear, 40 mL, HCL		
21H0304-02 I	VOA Vial, Clear, 40 mL, HCL		
21H0304-02 J	VOA Vial, Clear, 40 mL, HCL		
21H0304-03 A	HDPE NM, 500 mL	>2	Fail
21H0304-04 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0304-04 B	VOA Vial, Clear, 40 mL, HCL		
21H0304-04 C	VOA Vial, Clear, 40 mL, HCL		
21H0304-04 D	VOA Vial, Clear, 40 mL, HCL		
21H0304-04 E	VOA Vial, Clear, 40 mL, HCL		
21H0304-04 F	VOA Vial, Clear, 40 mL, HCL		
21H0304-05 A	HDPE NM, 500 mL	>2	Fail
21H0304-06 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0304-06 B	Glass NM, Amber, 500 mL		
21H0304-06 C	Glass NM, Amber, 500 mL		
21H0304-06 D	Glass NM, Amber, 500 mL		
21H0304-06 E	Glass NM, Amber, 500 mL		
21H0304-06 F	VOA Vial, Clear, 40 mL, HCL		
21H0304-06 G	VOA Vial, Clear, 40 mL, HCL		
21H0304-06 H	VOA Vial, Clear, 40 mL, HCL		
21H0304-06 I	VOA Vial, Clear, 40 mL, HCL		
21H0304-06 J	VOA Vial, Clear, 40 mL, HCL		
21H0304-07 A	HDPE NM, 500 mL	>2	Fail
21H0304-08 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass

Reviewed By

Date

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Analytical Chemists and Consultants

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WORK ORDER

21H0304

Client: Shannon & Wilson, Inc | **Project Manager:** Shelly Fishel

Project: Lower Duwamish Q3 | **Project Number:** 21-1-12596-012

21H0304-08 B	Glass NM, Amber, 1000 mL		
21H0304-08 C	Glass NM, Amber, 1000 mL		
21H0304-08 D	Glass NM, Amber, 500 mL		
21H0304-08 E	Glass NM, Amber, 500 mL		
21H0304-08 F	Glass NM, Amber, 500 mL		
21H0304-08 G	Glass NM, Amber, 500 mL		
21H0304-08 H	Glass NM, Amber, 500 mL		
21H0304-08 I	Glass NM, Amber, 500 mL		
21H0304-08 J	VOA Vial, Clear, 40 mL, HCL		
21H0304-08 K	VOA Vial, Clear, 40 mL, HCL		
21H0304-08 L	VOA Vial, Clear, 40 mL, HCL		
21H0304-08 M	VOA Vial, Clear, 40 mL, HCL		
21H0304-08 N	VOA Vial, Clear, 40 mL, HCL		
21H0304-08 O	VOA Vial, Clear, 40 mL, HCL		
21H0304-08 P	VOA Vial, Clear, 40 mL, HCL		
21H0304-09 A	HDPE NM, 500 mL	72	Fail
21H0304-10 A	HDPE NM, 500 mL		
21H0304-10 B	Small OJ, 500 mL		
21H0304-10 C	Small OJ, 500 mL		
21H0304-10 D	Small OJ, 500 mL, EDTA		
21H0304-10 E	Glass NM, Amber, 500 mL, HCl	Lab to verify preservation	
21H0304-10 F	Glass NM, Amber, 250 mL		
21H0304-10 G	HDPE NM, 500 mL, 1:1 HNO3	52	Pass
21H0304-10 H	Glass NM, Amber, 1000 mL		
21H0304-10 I	Glass NM, Amber, 1000 mL		
21H0304-10 J	Glass NM, Amber, 500 mL		
21H0304-10 K	Glass NM, Amber, 500 mL		
21H0304-10 L	VOA Vial, Clear, 40 mL, HCL	Bubble	
21H0304-10 M	VOA Vial, Clear, 40 mL, HCL		
21H0304-10 N	VOA Vial, Clear, 40 mL, HCL		
21H0304-10 O	VOA Vial, Clear, 40 mL, HCL		
21H0304-10 P	VOA Vial, Clear, 40 mL, HCL		
21H0304-10 Q	VOA Vial, Clear, 40 mL, HCL		
21H0304-10 R	VOA Vial, Clear, 40 mL, HCL		
21H0304-11 A	HDPE NM, 500 mL	72	Fail
21H0304-12 A	HDPE NM, 500 mL		
21H0304-12 B	Small OJ, 500 mL		

Reviewed By

Date

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

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WORK ORDER

21H0304

Client: Shannon & Wilson, Inc
Project Manager: Shelly Fishel

Project: Lower Duwamish Q3
Project Number: 21-1-12596-012

21H0304-12 C	Small OJ, 500 mL	
21H0304-12 D	Small OJ, 500 mL, EDTA	
21H0304-12 E	Glass NM, Amber, 500 mL, HCl	Lab to verify preservation
21H0304-12 F	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21H0304-12 G	Glass NM, Amber, 500 mL	
21H0304-12 H	Glass NM, Amber, 500 mL	
21H0304-12 I	Glass NM, Amber, 500 mL	
21H0304-12 J	Glass NM, Amber, 500 mL	
21H0304-12 K	VOA Vial, Clear, 40 mL, HCL	Bubble
21H0304-12 L	VOA Vial, Clear, 40 mL, HCL	
21H0304-12 M	VOA Vial, Clear, 40 mL, HCL	
21H0304-12 N	VOA Vial, Clear, 40 mL, HCL	
21H0304-12 O	VOA Vial, Clear, 40 mL, HCL	
21H0304-12 P	VOA Vial, Clear, 40 mL, HCL	
21H0304-12 Q	VOA Vial, Clear, 40 mL, HCL	
21H0304-13 A	HDPE NM, 500 mL	>2 Pass

Preservation Confirmed By

08/25/2021
Date

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Shannon & Wilson Project Name: Lower Duwamish

COC No(s): _____ (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 21H0304 Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1613 8.4 8.2 5.1 7.9 ___ ___

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO (206)

Cooler Accepted by: JSm Date: 08/25/2021 Time: 1613

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	(Bubble Wrap) (Wet Ice) Gel Packs (Baggies) Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	YES	(NO)
How were bottles sealed in plastic bags?	Individually	(Grouped)	Not
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	(YES)	NO
Were all VOC vials free of air bubbles?	NA	YES	(NO)
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	NA	08/13/2021	

Were the sample(s) split by ARI? (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JSm Date: 08/25/2021 Time: 1715 Labels checked by: JSm

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

vials w/ air bubbles marked on preservation sheet, lab to determine sizes.

By: JSm Date: 08/25/2021

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Temperature Compliance Form

ARI Work Order: 21H0304

Cooler#: 1 **Temperature(°C):** 8.4

Sample ID	Bottle Count	Bottle Type
TB-7-20212508	~~6~~ 5	All containers
MW-54-20212508	5	All VOA vials
EB-2-20212508	11	All containers
MW-23-20212508	4	2-1L AG, 1-500mL HDPE, 1-500mL HDPE w/HNO3
MW-58-20212508	2	2-500mL AG

Cooler#: 2 **Temperature(°C):** 8.2

Sample ID	Bottle Count	Bottle Type
MW-24-20212508	11	All containers
MW-49-20212508	7	All containers
MW-54-20212508	~~4~~ 6	4-500mL AG, 1-500mL HDPE, 1-500mL HDPE w/HNO3
MW-58-20212508	2	1-500mL HDPE, 1-500mL HDPE w/HNO3

Cooler#: 4 **Temperature(°C):** 7.9

Sample ID	Bottle Count	Bottle Type
MW-23-20212508	8	1-500mL HDPE, 2-Small OJ, 1-Small OJ w/EDTA, 3-HCL vials, 1-500mL AG w/HCL
MW-58-20212508	14	7-HCL vials, 1-500mL HDPE, 2-Small OJ, 1-Small OJ w/EDTA, 1-500mL AG w/HCL

Cooler#: **Temperature(°C):**

Sample ID	Bottle Count	Bottle Type

Completed by: _____ Date: 08/05/2021 Time: 1613

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Analytical Chemists and Consultants

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WORK ORDER

21H0304

Client: Shannon & Wilson, Inc
Project Manager: Shelly Fishel

Project: Lower Duwamish Q3
Project Number: 21-1-12596-012

Preservation Confirmation

Container ID	Container Type	pH	
21H0304-01 A	VOA Vial, Clear, 40 mL, HCL	Bubble	
21H0304-01 B	VOA Vial, Clear, 40 mL, HCL		
21H0304-01 C	VOA Vial, Clear, 40 mL, HCL		
21H0304-01 D	VOA Vial, Clear, 40 mL, HCL		
21H0304-01 E	VOA Vial, Clear, 40 mL, HCL		
21H0304-02 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0304-02 B	Glass NM, Amber, 1000 mL		
21H0304-02 C	Glass NM, Amber, 1000 mL		
21H0304-02 D	Glass NM, Amber, 500 mL		
21H0304-02 E	Glass NM, Amber, 500 mL		
21H0304-02 F	VOA Vial, Clear, 40 mL, HCL		
21H0304-02 G	VOA Vial, Clear, 40 mL, HCL		
21H0304-02 H	VOA Vial, Clear, 40 mL, HCL		
21H0304-02 I	VOA Vial, Clear, 40 mL, HCL		
21H0304-02 J	VOA Vial, Clear, 40 mL, HCL		
21H0304-03 A	HDPE NM, 500 mL	>2	Fail (1)
21H0304-04 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0304-04 B	VOA Vial, Clear, 40 mL, HCL		
21H0304-04 C	VOA Vial, Clear, 40 mL, HCL		
21H0304-04 D	VOA Vial, Clear, 40 mL, HCL		
21H0304-04 E	VOA Vial, Clear, 40 mL, HCL		
21H0304-04 F	VOA Vial, Clear, 40 mL, HCL		
21H0304-05 A	HDPE NM, 500 mL	>2	Fail (1)
21H0304-06 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0304-06 B	Glass NM, Amber, 500 mL		
21H0304-06 C	Glass NM, Amber, 500 mL		
21H0304-06 D	Glass NM, Amber, 500 mL		
21H0304-06 E	Glass NM, Amber, 500 mL		
21H0304-06 F	VOA Vial, Clear, 40 mL, HCL		
21H0304-06 G	VOA Vial, Clear, 40 mL, HCL		
21H0304-06 H	VOA Vial, Clear, 40 mL, HCL		
21H0304-06 I	VOA Vial, Clear, 40 mL, HCL		
21H0304-06 J	VOA Vial, Clear, 40 mL, HCL		
21H0304-07 A	HDPE NM, 500 mL	>2	Fail (1)
21H0304-08 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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WORK ORDER

21H0304

Client: Shannon & Wilson, Inc
Project Manager: Shelly Fishel

Project: Lower Duwamish Q3
Project Number: 21-1-12596-012

21H0304-08 B	Glass NM, Amber, 1000 mL		
21H0304-08 C	Glass NM, Amber, 1000 mL		
21H0304-08 D	Glass NM, Amber, 500 mL		
21H0304-08 E	Glass NM, Amber, 500 mL		
21H0304-08 F	Glass NM, Amber, 500 mL		
21H0304-08 G	Glass NM, Amber, 500 mL		
21H0304-08 H	Glass NM, Amber, 500 mL		
21H0304-08 I	Glass NM, Amber, 500 mL		
21H0304-08 J	VOA Vial, Clear, 40 mL, HCL		
21H0304-08 K	VOA Vial, Clear, 40 mL, HCL		
21H0304-08 L	VOA Vial, Clear, 40 mL, HCL		
21H0304-08 M	VOA Vial, Clear, 40 mL, HCL		
21H0304-08 N	VOA Vial, Clear, 40 mL, HCL		
21H0304-08 O	VOA Vial, Clear, 40 mL, HCL		
21H0304-08 P	VOA Vial, Clear, 40 mL, HCL		
21H0304-09 A	HDPE NM, 500 mL	72	Fail (1)
21H0304-10 A	HDPE NM, 500 mL		
21H0304-10 B	Small OJ, 500 mL		
21H0304-10 C	Small OJ, 500 mL		
21H0304-10 D	Small OJ, 500 mL, EDTA		
21H0304-10 E	Glass NM, Amber, 500 mL, HCl	Lab to verify preservation	
21H0304-10 F	Glass NM, Amber, 250 mL		
21H0304-10 G	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0304-10 H	Glass NM, Amber, 1000 mL		
21H0304-10 I	Glass NM, Amber, 1000 mL		
21H0304-10 J	Glass NM, Amber, 500 mL		
21H0304-10 K	Glass NM, Amber, 500 mL		
21H0304-10 L	VOA Vial, Clear, 40 mL, HCL	Bubb	
21H0304-10 M	VOA Vial, Clear, 40 mL, HCL		
21H0304-10 N	VOA Vial, Clear, 40 mL, HCL		
21H0304-10 O	VOA Vial, Clear, 40 mL, HCL		
21H0304-10 P	VOA Vial, Clear, 40 mL, HCL		
21H0304-10 Q	VOA Vial, Clear, 40 mL, HCL		
21H0304-10 R	VOA Vial, Clear, 40 mL, HCL		
21H0304-11 A	HDPE NM, 500 mL	72	Fail (1)
21H0304-12 A	HDPE NM, 500 mL		
21H0304-12 B	Small OJ, 500 mL		

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/25/2021 5:31:26PM

WORK ORDER

21H0304

Client: Shannon & Wilson, Inc
Project Manager: Shelly Fishel

Project: Lower Duwamish Q3
Project Number: 21-1-12596-012

21H0304-12 C	Small OJ, 500 mL	
21H0304-12 D	Small OJ, 500 mL, EDTA	
21H0304-12 E	Glass NM, Amber, 500 mL, HCl	Lab to verify preservation
21H0304-12 F	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21H0304-12 G	Glass NM, Amber, 500 mL	
21H0304-12 H	Glass NM, Amber, 500 mL	
21H0304-12 I	Glass NM, Amber, 500 mL	
21H0304-12 J	Glass NM, Amber, 500 mL	
21H0304-12 K	VOA Vial, Clear, 40 mL, HCL	Bubble
21H0304-12 L	VOA Vial, Clear, 40 mL, HCL	
21H0304-12 M	VOA Vial, Clear, 40 mL, HCL	
21H0304-12 N	VOA Vial, Clear, 40 mL, HCL	
21H0304-12 O	VOA Vial, Clear, 40 mL, HCL	
21H0304-12 P	VOA Vial, Clear, 40 mL, HCL	
21H0304-12 Q	VOA Vial, Clear, 40 mL, HCL	
21H0304-13 A	HDPE NM, 500 mL	>2 Pass (1)

Preservation Confirmed By

08/25/2021
Date

(1) Filtered at 0.45 um and preserved to pH ~2.0 with 0.75 ml conc. HNO_3 (J7649).
ML 08/26/21

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

TB-7-20212508

21H0304-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/25/2021 08:50

Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 13:45

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0304-01 E

Preparation Batch: BJI0049 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.11	ug/L	J
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*93.7*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*94.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*91.3*	*%*	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

TB-7-20212508

21H0304-01 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/25/2021 08:50
Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 13:45

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0304-01 E
Preparation Batch: BJI0049 — Sample Size: 10 mL
Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*94.9*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*93.3*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

TB-7-20212508

21H0304-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/25/2021 08:50

Instrument: NT16 Analyst: KOTT — Analyzed: 08/30/2021 15:38

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0304-01 D

Preparation Batch: BJH0756 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*93.4*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-24-20212508

21H0304-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/25/2021 09:00

Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 16:42

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0304-02 I

Preparation Batch: BJI0049 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	0.09	ug/L	J
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*83.8*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*93.4*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*90.0*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.4*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-24-20212508

21H0304-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/25/2021 09:00

Instrument: NT16 Analyst: KOTT — Analyzed: 08/30/2021 15:58

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0304-02 G

Preparation Batch: BJH0756 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.4*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*95.4*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-24-20212508

21H0304-02 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/25/2021 09:00
Instrument: NT10 Analyst: VTS — Analyzed: 09/19/2021 04:09

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0304-02 C 01
Preparation Batch: BJH0669 — Sample Size: 1000 mL
Prepared: 08/31/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	0.7	ug/L	
Surrogate: 2-Fluorophenol				*30-160 %*	*44.0*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*26.3*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*90.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*77.4*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*80.0*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*79.7*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*94.2*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*74.4*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-24-20212508

21H0304-02 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/25/2021 09:00
Instrument: ECD7 Analyst: JGR — Analyzed: 09/15/2021 23:45

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0304-02 B 01
	Preparation Batch: BJH0666	Sample Size: 1000 mL	
	Prepared: 08/30/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0304-02 B 01
	Cleanup Batch: CJI0111	Initial Volume: 0.5 mL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0304-02 B 01
	Cleanup Batch: CJI0109	Initial Volume: 0.5 uL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0304-02 B 01
	Cleanup Batch: CJI0110	Initial Volume: 0.5 uL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*80.4*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*68.7*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*77.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*63.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-24-20212508

21H0304-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/25/2021 09:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 20:09

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-02 A 01
Preparation Batch: BJI0141 — Sample Size: 25 mL
Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.0746	0.400	43.3	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-24-20212508

21H0304-03 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/25/2021 09:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 01:06

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-03 A 02
Preparation Batch: BJI0016 — Sample Size: 25 mL — Filtration Batch: BJH0667
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	10	0.373	2.00	9.22	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-49-20212508

21H0304-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/25/2021 10:20

Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 17:07

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0304-04 E

Preparation Batch: BJI0049 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	0.16	ug/L	J
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	4.24	ug/L	
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	1.26	ug/L	
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*88.2*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*93.2*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*91.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*93.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-49-20212508

21H0304-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/25/2021 10:20

Instrument: NT16 Analyst: KOTT — Analyzed: 08/30/2021 16:18

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0304-04 B

Preparation Batch: BJH0756 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	27.0	ng/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.4*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*93.5*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-49-20212508

21H0304-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/25/2021 10:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 18:03

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-04 A 01
Preparation Batch: BJI0141 — Sample Size: 25 mL
Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0513	0.100	0.0550	ug/L	J
Manganese	7439-96-5	1	0.142	0.500	110	ug/L	
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-49-20212508

21H0304-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/25/2021 10:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 18:03

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-04 A 01
Preparation Batch: BJI0141 — Sample Size: 25 mL
Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	2.79	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	0.105	ug/L	
Copper	7440-50-8	1	0.173	0.500	1.32	ug/L	
Nickel	7440-02-0	1	0.0792	0.500	3.29	ug/L	
Selenium	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-49-20212508

21H0304-04 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/25/2021 10:20
Instrument: HYDRA Analyst: ML — Analyzed: 09/01/2021 14:56

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0304-04 A
Preparation Batch: BJH0743 — Sample Size: 20 mL
Prepared: 08/30/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-49-20212508

21H0304-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/25/2021 10:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 01:42

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-05 A 02
Preparation Batch: BJI0016 — Sample Size: 25 mL — Filtration Batch: BJH0667
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	1	0.142	0.500	6.06	ug/L	
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-49-20212508

21H0304-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/25/2021 10:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 01:42

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-05 A 02
Preparation Batch: BJI0016 — Sample Size: 25 mL — Filtration Batch: BJH0667
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.349	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.173	0.500	0.671	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	2.11	ug/L	
Selenium, Dissolved	7782-49-2	1	0.179	0.500	0.242	ug/L	J
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-49-20212508

21H0304-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/25/2021 10:20
Instrument: HYDRA Analyst: ML — Analyzed: 09/07/2021 14:23

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0304-05 A 01
Preparation Batch: BJI0076 — Sample Size: 20 mL — Filtration Batch: BJH0667
Prepared: 09/02/2021 — Final Volume: 20 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-59-20212508

21H0304-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/25/2021 11:12

Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 17:32

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0304-06 I

Preparation Batch: BJI0049 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*97.5*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*93.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*92.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*92.8*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-59-20212508

21H0304-06 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/25/2021 11:12

Instrument: NT16 Analyst: KOTT — Analyzed: 08/30/2021 16:38

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0304-06 F

Preparation Batch: BJH0756 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*104*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*93.6*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-59-20212508

21H0304-06 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/25/2021 11:12
Instrument: NT11 Analyst: VTS — Analyzed: 09/17/2021 16:25

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJH0668; Prepared: 09/01/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21H0304-06 D 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJI0136; Cleaned: 17-Sep-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21H0304-06 D 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.008	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.003	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.002	ug/L	J
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.002	0.010	0.004	ug/L	J
Fluorene	86-73-7	1	0.002	0.010	ND	ug/L	U
Phenanthrene	85-01-8	1	0.001	0.010	0.002	ug/L	J
Anthracene	120-12-7	1	0.001	0.010	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.010	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	0.002	ug/L	J
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	0.002	ug/L	J
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*76.6*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*67.0*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*86.1*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-59-20212508

21H0304-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/25/2021 11:12
Instrument: FID4 Analyst: TWC — Analyzed: 09/13/2021 19:35

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0304-06 B 01
Preparation Batch: BJH0664 — Sample Size: 500 mL
Prepared: 08/27/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*100*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-59-20212508

21H0304-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/25/2021 11:12

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 16:55

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-06 A 01

Preparation Batch: BJI0141 — Sample Size: 25 mL

Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.114	0.500	5.49	ug/L	
Chromium	7440-47-3	1	0.260	0.500	ND	ug/L	U
Iron	7439-89-6	1	18.2	36.0	1130	ug/L	
Lead	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese	7439-96-5	1	0.142	0.500	202	ug/L	
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium	7440-62-2	1	0.0556	0.200	1.73	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-59-20212508

21H0304-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/25/2021 11:12

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 16:55

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-06 A 01

Preparation Batch: BJI0141 — Sample Size: 25 mL

Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	0.942	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	0.0310	ug/L	J
Cobalt	7440-48-4	1	0.0178	0.200	1.32	ug/L	
Copper	7440-50-8	1	0.173	0.500	0.914	ug/L	
Nickel	7440-02-0	1	0.0792	0.500	1.98	ug/L	
Selenium	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-59-20212508

21H0304-06 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/25/2021 11:12
Instrument: HYDRA Analyst: ML — Analyzed: 09/01/2021 14:58

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0304-06 A
Preparation Batch: BJH0743 — Sample Size: 20 mL
Prepared: 08/30/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-59-20212508

21H0304-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/25/2021 11:12
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 01:47

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-07 A 02
Preparation Batch: BJI0016 — Sample Size: 25 mL — Filtration Batch: BJH0667
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.114	0.500	4.82	ug/L	
Chromium, Dissolved	7440-47-3	1	0.260	0.500	ND	ug/L	U
Iron, Dissolved	7439-89-6	1	18.2	36.0	763	ug/L	
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	1	0.142	0.500	202	ug/L	
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0556	0.200	1.10	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-59-20212508

21H0304-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/25/2021 11:12

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 01:47

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-07 A 02

Preparation Batch: BJI0016 — Sample Size: 25 mL — Filtration Batch: BJH0667

Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.556	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	1.13	ug/L	
Copper, Dissolved	7440-50-8	1	0.173	0.500	0.522	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	1.80	ug/L	
Selenium, Dissolved	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-59-20212508

21H0304-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/25/2021 11:12
Instrument: HYDRA Analyst: ML — Analyzed: 09/07/2021 14:37

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0304-07 A 01
Preparation Batch: BJI0076 — Sample Size: 20 mL — Filtration Batch: BJH0667
Prepared: 09/02/2021 — Final Volume: 20 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

EB-2-20212508

21H0304-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/25/2021 12:00

Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 14:10

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0304-08 L

Preparation Batch: BJI0049 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	0.05	ug/L	J
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*93.2*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*93.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*92.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*94.0*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

EB-2-20212508

21H0304-08 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/25/2021 12:00
Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 14:10

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0304-08 L
Preparation Batch: BJI0049 — Sample Size: 10 mL
Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*93.0*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*92.3*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

EB-2-20212508

21H0304-08 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/25/2021 12:00

Instrument: NT10 Analyst: VTS — Analyzed: 09/18/2021 12:14

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0304-08 C 01

Preparation Batch: BJI0012 — Sample Size: 1000 mL

Prepared: 09/01/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Surrogate: 2-Fluorophenol				*30-160 %*	*31.0*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*16.9*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*65.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*67.6*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*72.6*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*76.1*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*80.0*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*76.8*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

EB-2-20212508

21H0304-08 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/25/2021 12:00
Instrument: NT11 Analyst: VTS — Analyzed: 09/17/2021 18:56

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJH0745; Prepared: 08/31/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21H0304-08 F 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJI0125; Cleaned: 16-Sep-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21H0304-08 F 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.006	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.003	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.002	ug/L	J
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.002	0.010	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.010	ND	ug/L	U
Phenanthrene	85-01-8	1	0.001	0.010	0.002	ug/L	J
Anthracene	120-12-7	1	0.001	0.010	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.010	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*76.1*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*53.8*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*81.7*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

EB-2-20212508

21H0304-08 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/25/2021 12:00
Instrument: FID4 Analyst: TWC — Analyzed: 09/14/2021 00:36

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0304-08 D 01
Preparation Batch: BJH0731 — Sample Size: 475 mL
Prepared: 08/30/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.105	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.211	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*105*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

EB-2-20212508

21H0304-08 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/25/2021 12:00
Instrument: ECD7 Analyst: JGR — Analyzed: 09/16/2021 12:50

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0304-08 B 01
	Preparation Batch: BJI0002	Sample Size: 1000 mL	
	Prepared: 09/01/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0304-08 B 01
	Cleanup Batch: CJI0128	Initial Volume: 0.5 mL	
	Cleaned: 16-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0304-08 B 01
	Cleanup Batch: CJI0126	Initial Volume: 0.5 uL	
	Cleaned: 16-Sep-2021	Final Volume: 0.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0304-08 B 01
	Cleanup Batch: CJI0127	Initial Volume: 0.5 uL	
	Cleaned: 16-Sep-2021	Final Volume: 0.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*81.5*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*70.8*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*77.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*63.8*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

EB-2-20212508

21H0304-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/25/2021 12:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 17:26

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-08 A 01
Preparation Batch: BJI0141 — Sample Size: 25 mL
Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.114	0.500	ND	ug/L	U
Chromium	7440-47-3	1	0.260	0.500	ND	ug/L	U
Iron	7439-89-6	1	18.2	36.0	ND	ug/L	U
Lead	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese	7439-96-5	1	0.142	0.500	0.200	ug/L	J
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium	7440-62-2	1	0.0556	0.200	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

EB-2-20212508

21H0304-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/25/2021 12:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 17:26

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-08 A 01
Preparation Batch: BJI0141 — Sample Size: 25 mL
Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	ND	ug/L	U
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt	7440-48-4	1	0.0178	0.200	ND	ug/L	U
Copper	7440-50-8	1	0.173	0.500	ND	ug/L	U
Nickel	7440-02-0	1	0.0792	0.500	ND	ug/L	U
Selenium	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

EB-2-20212508

21H0304-08 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/25/2021 12:00
Instrument: HYDRA Analyst: ML — Analyzed: 09/01/2021 15:00

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0304-08 A
Preparation Batch: BJH0743 — Sample Size: 20 mL
Prepared: 08/30/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

EB-2-20212508

21H0304-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/25/2021 12:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 02:12

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-09 A 02
Preparation Batch: BJI0016 — Sample Size: 25 mL — Filtration Batch: BJH0667
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.114	0.500	ND	ug/L	U
Chromium, Dissolved	7440-47-3	1	0.260	0.500	ND	ug/L	U
Iron, Dissolved	7439-89-6	1	18.2	36.0	ND	ug/L	U
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	1	0.142	0.500	ND	ug/L	U
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0556	0.200	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

EB-2-20212508

21H0304-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/25/2021 12:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 02:12

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-09 A 02
Preparation Batch: BJI0016 — Sample Size: 25 mL — Filtration Batch: BJH0667
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	ND	ug/L	U
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.173	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	ND	ug/L	U
Selenium, Dissolved	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

EB-2-20212508

21H0304-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/25/2021 12:00
Instrument: HYDRA Analyst: ML — Analyzed: 09/07/2021 14:40

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0304-09 A 01
Preparation Batch: BJI0076 — Sample Size: 20 mL — Filtration Batch: BJH0667
Prepared: 09/02/2021 — Final Volume: 20 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-23-20212508

21H0304-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/25/2021 13:28

Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 17:57

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0304-10 O

Preparation Batch: BJI0049 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	1.08	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	0.40	ug/L	
Tetrachloroethene	127-18-4	1	0.09	0.20	1.21	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*98.6*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*93.5*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*91.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*91.4*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-23-20212508

21H0304-10 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/25/2021 13:28

Instrument: NT16 Analyst: KOTT — Analyzed: 08/30/2021 16:59

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0304-10 L

Preparation Batch: BJH0756 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	29.2	ng/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.2*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*94.8*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-23-20212508

21H0304-10 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 08/25/2021 13:28

Instrument: FID6 Analyst: LH — Analyzed: 09/03/2021 11:13

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0304-10 P

Preparation Batch: BJI0109 — Sample Size: 10 mL

Prepared: 09/03/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	248	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*72-122 %*	*88.7*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-23-20212508

21H0304-10 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/25/2021 13:28
Instrument: FID4 Analyst: TWC — Analyzed: 09/13/2021 19:55

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0304-10 J 01
Preparation Batch: BJH0664 — Sample Size: 500 mL
Prepared: 08/27/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*108*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-23-20212508

21H0304-10 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/25/2021 13:28
Instrument: ECD7 Analyst: JGR — Analyzed: 09/16/2021 00:06

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0304-10 H 01
	Preparation Batch: BJH0666	Sample Size: 1000 mL	
	Prepared: 08/30/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0304-10 H 01
	Cleanup Batch: CJI0111	Initial Volume: 0.5 mL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0304-10 H 01
	Cleanup Batch: CJI0109	Initial Volume: 0.5 uL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0304-10 H 01
	Cleanup Batch: CJI0110	Initial Volume: 0.5 uL	
	Cleaned: 15-Sep-2021	Final Volume: 0.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*78.5*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*69.8*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*76.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*65.3*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-23-20212508

21H0304-10 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/25/2021 13:28
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 19:25

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-10 G 01
Preparation Batch: BJI0141 — Sample Size: 25 mL
Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	1	0.260	0.500	0.601	ug/L	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-23-20212508

21H0304-10 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/25/2021 13:28
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 19:25

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-10 G 01
Preparation Batch: BJI0141 — Sample Size: 25 mL
Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	23.0	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-23-20212508

21H0304-10 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 08/25/2021 13:28

Instrument: IC930 Analyst: CDE — Analyzed: 08/26/2021 18:33

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0304-10 A

Preparation Batch: BJH0685 — Sample Size: 10 mL

Prepared: 08/26/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	0.100	ND	mg/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-23-20212508

21H0304-10 (Water)

Wet Chemistry

Method: SM 3500-Cr B-09 — Sampled: 08/25/2021 13:28

Instrument: UV1800-1 Analyst: BF — Analyzed: 08/25/2021 18:32

Sample Preparation: Preparation Method: SM 5310 A-00, 0.45um filtration — Extract ID: 21H0304-10 F 01

Preparation Batch: BJH0653 — Sample Size: 40 mL

Prepared: 08/25/2021 — Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexavalent Chromium	1854-02-99	1.25	0.013	0.013	ND	mg/L	U

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-23-20212508

21H0304-10 (Water)

Wet Chemistry

Method: SM 4500-SO3 B-00 — Sampled: 08/25/2021 13:28

Instrument: N/A Analyst: UW — Analyzed: 08/25/2021 17:45

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0304-10

Preparation Batch: BJH0651 — Sample Size: 50 mL

Prepared: 08/25/2021 — Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfite	14265-45-3	1	1.4	1.4	ND	mg/L	H, U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-23-20212508

21H0304-10RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/25/2021 13:28
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 20:26

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-10RE1 G 01
Preparation Batch: BJI0141 — Sample Size: 25 mL
Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	10	1.42	5.00	1590	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-23-20212508

21H0304-10RE1 (Water)

Wet Chemistry

Method: SM 3500-Fe B-97 — Sampled: 08/25/2021 13:28

Instrument: UV1800-1 Analyst: CKI — Analyzed: 08/25/2021 19:46

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0304-10RE1 E

Preparation Batch: BJH0650 — Sample Size: 5 mL

Prepared: 08/25/2021 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ferrous Iron		50	2.00	2.00	48.5	mg/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-23-20212508

21H0304-10RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 08/25/2021 13:28

Instrument: IC930 Analyst: CDE — Analyzed: 09/11/2021 05:51

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0304-10RE2 A

Preparation Batch: BJH0685 — Sample Size: 10 mL

Prepared: 08/26/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	20	2.00	2.00	4.60	mg/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-23-20212508

21H0304-10RE3 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 08/25/2021 13:28

Instrument: IC930 Analyst: CDE — Analyzed: 09/23/2021 15:39

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0304-10RE3 A

Preparation Batch: BJH0685 — Sample Size: 10 mL

Prepared: 08/26/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	20	2.00	2.00	66.0	mg/L	H, D

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-23-20212508

21H0304-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/25/2021 13:28
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 02:21

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-11 A 02
Preparation Batch: BJI0016 — Sample Size: 25 mL — Filtration Batch: BJH0667
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.260	0.500	0.444	ug/L	J
Manganese, Dissolved	7439-96-5	10	1.42	5.00	1550	ug/L	D

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MW-23-20212508

21H0304-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/25/2021 13:28
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 02:21

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-11 A 02
Preparation Batch: BJI0016 — Sample Size: 25 mL — Filtration Batch: BJH0667
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	14.5	ug/L	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-58-20212508

21H0304-12 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/25/2021 15:00

Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 18:23

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0304-12 N

Preparation Batch: BJI0049 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	142	ug/L	E
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	15.5	ug/L	
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	70.2	ug/L	
m,p-Xylene	179601-23-1	1	0.14	0.40	50.4	ug/L	
o-Xylene	95-47-6	1	0.08	0.20	1.64	ug/L	
Xylenes, total	1330-20-7	1	0.22	0.60	52.0	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*158*	*%*	*
Surrogate: Toluene-d8				*80-120 %*	*102*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*92.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*94.3*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-58-20212508

21H0304-12 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/25/2021 15:00
Instrument: NT16 Analyst: KOTT — Analyzed: 08/30/2021 17:19

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0304-12 K
Preparation Batch: BJH0756 — Sample Size: 10 mL
Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*131*	*%*	*
Surrogate: Toluene-d8				*80-120 %*	*85.5*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*129*	*%*	*

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-58-20212508

21H0304-12 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 08/25/2021 15:00

Instrument: FID6 Analyst: LH — Analyzed: 09/03/2021 11:31

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0304-12 O

Preparation Batch: BJI0109 — Sample Size: 10 mL

Prepared: 09/03/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	7070	ug/L	
Ethane	74-84-0	1	1.23	5.96	ug/L	
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*72-122 %*	*84.4*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-58-20212508

21H0304-12 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/25/2021 15:00
Instrument: NT11 Analyst: VTS — Analyzed: 09/17/2021 16:55

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0304-12 I 01
Preparation Batch: BJH0668 — Sample Size: 500 mL
Prepared: 09/01/2021 — Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 21H0304-12 I 01
Cleanup Batch: CJI0136 — Initial Volume: 0.5 mL
Cleaned: 17-Sep-2021 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	1.28	ug/L	E
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.243	ug/L	
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.458	ug/L	
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	0.015	ug/L	
Dibenzofuran	132-64-9	1	0.002	0.010	0.006	ug/L	J
Fluorene	86-73-7	1	0.002	0.010	0.015	ug/L	
Phenanthrene	85-01-8	1	0.001	0.010	0.005	ug/L	J
Anthracene	120-12-7	1	0.001	0.010	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.010	0.002	ug/L	J
Fluoranthene	206-44-0	1	0.002	0.010	0.002	ug/L	J
Pyrene	129-00-0	1	0.001	0.010	0.002	ug/L	J
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	0.001	ug/L	J
Chrysene	218-01-9	1	0.0009	0.010	0.002	ug/L	J
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	0.001	ug/L	J
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*51.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*65.2*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*86.2*	*%*	

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MW-58-20212508

21H0304-12 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/25/2021 15:00
Instrument: FID4 Analyst: TWC — Analyzed: 09/13/2021 20:15

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0304-12 G 01
Preparation Batch: BJH0664 — Sample Size: 500 mL
Prepared: 08/27/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.276	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*111*	*%*	

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21H0304-12 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/25/2021 15:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 17:19

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-12 F 01
Preparation Batch: BJI0141 — Sample Size: 25 mL
Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	2	0.228	1.00	31.6	ug/L	D
Chromium	7440-47-3	2	0.520	1.00	0.904	ug/L	J, D
Lead	7439-92-1	2	0.103	0.200	0.178	ug/L	J, D
Silver	7440-22-4	2	0.0440	0.400	ND	ug/L	U
Vanadium	7440-62-2	2	0.111	0.400	7.17	ug/L	D

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21H0304-12 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/25/2021 15:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 17:19

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-12 F 01
Preparation Batch: BJI0141 — Sample Size: 25 mL
Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.0746	0.400	64.3	ug/L	D
Cadmium	7440-43-9	2	0.0600	0.200	ND	ug/L	U
Cobalt	7440-48-4	2	0.0356	0.400	1.28	ug/L	D
Copper	7440-50-8	2	0.346	1.00	0.380	ug/L	J, D
Nickel	7440-02-0	2	0.158	1.00	0.786	ug/L	J, D
Selenium	7782-49-2	2	0.358	1.00	ND	ug/L	U
Zinc	7440-66-6	2	5.84	12.0	ND	ug/L	U

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MW-58-20212508

21H0304-12 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/25/2021 15:00
Instrument: HYDRA Analyst: ML — Analyzed: 09/01/2021 15:07

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0304-12 F
Preparation Batch: BJH0743 — Sample Size: 20 mL
Prepared: 08/30/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

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MW-58-20212508

21H0304-12 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 08/25/2021 15:00

Instrument: IC930 Analyst: CDE — Analyzed: 08/26/2021 18:53

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0304-12 A

Preparation Batch: BJH0685 — Sample Size: 10 mL

Prepared: 08/26/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	0.100	ND	mg/L	U

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MW-58-20212508

21H0304-12 (Water)

Wet Chemistry

Method: SM 4500-SO3 B-00 — Sampled: 08/25/2021 15:00

Instrument: N/A Analyst: UW — Analyzed: 08/25/2021 17:45

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0304-12

Preparation Batch: BJH0651 — Sample Size: 50 mL

Prepared: 08/25/2021 — Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfite	14265-45-3	1	1.4	1.4	ND	mg/L	H, U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-58-20212508

21H0304-12RE1 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/25/2021 15:00
Instrument: NT2 Analyst: LH — Analyzed: 09/03/2021 23:22

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0304-12RE1 N
Preparation Batch: BJI0099 — Sample Size: 2 mL
Prepared: 09/03/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.41	1.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.38	1.00	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.35	1.00	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.41	1.00	ND	ug/L	U
Benzene	71-43-2	1	0.27	1.00	188	ug/L	
Trichloroethene	79-01-6	1	0.35	1.00	ND	ug/L	U
Toluene	108-88-3	1	0.24	1.00	13.4	ug/L	
Tetrachloroethene	127-18-4	1	0.46	1.00	0.50	ug/L	J
Ethylbenzene	100-41-4	1	0.25	1.00	82.4	ug/L	
m,p-Xylene	179601-23-1	1	0.72	2.00	58.5	ug/L	
o-Xylene	95-47-6	1	0.39	1.00	1.41	ug/L	
Xylenes, total	1330-20-7	1	1.09	3.00	59.9	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*98.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*102*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-58-20212508

21H0304-12RE1 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/25/2021 15:00
Instrument: NT11 Analyst: VTS — Analyzed: 09/21/2021 11:59

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJH0668; Prepared: 09/01/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21H0304-12RE1 I 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJI0136; Cleaned: 17-Sep-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21H0304-12RE1 I 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	3	0.004	0.030	2.62	ug/L	D
2-Methylnaphthalene	91-57-6	3	0.003	0.030	0.347	ug/L	D
1-Methylnaphthalene	90-12-0	3	0.003	0.030	0.686	ug/L	D
Acenaphthylene	208-96-8	3	0.006	0.030	ND	ug/L	U
Acenaphthene	83-32-9	3	0.009	0.030	0.017	ug/L	J, D
Dibenzofuran	132-64-9	3	0.005	0.030	0.007	ug/L	J, D
Fluorene	86-73-7	3	0.005	0.030	0.016	ug/L	J, D
Phenanthrene	85-01-8	3	0.004	0.030	0.006	ug/L	J, D
Anthracene	120-12-7	3	0.003	0.030	ND	ug/L	U
Carbazole	86-74-8	3	0.004	0.030	ND	ug/L	U
Fluoranthene	206-44-0	3	0.005	0.030	ND	ug/L	U
Pyrene	129-00-0	3	0.004	0.030	ND	ug/L	U
Benzo(a)anthracene	56-55-3	3	0.002	0.030	ND	ug/L	U
Chrysene	218-01-9	3	0.003	0.030	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	3	0.001	0.030	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	3	0.010	0.030	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	3	0.006	0.030	ND	ug/L	U
Benzofluoranthenes, Total		3	0.011	0.030	ND	ug/L	U
Benzo(a)pyrene	50-32-8	3	0.007	0.030	ND	ug/L	U
Perylene	1985-5-0	3	0.018	0.030	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	3	0.003	0.030	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	3	0.004	0.030	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	3	0.004	0.030	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*72.7*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*84.8*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*97.8*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-58-20212508

21H0304-12RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/25/2021 15:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/07/2021 17:59

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-12RE1 F 01
Preparation Batch: BJI0141 — Sample Size: 25 mL
Prepared: 09/06/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	364	720	92700	ug/L	D
Manganese	7439-96-5	20	2.84	10.0	1680	ug/L	D

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-58-20212508

21H0304-12RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 08/25/2021 15:00

Instrument: IC930 Analyst: CDE — Analyzed: 09/10/2021 19:05

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0304-12RE1 A

Preparation Batch: BJH0685 — Sample Size: 10 mL

Prepared: 08/26/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	20	2.00	2.00	24.3	mg/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-58-20212508

21H0304-12RE1 (Water)

Wet Chemistry

Method: SM 3500-Fe B-97 — Sampled: 08/25/2021 15:00

Instrument: UV1800-1 Analyst: CKI — Analyzed: 08/25/2021 19:48

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0304-12RE1 E

Preparation Batch: BJH0650 — Sample Size: 5 mL

Prepared: 08/25/2021 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ferrous Iron		100	4.00	4.00	97.9	mg/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-58-20212508

21H0304-12RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 08/25/2021 15:00

Instrument: IC930 Analyst: CDE — Analyzed: 09/23/2021 16:39

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0304-12RE2 A

Preparation Batch: BJH0685 — Sample Size: 10 mL

Prepared: 08/26/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	20	2.00	2.00	49.0	mg/L	H, D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-58-20212508

21H0304-13 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/25/2021 15:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 02:16

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-13 A 02
Preparation Batch: BJI0016 — Sample Size: 25 mL — Filtration Batch: BJH0667
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.114	0.500	5.72	ug/L	
Chromium, Dissolved	7440-47-3	1	0.260	0.500	ND	ug/L	U
Iron, Dissolved	7439-89-6	10	182	360	56600	ug/L	D
Manganese, Dissolved	7439-96-5	10	1.42	5.00	1560	ug/L	D
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0556	0.200	0.556	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-58-20212508

21H0304-13 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/25/2021 15:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/02/2021 02:16

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-13 A 02
Preparation Batch: BJI0016 — Sample Size: 25 mL — Filtration Batch: BJH0667
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	16.8	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	1.06	ug/L	
Copper, Dissolved	7440-50-8	1	0.173	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	0.622	ug/L	
Selenium, Dissolved	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-58-20212508

21H0304-13 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/25/2021 15:00
Instrument: HYDRA Analyst: ML — Analyzed: 09/07/2021 14:42

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0304-13 A 01
Preparation Batch: BJI0076 — Sample Size: 20 mL — Filtration Batch: BJH0667
Prepared: 09/02/2021 — Final Volume: 20 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

MW-58-20212508

21H0304-13RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/25/2021 15:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/03/2021 03:49

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0304-13RE1 A 02
Preparation Batch: BJI0016 — Sample Size: 25 mL — Filtration Batch: BJH0667
Prepared: 09/01/2021 — Final Volume: 25 mL — Filtration Date: 08/26/2021 10:05

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Volatile Organic Compounds - Quality Control

Batch BJI0049 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0049-BLK1)				Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 13:20							
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							U
Surrogate: Toluene-d8	4.68			ug/L	*5.00*		*93.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.66			ug/L	*5.00*		*93.3*	*80-120*			
Blank (BJI0049-BLK2)				Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 13:20							
Vinyl Chloride	ND	0.08	0.20	ug/L							U
1,1-Dichloroethene	ND	0.08	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.07	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Benzene	ND	0.05	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
Toluene	ND	0.05	0.20	ug/L							U
Tetrachloroethene	ND	0.09	0.20	ug/L							U
Ethylbenzene	ND	0.05	0.20	ug/L							U
m,p-Xylene	ND	0.14	0.40	ug/L							U
o-Xylene	ND	0.08	0.20	ug/L							U
Xylenes, total	ND	0.22	0.60	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.67			ug/L	*5.00*		*93.5*	*80-129*			
Surrogate: Toluene-d8	4.68			ug/L	*5.00*		*93.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.66			ug/L	*5.00*		*93.3*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.79			ug/L	*5.00*		*95.7*	*80-120*			
LCS (BJI0049-BS1)				Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 10:23							
Gasoline Range Organics (Tol-Nap)	1040		100	ug/L	1000		104	72-128			
Surrogate: Toluene-d8	4.75			ug/L	*5.00*		*95.1*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.73			ug/L	*5.00*		*94.6*	*80-120*			
LCS (BJI0049-BS2)				Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 10:49							
Vinyl Chloride	9.73	0.08	0.20	ug/L	10.0		97.3	66-133			
1,1-Dichloroethene	9.36	0.08	0.20	ug/L	10.0		93.6	69-135			
trans-1,2-Dichloroethene	8.70	0.07	0.20	ug/L	10.0		87.0	78-128			
cis-1,2-Dichloroethene	9.26	0.08	0.20	ug/L	10.0		92.6	80-121			
Benzene	9.38	0.05	0.20	ug/L	10.0		93.8	80-120			
Trichloroethene	9.06	0.07	0.20	ug/L	10.0		90.6	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Volatile Organic Compounds - Quality Control

Batch BJI0049 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0049-BS2)					Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 10:49						
Toluene	9.25	0.05	0.20	ug/L	10.0		92.5	80-120			
Tetrachloroethene	9.64	0.09	0.20	ug/L	10.0		96.4	80-120			
Ethylbenzene	9.94	0.05	0.20	ug/L	10.0		99.4	80-120			
m,p-Xylene	19.3	0.14	0.40	ug/L	20.0		96.7	80-121			
o-Xylene	9.56	0.08	0.20	ug/L	10.0		95.6	80-121			
Xylenes, total	28.9	0.22	0.60	ug/L	30.0		96.3	76-127			
Surrogate: 1,2-Dichloroethane-d4	4.41			ug/L	*5.00*		*88.3*	*80-129*			
Surrogate: Toluene-d8	4.61			ug/L	*5.00*		*92.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.58			ug/L	*5.00*		*91.6*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.64			ug/L	*5.00*		*92.8*	*80-120*			
LCS Dup (BJI0049-BSD1)					Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 11:14						
Gasoline Range Organics (Tol-Nap)	1070		100	ug/L	1000		107	72-128	2.46	30	
Surrogate: Toluene-d8	4.75			ug/L	*5.00*		*95.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.57			ug/L	*5.00*		*91.4*	*80-120*			
LCS Dup (BJI0049-BSD2)					Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 11:39						
Vinyl Chloride	10.6	0.08	0.20	ug/L	10.0		106	66-133	8.09	30	
1,1-Dichloroethene	9.97	0.08	0.20	ug/L	10.0		99.7	69-135	6.37	30	
trans-1,2-Dichloroethene	9.40	0.07	0.20	ug/L	10.0		94.0	78-128	7.81	30	
cis-1,2-Dichloroethene	9.53	0.08	0.20	ug/L	10.0		95.3	80-121	2.88	30	
Benzene	9.79	0.05	0.20	ug/L	10.0		97.9	80-120	4.33	30	
Trichloroethene	9.97	0.07	0.20	ug/L	10.0		99.7	80-120	9.53	30	
Toluene	9.82	0.05	0.20	ug/L	10.0		98.2	80-120	5.89	30	
Tetrachloroethene	10.8	0.09	0.20	ug/L	10.0		108	80-120	11.60	30	
Ethylbenzene	10.8	0.05	0.20	ug/L	10.0		108	80-120	8.49	30	
m,p-Xylene	20.9	0.14	0.40	ug/L	20.0		104	80-121	7.76	30	
o-Xylene	10.2	0.08	0.20	ug/L	10.0		102	80-121	5.97	30	
Xylenes, total	31.0	0.22	0.60	ug/L	30.0		103	76-127	7.17	30	
Surrogate: 1,2-Dichloroethane-d4	4.27			ug/L	*5.00*		*85.5*	*80-129*			
Surrogate: Toluene-d8	4.72			ug/L	*5.00*		*94.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.88			ug/L	*5.00*		*97.6*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.55			ug/L	*5.00*		*91.0*	*80-120*			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Volatile Organic Compounds - Quality Control

Batch BJI0099 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0099-BLK1)				Prepared: 03-Sep-2021 Analyzed: 03-Sep-2021 18:30							
Vinyl Chloride	ND	0.08	0.20	ug/L							U
1,1-Dichloroethene	ND	0.08	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.07	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Benzene	ND	0.05	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
Toluene	ND	0.05	0.20	ug/L							U
Tetrachloroethene	ND	0.09	0.20	ug/L							U
Ethylbenzene	ND	0.05	0.20	ug/L							U
m,p-Xylene	ND	0.14	0.40	ug/L							U
o-Xylene	ND	0.08	0.20	ug/L							U
Xylenes, total	ND	0.22	0.60	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.20			ug/L	*5.00*		*104*	*80-129*			
Surrogate: Toluene-d8	5.02			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.71			ug/L	*5.00*		*94.2*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.16			ug/L	*5.00*		*103*	*80-120*			
LCS (BJI0099-BS1)				Prepared: 03-Sep-2021 Analyzed: 03-Sep-2021 17:29							
Vinyl Chloride	10.9	0.08	0.20	ug/L	10.0		109	66-133			
1,1-Dichloroethene	10.6	0.08	0.20	ug/L	10.0		106	69-135			
trans-1,2-Dichloroethene	10.2	0.07	0.20	ug/L	10.0		102	78-128			
cis-1,2-Dichloroethene	10.8	0.08	0.20	ug/L	10.0		108	80-121			
Benzene	10.8	0.05	0.20	ug/L	10.0		108	80-120			
Trichloroethene	10.7	0.07	0.20	ug/L	10.0		107	80-120			
Toluene	10.6	0.05	0.20	ug/L	10.0		106	80-120			
Tetrachloroethene	10.3	0.09	0.20	ug/L	10.0		103	80-120			
Ethylbenzene	10.5	0.05	0.20	ug/L	10.0		105	80-120			
m,p-Xylene	21.2	0.14	0.40	ug/L	20.0		106	80-121			
o-Xylene	10.5	0.08	0.20	ug/L	10.0		105	80-121			
Xylenes, total	31.7	0.22	0.60	ug/L	30.0		106	76-127			
Surrogate: 1,2-Dichloroethane-d4	5.38			ug/L	*5.00*		*108*	*80-129*			
Surrogate: Toluene-d8	5.01			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.93			ug/L	*5.00*		*98.5*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.04			ug/L	*5.00*		*101*	*80-120*			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Volatile Organic Compounds - Quality Control

