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

Part 3 of 5
Contents Include:
Appendix E, Part 3
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

Analytical Resources, Incorporated
Analytical Chemists and Consultants

21 July 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)
21B0192	N/A

Susan Dunnihoo

Digitally signed by Susan Dunnihoo
Date: 2021.07.21 10:43:39 -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.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21B0192	Turn-around Requested: Standard	Page: 1 of 2	
ARI Client Company: Shannon & Wilson	Phone: 206-695-6811	Date: 2/12/21	Ice Present?
Client Contact: Shoshana Howard		No. of Coolers: 2	Cooler Temps: 3.7, 0.8
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: MRH/DES		

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 by NWTPH-Dx	TPH-Dx by NWTPH-Dx w/ silica gel cleanup	BTEX 8260C	HVOCs 8260C low level VC	PAHs 8270D-SIM	PCBs 8082A	Metals (TOTAL & dissolved) 200.8	See page 2	Notes/Comments
					Analysis Requested								
TB-3-20211202	2/12/21	0810	Water	1	X		X	X					HVOCs = 1,1 DCE; cis-1,2 DCE; trans-1,2 DCE, TCE, PCE; VC Metals = As, Ba, Cr, Mn, Ni, Cd, Co, Cu, Fe, Pb, Hg, Se, Ag,
MW-49-20211202	↓	1013	↓	6			X	X				X	V, Zn
MW-59-20211202		1102		10		X	X	X	X		X		
MW-50-20211202		1202		8			X	X		X	Mn only		Manganese only
MW-52-20211202		1316		12	X		X	X	X	X	Mn only		Manganese only
MW-23-20211202		1534		16		X		X		X		X	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Lab to filter for metals	Printed Name: Mitchell Hatfield	Printed Name: Samantha Colon	Printed Name:	Printed Name:
	Company: SWI	Company: ARI	Company:	Company:
	Date & Time: 2/12/21 1630	Date & Time: 2/12/21 1630	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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21B0192	Turn-around Requested: Standard
ARI Client Company: Shannon & Wilson	Phone: 206-695-6911
Client Contact: Shoshana Howard	
Client Project Name: LDW	
Client Project #: 21-1-12596	Samplers: MRH/DES

Page: 2 of 2	
Date: 2/12/21	Ice Present?
No. of Coolers: 2	Cooler Temps: 3.7, 0.8

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

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: 1	2	Hexavalent Chromium SM 3500	Attenuation Indicators					Notes/Comments
MW-49-20211202	2/12/21	1013	Water	See page 1	X								1 = Metals total & dissolved: As, Mn, Ni, Cd, Cu; Pb, Hg, Se, Ag, Zn
MW-23-20211202	See	page	1	→		X	X	X					2 = Metals total & diss.: only As, Cr, Mn
													Attenuation Indicators:
													• Nitrate, Nitrite, Sulfate
													• Chloride
													• Sulfate
													• Ferrous Iron
													• Dissolved Mn
													• MEE

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Lab to filter for metals	Mitchell Harrold	Samantha Colon		
	Printed Name: Mitchell Harrold	Printed Name: Samantha Colon	Printed Name:	Printed Name:
	Company: SWI	Company: ARI	Company:	Company:
	Date & Time: 2/12/21 1630	Date & Time: 2/12/21 1630	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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-23-20211202	21B0192-01	Water	12-Feb-2021 15:34	12-Feb-2021 16:30
MW-49-20211202	21B0192-02	Water	12-Feb-2021 10:13	12-Feb-2021 16:30
MW-49-20211202	21B0192-03	Water	12-Feb-2021 10:13	12-Feb-2021 16:30
MW-59-20211202	21B0192-04	Water	12-Feb-2021 11:02	12-Feb-2021 16:30
MW-59-20211202	21B0192-05	Water	12-Feb-2021 11:02	12-Feb-2021 16:30
MW-50-20211202	21B0192-06	Water	12-Feb-2021 12:02	12-Feb-2021 16:30
MW-50-20211202	21B0192-07	Water	12-Feb-2021 12:02	12-Feb-2021 16:30
MW-52-20211202	21B0192-08	Water	12-Feb-2021 13:16	12-Feb-2021 16:30
MW-52-20211202	21B0192-09	Water	12-Feb-2021 13:16	12-Feb-2021 16:30
MW-23-20211202	21B0192-10	Water	12-Feb-2021 15:34	12-Feb-2021 16:30
MW-23-20211202	21B0192-11	Water	12-Feb-2021 15:34	12-Feb-2021 16:30

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.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish
Work Order: 21B0192

Sample receipt

Samples as listed on the preceding page were received 12-Feb-2021 16:30 under ARI work order 21B0192. For details regarding sample receipt, please refer to the Cooler Receipt Form. The trip blank listed on the CoC was not received.