Batch BJI0099 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJI0099-BSD1)					Prepared: 03-Sep-2021 Analyzed: 03-Sep-2021 17:49						
Vinyl Chloride	11.3	0.08	0.20	ug/L	10.0		113	66-133	3.91	30	
1,1-Dichloroethene	11.0	0.08	0.20	ug/L	10.0		110	69-135	3.38	30	
trans-1,2-Dichloroethene	10.5	0.07	0.20	ug/L	10.0		105	78-128	3.54	30	
cis-1,2-Dichloroethene	11.1	0.08	0.20	ug/L	10.0		111	80-121	2.76	30	
Benzene	11.3	0.05	0.20	ug/L	10.0		113	80-120	4.53	30	
Trichloroethene	11.0	0.07	0.20	ug/L	10.0		110	80-120	2.94	30	
Toluene	10.8	0.05	0.20	ug/L	10.0		108	80-120	2.51	30	
Tetrachloroethene	10.6	0.09	0.20	ug/L	10.0		106	80-120	3.40	30	
Ethylbenzene	10.7	0.05	0.20	ug/L	10.0		107	80-120	2.04	30	
m,p-Xylene	21.9	0.14	0.40	ug/L	20.0		110	80-121	3.36	30	
o-Xylene	11.0	0.08	0.20	ug/L	10.0		110	80-121	4.08	30	
Xylenes, total	32.9	0.22	0.60	ug/L	30.0		110	76-127	3.60	30	
Surrogate: 1,2-Dichloroethane-d4	5.61			ug/L	*5.00*		*112*	*80-129*			
Surrogate: Toluene-d8	5.09			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.01			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.02			ug/L	*5.00*		*100*	*80-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Volatile Organic Compounds - SIM - Quality Control

Batch BJH0756 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: KOTT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0756-BLK1)				Prepared: 30-Aug-2021 Analyzed: 30-Aug-2021 12:02							
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	5070			ng/L	*5000*		*101*	*80-129*			
Surrogate: Toluene-d8	5020			ng/L	*5000*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4710			ng/L	*5000*		*94.3*	*75-125*			
LCS (BJH0756-BS1)				Prepared: 30-Aug-2021 Analyzed: 30-Aug-2021 11:21							
Vinyl chloride	1730	5.01	20.0	ng/L	2000		86.7	62-141			
Surrogate: 1,2-Dichloroethane-d4	5080			ng/L	*5000*		*102*	*80-129*			
Surrogate: Toluene-d8	4680			ng/L	*5000*		*93.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5670			ng/L	*5000*		*113*	*75-125*			
LCS Dup (BJH0756-BSD1)				Prepared: 30-Aug-2021 Analyzed: 30-Aug-2021 11:42							
Vinyl chloride	1670	5.01	20.0	ng/L	2000		83.3	62-141	4.08	30	
Surrogate: 1,2-Dichloroethane-d4	5160			ng/L	*5000*		*103*	*80-129*			
Surrogate: Toluene-d8	4750			ng/L	*5000*		*95.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5520			ng/L	*5000*		*110*	*75-125*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Dissolved Gases - Quality Control

Batch BJI0109 - EPA 5030C (Purge and Trap)

Instrument: FID6 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0109-BLK1)				Prepared: 03-Sep-2021	Analyzed: 03-Sep-2021 10:32					
Methane	ND	0.65	ug/L							U
Ethane	ND	1.23	ug/L							U
Ethene	ND	1.14	ug/L							U
Acetylene	ND	1.06	ug/L							U
Surrogate: Propane	1550		ug/L	*1800*		*86.4*	*72-122*			
LCS (BJI0109-BS1)				Prepared: 03-Sep-2021	Analyzed: 03-Sep-2021 09:15					
Methane	716	0.65	ug/L	656		109	80-120			
Ethane	1410	1.23	ug/L	1230		115	80-120			
Ethene	1280	1.14	ug/L	1150		112	80-120			
Acetylene	1130	1.06	ug/L	1060		107	73-123			E
Surrogate: Propane	1850		ug/L	*1800*		*103*	*62-122*			
LCS Dup (BJI0109-BSD1)				Prepared: 03-Sep-2021	Analyzed: 03-Sep-2021 09:33					
Methane	711	0.65	ug/L	656		108	80-120	0.62	30	
Ethane	1410	1.23	ug/L	1230		114	80-120	0.28	30	
Ethene	1280	1.14	ug/L	1150		111	80-120	0.37	30	
Acetylene	1150	1.06	ug/L	1060		109	73-123	2.10	30	E
Surrogate: Propane	1790		ug/L	*1800*		*99.7*	*62-122*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Semivolatile Organic Compounds - Quality Control

Batch BJH0669 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0669-BLK1)				Prepared: 31-Aug-2021 Analyzed: 19-Sep-2021 01:01							
1,4-Dichlorobenzene	ND	0.03	0.2	ug/L							U
1,2-Dichlorobenzene	ND	0.03	0.2	ug/L							U
2,4-Dimethylphenol	ND	0.3	1.0	ug/L							U
Benzoic acid	ND	0.1	2.0	ug/L							U
N-Nitrosodiphenylamine	ND	0.03	0.2	ug/L							U
Pentachlorophenol	ND	0.1	1.0	ug/L							U
Di-n-Butylphthalate	ND	0.05	0.2	ug/L							U
Butylbenzylphthalate	ND	0.07	0.2	ug/L							U
bis(2-Ethylhexyl)phthalate	ND	0.2	0.2	ug/L							U
Surrogate: 2-Fluorophenol	3.14			ug/L	*7.50*		*41.9*	*30-160*			
Surrogate: Phenol-d5	1.85			ug/L	*7.50*		*24.7*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	5.97			ug/L	*7.50*		*79.6*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.16			ug/L	*5.00*		*63.1*	*30-160*			
Surrogate: Nitrobenzene-d5	3.61			ug/L	*5.00*		*72.2*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.43			ug/L	*5.00*		*68.6*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	4.68			ug/L	*7.50*		*62.4*	*30-160*			
Surrogate: p-Terphenyl-d14	2.93			ug/L	*5.00*		*58.6*	*30-160*			
LCS (BJH0669-BS1)				Prepared: 31-Aug-2021 Analyzed: 19-Sep-2021 01:39							
1,4-Dichlorobenzene	3.5	0.03	0.2	ug/L	5.00		70.5	30-160			
1,2-Dichlorobenzene	3.3	0.03	0.2	ug/L	5.00		65.9	30-160			
2,4-Dimethylphenol	7.3	0.3	1.0	ug/L	13.0		56.1	30-160			
Benzoic acid	6.0	0.1	2.0	ug/L	23.0		25.9	30-160			*
N-Nitrosodiphenylamine	4.0	0.03	0.2	ug/L	5.00		79.5	30-160			
Pentachlorophenol	8.1	0.1	1.0	ug/L	13.0		62.4	30-160			
Di-n-Butylphthalate	4.7	0.05	0.2	ug/L	5.00		93.3	30-160			
Butylbenzylphthalate	4.0	0.07	0.2	ug/L	5.00		80.8	30-160			
bis(2-Ethylhexyl)phthalate	3.6	0.2	0.2	ug/L	5.00		71.7	30-160			
Surrogate: 2-Fluorophenol	3.62			ug/L	*7.50*		*48.3*	*30-160*			
Surrogate: Phenol-d5	2.35			ug/L	*7.50*		*31.3*	*30-160*			
Surrogate: 2-Chlorophenol-d4	6.03			ug/L	*7.50*		*80.3*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.51			ug/L	*5.00*		*70.1*	*30-160*			
Surrogate: Nitrobenzene-d5	4.27			ug/L	*5.00*		*85.4*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.97			ug/L	*5.00*		*79.4*	*30-160*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Semivolatile Organic Compounds - Quality Control

Batch BJH0669 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0669-BS1)					Prepared: 31-Aug-2021 Analyzed: 19-Sep-2021 01:39						
Surrogate: 2,4,6-Tribromophenol	5.89			ug/L	*7.50*		*78.5*	*30-160*			
Surrogate: p-Terphenyl-d14	3.69			ug/L	*5.00*		*73.7*	*30-160*			
LCS Dup (BJH0669-BSD1)					Prepared: 31-Aug-2021 Analyzed: 19-Sep-2021 02:16						
1,4-Dichlorobenzene	3.6	0.03	0.2	ug/L	5.00		72.4	30-160	2.73	30	
1,2-Dichlorobenzene	3.3	0.03	0.2	ug/L	5.00		65.7	30-160	0.39	30	
2,4-Dimethylphenol	8.1	0.3	1.0	ug/L	13.0		62.2	30-160	10.30	30	
Benzoic acid	5.8	0.1	2.0	ug/L	23.0		25.1	30-160	3.05	30	*
N-Nitrosodiphenylamine	4.0	0.03	0.2	ug/L	5.00		80.3	30-160	1.08	30	
Pentachlorophenol	8.9	0.1	1.0	ug/L	13.0		68.2	30-160	8.91	30	
Di-n-Butylphthalate	4.6	0.05	0.2	ug/L	5.00		92.7	30-160	0.65	30	
Butylbenzylphthalate	4.0	0.07	0.2	ug/L	5.00		79.2	30-160	1.94	30	
bis(2-Ethylhexyl)phthalate	3.4	0.2	0.2	ug/L	5.00		68.1	30-160	5.09	30	
Surrogate: 2-Fluorophenol	2.98			ug/L	*7.50*		*39.7*	*30-160*			
Surrogate: Phenol-d5	1.93			ug/L	*7.50*		*25.7*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	6.40			ug/L	*7.50*		*85.3*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.38			ug/L	*5.00*		*67.5*	*30-160*			
Surrogate: Nitrobenzene-d5	4.03			ug/L	*5.00*		*80.6*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.81			ug/L	*5.00*		*76.3*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	5.97			ug/L	*7.50*		*79.6*	*30-160*			
Surrogate: p-Terphenyl-d14	3.69			ug/L	*5.00*		*73.8*	*30-160*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Semivolatile Organic Compounds - Quality Control

Batch BJI0012 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0012-BLK1)				Prepared: 01-Sep-2021 Analyzed: 18-Sep-2021 10:19							
1,4-Dichlorobenzene	ND	0.03	0.2	ug/L							U
1,2-Dichlorobenzene	ND	0.03	0.2	ug/L							U
2,4-Dimethylphenol	ND	0.3	1.0	ug/L							U
Benzoic acid	ND	0.1	2.0	ug/L							U
N-Nitrosodiphenylamine	ND	0.03	0.2	ug/L							U
Pentachlorophenol	ND	0.1	1.0	ug/L							U
Di-n-Butylphthalate	ND	0.05	0.2	ug/L							U
Butylbenzylphthalate	ND	0.07	0.2	ug/L							U
bis(2-Ethylhexyl)phthalate	ND	0.2	0.2	ug/L							U
Surrogate: 2-Fluorophenol	2.72			ug/L	*7.50*		*36.2*	*30-160*			
Surrogate: Phenol-d5	1.42			ug/L	*7.50*		*19.0*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	6.05			ug/L	*7.50*		*80.7*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.45			ug/L	*5.00*		*69.0*	*30-160*			
Surrogate: Nitrobenzene-d5	3.86			ug/L	*5.00*		*77.2*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.90			ug/L	*5.00*		*78.0*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.53			ug/L	*7.50*		*87.1*	*30-160*			
Surrogate: p-Terphenyl-d14	3.65			ug/L	*5.00*		*73.0*	*30-160*			
LCS (BJI0012-BS1)				Prepared: 01-Sep-2021 Analyzed: 18-Sep-2021 10:57							
1,4-Dichlorobenzene	3.2	0.03	0.2	ug/L	5.00		64.8	30-160			
1,2-Dichlorobenzene	3.1	0.03	0.2	ug/L	5.00		61.3	30-160			
2,4-Dimethylphenol	9.4	0.3	1.0	ug/L	13.0		72.0	30-160			
Benzoic acid	5.3	0.1	2.0	ug/L	23.0		22.9	30-160			*
N-Nitrosodiphenylamine	4.0	0.03	0.2	ug/L	5.00		79.5	30-160			
Pentachlorophenol	10.7	0.1	1.0	ug/L	13.0		82.4	30-160			
Di-n-Butylphthalate	4.7	0.05	0.2	ug/L	5.00		94.2	30-160			
Butylbenzylphthalate	4.4	0.07	0.2	ug/L	5.00		87.9	30-160			
bis(2-Ethylhexyl)phthalate	4.6	0.2	0.2	ug/L	5.00		92.5	30-160			
Surrogate: 2-Fluorophenol	2.48			ug/L	*7.50*		*33.0*	*30-160*			
Surrogate: Phenol-d5	1.49			ug/L	*7.50*		*19.9*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	5.73			ug/L	*7.50*		*76.3*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.10			ug/L	*5.00*		*61.9*	*30-160*			
Surrogate: Nitrobenzene-d5	3.85			ug/L	*5.00*		*77.0*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.87			ug/L	*5.00*		*77.4*	*30-160*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Semivolatile Organic Compounds - Quality Control

Batch BJI0012 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0012-BS1)				Prepared: 01-Sep-2021 Analyzed: 18-Sep-2021 10:57							
Surrogate: 2,4,6-Tribromophenol	6.52			ug/L	*7.50*		*86.9*	*30-160*			
Surrogate: p-Terphenyl-d14	4.34			ug/L	*5.00*		*86.7*	*30-160*			
LCS Dup (BJI0012-BSD1)				Prepared: 01-Sep-2021 Analyzed: 18-Sep-2021 11:35							
1,4-Dichlorobenzene	3.6	0.03	0.2	ug/L	5.00		72.2	30-160	10.80	30	
1,2-Dichlorobenzene	3.3	0.03	0.2	ug/L	5.00		65.1	30-160	5.96	30	
2,4-Dimethylphenol	10.3	0.3	1.0	ug/L	13.0		79.5	30-160	9.95	30	
Benzoic acid	5.7	0.1	2.0	ug/L	23.0		24.9	30-160	8.18	30	*
N-Nitrosodiphenylamine	4.1	0.03	0.2	ug/L	5.00		82.9	30-160	4.17	30	
Pentachlorophenol	11.0	0.1	1.0	ug/L	13.0		84.8	30-160	2.91	30	
Di-n-Butylphthalate	4.9	0.05	0.2	ug/L	5.00		98.9	30-160	4.78	30	
Butylbenzylphthalate	4.4	0.07	0.2	ug/L	5.00		88.4	30-160	0.57	30	
bis(2-Ethylhexyl)phthalate	3.9	0.2	0.2	ug/L	5.00		77.5	30-160	17.60	30	
Surrogate: 2-Fluorophenol	2.85			ug/L	*7.50*		*37.9*	*30-160*			
Surrogate: Phenol-d5	1.66			ug/L	*7.50*		*22.1*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	5.47			ug/L	*7.50*		*72.9*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.33			ug/L	*5.00*		*66.6*	*30-160*			
Surrogate: Nitrobenzene-d5	4.06			ug/L	*5.00*		*81.3*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.02			ug/L	*5.00*		*80.5*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.53			ug/L	*7.50*		*87.1*	*30-160*			
Surrogate: p-Terphenyl-d14	4.48			ug/L	*5.00*		*89.5*	*30-160*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0668 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0668-BLK1)				Prepared: 01-Sep-2021 Analyzed: 17-Sep-2021 14:24							
Naphthalene	0.005	0.001	0.010	ug/L							J
2-Methylnaphthalene	0.002	0.001	0.010	ug/L							J
1-Methylnaphthalene	0.001	0.0009	0.010	ug/L							J
Acenaphthylene	ND	0.002	0.010	ug/L							U
Acenaphthene	ND	0.003	0.010	ug/L							U
Dibenzofuran	0.005	0.002	0.010	ug/L							J
Fluorene	ND	0.002	0.010	ug/L							U
Phenanthrene	ND	0.001	0.010	ug/L							U
Anthracene	ND	0.001	0.010	ug/L							U
Carbazole	ND	0.001	0.010	ug/L							U
Fluoranthene	ND	0.002	0.010	ug/L							U
Pyrene	ND	0.001	0.010	ug/L							U
Benzo(a)anthracene	ND	0.0008	0.010	ug/L							U
Chrysene	ND	0.0009	0.010	ug/L							U
Benzo(b)fluoranthene	ND	0.0005	0.010	ug/L							U
Benzo(k)fluoranthene	ND	0.003	0.010	ug/L							U
Benzo(j)fluoranthene	ND	0.002	0.010	ug/L							U
Benzofluoranthenes, Total	ND	0.004	0.010	ug/L							U
Benzo(a)pyrene	ND	0.002	0.010	ug/L							U
Perylene	ND	0.006	0.010	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.001	0.010	ug/L							U
Dibenzo(a,h)anthracene	ND	0.001	0.010	ug/L							U
Benzo(g,h,i)perylene	ND	0.001	0.010	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	0.220			ug/L	*0.300*		*73.3*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.148			ug/L	*0.300*		*49.2*	*29-120*			
Surrogate: Fluoranthene-d10	0.246			ug/L	*0.300*		*82.1*	*57-120*			
LCS (BJH0668-BS1)				Prepared: 01-Sep-2021 Analyzed: 17-Sep-2021 14:54							
Naphthalene	0.218	0.001	0.010	ug/L	0.300		72.5	37-120			
2-Methylnaphthalene	0.222	0.001	0.010	ug/L	0.300		74.1	37-120			
1-Methylnaphthalene	0.223	0.0009	0.010	ug/L	0.300		74.2	29-120			
Acenaphthylene	0.203	0.002	0.010	ug/L	0.300		67.6	41-120			
Acenaphthene	0.205	0.003	0.010	ug/L	0.300		68.3	41-120			
Dibenzofuran	0.213	0.002	0.010	ug/L	0.300		70.9	38-120			
Fluorene	0.228	0.002	0.010	ug/L	0.300		76.1	43-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0668 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0668-BS1)					Prepared: 01-Sep-2021 Analyzed: 17-Sep-2021 14:54						
Phenanthrene	0.232	0.001	0.010	ug/L	0.300		77.4	41-120			
Anthracene	0.218	0.001	0.010	ug/L	0.300		72.6	40-120			
Carbazole	0.237	0.001	0.010	ug/L	0.300		78.9	30-160			
Fluoranthene	0.240	0.002	0.010	ug/L	0.300		80.0	45-120			
Pyrene	0.238	0.001	0.010	ug/L	0.300		79.4	41-120			
Benzo(a)anthracene	0.227	0.0008	0.010	ug/L	0.300		75.6	42-120			
Chrysene	0.219	0.0009	0.010	ug/L	0.300		73.0	44-120			
Benzo(b)fluoranthene	0.215	0.0005	0.010	ug/L	0.300		71.6	44-120			
Benzo(k)fluoranthene	0.220	0.003	0.010	ug/L	0.300		73.3	50-120			
Benzo(j)fluoranthene	0.226	0.002	0.010	ug/L	0.300		75.4	39-160			
Benzofluoranthenes, Total	0.661	0.004	0.010	ug/L	0.900		73.4	46-120			
Benzo(a)pyrene	0.206	0.002	0.010	ug/L	0.300		68.5	35-120			
Perylene	0.201	0.006	0.010	ug/L	0.300		67.0	30-160			
Indeno(1,2,3-cd)pyrene	0.189	0.001	0.010	ug/L	0.300		63.0	37-120			
Dibenzo(a,h)anthracene	0.185	0.001	0.010	ug/L	0.300		61.8	34-120			
Benzo(g,h,i)perylene	0.184	0.001	0.010	ug/L	0.300		61.5	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.224			ug/L	*0.300*		*74.6*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.201			ug/L	*0.300*		*66.9*	*29-120*			
Surrogate: Fluoranthene-d10	0.246			ug/L	*0.300*		*82.1*	*57-120*			
LCS Dup (BJH0668-BSD1)					Prepared: 01-Sep-2021 Analyzed: 17-Sep-2021 15:25						
Naphthalene	0.228	0.001	0.010	ug/L	0.300		76.1	37-120	4.86	30	
2-Methylnaphthalene	0.234	0.001	0.010	ug/L	0.300		78.0	37-120	5.14	30	
1-Methylnaphthalene	0.231	0.0009	0.010	ug/L	0.300		77.1	29-120	3.73	30	
Acenaphthylene	0.210	0.002	0.010	ug/L	0.300		70.1	41-120	3.73	30	
Acenaphthene	0.212	0.003	0.010	ug/L	0.300		70.5	41-120	3.27	30	
Dibenzofuran	0.216	0.002	0.010	ug/L	0.300		72.1	38-120	1.68	30	
Fluorene	0.231	0.002	0.010	ug/L	0.300		77.1	43-120	1.31	30	
Phenanthrene	0.232	0.001	0.010	ug/L	0.300		77.3	41-120	0.13	30	
Anthracene	0.209	0.001	0.010	ug/L	0.300		69.7	40-120	4.14	30	
Carbazole	0.233	0.001	0.010	ug/L	0.300		77.5	30-160	1.75	30	
Fluoranthene	0.238	0.002	0.010	ug/L	0.300		79.2	45-120	1.01	30	
Pyrene	0.237	0.001	0.010	ug/L	0.300		79.2	41-120	0.24	30	
Benzo(a)anthracene	0.224	0.0008	0.010	ug/L	0.300		74.7	42-120	1.12	30	
Chrysene	0.220	0.0009	0.010	ug/L	0.300		73.3	44-120	0.39	30	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0668 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJH0668-BSD1)					Prepared: 01-Sep-2021 Analyzed: 17-Sep-2021 15:25						
Benzo(b)fluoranthene	0.225	0.0005	0.010	ug/L	0.300		75.1	44-120	4.74	30	
Benzo(k)fluoranthene	0.229	0.003	0.010	ug/L	0.300		76.4	50-120	4.12	30	
Benzo(j)fluoranthene	0.236	0.002	0.010	ug/L	0.300		78.7	39-160	4.25	30	
Benzofluoranthenes, Total	0.690	0.004	0.010	ug/L	0.900		76.7	46-120	4.37	30	
Benzo(a)pyrene	0.202	0.002	0.010	ug/L	0.300		67.5	35-120	1.56	30	
Perylene	0.194	0.006	0.010	ug/L	0.300		64.6	30-160	3.66	30	
Indeno(1,2,3-cd)pyrene	0.203	0.001	0.010	ug/L	0.300		67.5	37-120	6.83	30	
Dibenzo(a,h)anthracene	0.202	0.001	0.010	ug/L	0.300		67.2	34-120	8.28	30	
Benzo(g,h,i)perylene	0.197	0.001	0.010	ug/L	0.300		65.6	38-120	6.53	30	
Surrogate: 2-Methylnaphthalene-d10	0.226			ug/L	*0.300*		*75.4*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.202			ug/L	*0.300*		*67.4*	*29-120*			
Surrogate: Fluoranthene-d10	0.242			ug/L	*0.300*		*80.6*	*57-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0745 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0745-BLK1)				Prepared: 31-Aug-2021 Analyzed: 17-Sep-2021 17:26							
Naphthalene	0.004	0.001	0.010	ug/L							J
2-Methylnaphthalene	0.002	0.001	0.010	ug/L							J
1-Methylnaphthalene	0.001	0.0009	0.010	ug/L							J
Acenaphthylene	ND	0.002	0.010	ug/L							U
Acenaphthene	ND	0.003	0.010	ug/L							U
Dibenzofuran	ND	0.002	0.010	ug/L							U
Fluorene	ND	0.002	0.010	ug/L							U
Phenanthrene	ND	0.001	0.010	ug/L							U
Anthracene	ND	0.001	0.010	ug/L							U
Carbazole	ND	0.001	0.010	ug/L							U
Fluoranthene	ND	0.002	0.010	ug/L							U
Pyrene	ND	0.001	0.010	ug/L							U
Benzo(a)anthracene	ND	0.0008	0.010	ug/L							U
Chrysene	ND	0.0009	0.010	ug/L							U
Benzo(b)fluoranthene	ND	0.0005	0.010	ug/L							U
Benzo(k)fluoranthene	ND	0.003	0.010	ug/L							U
Benzo(j)fluoranthene	ND	0.002	0.010	ug/L							U
Benzofluoranthenes, Total	ND	0.004	0.010	ug/L							U
Benzo(a)pyrene	ND	0.002	0.010	ug/L							U
Perylene	ND	0.006	0.010	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.001	0.010	ug/L							U
Dibenzo(a,h)anthracene	ND	0.001	0.010	ug/L							U
Benzo(g,h,i)perylene	ND	0.001	0.010	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	0.238			ug/L	*0.300*		*79.4*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.204			ug/L	*0.300*		*68.1*	*29-120*			
Surrogate: Fluoranthene-d10	0.273			ug/L	*0.300*		*91.0*	*57-120*			
LCS (BJH0745-BS1)				Prepared: 31-Aug-2021 Analyzed: 17-Sep-2021 17:56							
Naphthalene	0.240	0.001	0.010	ug/L	0.300		80.1	37-120			
2-Methylnaphthalene	0.244	0.001	0.010	ug/L	0.300		81.4	37-120			
1-Methylnaphthalene	0.245	0.0009	0.010	ug/L	0.300		81.7	29-120			
Acenaphthylene	0.219	0.002	0.010	ug/L	0.300		73.0	41-120			
Acenaphthene	0.225	0.003	0.010	ug/L	0.300		74.9	41-120			
Dibenzofuran	0.227	0.002	0.010	ug/L	0.300		75.8	38-120			
Fluorene	0.245	0.002	0.010	ug/L	0.300		81.7	43-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0745 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0745-BS1)					Prepared: 31-Aug-2021 Analyzed: 17-Sep-2021 17:56						
Phenanthrene	0.245	0.001	0.010	ug/L	0.300		81.8	41-120			
Anthracene	0.225	0.001	0.010	ug/L	0.300		75.1	40-120			
Carbazole	0.246	0.001	0.010	ug/L	0.300		81.9	30-160			
Fluoranthene	0.254	0.002	0.010	ug/L	0.300		84.7	45-120			
Pyrene	0.248	0.001	0.010	ug/L	0.300		82.8	41-120			
Benzo(a)anthracene	0.233	0.0008	0.010	ug/L	0.300		77.6	42-120			
Chrysene	0.237	0.0009	0.010	ug/L	0.300		79.1	44-120			
Benzo(b)fluoranthene	0.238	0.0005	0.010	ug/L	0.300		79.3	44-120			
Benzo(k)fluoranthene	0.254	0.003	0.010	ug/L	0.300		84.8	50-120			
Benzo(j)fluoranthene	0.268	0.002	0.010	ug/L	0.300		89.4	39-160			
Benzofluoranthenes, Total	0.761	0.004	0.010	ug/L	0.900		84.5	46-120			
Benzo(a)pyrene	0.220	0.002	0.010	ug/L	0.300		73.4	35-120			
Perylene	0.212	0.006	0.010	ug/L	0.300		70.6	30-160			
Indeno(1,2,3-cd)pyrene	0.210	0.001	0.010	ug/L	0.300		70.1	37-120			
Dibenzo(a,h)anthracene	0.207	0.001	0.010	ug/L	0.300		68.9	34-120			
Benzo(g,h,i)perylene	0.205	0.001	0.010	ug/L	0.300		68.2	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.256			ug/L	*0.300*		*85.3*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.213			ug/L	*0.300*		*71.1*	*29-120*			
Surrogate: Fluoranthene-d10	0.270			ug/L	*0.300*		*90.0*	*57-120*			
LCS Dup (BJH0745-BSD1)					Prepared: 31-Aug-2021 Analyzed: 17-Sep-2021 18:26						
Naphthalene	0.228	0.001	0.010	ug/L	0.300		75.8	37-120	5.46	30	
2-Methylnaphthalene	0.235	0.001	0.010	ug/L	0.300		78.3	37-120	3.84	30	
1-Methylnaphthalene	0.234	0.0009	0.010	ug/L	0.300		78.1	29-120	4.50	30	
Acenaphthylene	0.214	0.002	0.010	ug/L	0.300		71.5	41-120	2.13	30	
Acenaphthene	0.217	0.003	0.010	ug/L	0.300		72.4	41-120	3.37	30	
Dibenzofuran	0.222	0.002	0.010	ug/L	0.300		73.9	38-120	2.49	30	
Fluorene	0.238	0.002	0.010	ug/L	0.300		79.4	43-120	2.78	30	
Phenanthrene	0.239	0.001	0.010	ug/L	0.300		79.7	41-120	2.57	30	
Anthracene	0.217	0.001	0.010	ug/L	0.300		72.2	40-120	3.89	30	
Carbazole	0.241	0.001	0.010	ug/L	0.300		80.2	30-160	2.07	30	
Fluoranthene	0.248	0.002	0.010	ug/L	0.300		82.7	45-120	2.29	30	
Pyrene	0.245	0.001	0.010	ug/L	0.300		81.7	41-120	1.34	30	
Benzo(a)anthracene	0.231	0.0008	0.010	ug/L	0.300		76.8	42-120	1.00	30	
Chrysene	0.232	0.0009	0.010	ug/L	0.300		77.4	44-120	2.16	30	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0745 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJH0745-BSD1)					Prepared: 31-Aug-2021 Analyzed: 17-Sep-2021 18:26						
Benzo(b)fluoranthene	0.236	0.0005	0.010	ug/L	0.300		78.5	44-120	1.04	30	
Benzo(k)fluoranthene	0.249	0.003	0.010	ug/L	0.300		82.9	50-120	2.28	30	
Benzo(j)fluoranthene	0.265	0.002	0.010	ug/L	0.300		88.4	39-160	1.12	30	
Benzofluoranthenes, Total	0.749	0.004	0.010	ug/L	0.900		83.3	46-120	1.48	30	
Benzo(a)pyrene	0.211	0.002	0.010	ug/L	0.300		70.4	35-120	4.13	30	
Perylene	0.215	0.006	0.010	ug/L	0.300		71.7	30-160	1.46	30	
Indeno(1,2,3-cd)pyrene	0.204	0.001	0.010	ug/L	0.300		68.1	37-120	2.93	30	
Dibenzo(a,h)anthracene	0.202	0.001	0.010	ug/L	0.300		67.4	34-120	2.34	30	
Benzo(g,h,i)perylene	0.200	0.001	0.010	ug/L	0.300		66.7	38-120	2.27	30	
Surrogate: 2-Methylnaphthalene-d10	0.232			ug/L	*0.300*		*77.3*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.197			ug/L	*0.300*		*65.6*	*29-120*			
Surrogate: Fluoranthene-d10	0.250			ug/L	*0.300*		*83.5*	*57-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Petroleum Hydrocarbons - Quality Control

Batch BJH0664 - EPA 3510C SepF

Instrument: FID4 Analyst: TWC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0664-BLK1)				Prepared: 27-Aug-2021 Analyzed: 13-Sep-2021 17:34						
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: o-Terphenyl	0.256		mg/L	*0.225*		*114*	*50-150*			
LCS (BJH0664-BS1)				Prepared: 27-Aug-2021 Analyzed: 13-Sep-2021 17:54						
Diesel Range Organics (C12-C24)	2.88	0.100	mg/L	3.00		95.9	56-120			
Surrogate: o-Terphenyl	0.243		mg/L	*0.225*		*108*	*50-150*			
LCS Dup (BJH0664-BSD1)				Prepared: 27-Aug-2021 Analyzed: 13-Sep-2021 18:14						
Diesel Range Organics (C12-C24)	3.57	0.100	mg/L	3.00		119	56-120	21.60	30	
Surrogate: o-Terphenyl	0.283		mg/L	*0.225*		*126*	*50-150*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Petroleum Hydrocarbons - Quality Control

Batch BJH0731 - EPA 3510C SepF

Instrument: FID4 Analyst: TWC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0731-BLK1)				Prepared: 30-Aug-2021 Analyzed: 13-Sep-2021 22:56						
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: o-Terphenyl	0.272		mg/L	*0.225*		*121*	*50-150*			
LCS (BJH0731-BS1)				Prepared: 30-Aug-2021 Analyzed: 13-Sep-2021 23:16						
Diesel Range Organics (C12-C24)	3.64	0.100	mg/L	3.00		121	56-120			*
Surrogate: o-Terphenyl	0.305		mg/L	*0.225*		*136*	*50-150*			
LCS Dup (BJH0731-BSD1)				Prepared: 30-Aug-2021 Analyzed: 13-Sep-2021 23:36						
Diesel Range Organics (C12-C24)	3.54	0.100	mg/L	3.00		118	56-120	2.82	30	
Surrogate: o-Terphenyl	0.284		mg/L	*0.225*		*126*	*50-150*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Aroclor PCB - Quality Control

Batch BJH0666 - EPA 3510C SepF

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0666-BLK1)				Prepared: 30-Aug-2021 Analyzed: 15-Sep-2021 20:41							
Aroclor 1016	ND	0.002	0.010	ug/L							U
Aroclor 1221	ND	0.002	0.010	ug/L							U
Aroclor 1232	ND	0.002	0.010	ug/L							U
Aroclor 1242	ND	0.002	0.010	ug/L							U
Aroclor 1248	ND	0.002	0.010	ug/L							U
Aroclor 1254	ND	0.002	0.010	ug/L							U
Aroclor 1260	ND	0.003	0.010	ug/L							U
Aroclor 1262	ND	0.003	0.010	ug/L							U
Aroclor 1268	ND	0.003	0.010	ug/L							U
Surrogate: Decachlorobiphenyl	0.0165			ug/L	*0.0200*		*82.6*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0142			ug/L	*0.0200*		*71.2*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0162			ug/L	*0.0200*		*80.9*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0129			ug/L	*0.0200*		*64.7*	*32-120*			
LCS (BJH0666-BS1)				Prepared: 30-Aug-2021 Analyzed: 15-Sep-2021 21:02							
Aroclor 1016 [2C]	0.038	0.002	0.010	ug/L	0.0500		75.9	54-120			
Aroclor 1260 [2C]	0.038	0.003	0.010	ug/L	0.0500		75.6	51-128			
Surrogate: Decachlorobiphenyl	0.0155			ug/L	*0.0200*		*77.4*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0132			ug/L	*0.0200*		*65.8*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0148			ug/L	*0.0200*		*74.0*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0124			ug/L	*0.0200*		*62.2*	*32-120*			
LCS Dup (BJH0666-BSD1)				Prepared: 30-Aug-2021 Analyzed: 15-Sep-2021 21:22							
Aroclor 1016 [2C]	0.039	0.002	0.010	ug/L	0.0500		78.6	54-120	3.43	30	
Aroclor 1260	0.039	0.003	0.010	ug/L	0.0500		78.3	51-128	7.06	30	
Surrogate: Decachlorobiphenyl	0.0150			ug/L	*0.0200*		*75.2*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0138			ug/L	*0.0200*		*69.1*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0146			ug/L	*0.0200*		*72.9*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0130			ug/L	*0.0200*		*65.1*	*32-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Aroclor PCB - Quality Control

Batch BJI0002 - EPA 3510C SepF

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0002-BLK1)				Prepared: 01-Sep-2021 Analyzed: 16-Sep-2021 13:52							
Aroclor 1016	ND	0.002	0.010	ug/L							U
Aroclor 1221	ND	0.002	0.010	ug/L							U
Aroclor 1232	ND	0.002	0.010	ug/L							U
Aroclor 1242	ND	0.002	0.010	ug/L							U
Aroclor 1248	ND	0.002	0.010	ug/L							U
Aroclor 1254	ND	0.002	0.010	ug/L							U
Aroclor 1260	ND	0.003	0.010	ug/L							U
Aroclor 1262	ND	0.003	0.010	ug/L							U
Aroclor 1268	ND	0.003	0.010	ug/L							U
Surrogate: Decachlorobiphenyl	0.0164			ug/L	*0.0200*		*81.8*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0145			ug/L	*0.0200*		*72.6*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0156			ug/L	*0.0200*		*78.2*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0136			ug/L	*0.0200*		*67.9*	*32-120*			
LCS (BJI0002-BS1)				Prepared: 01-Sep-2021 Analyzed: 16-Sep-2021 13:11							
Aroclor 1016 [2C]	0.035	0.002	0.010	ug/L	0.0500		70.2	54-120			
Aroclor 1260	0.026	0.003	0.010	ug/L	0.0500		52.5	51-128			
Surrogate: Decachlorobiphenyl	0.00788			ug/L	*0.0200*		*39.4*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0113			ug/L	*0.0200*		*56.6*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.00724			ug/L	*0.0200*		*36.2*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0110			ug/L	*0.0200*		*55.2*	*32-120*			
LCS Dup (BJI0002-BSD1)				Prepared: 01-Sep-2021 Analyzed: 16-Sep-2021 13:31							
Aroclor 1016 [2C]	0.030	0.002	0.010	ug/L	0.0500		59.2	54-120	17.00	30	
Aroclor 1260	0.019	0.003	0.010	ug/L	0.0500		38.5	51-128	30.80	30	*
Surrogate: Decachlorobiphenyl	0.00554			ug/L	*0.0200*		*27.7*	*29-120*			*
Surrogate: Tetrachlorometaxylene	0.00980			ug/L	*0.0200*		*49.0*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.00505			ug/L	*0.0200*		*25.3*	*29-120*			*
Surrogate: Tetrachlorometaxylene [2C]	0.00947			ug/L	*0.0200*		*47.4*	*32-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Metals and Metallic Compounds - Quality Control

Batch BJH0743 - TWM EPA 7470A

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0743-BLK1)				Prepared: 30-Aug-2021 Analyzed: 01-Sep-2021 14:39							
Mercury	ND	0.000013	0.000100	mg/L							U
LCS (BJH0743-BS1)				Prepared: 30-Aug-2021 Analyzed: 01-Sep-2021 14:42							
Mercury	0.00189	0.000013	0.000100	mg/L	0.00200		94.6	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Metals and Metallic Compounds - Quality Control

Batch BJI0141 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0141-BLK1)					Prepared: 06-Sep-2021 Analyzed: 07-Sep-2021 16:02							
Barium	135	ND	0.114	0.500	ug/L							U
Barium	137	ND	0.0765	0.500	ug/L							U
Chromium	52	ND	0.260	0.500	ug/L							U
Chromium	53	ND	0.239	0.500	ug/L							U
Iron	54	ND	18.2	36.0	ug/L							U
Iron	57	ND	6.63	36.0	ug/L							U
Lead	208	ND	0.0513	0.100	ug/L							U
Manganese	55	ND	0.142	0.500	ug/L							U
Silver	107	ND	0.0220	0.200	ug/L							U
Vanadium	51a	ND	0.0556	0.200	ug/L							U
Vanadium	51b	ND	0.0521	0.200	ug/L							U
Arsenic	75a	ND	0.0373	0.200	ug/L							U
Cadmium	111	ND	0.0300	0.100	ug/L							U
Cadmium	114	ND	0.0400	0.100	ug/L							U
Cobalt	59	ND	0.0178	0.200	ug/L							U
Copper	63	ND	0.173	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	ND	0.0792	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Selenium	78	ND	0.179	0.500	ug/L							U
Zinc	66	ND	2.92	6.00	ug/L							U
Zinc	67	ND	0.940	6.00	ug/L							U
LCS (BJI0141-BS1)					Prepared: 06-Sep-2021 Analyzed: 07-Sep-2021 16:06							
Barium	135	24.5	0.114	0.500	ug/L	25.0		98.0	80-120			
Barium	137	24.5	0.0765	0.500	ug/L	25.0		98.1	80-120			
Chromium	52	23.7	0.260	0.500	ug/L	25.0		94.9	80-120			
Chromium	53	25.1	0.239	0.500	ug/L	25.0		100	80-120			
Iron	54	5050	18.2	36.0	ug/L	5000		101	80-120			
Iron	57	5040	6.63	36.0	ug/L	5000		101	80-120			
Lead	208	25.5	0.0513	0.100	ug/L	25.0		102	80-120			
Manganese	55	24.0	0.142	0.500	ug/L	25.0		96.0	80-120			
Silver	107	24.2	0.0220	0.200	ug/L	25.0		96.8	80-120			
Vanadium	51a	23.1	0.0556	0.200	ug/L	25.0		92.6	80-120			
Vanadium	51b	23.5	0.0521	0.200	ug/L	25.0		94.2	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Metals and Metallic Compounds - Quality Control

Batch BJI0141 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0141-BS1)						Prepared: 06-Sep-2021 Analyzed: 07-Sep-2021 16:06						
Arsenic	75a	24.6	0.0373	0.200	ug/L	25.0		98.5	80-120			
Cadmium	111	24.5	0.0300	0.100	ug/L	25.0		98.1	80-120			
Cadmium	114	24.7	0.0400	0.100	ug/L	25.0		98.7	80-120			
Cobalt	59	25.1	0.0178	0.200	ug/L	25.0		100	80-120			
Copper	63	25.0	0.173	0.500	ug/L	25.0		100	80-120			
Copper	65	25.1	0.350	0.500	ug/L	25.0		100	80-120			
Nickel	60	25.0	0.0792	0.500	ug/L	25.0		99.9	80-120			
Nickel	62	25.1	0.220	0.500	ug/L	25.0		100	80-120			
Selenium	78	76.6	0.179	0.500	ug/L	80.0		95.7	80-120			
Zinc	66	76.6	2.92	6.00	ug/L	80.0		95.7	80-120			
Zinc	67	76.5	0.940	6.00	ug/L	80.0		95.7	80-120			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0016 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0016-BLK1)					Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 21:48							
Barium, Dissolved	135	ND	0.114	0.500	ug/L							U
Barium, Dissolved	137	ND	0.0765	0.500	ug/L							U
Chromium, Dissolved	52	ND	0.260	0.500	ug/L							U
Chromium, Dissolved	53	ND	0.239	0.500	ug/L							U
Lead, Dissolved	208	ND	0.0513	0.100	ug/L							U
Manganese, Dissolved	55	ND	0.142	0.500	ug/L							U
Silver, Dissolved	107	ND	0.0220	0.200	ug/L							U
Vanadium, Dissolved	51a	ND	0.0556	0.200	ug/L							U
Vanadium, Dissolved	51b	ND	0.0521	0.200	ug/L							U
Arsenic, Dissolved	75a	ND	0.0373	0.200	ug/L							U
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L							U
Cadmium, Dissolved	114	ND	0.0400	0.100	ug/L							U
Cobalt, Dissolved	59	ND	0.0178	0.200	ug/L							U
Copper, Dissolved	63	ND	0.173	0.500	ug/L							U
Copper, Dissolved	65	ND	0.350	0.500	ug/L							U
Nickel, Dissolved	60	ND	0.0792	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
Selenium, Dissolved	78	ND	0.179	0.500	ug/L							U
Zinc, Dissolved	66	ND	2.92	6.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	6.00	ug/L							U
Blank (BJI0016-BLK2)					Prepared: 01-Sep-2021 Analyzed: 02-Sep-2021 17:37							
Iron, Dissolved	54	ND	18.2	36.0	ug/L							U
Iron, Dissolved	57	ND	6.63	20.0	ug/L							U
LCS (BJI0016-BS1)					Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 21:53							
Barium, Dissolved	135	24.7	0.114	0.500	ug/L	25.0		99.0	80-120			
Barium, Dissolved	137	24.7	0.0765	0.500	ug/L	25.0		98.7	80-120			
Chromium, Dissolved	52	24.9	0.260	0.500	ug/L	25.0		99.8	80-120			
Chromium, Dissolved	53	24.6	0.239	0.500	ug/L	25.0		98.3	80-120			
Lead, Dissolved	208	24.5	0.0513	0.100	ug/L	25.0		98.1	80-120			
Manganese, Dissolved	55	24.9	0.142	0.500	ug/L	25.0		99.6	80-120			
Silver, Dissolved	107	25.0	0.0220	0.200	ug/L	25.0		100	80-120			
Vanadium, Dissolved	51a	24.5	0.0556	0.200	ug/L	25.0		98.1	80-120			
Vanadium, Dissolved	51b	24.4	0.0521	0.200	ug/L	25.0		97.7	80-120			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0016 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0016-BS1)					Prepared: 01-Sep-2021 Analyzed: 01-Sep-2021 21:53							
Arsenic, Dissolved	75a	23.7	0.0373	0.200	ug/L	25.0		94.9	80-120			
Cadmium, Dissolved	111	24.1	0.0300	0.100	ug/L	25.0		96.3	80-120			
Cadmium, Dissolved	114	23.6	0.0400	0.100	ug/L	25.0		94.2	80-120			
Cobalt, Dissolved	59	23.9	0.0178	0.200	ug/L	25.0		95.5	80-120			
Copper, Dissolved	63	23.8	0.173	0.500	ug/L	25.0		95.1	80-120			
Copper, Dissolved	65	23.7	0.350	0.500	ug/L	25.0		94.8	80-120			
Nickel, Dissolved	60	23.7	0.0792	0.500	ug/L	25.0		94.9	80-120			
Nickel, Dissolved	62	23.3	0.220	0.500	ug/L	25.0		93.4	80-120			
Selenium, Dissolved	78	73.2	0.179	0.500	ug/L	80.0		91.5	80-120			
Zinc, Dissolved	66	74.1	2.92	6.00	ug/L	80.0		92.6	80-120			
Zinc, Dissolved	67	71.2	0.940	6.00	ug/L	80.0		89.0	80-120			
LCS (BJI0016-BS2)					Prepared: 01-Sep-2021 Analyzed: 02-Sep-2021 17:41							
Iron, Dissolved	54	4820	18.2	36.0	ug/L	5000		96.4	80-120			
Iron, Dissolved	57	4820	6.63	20.0	ug/L	5000		96.4	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0076 - TWM EPA 7470A

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0076-BLK1)					Prepared: 02-Sep-2021 Analyzed: 07-Sep-2021 14:14						
Mercury, Dissolved	ND	0.000013	0.000100	mg/L							U
LCS (BJI0076-BS1)					Prepared: 02-Sep-2021 Analyzed: 07-Sep-2021 14:16						
Mercury, Dissolved	0.00173	0.000013	0.000100	mg/L	0.00200		86.3	80-120			
Duplicate (BJI0076-DUP1)		**Source: 21H0304-05**			Prepared: 02-Sep-2021 Analyzed: 07-Sep-2021 14:26						
Mercury, Dissolved	ND	0.000013	0.000100	mg/L		ND					U
Matrix Spike (BJI0076-MS1)		**Source: 21H0304-05**			Prepared: 02-Sep-2021 Analyzed: 07-Sep-2021 14:28						
Mercury, Dissolved	0.000888	0.000013	0.000100	mg/L	0.00100	ND	88.8	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJI0076-MSD1)		**Source: 21H0304-05**			Prepared: 02-Sep-2021 Analyzed: 07-Sep-2021 14:30						
Mercury, Dissolved	0.000859	0.000013	0.000100	mg/L	0.00100	ND	85.9	75-125	3.29	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Wet Chemistry - Quality Control

Batch BJH0650 - No Prep Wet Chem

Instrument: UV1800-1 Analyst: CKI

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0650-BLK1)				Prepared: 25-Aug-2021 Analyzed: 25-Aug-2021 19:20							
Ferrous Iron	ND	0.040	0.040	mg/L							U
LCS (BJH0650-BS1)				Prepared: 25-Aug-2021 Analyzed: 25-Aug-2021 19:21							
Ferrous Iron	0.516	0.040	0.040	mg/L	0.500		103	90-110			
Duplicate (BJH0650-DUP2)		**Source: 21H0304-10RE1**		Prepared: 25-Aug-2021 Analyzed: 25-Aug-2021 19:46							
Ferrous Iron	48.2	2.00	2.00	mg/L		48.5			0.72	20	D
Matrix Spike (BJH0650-MS2)		**Source: 21H0304-10RE1**		Prepared: 25-Aug-2021 Analyzed: 25-Aug-2021 19:47							
Ferrous Iron	64.2	2.00	2.00	mg/L	20.0	48.5	78.5	75-125			D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Wet Chemistry - Quality Control

Batch BJH0651 - No Prep Wet Chem

Instrument: N/A

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0651-BLK1)				Prepared: 25-Aug-2021	Analyzed: 25-Aug-2021 17:45						
Sulfite	ND	1.4	1.4	mg/L							U
LCS (BJH0651-BS1)				Prepared: 25-Aug-2021	Analyzed: 25-Aug-2021 17:45						
Sulfite	4.2	1.4	1.4	mg/L	4.98		85.1	75-100			
Duplicate (BJH0651-DUP1)		**Source: 21H0304-10**		Prepared: 25-Aug-2021	Analyzed: 25-Aug-2021 17:45						
Sulfite	ND	1.4	1.4	mg/L		ND					H, U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Wet Chemistry - Quality Control

Batch BJH0653 - SM 5310 A-00, 0.45um filtration

Instrument: UV1800-1 Analyst: BF

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0653-BLK1)				Prepared: 25-Aug-2021 Analyzed: 25-Aug-2021 18:30							
Hexavalent Chromium	ND	0.013	0.013	mg/L							U
LCS (BJH0653-BS1)				Prepared: 25-Aug-2021 Analyzed: 25-Aug-2021 18:31							
Hexavalent Chromium	0.588	0.013	0.013	mg/L	0.625		94.1	85-115			D
Duplicate (BJH0653-DUP1)		**Source: 21H0304-10**		Prepared: 25-Aug-2021 Analyzed: 25-Aug-2021 18:32							
Hexavalent Chromium	ND	0.013	0.013	mg/L		ND					U
Matrix Spike (BJH0653-MS1)		**Source: 21H0304-10**		Prepared: 25-Aug-2021 Analyzed: 25-Aug-2021 18:33							
Hexavalent Chromium	ND	0.013	0.013	mg/L	0.0625	ND		85-115			*, K, U
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Post Spike (BJH0653-PS1)		**Source: 21H0304-10**		Prepared: 25-Aug-2021 Analyzed: 25-Aug-2021 18:42							
Hexavalent Chromium	0.0001			mg/L	0.0298	ND	0.490	85-115			*

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Wet Chemistry - Quality Control

Batch BJH0685 - No Prep Wet Chem

Instrument: IC930 Analyst: CDE

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0685-BLK1)				Prepared: 26-Aug-2021 Analyzed: 26-Aug-2021 16:33							
Chloride	ND	0.100	0.100	mg/L							U
Nitrate-N	ND	0.100	0.100	mg/L							U
Nitrite-N	ND	0.100	0.100	mg/L							U
Blank (BJH0685-BLK2)				Prepared: 26-Aug-2021 Analyzed: 10-Sep-2021 14:42							
Sulfate	ND	0.100	0.100	mg/L							U
LCS (BJH0685-BS1)				Prepared: 26-Aug-2021 Analyzed: 26-Aug-2021 16:53							
Chloride	4.83	0.100	0.100	mg/L	5.00		96.6	90-110			
Nitrate-N	4.67	0.100	0.100	mg/L	5.00		93.5	90-110			
Nitrite-N	5.34	0.100	0.100	mg/L	5.00		107	90-110			
LCS (BJH0685-BS2)				Prepared: 26-Aug-2021 Analyzed: 10-Sep-2021 15:02							
Sulfate	5.19	0.100	0.100	mg/L	5.00		104	90-110			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Certified Analyses included in this Report

Analyte	Certifications
EPA 300.0 in Water	
Chloride	DoD-ELAP,WADOE,WA-DW,NELAP
Nitrate-N	DoD-ELAP,WADOE,WA-DW,NELAP
Nitrite-N	DoD-ELAP,WADOE,WA-DW,NELAP
Sulfate	DoD-ELAP,WADOE,WA-DW,NELAP
EPA 6020B in Water	
Silver-107	WADOE,WA-DW,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Silver-107	WA-DW,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
EPA 6020B UCT-KED in Water	
Arsenic-75a	WADOE,WA-DW,DoD-ELAP,ADEC,NELAP
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	NELAP,DoD-ELAP,WADOE
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Zinc-66	WADOE,WA-DW,DoD-ELAP
Zinc-67	WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	DoD-ELAP,NELAP,WADOE
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
EPA 7470A in Water	
Mercury	WADOE,NELAP,DoD-ELAP
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8082A in Water	
Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

EPA 8260D in Water

Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE

EPA 8260D-SIM in Water

Acrylonitrile	NELAP,WADOE
Vinyl chloride	NELAP,WADOE

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

1,1-Dichloroethene	NELAP,WADOE
cis-1,2-Dichloroethene	NELAP,WADOE
trans-1,2-Dichloroethene	NELAP,WADOE
Trichloroethene	NELAP,WADOE
Tetrachloroethene	NELAP,WADOE
1,1,2,2-Tetrachloroethane	NELAP,WADOE
1,2-Dichloroethane	NELAP,WADOE
Benzene	NELAP,WADOE

EPA 8270E in Water

Phenol	NELAP,DoD-ELAP
bis(2-chloroethyl) ether	NELAP,DoD-ELAP
2-Chlorophenol	NELAP,DoD-ELAP
1,3-Dichlorobenzene	NELAP,DoD-ELAP
1,4-Dichlorobenzene	NELAP,DoD-ELAP
1,2-Dichlorobenzene	NELAP,DoD-ELAP
Benzyl Alcohol	NELAP,DoD-ELAP
2,2'-Oxybis(1-chloropropane)	NELAP,DoD-ELAP
2-Methylphenol	NELAP,DoD-ELAP
Hexachloroethane	NELAP,DoD-ELAP
N-Nitroso-di-n-Propylamine	NELAP,DoD-ELAP
4-Methylphenol	NELAP,DoD-ELAP
Nitrobenzene	NELAP,DoD-ELAP
Isophorone	NELAP,DoD-ELAP
2-Nitrophenol	NELAP,DoD-ELAP
2,4-Dimethylphenol	NELAP,DoD-ELAP
Bis(2-Chloroethoxy)methane	NELAP,DoD-ELAP
2,4-Dichlorophenol	NELAP,DoD-ELAP
1,2,4-Trichlorobenzene	NELAP,DoD-ELAP
Naphthalene	NELAP,DoD-ELAP
Benzoic acid	NELAP,DoD-ELAP
4-Chloroaniline	NELAP,DoD-ELAP
Hexachlorobutadiene	NELAP,DoD-ELAP
4-Chloro-3-Methylphenol	NELAP,DoD-ELAP
2-Methylnaphthalene	NELAP,DoD-ELAP
Hexachlorocyclopentadiene	NELAP,DoD-ELAP
2,4,6-Trichlorophenol	NELAP,DoD-ELAP
2,4,5-Trichlorophenol	NELAP,DoD-ELAP
2-Chloronaphthalene	NELAP,DoD-ELAP
2-Nitroaniline	NELAP,DoD-ELAP

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Acenaphthylene	NELAP,DoD-ELAP
Dimethylphthalate	NELAP,DoD-ELAP
2,6-Dinitrotoluene	NELAP,DoD-ELAP
Acenaphthene	NELAP,DoD-ELAP
3-Nitroaniline	NELAP,DoD-ELAP
2,4-Dinitrophenol	NELAP,DoD-ELAP
Dibenzofuran	NELAP,DoD-ELAP
4-Nitrophenol	NELAP,DoD-ELAP
2,4-Dinitrotoluene	NELAP,DoD-ELAP
Fluorene	NELAP,DoD-ELAP
4-Chlorophenylphenyl ether	NELAP,DoD-ELAP
Diethyl phthalate	NELAP,DoD-ELAP
4-Nitroaniline	NELAP,DoD-ELAP
4,6-Dinitro-2-methylphenol	NELAP,DoD-ELAP
N-Nitrosodiphenylamine	NELAP,DoD-ELAP
4-Bromophenyl phenyl ether	NELAP,DoD-ELAP
Hexachlorobenzene	NELAP,DoD-ELAP
Pentachlorophenol	NELAP,DoD-ELAP
Phenanthrene	NELAP,DoD-ELAP
Anthracene	NELAP,DoD-ELAP
Carbazole	NELAP,DoD-ELAP
Di-n-Butylphthalate	NELAP,DoD-ELAP
Fluoranthene	NELAP,DoD-ELAP
Pyrene	NELAP,DoD-ELAP
Butylbenzylphthalate	NELAP,DoD-ELAP
Benzo(a)anthracene	NELAP,DoD-ELAP
3,3'-Dichlorobenzidine	NELAP,DoD-ELAP
Chrysene	NELAP,DoD-ELAP
bis(2-Ethylhexyl)phthalate	NELAP,DoD-ELAP
Di-n-Octylphthalate	NELAP,DoD-ELAP
Benzo(b)fluoranthene	NELAP,DoD-ELAP
Benzo(k)fluoranthene	NELAP,DoD-ELAP
Benzofluoranthenes, Total	NELAP
Benzo(a)pyrene	NELAP,DoD-ELAP
Indeno(1,2,3-cd)pyrene	NELAP,DoD-ELAP
Dibenzo(a,h)anthracene	NELAP,DoD-ELAP
Benzo(g,h,i)perylene	NELAP,DoD-ELAP
N-Nitrosodimethylamine	NELAP,DoD-ELAP
1-Methylnaphthalene	NELAP,DoD-ELAP

Analytical Resources, Incorporated
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EPA 8270E-SIM in Water

Naphthalene	ADEC,DoD-ELAP,NELAP,WADOE
2-Methylnaphthalene	ADEC,DoD-ELAP,NELAP
1-Methylnaphthalene	ADEC,DoD-ELAP,NELAP,WADOE
Biphenyl	NELAP
Acenaphthylene	ADEC,DoD-ELAP,NELAP,WADOE
Acenaphthene	ADEC,DoD-ELAP,NELAP,WADOE
Dibenzofuran	ADEC,DoD-ELAP,NELAP
Fluorene	ADEC,DoD-ELAP,NELAP,WADOE
Phenanthrene	ADEC,DoD-ELAP,NELAP,WADOE
Anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Carbazole	NELAP
Fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(a)anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Chrysene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(b)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(k)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(j)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(e)pyrene	NELAP
Benzo(a)pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Perylene	ADEC,NELAP
Indeno(1,2,3-cd)pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Dibenzo(a,h)anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(g,h,i)perylene	ADEC,DoD-ELAP,NELAP,WADOE

EPA RSK-175 in Water

Methane	NELAP
Ethane	NELAP
Ethene	NELAP
Acetylene	NELAP

NWTPH-Dx in Water

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP

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Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE
NWTPHg in Water	
Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP
SM 3500-Cr B-09 in Water	
Hexavalent Chromium	WADOE,NELAP
SM 3500-Fe B-97 in Water	
Ferrous Iron	WADOE,NELAP
SM 4500-SO3 B-00 in Water	
Sulfite	WADOE,NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Sep-2021 14:32

Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
D1	Surrogate was not detected due to sample extract dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
H	Hold time violation - Hold time was exceeded.
J	Estimated concentration value detected below the reporting limit.
K	Hexavalent Chromium post spike performed on a pH adjusted sample to verify matrix interference.
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

27 September 2021

Meg Strong
Shannon & Wilson, Inc
400 N 34th St., Suite 100
Seattle, WA 98103-8636

RE: Lower Duwamish Q3

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
21H0320	N/A

Shelly Fishel

Digitally signed by Shelly Fishel
Date: 2021.09.27 14:46:28 -07'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Shelly Fishel, Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21H0320	Turn-around Requested: Standard
ARI Client Company: Shannon & Wilson, Inc.	Phone:
Client Contact: Shoshana Howard	
Client Project Name: LDW	
Client Project #: 21-1-12596-012	Samplers: KWP, CTC

Page: 1	of 1
Date: 8/26/21	Ice Present?
No. of Coolers:	Cooler Temps: 5.5; 5.4; 5.7

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	TPH-G	TPH-Dx	BTEX	HVOCs	MTBE	PAHs	Post List SVOCs	LTD SVOCs	PCB Aroclors	Metals (Total / Diss.)	Hex Chrome	VOA Full Atten. Parameters			Notes/Comments
MW-7-20212608	8/26/21	0900	GW	3										(1)	X				(1) Chromium (2) Arsenic (3) As, Ba, Cr, Mn, Ni, Cd, Co, Cu, Fe, Pb, Hg, Se, Ag, V, Zn
MW-32-20212608		0945	GW	10	X	X				X		X		(2)					(4) As, Mn
TB-8-20212608		1000	W	5	X		X	X	X										(5) As, Cr, Mn, Ni, Cd, Co, Cu, Pb, Hg, Se, Ag, Zn
MW-34-20212608		1030	GW	4	X	X													(6) Mn
MW-72-20212608		1105	GW	CTC 13		X	X	X		X	X			(3)					(X) Hold
MW-11-20212608		1230	GW	9	X	X			X					(4)					
MW-14-20212608		1320	GW	18	X	X	X	X	X			X		(5)		X			
MW-50-20212608	↓	1430	GW	9			X	X					X	(6)					

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
• Dissolved metals to be filtered by lab.	(Signature)	(Signature) Dlomize	(Signature)	(Signature)
	Printed Name: Kirk Pinkston	Printed Name: Dimitri Lomidze	Printed Name:	Printed Name:
	Company: Shannon & Wilson	Company: ARI	Company:	Company:
	Date & Time: 8/26/21 1521	Date & Time: 08/26/21 1521	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-7-20212608	21H0320-01	Water	26-Aug-2021 09:00	26-Aug-2021 15:21
MW-7-20212608	21H0320-02	Water	26-Aug-2021 09:00	26-Aug-2021 15:21
MW-32-20212608	21H0320-03	Water	26-Aug-2021 09:45	26-Aug-2021 15:21
MW-32-20212608	21H0320-04	Water	26-Aug-2021 09:45	26-Aug-2021 15:21
TB-8-20212608	21H0320-05	Water	26-Aug-2021 09:00	26-Aug-2021 15:21
MW-34-20212608	21H0320-06	Water	26-Aug-2021 10:30	26-Aug-2021 15:21
MW-72-20212608	21H0320-07	Water	26-Aug-2021 11:05	26-Aug-2021 15:21
MW-72-20212608	21H0320-08	Water	26-Aug-2021 11:05	26-Aug-2021 15:21
MW-11-20212608	21H0320-09	Water	26-Aug-2021 12:30	26-Aug-2021 15:21
MW-11-20212608	21H0320-10	Water	26-Aug-2021 12:30	26-Aug-2021 15:21
MW-14-20212608	21H0320-11	Water	26-Aug-2021 13:20	26-Aug-2021 15:21
MW-14-20212608	21H0320-12	Water	26-Aug-2021 13:20	26-Aug-2021 15:21
MW-50-20212608	21H0320-13	Water	26-Aug-2021 14:30	26-Aug-2021 15:21
MW-50-20212608	21H0320-14	Water	26-Aug-2021 14:30	26-Aug-2021 15:21

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish Q3
Work Order: 21H0320

Sample receipt

Samples as listed on the preceding page were received 26-Aug-2021 15:21 under ARI work order 21H0320. For details regarding sample receipt, please refer to the Cooler Receipt Form.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Gasoline by NWTPH-g (GC/MS)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Volatiles - EPA Method SW8260D

The sample(s) were analyzed within the recommended holding times.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Volatiles - EPA Method 8260D-SIM (Selected Ion Monitoring)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Semivolatiles - EPA Method SW8270E

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements except 2,4-Dinitrophenol, Benzoic Acid, bis(2-ethylhexyl)phthalate, Hexachlorocyclopentadienine and Pentachlorophenol which were out of control low and 3,3'-Dichlorbenzidiene which was out of control high in initial calibration verification (SHI0333-ICV1). All samples which contain analyte have been flagged with a "Q" qualifier. Benzo(g,h,i)perylene and Hexachlorocyclopentadiene were out of control low in continuing calibration verification (SIJ0333-CCV1). Benzyl Alcohol, Benzoic Acid, 4,6-Dinitro-2-methylphenol, 2,4-Dichlorophenol, 2,4,5-Trichlorophenol and 2,4,6-Trichlorophenol which were out of control low in the low concentration calibration verification (SIJ0333-LCV2).

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except Phenol-d5 which was out of control low in samples 21H0320-03 and 21H0320-07. Additionally the method blank (BJI0045-BLK), blank spike (BJI0045-BS1) and blank spike duplicate (BJI0045-BSD1) were out of control low. Deviations have been flagged.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits except Benzyl Alcohol, Benzoic Acid, 4-Chlorocyclopentadiene, 4-Nitrophenol and Phenol which were out of control low and have been flagged.

Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Total and Dissolved Metals - EPA Method 6020B

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0320-12 in Dissolved Metals batch BJI0312. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times except Sulifte. The Sulfite holding time was exceeded upon sample receipt and has been flagged.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0320-01 in Hexavalent Chromium batch BJH0701 and in association with sample 21H0320-11 in Ferrous Iron batch BJH0697, Sulfite batch BJH0702 and Anions batch BJH0703. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits except Nitrite which was out of control low in the matrix spike and has been flagged.

Total and Dissolved Mercury - EPA Method 7470/7471

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0320-12 in Dissolved Mercury batch BJI0210. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits.

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits except Diesel Range Organics in the blank spike which was out of control low and has been flagged.

Volatile Gases - MEE by RSK175

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

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Analytical Chemists and Consultants

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WORK ORDER

21H0320

Client: Shannon & Wilson, Inc	**Project Manager:** Shelly Fishel
Project: Lower Duwamish Q3	**Project Number:** 21-1-12596-012

Preservation Confirmation

Container ID	Container Type	pH	
21H0320-01 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0320-01 B	Glass NM, Amber, 250 mL		
21H0320-02 A	HDPE NM, 500 mL	>2	Fail
21H0320-03 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0320-03 B	Glass NM, Amber, 500 mL		
21H0320-03 C	Glass NM, Amber, 500 mL		
21H0320-03 D	Glass NM, Amber, 500 mL		
21H0320-03 E	Glass NM, Amber, 500 mL		
21H0320-03 F	Glass NM, Amber, 500 mL		
21H0320-03 G	Glass NM, Amber, 500 mL		
21H0320-03 H	VOA Vial, Clear, 40 mL, HCL		
21H0320-03 I	VOA Vial, Clear, 40 mL, HCL		
21H0320-04 A	HDPE NM, 500 mL	>2	Fail
21H0320-05 A	VOA Vial, Clear, 40 mL, HCL		
21H0320-05 B	VOA Vial, Clear, 40 mL, HCL		
21H0320-05 C	VOA Vial, Clear, 40 mL, HCL		
21H0320-05 D	VOA Vial, Clear, 40 mL, HCL		
21H0320-05 E	VOA Vial, Clear, 40 mL, HCL		
21H0320-06 A	Glass NM, Amber, 500 mL		
21H0320-06 B	Glass NM, Amber, 500 mL		
21H0320-06 C	VOA Vial, Clear, 40 mL, HCL	Bubble	
21H0320-06 D	VOA Vial, Clear, 40 mL, HCL		
21H0320-07 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0320-07 B	Glass NM, Amber, 500 mL		
21H0320-07 C	Glass NM, Amber, 500 mL		
21H0320-07 D	Glass NM, Amber, 500 mL		
21H0320-07 E	Glass NM, Amber, 500 mL		
21H0320-07 F	Glass NM, Amber, 500 mL		
21H0320-07 G	Glass NM, Amber, 500 mL		
21H0320-07 H	VOA Vial, Clear, 40 mL, HCL		
21H0320-07 I	VOA Vial, Clear, 40 mL, HCL		
21H0320-07 J	VOA Vial, Clear, 40 mL, HCL		
21H0320-07 K	VOA Vial, Clear, 40 mL, HCL		
21H0320-07 L	VOA Vial, Clear, 40 mL, HCL		
21H0320-08 A	HDPE NM, 500 mL	>2	Fail

Reviewed By

Date

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

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WORK ORDER

21H0320

Client: Shannon & Wilson, Inc | **Project Manager:** Shelly Fishel

Project: Lower Duwamish Q3 | **Project Number:** 21-1-12596-012

21H0320-09 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0320-09 B	Glass NM, Amber, 500 mL		
21H0320-09 C	Glass NM, Amber, 500 mL		
21H0320-09 D	VOA Vial, Clear, 40 mL, HCL		
21H0320-09 E	VOA Vial, Clear, 40 mL, HCL		
21H0320-09 F	VOA Vial, Clear, 40 mL, HCL		
21H0320-09 G	VOA Vial, Clear, 40 mL, HCL		
21H0320-09 H	VOA Vial, Clear, 40 mL, HCL		
21H0320-10 A	HDPE NM, 500 mL	>2	Fail
21H0320-11 A	HDPE NM, 500 mL		
21H0320-11 B	Small OJ, 500 mL		
21H0320-11 C	Small OJ, 500 mL		
21H0320-11 D	Small OJ, 500 mL, EDTA		
21H0320-11 E	Glass NM, Amber, 500 mL, HCl	Lab to verify preservation	
21H0320-11 F	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0320-11 G	Glass NM, Amber, 500 mL		
21H0320-11 H	Glass NM, Amber, 500 mL		
21H0320-11 I	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 J	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 K	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 L	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 M	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 N	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 O	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 P	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 Q	VOA Vial, Clear, 40 mL, HCL		
21H0320-12 A	HDPE NM, 500 mL	>2	Fail
21H0320-13 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0320-13 B	Glass NM, Amber, 1000 mL		
21H0320-13 C	Glass NM, Amber, 1000 mL		
21H0320-13 D	VOA Vial, Clear, 40 mL, HCL		
21H0320-13 E	VOA Vial, Clear, 40 mL, HCL		
21H0320-13 F	VOA Vial, Clear, 40 mL, HCL		
21H0320-13 G	VOA Vial, Clear, 40 mL, HCL		
21H0320-13 H	VOA Vial, Clear, 40 mL, HCL		
21H0320-14 A	HDPE NM, 500 mL	>2	Fail

Reviewed By _____ Date _____

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

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WORK ORDER

21H0320

Client: Shannon & Wilson, Inc	**Project Manager: Shelly Fishel**
Project: Lower Duwamish Q3	**Project Number: 21-1-12596-012**

JS
Preservation Confirmed By

08/26/2021
Date

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Shannon & Wilson Project Name: Lower Duwamish

COC No(s): _____ (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 21H0320 Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1521 5.5 5.4 5.7 ___ ___ ___

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D00 5006

Cooler Accepted by: JSw for DL Date: 08/26/2021 Time: 1521

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	(Bubble Wrap) (Wet Ice) Gel Packs (Baggies) Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
How were bottles sealed in plastic bags?	Individually	(Grouped)	Not
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	(YES)	NO
Were all VOC vials free of air bubbles?	NA	YES	(NO)
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	NA	08/13/2021	

Were the sample(s) split by ARI? (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JSw Date: 08/26/2021 Time: 1607 Labels checked by: JSw

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

vials w/ air bubbles marked on preservation sheet, lab to determine sizes.

By: JSw Date: 08/26/2021

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WORK ORDER

21H0320

Client: Shannon & Wilson, Inc
Project Manager: Shelly Fishel
Project: Lower Duwamish Q3
Project Number: 21-1-12596-012

Preservation Confirmation

Container ID	Container Type	pH	
21H0320-01 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0320-01 B	Glass NM, Amber, 250 mL		
21H0320-02 A	HDPE NM, 500 mL	>2	Fail
21H0320-03 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0320-03 B	Glass NM, Amber, 500 mL		
21H0320-03 C	Glass NM, Amber, 500 mL		
21H0320-03 D	Glass NM, Amber, 500 mL		
21H0320-03 E	Glass NM, Amber, 500 mL		
21H0320-03 F	Glass NM, Amber, 500 mL		
21H0320-03 G	Glass NM, Amber, 500 mL		
21H0320-03 H	VOA Vial, Clear, 40 mL, HCL		
21H0320-03 I	VOA Vial, Clear, 40 mL, HCL		
21H0320-04 A	HDPE NM, 500 mL	>2	Fail
21H0320-05 A	VOA Vial, Clear, 40 mL, HCL		
21H0320-05 B	VOA Vial, Clear, 40 mL, HCL		
21H0320-05 C	VOA Vial, Clear, 40 mL, HCL		
21H0320-05 D	VOA Vial, Clear, 40 mL, HCL		
21H0320-05 E	VOA Vial, Clear, 40 mL, HCL		
21H0320-06 A	Glass NM, Amber, 500 mL		
21H0320-06 B	Glass NM, Amber, 500 mL		
21H0320-06 C	VOA Vial, Clear, 40 mL, HCL	Bubble	
21H0320-06 D	VOA Vial, Clear, 40 mL, HCL		
21H0320-07 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0320-07 B	Glass NM, Amber, 500 mL		
21H0320-07 C	Glass NM, Amber, 500 mL		
21H0320-07 D	Glass NM, Amber, 500 mL		
21H0320-07 E	Glass NM, Amber, 500 mL		
21H0320-07 F	Glass NM, Amber, 500 mL		
21H0320-07 G	Glass NM, Amber, 500 mL		
21H0320-07 H	VOA Vial, Clear, 40 mL, HCL		
21H0320-07 I	VOA Vial, Clear, 40 mL, HCL		
21H0320-07 J	VOA Vial, Clear, 40 mL, HCL		
21H0320-07 K	VOA Vial, Clear, 40 mL, HCL		
21H0320-07 L	VOA Vial, Clear, 40 mL, HCL		
21H0320-08 A	HDPE NM, 500 mL	>2	Fail

Reviewed By _____ Date _____

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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WORK ORDER

21H0320

Client: Shannon & Wilson, Inc | **Project Manager:** Shelly Fishel

Project: Lower Duwamish Q3 | **Project Number:** 21-1-12596-012

21H0320-09 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0320-09 B	Glass NM, Amber, 500 mL		
21H0320-09 C	Glass NM, Amber, 500 mL		
21H0320-09 D	VOA Vial, Clear, 40 mL, HCL		
21H0320-09 E	VOA Vial, Clear, 40 mL, HCL		
21H0320-09 F	VOA Vial, Clear, 40 mL, HCL		
21H0320-09 G	VOA Vial, Clear, 40 mL, HCL		
21H0320-09 H	VOA Vial, Clear, 40 mL, HCL		
21H0320-10 A	HDPE NM, 500 mL	>2	Fail
21H0320-11 A	HDPE NM, 500 mL		
21H0320-11 B	Small OJ, 500 mL		
21H0320-11 C	Small OJ, 500 mL		
21H0320-11 D	Small OJ, 500 mL, EDTA		
21H0320-11 E	Glass NM, Amber, 500 mL, HCl	Lab to verify preservation (1)	
21H0320-11 F	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0320-11 G	Glass NM, Amber, 500 mL		
21H0320-11 H	Glass NM, Amber, 500 mL		
21H0320-11 I	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 J	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 K	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 L	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 M	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 N	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 O	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 P	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 Q	VOA Vial, Clear, 40 mL, HCL		
21H0320-12 A	HDPE NM, 500 mL	>2	Fail
21H0320-13 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0320-13 B	Glass NM, Amber, 1000 mL		
21H0320-13 C	Glass NM, Amber, 1000 mL		
21H0320-13 D	VOA Vial, Clear, 40 mL, HCL		
21H0320-13 E	VOA Vial, Clear, 40 mL, HCL		
21H0320-13 F	VOA Vial, Clear, 40 mL, HCL		
21H0320-13 G	VOA Vial, Clear, 40 mL, HCL		
21H0320-13 H	VOA Vial, Clear, 40 mL, HCL		
21H0320-14 A	HDPE NM, 500 mL	>2	Fail

Reviewed By _____ Date _____

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Analytical Chemists and Consultants

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WORK ORDER

21H0320

Client: Shannon & Wilson, Inc	**Project Manager:** Shelly Fishel
Project: Lower Duwamish Q3	**Project Number:** 21-1-12596-012

JD
Preservation Confirmed By

08/26/2021
Date

(1) pHK2
Significant head space
CKI 08/26/21 16:52

Reviewed By

Date

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/26/2021 4:43:12PM

WORK ORDER

21H0320

Client: Shannon & Wilson, Inc
Project Manager: Shelly Fishel

Project: Lower Duwamish Q3
Project Number: 21-1-12596-012

Preservation Confirmation

Container ID	Container Type	pH	
21H0320-01 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0320-01 B	Glass NM, Amber, 250 mL		
21H0320-02 A	HDPE NM, 500 mL	>2	Fail (1)
21H0320-03 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0320-03 B	Glass NM, Amber, 500 mL		
21H0320-03 C	Glass NM, Amber, 500 mL		
21H0320-03 D	Glass NM, Amber, 500 mL		
21H0320-03 E	Glass NM, Amber, 500 mL		
21H0320-03 F	Glass NM, Amber, 500 mL		
21H0320-03 G	Glass NM, Amber, 500 mL		
21H0320-03 H	VOA Vial, Clear, 40 mL, HCL		
21H0320-03 I	VOA Vial, Clear, 40 mL, HCL		
21H0320-04 A	HDPE NM, 500 mL	>2	Fail (1)
21H0320-05 A	VOA Vial, Clear, 40 mL, HCL		
21H0320-05 B	VOA Vial, Clear, 40 mL, HCL		
21H0320-05 C	VOA Vial, Clear, 40 mL, HCL		
21H0320-05 D	VOA Vial, Clear, 40 mL, HCL		
21H0320-05 E	VOA Vial, Clear, 40 mL, HCL		
21H0320-06 A	Glass NM, Amber, 500 mL		
21H0320-06 B	Glass NM, Amber, 500 mL		
21H0320-06 C	VOA Vial, Clear, 40 mL, HCL	Bubble	
21H0320-06 D	VOA Vial, Clear, 40 mL, HCL		
21H0320-07 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0320-07 B	Glass NM, Amber, 500 mL		
21H0320-07 C	Glass NM, Amber, 500 mL		
21H0320-07 D	Glass NM, Amber, 500 mL		
21H0320-07 E	Glass NM, Amber, 500 mL		
21H0320-07 F	Glass NM, Amber, 500 mL		
21H0320-07 G	Glass NM, Amber, 500 mL		
21H0320-07 H	VOA Vial, Clear, 40 mL, HCL		
21H0320-07 I	VOA Vial, Clear, 40 mL, HCL		
21H0320-07 J	VOA Vial, Clear, 40 mL, HCL		
21H0320-07 K	VOA Vial, Clear, 40 mL, HCL		
21H0320-07 L	VOA Vial, Clear, 40 mL, HCL		
21H0320-08 A	HDPE NM, 500 mL	>2	Fail (1)

Reviewed By

Date

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WORK ORDER

21H0320

Client: Shannon & Wilson, Inc | **Project Manager:** Shelly Fishel

Project: Lower Duwamish Q3 | **Project Number:** 21-1-12596-012

21H0320-09 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0320-09 B	Glass NM, Amber, 500 mL		
21H0320-09 C	Glass NM, Amber, 500 mL		
21H0320-09 D	VOA Vial, Clear, 40 mL, HCL		
21H0320-09 E	VOA Vial, Clear, 40 mL, HCL		
21H0320-09 F	VOA Vial, Clear, 40 mL, HCL		
21H0320-09 G	VOA Vial, Clear, 40 mL, HCL		
21H0320-09 H	VOA Vial, Clear, 40 mL, HCL		
21H0320-10 A	HDPE NM, 500 mL	>2	Fail (1)
21H0320-11 A	HDPE NM, 500 mL		
21H0320-11 B	Small OJ, 500 mL		
21H0320-11 C	Small OJ, 500 mL		
21H0320-11 D	Small OJ, 500 mL, EDTA		
21H0320-11 E	Glass NM, Amber, 500 mL, HCl	Lab to verify preservation	
21H0320-11 F	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0320-11 G	Glass NM, Amber, 500 mL		
21H0320-11 H	Glass NM, Amber, 500 mL		
21H0320-11 I	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 J	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 K	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 L	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 M	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 N	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 O	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 P	VOA Vial, Clear, 40 mL, HCL		
21H0320-11 Q	VOA Vial, Clear, 40 mL, HCL		
21H0320-12 A	HDPE NM, 500 mL	>2	Fail (1)
21H0320-13 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21H0320-13 B	Glass NM, Amber, 1000 mL		
21H0320-13 C	Glass NM, Amber, 1000 mL		
21H0320-13 D	VOA Vial, Clear, 40 mL, HCL		
21H0320-13 E	VOA Vial, Clear, 40 mL, HCL		
21H0320-13 F	VOA Vial, Clear, 40 mL, HCL		
21H0320-13 G	VOA Vial, Clear, 40 mL, HCL		
21H0320-13 H	VOA Vial, Clear, 40 mL, HCL		
21H0320-14 A	HDPE NM, 500 mL	>2	Fail (1)

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WORK ORDER

21H0320

Client: Shannon & Wilson, Inc	**Project Manager:** Shelly Fishel
Project: Lower Duwamish Q3	**Project Number:** 21-1-12596-012

JD
Preservation Confirmed By

08/26/2021
Date

① Filtered at 0.45um and preserved to pH<2.0 with 0.75ml conc. HNO_3 (T6477).
ml 08/27/21

Reviewed By

Date

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-7-20212608

21H0320-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/26/2021 09:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/08/2021 19:37

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-01 A 01
Preparation Batch: BJI0217 — Sample Size: 25 mL
Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	1	0.260	0.500	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-7-20212608

21H0320-01 (Water)

Wet Chemistry

Method: SM 3500-Cr B-09 — Sampled: 08/26/2021 09:00
Instrument: UV1800-1 Analyst: DOE — Analyzed: 08/26/2021 18:07

Sample Preparation: Preparation Method: SM 5310 A-00, 0.45um filtration — Extract ID: 21H0320-01 B 01
Preparation Batch: BJH0701 — Sample Size: 40 mL
Prepared: 08/26/2021 — Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexavalent Chromium	1854-02-99	1.25	0.013	0.013	ND	mg/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-7-20212608

21H0320-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/26/2021 09:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/13/2021 18:54

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-02 A 02
Preparation Batch: BJI0312 — Sample Size: 25 mL — Filtration Batch: BJH0712
Prepared: 09/10/2021 — Final Volume: 25 mL — Filtration Date: 08/27/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.260	0.500	ND	ug/L	U

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-32-20212608

21H0320-03 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/26/2021 09:45

Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 18:48

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0320-03 I

Preparation Batch: BJI0049 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*91.3*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*89.6*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-32-20212608

21H0320-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/26/2021 09:45
Instrument: NT10 Analyst: VTS — Analyzed: 09/20/2021 18:17

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0320-03 F 01
Preparation Batch: BJI0045 — Sample Size: 1000 mL
Prepared: 09/02/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	0.04	ug/L	J
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Surrogate: 2-Fluorophenol				*30-160 %*	*38.3*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*21.1*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*90.4*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*77.5*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*87.6*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*85.0*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*79.2*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*67.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-32-20212608

21H0320-03 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/26/2021 09:45
Instrument: NT11 Analyst: VTS — Analyzed: 09/17/2021 19:26

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJH0745; Prepared: 08/31/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21H0320-03 D 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJI0125; Cleaned: 16-Sep-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21H0320-03 D 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.003	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.003	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.002	ug/L	J
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	0.006	ug/L	J
Dibenzofuran	132-64-9	1	0.002	0.010	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.010	0.002	ug/L	J
Phenanthrene	85-01-8	1	0.001	0.010	0.003	ug/L	J
Anthracene	120-12-7	1	0.001	0.010	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.010	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*73.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*53.4*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*84.1*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-32-20212608

21H0320-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/26/2021 09:45
Instrument: FID4 Analyst: TWC — Analyzed: 09/14/2021 00:56

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0320-03 B 01
Preparation Batch: BJH0731 — Sample Size: 500 mL
Prepared: 08/30/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.384	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*110*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-32-20212608

21H0320-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/26/2021 09:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/08/2021 19:42

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-03 A 01
Preparation Batch: BJI0217 — Sample Size: 25 mL
Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	26.8	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-32-20212608

21H0320-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/26/2021 09:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/13/2021 19:30

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-04 A 02
Preparation Batch: BJI0312 — Sample Size: 25 mL — Filtration Batch: BJH0712
Prepared: 09/10/2021 — Final Volume: 25 mL — Filtration Date: 08/27/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	2	0.0746	0.400	2.42	ug/L	D

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

TB-8-20212608

21H0320-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/26/2021 09:00

Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 14:36

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0320-05 E

Preparation Batch: BJI0049 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.10	ug/L	J
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.14	0.50	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*94.1*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*94.3*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.1*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*96.0*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

TB-8-20212608

21H0320-05 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/26/2021 09:00

Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 14:36

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0320-05 E

Preparation Batch: BJI0049 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*94.3*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*93.1*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

TB-8-20212608

21H0320-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/26/2021 09:00

Instrument: NT16 Analyst: KOTT — Analyzed: 08/30/2021 17:39

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0320-05 C

Preparation Batch: BJH0756 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*102*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.1*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*95.2*	*%*	

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-34-20212608

21H0320-06 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/26/2021 10:30

Instrument: NT2 Analyst: LH — Analyzed: 09/03/2021 12:41

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0320-06 C

Preparation Batch: BJI0098 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*99.8*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*95.3*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-34-20212608

21H0320-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/26/2021 10:30
Instrument: FID4 Analyst: TWC — Analyzed: 09/14/2021 01:16

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0320-06 A 01
Preparation Batch: BJH0731 — Sample Size: 490 mL
Prepared: 08/30/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.102	3.42	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.204	0.491	mg/L	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*124*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-72-20212608

21H0320-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/26/2021 11:05

Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 19:13

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0320-07 K

Preparation Batch: BJI0049 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*99.8*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*92.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*92.0*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*92.8*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-72-20212608

21H0320-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/26/2021 11:05

Instrument: NT16 Analyst: KOTT — Analyzed: 08/30/2021 17:59

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0320-07 H

Preparation Batch: BJH0756 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.1*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*95.6*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
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Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-72-20212608

21H0320-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/26/2021 11:05

Instrument: NT10 Analyst: VTS — Analyzed: 09/20/2021 18:55

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0320-07 D 01

Preparation Batch: BJI0045 — Sample Size: 1000 mL

Prepared: 09/02/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	0.01	0.2	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	0.03	0.2	ND	ug/L	U
2-Chlorophenol	95-57-8	1	0.03	0.2	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.03	0.2	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	0.02	0.2	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	0.03	0.2	ND	ug/L	U
2-Methylphenol	95-48-7	1	0.03	0.2	ND	ug/L	U
Hexachloroethane	67-72-1	1	0.04	0.2	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	0.04	0.2	ND	ug/L	U
4-Methylphenol	106-44-5	1	0.03	0.2	ND	ug/L	U
Nitrobenzene	98-95-3	1	0.03	0.2	ND	ug/L	U
Isophorone	78-59-1	1	0.03	0.2	ND	ug/L	U
2-Nitrophenol	88-75-5	1	0.04	1.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	0.03	0.2	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	0.1	1.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.03	0.2	ND	ug/L	U
Naphthalene	91-20-3	1	0.03	0.2	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	0.04	1.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	0.04	0.2	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	0.1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.03	0.2	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	0.1	1.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	0.2	1.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	0.1	1.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	0.03	0.2	ND	ug/L	U
2-Nitroaniline	88-74-4	1	0.2	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.02	0.2	ND	ug/L	U
Dimethylphthalate	131-11-3	1	0.04	0.2	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.03	0.2	ND	ug/L	U
3-Nitroaniline	99-09-2	1	0.2	1.0	ND	ug/L	U

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-72-20212608

21H0320-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/26/2021 11:05
Instrument: NT10 Analyst: VTS — Analyzed: 09/20/2021 18:55

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	0.2	2.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.02	0.2	ND	ug/L	U
4-Nitrophenol	100-02-7	1	0.06	1.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	0.1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.02	0.2	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	0.02	0.2	ND	ug/L	U
Diethyl phthalate	84-66-2	1	0.06	0.2	ND	ug/L	U
4-Nitroaniline	100-01-6	1	0.2	1.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	0.4	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	0.02	0.2	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	0.04	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.02	0.2	ND	ug/L	U
Anthracene	120-12-7	1	0.03	0.2	ND	ug/L	U
Carbazole	86-74-8	1	0.04	0.2	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Fluoranthene	206-44-0	1	0.03	0.2	ND	ug/L	U
Pyrene	129-00-0	1	0.03	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.04	0.2	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	0.3	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.04	0.2	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	0.05	0.2	ND	ug/L	U
Benzofluoranthenes, Total		1	0.08	0.4	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.05	0.2	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.06	0.2	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.07	0.2	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.04	0.2	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.03	0.2	ND	ug/L	U
Surrogate: 2-Fluorophenol				*30-160 %*	*39.5*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*20.9*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*88.4*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*78.0*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*84.0*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*85.9*	*%*	

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Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-72-20212608

21H0320-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/26/2021 11:05

Instrument: NT10 Analyst: VTS — Analyzed: 09/20/2021 18:55

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 2,4,6-Tribromophenol		*30-160 %*	*83.7*	*%*	
Surrogate: p-Terphenyl-d14		*30-160 %*	*81.7*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-72-20212608

21H0320-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/26/2021 11:05
Instrument: FID4 Analyst: TWC — Analyzed: 09/14/2021 01:36

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0320-07 B 01
Preparation Batch: BJH0731 — Sample Size: 490 mL
Prepared: 08/30/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.102	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.204	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*114*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-72-20212608

21H0320-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/26/2021 11:05

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/08/2021 21:11

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-07 A 01

Preparation Batch: BJI0217 — Sample Size: 25 mL

Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.114	0.500	9.68	ug/L	
Chromium	7440-47-3	1	0.260	0.500	0.919	ug/L	
Iron	7439-89-6	1	6.63	36.0	2260	ug/L	
Lead	7439-92-1	1	0.0513	0.100	0.0880	ug/L	J
Manganese	7439-96-5	5	0.710	2.50	630	ug/L	D
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium	7440-62-2	1	0.0556	0.200	9.61	ug/L	

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MW-72-20212608

21H0320-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/26/2021 11:05

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/08/2021 21:11

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-07 A 01

Preparation Batch: BJI0217 — Sample Size: 25 mL

Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	15.5	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	0.0560	ug/L	J
Cobalt	7440-48-4	1	0.0178	0.200	2.98	ug/L	
Copper	7440-50-8	1	0.173	0.500	4.03	ug/L	
Nickel	7440-02-0	1	0.0792	0.500	3.62	ug/L	
Selenium	7782-49-2	1	0.179	0.500	0.210	ug/L	J
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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21H0320-07 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/26/2021 11:05
Instrument: HYDRA Analyst: ML — Analyzed: 09/14/2021 13:55

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0320-07 A
Preparation Batch: BJI0293 — Sample Size: 20 mL
Prepared: 09/10/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	0.000036	mg/L	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-72-20212608

21H0320-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/26/2021 11:05
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/13/2021 17:07

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-08 A 02
Preparation Batch: BJI0312 — Sample Size: 25 mL — Filtration Batch: BJH0712
Prepared: 09/10/2021 — Final Volume: 25 mL — Filtration Date: 08/27/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.114	0.500	7.60	ug/L	
Chromium, Dissolved	7440-47-3	1	0.260	0.500	0.726	ug/L	
Iron, Dissolved	7439-89-6	1	18.2	36.0	1320	ug/L	
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0556	0.200	7.75	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-72-20212608

21H0320-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/26/2021 11:05
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/13/2021 17:07

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-08 A 02
Preparation Batch: BJI0312 — Sample Size: 25 mL — Filtration Batch: BJH0712
Prepared: 09/10/2021 — Final Volume: 25 mL — Filtration Date: 08/27/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	13.3	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	0.0420	ug/L	J
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	2.77	ug/L	
Copper, Dissolved	7440-50-8	1	0.173	0.500	3.14	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	3.52	ug/L	
Selenium, Dissolved	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-72-20212608

21H0320-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/26/2021 11:05
Instrument: HYDRA Analyst: SKD — Analyzed: 09/08/2021 15:44

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0320-08 A 01
Preparation Batch: BJI0210 — Sample Size: 20 mL — Filtration Batch: BJH0712
Prepared: 09/08/2021 — Final Volume: 20 mL — Filtration Date: 08/27/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-72-20212608

21H0320-08RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/26/2021 11:05
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/13/2021 20:51

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-08RE1 A 02
Preparation Batch: BJI0312 — Sample Size: 25 mL — Filtration Batch: BJH0712
Prepared: 09/10/2021 — Final Volume: 25 mL — Filtration Date: 08/27/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	5	0.710	2.50	580	ug/L	D

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-11-20212608

21H0320-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/26/2021 12:30

Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 19:38

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0320-09 G

Preparation Batch: BJI0049 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Methyl tert-butyl Ether	1634-04-4	1	0.14	0.50	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*96.7*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*92.2*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*95.1*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-11-20212608

21H0320-09 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/26/2021 12:30

Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 19:38

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0320-09 G

Preparation Batch: BJI0049 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*92.2*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*93.3*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-11-20212608

21H0320-09 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/26/2021 12:30
Instrument: FID4 Analyst: TWC — Analyzed: 09/14/2021 01:56

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0320-09 B 01
Preparation Batch: BJH0731 — Sample Size: 500 mL
Prepared: 08/30/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.173	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*112*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
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Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-11-20212608

21H0320-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/26/2021 12:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/09/2021 21:19

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-09 A 01
Preparation Batch: BJI0217 — Sample Size: 25 mL
Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	10	1.42	5.00	1620	ug/L	D

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Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-11-20212608

21H0320-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/26/2021 12:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/08/2021 20:12

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-09 A 01
Preparation Batch: BJI0217 — Sample Size: 25 mL
Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	7.98	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-11-20212608

21H0320-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/26/2021 12:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/13/2021 18:59

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-10 A 02
Preparation Batch: BJI0312 — Sample Size: 25 mL — Filtration Batch: BJH0712
Prepared: 09/10/2021 — Final Volume: 25 mL — Filtration Date: 08/27/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	5.89	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-11-20212608

21H0320-10RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/26/2021 12:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/13/2021 20:43

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-10RE1 A 02
Preparation Batch: BJI0312 — Sample Size: 25 mL — Filtration Batch: BJH0712
Prepared: 09/10/2021 — Final Volume: 25 mL — Filtration Date: 08/27/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	10	1.42	5.00	1480	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
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Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-14-20212608

21H0320-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/26/2021 13:20
Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 20:04

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0320-11 N
Preparation Batch: BJI0049 — Sample Size: 10 mL
Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.14	0.50	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*94.5*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*92.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*92.2*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*93.7*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-14-20212608

21H0320-11 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/26/2021 13:20

Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 20:04

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0320-11 N

Preparation Batch: BJI0049 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*92.9*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*92.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-14-20212608

21H0320-11 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/26/2021 13:20

Instrument: NT16 Analyst: KOTT — Analyzed: 08/30/2021 18:20

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0320-11 K

Preparation Batch: BJH0756 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	16.7	ng/L	J
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*94.5*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-14-20212608

21H0320-11 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 08/26/2021 13:20

Instrument: FID6 Analyst: LH — Analyzed: 09/03/2021 11:49

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0320-11 L

Preparation Batch: BJI0109 — Sample Size: 10 mL

Prepared: 09/03/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	1440	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*72-122 %*	*87.8*	*%*	

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MW-14-20212608

21H0320-11 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/26/2021 13:20
Instrument: FID4 Analyst: TWC — Analyzed: 09/14/2021 02:16

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0320-11 G 01
Preparation Batch: BJH0731 — Sample Size: 500 mL
Prepared: 08/30/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*101*	*%*	

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21H0320-11 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/26/2021 13:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/08/2021 21:15

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-11 F 01

Preparation Batch: BJI0217 — Sample Size: 25 mL

Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	1	0.260	0.500	0.801	ug/L	
Lead	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Manganese	7439-96-5	10	1.42	5.00	880	ug/L	D
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-14-20212608

21H0320-11 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/26/2021 13:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/08/2021 21:15

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-11 F 01

Preparation Batch: BJI0217 — Sample Size: 25 mL

Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	8.10	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt	7440-48-4	1	0.0178	0.200	0.823	ug/L	
Copper	7440-50-8	1	0.173	0.500	0.307	ug/L	J
Nickel	7440-02-0	1	0.0792	0.500	0.875	ug/L	
Selenium	7782-49-2	1	0.179	0.500	0.203	ug/L	J
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-14-20212608

21H0320-11 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/26/2021 13:20
Instrument: HYDRA Analyst: ML — Analyzed: 09/14/2021 13:58

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0320-11 F
Preparation Batch: BJI0293 — Sample Size: 20 mL
Prepared: 09/10/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	0.000040	mg/L	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

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21H0320-11 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 08/26/2021 13:20

Instrument: IC930 Analyst: CDE — Analyzed: 08/26/2021 21:14

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0320-11 B

Preparation Batch: BJH0703 — Sample Size: 10 mL

Prepared: 08/26/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	0.100	ND	mg/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-14-20212608

21H0320-11 (Water)

Wet Chemistry

Method: SM 3500-Fe B-97 — Sampled: 08/26/2021 13:20

Instrument: UV1800-1 Analyst: CKI — Analyzed: 08/26/2021 17:27

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0320-11 E

Preparation Batch: BJH0697 — Sample Size: 5 mL

Prepared: 08/26/2021 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ferrous Iron		50	2.00	2.00	20.8	mg/L	D

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Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

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21H0320-11 (Water)

Wet Chemistry

Method: SM 4500-SO3 B-00 — Sampled: 08/26/2021 13:20

Instrument: N/A Analyst: UW — Analyzed: 08/26/2021 17:02

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0320-11

Preparation Batch: BJH0702 — Sample Size: 50 mL

Prepared: 08/26/2021 — Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfite	14265-45-3	1	1.4	1.4	ND	mg/L	H, U

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
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Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-14-20212608

21H0320-11RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 08/26/2021 13:20

Instrument: IC930 Analyst: CDE — Analyzed: 09/10/2021 20:24

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0320-11RE1 B

Preparation Batch: BJH0703 — Sample Size: 10 mL

Prepared: 08/26/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	5	0.500	0.500	10.3	mg/L	D

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-14-20212608

21H0320-11RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 08/26/2021 13:20
Instrument: IC930 Analyst: CDE — Analyzed: 09/10/2021 20:44

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0320-11RE2 B
Preparation Batch: BJH0703 — Sample Size: 10 mL
Prepared: 08/26/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	4.55	mg/L	

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Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-14-20212608

21H0320-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/26/2021 13:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/13/2021 17:02

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-12 A 02
Preparation Batch: BJI0312 — Sample Size: 25 mL — Filtration Batch: BJH0712
Prepared: 09/10/2021 — Final Volume: 25 mL — Filtration Date: 08/27/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.260	0.500	0.436	ug/L	J
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-14-20212608

21H0320-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/26/2021 13:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/13/2021 17:02

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-12 A 02

Preparation Batch: BJI0312 — Sample Size: 25 mL — Filtration Batch: BJH0712

Prepared: 09/10/2021 — Final Volume: 25 mL — Filtration Date: 08/27/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	3.72	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	0.796	ug/L	
Copper, Dissolved	7440-50-8	1	0.173	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	0.811	ug/L	
Selenium, Dissolved	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-14-20212608

21H0320-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/26/2021 13:20
Instrument: HYDRA Analyst: SKD — Analyzed: 09/08/2021 15:32

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0320-12 A 01
Preparation Batch: BJI0210 — Sample Size: 20 mL — Filtration Batch: BJH0712
Prepared: 09/08/2021 — Final Volume: 20 mL — Filtration Date: 08/27/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	ND	mg/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-14-20212608

21H0320-12RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/26/2021 13:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/13/2021 20:47

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-12RE1 A 02
Preparation Batch: BJI0312 — Sample Size: 25 mL — Filtration Batch: BJH0712
Prepared: 09/10/2021 — Final Volume: 25 mL — Filtration Date: 08/27/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	10	1.42	5.00	743	ug/L	D

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-50-20212608

21H0320-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/26/2021 14:30
Instrument: NT3 Analyst: PKC — Analyzed: 09/02/2021 20:29

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0320-13 G
Preparation Batch: BJI0049 — Sample Size: 10 mL
Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	2.69	ug/L	
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	0.09	ug/L	J
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*93.7*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*91.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*90.2*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*95.8*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-50-20212608

21H0320-13 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/26/2021 14:30
Instrument: ECD7 Analyst: JGR — Analyzed: 09/20/2021 21:26

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0320-13 B 01
	Preparation Batch: BJI0048	Sample Size: 1000 mL	
	Prepared: 09/02/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0320-13 B 01
	Cleanup Batch: CJI0149	Initial Volume: 0.5 mL	
	Cleaned: 20-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0320-13 B 01
	Cleanup Batch: CJI0147	Initial Volume: 0.5 uL	
	Cleaned: 20-Sep-2021	Final Volume: 0.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0320-13 B 01
	Cleanup Batch: CJI0148	Initial Volume: 0.5 uL	
	Cleaned: 20-Sep-2021	Final Volume: 0.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*70.0*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*75.4*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*68.5*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*68.4*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-50-20212608

21H0320-13 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/26/2021 14:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/08/2021 20:16

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-13 A 01
Preparation Batch: BJI0217 — Sample Size: 25 mL
Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	1	0.142	0.500	255	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