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 Tetachlorometaxylene which was out of control low in the method blank on column zb-35. Data reported from passing column.

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.

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

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.

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 21B0192-02 in Total Metals batch BJB0680 and in association with sample 21B0192-03 in Dissolved Metals batch BJB0675. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and the MS/MSD 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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

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 21B0192-01 in Sulfite batch BJB0424 and in Ferrous Iron batch BJB0427. The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

Total and Dissolved Mercury - EPA Method 7470

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 21B0192-02 in Total Mercury batch BJB0736 and in association with sample 21B0192-05 in Dissolved Mercury batch BJB0704.The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and the MS/MSD relative percent difference (RPD) were within advisory control limits except Total Mercury MSD percent recovery which was out of control high and has been flagged within the QC section of this report. A post-digestion spike (PS) was performed as corrective action which met method requirements.

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.

Volatile Gases - MEE by RSK175

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

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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

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.

REVISION: Report revised to include 1,2-dichloroethene, correct target lists for MW-23 and minor corrections to the narrative.

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.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 02/12/2021 16:48:38

WORK ORDER

21B0192

Client: Shannon & Wilson, Inc

Project: Lower Duwamish

Project Manager: Amanda Volgardsen Johnson

Project Number: 21-1-12596

Report To:
Shannon & Wilson, Inc
Meg Strong
400 N 34th St., Suite 100
Seattle, WA 98103-8636
Phone: (206) 695-6787
Fax: -

Invoice To:
Shannon & Wilson, Inc
Meg Strong
400 N 34th St., Suite 100
Seattle, WA 98103-8636
Phone :(206) 695-6787
Fax: -

Date Due: 01-Mar-2021 18:00 (10 day TAT)

Received By: Samantha Colon
Date Received: 12-Feb-2021 16:30

Logged In By: Jacob Walter
Date Logged In: 12-Feb-2021 16:43

Samples Received at: **3.7°C**

Intact, properly signed and dated custody seals attached to outside of cooler(s)	Yes	Custody papers included with the cooler	Yes
Custody papers properly filled out (in, signed, analyses requested, etc)	Yes	Was a temperature blank included in the cooler	Yes
Was sufficient ice used (if appropriate)	Yes	All bottles sealed in individual plastic bags	Yes
All bottles arrived in good condition (unbroken)	Yes	All bottle labels complete and legible	Yes
Number of containers listed on COC match number received	Yes	Bottle labels and tags agree with COC	Yes
Correct bottles used for the requested analyses	Yes	All VOC vials free of air bubbles	Yes
Analyses/bottles require preservation (attach preservation sheet excluding VOC)	Yes	Sufficient amount of sample sent in each bottle	Yes
Sample split at ARI	Yes		

21B0192-01 MW-23-20211202 [Water] Sampled 12-Feb-2021 15:34

Chloride, IC, EPA 300.0	03/01/2021	10	03/12/2021
Chromium, Hexavalent, SM 3500-Cr B-09	03/01/2021	10	02/13/2021
Filter 0.45 micron (Cr+6)	03/01/2021	10	02/13/2021
Iron, Ferrous SM 3500-Fe B-97	03/01/2021	10	02/13/2021
Nitrate-N, IC, EPA 300.0	03/01/2021	10	02/14/2021
Nitrite-N, IC, EPA 300.0	03/01/2021	10	02/14/2021
Sulfate, IC, EPA 300.0	03/01/2021	10	03/12/2021
Sulfite-SO3 SM 4500-SO3 B-00	03/01/2021	10	02/12/2021

Preservation Confirmation

Container ID	Container Type	pH
21B0192-01 A	HDPE NM, 500 mL	
21B0192-01 B	HDPE NM, 500 mL	
21B0192-01 C	Small OJ, 500 mL, EDTA	Lab to check pH
21B0192-01 D	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH

JGm
Preservation Confirmed By

02/12/2021
Date

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 02/15/2021 09:46:10

WORK ORDER

21B0192

Client: Shannon & Wilson, Inc
Project Manager: Amanda Volgardsen Johnson
Project: Lower Duwamish
Project Number: 21-1-12596

Preservation Confirmation

Container ID	Container Type	pH	
21B0192-01 A	HDPE NM, 500 mL		
21B0192-01 B	HDPE NM, 500 mL		
21B0192-01 B 01	HDPE NM, 500 mL		
21B0192-01 C	Small OJ, 500 mL, EDTA	Lab to check pH	
21B0192-01 D	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH	
21B0192-02 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0192-02 B	VOA Vial, Clear, 40 mL, HCL		
21B0192-02 C	VOA Vial, Clear, 40 mL, HCL		
21B0192-02 D	VOA Vial, Clear, 40 mL, HCL		
21B0192-02 E	VOA Vial, Clear, 40 mL, HCL		
21B0192-03 A	HDPE NM, 500 mL	>2	Fail
21B0192-04 A	Glass NM, Amber, 500 mL		
21B0192-04 B	Glass NM, Amber, 500 mL		
21B0192-04 C	Glass NM, Amber, 500 mL		
21B0192-04 D	Glass NM, Amber, 500 mL		
21B0192-04 E	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0192-04 F	VOA Vial, Clear, 40 mL, HCL		
21B0192-04 G	VOA Vial, Clear, 40 mL, HCL		
21B0192-04 H	VOA Vial, Clear, 40 mL, HCL		
21B0192-04 I	VOA Vial, Clear, 40 mL, HCL		
21B0192-05 A	HDPE NM, 500 mL	>2	Fail
21B0192-06 A	Glass NM, Amber, 500 mL		
21B0192-06 B	Glass NM, Amber, 500 mL		
21B0192-06 C	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0192-06 D	VOA Vial, Clear, 40 mL, HCL		
21B0192-06 E	VOA Vial, Clear, 40 mL, HCL		
21B0192-06 F	VOA Vial, Clear, 40 mL, HCL		
21B0192-06 G	VOA Vial, Clear, 40 mL, HCL		
21B0192-07 A	HDPE NM, 500 mL	>2	Fail
21B0192-08 A	Glass NM, Amber, 500 mL		
21B0192-08 B	Glass NM, Amber, 500 mL		
21B0192-08 C	Glass NM, Amber, 500 mL		
21B0192-08 D	Glass NM, Amber, 500 mL		
21B0192-08 E	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0192-08 F	VOA Vial, Clear, 40 mL, HCL		

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 02/15/2021 09:46:10

WORK ORDER

21B0192

Client: Shannon & Wilson, Inc | **Project Manager: Amanda Volgardsen Johnson**

Project: Lower Duwamish | **Project Number: 21-1-12596**

21B0192-08 G	VOA Vial, Clear, 40 mL, HCL		
21B0192-08 H	VOA Vial, Clear, 40 mL, HCL		
21B0192-08 I	VOA Vial, Clear, 40 mL, HCL		
21B0192-08 J	VOA Vial, Clear, 40 mL, HCL		
21B0192-08 K	VOA Vial, Clear, 40 mL, HCL		
21B0192-09 A	HDPE NM, 500 mL	>2	Fail
21B0192-10 A	Glass NM, Amber, 500 mL		
21B0192-10 B	Glass NM, Amber, 500 mL		
21B0192-10 C	Glass NM, Amber, 500 mL		
21B0192-10 D	Glass NM, Amber, 500 mL		
21B0192-10 E	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0192-10 F	VOA Vial, Clear, 40 mL, HCL		
21B0192-10 G	VOA Vial, Clear, 40 mL, HCL		
21B0192-10 H	VOA Vial, Clear, 40 mL, HCL		
21B0192-10 I	VOA Vial, Clear, 40 mL, HCL		
21B0192-10 J	VOA Vial, Clear, 40 mL, HCL		
21B0192-10 K	VOA Vial, Clear, 40 mL, HCL		
21B0192-11 A	HDPE NM, 500 mL	>2	Fail

JSW
Preservation Confirmed By

02/15/2021
Date

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: STW Project Name: LDW

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

Assigned ARI Job No: 21B0192 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 1630 3.7 0.8 ____ ____ ____ ____

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D00520

Cooler Accepted by: SC Date: 2/12/21 Time: 1630

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: JGn Date: 02/15/2021 Time: 0932 Labels checked by: JGn

***** 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:

Trip Blank listed on client's CoC was not in coolers received 02/12/2021.

By: JGn Date: 02/15/2021

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 02/15/2021 09:46:10

WORK ORDER

21B0192

Client: Shannon & Wilson, Inc
Project Manager: Amanda Volgardsen Johnson
Project: Lower Duwamish
Project Number: 21-1-12596