MW-50-20212608

21H0320-14 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/26/2021 14:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/13/2021 19:35

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0320-14 A 02
Preparation Batch: BJI0312 — Sample Size: 25 mL — Filtration Batch: BJH0712
Prepared: 09/10/2021 — Final Volume: 25 mL — Filtration Date: 08/27/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	2	0.284	1.00	243	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Volatile Organic Compounds - Quality Control

Batch BJI0049 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0049-BLK1)				Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 13:20							
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							U
Surrogate: Toluene-d8	4.68			ug/L	*5.00*		*93.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.66			ug/L	*5.00*		*93.3*	*80-120*			
Blank (BJI0049-BLK2)				Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 13:20							
Vinyl Chloride	ND	0.08	0.20	ug/L							U
1,1-Dichloroethene	ND	0.08	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.07	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Benzene	ND	0.05	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
Toluene	ND	0.05	0.20	ug/L							U
Tetrachloroethene	ND	0.09	0.20	ug/L							U
Ethylbenzene	ND	0.05	0.20	ug/L							U
m,p-Xylene	ND	0.14	0.40	ug/L							U
o-Xylene	ND	0.08	0.20	ug/L							U
Xylenes, total	ND	0.22	0.60	ug/L							U
Methyl tert-butyl Ether	ND	0.14	0.50	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.67			ug/L	*5.00*		*93.5*	*80-129*			
Surrogate: Toluene-d8	4.68			ug/L	*5.00*		*93.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.66			ug/L	*5.00*		*93.3*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.79			ug/L	*5.00*		*95.7*	*80-120*			
LCS (BJI0049-BS1)				Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 10:23							
Gasoline Range Organics (Tol-Nap)	1040		100	ug/L	1000		104	72-128			
Surrogate: Toluene-d8	4.75			ug/L	*5.00*		*95.1*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.73			ug/L	*5.00*		*94.6*	*80-120*			
LCS (BJI0049-BS2)				Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 10:49							
Vinyl Chloride	9.73	0.08	0.20	ug/L	10.0		97.3	66-133			
1,1-Dichloroethene	9.36	0.08	0.20	ug/L	10.0		93.6	69-135			
trans-1,2-Dichloroethene	8.70	0.07	0.20	ug/L	10.0		87.0	78-128			
cis-1,2-Dichloroethene	9.26	0.08	0.20	ug/L	10.0		92.6	80-121			
Benzene	9.38	0.05	0.20	ug/L	10.0		93.8	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Volatile Organic Compounds - Quality Control

Batch BJI0049 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0049-BS2)					Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 10:49						
Trichloroethene	9.06	0.07	0.20	ug/L	10.0		90.6	80-120			
Toluene	9.25	0.05	0.20	ug/L	10.0		92.5	80-120			
Tetrachloroethene	9.64	0.09	0.20	ug/L	10.0		96.4	80-120			
Ethylbenzene	9.94	0.05	0.20	ug/L	10.0		99.4	80-120			
m,p-Xylene	19.3	0.14	0.40	ug/L	20.0		96.7	80-121			
o-Xylene	9.56	0.08	0.20	ug/L	10.0		95.6	80-121			
Xylenes, total	28.9	0.22	0.60	ug/L	30.0		96.3	76-127			
Methyl tert-butyl Ether	8.69	0.14	0.50	ug/L	10.0		86.9	71-132			
Surrogate: 1,2-Dichloroethane-d4	4.41			ug/L	*5.00*		*88.3*	*80-129*			
Surrogate: Toluene-d8	4.61			ug/L	*5.00*		*92.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.58			ug/L	*5.00*		*91.6*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.64			ug/L	*5.00*		*92.8*	*80-120*			
LCS Dup (BJI0049-BSD1)					Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 11:14						
Gasoline Range Organics (Tol-Nap)	1070		100	ug/L	1000		107	72-128	2.46	30	
Surrogate: Toluene-d8	4.75			ug/L	*5.00*		*95.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.57			ug/L	*5.00*		*91.4*	*80-120*			
LCS Dup (BJI0049-BSD2)					Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 11:39						
Vinyl Chloride	10.6	0.08	0.20	ug/L	10.0		106	66-133	8.09	30	
1,1-Dichloroethene	9.97	0.08	0.20	ug/L	10.0		99.7	69-135	6.37	30	
trans-1,2-Dichloroethene	9.40	0.07	0.20	ug/L	10.0		94.0	78-128	7.81	30	
cis-1,2-Dichloroethene	9.53	0.08	0.20	ug/L	10.0		95.3	80-121	2.88	30	
Benzene	9.79	0.05	0.20	ug/L	10.0		97.9	80-120	4.33	30	
Trichloroethene	9.97	0.07	0.20	ug/L	10.0		99.7	80-120	9.53	30	
Toluene	9.82	0.05	0.20	ug/L	10.0		98.2	80-120	5.89	30	
Tetrachloroethene	10.8	0.09	0.20	ug/L	10.0		108	80-120	11.60	30	
Ethylbenzene	10.8	0.05	0.20	ug/L	10.0		108	80-120	8.49	30	
m,p-Xylene	20.9	0.14	0.40	ug/L	20.0		104	80-121	7.76	30	
o-Xylene	10.2	0.08	0.20	ug/L	10.0		102	80-121	5.97	30	
Xylenes, total	31.0	0.22	0.60	ug/L	30.0		103	76-127	7.17	30	
Methyl tert-butyl Ether	9.44	0.14	0.50	ug/L	10.0		94.4	71-132	8.28	30	
Surrogate: 1,2-Dichloroethane-d4	4.27			ug/L	*5.00*		*85.5*	*80-129*			
Surrogate: Toluene-d8	4.72			ug/L	*5.00*		*94.5*	*80-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Volatile Organic Compounds - Quality Control

Batch BJI0049 - EPA 5030C (Purge and Trap)

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJI0049-BSD2)				Prepared: 02-Sep-2021 Analyzed: 02-Sep-2021 11:39							
Surrogate: 4-Bromofluorobenzene	4.88			ug/L	*5.00*		*97.6*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.55			ug/L	*5.00*		*91.0*	*80-120*			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Volatile Organic Compounds - Quality Control

Batch BJI0098 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0098-BLK1)				Prepared: 03-Sep-2021	Analyzed: 03-Sep-2021 08:53					
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.94		ug/L	*5.00*		*98.7*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.69		ug/L	*5.00*		*93.8*	*80-120*			
LCS (BJI0098-BS1)				Prepared: 03-Sep-2021	Analyzed: 03-Sep-2021 07:11					
Gasoline Range Organics (Tol-Nap)	1110	100	ug/L	1000		111	72-128			
Surrogate: Toluene-d8	5.10		ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.89		ug/L	*5.00*		*97.8*	*80-120*			
LCS Dup (BJI0098-BSD1)				Prepared: 03-Sep-2021	Analyzed: 03-Sep-2021 07:52					
Gasoline Range Organics (Tol-Nap)	1100	100	ug/L	1000		110	72-128	0.32	30	
Surrogate: Toluene-d8	5.02		ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.80		ug/L	*5.00*		*96.1*	*80-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Volatile Organic Compounds - SIM - Quality Control

Batch BJH0756 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: KOTT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0756-BLK1)				Prepared: 30-Aug-2021 Analyzed: 30-Aug-2021 12:02							
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	5070			ng/L	*5000*		*101*	*80-129*			
Surrogate: Toluene-d8	5020			ng/L	*5000*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4710			ng/L	*5000*		*94.3*	*75-125*			
LCS (BJH0756-BS1)				Prepared: 30-Aug-2021 Analyzed: 30-Aug-2021 11:21							
Vinyl chloride	1730	5.01	20.0	ng/L	2000		86.7	62-141			
Surrogate: 1,2-Dichloroethane-d4	5080			ng/L	*5000*		*102*	*80-129*			
Surrogate: Toluene-d8	4680			ng/L	*5000*		*93.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5670			ng/L	*5000*		*113*	*75-125*			
LCS Dup (BJH0756-BSD1)				Prepared: 30-Aug-2021 Analyzed: 30-Aug-2021 11:42							
Vinyl chloride	1670	5.01	20.0	ng/L	2000		83.3	62-141	4.08	30	
Surrogate: 1,2-Dichloroethane-d4	5160			ng/L	*5000*		*103*	*80-129*			
Surrogate: Toluene-d8	4750			ng/L	*5000*		*95.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5520			ng/L	*5000*		*110*	*75-125*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Dissolved Gases - Quality Control

Batch BJI0109 - EPA 5030C (Purge and Trap)

Instrument: FID6 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0109-BLK1)				Prepared: 03-Sep-2021	Analyzed: 03-Sep-2021 10:32					
Methane	ND	0.65	ug/L							U
Ethane	ND	1.23	ug/L							U
Ethene	ND	1.14	ug/L							U
Acetylene	ND	1.06	ug/L							U
Surrogate: Propane	1550		ug/L	*1800*		*86.4*	*72-122*			
LCS (BJI0109-BS1)				Prepared: 03-Sep-2021	Analyzed: 03-Sep-2021 09:15					
Methane	716	0.65	ug/L	656		109	80-120			
Ethane	1410	1.23	ug/L	1230		115	80-120			
Ethene	1280	1.14	ug/L	1150		112	80-120			
Acetylene	1130	1.06	ug/L	1060		107	73-123			E
Surrogate: Propane	1850		ug/L	*1800*		*103*	*62-122*			
LCS Dup (BJI0109-BSD1)				Prepared: 03-Sep-2021	Analyzed: 03-Sep-2021 09:33					
Methane	711	0.65	ug/L	656		108	80-120	0.62	30	
Ethane	1410	1.23	ug/L	1230		114	80-120	0.28	30	
Ethene	1280	1.14	ug/L	1150		111	80-120	0.37	30	
Acetylene	1150	1.06	ug/L	1060		109	73-123	2.10	30	E
Surrogate: Propane	1790		ug/L	*1800*		*99.7*	*62-122*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Semivolatile Organic Compounds - Quality Control

Batch BJI0045 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0045-BLK1)	Prepared: 02-Sep-2021 Analyzed: 20-Sep-2021 16:24										
Phenol	ND	0.01	0.2	ug/L							U
bis(2-chloroethyl) ether	ND	0.03	0.2	ug/L							U
2-Chlorophenol	ND	0.03	0.2	ug/L							U
1,3-Dichlorobenzene	ND	0.03	0.2	ug/L							U
1,4-Dichlorobenzene	ND	0.03	0.2	ug/L							U
1,2-Dichlorobenzene	ND	0.03	0.2	ug/L							U
Benzyl Alcohol	ND	0.02	0.2	ug/L							U
2,2'-Oxybis(1-chloropropane)	ND	0.03	0.2	ug/L							U
2-Methylphenol	ND	0.03	0.2	ug/L							U
Hexachloroethane	ND	0.04	0.2	ug/L							U
N-Nitroso-di-n-Propylamine	ND	0.04	0.2	ug/L							U
4-Methylphenol	ND	0.03	0.2	ug/L							U
Nitrobenzene	ND	0.03	0.2	ug/L							U
Isophorone	ND	0.03	0.2	ug/L							U
2-Nitrophenol	ND	0.04	1.0	ug/L							U
2,4-Dimethylphenol	ND	0.3	1.0	ug/L							U
Bis(2-Chloroethoxy)methane	ND	0.03	0.2	ug/L							U
2,4-Dichlorophenol	ND	0.1	1.0	ug/L							U
1,2,4-Trichlorobenzene	ND	0.03	0.2	ug/L							U
Naphthalene	ND	0.03	0.2	ug/L							U
Benzoic acid	ND	0.1	2.0	ug/L							U
4-Chloroaniline	ND	0.04	1.0	ug/L							U
Hexachlorobutadiene	ND	0.04	0.2	ug/L							U
4-Chloro-3-Methylphenol	ND	0.1	1.0	ug/L							U
2-Methylnaphthalene	ND	0.03	0.2	ug/L							U
Hexachlorocyclopentadiene	ND	0.1	1.0	ug/L							U
2,4,6-Trichlorophenol	ND	0.2	1.0	ug/L							U
2,4,5-Trichlorophenol	ND	0.1	1.0	ug/L							U
2-Chloronaphthalene	ND	0.03	0.2	ug/L							U
2-Nitroaniline	ND	0.2	1.0	ug/L							U
Acenaphthylene	ND	0.02	0.2	ug/L							U
Dimethylphthalate	ND	0.04	0.2	ug/L							U
2,6-Dinitrotoluene	ND	0.2	1.0	ug/L							U
Acenaphthene	ND	0.03	0.2	ug/L							U
3-Nitroaniline	ND	0.2	1.0	ug/L							U

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Semivolatile Organic Compounds - Quality Control

Batch BJI0045 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0045-BLK1)				Prepared: 02-Sep-2021 Analyzed: 20-Sep-2021 16:24							
2,4-Dinitrophenol	ND	0.2	2.0	ug/L							U
Dibenzofuran	ND	0.02	0.2	ug/L							U
4-Nitrophenol	ND	0.06	1.0	ug/L							U
2,4-Dinitrotoluene	ND	0.1	1.0	ug/L							U
Fluorene	ND	0.02	0.2	ug/L							U
4-Chlorophenylphenyl ether	ND	0.02	0.2	ug/L							U
Diethyl phthalate	ND	0.06	0.2	ug/L							U
4-Nitroaniline	ND	0.2	1.0	ug/L							U
4,6-Dinitro-2-methylphenol	ND	0.4	2.0	ug/L							U
N-Nitrosodiphenylamine	ND	0.03	0.2	ug/L							U
4-Bromophenyl phenyl ether	ND	0.02	0.2	ug/L							U
Hexachlorobenzene	ND	0.04	0.2	ug/L							U
Pentachlorophenol	ND	0.1	1.0	ug/L							U
Phenanthrene	ND	0.02	0.2	ug/L							U
Anthracene	ND	0.03	0.2	ug/L							U
Carbazole	ND	0.04	0.2	ug/L							U
Di-n-Butylphthalate	ND	0.05	0.2	ug/L							U
Fluoranthene	ND	0.03	0.2	ug/L							U
Pyrene	ND	0.03	0.2	ug/L							U
Butylbenzylphthalate	ND	0.07	0.2	ug/L							U
Benzo(a)anthracene	ND	0.04	0.2	ug/L							U
3,3'-Dichlorobenzidine	ND	0.3	1.0	ug/L							U
Chrysene	ND	0.04	0.2	ug/L							U
bis(2-Ethylhexyl)phthalate	ND	0.2	0.2	ug/L							U
Di-n-Octylphthalate	ND	0.05	0.2	ug/L							U
Benzofluoranthenes, Total	ND	0.08	0.4	ug/L							U
Benzo(a)pyrene	ND	0.05	0.2	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.06	0.2	ug/L							U
Dibenzo(a,h)anthracene	ND	0.07	0.2	ug/L							U
Benzo(g,h,i)perylene	ND	0.04	0.2	ug/L							U
1-Methylnaphthalene	ND	0.03	0.2	ug/L							U
Surrogate: 2-Fluorophenol	2.90			ug/L	*7.50*		*38.7*	*30-160*			
Surrogate: Phenol-d5	1.65			ug/L	*7.50*		*22.0*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	6.41			ug/L	*7.50*		*85.5*	*30-160*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Semivolatile Organic Compounds - Quality Control

Batch BJI0045 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0045-BLK1)				Prepared: 02-Sep-2021 Analyzed: 20-Sep-2021 16:24							
Surrogate: 1,2-Dichlorobenzene-d4	3.86			ug/L	*5.00*		*77.2*	*30-160*			
Surrogate: Nitrobenzene-d5	3.92			ug/L	*5.00*		*78.5*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.84			ug/L	*5.00*		*76.8*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	5.46			ug/L	*7.50*		*72.8*	*30-160*			
Surrogate: p-Terphenyl-d14	3.48			ug/L	*5.00*		*69.7*	*30-160*			
LCS (BJI0045-BS1)				Prepared: 02-Sep-2021 Analyzed: 20-Sep-2021 17:02							
Phenol	1.5	0.01	0.2	ug/L	5.00		30.8	30-160			
bis(2-chloroethyl) ether	5.0	0.03	0.2	ug/L	5.00		99.6	30-160			
2-Chlorophenol	4.4	0.03	0.2	ug/L	5.00		87.9	30-160			
1,3-Dichlorobenzene	3.9	0.03	0.2	ug/L	5.00		77.3	30-160			
1,4-Dichlorobenzene	4.5	0.03	0.2	ug/L	5.00		90.1	30-160			
1,2-Dichlorobenzene	4.1	0.03	0.2	ug/L	5.00		83.0	30-160			
Benzyl Alcohol	1.5	0.02	0.2	ug/L	5.00		29.8	30-160			*
2,2'-Oxybis(1-chloropropane)	5.5	0.03	0.2	ug/L	5.00		110	30-160			
2-Methylphenol	3.0	0.03	0.2	ug/L	5.00		59.8	30-160			
Hexachloroethane	4.1	0.04	0.2	ug/L	5.00		82.3	30-160			
N-Nitroso-di-n-Propylamine	3.5	0.04	0.2	ug/L	5.00		69.9	30-160			
4-Methylphenol	2.8	0.03	0.2	ug/L	5.00		55.2	30-160			
Nitrobenzene	4.8	0.03	0.2	ug/L	5.00		95.3	30-160			
Isophorone	7.1	0.03	0.2	ug/L	5.00		142	30-160			
2-Nitrophenol	4.2	0.04	1.0	ug/L	5.00		84.8	30-160			
2,4-Dimethylphenol	7.8	0.3	1.0	ug/L	13.0		60.1	30-160			
Bis(2-Chloroethoxy)methane	4.9	0.03	0.2	ug/L	5.00		98.7	30-160			
2,4-Dichlorophenol	14.2	0.1	1.0	ug/L	13.0		109	30-160			
1,2,4-Trichlorobenzene	4.0	0.03	0.2	ug/L	5.00		79.1	30-160			
Naphthalene	4.3	0.03	0.2	ug/L	5.00		85.8	30-160			
Benzoic acid	5.4	0.1	2.0	ug/L	23.0		23.3	30-160			*, Q
4-Chloroaniline	1.9	0.04	1.0	ug/L	13.0		14.5	30-160			*
Hexachlorobutadiene	3.5	0.04	0.2	ug/L	5.00		69.4	30-160			
4-Chloro-3-Methylphenol	11.3	0.1	1.0	ug/L	13.0		87.3	30-160			
2-Methylnaphthalene	3.9	0.03	0.2	ug/L	5.00		77.6	30-160			
Hexachlorocyclopentadiene	4.4	0.1	1.0	ug/L	13.0		34.0	30-160			Q
2,4,6-Trichlorophenol	11.2	0.2	1.0	ug/L	13.0		86.2	30-160			
2,4,5-Trichlorophenol	11.9	0.1	1.0	ug/L	13.0		91.3	30-160			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Semivolatile Organic Compounds - Quality Control

Batch BJI0045 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0045-BS1)				Prepared: 02-Sep-2021 Analyzed: 20-Sep-2021 17:02							
2-Chloronaphthalene	4.6	0.03	0.2	ug/L	5.00		91.1	30-160			
2-Nitroaniline	13.6	0.2	1.0	ug/L	13.0		105	30-160			
Acenaphthylene	3.8	0.02	0.2	ug/L	5.00		76.7	30-160			
Dimethylphthalate	4.6	0.04	0.2	ug/L	5.00		92.3	30-160			
2,6-Dinitrotoluene	14.3	0.2	1.0	ug/L	13.0		110	30-160			
Acenaphthene	4.4	0.03	0.2	ug/L	5.00		87.4	30-160			
3-Nitroaniline	10.2	0.2	1.0	ug/L	13.0		78.2	30-160			
2,4-Dinitrophenol	14.1	0.2	2.0	ug/L	23.0		61.1	30-160			Q
Dibenzofuran	4.3	0.02	0.2	ug/L	5.00		86.3	30-160			
4-Nitrophenol	2.9	0.06	1.0	ug/L	13.0		22.0	30-160			*
2,4-Dinitrotoluene	14.7	0.1	1.0	ug/L	13.0		113	30-160			
Fluorene	4.4	0.02	0.2	ug/L	5.00		87.2	30-160			
4-Chlorophenylphenyl ether	4.7	0.02	0.2	ug/L	5.00		93.3	30-160			
Diethyl phthalate	5.3	0.06	0.2	ug/L	5.00		105	30-160			E
4-Nitroaniline	9.8	0.2	1.0	ug/L	13.0		75.1	30-160			
4,6-Dinitro-2-methylphenol	18.3	0.4	2.0	ug/L	23.0		79.7	30-160			
N-Nitrosodiphenylamine	4.1	0.03	0.2	ug/L	5.00		81.6	30-160			
4-Bromophenyl phenyl ether	5.8	0.02	0.2	ug/L	5.00		117	30-160			
Hexachlorobenzene	5.2	0.04	0.2	ug/L	5.00		104	30-160			
Pentachlorophenol	8.9	0.1	1.0	ug/L	13.0		68.2	30-160			Q
Phenanthrene	4.6	0.02	0.2	ug/L	5.00		92.1	30-160			
Anthracene	4.4	0.03	0.2	ug/L	5.00		87.8	30-160			
Carbazole	4.8	0.04	0.2	ug/L	5.00		95.2	30-160			
Di-n-Butylphthalate	5.4	0.05	0.2	ug/L	5.00		108	30-160			
Fluoranthene	4.1	0.03	0.2	ug/L	5.00		82.7	30-160			
Pyrene	4.2	0.03	0.2	ug/L	5.00		84.0	30-160			
Butylbenzylphthalate	4.5	0.07	0.2	ug/L	5.00		90.9	30-160			
Benzo(a)anthracene	4.5	0.04	0.2	ug/L	5.00		90.8	30-160			
3,3'-Dichlorobenzidine	14.0	0.3	1.0	ug/L	13.0		108	30-160			
Chrysene	4.5	0.04	0.2	ug/L	5.00		89.9	30-160			
bis(2-Ethylhexyl)phthalate	3.7	0.2	0.2	ug/L	5.00		73.9	30-160			
Di-n-Octylphthalate	4.9	0.05	0.2	ug/L	5.00		98.6	30-160			
Benzofluoranthenes, Total	9.3	0.08	0.4	ug/L	10.0		93.2	30-160			
Benzo(a)pyrene	4.3	0.05	0.2	ug/L	5.00		86.4	30-160			
Indeno(1,2,3-cd)pyrene	4.9	0.06	0.2	ug/L	5.00		98.1	30-160			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Semivolatile Organic Compounds - Quality Control

Batch BJI0045 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0045-BS1)					Prepared: 02-Sep-2021 Analyzed: 20-Sep-2021 17:02						
Dibenzo(a,h)anthracene	4.9	0.07	0.2	ug/L	5.00		98.2	30-160			
Benzo(g,h,i)perylene	4.9	0.04	0.2	ug/L	5.00		98.5	30-160			
1-Methylnaphthalene	4.1	0.03	0.2	ug/L	5.00		82.4	30-160			
Surrogate: 2-Fluorophenol	3.38			ug/L	*7.50*		*45.0*	*30-160*			
Surrogate: Phenol-d5	2.16			ug/L	*7.50*		*28.8*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	7.52			ug/L	*7.50*		*100*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	4.20			ug/L	*5.00*		*84.1*	*30-160*			
Surrogate: Nitrobenzene-d5	4.74			ug/L	*5.00*		*94.7*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.46			ug/L	*5.00*		*89.1*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.83			ug/L	*7.50*		*91.0*	*30-160*			
Surrogate: p-Terphenyl-d14	4.49			ug/L	*5.00*		*89.7*	*30-160*			
LCS Dup (BJI0045-BSD1)					Prepared: 02-Sep-2021 Analyzed: 20-Sep-2021 17:39						
Phenol	1.4	0.01	0.2	ug/L	5.00		28.3	30-160	8.45	30	*
bis(2-chloroethyl) ether	4.6	0.03	0.2	ug/L	5.00		92.9	30-160	6.95	30	
2-Chlorophenol	4.2	0.03	0.2	ug/L	5.00		84.2	30-160	4.35	30	
1,3-Dichlorobenzene	3.7	0.03	0.2	ug/L	5.00		74.8	30-160	3.25	30	
1,4-Dichlorobenzene	4.2	0.03	0.2	ug/L	5.00		83.3	30-160	7.83	30	
1,2-Dichlorobenzene	3.9	0.03	0.2	ug/L	5.00		78.1	30-160	6.00	30	
Benzyl Alcohol	1.4	0.02	0.2	ug/L	5.00		27.8	30-160	7.15	30	*
2,2'-Oxybis(1-chloropropane)	4.9	0.03	0.2	ug/L	5.00		98.1	30-160	11.00	30	
2-Methylphenol	2.8	0.03	0.2	ug/L	5.00		56.8	30-160	5.20	30	
Hexachloroethane	4.0	0.04	0.2	ug/L	5.00		80.2	30-160	2.67	30	
N-Nitroso-di-n-Propylamine	3.5	0.04	0.2	ug/L	5.00		69.2	30-160	0.97	30	
4-Methylphenol	2.6	0.03	0.2	ug/L	5.00		52.5	30-160	4.90	30	
Nitrobenzene	4.6	0.03	0.2	ug/L	5.00		91.9	30-160	3.64	30	
Isophorone	7.0	0.03	0.2	ug/L	5.00		140	30-160	1.16	30	
2-Nitrophenol	4.2	0.04	1.0	ug/L	5.00		84.5	30-160	0.33	30	
2,4-Dimethylphenol	9.0	0.3	1.0	ug/L	13.0		69.1	30-160	14.00	30	
Bis(2-Chloroethoxy)methane	4.9	0.03	0.2	ug/L	5.00		97.2	30-160	1.52	30	
2,4-Dichlorophenol	15.2	0.1	1.0	ug/L	13.0		117	30-160	7.23	30	
1,2,4-Trichlorobenzene	3.7	0.03	0.2	ug/L	5.00		74.9	30-160	5.41	30	
Naphthalene	4.1	0.03	0.2	ug/L	5.00		82.9	30-160	3.36	30	
Benzoic acid	5.6	0.1	2.0	ug/L	23.0		24.2	30-160	3.84	30	*, Q
4-Chloroaniline	1.7	0.04	1.0	ug/L	13.0		12.7	30-160	13.50	30	*

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Semivolatile Organic Compounds - Quality Control

Batch BJI0045 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJI0045-BSD1)					Prepared: 02-Sep-2021 Analyzed: 20-Sep-2021 17:39						
Hexachlorobutadiene	3.8	0.04	0.2	ug/L	5.00		76.9	30-160	10.40	30	
4-Chloro-3-Methylphenol	11.8	0.1	1.0	ug/L	13.0		90.7	30-160	3.84	30	
2-Methylnaphthalene	3.7	0.03	0.2	ug/L	5.00		74.8	30-160	3.65	30	
Hexachlorocyclopentadiene	5.5	0.1	1.0	ug/L	13.0		42.4	30-160	21.90	30	Q
2,4,6-Trichlorophenol	11.8	0.2	1.0	ug/L	13.0		90.9	30-160	5.28	30	
2,4,5-Trichlorophenol	12.7	0.1	1.0	ug/L	13.0		97.9	30-160	7.00	30	
2-Chloronaphthalene	4.4	0.03	0.2	ug/L	5.00		89.0	30-160	2.33	30	
2-Nitroaniline	14.0	0.2	1.0	ug/L	13.0		108	30-160	2.76	30	
Acenaphthylene	4.2	0.02	0.2	ug/L	5.00		85.0	30-160	10.30	30	
Dimethylphthalate	4.5	0.04	0.2	ug/L	5.00		90.0	30-160	2.53	30	
2,6-Dinitrotoluene	16.1	0.2	1.0	ug/L	13.0		124	30-160	11.90	30	
Acenaphthene	4.3	0.03	0.2	ug/L	5.00		86.6	30-160	0.96	30	
3-Nitroaniline	9.9	0.2	1.0	ug/L	13.0		75.9	30-160	2.99	30	
2,4-Dinitrophenol	15.7	0.2	2.0	ug/L	23.0		68.4	30-160	11.30	30	Q
Dibenzofuran	4.2	0.02	0.2	ug/L	5.00		83.5	30-160	3.28	30	
4-Nitrophenol	4.1	0.06	1.0	ug/L	13.0		31.8	30-160	36.40	30	*
2,4-Dinitrotoluene	15.1	0.1	1.0	ug/L	13.0		116	30-160	2.31	30	
Fluorene	4.2	0.02	0.2	ug/L	5.00		84.4	30-160	3.33	30	
4-Chlorophenylphenyl ether	4.4	0.02	0.2	ug/L	5.00		88.6	30-160	5.17	30	
Diethyl phthalate	5.1	0.06	0.2	ug/L	5.00		101	30-160	4.12	30	E
4-Nitroaniline	10.2	0.2	1.0	ug/L	13.0		78.4	30-160	4.28	30	
4,6-Dinitro-2-methylphenol	19.7	0.4	2.0	ug/L	23.0		85.5	30-160	7.02	30	
N-Nitrosodiphenylamine	3.9	0.03	0.2	ug/L	5.00		79.0	30-160	3.26	30	
4-Bromophenyl phenyl ether	5.6	0.02	0.2	ug/L	5.00		112	30-160	3.93	30	
Hexachlorobenzene	5.2	0.04	0.2	ug/L	5.00		103	30-160	0.87	30	
Pentachlorophenol	9.6	0.1	1.0	ug/L	13.0		73.5	30-160	7.59	30	Q
Phenanthrene	4.2	0.02	0.2	ug/L	5.00		84.2	30-160	9.05	30	
Anthracene	4.1	0.03	0.2	ug/L	5.00		82.7	30-160	6.07	30	
Carbazole	4.5	0.04	0.2	ug/L	5.00		89.7	30-160	5.96	30	
Di-n-Butylphthalate	5.0	0.05	0.2	ug/L	5.00		100	30-160	7.28	30	
Fluoranthene	3.9	0.03	0.2	ug/L	5.00		78.0	30-160	5.83	30	
Pyrene	3.8	0.03	0.2	ug/L	5.00		76.3	30-160	9.58	30	
Butylbenzylphthalate	4.3	0.07	0.2	ug/L	5.00		86.0	30-160	5.63	30	
Benzo(a)anthracene	4.2	0.04	0.2	ug/L	5.00		83.7	30-160	8.09	30	
3,3'-Dichlorobenzidine	14.8	0.3	1.0	ug/L	13.0		114	30-160	5.94	30	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Semivolatile Organic Compounds - Quality Control

Batch BJI0045 - EPA 3510C SepF

Instrument: NT10 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJI0045-BSD1)					Prepared: 02-Sep-2021 Analyzed: 20-Sep-2021 17:39						
Chrysene	4.2	0.04	0.2	ug/L	5.00		84.1	30-160	6.72	30	
bis(2-Ethylhexyl)phthalate	3.5	0.2	0.2	ug/L	5.00		69.9	30-160	5.51	30	
Di-n-Octylphthalate	4.6	0.05	0.2	ug/L	5.00		91.8	30-160	7.05	30	
Benzofluoranthenes, Total	8.7	0.08	0.4	ug/L	10.0		87.0	30-160	6.87	30	
Benzo(a)pyrene	4.1	0.05	0.2	ug/L	5.00		82.6	30-160	4.51	30	
Indeno(1,2,3-cd)pyrene	4.6	0.06	0.2	ug/L	5.00		92.2	30-160	6.16	30	
Dibenzo(a,h)anthracene	4.5	0.07	0.2	ug/L	5.00		90.0	30-160	8.63	30	
Benzo(g,h,i)perylene	4.5	0.04	0.2	ug/L	5.00		90.7	30-160	8.24	30	
1-Methylnaphthalene	4.0	0.03	0.2	ug/L	5.00		79.1	30-160	4.17	30	
Surrogate: 2-Fluorophenol	3.19			ug/L	*7.50*		*42.5*	*30-160*			
Surrogate: Phenol-d5	2.05			ug/L	*7.50*		*27.4*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	7.20			ug/L	*7.50*		*96.0*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	4.08			ug/L	*5.00*		*81.6*	*30-160*			
Surrogate: Nitrobenzene-d5	4.78			ug/L	*5.00*		*95.5*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.46			ug/L	*5.00*		*89.2*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.82			ug/L	*7.50*		*90.9*	*30-160*			
Surrogate: p-Terphenyl-d14	4.33			ug/L	*5.00*		*86.5*	*30-160*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0745 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0745-BLK1)				Prepared: 31-Aug-2021 Analyzed: 17-Sep-2021 17:26							
Naphthalene	0.004	0.001	0.010	ug/L							J
2-Methylnaphthalene	0.002	0.001	0.010	ug/L							J
1-Methylnaphthalene	0.001	0.0009	0.010	ug/L							J
Acenaphthylene	ND	0.002	0.010	ug/L							U
Acenaphthene	ND	0.003	0.010	ug/L							U
Dibenzofuran	ND	0.002	0.010	ug/L							U
Fluorene	ND	0.002	0.010	ug/L							U
Phenanthrene	ND	0.001	0.010	ug/L							U
Anthracene	ND	0.001	0.010	ug/L							U
Carbazole	ND	0.001	0.010	ug/L							U
Fluoranthene	ND	0.002	0.010	ug/L							U
Pyrene	ND	0.001	0.010	ug/L							U
Benzo(a)anthracene	ND	0.0008	0.010	ug/L							U
Chrysene	ND	0.0009	0.010	ug/L							U
Benzo(b)fluoranthene	ND	0.0005	0.010	ug/L							U
Benzo(k)fluoranthene	ND	0.003	0.010	ug/L							U
Benzo(j)fluoranthene	ND	0.002	0.010	ug/L							U
Benzofluoranthenes, Total	ND	0.004	0.010	ug/L							U
Benzo(a)pyrene	ND	0.002	0.010	ug/L							U
Perylene	ND	0.006	0.010	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.001	0.010	ug/L							U
Dibenzo(a,h)anthracene	ND	0.001	0.010	ug/L							U
Benzo(g,h,i)perylene	ND	0.001	0.010	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	0.238			ug/L	*0.300*		*79.4*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.204			ug/L	*0.300*		*68.1*	*29-120*			
Surrogate: Fluoranthene-d10	0.273			ug/L	*0.300*		*91.0*	*57-120*			
LCS (BJH0745-BS1)				Prepared: 31-Aug-2021 Analyzed: 17-Sep-2021 17:56							
Naphthalene	0.240	0.001	0.010	ug/L	0.300		80.1	37-120			
2-Methylnaphthalene	0.244	0.001	0.010	ug/L	0.300		81.4	37-120			
1-Methylnaphthalene	0.245	0.0009	0.010	ug/L	0.300		81.7	29-120			
Acenaphthylene	0.219	0.002	0.010	ug/L	0.300		73.0	41-120			
Acenaphthene	0.225	0.003	0.010	ug/L	0.300		74.9	41-120			
Dibenzofuran	0.227	0.002	0.010	ug/L	0.300		75.8	38-120			
Fluorene	0.245	0.002	0.010	ug/L	0.300		81.7	43-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0745 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0745-BS1)					Prepared: 31-Aug-2021 Analyzed: 17-Sep-2021 17:56						
Phenanthrene	0.245	0.001	0.010	ug/L	0.300		81.8	41-120			
Anthracene	0.225	0.001	0.010	ug/L	0.300		75.1	40-120			
Carbazole	0.246	0.001	0.010	ug/L	0.300		81.9	30-160			
Fluoranthene	0.254	0.002	0.010	ug/L	0.300		84.7	45-120			
Pyrene	0.248	0.001	0.010	ug/L	0.300		82.8	41-120			
Benzo(a)anthracene	0.233	0.0008	0.010	ug/L	0.300		77.6	42-120			
Chrysene	0.237	0.0009	0.010	ug/L	0.300		79.1	44-120			
Benzo(b)fluoranthene	0.238	0.0005	0.010	ug/L	0.300		79.3	44-120			
Benzo(k)fluoranthene	0.254	0.003	0.010	ug/L	0.300		84.8	50-120			
Benzo(j)fluoranthene	0.268	0.002	0.010	ug/L	0.300		89.4	39-160			
Benzofluoranthenes, Total	0.761	0.004	0.010	ug/L	0.900		84.5	46-120			
Benzo(a)pyrene	0.220	0.002	0.010	ug/L	0.300		73.4	35-120			
Perylene	0.212	0.006	0.010	ug/L	0.300		70.6	30-160			
Indeno(1,2,3-cd)pyrene	0.210	0.001	0.010	ug/L	0.300		70.1	37-120			
Dibenzo(a,h)anthracene	0.207	0.001	0.010	ug/L	0.300		68.9	34-120			
Benzo(g,h,i)perylene	0.205	0.001	0.010	ug/L	0.300		68.2	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.256			ug/L	*0.300*		*85.3*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.213			ug/L	*0.300*		*71.1*	*29-120*			
Surrogate: Fluoranthene-d10	0.270			ug/L	*0.300*		*90.0*	*57-120*			
LCS Dup (BJH0745-BSD1)					Prepared: 31-Aug-2021 Analyzed: 17-Sep-2021 18:26						
Naphthalene	0.228	0.001	0.010	ug/L	0.300		75.8	37-120	5.46	30	
2-Methylnaphthalene	0.235	0.001	0.010	ug/L	0.300		78.3	37-120	3.84	30	
1-Methylnaphthalene	0.234	0.0009	0.010	ug/L	0.300		78.1	29-120	4.50	30	
Acenaphthylene	0.214	0.002	0.010	ug/L	0.300		71.5	41-120	2.13	30	
Acenaphthene	0.217	0.003	0.010	ug/L	0.300		72.4	41-120	3.37	30	
Dibenzofuran	0.222	0.002	0.010	ug/L	0.300		73.9	38-120	2.49	30	
Fluorene	0.238	0.002	0.010	ug/L	0.300		79.4	43-120	2.78	30	
Phenanthrene	0.239	0.001	0.010	ug/L	0.300		79.7	41-120	2.57	30	
Anthracene	0.217	0.001	0.010	ug/L	0.300		72.2	40-120	3.89	30	
Carbazole	0.241	0.001	0.010	ug/L	0.300		80.2	30-160	2.07	30	
Fluoranthene	0.248	0.002	0.010	ug/L	0.300		82.7	45-120	2.29	30	
Pyrene	0.245	0.001	0.010	ug/L	0.300		81.7	41-120	1.34	30	
Benzo(a)anthracene	0.231	0.0008	0.010	ug/L	0.300		76.8	42-120	1.00	30	
Chrysene	0.232	0.0009	0.010	ug/L	0.300		77.4	44-120	2.16	30	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0745 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJH0745-BSD1)					Prepared: 31-Aug-2021 Analyzed: 17-Sep-2021 18:26						
Benzo(b)fluoranthene	0.236	0.0005	0.010	ug/L	0.300		78.5	44-120	1.04	30	
Benzo(k)fluoranthene	0.249	0.003	0.010	ug/L	0.300		82.9	50-120	2.28	30	
Benzo(j)fluoranthene	0.265	0.002	0.010	ug/L	0.300		88.4	39-160	1.12	30	
Benzofluoranthenes, Total	0.749	0.004	0.010	ug/L	0.900		83.3	46-120	1.48	30	
Benzo(a)pyrene	0.211	0.002	0.010	ug/L	0.300		70.4	35-120	4.13	30	
Perylene	0.215	0.006	0.010	ug/L	0.300		71.7	30-160	1.46	30	
Indeno(1,2,3-cd)pyrene	0.204	0.001	0.010	ug/L	0.300		68.1	37-120	2.93	30	
Dibenzo(a,h)anthracene	0.202	0.001	0.010	ug/L	0.300		67.4	34-120	2.34	30	
Benzo(g,h,i)perylene	0.200	0.001	0.010	ug/L	0.300		66.7	38-120	2.27	30	
Surrogate: 2-Methylnaphthalene-d10	0.232			ug/L	*0.300*		*77.3*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.197			ug/L	*0.300*		*65.6*	*29-120*			
Surrogate: Fluoranthene-d10	0.250			ug/L	*0.300*		*83.5*	*57-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Petroleum Hydrocarbons - Quality Control

Batch BJH0731 - EPA 3510C SepF

Instrument: FID4 Analyst: TWC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0731-BLK1)				Prepared: 30-Aug-2021 Analyzed: 13-Sep-2021 22:56						
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: o-Terphenyl	0.272		mg/L	*0.225*		*121*	*50-150*			
LCS (BJH0731-BS1)				Prepared: 30-Aug-2021 Analyzed: 13-Sep-2021 23:16						
Diesel Range Organics (C12-C24)	3.64	0.100	mg/L	3.00		121	56-120			*
Surrogate: o-Terphenyl	0.305		mg/L	*0.225*		*136*	*50-150*			
LCS Dup (BJH0731-BSD1)				Prepared: 30-Aug-2021 Analyzed: 13-Sep-2021 23:36						
Diesel Range Organics (C12-C24)	3.54	0.100	mg/L	3.00		118	56-120	2.82	30	
Surrogate: o-Terphenyl	0.284		mg/L	*0.225*		*126*	*50-150*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Aroclor PCB - Quality Control

Batch BJI0048 - EPA 3510C SepF

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0048-BLK1)				Prepared: 02-Sep-2021 Analyzed: 20-Sep-2021 20:25							
Aroclor 1016	ND	0.002	0.010	ug/L							U
Aroclor 1221	ND	0.002	0.010	ug/L							U
Aroclor 1232	ND	0.002	0.010	ug/L							U
Aroclor 1242	ND	0.002	0.010	ug/L							U
Aroclor 1248	ND	0.002	0.010	ug/L							U
Aroclor 1254	ND	0.002	0.010	ug/L							U
Aroclor 1260	ND	0.003	0.010	ug/L							U
Aroclor 1262	ND	0.003	0.010	ug/L							U
Aroclor 1268	ND	0.003	0.010	ug/L							U
Surrogate: Decachlorobiphenyl	0.0104			ug/L	*0.0200*		*52.2*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0109			ug/L	*0.0200*		*54.7*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.00998			ug/L	*0.0200*		*49.9*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0105			ug/L	*0.0200*		*52.3*	*32-120*			
LCS (BJI0048-BS1)				Prepared: 02-Sep-2021 Analyzed: 20-Sep-2021 20:45							
Aroclor 1016 [2C]	0.040	0.002	0.010	ug/L	0.0500		79.5	54-120			
Aroclor 1260 [2C]	0.038	0.003	0.010	ug/L	0.0500		75.1	51-128			
Surrogate: Decachlorobiphenyl	0.0135			ug/L	*0.0200*		*67.3*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0135			ug/L	*0.0200*		*67.5*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0131			ug/L	*0.0200*		*65.3*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0123			ug/L	*0.0200*		*61.7*	*32-120*			
LCS Dup (BJI0048-BSD1)				Prepared: 02-Sep-2021 Analyzed: 20-Sep-2021 21:06							
Aroclor 1016 [2C]	0.033	0.002	0.010	ug/L	0.0500		65.6	54-120	19.20	30	
Aroclor 1260 [2C]	0.032	0.003	0.010	ug/L	0.0500		64.2	51-128	15.60	30	
Surrogate: Decachlorobiphenyl	0.0122			ug/L	*0.0200*		*60.8*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0110			ug/L	*0.0200*		*55.0*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0118			ug/L	*0.0200*		*59.1*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0106			ug/L	*0.0200*		*53.0*	*32-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Metals and Metallic Compounds - Quality Control

Batch BJI0217 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0217-BLK1)					Prepared: 08-Sep-2021 Analyzed: 08-Sep-2021 16:07							
Barium	135	ND	0.114	0.500	ug/L							U
Barium	137	ND	0.0765	0.500	ug/L							U
Chromium	52	ND	0.260	0.500	ug/L							U
Chromium	53	ND	0.239	0.500	ug/L							U
Lead	208	ND	0.0513	0.100	ug/L							U
Manganese	55	ND	0.142	0.500	ug/L							U
Silver	107	ND	0.0220	0.200	ug/L							U
Arsenic	75a	ND	0.0373	0.200	ug/L							U
Cadmium	111	ND	0.0300	0.100	ug/L							U
Cadmium	114	ND	0.0400	0.100	ug/L							U
Copper	63	ND	0.173	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	ND	0.0792	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Zinc	66	ND	2.92	6.00	ug/L							U
Zinc	67	ND	0.940	6.00	ug/L							U
Blank (BJI0217-BLK2)					Prepared: 08-Sep-2021 Analyzed: 10-Sep-2021 16:04							
Iron	54	ND	18.2	36.0	ug/L							U
Iron	57	ND	6.63	36.0	ug/L							U
Vanadium	51a	ND	0.0556	0.200	ug/L							U
Vanadium	51b	ND	0.0521	0.200	ug/L							U
Cobalt	59	ND	0.0178	0.200	ug/L							U
Selenium	78	ND	0.179	0.500	ug/L							U
LCS (BJI0217-BS1)					Prepared: 08-Sep-2021 Analyzed: 08-Sep-2021 16:11							
Barium	135	24.1	0.114	0.500	ug/L	25.0		96.3	80-120			
Barium	137	23.9	0.0765	0.500	ug/L	25.0		95.4	80-120			
Chromium	52	22.8	0.260	0.500	ug/L	25.0		91.1	80-120			
Chromium	53	24.8	0.239	0.500	ug/L	25.0		99.2	80-120			
Lead	208	24.4	0.0513	0.100	ug/L	25.0		97.5	80-120			
Manganese	55	23.5	0.142	0.500	ug/L	25.0		94.1	80-120			
Silver	107	23.7	0.0220	0.200	ug/L	25.0		94.9	80-120			
Arsenic	75a	24.3	0.0373	0.200	ug/L	25.0		97.4	80-120			
Cadmium	111	25.0	0.0300	0.100	ug/L	25.0		100	80-120			

Draft for Public Comment

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Metals and Metallic Compounds - Quality Control

Batch BJI0217 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0217-BS1)						Prepared: 08-Sep-2021 Analyzed: 08-Sep-2021 16:11						
Cadmium	114	25.3	0.0400	0.100	ug/L	25.0		101	80-120			
Copper	63	25.0	0.173	0.500	ug/L	25.0		99.9	80-120			
Copper	65	25.1	0.350	0.500	ug/L	25.0		100	80-120			
Nickel	60	24.9	0.0792	0.500	ug/L	25.0		99.5	80-120			
Nickel	62	25.4	0.220	0.500	ug/L	25.0		101	80-120			
Zinc	66	77.1	2.92	6.00	ug/L	80.0		96.3	80-120			
Zinc	67	74.0	0.940	6.00	ug/L	80.0		92.5	80-120			
LCS (BJI0217-BS2)						Prepared: 08-Sep-2021 Analyzed: 10-Sep-2021 16:09						
Iron	54	5020	18.2	36.0	ug/L	5000		100	80-120			
Iron	57	4900	6.63	36.0	ug/L	5000		97.9	80-120			
Vanadium	51a	24.4	0.0556	0.200	ug/L	25.0		97.5	80-120			
Vanadium	51b	24.4	0.0521	0.200	ug/L	25.0		97.7	80-120			
Cobalt	59	24.6	0.0178	0.200	ug/L	25.0		98.5	80-120			
Selenium	78	76.7	0.179	0.500	ug/L	80.0		95.9	80-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Metals and Metallic Compounds - Quality Control

Batch BJI0293 - TWM EPA 7470A

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0293-BLK1)				Prepared: 10-Sep-2021 Analyzed: 14-Sep-2021 13:41							
Mercury	0.000032	0.000013	0.000100	mg/L							J
LCS (BJI0293-BS1)				Prepared: 10-Sep-2021 Analyzed: 14-Sep-2021 13:44							
Mercury	0.00175	0.000013	0.000100	mg/L	0.00200		87.5	80-120			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0210 - TWM EPA 7470A

Instrument: HYDRA Analyst: SKD

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0210-BLK1)					Prepared: 08-Sep-2021 Analyzed: 08-Sep-2021 15:25						
Mercury, Dissolved	ND	0.000013	0.000100	mg/L							U
LCS (BJI0210-BS1)					Prepared: 08-Sep-2021 Analyzed: 08-Sep-2021 15:28						
Mercury, Dissolved	0.00167	0.000013	0.000100	mg/L	0.00200		83.6	80-120			
Duplicate (BJI0210-DUP1)		**Source: 21H0320-12**			Prepared: 08-Sep-2021 Analyzed: 08-Sep-2021 15:30						
Mercury, Dissolved	ND	0.000013	0.000100	mg/L		ND					U
Matrix Spike (BJI0210-MS1)		**Source: 21H0320-12**			Prepared: 08-Sep-2021 Analyzed: 08-Sep-2021 15:35						
Mercury, Dissolved	0.000821	0.000013	0.000100	mg/L	0.00100	ND	82.1	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJI0210-MSD1)		**Source: 21H0320-12**			Prepared: 08-Sep-2021 Analyzed: 08-Sep-2021 15:42						
Mercury, Dissolved	0.000917	0.000013	0.000100	mg/L	0.00100	ND	91.7	75-125	11.10	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0312 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0312-BLK1)					Prepared: 10-Sep-2021 Analyzed: 13-Sep-2021 16:53							
Barium, Dissolved	135	ND	0.114	0.500	ug/L							U
Barium, Dissolved	137	ND	0.0765	0.500	ug/L							U
Chromium, Dissolved	52	ND	0.260	0.500	ug/L							U
Chromium, Dissolved	53	ND	0.239	0.500	ug/L							U
Iron, Dissolved	54	ND	18.2	36.0	ug/L							U
Iron, Dissolved	57	8.61	6.63	20.0	ug/L							J
Lead, Dissolved	208	ND	0.0513	0.100	ug/L							U
Manganese, Dissolved	55	0.206	0.142	0.500	ug/L							J
Silver, Dissolved	107	ND	0.0220	0.200	ug/L							U
Vanadium, Dissolved	51a	ND	0.0556	0.200	ug/L							U
Vanadium, Dissolved	51b	ND	0.0521	0.200	ug/L							U
Arsenic, Dissolved	75a	ND	0.0373	0.200	ug/L							U
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L							U
Cadmium, Dissolved	114	ND	0.0400	0.100	ug/L							U
Cobalt, Dissolved	59	ND	0.0178	0.200	ug/L							U
Copper, Dissolved	63	ND	0.173	0.500	ug/L							U
Copper, Dissolved	65	ND	0.350	0.500	ug/L							U
Nickel, Dissolved	60	ND	0.0792	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
Selenium, Dissolved	78	ND	0.179	0.500	ug/L							U
Zinc, Dissolved	66	ND	2.92	6.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	6.00	ug/L							U
LCS (BJI0312-BS1)					Prepared: 10-Sep-2021 Analyzed: 13-Sep-2021 16:57							
Barium, Dissolved	135	24.0	0.114	0.500	ug/L	25.0		95.9	80-120			
Barium, Dissolved	137	23.8	0.0765	0.500	ug/L	25.0		95.1	80-120			
Chromium, Dissolved	52	24.7	0.260	0.500	ug/L	25.0		98.9	80-120			
Chromium, Dissolved	53	24.5	0.239	0.500	ug/L	25.0		97.9	80-120			
Iron, Dissolved	54	4880	18.2	36.0	ug/L	5000		97.7	80-120			
Iron, Dissolved	57	4700	6.63	20.0	ug/L	5000		94.1	80-120			
Lead, Dissolved	208	26.4	0.0513	0.100	ug/L	25.0		106	80-120			
Manganese, Dissolved	55	24.3	0.142	0.500	ug/L	25.0		97.3	80-120			
Silver, Dissolved	107	24.5	0.0220	0.200	ug/L	25.0		98.0	80-120			
Vanadium, Dissolved	51a	24.2	0.0556	0.200	ug/L	25.0		96.7	80-120			
Vanadium, Dissolved	51b	24.1	0.0521	0.200	ug/L	25.0		96.4	80-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0312 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0312-BS1)						Prepared: 10-Sep-2021 Analyzed: 13-Sep-2021 16:57						
Arsenic, Dissolved	75a	23.8	0.0373	0.200	ug/L	25.0		95.4	80-120			
Cadmium, Dissolved	111	23.9	0.0300	0.100	ug/L	25.0		95.4	80-120			
Cadmium, Dissolved	114	24.0	0.0400	0.100	ug/L	25.0		96.0	80-120			
Cobalt, Dissolved	59	24.8	0.0178	0.200	ug/L	25.0		99.4	80-120			
Copper, Dissolved	63	24.8	0.173	0.500	ug/L	25.0		99.2	80-120			
Copper, Dissolved	65	24.8	0.350	0.500	ug/L	25.0		99.3	80-120			
Nickel, Dissolved	60	25.1	0.0792	0.500	ug/L	25.0		100	80-120			
Nickel, Dissolved	62	24.0	0.220	0.500	ug/L	25.0		96.1	80-120			
Selenium, Dissolved	78	74.2	0.179	0.500	ug/L	80.0		92.8	80-120			
Zinc, Dissolved	66	74.0	2.92	6.00	ug/L	80.0		92.5	80-120			
Zinc, Dissolved	67	70.6	0.940	6.00	ug/L	80.0		88.3	80-120			
Duplicate (BJI0312-DUP1)			**Source: 21H0320-08**			Prepared: 10-Sep-2021 Analyzed: 13-Sep-2021 17:12						
Barium, Dissolved	135	7.18	0.114	0.500	ug/L		7.60			5.67	20	
Chromium, Dissolved	52	0.703	0.260	0.500	ug/L		0.726			3.22	20	
Iron, Dissolved	54	1240	18.2	36.0	ug/L		1320			5.96	20	
Lead, Dissolved	208	ND	0.0513	0.100	ug/L		ND					U
Silver, Dissolved	107	ND	0.0220	0.200	ug/L		ND					U
Vanadium, Dissolved	51a	7.39	0.0556	0.200	ug/L		7.75			4.69	20	
Arsenic, Dissolved	75a	12.4	0.0373	0.200	ug/L		13.3			6.98	20	
Cadmium, Dissolved	111	0.0360	0.0300	0.100	ug/L		0.0420			15.40	20	J
Cobalt, Dissolved	59	2.62	0.0178	0.200	ug/L		2.77			5.60	20	
Copper, Dissolved	63	2.96	0.173	0.500	ug/L		3.14			5.97	20	
Nickel, Dissolved	60	3.19	0.0792	0.500	ug/L		3.52			9.82	20	
Selenium, Dissolved	78	ND	0.179	0.500	ug/L		ND					U
Zinc, Dissolved	66	ND	2.92	6.00	ug/L		ND					U
Duplicate (BJI0312-DUP2)			**Source: 21H0320-08RE1**			Prepared: 10-Sep-2021 Analyzed: 13-Sep-2021 20:56						
Manganese, Dissolved	55	548	0.710	2.50	ug/L		580			5.70	20	D
Matrix Spike (BJI0312-MS1)			**Source: 21H0320-08**			Prepared: 10-Sep-2021 Analyzed: 13-Sep-2021 17:17						
Barium, Dissolved	135	32.0	0.114	0.500	ug/L	25.0	7.60	97.6	75-125			
Chromium, Dissolved	52	22.4	0.260	0.500	ug/L	25.0	0.726	86.7	75-125			
Iron, Dissolved	54	5630	18.2	36.0	ug/L	5000	1320	86.2	75-125			
Lead, Dissolved	208	26.4	0.0513	0.100	ug/L	25.0	ND	106	75-125			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0312 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJI0312-MS1)			**Source: 21H0320-08**			Prepared: 10-Sep-2021		Analyzed: 13-Sep-2021 17:17				
Silver, Dissolved	107	24.0	0.0220	0.200	ug/L	25.0	ND	96.1	75-125			
Vanadium, Dissolved	51a	29.3	0.0556	0.200	ug/L	25.0	7.75	86.1	75-125			
Arsenic, Dissolved	75a	37.0	0.0373	0.200	ug/L	25.0	13.3	94.7	75-125			
Cadmium, Dissolved	111	24.4	0.0300	0.100	ug/L	25.0	0.0420	97.4	75-125			
Cobalt, Dissolved	59	27.8	0.0178	0.200	ug/L	25.0	2.77	100	75-125			
Copper, Dissolved	63	27.7	0.173	0.500	ug/L	25.0	3.14	98.2	75-125			
Nickel, Dissolved	60	27.9	0.0792	0.500	ug/L	25.0	3.52	97.6	75-125			
Selenium, Dissolved	78	72.6	0.179	0.500	ug/L	80.0	ND	90.8	75-125			
Zinc, Dissolved	66	73.9	2.92	6.00	ug/L	80.0	ND	92.4	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike (BJI0312-MS2)			**Source: 21H0320-08RE1**			Prepared: 10-Sep-2021		Analyzed: 13-Sep-2021 21:00				
Manganese, Dissolved	55	600	0.710	2.50	ug/L	25.0	580	79.3	75-125			HC, D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJI0312-MSD1)			**Source: 21H0320-08**			Prepared: 10-Sep-2021		Analyzed: 13-Sep-2021 17:23				
Barium, Dissolved	135	32.3	0.114	0.500	ug/L	25.0	7.60	98.9	75-125	1.03	20	
Chromium, Dissolved	52	22.2	0.260	0.500	ug/L	25.0	0.726	85.8	75-125	1.04	20	
Iron, Dissolved	54	5610	18.2	36.0	ug/L	5000	1320	85.8	75-125	0.41	20	
Lead, Dissolved	208	26.5	0.0513	0.100	ug/L	25.0	ND	106	75-125	0.19	20	
Silver, Dissolved	107	23.9	0.0220	0.200	ug/L	25.0	ND	95.5	75-125	0.64	20	
Vanadium, Dissolved	51a	29.0	0.0556	0.200	ug/L	25.0	7.75	85.0	75-125	0.97	20	
Arsenic, Dissolved	75a	37.3	0.0373	0.200	ug/L	25.0	13.3	96.1	75-125	0.93	20	
Cadmium, Dissolved	111	24.1	0.0300	0.100	ug/L	25.0	0.0420	96.1	75-125	1.36	20	
Cobalt, Dissolved	59	27.9	0.0178	0.200	ug/L	25.0	2.77	101	75-125	0.26	20	
Copper, Dissolved	63	27.6	0.173	0.500	ug/L	25.0	3.14	97.7	75-125	0.40	20	
Nickel, Dissolved	60	28.3	0.0792	0.500	ug/L	25.0	3.52	99.2	75-125	1.40	20	
Selenium, Dissolved	78	71.8	0.179	0.500	ug/L	80.0	ND	89.7	75-125	1.17	20	
Zinc, Dissolved	66	73.7	2.92	6.00	ug/L	80.0	ND	92.1	75-125	0.36	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJI0312-MSD2)			**Source: 21H0320-08RE1**			Prepared: 10-Sep-2021		Analyzed: 13-Sep-2021 21:05				
Manganese, Dissolved	55	617	0.710	2.50	ug/L	25.0	580	149	75-125	2.86	20	HC, D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Wet Chemistry - Quality Control

Batch BJH0697 - No Prep Wet Chem

Instrument: UV1800-1 Analyst: CKI

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0697-BLK1)				Prepared: 26-Aug-2021 Analyzed: 26-Aug-2021 17:25							
Ferrous Iron	ND	0.040	0.040	mg/L							U
LCS (BJH0697-BS1)				Prepared: 26-Aug-2021 Analyzed: 26-Aug-2021 17:26							
Ferrous Iron	0.479	0.040	0.040	mg/L	0.500		95.8	90-110			
Duplicate (BJH0697-DUP1)		**Source: 21H0320-11**		Prepared: 26-Aug-2021 Analyzed: 26-Aug-2021 17:28							
Ferrous Iron	20.9	2.00	2.00	mg/L		20.8			0.48	20	D
Matrix Spike (BJH0697-MS1)		**Source: 21H0320-11**		Prepared: 26-Aug-2021 Analyzed: 26-Aug-2021 17:28							
Ferrous Iron	36.9	2.00	2.00	mg/L	20.0	20.8	80.5	75-125			D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Wet Chemistry - Quality Control

Batch BJH0701 - SM 5310 A-00, 0.45um filtration

Instrument: UV1800-1 Analyst: DOE

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0701-BLK1)				Prepared: 26-Aug-2021 Analyzed: 26-Aug-2021 17:47							
Hexavalent Chromium	ND	0.013	0.013	mg/L							U
LCS (BJH0701-BS1)				Prepared: 26-Aug-2021 Analyzed: 26-Aug-2021 18:05							
Hexavalent Chromium	0.585	0.013	0.013	mg/L	0.625		93.7	85-115			D
Duplicate (BJH0701-DUP1)	**Source: 21H0320-01**			Prepared: 26-Aug-2021 Analyzed: 26-Aug-2021 18:07							
Hexavalent Chromium	ND	0.013	0.013	mg/L		ND					U
Matrix Spike (BJH0701-MS1)	**Source: 21H0320-01**			Prepared: 26-Aug-2021 Analyzed: 26-Aug-2021 18:08							
Hexavalent Chromium	0.058	0.013	0.013	mg/L	0.0625	ND	93.2	85-115			D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Wet Chemistry - Quality Control

Batch BJH0702 - No Prep Wet Chem

Instrument: N/A

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0702-BLK1)				Prepared: 26-Aug-2021 Analyzed: 26-Aug-2021 17:02							
Sulfite	ND	1.4	1.4	mg/L							U
LCS (BJH0702-BS1)				Prepared: 26-Aug-2021 Analyzed: 26-Aug-2021 17:02							
Sulfite	4.4	1.4	1.4	mg/L	4.97		88.5	75-100			
Duplicate (BJH0702-DUP1)		**Source: 21H0320-11**		Prepared: 26-Aug-2021 Analyzed: 26-Aug-2021 17:02							
Sulfite	ND	1.4	1.4	mg/L		ND					H, U

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Wet Chemistry - Quality Control

Batch BJH0703 - No Prep Wet Chem

Instrument: IC930 Analyst: CDE

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0703-BLK1)				Prepared: 26-Aug-2021 Analyzed: 26-Aug-2021 20:34							
Chloride	ND	0.100	0.100	mg/L							U
Nitrate-N	ND	0.100	0.100	mg/L							U
Nitrite-N	ND	0.100	0.100	mg/L							U
Sulfate	ND	0.100	0.100	mg/L							U
LCS (BJH0703-BS1)				Prepared: 26-Aug-2021 Analyzed: 26-Aug-2021 20:54							
Chloride	4.84	0.100	0.100	mg/L	5.00		96.7	90-110			
Nitrate-N	4.68	0.100	0.100	mg/L	5.00		93.6	90-110			
Nitrite-N	5.35	0.100	0.100	mg/L	5.00		107	90-110			
Sulfate	5.29	0.100	0.100	mg/L	5.00		106	90-110			
Duplicate (BJH0703-DUP1)		**Source: 21H0320-11**		Prepared: 26-Aug-2021 Analyzed: 26-Aug-2021 21:34							
Nitrate-N	ND	0.100	0.100	mg/L		ND					U
Nitrite-N	ND	0.100	0.100	mg/L		ND					U
Duplicate (BJH0703-DUP2)		**Source: 21H0320-11RE1**		Prepared: 26-Aug-2021 Analyzed: 10-Sep-2021 21:04							
Chloride	10.4	0.500	0.500	mg/L		10.3			1.14	20	D
Duplicate (BJH0703-DUP3)		**Source: 21H0320-11RE2**		Prepared: 26-Aug-2021 Analyzed: 10-Sep-2021 21:24							
Sulfate	4.55	0.100	0.100	mg/L		4.55			0.07	20	
Matrix Spike (BJH0703-MS1)		**Source: 21H0320-11**		Prepared: 26-Aug-2021 Analyzed: 26-Aug-2021 21:54							
Nitrate-N	1.83	0.100	0.100	mg/L	2.00	ND	91.4	75-125			
Nitrite-N	1.41	0.100	0.100	mg/L	2.01	ND	70.5	75-125			*

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike (BJH0703-MS3)		**Source: 21H0320-11RE2**		Prepared: 26-Aug-2021 Analyzed: 10-Sep-2021 23:08							
Sulfate	7.04	0.100	0.100	mg/L	2.00	4.55	125	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike (BJH0703-MS4)		**Source: 21H0320-11RE1**		Prepared: 26-Aug-2021 Analyzed: 23-Sep-2021 16:58							
Chloride	19.2	0.500	0.500	mg/L	10.0	10.3	89.1	75-125			H, D
Sulfate	12.6	0.500	0.500	mg/L	10.0	3.86	87.7	75-125			D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Certified Analyses included in this Report

Analyte	Certifications
EPA 300.0 in Water	
Chloride	DoD-ELAP,WADOE,WA-DW,NELAP
Nitrate-N	DoD-ELAP,WADOE,WA-DW,NELAP
Nitrite-N	DoD-ELAP,WADOE,WA-DW,NELAP
Sulfate	DoD-ELAP,WADOE,WA-DW,NELAP
EPA 6020B in Water	
Silver-107	WADOE,WA-DW,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Silver-107	WA-DW,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
EPA 6020B UCT-KED in Water	
Arsenic-75a	WADOE,WA-DW,DoD-ELAP,ADEC,NELAP
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	NELAP,DoD-ELAP,WADOE
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP

Analytical Resources, Incorporated
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Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Zinc-66	WADOE,WA-DW,DoD-ELAP
Zinc-67	WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	DoD-ELAP,NELAP,WADOE
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
EPA 7470A in Water	
Mercury	WADOE,NELAP,DoD-ELAP
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8082A in Water	
Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
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EPA 8260D in Water

Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
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Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE

EPA 8260D-SIM in Water

Acrylonitrile	NELAP,WADOE
Vinyl chloride	NELAP,WADOE

Analytical Resources, Incorporated
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1,1-Dichloroethene	NELAP,WADOE
cis-1,2-Dichloroethene	NELAP,WADOE
trans-1,2-Dichloroethene	NELAP,WADOE
Trichloroethene	NELAP,WADOE
Tetrachloroethene	NELAP,WADOE
1,1,2,2-Tetrachloroethane	NELAP,WADOE
1,2-Dichloroethane	NELAP,WADOE
Benzene	NELAP,WADOE

EPA 8270E in Water

Phenol	NELAP,DoD-ELAP
bis(2-chloroethyl) ether	NELAP,DoD-ELAP
2-Chlorophenol	NELAP,DoD-ELAP
1,3-Dichlorobenzene	NELAP,DoD-ELAP
1,4-Dichlorobenzene	NELAP,DoD-ELAP
1,2-Dichlorobenzene	NELAP,DoD-ELAP
Benzyl Alcohol	NELAP,DoD-ELAP
2,2'-Oxybis(1-chloropropane)	NELAP,DoD-ELAP
2-Methylphenol	NELAP,DoD-ELAP
Hexachloroethane	NELAP,DoD-ELAP
N-Nitroso-di-n-Propylamine	NELAP,DoD-ELAP
4-Methylphenol	NELAP,DoD-ELAP
Nitrobenzene	NELAP,DoD-ELAP
Isophorone	NELAP,DoD-ELAP
2-Nitrophenol	NELAP,DoD-ELAP
2,4-Dimethylphenol	NELAP,DoD-ELAP
Bis(2-Chloroethoxy)methane	NELAP,DoD-ELAP
2,4-Dichlorophenol	NELAP,DoD-ELAP
1,2,4-Trichlorobenzene	NELAP,DoD-ELAP
Naphthalene	NELAP,DoD-ELAP
Benzoic acid	NELAP,DoD-ELAP
4-Chloroaniline	NELAP,DoD-ELAP
Hexachlorobutadiene	NELAP,DoD-ELAP
4-Chloro-3-Methylphenol	NELAP,DoD-ELAP
2-Methylnaphthalene	NELAP,DoD-ELAP
Hexachlorocyclopentadiene	NELAP,DoD-ELAP
2,4,6-Trichlorophenol	NELAP,DoD-ELAP
2,4,5-Trichlorophenol	NELAP,DoD-ELAP
2-Chloronaphthalene	NELAP,DoD-ELAP
2-Nitroaniline	NELAP,DoD-ELAP

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Acenaphthylene	NELAP,DoD-ELAP
Dimethylphthalate	NELAP,DoD-ELAP
2,6-Dinitrotoluene	NELAP,DoD-ELAP
Acenaphthene	NELAP,DoD-ELAP
3-Nitroaniline	NELAP,DoD-ELAP
2,4-Dinitrophenol	NELAP,DoD-ELAP
Dibenzofuran	NELAP,DoD-ELAP
4-Nitrophenol	NELAP,DoD-ELAP
2,4-Dinitrotoluene	NELAP,DoD-ELAP
Fluorene	NELAP,DoD-ELAP
4-Chlorophenylphenyl ether	NELAP,DoD-ELAP
Diethyl phthalate	NELAP,DoD-ELAP
4-Nitroaniline	NELAP,DoD-ELAP
4,6-Dinitro-2-methylphenol	NELAP,DoD-ELAP
N-Nitrosodiphenylamine	NELAP,DoD-ELAP
4-Bromophenyl phenyl ether	NELAP,DoD-ELAP
Hexachlorobenzene	NELAP,DoD-ELAP
Pentachlorophenol	NELAP,DoD-ELAP
Phenanthrene	NELAP,DoD-ELAP
Anthracene	NELAP,DoD-ELAP
Carbazole	NELAP,DoD-ELAP
Di-n-Butylphthalate	NELAP,DoD-ELAP
Fluoranthene	NELAP,DoD-ELAP
Pyrene	NELAP,DoD-ELAP
Butylbenzylphthalate	NELAP,DoD-ELAP
Benzo(a)anthracene	NELAP,DoD-ELAP
3,3'-Dichlorobenzidine	NELAP,DoD-ELAP
Chrysene	NELAP,DoD-ELAP
bis(2-Ethylhexyl)phthalate	NELAP,DoD-ELAP
Di-n-Octylphthalate	NELAP,DoD-ELAP
Benzo(b)fluoranthene	NELAP,DoD-ELAP
Benzo(k)fluoranthene	NELAP,DoD-ELAP
Benzofluoranthenes, Total	NELAP
Benzo(a)pyrene	NELAP,DoD-ELAP
Indeno(1,2,3-cd)pyrene	NELAP,DoD-ELAP
Dibenzo(a,h)anthracene	NELAP,DoD-ELAP
Benzo(g,h,i)perylene	NELAP,DoD-ELAP
N-Nitrosodimethylamine	NELAP,DoD-ELAP
1-Methylnaphthalene	NELAP,DoD-ELAP

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EPA 8270E-SIM in Water

Naphthalene	ADEC,DoD-ELAP,NELAP,WADOE
2-Methylnaphthalene	ADEC,DoD-ELAP,NELAP
1-Methylnaphthalene	ADEC,DoD-ELAP,NELAP,WADOE
Biphenyl	NELAP
Acenaphthylene	ADEC,DoD-ELAP,NELAP,WADOE
Acenaphthene	ADEC,DoD-ELAP,NELAP,WADOE
Dibenzofuran	ADEC,DoD-ELAP,NELAP
Fluorene	ADEC,DoD-ELAP,NELAP,WADOE
Phenanthrene	ADEC,DoD-ELAP,NELAP,WADOE
Anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Carbazole	NELAP
Fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(a)anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Chrysene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(b)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(k)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(j)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(e)pyrene	NELAP
Benzo(a)pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Perylene	ADEC,NELAP
Indeno(1,2,3-cd)pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Dibenzo(a,h)anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(g,h,i)perylene	ADEC,DoD-ELAP,NELAP,WADOE

EPA RSK-175 in Water

Methane	NELAP
Ethane	NELAP
Ethene	NELAP
Acetylene	NELAP

NWTPH-Dx in Water

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP

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Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE
NWTPHg in Water	
Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP
SM 3500-Cr B-09 in Water	
Hexavalent Chromium	WADOE,NELAP
SM 3500-Fe B-97 in Water	
Ferrous Iron	WADOE,NELAP
SM 4500-SO3 B-00 in Water	
Sulfite	WADOE,NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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Seattle WA, 98103-8636	Project Manager: Meg Strong	27-Sep-2021 14:33

Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
H	Hold time violation - Hold time was exceeded.
HC	The natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
J	Estimated concentration value detected below the reporting limit.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

29 September 2021

Meg Strong
Shannon & Wilson, Inc
400 N 34th St., Suite 100
Seattle, WA 98103-8636

RE: Lower Duwamish Q3

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
21H0341	N/A

Shelly Fishel

Digitally signed by Shelly Fishel
Date: 2021.09.29 13:17:47 -07'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Shelly Fishel, Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21H0341	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: Shannon & Wilson, Inc.	Phone:	Date: 8/27/21	Ice Present?
Client Contact: Shoshana Howard		No. of Coolers:	Cooler Temps: 3.6; 1.5; 2.6
Client Project Name: LDW			
Client Project #: 21-1-12596-012	Samplers: CTC, KWP		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	TPH-G	TPH-Dx	BTEX	HVOCs	MTBE	PAHs	Full list SVOCs	LTD SVOCs	PCB Aroclors	Metals (Total + Diss.)	Hex. Chrome	Nat. Atten. Parameters			Notes/Comments
MW-73-20212708	8/27/21	0935	GW	13	X	X	X	X		X				(1)					(3) Cr
TB-9-20212708	8/27/21	0955	W	5	X		X	X											
MW-13R-20212708	8/27/21	1100	GW	7	X	X	X												
MW-31-20212708	8/27/21	1150	GW	8		X		X		X		X							
MW-3/MS/MSD-20212708	8/27/21	1200	GW	8		X		X		X		X							
MW-45-20212708	8/27/21	1245	GW	11		X	X	X					X	(2)					
MW-47-20212708	8/27/21	1415	GW	12				X			X		X	(3)	X				
MW-52-20212708	8/27/21	1520	GW	13	X		X	X		X			X	(2)					

Notes/Comments: (1) As, Ba, Cr, Mn, Ni, Cd, Co, Cu, Fe, Pb, Hg, Se, Ag, V, Zn. (2) Mn

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Kirk Pinkham	Printed Name: Dimitri Lamikadze	Printed Name:	Printed Name:
	Company: Shannon & Wilson	Company: ARI	Company:	Company:
	Date & Time: 16:02 8/27/21	Date & Time: 08/27/21 1602	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-47-20212708	21H0341-01	Water	27-Aug-2021 14:15	27-Aug-2021 16:02
MW-47-20212708	21H0341-02	Water	27-Aug-2021 14:15	27-Aug-2021 16:02
MW-73-20212708	21H0341-03	Water	27-Aug-2021 09:35	27-Aug-2021 16:02
MW-73-20212708	21H0341-04	Water	27-Aug-2021 09:35	27-Aug-2021 16:02
TB-9-20212708	21H0341-05	Water	27-Aug-2021 09:55	27-Aug-2021 16:02
MW-13R-20212708	21H0341-06	Water	27-Aug-2021 11:00	27-Aug-2021 16:02
MW-31-20212708	21H0341-07	Water	27-Aug-2021 11:50	27-Aug-2021 16:02
MW-45-20212708	21H0341-08	Water	27-Aug-2021 12:45	27-Aug-2021 16:02
MW-45-20212708	21H0341-09	Water	27-Aug-2021 12:45	27-Aug-2021 16:02
MW-52-20212708	21H0341-10	Water	27-Aug-2021 15:20	27-Aug-2021 16:02
MW-52-20212708	21H0341-11	Water	27-Aug-2021 15:20	27-Aug-2021 16:02

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish Q3
Work Order: 21H0341

Sample receipt

Samples as listed on the preceding page were received 27-Aug-2021 16:02 under ARI work order 21H0341. For details regarding sample receipt, please refer to the Cooler Receipt Form.

PCB Aroclors - EPA Method SW8082A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements except surrogate Decachlorobiphenyl which was out of control high in the initial calibration verification SJI0341.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except Decachlorobiphenyl which was out of control high in the initial calibration verification SJI0341.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Matrix QC not requested.

Gasoline by NWTPH-g (GC/MS)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Sample specific QC was performed in association with sample 21H0341-07 in batch BJI0098. The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits.

Volatiles - EPA Method SW8260D

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Sample specific QC was performed in association with sample 21H0341-07 in batch BJI0098. The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits.

Volatiles - EPA Method 8260D-SIM (Selected Ion Monitoring)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Sample specific QC was performed in association with sample 21H0341-07 in batch BJI0132. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Semivolatiles - EPA Method SW8270E

The sample(s) were extracted and analyzed within the recommended holding times.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Initial and continuing calibrations were within method requirements except 3,3'-Dichlorobenzidine which was out of control high. All samples which contain analyte have been flagged with a "Q" qualifier.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits except Phenol-d5 which was out of control low in sample 21H0341-01 and the method blank BJI0074-BLK1. Deviations have been flagged.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits except 2,4-Dimethylphenol, Benzoic Acid, 4-Chloroaniline, and Hexachlorocyclopentadiene which were out of control low and have been flagged.

Sample specific QC was performed in association with sample 21H0341-07 in batch BJI0074. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits except 4-Chloroaniline, Hexachlorocyclopentadiene, 3,3'-Dichlorobenzidine and Phenol which were out of control low and have been flagged.

Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Sample specific QC was performed in association with sample 21H0341-07 in batch BJH0745. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits except Acenaphthene and Phenanthrene which were out of control low and have been flagged.

Total and Dissolve Metals - EPA Method 6020B

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0341-01 in Total Metals batch BJI0217, in association with sample 21H0341-04 in Dissolved Metals batch BJI0385 and in association with sample 21H0341-02 in Dissolve Chromium batch BJI0386. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

No matrix QC was requested.

Total and Dissolved Mercury - EPA Method 7470/7471

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0341-01 in Total Mercury batch BJI0293 and in association with sample 21H0341-04 in batch BJI0297. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0341-07 in batch BJI0072. The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

Samples 21H0341-03, 21H0341-06, 21H0341-07 and 21H0341-08 the analyst noted that the samples may contain light oil based upon early elution in the diesel range.

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/28/2021 10:26:06AM

WORK ORDER

21H0341

Client: Shannon & Wilson, Inc
Project Manager: Shelly Fishel
Project: Lower Duwamish Q3
Project Number: 21-1-12596-012

Preservation Confirmation

Container ID	Container Type	pH
21H0341-01 A	Glass NM, Amber, 1000 mL	
21H0341-01 B	Glass NM, Amber, 1000 mL	
21H0341-01 C	HDPE NM, 500 mL, 1:1 HNO3	≤2 Pass
21H0341-01 D	Glass NM, Amber, 500 mL	
21H0341-01 E	Glass NM, Amber, 500 mL	
21H0341-01 F	Glass NM, Amber, 250 mL	
21H0341-01 F 01	Glass NM, Amber, 250 mL	
21H0341-01 G	VOA Vial, Clear, 40 mL, HCL	
21H0341-01 H	VOA Vial, Clear, 40 mL, HCL	
21H0341-01 I	VOA Vial, Clear, 40 mL, HCL	
21H0341-01 J	VOA Vial, Clear, 40 mL, HCL	
21H0341-01 K	VOA Vial, Clear, 40 mL, HCL	
21H0341-02 A	HDPE NM, 500 mL	
21H0341-02 A 01	HDPE NM, 500 mL	
21H0341-03 A	HDPE NM, 500 mL, 1:1 HNO3	≤2 Pass
21H0341-03 B	Glass NM, Amber, 500 mL	
21H0341-03 C	Glass NM, Amber, 500 mL	
21H0341-03 D	Glass NM, Amber, 500 mL	
21H0341-03 E	Glass NM, Amber, 500 mL	
21H0341-03 F	VOA Vial, Clear, 40 mL, HCL	
21H0341-03 G	VOA Vial, Clear, 40 mL, HCL	
21H0341-03 H	VOA Vial, Clear, 40 mL, HCL	
21H0341-03 I	VOA Vial, Clear, 40 mL, HCL	
21H0341-03 J	VOA Vial, Clear, 40 mL, HCL	
21H0341-03 K	VOA Vial, Clear, 40 mL, HCL	
21H0341-03 L	VOA Vial, Clear, 40 mL, HCL	
21H0341-04 A	HDPE NM, 500 mL	
21H0341-05 A	VOA Vial, Clear, 40 mL, HCL	
21H0341-05 B	VOA Vial, Clear, 40 mL, HCL	
21H0341-05 C	VOA Vial, Clear, 40 mL, HCL	
21H0341-05 D	VOA Vial, Clear, 40 mL, HCL	
21H0341-05 E	VOA Vial, Clear, 40 mL, HCL	
21H0341-06 A	Glass NM, Amber, 500 mL	
21H0341-06 B	Glass NM, Amber, 500 mL	
21H0341-06 C	VOA Vial, Clear, 40 mL, HCL	

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/28/2021 10:26:06AM

WORK ORDER

21H0341

Client: Shannon & Wilson, Inc | **Project Manager:** Shelly Fishel

Project: Lower Duwamish Q3 | **Project Number:** 21-1-12596-012

21H0341-06 D	VOA Vial, Clear, 40 mL, HCL	
21H0341-06 E	VOA Vial, Clear, 40 mL, HCL	
21H0341-06 F	VOA Vial, Clear, 40 mL, HCL	
21H0341-06 G	VOA Vial, Clear, 40 mL, HCL	
21H0341-07 A	Glass NM, Amber, 500 mL	
21H0341-07 B	Glass NM, Amber, 500 mL	
21H0341-07 C	Glass NM, Amber, 500 mL	
21H0341-07 D	Glass NM, Amber, 500 mL	
21H0341-07 E	Glass NM, Amber, 500 mL	
21H0341-07 F	Glass NM, Amber, 500 mL	
21H0341-07 G	Glass NM, Amber, 500 mL	
21H0341-07 H	Glass NM, Amber, 500 mL	
21H0341-07 I	Glass NM, Amber, 500 mL	
21H0341-07 J	Glass NM, Amber, 500 mL	
21H0341-07 K	Glass NM, Amber, 500 mL	
21H0341-07 L	Glass NM, Amber, 500 mL	
21H0341-07 M	VOA Vial, Clear, 40 mL, HCL	
21H0341-07 N	VOA Vial, Clear, 40 mL, HCL	
21H0341-07 O	VOA Vial, Clear, 40 mL, HCL	
21H0341-07 P	VOA Vial, Clear, 40 mL, HCL	
21H0341-07 Q	VOA Vial, Clear, 40 mL, HCL	
21H0341-07 R	VOA Vial, Clear, 40 mL, HCL	
21H0341-07 S	VOA Vial, Clear, 40 mL, HCL	
21H0341-07 T	VOA Vial, Clear, 40 mL, HCL	
21H0341-07 U	VOA Vial, Clear, 40 mL, HCL	
21H0341-07 V	VOA Vial, Clear, 40 mL, HCL	
21H0341-08 A	Glass NM, Amber, 1000 mL	
21H0341-08 B	Glass NM, Amber, 1000 mL	
21H0341-08 C	HDPE NM, 500 mL, 1:1 HNO3	C2 Pass
21H0341-08 D	Glass NM, Amber, 500 mL	
21H0341-08 E	Glass NM, Amber, 500 mL	
21H0341-08 F	VOA Vial, Clear, 40 mL, HCL	
21H0341-08 G	VOA Vial, Clear, 40 mL, HCL	Bubble
21H0341-08 H	VOA Vial, Clear, 40 mL, HCL	Bubble
21H0341-08 I	VOA Vial, Clear, 40 mL, HCL	Bubble
21H0341-08 J	VOA Vial, Clear, 40 mL, HCL	Bubble
21H0341-09 A	HDPE NM, 500 mL	

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/28/2021 10:26:06AM

WORK ORDER

21H0341

Client: Shannon & Wilson, Inc	**Project Manager: Shelly Fishel**
Project: Lower Duwamish Q3	**Project Number: 21-1-12596-012**

21H0341-10 A	Glass NM, Amber, 1000 mL
21H0341-10 B	Glass NM, Amber, 1000 mL
21H0341-10 C	HDPE NM, 500 mL, 1:1 HNO3
21H0341-10 D	Glass NM, Amber, 500 mL
21H0341-10 E	Glass NM, Amber, 500 mL
21H0341-10 F	VOA Vial, Clear, 40 mL, HCL
21H0341-10 G	VOA Vial, Clear, 40 mL, HCL
21H0341-10 H	VOA Vial, Clear, 40 mL, HCL
21H0341-10 I	VOA Vial, Clear, 40 mL, HCL
21H0341-10 J	VOA Vial, Clear, 40 mL, HCL
21H0341-10 K	VOA Vial, Clear, 40 mL, HCL
21H0341-10 L	VOA Vial, Clear, 40 mL, HCL
21H0341-11 A	HDPE NM, 500 mL

22 Pass

DL

Preservation Confirmed By

08/28/21

Date

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Shannon & Wilson Project Name: LDW

COC No(s): _____ NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 21H0341 Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1602 3.6 1.5 2.6 ___ ___ ___

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D00 5206

Cooler Accepted by: DL Date: 08/27/21 Time: 1602

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____			
Was sufficient ice used (if appropriate)?	NA	YES	NO
How were bottles sealed in plastic bags?	Individually	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO DL
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ...	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO DL
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: DL Date: ~~08/27/21~~ 08/27/21 (DL) Time: 1629 Labels checked by: _____

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

*Samples "MW-31-20212708" & "MW-31MS/MSD-20212708" list 8 containers per sample on the CoC but have 11.
*Air bubbles present in 4 vials, lab to determine size.

By: DL Date: 08/28/21

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-47-20212708

21H0341-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/27/2021 14:15

Instrument: NT2 Analyst: LH — Analyzed: 09/03/2021 13:01

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0341-01 G

Preparation Batch: BJI0098 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	0.14	ug/L	J
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	0.11	ug/L	J
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*106*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*94.7*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*102*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-47-20212708

21H0341-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/27/2021 14:15

Instrument: NT16 Analyst: PB — Analyzed: 09/06/2021 14:19

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0341-01 K

Preparation Batch: BJI0132 — Sample Size: 10 mL

Prepared: 09/06/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	12.4	ng/L	J
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*108*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*94.7*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-47-20212708

21H0341-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/27/2021 14:15

Instrument: NT14 Analyst: VTS — Analyzed: 09/27/2021 17:51

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0341-01 B 01

Preparation Batch: BJI0074 — Sample Size: 1000 mL

Prepared: 09/03/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Phenol	108-95-2	1	0.01	0.2	ND	ug/L	U
bis(2-chloroethyl) ether	111-44-4	1	0.03	0.2	ND	ug/L	U
2-Chlorophenol	95-57-8	1	0.03	0.2	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.03	0.2	0.06	ug/L	J
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
Benzyl Alcohol	100-51-6	1	0.02	0.2	ND	ug/L	U
2,2'-Oxybis(1-chloropropane)	108-60-1	1	0.03	0.2	ND	ug/L	U
2-Methylphenol	95-48-7	1	0.03	0.2	ND	ug/L	U
Hexachloroethane	67-72-1	1	0.04	0.2	ND	ug/L	U
N-Nitroso-di-n-Propylamine	621-64-7	1	0.04	0.2	ND	ug/L	U
4-Methylphenol	106-44-5	1	0.03	0.2	ND	ug/L	U
Nitrobenzene	98-95-3	1	0.03	0.2	ND	ug/L	U
Isophorone	78-59-1	1	0.03	0.2	ND	ug/L	U
2-Nitrophenol	88-75-5	1	0.04	1.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Bis(2-Chloroethoxy)methane	111-91-1	1	0.03	0.2	ND	ug/L	U
2,4-Dichlorophenol	120-83-2	1	0.1	1.0	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.03	0.2	ND	ug/L	U
Naphthalene	91-20-3	1	0.03	0.2	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
4-Chloroaniline	106-47-8	1	0.04	1.0	ND	ug/L	U
Hexachlorobutadiene	87-68-3	1	0.04	0.2	ND	ug/L	U
4-Chloro-3-Methylphenol	59-50-7	1	0.1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.03	0.2	ND	ug/L	U
Hexachlorocyclopentadiene	77-47-4	1	0.1	1.0	ND	ug/L	U
2,4,6-Trichlorophenol	88-06-2	1	0.2	1.0	ND	ug/L	U
2,4,5-Trichlorophenol	95-95-4	1	0.1	1.0	ND	ug/L	U
2-Chloronaphthalene	91-58-7	1	0.03	0.2	ND	ug/L	U
2-Nitroaniline	88-74-4	1	0.2	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.02	0.2	ND	ug/L	U
Dimethylphthalate	131-11-3	1	0.04	0.2	ND	ug/L	U
2,6-Dinitrotoluene	606-20-2	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.03	0.2	0.4	ug/L	
3-Nitroaniline	99-09-2	1	0.2	1.0	ND	ug/L	U

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-47-20212708

21H0341-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/27/2021 14:15

Instrument: NT14 Analyst: VTS — Analyzed: 09/27/2021 17:51

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2,4-Dinitrophenol	51-28-5	1	0.2	2.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.02	0.2	ND	ug/L	U
4-Nitrophenol	100-02-7	1	0.06	1.0	ND	ug/L	U
2,4-Dinitrotoluene	121-14-2	1	0.1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.02	0.2	ND	ug/L	U
4-Chlorophenylphenyl ether	7005-72-3	1	0.02	0.2	ND	ug/L	U
Diethyl phthalate	84-66-2	1	0.06	0.2	0.1	ug/L	J
4-Nitroaniline	100-01-6	1	0.2	1.0	ND	ug/L	U
4,6-Dinitro-2-methylphenol	534-52-1	1	0.4	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
4-Bromophenyl phenyl ether	101-55-3	1	0.02	0.2	ND	ug/L	U
Hexachlorobenzene	118-74-1	1	0.04	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.02	0.2	ND	ug/L	U
Anthracene	120-12-7	1	0.03	0.2	ND	ug/L	U
Carbazole	86-74-8	1	0.04	0.2	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Fluoranthene	206-44-0	1	0.03	0.2	ND	ug/L	U
Pyrene	129-00-0	1	0.03	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.04	0.2	ND	ug/L	U
3,3'-Dichlorobenzidine	91-94-1	1	0.3	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.04	0.2	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Di-n-Octylphthalate	117-84-0	1	0.05	0.2	ND	ug/L	U
Benzofluoranthenes, Total		1	0.08	0.4	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.05	0.2	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.06	0.2	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.07	0.2	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.04	0.2	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.03	0.2	ND	ug/L	U
Surrogate: 2-Fluorophenol				*30-160 %*	*48.6*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*28.9*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*77.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*55.4*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*80.8*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*74.1*	*%*	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-47-20212708

21H0341-01 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/27/2021 14:15

Instrument: NT14 Analyst: VTS — Analyzed: 09/27/2021 17:51

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: 2,4,6-Tribromophenol		*30-160 %*	*85.0*	*%*	
Surrogate: p-Terphenyl-d14		*30-160 %*	*94.9*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-47-20212708

21H0341-01 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/27/2021 14:15
Instrument: ECD7 Analyst: JGR — Analyzed: 09/20/2021 21:47

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0341-01 A 01
	Preparation Batch: BJI0048	Sample Size: 1000 mL	
	Prepared: 09/02/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0341-01 A 01
	Cleanup Batch: CJI0149	Initial Volume: 0.5 mL	
	Cleaned: 20-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0341-01 A 01
	Cleanup Batch: CJI0147	Initial Volume: 0.5 uL	
	Cleaned: 20-Sep-2021	Final Volume: 0.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0341-01 A 01
	Cleanup Batch: CJI0148	Initial Volume: 0.5 uL	
	Cleaned: 20-Sep-2021	Final Volume: 0.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*71.7*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*66.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*66.5*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*61.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-47-20212708

21H0341-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/27/2021 14:15

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/08/2021 20:34

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0341-01 C 01

Preparation Batch: BJI0217 — Sample Size: 25 mL

Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	1	0.260	0.500	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-47-20212708

21H0341-01 (Water)

Wet Chemistry

Method: SM 3500-Cr B-09 — Sampled: 08/27/2021 14:15

Instrument: UV1800-2 Analyst: CKI — Analyzed: 08/27/2021 18:22

Sample Preparation: Preparation Method: SM 5310 A-00, 0.45um filtration — Extract ID: 21H0341-01 F 01

Preparation Batch: BJH0726 — Sample Size: 40 mL

Prepared: 08/27/2021 — Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexavalent Chromium	1854-02-99	1.25	0.013	0.013	ND	mg/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-47-20212708

21H0341-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/27/2021 14:15
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/15/2021 05:46

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0341-02 A 02
Preparation Batch: BJI0386 — Sample Size: 25 mL — Filtration Batch: BJH0712
Prepared: 09/14/2021 — Final Volume: 25 mL — Filtration Date: 08/27/2021 10:54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.260	0.500	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-73-20212708

21H0341-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/27/2021 09:35

Instrument: NT2 Analyst: LH — Analyzed: 09/03/2021 13:22

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0341-03 G

Preparation Batch: BJI0098 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*108*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.1*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*96.5*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*103*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-73-20212708

21H0341-03 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/27/2021 09:35

Instrument: NT2 Analyst: LH — Analyzed: 09/03/2021 13:22

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0341-03 G

Preparation Batch: BJI0098 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	510	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*99.1*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*96.5*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-73-20212708

21H0341-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/27/2021 09:35

Instrument: NT16 Analyst: PB — Analyzed: 09/06/2021 14:40

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0341-03 K

Preparation Batch: BJI0132 — Sample Size: 10 mL

Prepared: 09/06/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	13.9	ng/L	J
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*108*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*97.5*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-73-20212708

21H0341-03 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/27/2021 09:35
Instrument: NT11 Analyst: VTS — Analyzed: 09/17/2021 19:57

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJH0745; Prepared: 08/31/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21H0341-03 B 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJI0125; Cleaned: 16-Sep-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21H0341-03 B 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.007	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.010	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.007	ug/L	J
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.002	0.010	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.010	ND	ug/L	U
Phenanthrene	85-01-8	1	0.001	0.010	ND	ug/L	U
Anthracene	120-12-7	1	0.001	0.010	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	0.017	ug/L	
Pyrene	129-00-0	1	0.001	0.010	0.118	ug/L	
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	0.016	ug/L	
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	0.001	ug/L	J
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	0.022	ug/L	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*91.9*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*75.2*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*103*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-73-20212708

21H0341-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/27/2021 09:35
Instrument: FID4 Analyst: CTO — Analyzed: 09/17/2021 19:26

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0341-03 D 01
Preparation Batch: BJI0072 — Sample Size: 500 mL
Prepared: 09/03/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	3.38	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	0.306	mg/L	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*70.9*	*%*	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-73-20212708

21H0341-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/27/2021 09:35

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/08/2021 20:22

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0341-03 A 01

Preparation Batch: BJI0217 — Sample Size: 25 mL

Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.114	0.500	5.81	ug/L	
Chromium	7440-47-3	1	0.260	0.500	0.967	ug/L	
Lead	7439-92-1	1	0.0513	0.100	0.464	ug/L	
Manganese	7439-96-5	5	0.710	2.50	542	ug/L	D
Silver	7440-22-4	1	0.0220	0.200	0.134	ug/L	J
Vanadium	7440-62-2	1	0.0556	0.200	8.42	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-73-20212708

21H0341-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/27/2021 09:35

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/08/2021 20:22

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0341-03 A 01

Preparation Batch: BJI0217 — Sample Size: 25 mL

Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	9.65	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	0.0840	ug/L	J
Cobalt	7440-48-4	1	0.0178	0.200	1.21	ug/L	
Copper	7440-50-8	1	0.173	0.500	38.9	ug/L	
Nickel	7440-02-0	1	0.0792	0.500	1.80	ug/L	
Selenium	7782-49-2	1	0.179	0.500	0.368	ug/L	J
Zinc	7440-66-6	1	2.92	6.00	5.01	ug/L	J

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-73-20212708

21H0341-03 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/27/2021 09:35

Instrument: HYDRA Analyst: ML — Analyzed: 09/14/2021 14:00

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0341-03 A

Preparation Batch: BJI0293 — Sample Size: 20 mL

Prepared: 09/10/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	0.000064	mg/L	J

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-73-20212708

21H0341-03RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/27/2021 09:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/10/2021 17:20

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0341-03RE1 A 01
Preparation Batch: BJI0217 — Sample Size: 25 mL
Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	5	91.0	180	33400	ug/L	D

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Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-73-20212708

21H0341-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/27/2021 09:35

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/15/2021 20:32

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0341-04 A 02

Preparation Batch: BJI0385 — Sample Size: 25 mL — Filtration Batch: BJH0766

Prepared: 09/14/2021 — Final Volume: 25 mL — Filtration Date: 08/30/2021 14:43

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.114	0.500	2.47	ug/L	
Chromium, Dissolved	7440-47-3	1	0.260	0.500	ND	ug/L	U
Iron, Dissolved	7439-89-6	1	6.63	20.0	2280	ug/L	
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0556	0.200	0.112	ug/L	J

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/16/2021 20:44

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0341-04 A 01

Preparation Batch: BJI0385 — Sample Size: 25 mL — Filtration Batch: BJH0766

Prepared: 09/14/2021 — Final Volume: 25 mL — Filtration Date: 08/30/2021 14:43

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-73-20212708

21H0341-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/27/2021 09:35

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/15/2021 20:32

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0341-04 A 02

Preparation Batch: BJI0385 — Sample Size: 25 mL — Filtration Batch: BJH0766

Prepared: 09/14/2021 — Final Volume: 25 mL — Filtration Date: 08/30/2021 14:43

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	0.0900	ug/L	J
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	0.127	ug/L	J
Copper, Dissolved	7440-50-8	1	0.173	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	1.17	ug/L	
Selenium, Dissolved	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	2.92	6.00	3.66	ug/L	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

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21H0341-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/27/2021 09:35
Instrument: HYDRA Analyst: ML — Analyzed: 09/14/2021 14:51

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0341-04 A 01
Preparation Batch: BJI0294 — Sample Size: 20 mL — Filtration Batch: BJH0766
Prepared: 09/10/2021 — Final Volume: 20 mL — Filtration Date: 08/30/2021 14:43

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	0.000019	mg/L	J

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

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21H0341-04RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/27/2021 09:35
Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/16/2021 22:08

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0341-04RE1 A 01
Preparation Batch: BJI0385 — Sample Size: 25 mL — Filtration Batch: BJH0766
Prepared: 09/14/2021 — Final Volume: 25 mL — Filtration Date: 08/30/2021 14:43

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	5	0.710	2.50	696	ug/L	D

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

TB-9-20212708

21H0341-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/27/2021 09:55

Instrument: NT2 Analyst: LH — Analyzed: 09/03/2021 09:34

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0341-05 B

Preparation Batch: BJI0098 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.11	ug/L	J
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*106*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*91.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*103*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

TB-9-20212708

21H0341-05 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/27/2021 09:55

Instrument: NT2 Analyst: LH — Analyzed: 09/03/2021 09:34

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0341-05 B

Preparation Batch: BJI0098 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*99.9*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*91.9*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

TB-9-20212708

21H0341-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/27/2021 09:55

Instrument: NT16 Analyst: KOTT — Analyzed: 09/06/2021 13:18

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0341-05 A

Preparation Batch: BJI0132 — Sample Size: 10 mL

Prepared: 09/06/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*107*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*95.8*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-13R-20212708

21H0341-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/27/2021 11:00
Instrument: NT2 Analyst: LH — Analyzed: 09/03/2021 13:43

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0341-06 D
Preparation Batch: BJI0098 — Sample Size: 10 mL
Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*99.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*97.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-13R-20212708

21H0341-06 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/27/2021 11:00

Instrument: NT2 Analyst: LH — Analyzed: 09/03/2021 13:43

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0341-06 D

Preparation Batch: BJI0098 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*99.8*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*97.9*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-13R-20212708

21H0341-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/27/2021 11:00
Instrument: FID4 Analyst: CTO — Analyzed: 09/17/2021 19:46

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0341-06 A 01
Preparation Batch: BJI0072 — Sample Size: 500 mL
Prepared: 09/03/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	3.69	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	0.638	mg/L	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*73.1*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-31-20212708

21H0341-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/27/2021 11:50
Instrument: NT2 Analyst: LH — Analyzed: 09/03/2021 14:03

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0341-07 M
Preparation Batch: BJI0098 — Sample Size: 10 mL
Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*106*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*96.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-31-20212708

21H0341-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/27/2021 11:50

Instrument: NT16 Analyst: PB — Analyzed: 09/06/2021 15:41

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0341-07 S

Preparation Batch: BJI0132 — Sample Size: 10 mL

Prepared: 09/06/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	63.3	ng/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*106*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*95.3*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-31-20212708

21H0341-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 08/27/2021 11:50
Instrument: NT14 Analyst: VTS — Analyzed: 09/27/2021 19:39

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0341-07 G 01
Preparation Batch: BJI0074 — Sample Size: 1000 mL
Prepared: 09/03/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dichlorobenzene	106-46-7	1	0.03	0.2	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.03	0.2	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	1	0.3	1.0	ND	ug/L	U
Benzoic acid	65-85-0	1	0.1	2.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	1	0.03	0.2	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.1	1.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	1	0.05	0.2	ND	ug/L	U
Butylbenzylphthalate	85-68-7	1	0.07	0.2	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	1	0.2	0.2	ND	ug/L	U
Surrogate: 2-Fluorophenol				*30-160 %*	*53.5*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*34.3*	*%*	
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*81.2*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*59.9*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*84.8*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*77.8*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*96.2*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*97.0*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-31-20212708

21H0341-07 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/27/2021 11:50
Instrument: NT11 Analyst: VTS — Analyzed: 09/17/2021 20:27

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJH0745; Prepared: 08/31/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21H0341-07 A 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJI0125; Cleaned: 16-Sep-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21H0341-07 A 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.006	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.009	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.014	ug/L	
Acenaphthylene	208-96-8	1	0.002	0.010	0.033	ug/L	
Acenaphthene	83-32-9	1	0.003	0.010	2.37	ug/L	E
Dibenzofuran	132-64-9	1	0.002	0.010	0.012	ug/L	
Fluorene	86-73-7	1	0.002	0.010	0.034	ug/L	
Phenanthrene	85-01-8	1	0.001	0.010	1.65	ug/L	E
Anthracene	120-12-7	1	0.001	0.010	0.196	ug/L	
Carbazole	86-74-8	1	0.001	0.010	0.003	ug/L	J
Fluoranthene	206-44-0	1	0.002	0.010	0.107	ug/L	
Pyrene	129-00-0	1	0.001	0.010	0.035	ug/L	
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	0.001	ug/L	J
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	0.0009	ug/L	J
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*78.4*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*72.2*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*83.5*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-31-20212708

21H0341-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/27/2021 11:50
Instrument: FID4 Analyst: CTO — Analyzed: 09/17/2021 20:07

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0341-07 D 01
Preparation Batch: BJI0072 — Sample Size: 500 mL
Prepared: 09/03/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	1.22	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*90.7*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-31-20212708

21H0341-07RE1 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/27/2021 11:50
Instrument: NT11 Analyst: VTS — Analyzed: 09/18/2021 12:07

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJH0745; Prepared: 08/31/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21H0341-07RE1 A 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJI0125; Cleaned: 16-Sep-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21H0341-07RE1 A 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	5	0.007	0.050	0.007	ug/L	J, D
2-Methylnaphthalene	91-57-6	5	0.005	0.050	ND	ug/L	U
1-Methylnaphthalene	90-12-0	5	0.005	0.050	ND	ug/L	U
Acenaphthylene	208-96-8	5	0.009	0.050	0.043	ug/L	J, D
Acenaphthene	83-32-9	5	0.014	0.050	4.22	ug/L	D
Dibenzofuran	132-64-9	5	0.008	0.050	0.012	ug/L	J, D
Fluorene	86-73-7	5	0.008	0.050	0.035	ug/L	J, D
Phenanthrene	85-01-8	5	0.007	0.050	3.09	ug/L	D
Anthracene	120-12-7	5	0.006	0.050	0.200	ug/L	D
Carbazole	86-74-8	5	0.006	0.050	ND	ug/L	U
Fluoranthene	206-44-0	5	0.009	0.050	0.101	ug/L	D
Pyrene	129-00-0	5	0.006	0.050	0.035	ug/L	J, D
Benzo(a)anthracene	56-55-3	5	0.004	0.050	ND	ug/L	U
Chrysene	218-01-9	5	0.005	0.050	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	5	0.002	0.050	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	5	0.016	0.050	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	5	0.009	0.050	ND	ug/L	U
Benzofluoranthenes, Total		5	0.018	0.050	ND	ug/L	U
Benzo(a)pyrene	50-32-8	5	0.012	0.050	ND	ug/L	U
Perylene	1985-5-0	5	0.029	0.050	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	5	0.005	0.050	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	5	0.007	0.050	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	5	0.007	0.050	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*79.4*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*60.6*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*84.0*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-45-20212708

21H0341-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/27/2021 12:45

Instrument: NT2 Analyst: LH — Analyzed: 09/03/2021 14:24

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0341-08 F

Preparation Batch: BJI0098 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*106*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.3*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*97.0*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*104*	*%*	

Draft for Public Comment

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-45-20212708

21H0341-08 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/27/2021 12:45

Instrument: NT16 Analyst: PB — Analyzed: 09/06/2021 16:02

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0341-08 F

Preparation Batch: BJI0132 — Sample Size: 10 mL

Prepared: 09/06/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	59.6	ng/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*109*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*93.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-45-20212708

21H0341-08 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/27/2021 12:45
Instrument: FID4 Analyst: CTO — Analyzed: 09/17/2021 21:07

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0341-08 D 01
Preparation Batch: BJI0072 — Sample Size: 500 mL
Prepared: 09/03/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.411	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*64.4*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-45-20212708

21H0341-08 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/27/2021 12:45
Instrument: ECD7 Analyst: JGR — Analyzed: 09/20/2021 22:07

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0341-08 A 01
	Preparation Batch: BJI0048	Sample Size: 1000 mL	
	Prepared: 09/02/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0341-08 A 01
	Cleanup Batch: CJI0149	Initial Volume: 0.5 mL	
	Cleaned: 20-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0341-08 A 01
	Cleanup Batch: CJI0147	Initial Volume: 0.5 uL	
	Cleaned: 20-Sep-2021	Final Volume: 0.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0341-08 A 01
	Cleanup Batch: CJI0148	Initial Volume: 0.5 uL	
	Cleaned: 20-Sep-2021	Final Volume: 0.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*69.9*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*67.7*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*66.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*64.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-45-20212708

21H0341-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/27/2021 12:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/09/2021 21:10

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0341-08 C 01
Preparation Batch: BJI0217 — Sample Size: 25 mL
Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	5	0.710	2.50	765	ug/L	D

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-45-20212708

21H0341-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/27/2021 12:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/16/2021 00:00

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0341-09 A 02
Preparation Batch: BJI0385 — Sample Size: 25 mL — Filtration Batch: BJH0766
Prepared: 09/14/2021 — Final Volume: 25 mL — Filtration Date: 08/30/2021 14:43

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	5	0.710	2.50	776	ug/L	D

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-52-20212708

21H0341-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/27/2021 15:20

Instrument: NT2 Analyst: LH — Analyzed: 09/03/2021 14:45

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0341-10 J

Preparation Batch: BJI0098 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	0.32	ug/L	
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	2.03	ug/L	
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*108*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.2*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*102*	*%*	

Draft for Public Comment

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-52-20212708

21H0341-10 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/27/2021 15:20

Instrument: NT2 Analyst: LH — Analyzed: 09/03/2021 14:45

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0341-10 J

Preparation Batch: BJI0098 — Sample Size: 10 mL

Prepared: 09/02/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*95.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-52-20212708

21H0341-10 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/27/2021 15:20
Instrument: NT11 Analyst: VTS — Analyzed: 09/17/2021 21:58

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0341-10 D 01
Preparation Batch: BJH0745 — Sample Size: 500 mL
Prepared: 08/31/2021 — Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 21H0341-10 D 01
Cleanup Batch: CJI0125 — Initial Volume: 0.5 mL
Cleaned: 16-Sep-2021 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.004	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.002	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.001	ug/L	J
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	0.037	ug/L	
Dibenzofuran	132-64-9	1	0.002	0.010	0.003	ug/L	J
Fluorene	86-73-7	1	0.002	0.010	ND	ug/L	U
Phenanthrene	85-01-8	1	0.001	0.010	0.001	ug/L	J
Anthracene	120-12-7	1	0.001	0.010	0.001	ug/L	J
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.010	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	ND	ug/L	U
Chrysene	218-01-9	1	0.0009	0.010	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*75.7*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*67.6*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*87.9*	*%*	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-52-20212708

21H0341-10 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 08/27/2021 15:20
Instrument: ECD7 Analyst: JGR — Analyzed: 09/20/2021 22:28

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21H0341-10 A 01
	Preparation Batch: BJI0048	Sample Size: 1000 mL	
	Prepared: 09/02/2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21H0341-10 A 01
	Cleanup Batch: CJI0149	Initial Volume: 0.5 mL	
	Cleaned: 20-Sep-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21H0341-10 A 01
	Cleanup Batch: CJI0147	Initial Volume: 0.5 uL	
	Cleaned: 20-Sep-2021	Final Volume: 0.5 uL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21H0341-10 A 01
	Cleanup Batch: CJI0148	Initial Volume: 0.5 uL	
	Cleaned: 20-Sep-2021	Final Volume: 0.5 uL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.002	0.010	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.002	0.010	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.002	0.010	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.002	0.010	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.002	0.010	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.003	0.010	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.003	0.010	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*29-120 %*	*52.6*	*%*	
Surrogate: Tetrachlorometaxylene				*32-120 %*	*50.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*29-120 %*	*49.5*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*32-120 %*	*48.4*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-52-20212708

21H0341-10 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/27/2021 15:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/09/2021 21:15

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0341-10 C 01
Preparation Batch: BJI0217 — Sample Size: 25 mL
Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	5	0.710	2.50	741	ug/L	D

Draft for Public Comment

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

MW-52-20212708

21H0341-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/27/2021 15:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/16/2021 00:05

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0341-11 A 02
Preparation Batch: BJI0385 — Sample Size: 25 mL — Filtration Batch: BJH0766
Prepared: 09/14/2021 — Final Volume: 25 mL — Filtration Date: 08/30/2021 14:43

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	5	0.710	2.50	567	ug/L	D

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Volatile Organic Compounds - Quality Control

Batch BJI0098 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0098-BLK1)				Prepared: 03-Sep-2021 Analyzed: 03-Sep-2021 08:53							
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							U
Surrogate: Toluene-d8	4.94			ug/L	*5.00*		*98.7*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.69			ug/L	*5.00*		*93.8*	*80-120*			
Blank (BJI0098-BLK2)				Prepared: 03-Sep-2021 Analyzed: 03-Sep-2021 08:53							
Vinyl Chloride	ND	0.08	0.20	ug/L							U
1,1-Dichloroethene	ND	0.08	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.07	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Benzene	ND	0.05	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
Toluene	ND	0.05	0.20	ug/L							U
Tetrachloroethene	ND	0.09	0.20	ug/L							U
Ethylbenzene	ND	0.05	0.20	ug/L							U
m,p-Xylene	ND	0.14	0.40	ug/L							U
o-Xylene	ND	0.08	0.20	ug/L							U
Xylenes, total	ND	0.22	0.60	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.37			ug/L	*5.00*		*107*	*80-129*			
Surrogate: Toluene-d8	4.94			ug/L	*5.00*		*98.7*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.69			ug/L	*5.00*		*93.8*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.99			ug/L	*5.00*		*99.8*	*80-120*			
LCS (BJI0098-BS1)				Prepared: 03-Sep-2021 Analyzed: 03-Sep-2021 07:11							
Gasoline Range Organics (Tol-Nap)	1110		100	ug/L	1000		111	72-128			
Surrogate: Toluene-d8	5.10			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.89			ug/L	*5.00*		*97.8*	*80-120*			
LCS (BJI0098-BS2)				Prepared: 03-Sep-2021 Analyzed: 03-Sep-2021 07:32							
Vinyl Chloride	11.0	0.08	0.20	ug/L	10.0		110	66-133			
1,1-Dichloroethene	11.0	0.08	0.20	ug/L	10.0		110	69-135			
trans-1,2-Dichloroethene	10.7	0.07	0.20	ug/L	10.0		107	78-128			
cis-1,2-Dichloroethene	10.9	0.08	0.20	ug/L	10.0		109	80-121			
Benzene	11.1	0.05	0.20	ug/L	10.0		111	80-120			
Trichloroethene	11.0	0.07	0.20	ug/L	10.0		110	80-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Volatile Organic Compounds - Quality Control

Batch BJI0098 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0098-BS2)					Prepared: 03-Sep-2021 Analyzed: 03-Sep-2021 07:32						
Toluene	10.7	0.05	0.20	ug/L	10.0		107	80-120			
Tetrachloroethene	11.1	0.09	0.20	ug/L	10.0		111	80-120			
Ethylbenzene	10.7	0.05	0.20	ug/L	10.0		107	80-120			
m,p-Xylene	21.7	0.14	0.40	ug/L	20.0		109	80-121			
o-Xylene	10.7	0.08	0.20	ug/L	10.0		107	80-121			
Xylenes, total	32.5	0.22	0.60	ug/L	30.0		108	76-127			
Surrogate: 1,2-Dichloroethane-d4	5.34			ug/L	*5.00*		*107*	*80-129*			
Surrogate: Toluene-d8	5.05			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.94			ug/L	*5.00*		*98.8*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.92			ug/L	*5.00*		*98.4*	*80-120*			
LCS Dup (BJI0098-BSD1)					Prepared: 03-Sep-2021 Analyzed: 03-Sep-2021 07:52						
Gasoline Range Organics (Tol-Nap)	1100		100	ug/L	1000		110	72-128	0.32	30	
Surrogate: Toluene-d8	5.02			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.80			ug/L	*5.00*		*96.1*	*80-120*			
LCS Dup (BJI0098-BSD2)					Prepared: 03-Sep-2021 Analyzed: 03-Sep-2021 08:12						
Vinyl Chloride	11.2	0.08	0.20	ug/L	10.0		112	66-133	1.03	30	
1,1-Dichloroethene	10.9	0.08	0.20	ug/L	10.0		109	69-135	0.45	30	
trans-1,2-Dichloroethene	11.3	0.07	0.20	ug/L	10.0		113	78-128	5.62	30	
cis-1,2-Dichloroethene	10.9	0.08	0.20	ug/L	10.0		109	80-121	0.47	30	
Benzene	11.0	0.05	0.20	ug/L	10.0		110	80-120	0.48	30	
Trichloroethene	11.1	0.07	0.20	ug/L	10.0		111	80-120	0.14	30	
Toluene	10.6	0.05	0.20	ug/L	10.0		106	80-120	1.69	30	
Tetrachloroethene	10.7	0.09	0.20	ug/L	10.0		107	80-120	3.39	30	
Ethylbenzene	10.7	0.05	0.20	ug/L	10.0		107	80-120	0.47	30	
m,p-Xylene	21.8	0.14	0.40	ug/L	20.0		109	80-121	0.23	30	
o-Xylene	10.8	0.08	0.20	ug/L	10.0		108	80-121	0.34	30	
Xylenes, total	32.6	0.22	0.60	ug/L	30.0		109	76-127	0.26	30	
Surrogate: 1,2-Dichloroethane-d4	5.28			ug/L	*5.00*		*106*	*80-129*			
Surrogate: Toluene-d8	5.01			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.90			ug/L	*5.00*		*98.0*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.05			ug/L	*5.00*		*101*	*80-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Volatile Organic Compounds - Quality Control

Batch BJI0098 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJI0098-MS1)	**Source: 21H0341-07**			Prepared: 03-Sep-2021 Analyzed: 03-Sep-2021 15:46							
Vinyl Chloride	10.8	0.08	0.20	ug/L	10.0	ND	108	66-133			
1,1-Dichloroethene	10.8	0.08	0.20	ug/L	10.0	ND	108	69-135			
trans-1,2-Dichloroethene	10.2	0.07	0.20	ug/L	10.0	ND	102	78-128			
cis-1,2-Dichloroethene	10.8	0.08	0.20	ug/L	10.0	ND	108	80-121			
Benzene	10.9	0.05	0.20	ug/L	10.0	ND	109	80-120			
Trichloroethene	10.8	0.07	0.20	ug/L	10.0	ND	108	80-120			
Toluene	10.7	0.05	0.20	ug/L	10.0	ND	107	80-120			
Tetrachloroethene	10.4	0.09	0.20	ug/L	10.0	ND	104	80-120			
Ethylbenzene	10.5	0.05	0.20	ug/L	10.0	ND	105	80-120			
m,p-Xylene	21.3	0.14	0.40	ug/L	20.0	ND	106	80-121			
o-Xylene	10.8	0.08	0.20	ug/L	10.0	ND	108	80-121			
Xylenes, total	32.1	0.22	0.60	ug/L	30.0	ND	107	76-127			
Surrogate: 1,2-Dichloroethane-d4	5.32			ug/L	*5.00*	*5.28*	*106*	*80-129*			
Surrogate: Toluene-d8	5.04			ug/L	*5.00*	*5.05*	*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.04			ug/L	*5.00*	*4.85*	*101*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.00			ug/L	*5.00*	*5.06*	*99.9*	*80-120*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BJI0098-MSD1)	**Source: 21H0341-07**			Prepared: 03-Sep-2021 Analyzed: 03-Sep-2021 16:07							
Vinyl Chloride	11.0	0.08	0.20	ug/L	10.0	ND	110	66-133	2.08	30	
1,1-Dichloroethene	10.8	0.08	0.20	ug/L	10.0	ND	108	69-135	0.63	30	
trans-1,2-Dichloroethene	10.3	0.07	0.20	ug/L	10.0	ND	103	78-128	1.44	30	
cis-1,2-Dichloroethene	10.6	0.08	0.20	ug/L	10.0	ND	106	80-121	1.83	30	
Benzene	10.7	0.05	0.20	ug/L	10.0	ND	107	80-120	2.16	30	
Trichloroethene	10.4	0.07	0.20	ug/L	10.0	ND	104	80-120	3.63	30	
Toluene	10.3	0.05	0.20	ug/L	10.0	ND	103	80-120	4.32	30	
Tetrachloroethene	10.2	0.09	0.20	ug/L	10.0	ND	102	80-120	2.11	30	
Ethylbenzene	10.3	0.05	0.20	ug/L	10.0	ND	103	80-120	1.93	30	
m,p-Xylene	20.9	0.14	0.40	ug/L	20.0	ND	105	80-121	1.71	30	
o-Xylene	10.4	0.08	0.20	ug/L	10.0	ND	104	80-121	3.55	30	
Xylenes, total	31.3	0.22	0.60	ug/L	30.0	ND	104	76-127	2.33	30	
Surrogate: 1,2-Dichloroethane-d4	5.37			ug/L	*5.00*	*5.28*	*107*	*80-129*			
Surrogate: Toluene-d8	5.01			ug/L	*5.00*	*5.05*	*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.13			ug/L	*5.00*	*4.85*	*103*	*80-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Volatile Organic Compounds - Quality Control

Batch BJI0098 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BJI0098-MSD1)	**Source: 21H0341-07**			Prepared: 03-Sep-2021 Analyzed: 03-Sep-2021 16:07							
Surrogate: 1,2-Dichlorobenzene-d4	4.86			ug/L	*5.00*	*5.06*	*97.2*	*80-120*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Volatile Organic Compounds - SIM - Quality Control

Batch BJI0132 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0132-BLK1)				Prepared: 06-Sep-2021 Analyzed: 06-Sep-2021 13:59							
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	5440			ng/L	*5000*		*109*	*80-129*			
Surrogate: Toluene-d8	4930			ng/L	*5000*		*98.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4810			ng/L	*5000*		*96.2*	*75-125*			
LCS (BJI0132-BS1)				Prepared: 06-Sep-2021 Analyzed: 06-Sep-2021 11:28							
Vinyl chloride	1670	5.01	20.0	ng/L	2000		83.7	62-141			
Surrogate: 1,2-Dichloroethane-d4	5280			ng/L	*5000*		*106*	*80-129*			
Surrogate: Toluene-d8	5090			ng/L	*5000*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5040			ng/L	*5000*		*101*	*75-125*			
LCS Dup (BJI0132-BSD1)				Prepared: 06-Sep-2021 Analyzed: 06-Sep-2021 11:08							
Vinyl chloride	2300	5.01	20.0	ng/L	2000		115	62-141	31.70	30	*
Surrogate: 1,2-Dichloroethane-d4	5290			ng/L	*5000*		*106*	*80-129*			
Surrogate: Toluene-d8	5240			ng/L	*5000*		*105*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5000			ng/L	*5000*		*100*	*75-125*			
Matrix Spike (BJI0132-MS1)		**Source: 21H0341-07**		Prepared: 06-Sep-2021 Analyzed: 06-Sep-2021 15:00							
Vinyl chloride	2040	5.01	20.0	ng/L	2000	63.3	99.0	62-141			
Surrogate: 1,2-Dichloroethane-d4	5140			ng/L	*5000*	*5320*	*103*	*80-129*			
Surrogate: Toluene-d8	4940			ng/L	*5000*	*4890*	*98.9*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5050			ng/L	*5000*	*4770*	*101*	*75-125*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJI0132-MSD1)		**Source: 21H0341-07**		Prepared: 06-Sep-2021 Analyzed: 06-Sep-2021 15:21							
Vinyl chloride	2000	5.01	20.0	ng/L	2000	63.3	96.9	62-141	2.05	30	
Surrogate: 1,2-Dichloroethane-d4	5130			ng/L	*5000*	*5320*	*103*	*80-129*			
Surrogate: Toluene-d8	4970			ng/L	*5000*	*4890*	*99.4*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5060			ng/L	*5000*	*4770*	*101*	*75-125*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Semivolatile Organic Compounds - Quality Control

Batch BJI0074 - EPA 3510C SepF

Instrument: NT14 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0074-BLK1)	Prepared: 03-Sep-2021 Analyzed: 27-Sep-2021 16:38										
Phenol	ND	0.01	0.2	ug/L							U
bis(2-chloroethyl) ether	ND	0.03	0.2	ug/L							U
2-Chlorophenol	ND	0.03	0.2	ug/L							U
1,3-Dichlorobenzene	ND	0.03	0.2	ug/L							U
1,4-Dichlorobenzene	ND	0.03	0.2	ug/L							U
1,2-Dichlorobenzene	ND	0.03	0.2	ug/L							U
Benzyl Alcohol	ND	0.02	0.2	ug/L							U
2,2'-Oxybis(1-chloropropane)	ND	0.03	0.2	ug/L							U
2-Methylphenol	ND	0.03	0.2	ug/L							U
Hexachloroethane	ND	0.04	0.2	ug/L							U
N-Nitroso-di-n-Propylamine	ND	0.04	0.2	ug/L							U
4-Methylphenol	ND	0.03	0.2	ug/L							U
Nitrobenzene	ND	0.03	0.2	ug/L							U
Isophorone	ND	0.03	0.2	ug/L							U
2-Nitrophenol	ND	0.04	1.0	ug/L							U
2,4-Dimethylphenol	ND	0.3	1.0	ug/L							U
Bis(2-Chloroethoxy)methane	ND	0.03	0.2	ug/L							U
2,4-Dichlorophenol	ND	0.1	1.0	ug/L							U
1,2,4-Trichlorobenzene	ND	0.03	0.2	ug/L							U
Naphthalene	ND	0.03	0.2	ug/L							U
Benzoic acid	ND	0.1	2.0	ug/L							U
4-Chloroaniline	ND	0.04	1.0	ug/L							U
Hexachlorobutadiene	ND	0.04	0.2	ug/L							U
4-Chloro-3-Methylphenol	ND	0.1	1.0	ug/L							U
2-Methylnaphthalene	ND	0.03	0.2	ug/L							U
Hexachlorocyclopentadiene	ND	0.1	1.0	ug/L							U
2,4,6-Trichlorophenol	ND	0.2	1.0	ug/L							U
2,4,5-Trichlorophenol	ND	0.1	1.0	ug/L							U
2-Chloronaphthalene	ND	0.03	0.2	ug/L							U
2-Nitroaniline	ND	0.2	1.0	ug/L							U
Acenaphthylene	ND	0.02	0.2	ug/L							U
Dimethylphthalate	ND	0.04	0.2	ug/L							U
2,6-Dinitrotoluene	ND	0.2	1.0	ug/L							U
Acenaphthene	ND	0.03	0.2	ug/L							U
3-Nitroaniline	ND	0.2	1.0	ug/L							U

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Semivolatile Organic Compounds - Quality Control

Batch BJI0074 - EPA 3510C SepF

Instrument: NT14 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0074-BLK1)				Prepared: 03-Sep-2021 Analyzed: 27-Sep-2021 16:38							
2,4-Dinitrophenol	ND	0.2	2.0	ug/L							U
Dibenzofuran	ND	0.02	0.2	ug/L							U
4-Nitrophenol	ND	0.06	1.0	ug/L							U
2,4-Dinitrotoluene	ND	0.1	1.0	ug/L							U
Fluorene	ND	0.02	0.2	ug/L							U
4-Chlorophenylphenyl ether	ND	0.02	0.2	ug/L							U
Diethyl phthalate	ND	0.06	0.2	ug/L							U
4-Nitroaniline	ND	0.2	1.0	ug/L							U
4,6-Dinitro-2-methylphenol	ND	0.4	2.0	ug/L							U
N-Nitrosodiphenylamine	ND	0.03	0.2	ug/L							U
4-Bromophenyl phenyl ether	ND	0.02	0.2	ug/L							U
Hexachlorobenzene	ND	0.04	0.2	ug/L							U
Pentachlorophenol	ND	0.1	1.0	ug/L							U
Phenanthrene	ND	0.02	0.2	ug/L							U
Anthracene	ND	0.03	0.2	ug/L							U
Carbazole	ND	0.04	0.2	ug/L							U
Di-n-Butylphthalate	ND	0.05	0.2	ug/L							U
Fluoranthene	ND	0.03	0.2	ug/L							U
Pyrene	ND	0.03	0.2	ug/L							U
Butylbenzylphthalate	ND	0.07	0.2	ug/L							U
Benzo(a)anthracene	ND	0.04	0.2	ug/L							U
3,3'-Dichlorobenzidine	ND	0.3	1.0	ug/L							U
Chrysene	ND	0.04	0.2	ug/L							U
bis(2-Ethylhexyl)phthalate	ND	0.2	0.2	ug/L							U
Di-n-Octylphthalate	ND	0.05	0.2	ug/L							U
Benzofluoranthenes, Total	ND	0.08	0.4	ug/L							U
Benzo(a)pyrene	ND	0.05	0.2	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.06	0.2	ug/L							U
Dibenzo(a,h)anthracene	ND	0.07	0.2	ug/L							U
Benzo(g,h,i)perylene	ND	0.04	0.2	ug/L							U
1-Methylnaphthalene	ND	0.03	0.2	ug/L							U
Surrogate: 2-Fluorophenol	3.68			ug/L	*7.50*		*49.1*	*30-160*			
Surrogate: Phenol-d5	2.11			ug/L	*7.50*		*28.2*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	5.41			ug/L	*7.50*		*72.2*	*30-160*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Semivolatile Organic Compounds - Quality Control

Batch BJI0074 - EPA 3510C SepF

Instrument: NT14 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0074-BLK1)				Prepared: 03-Sep-2021 Analyzed: 27-Sep-2021 16:38							
Surrogate: 1,2-Dichlorobenzene-d4	1.79			ug/L	*5.00*		*35.7*	*30-160*			
Surrogate: Nitrobenzene-d5	3.73			ug/L	*5.00*		*74.6*	*30-160*			
Surrogate: 2-Fluorobiphenyl	2.77			ug/L	*5.00*		*55.3*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	5.25			ug/L	*7.50*		*70.1*	*30-160*			
Surrogate: p-Terphenyl-d14	4.27			ug/L	*5.00*		*85.4*	*30-160*			
LCS (BJI0074-BS1)				Prepared: 03-Sep-2021 Analyzed: 27-Sep-2021 17:14							
Phenol	1.6	0.01	0.2	ug/L	5.00		32.1	30-160			
bis(2-chloroethyl) ether	4.1	0.03	0.2	ug/L	5.00		82.0	30-160			
2-Chlorophenol	3.5	0.03	0.2	ug/L	5.00		70.1	30-160			
1,3-Dichlorobenzene	2.4	0.03	0.2	ug/L	5.00		47.7	30-160			
1,4-Dichlorobenzene	2.8	0.03	0.2	ug/L	5.00		55.2	30-160			
1,2-Dichlorobenzene	2.6	0.03	0.2	ug/L	5.00		52.6	30-160			
Benzyl Alcohol	2.7	0.02	0.2	ug/L	5.00		53.2	30-160			
2,2'-Oxybis(1-chloropropane)	4.2	0.03	0.2	ug/L	5.00		84.5	30-160			
2-Methylphenol	2.6	0.03	0.2	ug/L	5.00		51.5	30-160			
Hexachloroethane	2.3	0.04	0.2	ug/L	5.00		46.5	30-160			
N-Nitroso-di-n-Propylamine	2.5	0.04	0.2	ug/L	5.00		50.2	30-160			
4-Methylphenol	2.7	0.03	0.2	ug/L	5.00		53.4	30-160			
Nitrobenzene	4.0	0.03	0.2	ug/L	5.00		79.9	30-160			
Isophorone	5.9	0.03	0.2	ug/L	5.00		118	30-160			
2-Nitrophenol	3.9	0.04	1.0	ug/L	5.00		78.6	30-160			
2,4-Dimethylphenol	2.3	0.3	1.0	ug/L	13.0		17.4	30-160			*
Bis(2-Chloroethoxy)methane	4.5	0.03	0.2	ug/L	5.00		89.9	30-160			
2,4-Dichlorophenol	11.9	0.1	1.0	ug/L	13.0		91.5	30-160			
1,2,4-Trichlorobenzene	2.6	0.03	0.2	ug/L	5.00		51.1	30-160			
Naphthalene	3.1	0.03	0.2	ug/L	5.00		62.9	30-160			
Benzoic acid	6.8	0.1	2.0	ug/L	23.0		29.5	30-160			*
4-Chloroaniline	2.3	0.04	1.0	ug/L	13.0		17.5	30-160			*
Hexachlorobutadiene	2.0	0.04	0.2	ug/L	5.00		40.3	30-160			
4-Chloro-3-Methylphenol	10.6	0.1	1.0	ug/L	13.0		81.4	30-160			
2-Methylnaphthalene	3.3	0.03	0.2	ug/L	5.00		65.5	30-160			
Hexachlorocyclopentadiene	2.5	0.1	1.0	ug/L	13.0		19.2	30-160			*
2,4,6-Trichlorophenol	11.1	0.2	1.0	ug/L	13.0		85.2	30-160			
2,4,5-Trichlorophenol	11.4	0.1	1.0	ug/L	13.0		87.6	30-160			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Semivolatile Organic Compounds - Quality Control

Batch BJI0074 - EPA 3510C SepF

Instrument: NT14 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0074-BS1)				Prepared: 03-Sep-2021 Analyzed: 27-Sep-2021 17:14							
2-Chloronaphthalene	3.5	0.03	0.2	ug/L	5.00		70.7	30-160			
2-Nitroaniline	12.8	0.2	1.0	ug/L	13.0		98.1	30-160			
Acenaphthylene	3.5	0.02	0.2	ug/L	5.00		69.7	30-160			
Dimethylphthalate	4.3	0.04	0.2	ug/L	5.00		86.1	30-160			
2,6-Dinitrotoluene	13.6	0.2	1.0	ug/L	13.0		104	30-160			
Acenaphthene	3.6	0.03	0.2	ug/L	5.00		71.6	30-160			
3-Nitroaniline	11.8	0.2	1.0	ug/L	13.0		90.9	30-160			
2,4-Dinitrophenol	18.1	0.2	2.0	ug/L	23.0		78.8	30-160			
Dibenzofuran	3.9	0.02	0.2	ug/L	5.00		78.6	30-160			
4-Nitrophenol	4.5	0.06	1.0	ug/L	13.0		34.4	30-160			
2,4-Dinitrotoluene	12.6	0.1	1.0	ug/L	13.0		96.9	30-160			
Fluorene	3.5	0.02	0.2	ug/L	5.00		70.4	30-160			
4-Chlorophenylphenyl ether	3.8	0.02	0.2	ug/L	5.00		76.4	30-160			
Diethyl phthalate	4.8	0.06	0.2	ug/L	5.00		95.4	30-160			
4-Nitroaniline	12.1	0.2	1.0	ug/L	13.0		93.4	30-160			
4,6-Dinitro-2-methylphenol	19.6	0.4	2.0	ug/L	23.0		85.1	30-160			
N-Nitrosodiphenylamine	3.5	0.03	0.2	ug/L	5.00		69.8	30-160			
4-Bromophenyl phenyl ether	4.3	0.02	0.2	ug/L	5.00		86.0	30-160			
Hexachlorobenzene	4.0	0.04	0.2	ug/L	5.00		80.7	30-160			
Pentachlorophenol	10.6	0.1	1.0	ug/L	13.0		81.2	30-160			
Phenanthrene	4.0	0.02	0.2	ug/L	5.00		80.7	30-160			
Anthracene	3.8	0.03	0.2	ug/L	5.00		75.8	30-160			
Carbazole	4.7	0.04	0.2	ug/L	5.00		94.8	30-160			
Di-n-Butylphthalate	5.0	0.05	0.2	ug/L	5.00		99.6	30-160			
Fluoranthene	4.2	0.03	0.2	ug/L	5.00		83.9	30-160			
Pyrene	4.1	0.03	0.2	ug/L	5.00		82.1	30-160			
Butylbenzylphthalate	4.3	0.07	0.2	ug/L	5.00		86.3	30-160			
Benzo(a)anthracene	4.1	0.04	0.2	ug/L	5.00		81.6	30-160			
3,3'-Dichlorobenzidine	12.7	0.3	1.0	ug/L	13.0		97.8	30-160			Q
Chrysene	4.0	0.04	0.2	ug/L	5.00		80.7	30-160			
bis(2-Ethylhexyl)phthalate	4.6	0.2	0.2	ug/L	5.00		92.4	30-160			
Di-n-Octylphthalate	4.1	0.05	0.2	ug/L	5.00		82.8	30-160			
Benzofluoranthenes, Total	8.5	0.08	0.4	ug/L	10.0		84.6	30-160			
Benzo(a)pyrene	3.9	0.05	0.2	ug/L	5.00		78.4	30-160			
Indeno(1,2,3-cd)pyrene	4.6	0.06	0.2	ug/L	5.00		91.8	30-160			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Semivolatile Organic Compounds - Quality Control

Batch BJI0074 - EPA 3510C SepF

Instrument: NT14 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0074-BS1)					Prepared: 03-Sep-2021 Analyzed: 27-Sep-2021 17:14						
Dibenzo(a,h)anthracene	4.7	0.07	0.2	ug/L	5.00		94.2	30-160			
Benzo(g,h,i)perylene	4.5	0.04	0.2	ug/L	5.00		90.5	30-160			
1-Methylnaphthalene	3.6	0.03	0.2	ug/L	5.00		71.0	30-160			
Surrogate: 2-Fluorophenol	3.80			ug/L	*7.50*		*50.7*	*30-160*			
Surrogate: Phenol-d5	2.46			ug/L	*7.50*		*32.9*	*30-160*			
Surrogate: 2-Chlorophenol-d4	5.86			ug/L	*7.50*		*78.1*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	2.48			ug/L	*5.00*		*49.6*	*30-160*			
Surrogate: Nitrobenzene-d5	3.97			ug/L	*5.00*		*79.5*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.50			ug/L	*5.00*		*70.0*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	5.71			ug/L	*7.50*		*76.1*	*30-160*			
Surrogate: p-Terphenyl-d14	4.32			ug/L	*5.00*		*86.4*	*30-160*			
Matrix Spike (BJI0074-MS1)		**Source: 21H0341-07**			Prepared: 03-Sep-2021 Analyzed: 27-Sep-2021 18:27						
Phenol	1.6	0.01	0.2	ug/L	5.00	0.01	30.9	30-160			
bis(2-chloroethyl) ether	3.9	0.03	0.2	ug/L	5.00	ND	78.1	30-160			
2-Chlorophenol	3.4	0.03	0.2	ug/L	5.00	ND	67.8	30-160			
1,3-Dichlorobenzene	2.2	0.03	0.2	ug/L	5.00	ND	44.8	30-160			
1,4-Dichlorobenzene	2.6	0.03	0.2	ug/L	5.00	ND	51.8	30-160			
1,2-Dichlorobenzene	2.5	0.03	0.2	ug/L	5.00	ND	49.3	30-160			
Benzyl Alcohol	2.6	0.02	0.2	ug/L	5.00	ND	51.9	30-160			
2,2'-Oxybis(1-chloropropane)	4.1	0.03	0.2	ug/L	5.00	ND	81.4	30-160			
2-Methylphenol	3.0	0.03	0.2	ug/L	5.00	ND	60.1	30-160			
Hexachloroethane	2.2	0.04	0.2	ug/L	5.00	ND	44.4	30-160			
N-Nitroso-di-n-Propylamine	3.0	0.04	0.2	ug/L	5.00	ND	59.9	30-160			
4-Methylphenol	2.8	0.03	0.2	ug/L	5.00	ND	56.6	30-160			
Nitrobenzene	3.8	0.03	0.2	ug/L	5.00	ND	76.0	30-160			
Isophorone	5.2	0.03	0.2	ug/L	5.00	ND	105	30-160			
2-Nitrophenol	3.9	0.04	1.0	ug/L	5.00	ND	78.0	30-160			
2,4-Dimethylphenol	7.9	0.3	1.0	ug/L	13.0	ND	60.4	30-160			
Bis(2-Chloroethoxy)methane	4.3	0.03	0.2	ug/L	5.00	ND	86.7	30-160			
2,4-Dichlorophenol	11.7	0.1	1.0	ug/L	13.0	ND	90.4	30-160			
1,2,4-Trichlorobenzene	2.4	0.03	0.2	ug/L	5.00	ND	48.7	30-160			
Naphthalene	3.1	0.03	0.2	ug/L	5.00	ND	61.2	30-160			
Benzoic acid	9.1	0.1	2.0	ug/L	23.0	ND	39.7	30-160			
4-Chloroaniline	0.6	0.04	1.0	ug/L	13.0	ND	4.61	30-160			*, J

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Semivolatile Organic Compounds - Quality Control

Batch BJI0074 - EPA 3510C SepF

Instrument: NT14 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJI0074-MS1)	**Source: 21H0341-07**			Prepared: 03-Sep-2021 Analyzed: 27-Sep-2021 18:27							
Hexachlorobutadiene	2.0	0.04	0.2	ug/L	5.00	ND	39.4	30-160			
4-Chloro-3-Methylphenol	10.9	0.1	1.0	ug/L	13.0	ND	83.8	30-160			
2-Methylnaphthalene	3.2	0.03	0.2	ug/L	5.00	ND	64.0	30-160			
Hexachlorocyclopentadiene	3.6	0.1	1.0	ug/L	13.0	ND	28.0	30-160			*
2,4,6-Trichlorophenol	11.3	0.2	1.0	ug/L	13.0	ND	86.8	30-160			
2,4,5-Trichlorophenol	11.5	0.1	1.0	ug/L	13.0	ND	88.6	30-160			
2-Chloronaphthalene	3.5	0.03	0.2	ug/L	5.00	ND	70.0	30-160			
2-Nitroaniline	14.0	0.2	1.0	ug/L	13.0	ND	108	30-160			
Acenaphthylene	3.4	0.02	0.2	ug/L	5.00	ND	68.1	30-160			
Dimethylphthalate	4.1	0.04	0.2	ug/L	5.00	ND	81.3	30-160			
2,6-Dinitrotoluene	13.7	0.2	1.0	ug/L	13.0	ND	105	30-160			
Acenaphthene	8.1	0.03	0.2	ug/L	5.00	5.3	56.7	30-160			
3-Nitroaniline	9.3	0.2	1.0	ug/L	13.0	ND	71.7	30-160			
2,4-Dinitrophenol	20.5	0.2	2.0	ug/L	23.0	ND	89.3	30-160			
Dibenzofuran	3.8	0.02	0.2	ug/L	5.00	ND	76.1	30-160			
4-Nitrophenol	6.2	0.06	1.0	ug/L	13.0	ND	47.8	30-160			
2,4-Dinitrotoluene	12.7	0.1	1.0	ug/L	13.0	ND	97.4	30-160			
Fluorene	3.5	0.02	0.2	ug/L	5.00	0.03	68.5	30-160			
4-Chlorophenylphenyl ether	3.7	0.02	0.2	ug/L	5.00	ND	74.7	30-160			
Diethyl phthalate	4.6	0.06	0.2	ug/L	5.00	ND	92.4	30-160			
4-Nitroaniline	8.7	0.2	1.0	ug/L	13.0	ND	67.0	30-160			
4,6-Dinitro-2-methylphenol	20.0	0.4	2.0	ug/L	23.0	ND	86.8	30-160			
N-Nitrosodiphenylamine	3.6	0.03	0.2	ug/L	5.00	ND	71.5	30-160			
4-Bromophenyl phenyl ether	4.3	0.02	0.2	ug/L	5.00	ND	85.6	30-160			
Hexachlorobenzene	4.1	0.04	0.2	ug/L	5.00	ND	82.6	30-160			
Pentachlorophenol	12.7	0.1	1.0	ug/L	13.0	ND	97.8	30-160			
Phenanthrene	7.7	0.02	0.2	ug/L	5.00	4.5	63.9	30-160			
Anthracene	4.0	0.03	0.2	ug/L	5.00	0.2	76.3	30-160			
Carbazole	4.8	0.04	0.2	ug/L	5.00	ND	96.4	30-160			
Di-n-Butylphthalate	5.2	0.05	0.2	ug/L	5.00	ND	104	30-160			
Fluoranthene	4.3	0.03	0.2	ug/L	5.00	0.1	83.0	30-160			
Pyrene	4.1	0.03	0.2	ug/L	5.00	0.04	81.8	30-160			
Butylbenzylphthalate	4.6	0.07	0.2	ug/L	5.00	ND	92.6	30-160			
Benzo(a)anthracene	4.1	0.04	0.2	ug/L	5.00	ND	81.3	30-160			
3,3'-Dichlorobenzidine	ND	0.3	1.0	ug/L	13.0	ND		30-160			*, Q, U

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Semivolatile Organic Compounds - Quality Control

Batch BJI0074 - EPA 3510C SepF

Instrument: NT14 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJI0074-MS1)	**Source: 21H0341-07**			Prepared: 03-Sep-2021 Analyzed: 27-Sep-2021 18:27							
Chrysene	4.1	0.04	0.2	ug/L	5.00	ND	82.0	30-160			
bis(2-Ethylhexyl)phthalate	4.6	0.2	0.2	ug/L	5.00	ND	92.7	30-160			
Di-n-Octylphthalate	4.2	0.05	0.2	ug/L	5.00	ND	84.4	30-160			
Benzofluoranthenes, Total	8.4	0.08	0.4	ug/L	10.0	ND	84.3	30-160			
Benzo(a)pyrene	4.1	0.05	0.2	ug/L	5.00	ND	81.3	30-160			
Indeno(1,2,3-cd)pyrene	4.8	0.06	0.2	ug/L	5.00	ND	97.0	30-160			
Dibenzo(a,h)anthracene	5.0	0.07	0.2	ug/L	5.00	ND	100	30-160			
Benzo(g,h,i)perylene	4.8	0.04	0.2	ug/L	5.00	ND	96.5	30-160			
1-Methylnaphthalene	3.5	0.03	0.2	ug/L	5.00	ND	70.2	30-160			
Surrogate: 2-Fluorophenol	3.43			ug/L	*7.50*	*4.01*	*45.7*	*30-160*			
Surrogate: Phenol-d5	2.29			ug/L	*7.50*	*2.57*	*30.5*	*30-160*			
Surrogate: 2-Chlorophenol-d4	5.33			ug/L	*7.50*	*6.09*	*71.1*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	2.28			ug/L	*5.00*	*3.00*	*45.6*	*30-160*			
Surrogate: Nitrobenzene-d5	3.70			ug/L	*5.00*	*4.24*	*74.0*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.27			ug/L	*5.00*	*3.89*	*65.4*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.14			ug/L	*7.50*	*7.22*	*81.9*	*30-160*			
Surrogate: p-Terphenyl-d14	4.16			ug/L	*5.00*	*4.85*	*83.2*	*30-160*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJI0074-MSD1)	**Source: 21H0341-07**			Prepared: 03-Sep-2021 Analyzed: 27-Sep-2021 19:03							
Phenol	1.5	0.01	0.2	ug/L	5.00	0.01	29.1	30-160	5.95	30	*
bis(2-chloroethyl) ether	3.7	0.03	0.2	ug/L	5.00	ND	75.0	30-160	4.03	30	
2-Chlorophenol	3.2	0.03	0.2	ug/L	5.00	ND	64.9	30-160	4.45	30	
1,3-Dichlorobenzene	2.5	0.03	0.2	ug/L	5.00	ND	49.1	30-160	9.24	30	
1,4-Dichlorobenzene	2.8	0.03	0.2	ug/L	5.00	ND	55.8	30-160	7.39	30	
1,2-Dichlorobenzene	2.6	0.03	0.2	ug/L	5.00	ND	52.6	30-160	6.46	30	
Benzyl Alcohol	2.5	0.02	0.2	ug/L	5.00	ND	49.5	30-160	4.68	30	
2,2'-Oxybis(1-chloropropane)	3.9	0.03	0.2	ug/L	5.00	ND	78.6	30-160	3.49	30	
2-Methylphenol	2.9	0.03	0.2	ug/L	5.00	ND	58.5	30-160	2.66	30	
Hexachloroethane	2.6	0.04	0.2	ug/L	5.00	ND	51.1	30-160	14.10	30	
N-Nitroso-di-n-Propylamine	2.9	0.04	0.2	ug/L	5.00	ND	57.5	30-160	4.11	30	
4-Methylphenol	2.8	0.03	0.2	ug/L	5.00	ND	55.4	30-160	2.18	30	
Nitrobenzene	3.7	0.03	0.2	ug/L	5.00	ND	74.9	30-160	1.48	30	
Isophorone	5.1	0.03	0.2	ug/L	5.00	ND	102	30-160	2.61	30	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Semivolatile Organic Compounds - Quality Control

Batch BJI0074 - EPA 3510C SepF

Instrument: NT14 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BJI0074-MSD1)	**Source: 21H0341-07**			Prepared: 03-Sep-2021	Analyzed: 27-Sep-2021 19:03						
2-Nitrophenol	3.8	0.04	1.0	ug/L	5.00	ND	76.5	30-160	1.89	30	
2,4-Dimethylphenol	8.5	0.3	1.0	ug/L	13.0	ND	65.0	30-160	7.41	30	
Bis(2-Chloroethoxy)methane	4.2	0.03	0.2	ug/L	5.00	ND	84.8	30-160	2.25	30	
2,4-Dichlorophenol	11.6	0.1	1.0	ug/L	13.0	ND	89.0	30-160	1.46	30	
1,2,4-Trichlorobenzene	2.7	0.03	0.2	ug/L	5.00	ND	53.1	30-160	8.82	30	
Naphthalene	3.1	0.03	0.2	ug/L	5.00	ND	61.7	30-160	0.81	30	
Benzoic acid	9.1	0.1	2.0	ug/L	23.0	ND	39.5	30-160	0.37	30	
4-Chloroaniline	0.8	0.04	1.0	ug/L	13.0	ND	5.98	30-160	25.90	30	*, J
Hexachlorobutadiene	2.3	0.04	0.2	ug/L	5.00	ND	45.9	30-160	15.30	30	
4-Chloro-3-Methylphenol	10.8	0.1	1.0	ug/L	13.0	ND	83.2	30-160	0.75	30	
2-Methylnaphthalene	3.3	0.03	0.2	ug/L	5.00	ND	66.5	30-160	3.87	30	
Hexachlorocyclopentadiene	3.9	0.1	1.0	ug/L	13.0	ND	29.9	30-160	6.50	30	*
2,4,6-Trichlorophenol	11.2	0.2	1.0	ug/L	13.0	ND	86.4	30-160	0.46	30	
2,4,5-Trichlorophenol	11.5	0.1	1.0	ug/L	13.0	ND	88.5	30-160	0.09	30	
2-Chloronaphthalene	3.5	0.03	0.2	ug/L	5.00	ND	70.7	30-160	0.97	30	
2-Nitroaniline	13.6	0.2	1.0	ug/L	13.0	ND	105	30-160	2.75	30	
Acenaphthylene	3.4	0.02	0.2	ug/L	5.00	ND	68.0	30-160	0.07	30	
Dimethylphthalate	4.1	0.04	0.2	ug/L	5.00	ND	81.6	30-160	0.33	30	
2,6-Dinitrotoluene	13.6	0.2	1.0	ug/L	13.0	ND	105	30-160	0.50	30	
Acenaphthene	8.1	0.03	0.2	ug/L	5.00	5.3	56.7	30-160	0.03	30	
3-Nitroaniline	10.0	0.2	1.0	ug/L	13.0	ND	77.1	30-160	7.30	30	
2,4-Dinitrophenol	20.6	0.2	2.0	ug/L	23.0	ND	89.7	30-160	0.44	30	
Dibenzofuran	3.8	0.02	0.2	ug/L	5.00	ND	76.4	30-160	0.40	30	
4-Nitrophenol	6.3	0.06	1.0	ug/L	13.0	ND	48.4	30-160	1.18	30	
2,4-Dinitrotoluene	12.7	0.1	1.0	ug/L	13.0	ND	97.5	30-160	0.13	30	
Fluorene	4.0	0.02	0.2	ug/L	5.00	0.03	78.4	30-160	13.40	30	
4-Chlorophenylphenyl ether	3.8	0.02	0.2	ug/L	5.00	ND	76.3	30-160	2.03	30	
Diethyl phthalate	4.7	0.06	0.2	ug/L	5.00	ND	94.4	30-160	2.12	30	
4-Nitroaniline	9.8	0.2	1.0	ug/L	13.0	ND	75.2	30-160	11.60	30	
4,6-Dinitro-2-methylphenol	20.2	0.4	2.0	ug/L	23.0	ND	87.9	30-160	1.32	30	
N-Nitrosodiphenylamine	3.8	0.03	0.2	ug/L	5.00	ND	75.2	30-160	5.09	30	
4-Bromophenyl phenyl ether	4.3	0.02	0.2	ug/L	5.00	ND	86.5	30-160	1.12	30	
Hexachlorobenzene	4.2	0.04	0.2	ug/L	5.00	ND	84.6	30-160	2.30	30	
Pentachlorophenol	12.8	0.1	1.0	ug/L	13.0	ND	98.6	30-160	0.80	30	
Phenanthrene	7.7	0.02	0.2	ug/L	5.00	4.5	64.4	30-160	0.30	30	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Semivolatile Organic Compounds - Quality Control

Batch BJI0074 - EPA 3510C SepF

Instrument: NT14 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BJI0074-MSD1)	**Source: 21H0341-07**			Prepared: 03-Sep-2021 Analyzed: 27-Sep-2021 19:03							
Anthracene	4.1	0.03	0.2	ug/L	5.00	0.2	78.0	30-160	2.08	30	
Carbazole	4.9	0.04	0.2	ug/L	5.00	ND	98.5	30-160	2.19	30	
Di-n-Butylphthalate	5.2	0.05	0.2	ug/L	5.00	ND	105	30-160	0.26	30	
Fluoranthene	4.3	0.03	0.2	ug/L	5.00	0.1	83.0	30-160	0.01	30	
Pyrene	4.1	0.03	0.2	ug/L	5.00	0.04	81.8	30-160	0.01	30	
Butylbenzylphthalate	4.6	0.07	0.2	ug/L	5.00	ND	92.0	30-160	0.73	30	
Benzo(a)anthracene	4.3	0.04	0.2	ug/L	5.00	ND	85.0	30-160	4.46	30	
3,3'-Dichlorobenzidine	ND	0.3	1.0	ug/L	13.0	ND		30-160			*, Q, U
Chrysene	4.1	0.04	0.2	ug/L	5.00	ND	82.5	30-160	0.61	30	
bis(2-Ethylhexyl)phthalate	4.7	0.2	0.2	ug/L	5.00	ND	93.8	30-160	1.21	30	
Di-n-Octylphthalate	4.3	0.05	0.2	ug/L	5.00	ND	85.2	30-160	0.90	30	
Benzofluoranthenes, Total	8.4	0.08	0.4	ug/L	10.0	ND	84.4	30-160	0.13	30	
Benzo(a)pyrene	4.2	0.05	0.2	ug/L	5.00	ND	83.1	30-160	2.29	30	
Indeno(1,2,3-cd)pyrene	4.8	0.06	0.2	ug/L	5.00	ND	96.5	30-160	0.52	30	
Dibenzo(a,h)anthracene	4.9	0.07	0.2	ug/L	5.00	ND	97.6	30-160	2.49	30	
Benzo(g,h,i)perylene	4.7	0.04	0.2	ug/L	5.00	ND	93.6	30-160	3.14	30	
1-Methylnaphthalene	3.5	0.03	0.2	ug/L	5.00	ND	70.3	30-160	0.07	30	
Surrogate: 2-Fluorophenol	3.40			ug/L	*7.50*	*4.01*	*45.3*	*30-160*			
Surrogate: Phenol-d5	2.28			ug/L	*7.50*	*2.57*	*30.4*	*30-160*			
Surrogate: 2-Chlorophenol-d4	5.32			ug/L	*7.50*	*6.09*	*70.9*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	2.41			ug/L	*5.00*	*3.00*	*48.2*	*30-160*			
Surrogate: Nitrobenzene-d5	3.71			ug/L	*5.00*	*4.24*	*74.2*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.32			ug/L	*5.00*	*3.89*	*66.5*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.41			ug/L	*7.50*	*7.22*	*85.5*	*30-160*			
Surrogate: p-Terphenyl-d14	4.25			ug/L	*5.00*	*4.85*	*84.9*	*30-160*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0745 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0745-BLK1)				Prepared: 31-Aug-2021 Analyzed: 17-Sep-2021 17:26							
Naphthalene	0.004	0.001	0.010	ug/L							J
2-Methylnaphthalene	0.002	0.001	0.010	ug/L							J
1-Methylnaphthalene	0.001	0.0009	0.010	ug/L							J
Acenaphthylene	ND	0.002	0.010	ug/L							U
Acenaphthene	ND	0.003	0.010	ug/L							U
Dibenzofuran	ND	0.002	0.010	ug/L							U
Fluorene	ND	0.002	0.010	ug/L							U
Phenanthrene	ND	0.001	0.010	ug/L							U
Anthracene	ND	0.001	0.010	ug/L							U
Carbazole	ND	0.001	0.010	ug/L							U
Fluoranthene	ND	0.002	0.010	ug/L							U
Pyrene	ND	0.001	0.010	ug/L							U
Benzo(a)anthracene	ND	0.0008	0.010	ug/L							U
Chrysene	ND	0.0009	0.010	ug/L							U
Benzo(b)fluoranthene	ND	0.0005	0.010	ug/L							U
Benzo(k)fluoranthene	ND	0.003	0.010	ug/L							U
Benzo(j)fluoranthene	ND	0.002	0.010	ug/L							U
Benzofluoranthenes, Total	ND	0.004	0.010	ug/L							U
Benzo(a)pyrene	ND	0.002	0.010	ug/L							U
Perylene	ND	0.006	0.010	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.001	0.010	ug/L							U
Dibenzo(a,h)anthracene	ND	0.001	0.010	ug/L							U
Benzo(g,h,i)perylene	ND	0.001	0.010	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	0.238			ug/L	*0.300*		*79.4*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.204			ug/L	*0.300*		*68.1*	*29-120*			
Surrogate: Fluoranthene-d10	0.273			ug/L	*0.300*		*91.0*	*57-120*			
LCS (BJH0745-BS1)				Prepared: 31-Aug-2021 Analyzed: 17-Sep-2021 17:56							
Naphthalene	0.240	0.001	0.010	ug/L	0.300		80.1	37-120			
2-Methylnaphthalene	0.244	0.001	0.010	ug/L	0.300		81.4	37-120			
1-Methylnaphthalene	0.245	0.0009	0.010	ug/L	0.300		81.7	29-120			
Acenaphthylene	0.219	0.002	0.010	ug/L	0.300		73.0	41-120			
Acenaphthene	0.225	0.003	0.010	ug/L	0.300		74.9	41-120			
Dibenzofuran	0.227	0.002	0.010	ug/L	0.300		75.8	38-120			
Fluorene	0.245	0.002	0.010	ug/L	0.300		81.7	43-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0745 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJH0745-BS1)					Prepared: 31-Aug-2021 Analyzed: 17-Sep-2021 17:56						
Phenanthrene	0.245	0.001	0.010	ug/L	0.300		81.8	41-120			
Anthracene	0.225	0.001	0.010	ug/L	0.300		75.1	40-120			
Carbazole	0.246	0.001	0.010	ug/L	0.300		81.9	30-160			
Fluoranthene	0.254	0.002	0.010	ug/L	0.300		84.7	45-120			
Pyrene	0.248	0.001	0.010	ug/L	0.300		82.8	41-120			
Benzo(a)anthracene	0.233	0.0008	0.010	ug/L	0.300		77.6	42-120			
Chrysene	0.237	0.0009	0.010	ug/L	0.300		79.1	44-120			
Benzo(b)fluoranthene	0.238	0.0005	0.010	ug/L	0.300		79.3	44-120			
Benzo(k)fluoranthene	0.254	0.003	0.010	ug/L	0.300		84.8	50-120			
Benzo(j)fluoranthene	0.268	0.002	0.010	ug/L	0.300		89.4	39-160			
Benzofluoranthenes, Total	0.761	0.004	0.010	ug/L	0.900		84.5	46-120			
Benzo(a)pyrene	0.220	0.002	0.010	ug/L	0.300		73.4	35-120			
Perylene	0.212	0.006	0.010	ug/L	0.300		70.6	30-160			
Indeno(1,2,3-cd)pyrene	0.210	0.001	0.010	ug/L	0.300		70.1	37-120			
Dibenzo(a,h)anthracene	0.207	0.001	0.010	ug/L	0.300		68.9	34-120			
Benzo(g,h,i)perylene	0.205	0.001	0.010	ug/L	0.300		68.2	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.256			ug/L	*0.300*		*85.3*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.213			ug/L	*0.300*		*71.1*	*29-120*			
Surrogate: Fluoranthene-d10	0.270			ug/L	*0.300*		*90.0*	*57-120*			
LCS Dup (BJH0745-BSD1)					Prepared: 31-Aug-2021 Analyzed: 17-Sep-2021 18:26						
Naphthalene	0.228	0.001	0.010	ug/L	0.300		75.8	37-120	5.46	30	
2-Methylnaphthalene	0.235	0.001	0.010	ug/L	0.300		78.3	37-120	3.84	30	
1-Methylnaphthalene	0.234	0.0009	0.010	ug/L	0.300		78.1	29-120	4.50	30	
Acenaphthylene	0.214	0.002	0.010	ug/L	0.300		71.5	41-120	2.13	30	
Acenaphthene	0.217	0.003	0.010	ug/L	0.300		72.4	41-120	3.37	30	
Dibenzofuran	0.222	0.002	0.010	ug/L	0.300		73.9	38-120	2.49	30	
Fluorene	0.238	0.002	0.010	ug/L	0.300		79.4	43-120	2.78	30	
Phenanthrene	0.239	0.001	0.010	ug/L	0.300		79.7	41-120	2.57	30	
Anthracene	0.217	0.001	0.010	ug/L	0.300		72.2	40-120	3.89	30	
Carbazole	0.241	0.001	0.010	ug/L	0.300		80.2	30-160	2.07	30	
Fluoranthene	0.248	0.002	0.010	ug/L	0.300		82.7	45-120	2.29	30	
Pyrene	0.245	0.001	0.010	ug/L	0.300		81.7	41-120	1.34	30	
Benzo(a)anthracene	0.231	0.0008	0.010	ug/L	0.300		76.8	42-120	1.00	30	
Chrysene	0.232	0.0009	0.010	ug/L	0.300		77.4	44-120	2.16	30	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0745 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJH0745-BSD1)					Prepared: 31-Aug-2021 Analyzed: 17-Sep-2021 18:26						
Benzo(b)fluoranthene	0.236	0.0005	0.010	ug/L	0.300		78.5	44-120	1.04	30	
Benzo(k)fluoranthene	0.249	0.003	0.010	ug/L	0.300		82.9	50-120	2.28	30	
Benzo(j)fluoranthene	0.265	0.002	0.010	ug/L	0.300		88.4	39-160	1.12	30	
Benzofluoranthenes, Total	0.749	0.004	0.010	ug/L	0.900		83.3	46-120	1.48	30	
Benzo(a)pyrene	0.211	0.002	0.010	ug/L	0.300		70.4	35-120	4.13	30	
Perylene	0.215	0.006	0.010	ug/L	0.300		71.7	30-160	1.46	30	
Indeno(1,2,3-cd)pyrene	0.204	0.001	0.010	ug/L	0.300		68.1	37-120	2.93	30	
Dibenzo(a,h)anthracene	0.202	0.001	0.010	ug/L	0.300		67.4	34-120	2.34	30	
Benzo(g,h,i)perylene	0.200	0.001	0.010	ug/L	0.300		66.7	38-120	2.27	30	
Surrogate: 2-Methylnaphthalene-d10	0.232			ug/L	*0.300*		*77.3*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.197			ug/L	*0.300*		*65.6*	*29-120*			
Surrogate: Fluoranthene-d10	0.250			ug/L	*0.300*		*83.5*	*57-120*			
Matrix Spike (BJH0745-MS1)		**Source: 21H0341-07**			Prepared: 31-Aug-2021 Analyzed: 17-Sep-2021 20:57						
Naphthalene	0.212	0.001	0.010	ug/L	0.300	0.006	68.4	37-120			
2-Methylnaphthalene	0.220	0.001	0.010	ug/L	0.300	0.009	70.2	37-120			
1-Methylnaphthalene	0.227	0.0009	0.010	ug/L	0.300	0.014	71.2	29-120			
Acenaphthylene	0.250	0.002	0.010	ug/L	0.300	0.033	72.6	41-120			
Acenaphthene	2.31	0.003	0.010	ug/L	0.300	2.37	-19.6	41-120			*, E
Dibenzofuran	0.222	0.002	0.010	ug/L	0.300	0.012	70.0	38-120			
Fluorene	0.256	0.002	0.010	ug/L	0.300	0.034	74.0	43-120			
Phenanthrene	1.64	0.001	0.010	ug/L	0.300	1.65	-1.43	41-120			*, E
Anthracene	0.362	0.001	0.010	ug/L	0.300	0.196	55.1	40-120			
Carbazole	0.228	0.001	0.010	ug/L	0.300	0.003	74.9	30-160			
Fluoranthene	0.308	0.002	0.010	ug/L	0.300	0.107	67.1	45-120			
Pyrene	0.250	0.001	0.010	ug/L	0.300	0.035	71.8	41-120			
Benzo(a)anthracene	0.225	0.0008	0.010	ug/L	0.300	ND	75.0	42-120			
Chrysene	0.212	0.0009	0.010	ug/L	0.300	0.001	70.4	44-120			
Benzo(b)fluoranthene	0.219	0.0005	0.010	ug/L	0.300	0.0009	72.6	44-120			
Benzo(k)fluoranthene	0.224	0.003	0.010	ug/L	0.300	ND	74.8	50-120			
Benzo(j)fluoranthene	0.220	0.002	0.010	ug/L	0.300	ND	73.2	39-160			
Benzofluoranthenes, Total	0.663	0.004	0.010	ug/L	0.900	ND	73.6	46-120			
Benzo(a)pyrene	0.210	0.002	0.010	ug/L	0.300	ND	70.1	35-120			
Perylene	0.201	0.006	0.010	ug/L	0.300	ND	66.8	30-160			
Indeno(1,2,3-cd)pyrene	0.191	0.001	0.010	ug/L	0.300	ND	63.6	37-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0745 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJH0745-MS1)	**Source: 21H0341-07**			Prepared: 31-Aug-2021 Analyzed: 17-Sep-2021 20:57							
Dibenzo(a,h)anthracene	0.190	0.001	0.010	ug/L	0.300	ND	63.3	34-120			
Benzo(g,h,i)perylene	0.182	0.001	0.010	ug/L	0.300	ND	60.7	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.230			ug/L	*0.300*	*0.235*	*76.6*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.200			ug/L	*0.300*	*0.216*	*66.6*	*29-120*			
Surrogate: Fluoranthene-d10	0.243			ug/L	*0.300*	*0.250*	*81.0*	*57-120*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJH0745-MSD1)	**Source: 21H0341-07**			Prepared: 31-Aug-2021 Analyzed: 17-Sep-2021 21:27							
Naphthalene	0.216	0.001	0.010	ug/L	0.300	0.006	70.0	37-120	2.26	30	
2-Methylnaphthalene	0.228	0.001	0.010	ug/L	0.300	0.009	72.9	37-120	3.70	30	
1-Methylnaphthalene	0.231	0.0009	0.010	ug/L	0.300	0.014	72.3	29-120	1.43	30	
Acenaphthylene	0.252	0.002	0.010	ug/L	0.300	0.033	73.2	41-120	0.70	30	
Acenaphthene	2.28	0.003	0.010	ug/L	0.300	2.37	-29.9	41-120	1.34	30	*, E
Dibenzofuran	0.225	0.002	0.010	ug/L	0.300	0.012	71.0	38-120	1.36	30	
Fluorene	0.254	0.002	0.010	ug/L	0.300	0.034	73.3	43-120	0.73	30	
Phenanthrene	1.62	0.001	0.010	ug/L	0.300	1.65	-10.3	41-120	1.64	30	*, E
Anthracene	0.357	0.001	0.010	ug/L	0.300	0.196	53.4	40-120	1.42	30	
Carbazole	0.226	0.001	0.010	ug/L	0.300	0.003	74.2	30-160	0.98	30	
Fluoranthene	0.301	0.002	0.010	ug/L	0.300	0.107	64.8	45-120	2.26	30	
Pyrene	0.248	0.001	0.010	ug/L	0.300	0.035	70.8	41-120	1.17	30	
Benzo(a)anthracene	0.223	0.0008	0.010	ug/L	0.300	ND	74.3	42-120	0.92	30	
Chrysene	0.209	0.0009	0.010	ug/L	0.300	0.001	69.5	44-120	1.40	30	
Benzo(b)fluoranthene	0.218	0.0005	0.010	ug/L	0.300	0.0009	72.4	44-120	0.35	30	
Benzo(k)fluoranthene	0.225	0.003	0.010	ug/L	0.300	ND	75.0	50-120	0.32	30	
Benzo(j)fluoranthene	0.222	0.002	0.010	ug/L	0.300	ND	73.9	39-160	0.99	30	
Benzofluoranthenes, Total	0.665	0.004	0.010	ug/L	0.900	ND	73.9	46-120	0.32	30	
Benzo(a)pyrene	0.209	0.002	0.010	ug/L	0.300	ND	69.6	35-120	0.77	30	
Perylene	0.201	0.006	0.010	ug/L	0.300	ND	67.0	30-160	0.24	30	
Indeno(1,2,3-cd)pyrene	0.186	0.001	0.010	ug/L	0.300	ND	62.0	37-120	2.50	30	
Dibenzo(a,h)anthracene	0.182	0.001	0.010	ug/L	0.300	ND	60.5	34-120	4.57	30	
Benzo(g,h,i)perylene	0.178	0.001	0.010	ug/L	0.300	ND	59.2	38-120	2.50	30	
Surrogate: 2-Methylnaphthalene-d10	0.231			ug/L	*0.300*	*0.235*	*76.9*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.193			ug/L	*0.300*	*0.216*	*64.4*	*29-120*			
Surrogate: Fluoranthene-d10	0.235			ug/L	*0.300*	*0.250*	*78.2*	*57-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJH0745 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Petroleum Hydrocarbons - Quality Control

Batch BJI0072 - EPA 3510C SepF

Instrument: FID4 Analyst: CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0072-BLK1)				Prepared: 03-Sep-2021 Analyzed: 17-Sep-2021 18:05						
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: o-Terphenyl	0.202		mg/L	*0.225*		*89.9*	*50-150*			
LCS (BJI0072-BS1)				Prepared: 03-Sep-2021 Analyzed: 17-Sep-2021 18:26						
Diesel Range Organics (C12-C24)	3.03	0.100	mg/L	3.00		101	56-120			
Surrogate: o-Terphenyl	0.237		mg/L	*0.225*		*106*	*50-150*			
Matrix Spike (BJI0072-MS1)	**Source: 21H0341-07**			Prepared: 03-Sep-2021 Analyzed: 17-Sep-2021 20:27						
Diesel Range Organics (C12-C24)	3.80	0.100	mg/L	3.00	1.22	86.0	56-120			
Surrogate: o-Terphenyl	0.207		mg/L	*0.225*	*0.204*	*92.0*	*50-150*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BJI0072-MSD1)	**Source: 21H0341-07**			Prepared: 03-Sep-2021 Analyzed: 17-Sep-2021 20:47						
Diesel Range Organics (C12-C24)	3.99	0.100	mg/L	3.00	1.22	92.2	56-120	4.80	30	
Surrogate: o-Terphenyl	0.222		mg/L	*0.225*	*0.204*	*98.5*	*50-150*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Aroclor PCB - Quality Control

Batch BJI0048 - EPA 3510C SepF

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0048-BLK1)				Prepared: 02-Sep-2021 Analyzed: 20-Sep-2021 20:25							
Aroclor 1016	ND	0.002	0.010	ug/L							U
Aroclor 1221	ND	0.002	0.010	ug/L							U
Aroclor 1232	ND	0.002	0.010	ug/L							U
Aroclor 1242	ND	0.002	0.010	ug/L							U
Aroclor 1248	ND	0.002	0.010	ug/L							U
Aroclor 1254	ND	0.002	0.010	ug/L							U
Aroclor 1260	ND	0.003	0.010	ug/L							U
Aroclor 1262	ND	0.003	0.010	ug/L							U
Aroclor 1268	ND	0.003	0.010	ug/L							U
Surrogate: Decachlorobiphenyl	0.0104			ug/L	*0.0200*		*52.2*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0109			ug/L	*0.0200*		*54.7*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.00998			ug/L	*0.0200*		*49.9*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0105			ug/L	*0.0200*		*52.3*	*32-120*			
LCS (BJI0048-BS1)				Prepared: 02-Sep-2021 Analyzed: 20-Sep-2021 20:45							
Aroclor 1016 [2C]	0.040	0.002	0.010	ug/L	0.0500		79.5	54-120			
Aroclor 1260 [2C]	0.038	0.003	0.010	ug/L	0.0500		75.1	51-128			
Surrogate: Decachlorobiphenyl	0.0135			ug/L	*0.0200*		*67.3*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0135			ug/L	*0.0200*		*67.5*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0131			ug/L	*0.0200*		*65.3*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0123			ug/L	*0.0200*		*61.7*	*32-120*			
LCS Dup (BJI0048-BSD1)				Prepared: 02-Sep-2021 Analyzed: 20-Sep-2021 21:06							
Aroclor 1016 [2C]	0.033	0.002	0.010	ug/L	0.0500		65.6	54-120	19.20	30	
Aroclor 1260 [2C]	0.032	0.003	0.010	ug/L	0.0500		64.2	51-128	15.60	30	
Surrogate: Decachlorobiphenyl	0.0122			ug/L	*0.0200*		*60.8*	*29-120*			
Surrogate: Tetrachlorometaxylene	0.0110			ug/L	*0.0200*		*55.0*	*32-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0118			ug/L	*0.0200*		*59.1*	*29-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0106			ug/L	*0.0200*		*53.0*	*32-120*			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Metals and Metallic Compounds - Quality Control

Batch BJI0217 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0217-BLK1)					Prepared: 08-Sep-2021 Analyzed: 08-Sep-2021 16:07							
Barium	135	ND	0.114	0.500	ug/L							U
Barium	137	ND	0.0765	0.500	ug/L							U
Chromium	52	ND	0.260	0.500	ug/L							U
Chromium	53	ND	0.239	0.500	ug/L							U
Lead	208	ND	0.0513	0.100	ug/L							U
Manganese	55	ND	0.142	0.500	ug/L							U
Silver	107	ND	0.0220	0.200	ug/L							U
Arsenic	75a	ND	0.0373	0.200	ug/L							U
Cadmium	111	ND	0.0300	0.100	ug/L							U
Cadmium	114	ND	0.0400	0.100	ug/L							U
Copper	63	ND	0.173	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	ND	0.0792	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Zinc	66	ND	2.92	6.00	ug/L							U
Zinc	67	ND	0.940	6.00	ug/L							U
Blank (BJI0217-BLK2)					Prepared: 08-Sep-2021 Analyzed: 10-Sep-2021 16:04							
Iron	54	ND	18.2	36.0	ug/L							U
Iron	57	ND	6.63	36.0	ug/L							U
Vanadium	51a	ND	0.0556	0.200	ug/L							U
Vanadium	51b	ND	0.0521	0.200	ug/L							U
Cobalt	59	ND	0.0178	0.200	ug/L							U
Selenium	78	ND	0.179	0.500	ug/L							U
LCS (BJI0217-BS1)					Prepared: 08-Sep-2021 Analyzed: 08-Sep-2021 16:11							
Barium	135	24.1	0.114	0.500	ug/L	25.0		96.3	80-120			
Barium	137	23.9	0.0765	0.500	ug/L	25.0		95.4	80-120			
Chromium	52	22.8	0.260	0.500	ug/L	25.0		91.1	80-120			
Chromium	53	24.8	0.239	0.500	ug/L	25.0		99.2	80-120			
Lead	208	24.4	0.0513	0.100	ug/L	25.0		97.5	80-120			
Manganese	55	23.5	0.142	0.500	ug/L	25.0		94.1	80-120			
Silver	107	23.7	0.0220	0.200	ug/L	25.0		94.9	80-120			
Arsenic	75a	24.3	0.0373	0.200	ug/L	25.0		97.4	80-120			
Cadmium	111	25.0	0.0300	0.100	ug/L	25.0		100	80-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Metals and Metallic Compounds - Quality Control

Batch BJI0217 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0217-BS1)						Prepared: 08-Sep-2021		Analyzed: 08-Sep-2021 16:11				
Cadmium	114	25.3	0.0400	0.100	ug/L	25.0		101	80-120			
Copper	63	25.0	0.173	0.500	ug/L	25.0		99.9	80-120			
Copper	65	25.1	0.350	0.500	ug/L	25.0		100	80-120			
Nickel	60	24.9	0.0792	0.500	ug/L	25.0		99.5	80-120			
Nickel	62	25.4	0.220	0.500	ug/L	25.0		101	80-120			
Zinc	66	77.1	2.92	6.00	ug/L	80.0		96.3	80-120			
Zinc	67	74.0	0.940	6.00	ug/L	80.0		92.5	80-120			
LCS (BJI0217-BS2)						Prepared: 08-Sep-2021		Analyzed: 10-Sep-2021 16:09				
Iron	54	5020	18.2	36.0	ug/L	5000		100	80-120			
Iron	57	4900	6.63	36.0	ug/L	5000		97.9	80-120			
Vanadium	51a	24.4	0.0556	0.200	ug/L	25.0		97.5	80-120			
Vanadium	51b	24.4	0.0521	0.200	ug/L	25.0		97.7	80-120			
Cobalt	59	24.6	0.0178	0.200	ug/L	25.0		98.5	80-120			
Selenium	78	76.7	0.179	0.500	ug/L	80.0		95.9	80-120			
Duplicate (BJI0217-DUP1)			**Source: 21H0341-01**			Prepared: 08-Sep-2021		Analyzed: 08-Sep-2021 20:38				
Barium	135	5.01	0.114	0.500	ug/L		4.82			3.72	20	
Chromium	52	ND	0.260	0.500	ug/L		ND					U
Lead	208	ND	0.0513	0.100	ug/L		ND					U
Manganese	55	220	0.142	0.500	ug/L		218			1.21	20	
Silver	107	ND	0.0220	0.200	ug/L		ND					U
Arsenic	75a	0.261	0.0373	0.200	ug/L		0.305			15.50	20	
Cadmium	111	ND	0.0300	0.100	ug/L		ND					U
Copper	63	0.288	0.173	0.500	ug/L		0.344			17.70	20	J
Nickel	60	0.317	0.0792	0.500	ug/L		0.291			8.55	20	J
Zinc	66	ND	2.92	6.00	ug/L		ND					U
Duplicate (BJI0217-DUP2)			**Source: 21H0341-01**			Prepared: 08-Sep-2021		Analyzed: 10-Sep-2021 16:33				
Iron	54	4330	18.2	36.0	ug/L		4300			0.62	20	
Vanadium	51a	0.394	0.0556	0.200	ug/L		0.382			3.09	20	
Cobalt	59	0.0320	0.0178	0.200	ug/L		0.0280			13.30	20	J
Selenium	78	ND	0.179	0.500	ug/L		ND					U
Matrix Spike (BJI0217-MS1)			**Source: 21H0341-01**			Prepared: 08-Sep-2021		Analyzed: 08-Sep-2021 20:43				
Barium	135	29.0	0.114	0.500	ug/L	25.0	4.82	96.8	75-125			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Metals and Metallic Compounds - Quality Control

Batch BJI0217 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJI0217-MS1)			**Source: 21H0341-01**			Prepared: 08-Sep-2021	Analyzed: 08-Sep-2021 20:43					
Chromium	52	19.5	0.260	0.500	ug/L	25.0	ND	77.9	75-125			
Lead	208	22.9	0.0513	0.100	ug/L	25.0	ND	91.7	75-125			
Manganese	55	231	0.142	0.500	ug/L	25.0	218	53.4	75-125			HC
Silver	107	22.0	0.0220	0.200	ug/L	25.0	ND	88.0	75-125			
Arsenic	75a	24.6	0.0373	0.200	ug/L	25.0	0.305	97.4	75-125			
Cadmium	111	23.7	0.0300	0.100	ug/L	25.0	ND	94.9	75-125			
Copper	63	24.0	0.173	0.500	ug/L	25.0	0.344	94.7	75-125			
Nickel	60	24.7	0.0792	0.500	ug/L	25.0	0.291	97.5	75-125			
Zinc	66	70.9	2.92	6.00	ug/L	80.0	ND	88.6	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike (BJI0217-MS2)			**Source: 21H0341-01**			Prepared: 08-Sep-2021	Analyzed: 10-Sep-2021 16:38					
Iron	54	8400	18.2	36.0	ug/L	5000	4300	82.0	75-125			
Vanadium	51a	21.8	0.0556	0.200	ug/L	25.0	0.382	85.8	75-125			
Cobalt	59	25.3	0.0178	0.200	ug/L	25.0	0.0280	101	75-125			
Selenium	78	71.2	0.179	0.500	ug/L	80.0	ND	89.0	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJI0217-MSD1)			**Source: 21H0341-01**			Prepared: 08-Sep-2021	Analyzed: 08-Sep-2021 20:48					
Barium	135	28.8	0.114	0.500	ug/L	25.0	4.82	95.9	75-125	0.72	20	
Chromium	52	19.3	0.260	0.500	ug/L	25.0	ND	77.3	75-125	0.80	20	
Lead	208	22.9	0.0513	0.100	ug/L	25.0	ND	91.7	75-125	0.01	20	
Manganese	55	237	0.142	0.500	ug/L	25.0	218	76.4	75-125	2.45	20	HC
Silver	107	21.7	0.0220	0.200	ug/L	25.0	ND	87.0	75-125	1.16	20	
Arsenic	75a	24.5	0.0373	0.200	ug/L	25.0	0.305	96.8	75-125	0.60	20	
Cadmium	111	23.4	0.0300	0.100	ug/L	25.0	ND	93.6	75-125	1.36	20	
Copper	63	23.9	0.173	0.500	ug/L	25.0	0.344	94.3	75-125	0.46	20	
Nickel	60	24.7	0.0792	0.500	ug/L	25.0	0.291	97.5	75-125	0.04	20	
Zinc	66	69.6	2.92	6.00	ug/L	80.0	ND	87.0	75-125	1.77	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJI0217-MSD2)			**Source: 21H0341-01**			Prepared: 08-Sep-2021	Analyzed: 10-Sep-2021 16:43					
Iron	54	8440	18.2	36.0	ug/L	5000	4300	82.8	75-125	0.46	20	
Vanadium	51a	21.7	0.0556	0.200	ug/L	25.0	0.382	85.3	75-125	0.50	20	
Cobalt	59	24.5	0.0178	0.200	ug/L	25.0	0.0280	98.1	75-125	3.01	20	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Metals and Metallic Compounds - Quality Control

Batch BJI0217 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BJI0217-MSD2)			**Source: 21H0341-01**		Prepared: 08-Sep-2021 Analyzed: 10-Sep-2021 16:43							
Selenium	78	69.7	0.179	0.500	ug/L	80.0	ND	87.1	75-125	2.12	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Metals and Metallic Compounds - Quality Control

Batch BJI0293 - TWM EPA 7470A

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0293-BLK1)				Prepared: 10-Sep-2021 Analyzed: 14-Sep-2021 13:41							
Mercury	0.000032	0.000013	0.000100	mg/L							J
LCS (BJI0293-BS1)				Prepared: 10-Sep-2021 Analyzed: 14-Sep-2021 13:44							
Mercury	0.00175	0.000013	0.000100	mg/L	0.00200		87.5	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0294 - TWM EPA 7470A

Instrument: HYDRA Analyst: ML

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0294-BLK1)				Prepared: 10-Sep-2021 Analyzed: 14-Sep-2021 14:46							
Mercury, Dissolved	0.000028	0.000013	0.000100	mg/L							J
LCS (BJI0294-BS1)				Prepared: 10-Sep-2021 Analyzed: 14-Sep-2021 14:49							
Mercury, Dissolved	0.00168	0.000013	0.000100	mg/L	0.00200		84.1	80-120			
Duplicate (BJI0294-DUP1)		**Source: 21H0341-04**		Prepared: 10-Sep-2021 Analyzed: 14-Sep-2021 14:53							
Mercury, Dissolved	0.000025	0.000013	0.000100	mg/L		0.000019			25.30	20	L, J
Matrix Spike (BJI0294-MS1)		**Source: 21H0341-04**		Prepared: 10-Sep-2021 Analyzed: 14-Sep-2021 14:56							
Mercury, Dissolved	0.000880	0.000013	0.000100	mg/L	0.00100	0.000019	86.1	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJI0294-MSD1)		**Source: 21H0341-04**		Prepared: 10-Sep-2021 Analyzed: 14-Sep-2021 14:58							
Mercury, Dissolved	0.000963	0.000013	0.000100	mg/L	0.00100	0.000019	94.4	75-125	9.09	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0385 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0385-BLK1)					Prepared: 14-Sep-2021 Analyzed: 15-Sep-2021 05:25							
Chromium, Dissolved	52	ND	0.260	0.500	ug/L							U
Chromium, Dissolved	53	ND	0.239	0.500	ug/L							U
Lead, Dissolved	208	ND	0.0513	0.100	ug/L							U
Manganese, Dissolved	55	ND	0.142	0.500	ug/L							U
Silver, Dissolved	107	ND	0.0220	0.200	ug/L							U
Arsenic, Dissolved	75a	ND	0.0373	0.200	ug/L							U
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L							U
Cadmium, Dissolved	114	ND	0.0400	0.100	ug/L							U
Copper, Dissolved	63	ND	0.173	0.500	ug/L							U
Copper, Dissolved	65	ND	0.350	0.500	ug/L							U
Selenium, Dissolved	78	ND	0.179	0.500	ug/L							U
Zinc, Dissolved	66	ND	2.92	6.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	6.00	ug/L							U
Blank (BJI0385-BLK2)					Prepared: 14-Sep-2021 Analyzed: 15-Sep-2021 20:12							
Barium, Dissolved	135	ND	0.114	0.500	ug/L							U
Barium, Dissolved	137	ND	0.0765	0.500	ug/L							U
Iron, Dissolved	54	ND	18.2	36.0	ug/L							U
Iron, Dissolved	57	ND	6.63	20.0	ug/L							U
Vanadium, Dissolved	51a	ND	0.0556	0.200	ug/L							U
Vanadium, Dissolved	51b	ND	0.0521	0.200	ug/L							U
Cobalt, Dissolved	59	ND	0.0178	0.200	ug/L							U
Nickel, Dissolved	60	ND	0.0792	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
LCS (BJI0385-BS1)					Prepared: 14-Sep-2021 Analyzed: 15-Sep-2021 05:29							
Chromium, Dissolved	52	24.3	0.260	0.500	ug/L	25.0		97.3	80-120			
Chromium, Dissolved	53	24.2	0.239	0.500	ug/L	25.0		96.9	80-120			
Lead, Dissolved	208	25.7	0.0513	0.100	ug/L	25.0		103	80-120			
Manganese, Dissolved	55	24.8	0.142	0.500	ug/L	25.0		99.3	80-120			
Silver, Dissolved	107	24.3	0.0220	0.200	ug/L	25.0		97.4	80-120			
Arsenic, Dissolved	75a	24.0	0.0373	0.200	ug/L	25.0		96.2	80-120			
Cadmium, Dissolved	111	24.4	0.0300	0.100	ug/L	25.0		97.7	80-120			
Cadmium, Dissolved	114	24.2	0.0400	0.100	ug/L	25.0		96.8	80-120			
Copper, Dissolved	63	25.1	0.173	0.500	ug/L	25.0		100	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0385 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0385-BS1)						Prepared: 14-Sep-2021 Analyzed: 15-Sep-2021 05:29						
Copper, Dissolved	65	24.8	0.350	0.500	ug/L	25.0		99.2	80-120			
Selenium, Dissolved	78	70.1	0.179	0.500	ug/L	80.0		87.6	80-120			
Zinc, Dissolved	66	73.4	2.92	6.00	ug/L	80.0		91.8	80-120			
Zinc, Dissolved	67	70.4	0.940	6.00	ug/L	80.0		88.1	80-120			
LCS (BJI0385-BS2)						Prepared: 14-Sep-2021 Analyzed: 15-Sep-2021 20:16						
Barium, Dissolved	135	25.1	0.114	0.500	ug/L	25.0		100	80-120			
Barium, Dissolved	137	25.1	0.0765	0.500	ug/L	25.0		100	80-120			
Iron, Dissolved	54	5070	18.2	36.0	ug/L	5000		101	80-120			
Iron, Dissolved	57	4740	6.63	20.0	ug/L	5000		94.7	80-120			
Vanadium, Dissolved	51a	24.9	0.0556	0.200	ug/L	25.0		99.4	80-120			
Vanadium, Dissolved	51b	24.9	0.0521	0.200	ug/L	25.0		99.7	80-120			
Cobalt, Dissolved	59	24.3	0.0178	0.200	ug/L	25.0		97.3	80-120			
Nickel, Dissolved	60	23.9	0.0792	0.500	ug/L	25.0		95.7	80-120			
Nickel, Dissolved	62	24.3	0.220	0.500	ug/L	25.0		97.3	80-120			
Duplicate (BJI0385-DUP1)			**Source: 21H0341-04**			Prepared: 14-Sep-2021 Analyzed: 15-Sep-2021 20:36						
Barium, Dissolved	135	2.42	0.114	0.500	ug/L		2.47			2.00	20	
Chromium, Dissolved	52	ND	0.260	0.500	ug/L		ND					U
Iron, Dissolved	57	2260	6.63	20.0	ug/L		2280			1.04	20	
Silver, Dissolved	107	ND	0.0220	0.200	ug/L		ND					U
Vanadium, Dissolved	51a	0.0950	0.0556	0.200	ug/L		0.112			16.40	20	J
Arsenic, Dissolved	75a	0.0930	0.0373	0.200	ug/L		0.0900			3.28	20	J
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L		ND					U
Cobalt, Dissolved	59	0.119	0.0178	0.200	ug/L		0.127			6.50	20	J
Copper, Dissolved	63	ND	0.173	0.500	ug/L		ND					U
Nickel, Dissolved	60	1.14	0.0792	0.500	ug/L		1.17			2.34	20	
Selenium, Dissolved	78	ND	0.179	0.500	ug/L		ND					U
Zinc, Dissolved	66	3.76	2.92	6.00	ug/L		3.66			2.83	20	J
Matrix Spike (BJI0385-MS1)			**Source: 21H0341-04**			Prepared: 14-Sep-2021 Analyzed: 15-Sep-2021 20:41						
Barium, Dissolved	135	28.1	0.114	0.500	ug/L	25.0	2.47	103	75-125			
Chromium, Dissolved	52	21.6	0.260	0.500	ug/L	25.0	ND	86.5	75-125			
Iron, Dissolved	57	6880	6.63	20.0	ug/L	5000	2280	92.0	75-125			
Silver, Dissolved	107	22.7	0.0220	0.200	ug/L	25.0	ND	90.9	75-125			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0385 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJI0385-MS1)			**Source: 21H0341-04**			Prepared: 14-Sep-2021		Analyzed: 15-Sep-2021 20:41				
Vanadium, Dissolved	51a	21.5	0.0556	0.200	ug/L	25.0	0.112	85.6	75-125			
Arsenic, Dissolved	75a	23.9	0.0373	0.200	ug/L	25.0	0.0900	95.3	75-125			
Cadmium, Dissolved	111	23.5	0.0300	0.100	ug/L	25.0	ND	93.9	75-125			
Cobalt, Dissolved	59	24.5	0.0178	0.200	ug/L	25.0	0.127	97.4	75-125			
Copper, Dissolved	63	23.4	0.173	0.500	ug/L	25.0	ND	93.4	75-125			
Nickel, Dissolved	60	24.6	0.0792	0.500	ug/L	25.0	1.17	93.8	75-125			
Selenium, Dissolved	78	72.3	0.179	0.500	ug/L	80.0	ND	90.4	75-125			
Zinc, Dissolved	66	72.2	2.92	6.00	ug/L	80.0	3.66	85.7	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJI0385-MSD1)			**Source: 21H0341-04**			Prepared: 14-Sep-2021		Analyzed: 15-Sep-2021 20:45				
Barium, Dissolved	135	28.0	0.114	0.500	ug/L	25.0	2.47	102	75-125	0.38	20	
Chromium, Dissolved	52	21.2	0.260	0.500	ug/L	25.0	ND	84.7	75-125	2.08	20	
Iron, Dissolved	57	6850	6.63	20.0	ug/L	5000	2280	91.3	75-125	0.49	20	
Silver, Dissolved	107	22.2	0.0220	0.200	ug/L	25.0	ND	88.7	75-125	2.45	20	
Vanadium, Dissolved	51a	21.2	0.0556	0.200	ug/L	25.0	0.112	84.3	75-125	1.52	20	
Arsenic, Dissolved	75a	23.4	0.0373	0.200	ug/L	25.0	0.0900	93.2	75-125	2.16	20	
Cadmium, Dissolved	111	23.3	0.0300	0.100	ug/L	25.0	ND	93.3	75-125	0.58	20	
Cobalt, Dissolved	59	23.6	0.0178	0.200	ug/L	25.0	0.127	94.0	75-125	3.51	20	
Copper, Dissolved	63	22.4	0.173	0.500	ug/L	25.0	ND	89.5	75-125	4.30	20	
Nickel, Dissolved	60	23.9	0.0792	0.500	ug/L	25.0	1.17	91.0	75-125	2.91	20	
Selenium, Dissolved	78	68.7	0.179	0.500	ug/L	80.0	ND	85.9	75-125	5.04	20	
Zinc, Dissolved	66	71.0	2.92	6.00	ug/L	80.0	3.66	84.1	75-125	1.74	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Duplicate (BJI0385-DUP2)			**Source: 21H0341-04**			Prepared: 14-Sep-2021		Analyzed: 16-Sep-2021 20:49				
Lead, Dissolved	208	ND	0.0513	0.100	ug/L		ND					U
Duplicate (BJI0385-DUP3)			**Source: 21H0341-04RE1**			Prepared: 14-Sep-2021		Analyzed: 16-Sep-2021 22:13				
Manganese, Dissolved	55	705	0.710	2.50	ug/L		696			1.29	20	D
Matrix Spike (BJI0385-MS2)			**Source: 21H0341-04**			Prepared: 14-Sep-2021		Analyzed: 16-Sep-2021 20:54				

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0385 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS2 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJI0385-MS2)			**Source: 21H0341-04**			Prepared: 14-Sep-2021		Analyzed: 16-Sep-2021 20:54				
Lead, Dissolved	208	25.4	0.0513	0.100	ug/L	25.0	ND	102	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BJI0385-MS3)			**Source: 21H0341-04RE1**			Prepared: 14-Sep-2021		Analyzed: 16-Sep-2021 22:17				
Manganese, Dissolved	55	749	0.710	2.50	ug/L	25.0	696	213	75-125			HC, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJI0385-MSD2)			**Source: 21H0341-04**			Prepared: 14-Sep-2021		Analyzed: 16-Sep-2021 21:00				
Lead, Dissolved	208	24.9	0.0513	0.100	ug/L	25.0	ND	99.4	75-125	2.29	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJI0385-MSD3)			**Source: 21H0341-04RE1**			Prepared: 14-Sep-2021		Analyzed: 16-Sep-2021 22:22				
Manganese, Dissolved	55	729	0.710	2.50	ug/L	25.0	696	135	75-125	2.65	20	HC, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJI0386 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0386-BLK1)						Prepared: 14-Sep-2021 Analyzed: 15-Sep-2021 05:33						
Chromium, Dissolved	52	ND	0.260	0.500	ug/L							U
Chromium, Dissolved	53	ND	0.239	0.500	ug/L							U
LCS (BJI0386-BS1)						Prepared: 14-Sep-2021 Analyzed: 15-Sep-2021 05:37						
Chromium, Dissolved	52	24.7	0.260	0.500	ug/L	25.0		98.8	80-120			
Chromium, Dissolved	53	24.5	0.239	0.500	ug/L	25.0		97.9	80-120			
Duplicate (BJI0386-DUP1)			**Source: 21H0341-02**			Prepared: 14-Sep-2021 Analyzed: 15-Sep-2021 05:50						
Chromium, Dissolved	52	ND	0.260	0.500	ug/L		ND					U
Matrix Spike (BJI0386-MS1)			**Source: 21H0341-02**			Prepared: 14-Sep-2021 Analyzed: 15-Sep-2021 05:55						
Chromium, Dissolved	52	20.3	0.260	0.500	ug/L	25.0	ND	81.4	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BJI0386-MSD1)			**Source: 21H0341-02**			Prepared: 14-Sep-2021 Analyzed: 15-Sep-2021 06:01						
Chromium, Dissolved	52	20.5	0.260	0.500	ug/L	25.0	ND	82.1	75-125	0.90	20	

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Wet Chemistry - Quality Control

Batch BJH0726 - SM 5310 A-00, 0.45um filtration

Instrument: UV1800-2 Analyst: CKI

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJH0726-BLK1)				Prepared: 27-Aug-2021 Analyzed: 27-Aug-2021 18:18							
Hexavalent Chromium	ND	0.013	0.013	mg/L							U
LCS (BJH0726-BS1)				Prepared: 27-Aug-2021 Analyzed: 27-Aug-2021 18:19							
Hexavalent Chromium	0.584	0.013	0.013	mg/L	0.625		93.5	85-115			D

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 12:58

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Silver-107	WADOE,WA-DW,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Silver-107	WA-DW,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
EPA 6020B UCT-KED in Water	
Arsenic-75a	WADOE,WA-DW,DoD-ELAP,ADEC,NELAP
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	NELAP,DoD-ELAP,WADOE
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Zinc-66	WADOE,WA-DW,DoD-ELAP
Zinc-67	WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
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Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	DoD-ELAP,NELAP,WADOE
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
EPA 7470A in Water	
Mercury	WADOE,NELAP,DoD-ELAP
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8082A in Water	
Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
EPA 8260D in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE

Analytical Resources, Incorporated
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Analytical Report

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Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE

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Analytical Report

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m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE

EPA 8260D-SIM in Water

Acrylonitrile	NELAP,WADOE
Vinyl chloride	NELAP,WADOE
1,1-Dichloroethene	NELAP,WADOE
cis-1,2-Dichloroethene	NELAP,WADOE
trans-1,2-Dichloroethene	NELAP,WADOE
Trichloroethene	NELAP,WADOE
Tetrachloroethene	NELAP,WADOE
1,1,2,2-Tetrachloroethane	NELAP,WADOE

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Analytical Report

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1,2-Dichloroethane	NELAP,WADOE
Benzene	NELAP,WADOE

EPA 8270E in Water

Phenol	NELAP,DoD-ELAP
bis(2-chloroethyl) ether	NELAP,DoD-ELAP
2-Chlorophenol	NELAP,DoD-ELAP
1,3-Dichlorobenzene	NELAP,DoD-ELAP
1,4-Dichlorobenzene	NELAP,DoD-ELAP
1,2-Dichlorobenzene	NELAP,DoD-ELAP
Benzyl Alcohol	NELAP,DoD-ELAP
2,2'-Oxybis(1-chloropropane)	NELAP,DoD-ELAP
2-Methylphenol	NELAP,DoD-ELAP
Hexachloroethane	NELAP,DoD-ELAP
N-Nitroso-di-n-Propylamine	NELAP,DoD-ELAP
4-Methylphenol	NELAP,DoD-ELAP
Nitrobenzene	NELAP,DoD-ELAP
Isophorone	NELAP,DoD-ELAP
2-Nitrophenol	NELAP,DoD-ELAP
2,4-Dimethylphenol	NELAP,DoD-ELAP
Bis(2-Chloroethoxy)methane	NELAP,DoD-ELAP
2,4-Dichlorophenol	NELAP,DoD-ELAP
1,2,4-Trichlorobenzene	NELAP,DoD-ELAP
Naphthalene	NELAP,DoD-ELAP
Benzoic acid	NELAP,DoD-ELAP
4-Chloroaniline	NELAP,DoD-ELAP
Hexachlorobutadiene	NELAP,DoD-ELAP
4-Chloro-3-Methylphenol	NELAP,DoD-ELAP
2-Methylnaphthalene	NELAP,DoD-ELAP
Hexachlorocyclopentadiene	NELAP,DoD-ELAP
2,4,6-Trichlorophenol	NELAP,DoD-ELAP
2,4,5-Trichlorophenol	NELAP,DoD-ELAP
2-Chloronaphthalene	NELAP,DoD-ELAP
2-Nitroaniline	NELAP,DoD-ELAP
Acenaphthylene	NELAP,DoD-ELAP
Dimethylphthalate	NELAP,DoD-ELAP
2,6-Dinitrotoluene	NELAP,DoD-ELAP
Acenaphthene	NELAP,DoD-ELAP
3-Nitroaniline	NELAP,DoD-ELAP
2,4-Dinitrophenol	NELAP,DoD-ELAP

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Dibenzofuran	NELAP,DoD-ELAP
4-Nitrophenol	NELAP,DoD-ELAP
2,4-Dinitrotoluene	NELAP,DoD-ELAP
Fluorene	NELAP,DoD-ELAP
4-Chlorophenylphenyl ether	NELAP,DoD-ELAP
Diethyl phthalate	NELAP,DoD-ELAP
4-Nitroaniline	NELAP,DoD-ELAP
4,6-Dinitro-2-methylphenol	NELAP,DoD-ELAP
N-Nitrosodiphenylamine	NELAP,DoD-ELAP
4-Bromophenyl phenyl ether	NELAP,DoD-ELAP
Hexachlorobenzene	NELAP,DoD-ELAP
Pentachlorophenol	NELAP,DoD-ELAP
Phenanthrene	NELAP,DoD-ELAP
Anthracene	NELAP,DoD-ELAP
Carbazole	NELAP,DoD-ELAP
Di-n-Butylphthalate	NELAP,DoD-ELAP
Fluoranthene	NELAP,DoD-ELAP
Pyrene	NELAP,DoD-ELAP
Butylbenzylphthalate	NELAP,DoD-ELAP
Benzo(a)anthracene	NELAP,DoD-ELAP
3,3'-Dichlorobenzidine	NELAP,DoD-ELAP
Chrysene	NELAP,DoD-ELAP
bis(2-Ethylhexyl)phthalate	NELAP,DoD-ELAP
Di-n-Octylphthalate	NELAP,DoD-ELAP
Benzo(b)fluoranthene	NELAP,DoD-ELAP
Benzo(k)fluoranthene	NELAP,DoD-ELAP
Benzofluoranthenes, Total	NELAP
Benzo(a)pyrene	NELAP,DoD-ELAP
Indeno(1,2,3-cd)pyrene	NELAP,DoD-ELAP
Dibenzo(a,h)anthracene	NELAP,DoD-ELAP
Benzo(g,h,i)perylene	NELAP,DoD-ELAP
N-Nitrosodimethylamine	NELAP,DoD-ELAP
1-Methylnaphthalene	NELAP,DoD-ELAP

EPA 8270E-SIM in Water

Naphthalene	ADEC,DoD-ELAP,NELAP,WADOE
2-Methylnaphthalene	ADEC,DoD-ELAP,NELAP
1-Methylnaphthalene	ADEC,DoD-ELAP,NELAP,WADOE
Biphenyl	NELAP
Acenaphthylene	ADEC,DoD-ELAP,NELAP,WADOE

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Acenaphthene	ADEC,DoD-ELAP,NELAP,WADOE
Dibenzofuran	ADEC,DoD-ELAP,NELAP
Fluorene	ADEC,DoD-ELAP,NELAP,WADOE
Phenanthrene	ADEC,DoD-ELAP,NELAP,WADOE
Anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Carbazole	NELAP
Fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(a)anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Chrysene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(b)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(k)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(j)fluoranthene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(e)pyrene	NELAP
Benzo(a)pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Perylene	ADEC,NELAP
Indeno(1,2,3-cd)pyrene	ADEC,DoD-ELAP,NELAP,WADOE
Dibenzo(a,h)anthracene	ADEC,DoD-ELAP,NELAP,WADOE
Benzo(g,h,i)perylene	ADEC,DoD-ELAP,NELAP,WADOE

NWTPH-Dx in Water

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE

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Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

NWTPHg in Water

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP

SM 3500-Cr B-09 in Water

Hexavalent Chromium	WADOE,NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	02/28/2022
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2022
WADOE	WA Dept of Ecology	C558	06/30/2022
WA-DW	Ecology - Drinking Water	C558	06/30/2022

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Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
D1	Surrogate was not detected due to sample extract dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
HC	The natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
J	Estimated concentration value detected below the reporting limit.
L	Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to +/- RL instead of 20% RPD
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Draft for Public Comment

Analytical Resources, Incorporated
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29 September 2021

Meg Strong
Shannon & Wilson, Inc
400 N 34th St., Suite 100
Seattle, WA 98103-8636

RE: Lower Duwamish Q3

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
21H0367	N/A

Shelly Fishel

Digitally signed by Shelly Fishel
Date: 2021.09.29 14:19:46 -07'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Shelly Fishel, Project Manager

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21H0367	Turn-around Requested: Standard
ARI Client Company: Shannon & Wilson	Phone:
Client Contact: Shoshana Howard	
Client Project Name: LDW	
Client Project #: 21-1-12596-012	Samplers: IxS, KwP,

Page: 1 of 1

Date: 8/30 | Ice Present? Yes

No. of Coolers: 3 | Cooler Temps: See COC

Analytical Resources, Incorporated
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206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	TPH-G	TPH-Dx	BTEX	HVOCs	MTBE	PAHs	Full Dist SVOC	LTD SVOCs	PCB Aroclors	Metals (Total/Diss)	Hex Chrome	Nat. Attn. Parameters			Notes/Comments
MW-3-20213008	8/30	0900	GW	11	X	X	X	X						①					① Pb ② As, Mn, Ni, Cd, Cu, Pb, Hg, Se, Ag, Zn ③ As, Ni, Hg, Se, Ag, Zn
MW-4-20213008		0945		9	X	X	X		X					②					
MW-8-20213008		1045		9	X	X	X		X					③					
[redacted]																			
MW-56-20213008		15:00		18		X	X	X		X				X					
TB-10-20213008		1420		5			X	X	X										

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
* Lab to filter for Dissolved Metals * Refer to Project Methods and Analytes List	(Signature) Kyle Printup	(Signature)	(Signature)	(Signature)
	Printed Name:	Printed Name: Jacob Lathe	Printed Name:	Printed Name:
	Company: Shannon Wilson	Company: ARI	Company:	Company:
	Date & Time: 1541 8/30/21	Date & Time: 08/30/2021 1541	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

RE: LDW Q3 Receiving Documentation 21H0367

Shoshana Howard <SKH@shanwil.com>

Wed 9/1/2021 2:45 PM

To: Shelly Fishel <shelly.fishel@arilabs.com>

Hi Shelly,

For MW-3, please add MTBE. The field team forgot to mark that on the COC.
Yes, you were correct regarding MW-56; that should have been marked on the COC for natural attenuation parameters.

Thanks!

Shoshana

Shoshana Howard, PE | Senior Engineer
400 N. 34th St., Suite 100
Seattle, WA 98103-8636
www.shannonwilson.com
Phone: (206) 632-8020 Fax: (206) 695-6777
Direct: (206) 695-6811 skh@shanwil.com

From: Shelly Fishel <shelly.fishel@arilabs.com>
Sent: Monday, August 30, 2021 7:38 PM
To: Shoshana Howard <SKH@shanwil.com>
Subject: LDW Q3 Receiving Documentation 21H0367

Hello Shoshana,

ARI received four monitoring well samples and one trip blank which were logged in under ARI work order 21H0367. MW-56-20213008 did not have Natural Attenuation Parameters checked on the COC. We logged the sample for these analysis because of short hold time as well as receiving sample volume for these tests. The samples were intact and within temperature compliance. Receiving documentation is attached. Please review for accuracy. Let me know if you need anything. Have a wonderful day!

Be safe and stay healthy!

Regards,

Shelly Fishel

Project Manager

Analytical Resources, Inc.
4611 S. 134th Place, Suite 100

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-3-20213008	21H0367-01	Water	30-Aug-2021 09:00	30-Aug-2021 15:41
MW-3-20213008	21H0367-02	Water	30-Aug-2021 09:00	30-Aug-2021 15:41
MW-4-20213008	21H0367-03	Water	30-Aug-2021 09:45	30-Aug-2021 15:41
MW-4-20213008	21H0367-04	Water	30-Aug-2021 09:45	30-Aug-2021 15:41
MW-8-20213008	21H0367-05	Water	30-Aug-2021 10:45	30-Aug-2021 15:41
MW-8-20213008	21H0367-06	Water	30-Aug-2021 10:45	30-Aug-2021 15:41
MW-56-20213008	21H0367-07	Water	30-Aug-2021 15:00	30-Aug-2021 15:41
MW-56-20213008	21H0367-08	Water	30-Aug-2021 15:00	30-Aug-2021 15:41
TB-10-20213000	21H0367-09	Water	30-Aug-2021 14:20	30-Aug-2021 15:41

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish Q3
Work Order: 21H0367

Sample receipt

Samples as listed on the preceding page were received 30-Aug-2021 15:41 under ARI work order 21H0367. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Gasoline by NWTPH-g (GC/MS)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

No addition volume provided for MS/MSD.

Volatiles - EPA Method SW8260D

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

No additional volume was provided for matrix QC.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

Volatiles - EPA Method 8260D-SIM (Selected Ion Monitoring)

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits except Vinyl Chloride LCS/LCSD RPD which has been flagged.

No additional volume was provided for matrix QC.

Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270E-SIM

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

No additional volume was provided for matrix QC.

Total and Dissolved Metals - EPA Method 6020B

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

Sample specific QC was performed in association with sample 21H0367-08 in Dissolved Metals batch BJI0387. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and RPD were within advisory control limits except Dissolved Iron percent recovery which was out of control low in the MSD and has been flagged.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times except Sulfite. The Sulfite holding time was exceeded upon sample receipt and has been flagged.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits except Sulfite which was out of control high and has been flagged.

Sample specific QC was performed in association with sample 21H0367-07 in Sulfite batch BJH0769, Ferrous Iron batch BJH0771 and Anions batch BJH0772. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike (MS) spike recoveries were within advisory control limits.

Total and Dissolved Mercury - EPA Method 7470/7471

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21H0367-04 in Dissolved Mercury batch. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits.

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

No additional volume was provided for matrix QC.

The analyst noted that the samples look like light oils based upon the early elution within the Diesel range.

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 8/30/2021 04:51:20PM

WORK ORDER

21H0367

Client: Shannon & Wilson, Inc
Project Manager: Shelly Fishel

Project: Lower Duwamish Q3
Project Number: 21-1-12596-012

Preservation Confirmation

Container ID	Container Type	pH
21H0367-01 A	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21H0367-01 B	Glass NM, Amber, 500 mL	
21H0367-01 C	Glass NM, Amber, 500 mL	
21H0367-01 D	VOA Vial, Clear, 40 mL, HCL	
21H0367-01 E	VOA Vial, Clear, 40 mL, HCL	
21H0367-01 F	VOA Vial, Clear, 40 mL, HCL	
21H0367-01 G	VOA Vial, Clear, 40 mL, HCL	
21H0367-01 H	VOA Vial, Clear, 40 mL, HCL	
21H0367-01 I	VOA Vial, Clear, 40 mL, HCL	
21H0367-01 J	VOA Vial, Clear, 40 mL, HCL	
21H0367-02 A	HDPE NM, 500 mL	
21H0367-03 A	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21H0367-03 B	Glass NM, Amber, 500 mL	
21H0367-03 C	Glass NM, Amber, 500 mL	
21H0367-03 D	VOA Vial, Clear, 40 mL, HCL	
21H0367-03 E	VOA Vial, Clear, 40 mL, HCL	
21H0367-03 F	VOA Vial, Clear, 40 mL, HCL	
21H0367-03 G	VOA Vial, Clear, 40 mL, HCL	
21H0367-03 H	VOA Vial, Clear, 40 mL, HCL	
21H0367-04 A	HDPE NM, 500 mL	
21H0367-05 A	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21H0367-05 B	Glass NM, Amber, 500 mL	
21H0367-05 C	Glass NM, Amber, 500 mL	
21H0367-05 D	VOA Vial, Clear, 40 mL, HCL	
21H0367-05 E	VOA Vial, Clear, 40 mL, HCL	
21H0367-05 F	VOA Vial, Clear, 40 mL, HCL	
21H0367-05 G	VOA Vial, Clear, 40 mL, HCL	
21H0367-05 H	VOA Vial, Clear, 40 mL, HCL	
21H0367-06 A	HDPE NM, 500 mL	
21H0367-07 A	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21H0367-07 B	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21H0367-07 C	HDPE NM, 500 mL	
21H0367-07 D	HDPE NM, 500 mL	
21H0367-07 E	Small OJ, 500 mL, EDTA	lab to verify
21H0367-07 F	Glass NM, Amber, 500 mL, HCl	lab to verify

Reviewed By

Date

Draft for Public Comment

WORK ORDER

21H0367

Client: Shannon & Wilson, Inc | **Project Manager: Shelly Fishel**

Project: Lower Duwamish Q3 | **Project Number: 21-1-12596-012**

21H0367-07 G	Glass NM, Amber, 500 mL
21H0367-07 H	Glass NM, Amber, 500 mL
21H0367-07 I	Glass NM, Amber, 500 mL
21H0367-07 J	Glass NM, Amber, 500 mL
21H0367-07 K	VOA Vial, Clear, 40 mL, HCL
21H0367-07 L	VOA Vial, Clear, 40 mL, HCL
21H0367-07 M	VOA Vial, Clear, 40 mL, HCL
21H0367-07 N	VOA Vial, Clear, 40 mL, HCL
21H0367-07 O	VOA Vial, Clear, 40 mL, HCL
21H0367-07 P	VOA Vial, Clear, 40 mL, HCL
21H0367-07 Q	VOA Vial, Clear, 40 mL, HCL
21H0367-08 A	HDPE NM, 500 mL
21H0367-09 A	VOA Vial, Clear, 40 mL, HCL
21H0367-09 B	VOA Vial, Clear, 40 mL, HCL
21H0367-09 C	VOA Vial, Clear, 40 mL, HCL
21H0367-09 D	VOA Vial, Clear, 40 mL, HCL
21H0367-09 E	VOA Vial, Clear, 40 mL, HCL

NL — Preservation Confirmed By

08/30/21 — Date

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Shannon & Wilson Project Name: Lower Duwamish

COC No(s): NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Assigned ARI Job No: 21H0367 Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1541 4.1 4.8 5.4 ___ ___ ___

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO 5206

Cooler Accepted by: JS Date: 08/30/2021 Time: 1541

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	YES	NO
How were bottles sealed in plastic bags?	Individually	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Were the sample(s) split by ARI? NA YES Date/Time: ___ Equipment: ___ Split by: ___

Samples Logged by: DL Date: 08/30/21 Time: 1619 Labels checked by: ___

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-3-20213008

21H0367-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/30/2021 09:00
Instrument: NT2 Analyst: PKC — Analyzed: 09/06/2021 14:59

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0367-01 H
Preparation Batch: BJI0148 — Sample Size: 10 mL
Prepared: 09/06/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.09	ug/L	J
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	0.14	ug/L	J
m,p-Xylene	179601-23-1	1	0.14	0.40	0.16	ug/L	J
o-Xylene	95-47-6	1	0.08	0.20	0.14	ug/L	J
Xylenes, total	1330-20-7	1	0.22	0.60	0.30	ug/L	J
Methyl tert-butyl Ether	1634-04-4	1	0.14	0.50	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*100*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*100*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.8*	*%*	

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-3-20213008

21H0367-01 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/30/2021 09:00
Instrument: NT2 Analyst: PKC — Analyzed: 09/06/2021 14:59

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0367-01 H
Preparation Batch: BJI0148 — Sample Size: 10 mL
Prepared: 09/06/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	536	ug/L	
HC ID: GAS						
Surrogate: Toluene-d8			*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*100*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-3-20213008

21H0367-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/30/2021 09:00
Instrument: NT16 Analyst: PB — Analyzed: 09/06/2021 16:44

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0367-01 G
Preparation Batch: BJI0132 — Sample Size: 10 mL
Prepared: 09/06/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*113*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*96.4*	*%*	

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-3-20213008

21H0367-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/30/2021 09:00
Instrument: FID4 Analyst: CTO — Analyzed: 09/17/2021 21:28

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0367-01 B 01
Preparation Batch: BJI0072 — Sample Size: 500 mL
Prepared: 09/03/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*71.4*	*%*	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-3-20213008

21H0367-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/30/2021 09:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/08/2021 19:47

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0367-01 A 01
Preparation Batch: BJI0217 — Sample Size: 25 mL
Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0513	0.100	0.165	ug/L	

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-3-20213008

21H0367-02 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/30/2021 09:00
Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/16/2021 20:39

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0367-02 A 01
Preparation Batch: BJI0387 — Sample Size: 25 mL — Filtration Batch: BJH0796
Prepared: 09/14/2021 — Final Volume: 25 mL — Filtration Date: 08/31/2021 11:09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-4-20213008

21H0367-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/30/2021 09:45
Instrument: NT2 Analyst: PKC — Analyzed: 09/06/2021 15:20

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0367-03 F
Preparation Batch: BJI0148 — Sample Size: 10 mL
Prepared: 09/06/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.31	ug/L	
Ethylbenzene	100-41-4	1	0.05	0.20	0.13	ug/L	J
m,p-Xylene	179601-23-1	1	0.14	0.40	0.28	ug/L	J
o-Xylene	95-47-6	1	0.08	0.20	0.11	ug/L	J
Xylenes, total	1330-20-7	1	0.22	0.60	0.39	ug/L	J
Methyl tert-butyl Ether	1634-04-4	1	0.14	0.50	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*129*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*118*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*100*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*102*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-4-20213008

21H0367-03 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/30/2021 09:45

Instrument: NT2 Analyst: PKC — Analyzed: 09/06/2021 15:20

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0367-03 F

Preparation Batch: BJI0148 — Sample Size: 10 mL

Prepared: 09/06/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	2960	ug/L	
HC ID: GAS						
Surrogate: Toluene-d8			*80-120 %*	*118*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*100*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-4-20213008

21H0367-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/30/2021 09:45
Instrument: FID4 Analyst: CTO — Analyzed: 09/17/2021 21:48

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0367-03 B 01
Preparation Batch: BJI0072 — Sample Size: 500 mL
Prepared: 09/03/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.196	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*84.9*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-4-20213008

21H0367-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/30/2021 09:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/08/2021 21:21

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0367-03 A 01
Preparation Batch: BJI0217 — Sample Size: 25 mL
Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0513	0.100	0.357	ug/L	
Manganese	7439-96-5	1	0.142	0.500	140	ug/L	
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-4-20213008

21H0367-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/30/2021 09:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/08/2021 21:21

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0367-03 A 01
Preparation Batch: BJI0217 — Sample Size: 25 mL
Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	3.04	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.173	0.500	1.18	ug/L	
Nickel	7440-02-0	1	0.0792	0.500	0.875	ug/L	
Selenium	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-4-20213008

21H0367-03 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/30/2021 09:45
Instrument: HYDRA Analyst: ML — Analyzed: 09/14/2021 14:02

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0367-03 A
Preparation Batch: BJI0293 — Sample Size: 20 mL
Prepared: 09/10/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	0.000043	mg/L	J

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-4-20213008

21H0367-03RE1 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/30/2021 09:45
Instrument: NT2 Analyst: PKC — Analyzed: 09/07/2021 13:11

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0367-03RE1 G
Preparation Batch: BJI0168 — Sample Size: 2 mL
Prepared: 09/07/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.27	1.00	ND	ug/L	U
Toluene	108-88-3	1	0.24	1.00	0.34	ug/L	J
Ethylbenzene	100-41-4	1	0.25	1.00	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.72	2.00	ND	ug/L	U
o-Xylene	95-47-6	1	0.39	1.00	ND	ug/L	U
Xylenes, total	1330-20-7	1	1.09	3.00	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.70	2.50	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*121*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*106*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*98.4*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-4-20213008

21H0367-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/30/2021 09:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/15/2021 22:36

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0367-04 A 02
Preparation Batch: BJI0387 — Sample Size: 25 mL — Filtration Batch: BJH0796
Prepared: 09/14/2021 — Final Volume: 25 mL — Filtration Date: 08/31/2021 11:09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	1	0.142	0.500	114	ug/L	
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/16/2021 22:53

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0367-04 A 01
Preparation Batch: BJI0387 — Sample Size: 25 mL — Filtration Batch: BJH0796
Prepared: 09/14/2021 — Final Volume: 25 mL — Filtration Date: 08/31/2021 11:09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-4-20213008

21H0367-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/30/2021 09:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/15/2021 22:36

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0367-04 A 02
Preparation Batch: BJI0387 — Sample Size: 25 mL — Filtration Batch: BJH0796
Prepared: 09/14/2021 — Final Volume: 25 mL — Filtration Date: 08/31/2021 11:09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	1.43	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.173	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	0.556	ug/L	
Selenium, Dissolved	7782-49-2	1	0.179	0.500	0.404	ug/L	J
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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21H0367-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/30/2021 09:45
Instrument: HYDRA Analyst: ML — Analyzed: 09/14/2021 15:10

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0367-04 A 01
Preparation Batch: BJI0347 — Sample Size: 20 mL — Filtration Batch: BJH0796
Prepared: 09/13/2021 — Final Volume: 20 mL — Filtration Date: 08/31/2021 11:09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	0.000020	mg/L	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-8-20213008

21H0367-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/30/2021 10:45
Instrument: NT2 Analyst: PKC — Analyzed: 09/06/2021 15:40

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0367-05 F
Preparation Batch: BJI0148 — Sample Size: 10 mL
Prepared: 09/06/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.10	ug/L	J
Ethylbenzene	100-41-4	1	0.05	0.20	0.15	ug/L	J
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.14	0.50	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*106*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*99.6*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-8-20213008

21H0367-05 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 08/30/2021 10:45
Instrument: NT2 Analyst: PKC — Analyzed: 09/06/2021 15:40

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0367-05 F
Preparation Batch: BJI0148 — Sample Size: 10 mL
Prepared: 09/06/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*99.6*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-8-20213008

21H0367-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/30/2021 10:45

Instrument: FID4 Analyst: CTO — Analyzed: 09/17/2021 22:08

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0367-05 B 01

Preparation Batch: BJI0072 — Sample Size: 500 mL

Prepared: 09/03/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.100	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*112*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

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21H0367-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/30/2021 10:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/08/2021 21:25

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0367-05 A 01
Preparation Batch: BJI0217 — Sample Size: 25 mL
Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

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21H0367-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/30/2021 10:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/08/2021 21:25

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0367-05 A 01
Preparation Batch: BJI0217 — Sample Size: 25 mL
Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	18.8	ug/L	
Nickel	7440-02-0	1	0.0792	0.500	1.09	ug/L	
Selenium	7782-49-2	1	0.179	0.500	0.198	ug/L	J
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

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21H0367-05 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/30/2021 10:45
Instrument: HYDRA Analyst: ML — Analyzed: 09/14/2021 14:09

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0367-05 A
Preparation Batch: BJI0293 — Sample Size: 20 mL
Prepared: 09/10/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	0.000043	mg/L	J

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MW-8-20213008

21H0367-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/30/2021 10:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/15/2021 23:20

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0367-06 A 02
Preparation Batch: BJI0387 — Sample Size: 25 mL — Filtration Batch: BJH0796
Prepared: 09/14/2021 — Final Volume: 25 mL — Filtration Date: 08/31/2021 11:09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-8-20213008

21H0367-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/30/2021 10:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/15/2021 23:20

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0367-06 A 02
Preparation Batch: BJI0387 — Sample Size: 25 mL — Filtration Batch: BJH0796
Prepared: 09/14/2021 — Final Volume: 25 mL — Filtration Date: 08/31/2021 11:09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	16.2	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	0.892	ug/L	
Selenium, Dissolved	7782-49-2	1	0.179	0.500	0.392	ug/L	J
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-8-20213008

21H0367-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/30/2021 10:45
Instrument: HYDRA Analyst: ML — Analyzed: 09/14/2021 15:19

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0367-06 A 01
Preparation Batch: BJI0347 — Sample Size: 20 mL — Filtration Batch: BJH0796
Prepared: 09/13/2021 — Final Volume: 20 mL — Filtration Date: 08/31/2021 11:09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	0.000022	mg/L	J

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Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-56-20213008

21H0367-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/30/2021 15:00
Instrument: NT2 Analyst: PKC — Analyzed: 09/06/2021 16:01

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0367-07 O
Preparation Batch: BJI0148 — Sample Size: 10 mL
Prepared: 09/06/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*96.7*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.6*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-56-20213008

21H0367-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/30/2021 15:00

Instrument: NT16 Analyst: PB — Analyzed: 09/06/2021 17:04

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0367-07 Q

Preparation Batch: BJI0132 — Sample Size: 10 mL

Prepared: 09/06/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	ND	ng/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*107*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*93.6*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-56-20213008

21H0367-07 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 08/30/2021 15:00

Instrument: FID6 Analyst: LH — Analyzed: 09/03/2021 12:07

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0367-07 N

Preparation Batch: BJI0109 — Sample Size: 10 mL

Prepared: 09/03/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	5580	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*72-122 %*	*87.9*	*%*	

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MW-56-20213008

21H0367-07 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 08/30/2021 15:00
Instrument: NT11 Analyst: VTS — Analyzed: 09/25/2021 13:07

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0367-07 I 01
Preparation Batch: BJI0106 — Sample Size: 500 mL
Prepared: 09/06/2021 — Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 21H0367-07 I 01
Cleanup Batch: CJI0196 — Initial Volume: 0.5 mL
Cleaned: 24-Sep-2021 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.006	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.003	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.002	ug/L	J
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	0.053	ug/L	
Dibenzofuran	132-64-9	1	0.002	0.010	0.003	ug/L	J
Fluorene	86-73-7	1	0.002	0.010	0.004	ug/L	J
Phenanthrene	85-01-8	1	0.001	0.010	0.005	ug/L	J
Anthracene	120-12-7	1	0.001	0.010	0.002	ug/L	J
Carbazole	86-74-8	1	0.001	0.010	0.002	ug/L	J
Fluoranthene	206-44-0	1	0.002	0.010	0.005	ug/L	J
Pyrene	129-00-0	1	0.001	0.010	0.004	ug/L	J
Benzo(a)anthracene	56-55-3	1	0.0008	0.010	0.001	ug/L	J
Chrysene	218-01-9	1	0.0009	0.010	0.002	ug/L	J
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.010	0.001	ug/L	J
Benzo(k)fluoranthene	207-08-9	1	0.003	0.010	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.010	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.010	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.002	0.010	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.010	0.007	ug/L	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.010	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.010	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.001	0.010	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*78.9*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*90.9*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*90.8*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-56-20213008

21H0367-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 08/30/2021 15:00
Instrument: FID4 Analyst: CTO — Analyzed: 09/17/2021 22:28

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21H0367-07 G 01
Preparation Batch: BJI0072 — Sample Size: 500 mL
Prepared: 09/03/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*98.8*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-56-20213008

21H0367-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/30/2021 15:00

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/08/2021 21:29

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0367-07 B 01

Preparation Batch: BJI0217 — Sample Size: 25 mL

Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.114	0.500	6.51	ug/L	
Chromium	7440-47-3	1	0.260	0.500	0.770	ug/L	
Lead	7439-92-1	1	0.0513	0.100	0.528	ug/L	
Manganese	7439-96-5	5	0.710	2.50	595	ug/L	D
Silver	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium	7440-62-2	1	0.0556	0.200	3.52	ug/L	

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-56-20213008

21H0367-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 08/30/2021 15:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/08/2021 21:29

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0367-07 B 01
Preparation Batch: BJI0217 — Sample Size: 25 mL
Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0373	0.200	2.52	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt	7440-48-4	1	0.0178	0.200	0.284	ug/L	
Copper	7440-50-8	1	0.173	0.500	0.971	ug/L	
Nickel	7440-02-0	1	0.0792	0.500	0.424	ug/L	J
Selenium	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-56-20213008

21H0367-07 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 08/30/2021 15:00

Instrument: HYDRA Analyst: ML — Analyzed: 09/14/2021 14:12

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0367-07 B

Preparation Batch: BJI0293 — Sample Size: 20 mL

Prepared: 09/10/2021 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.000013	0.000100	0.000038	mg/L	J

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MW-56-20213008

21H0367-07 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 08/30/2021 15:00

Instrument: IC930 Analyst: CDE — Analyzed: 08/30/2021 20:43

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0367-07 D

Preparation Batch: BJH0772 — Sample Size: 10 mL

Prepared: 08/30/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	0.100	0.100	3.93	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrite-N	14797-65-0	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	0.134	mg/L	

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MW-56-20213008

21H0367-07 (Water)

Wet Chemistry

Method: SM 3500-Fe B-97 — Sampled: 08/30/2021 15:00

Instrument: UV1800-2 Analyst: BF — Analyzed: 08/30/2021 18:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0367-07 F

Preparation Batch: BJH0771 — Sample Size: 5 mL

Prepared: 08/30/2021 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ferrous Iron		20	0.800	0.800	35.8	mg/L	D

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Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-56-20213008

21H0367-07 (Water)

Wet Chemistry

Method: SM 4500-SO3 B-00 — Sampled: 08/30/2021 15:00

Instrument: N/A Analyst: CDE — Analyzed: 08/30/2021 17:31

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21H0367-07

Preparation Batch: BJH0769 — Sample Size: 50 mL

Prepared: 08/30/2021 — Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfite	14265-45-3	1	1.4	1.4	ND	mg/L	H, U

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-56-20213008

21H0367-07RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 08/30/2021 15:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/10/2021 17:25

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0367-07RE1 B 01
Preparation Batch: BJI0217 — Sample Size: 25 mL
Prepared: 09/08/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	5	91.0	180	34600	ug/L	D

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-56-20213008

21H0367-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/30/2021 15:00

Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/15/2021 22:41

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0367-08 A 02

Preparation Batch: BJI0387 — Sample Size: 25 mL — Filtration Batch: BJH0796

Prepared: 09/14/2021 — Final Volume: 25 mL — Filtration Date: 08/31/2021 11:09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.114	0.500	0.164	ug/L	J
Chromium, Dissolved	7440-47-3	1	0.260	0.500	ND	ug/L	U
Iron, Dissolved	7439-89-6	1	18.2	36.0	14400	ug/L	
Silver, Dissolved	7440-22-4	1	0.0220	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0556	0.200	0.203	ug/L	

Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/16/2021 19:35

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0367-08 A 01

Preparation Batch: BJI0387 — Sample Size: 25 mL — Filtration Batch: BJH0796

Prepared: 09/14/2021 — Final Volume: 25 mL — Filtration Date: 08/31/2021 11:09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead, Dissolved	7439-92-1	1	0.0513	0.100	ND	ug/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-56-20213008

21H0367-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 08/30/2021 15:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 09/15/2021 22:41

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0367-08 A 02
Preparation Batch: BJI0387 — Sample Size: 25 mL — Filtration Batch: BJH0796
Prepared: 09/14/2021 — Final Volume: 25 mL — Filtration Date: 08/31/2021 11:09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0373	0.200	1.40	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0178	0.200	0.162	ug/L	J
Copper, Dissolved	7440-50-8	1	0.173	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0792	0.500	0.146	ug/L	J
Selenium, Dissolved	7782-49-2	1	0.179	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	2.92	6.00	ND	ug/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-56-20213008

21H0367-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 08/30/2021 15:00
Instrument: HYDRA Analyst: ML — Analyzed: 09/14/2021 15:21

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21H0367-08 A 01
Preparation Batch: BJI0347 — Sample Size: 20 mL — Filtration Batch: BJH0796
Prepared: 09/13/2021 — Final Volume: 20 mL — Filtration Date: 08/31/2021 11:09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury, Dissolved	7439-97-6	1	0.000013	0.000100	0.000025	mg/L	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

MW-56-20213008

21H0367-08RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 08/30/2021 15:00
Instrument: ICPMS2 Analyst: MCB — Analyzed: 09/16/2021 21:49

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21H0367-08RE1 A 01
Preparation Batch: BJI0387 — Sample Size: 25 mL — Filtration Batch: BJH0796
Prepared: 09/14/2021 — Final Volume: 25 mL — Filtration Date: 08/31/2021 11:09

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	5	0.710	2.50	525	ug/L	D

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

TB-10-20213000

21H0367-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 08/30/2021 14:20

Instrument: NT2 Analyst: PKC — Analyzed: 09/06/2021 13:15

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0367-09 E

Preparation Batch: BJI0148 — Sample Size: 10 mL

Prepared: 09/06/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.11	ug/L	J
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.14	0.50	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*100*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.5*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*94.2*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.3*	*%*	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

TB-10-20213000

21H0367-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 08/30/2021 14:20

Instrument: NT16 Analyst: PB — Analyzed: 09/06/2021 17:25

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21H0367-09 D

Preparation Batch: BJI0132 — Sample Size: 10 mL

Prepared: 09/06/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	5.01	20.0	26.4	ng/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*109*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*93.9*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

Volatile Organic Compounds - Quality Control

Batch BJI0148 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0148-BLK1)				Prepared: 06-Sep-2021 Analyzed: 06-Sep-2021 12:32							
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							U
Surrogate: Toluene-d8	4.91			ug/L	*5.00*		*98.1*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.84			ug/L	*5.00*		*96.9*	*80-120*			
Blank (BJI0148-BLK2)				Prepared: 06-Sep-2021 Analyzed: 06-Sep-2021 12:32							
Vinyl Chloride	ND	0.08	0.20	ug/L							U
1,1-Dichloroethene	ND	0.08	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.07	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Benzene	ND	0.05	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
Toluene	ND	0.05	0.20	ug/L							U
Tetrachloroethene	ND	0.09	0.20	ug/L							U
Ethylbenzene	ND	0.05	0.20	ug/L							U
m,p-Xylene	ND	0.14	0.40	ug/L							U
o-Xylene	ND	0.08	0.20	ug/L							U
Xylenes, total	ND	0.22	0.60	ug/L							U
Methyl tert-butyl Ether	ND	0.14	0.50	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.19			ug/L	*5.00*		*104*	*80-129*			
Surrogate: Toluene-d8	4.91			ug/L	*5.00*		*98.1*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.84			ug/L	*5.00*		*96.9*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.06			ug/L	*5.00*		*101*	*80-120*			
LCS (BJI0148-BS1)				Prepared: 06-Sep-2021 Analyzed: 06-Sep-2021 10:50							
Gasoline Range Organics (Tol-Nap)	1010		100	ug/L	1000		101	72-128			
Surrogate: Toluene-d8	5.03			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.86			ug/L	*5.00*		*97.2*	*80-120*			
LCS (BJI0148-BS2)				Prepared: 06-Sep-2021 Analyzed: 06-Sep-2021 11:10							
Vinyl Chloride	10.5	0.08	0.20	ug/L	10.0		105	66-133			
1,1-Dichloroethene	10.7	0.08	0.20	ug/L	10.0		107	69-135			
trans-1,2-Dichloroethene	10.1	0.07	0.20	ug/L	10.0		101	78-128			
cis-1,2-Dichloroethene	10.5	0.08	0.20	ug/L	10.0		105	80-121			
Benzene	10.2	0.05	0.20	ug/L	10.0		102	80-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

Volatile Organic Compounds - Quality Control

Batch BJI0148 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0148-BS2)					Prepared: 06-Sep-2021 Analyzed: 06-Sep-2021 11:10						
Trichloroethene	9.99	0.07	0.20	ug/L	10.0		99.9	80-120			
Toluene	9.91	0.05	0.20	ug/L	10.0		99.1	80-120			
Tetrachloroethene	9.99	0.09	0.20	ug/L	10.0		99.9	80-120			
Ethylbenzene	10.0	0.05	0.20	ug/L	10.0		100	80-120			
m,p-Xylene	20.3	0.14	0.40	ug/L	20.0		101	80-121			
o-Xylene	10.1	0.08	0.20	ug/L	10.0		101	80-121			
Xylenes, total	30.4	0.22	0.60	ug/L	30.0		101	76-127			
Methyl tert-butyl Ether	10.5	0.14	0.50	ug/L	10.0		105	71-132			
Surrogate: 1,2-Dichloroethane-d4	5.25			ug/L	*5.00*		*105*	*80-129*			
Surrogate: Toluene-d8	5.06			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.02			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.02			ug/L	*5.00*		*100*	*80-120*			
LCS Dup (BJI0148-BSD1)					Prepared: 06-Sep-2021 Analyzed: 06-Sep-2021 11:31						
Gasoline Range Organics (Tol-Nap)	931		100	ug/L	1000		93.1	72-128	8.36	30	
Surrogate: Toluene-d8	4.99			ug/L	*5.00*		*99.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.84			ug/L	*5.00*		*96.9*	*80-120*			
LCS Dup (BJI0148-BSD2)					Prepared: 06-Sep-2021 Analyzed: 06-Sep-2021 11:51						
Vinyl Chloride	10.2	0.08	0.20	ug/L	10.0		102	66-133	2.68	30	
1,1-Dichloroethene	10.4	0.08	0.20	ug/L	10.0		104	69-135	2.86	30	
trans-1,2-Dichloroethene	9.72	0.07	0.20	ug/L	10.0		97.2	78-128	4.28	30	
cis-1,2-Dichloroethene	10.0	0.08	0.20	ug/L	10.0		100	80-121	4.20	30	
Benzene	10.2	0.05	0.20	ug/L	10.0		102	80-120	0.20	30	
Trichloroethene	10.3	0.07	0.20	ug/L	10.0		103	80-120	3.14	30	
Toluene	9.87	0.05	0.20	ug/L	10.0		98.7	80-120	0.37	30	
Tetrachloroethene	10.0	0.09	0.20	ug/L	10.0		100	80-120	0.18	30	
Ethylbenzene	9.84	0.05	0.20	ug/L	10.0		98.4	80-120	1.86	30	
m,p-Xylene	20.1	0.14	0.40	ug/L	20.0		101	80-121	0.71	30	
o-Xylene	9.96	0.08	0.20	ug/L	10.0		99.6	80-121	1.36	30	
Xylenes, total	30.1	0.22	0.60	ug/L	30.0		100	76-127	0.93	30	
Methyl tert-butyl Ether	10.2	0.14	0.50	ug/L	10.0		102	71-132	2.55	30	
Surrogate: 1,2-Dichloroethane-d4	5.26			ug/L	*5.00*		*105*	*80-129*			
Surrogate: Toluene-d8	5.04			ug/L	*5.00*		*101*	*80-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

Volatile Organic Compounds - Quality Control

Batch BJI0148 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJI0148-BSD2)				Prepared: 06-Sep-2021 Analyzed: 06-Sep-2021 11:51							
Surrogate: 4-Bromofluorobenzene	5.15			ug/L	*5.00*		*103*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.05			ug/L	*5.00*		*101*	*80-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

Volatile Organic Compounds - Quality Control

Batch BJI0168 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0168-BLK2)				Prepared: 07-Sep-2021 Analyzed: 07-Sep-2021 12:07							
Benzene	ND	0.05	0.20	ug/L							U
Toluene	ND	0.05	0.20	ug/L							U
Ethylbenzene	ND	0.05	0.20	ug/L							U
m,p-Xylene	ND	0.14	0.40	ug/L							U
o-Xylene	ND	0.08	0.20	ug/L							U
Xylenes, total	ND	0.22	0.60	ug/L							U
Methyl tert-butyl Ether	ND	0.14	0.50	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.30			ug/L	*5.00*		*106*	*80-129*			
Surrogate: Toluene-d8	4.88			ug/L	*5.00*		*97.7*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.78			ug/L	*5.00*		*95.5*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.10			ug/L	*5.00*		*102*	*80-120*			
LCS (BJI0168-BS2)				Prepared: 07-Sep-2021 Analyzed: 07-Sep-2021 10:45							
Benzene	9.91	0.05	0.20	ug/L	10.0		99.1	80-120			
Toluene	9.59	0.05	0.20	ug/L	10.0		95.9	80-120			
Ethylbenzene	9.72	0.05	0.20	ug/L	10.0		97.2	80-120			
m,p-Xylene	20.0	0.14	0.40	ug/L	20.0		100	80-121			
o-Xylene	9.74	0.08	0.20	ug/L	10.0		97.4	80-121			
Xylenes, total	29.7	0.22	0.60	ug/L	30.0		99.2	76-127			
Methyl tert-butyl Ether	10.1	0.14	0.50	ug/L	10.0		101	71-132			
Surrogate: 1,2-Dichloroethane-d4	5.46			ug/L	*5.00*		*109*	*80-129*			
Surrogate: Toluene-d8	5.07			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.01			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.97			ug/L	*5.00*		*99.3*	*80-120*			
LCS Dup (BJI0168-BSD2)				Prepared: 07-Sep-2021 Analyzed: 07-Sep-2021 11:26							
Benzene	10.4	0.05	0.20	ug/L	10.0		104	80-120	5.19	30	
Toluene	10.2	0.05	0.20	ug/L	10.0		102	80-120	5.71	30	
Ethylbenzene	10.1	0.05	0.20	ug/L	10.0		101	80-120	3.56	30	
m,p-Xylene	20.6	0.14	0.40	ug/L	20.0		103	80-121	2.78	30	
o-Xylene	10.2	0.08	0.20	ug/L	10.0		102	80-121	4.49	30	
Xylenes, total	30.8	0.22	0.60	ug/L	30.0		103	76-127	3.35	30	
Methyl tert-butyl Ether	10.7	0.14	0.50	ug/L	10.0		107	71-132	5.57	30	
Surrogate: 1,2-Dichloroethane-d4	5.35			ug/L	*5.00*		*107*	*80-129*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

Volatile Organic Compounds - Quality Control

Batch BJI0168 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJI0168-BSD2)				Prepared: 07-Sep-2021 Analyzed: 07-Sep-2021 11:26							
Surrogate: Toluene-d8	5.08			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.16			ug/L	*5.00*		*103*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.98			ug/L	*5.00*		*99.7*	*80-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

Volatile Organic Compounds - SIM - Quality Control

Batch BJI0132 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0132-BLK1)				Prepared: 06-Sep-2021 Analyzed: 06-Sep-2021 13:59							
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	5440			ng/L	*5000*		*109*	*80-129*			
Surrogate: Toluene-d8	4930			ng/L	*5000*		*98.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4810			ng/L	*5000*		*96.2*	*75-125*			
LCS (BJI0132-BS1)				Prepared: 06-Sep-2021 Analyzed: 06-Sep-2021 11:28							
Vinyl chloride	1670	5.01	20.0	ng/L	2000		83.7	62-141			
Surrogate: 1,2-Dichloroethane-d4	5280			ng/L	*5000*		*106*	*80-129*			
Surrogate: Toluene-d8	5090			ng/L	*5000*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5040			ng/L	*5000*		*101*	*75-125*			
LCS Dup (BJI0132-BSD1)				Prepared: 06-Sep-2021 Analyzed: 06-Sep-2021 11:08							
Vinyl chloride	2300	5.01	20.0	ng/L	2000		115	62-141	31.70	30	*
Surrogate: 1,2-Dichloroethane-d4	5290			ng/L	*5000*		*106*	*80-129*			
Surrogate: Toluene-d8	5240			ng/L	*5000*		*105*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5000			ng/L	*5000*		*100*	*75-125*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

Dissolved Gases - Quality Control

Batch BJI0109 - EPA 5030C (Purge and Trap)

Instrument: FID6 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0109-BLK1)				Prepared: 03-Sep-2021	Analyzed: 03-Sep-2021 10:32					
Methane	ND	0.65	ug/L							U
Ethane	ND	1.23	ug/L							U
Ethene	ND	1.14	ug/L							U
Acetylene	ND	1.06	ug/L							U
Surrogate: Propane	1550		ug/L	*1800*		*86.4*	*72-122*			
LCS (BJI0109-BS1)				Prepared: 03-Sep-2021	Analyzed: 03-Sep-2021 09:15					
Methane	716	0.65	ug/L	656		109	80-120			
Ethane	1410	1.23	ug/L	1230		115	80-120			
Ethene	1280	1.14	ug/L	1150		112	80-120			
Acetylene	1130	1.06	ug/L	1060		107	73-123			E
Surrogate: Propane	1850		ug/L	*1800*		*103*	*62-122*			
LCS Dup (BJI0109-BSD1)				Prepared: 03-Sep-2021	Analyzed: 03-Sep-2021 09:33					
Methane	711	0.65	ug/L	656		108	80-120	0.62	30	
Ethane	1410	1.23	ug/L	1230		114	80-120	0.28	30	
Ethene	1280	1.14	ug/L	1150		111	80-120	0.37	30	
Acetylene	1150	1.06	ug/L	1060		109	73-123	2.10	30	E
Surrogate: Propane	1790		ug/L	*1800*		*99.7*	*62-122*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJI0106 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0106-BLK1)				Prepared: 06-Sep-2021 Analyzed: 25-Sep-2021 11:36							
Naphthalene	0.002	0.001	0.010	ug/L							J
2-Methylnaphthalene	0.001	0.001	0.010	ug/L							J
1-Methylnaphthalene	ND	0.0009	0.010	ug/L							U
Acenaphthylene	ND	0.002	0.010	ug/L							U
Acenaphthene	ND	0.003	0.010	ug/L							U
Dibenzofuran	0.002	0.002	0.010	ug/L							J
Fluorene	ND	0.002	0.010	ug/L							U
Phenanthrene	0.003	0.001	0.010	ug/L							J
Anthracene	ND	0.001	0.010	ug/L							U
Carbazole	ND	0.001	0.010	ug/L							U
Fluoranthene	0.003	0.002	0.010	ug/L							J
Pyrene	0.003	0.001	0.010	ug/L							J
Benzo(a)anthracene	0.001	0.0008	0.010	ug/L							J
Chrysene	0.001	0.0009	0.010	ug/L							J
Benzo(b)fluoranthene	0.001	0.0005	0.010	ug/L							J
Benzo(k)fluoranthene	ND	0.003	0.010	ug/L							U
Benzo(j)fluoranthene	ND	0.002	0.010	ug/L							U
Benzofluoranthenes, Total	ND	0.004	0.010	ug/L							U
Benzo(a)pyrene	ND	0.002	0.010	ug/L							U
Perylene	ND	0.006	0.010	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.001	0.010	ug/L							U
Dibenzo(a,h)anthracene	ND	0.001	0.010	ug/L							U
Benzo(g,h,i)perylene	ND	0.001	0.010	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	0.184			ug/L	*0.300*		*61.3*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.207			ug/L	*0.300*		*69.1*	*29-120*			
Surrogate: Fluoranthene-d10	0.215			ug/L	*0.300*		*71.8*	*57-120*			
LCS (BJI0106-BS1)				Prepared: 06-Sep-2021 Analyzed: 25-Sep-2021 12:06							
Naphthalene	0.213	0.001	0.010	ug/L	0.300		71.1	37-120			
2-Methylnaphthalene	0.213	0.001	0.010	ug/L	0.300		71.2	37-120			
1-Methylnaphthalene	0.214	0.0009	0.010	ug/L	0.300		71.3	29-120			
Acenaphthylene	0.219	0.002	0.010	ug/L	0.300		73.1	41-120			
Acenaphthene	0.201	0.003	0.010	ug/L	0.300		67.0	41-120			
Dibenzofuran	0.203	0.002	0.010	ug/L	0.300		67.7	38-120			
Fluorene	0.220	0.002	0.010	ug/L	0.300		73.4	43-120			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJI0106 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BJI0106-BS1)					Prepared: 06-Sep-2021 Analyzed: 25-Sep-2021 12:06						
Phenanthrene	0.210	0.001	0.010	ug/L	0.300		69.9	41-120			
Anthracene	0.223	0.001	0.010	ug/L	0.300		74.2	40-120			
Carbazole	0.224	0.001	0.010	ug/L	0.300		74.7	30-160			
Fluoranthene	0.227	0.002	0.010	ug/L	0.300		75.8	45-120			
Pyrene	0.229	0.001	0.010	ug/L	0.300		76.3	41-120			
Benzo(a)anthracene	0.235	0.0008	0.010	ug/L	0.300		78.2	42-120			
Chrysene	0.218	0.0009	0.010	ug/L	0.300		72.5	44-120			
Benzo(b)fluoranthene	0.225	0.0005	0.010	ug/L	0.300		74.9	44-120			
Benzo(k)fluoranthene	0.245	0.003	0.010	ug/L	0.300		81.8	50-120			
Benzo(j)fluoranthene	0.188	0.002	0.010	ug/L	0.300		62.5	39-160			
Benzofluoranthenes, Total	0.658	0.004	0.010	ug/L	0.900		73.1	46-120			
Benzo(a)pyrene	0.212	0.002	0.010	ug/L	0.300		70.8	35-120			
Perylene	0.192	0.006	0.010	ug/L	0.300		64.1	30-160			
Indeno(1,2,3-cd)pyrene	0.247	0.001	0.010	ug/L	0.300		82.4	37-120			
Dibenzo(a,h)anthracene	0.257	0.001	0.010	ug/L	0.300		85.8	34-120			
Benzo(g,h,i)perylene	0.216	0.001	0.010	ug/L	0.300		72.0	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.212			ug/L	*0.300*		*70.8*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.259			ug/L	*0.300*		*86.3*	*29-120*			
Surrogate: Fluoranthene-d10	0.233			ug/L	*0.300*		*77.7*	*57-120*			
LCS Dup (BJI0106-BSD1)					Prepared: 06-Sep-2021 Analyzed: 25-Sep-2021 12:37						
Naphthalene	0.220	0.001	0.010	ug/L	0.300		73.3	37-120	3.08	30	
2-Methylnaphthalene	0.220	0.001	0.010	ug/L	0.300		73.2	37-120	2.79	30	
1-Methylnaphthalene	0.218	0.0009	0.010	ug/L	0.300		72.5	29-120	1.73	30	
Acenaphthylene	0.225	0.002	0.010	ug/L	0.300		75.0	41-120	2.64	30	
Acenaphthene	0.208	0.003	0.010	ug/L	0.300		69.4	41-120	3.57	30	
Dibenzofuran	0.212	0.002	0.010	ug/L	0.300		70.6	38-120	4.15	30	
Fluorene	0.230	0.002	0.010	ug/L	0.300		76.6	43-120	4.37	30	
Phenanthrene	0.218	0.001	0.010	ug/L	0.300		72.6	41-120	3.80	30	
Anthracene	0.223	0.001	0.010	ug/L	0.300		74.3	40-120	0.15	30	
Carbazole	0.231	0.001	0.010	ug/L	0.300		76.9	30-160	2.89	30	
Fluoranthene	0.235	0.002	0.010	ug/L	0.300		78.3	45-120	3.24	30	
Pyrene	0.235	0.001	0.010	ug/L	0.300		78.4	41-120	2.77	30	
Benzo(a)anthracene	0.240	0.0008	0.010	ug/L	0.300		80.1	42-120	2.42	30	
Chrysene	0.225	0.0009	0.010	ug/L	0.300		74.9	44-120	3.24	30	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJI0106 - EPA 3510C SepF

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJI0106-BSD1)					Prepared: 06-Sep-2021 Analyzed: 25-Sep-2021 12:37						
Benzo(b)fluoranthene	0.231	0.0005	0.010	ug/L	0.300		76.9	44-120	2.63	30	
Benzo(k)fluoranthene	0.256	0.003	0.010	ug/L	0.300		85.3	50-120	4.14	30	
Benzo(j)fluoranthene	0.199	0.002	0.010	ug/L	0.300		66.3	39-160	5.83	30	
Benzofluoranthenes, Total	0.685	0.004	0.010	ug/L	0.900		76.1	46-120	4.11	30	
Benzo(a)pyrene	0.216	0.002	0.010	ug/L	0.300		72.1	35-120	1.79	30	
Perylene	0.197	0.006	0.010	ug/L	0.300		65.7	30-160	2.50	30	
Indeno(1,2,3-cd)pyrene	0.253	0.001	0.010	ug/L	0.300		84.4	37-120	2.36	30	
Dibenzo(a,h)anthracene	0.264	0.001	0.010	ug/L	0.300		87.9	34-120	2.37	30	
Benzo(g,h,i)perylene	0.220	0.001	0.010	ug/L	0.300		73.3	38-120	1.87	30	
Surrogate: 2-Methylnaphthalene-d10	0.218			ug/L	*0.300*		*72.7*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.268			ug/L	*0.300*		*89.4*	*29-120*			
Surrogate: Fluoranthene-d10	0.240			ug/L	*0.300*		*80.2*	*57-120*			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

Petroleum Hydrocarbons - Quality Control

Batch BJI0072 - EPA 3510C SepF

Instrument: FID4 Analyst: CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0072-BLK1)				Prepared: 03-Sep-2021 Analyzed: 17-Sep-2021 18:05						
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: o-Terphenyl	0.202		mg/L	*0.225*		*89.9*	*50-150*			
LCS (BJI0072-BS1)				Prepared: 03-Sep-2021 Analyzed: 17-Sep-2021 18:26						
Diesel Range Organics (C12-C24)	3.03	0.100	mg/L	3.00		101	56-120			
Surrogate: o-Terphenyl	0.237		mg/L	*0.225*		*106*	*50-150*			

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish Q3	
400 N 34th St., Suite 100	Project Number: 21-1-12596-012	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	29-Sep-2021 14:03

Metals and Metallic Compounds - Quality Control

Batch BJI0217 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJI0217-BLK1)					Prepared: 08-Sep-2021 Analyzed: 08-Sep-2021 16:07							
Barium	135	ND	0.114	0.500	ug/L							U
Barium	137	ND	0.0765	0.500	ug/L							U
Chromium	52	ND	0.260	0.500	ug/L							U
Chromium	53	ND	0.239	0.500	ug/L							U
Lead	208	ND	0.0513	0.100	ug/L							U
Manganese	55	ND	0.142	0.500	ug/L							U
Silver	107	ND	0.0220	0.200	ug/L							U
Arsenic	75a	ND	0.0373	0.200	ug/L							U
Cadmium	111	ND	0.0300	0.100	ug/L							U
Cadmium	114	ND	0.0400	0.100	ug/L							U
Copper	63	ND	0.173	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	ND	0.0792	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Zinc	66	ND	2.92	6.00	ug/L							U
Zinc	67	ND	0.940	6.00	ug/L							U
Blank (BJI0217-BLK2)					Prepared: 08-Sep-2021 Analyzed: 10-Sep-2021 16:04							
Iron	54	ND	18.2	36.0	ug/L							U
Iron	57	ND	6.63	36.0	ug/L							U
Vanadium	51a	ND	0.0556	0.200	ug/L							U
Vanadium	51b	ND	0.0521	0.200	ug/L							U
Cobalt	59	ND	0.0178	0.200	ug/L							U
Selenium	78	ND	0.179	0.500	ug/L							U
LCS (BJI0217-BS1)					Prepared: 08-Sep-2021 Analyzed: 08-Sep-2021 16:11							
Barium	135	24.1	0.114	0.500	ug/L	25.0		96.3	80-120			
Barium	137	23.9	0.0765	0.500	ug/L	25.0		95.4	80-120			
Chromium	52	22.8	0.260	0.500	ug/L	25.0		91.1	80-120			
Chromium	53	24.8	0.239	0.500	ug/L	25.0		99.2	80-120			
Lead	208	24.4	0.0513	0.100	ug/L	25.0		97.5	80-120			
Manganese	55	23.5	0.142	0.500	ug/L	25.0		94.1	80-120			
Silver	107	23.7	0.0220	0.200	ug/L	25.0		94.9	80-120			
Arsenic	75a	24.3	0.0373	0.200	ug/L	25.0		97.4	80-120			
Cadmium	111	25.0	0.0300	0.100	ug/L	25.0		100	80-120			