Preservation Confirmation

Container ID	Container Type	pH	
21B0192-01 A	HDPE NM, 500 mL		
21B0192-01 B	HDPE NM, 500 mL		
21B0192-01 B 01	HDPE NM, 500 mL		
21B0192-01 C	Small OJ, 500 mL, EDTA	Lab to check pH	
21B0192-01 D	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH	
21B0192-02 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0192-02 B	VOA Vial, Clear, 40 mL, HCL		
21B0192-02 C	VOA Vial, Clear, 40 mL, HCL		
21B0192-02 D	VOA Vial, Clear, 40 mL, HCL		
21B0192-02 E	VOA Vial, Clear, 40 mL, HCL		
21B0192-03 A	HDPE NM, 500 mL	>2	Fail (1)
21B0192-04 A	Glass NM, Amber, 500 mL		
21B0192-04 B	Glass NM, Amber, 500 mL		
21B0192-04 C	Glass NM, Amber, 500 mL		
21B0192-04 D	Glass NM, Amber, 500 mL		
21B0192-04 E	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0192-04 F	VOA Vial, Clear, 40 mL, HCL		
21B0192-04 G	VOA Vial, Clear, 40 mL, HCL		
21B0192-04 H	VOA Vial, Clear, 40 mL, HCL		
21B0192-04 I	VOA Vial, Clear, 40 mL, HCL		
21B0192-05 A	HDPE NM, 500 mL	>2	Fail (1)
21B0192-06 A	Glass NM, Amber, 500 mL		
21B0192-06 B	Glass NM, Amber, 500 mL		
21B0192-06 C	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0192-06 D	VOA Vial, Clear, 40 mL, HCL		
21B0192-06 E	VOA Vial, Clear, 40 mL, HCL		
21B0192-06 F	VOA Vial, Clear, 40 mL, HCL		
21B0192-06 G	VOA Vial, Clear, 40 mL, HCL		
21B0192-07 A	HDPE NM, 500 mL	>2	Fail (1)
21B0192-08 A	Glass NM, Amber, 500 mL		
21B0192-08 B	Glass NM, Amber, 500 mL		
21B0192-08 C	Glass NM, Amber, 500 mL		
21B0192-08 D	Glass NM, Amber, 500 mL		
21B0192-08 E	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0192-08 F	VOA Vial, Clear, 40 mL, HCL		

(1) Filtered at 0.45 um and preserved to pH<2.0 with 0.75 ml conc. HNO_3 (II0976).

Reviewed By

Date

2/15/21

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 02/15/2021 09:46:10

WORK ORDER

21B0192

Client: Shannon & Wilson, Inc
Project Manager: Amanda Volgardsen Johnson
Project: Lower Duwamish
Project Number: 21-1-12596

21B0192-08 G	VOA Vial, Clear, 40 mL, HCL		
21B0192-08 H	VOA Vial, Clear, 40 mL, HCL		
21B0192-08 I	VOA Vial, Clear, 40 mL, HCL		
21B0192-08 J	VOA Vial, Clear, 40 mL, HCL		
21B0192-08 K	VOA Vial, Clear, 40 mL, HCL		
21B0192-09 A	HDPE NM, 500 mL	>2	Fail (1)
21B0192-10 A	Glass NM, Amber, 500 mL		
21B0192-10 B	Glass NM, Amber, 500 mL		
21B0192-10 C	Glass NM, Amber, 500 mL		
21B0192-10 D	Glass NM, Amber, 500 mL		
21B0192-10 E	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0192-10 F	VOA Vial, Clear, 40 mL, HCL		
21B0192-10 G	VOA Vial, Clear, 40 mL, HCL		
21B0192-10 H	VOA Vial, Clear, 40 mL, HCL		
21B0192-10 I	VOA Vial, Clear, 40 mL, HCL		
21B0192-10 J	VOA Vial, Clear, 40 mL, HCL		
21B0192-10 K	VOA Vial, Clear, 40 mL, HCL		
21B0192-11 A	HDPE NM, 500 mL	>2	Fail (1)

JSW
Preservation Confirmed By

02/15/2021
Date

(1) Filtered at 0.45 um and preserved to pH<2.0 with conc. HNO_3 (I10976). mL 2/15/21

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-23-20211202

21B0192-01 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 02/12/2021 15:34

Instrument: IC930 Analyst: CDE — Analyzed: 02/13/2021 00:04

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0192-01 A

Preparation Batch: BJB0423 — Sample Size: 10 mL

Prepared: 02/12/2021 — 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 Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-23-20211202

21B0192-01 (Water)

Wet Chemistry

Method: SM 3500-Cr B-09 — Sampled: 02/12/2021 15:34

Instrument: UV1800-1 Analyst: WCW — Analyzed: 02/12/2021 17:56

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0192-01 B 01

Preparation Batch: BJB0426 — Sample Size: 40 mL

Prepared: 02/12/2021 — 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 Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-23-20211202

21B0192-01 (Water)

Wet Chemistry

Method: SM 3500-Fe B-97 — Sampled: 02/12/2021 15:34

Instrument: UV1800-2 Analyst: WMT — Analyzed: 02/12/2021 19:17

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0192-01 D

Preparation Batch: BJB0427 — Sample Size: 5 mL

Prepared: 02/12/2021 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ferrous Iron		20	0.800	0.800	37.1	mg/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-23-20211202

21B0192-01 (Water)

Wet Chemistry

Method: SM 4500-SO3 B-00 — Sampled: 02/12/2021 15:34

Instrument: N/A Analyst: CDE — Analyzed: 02/12/2021 16:59

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0192-01

Preparation Batch: BJB0424 — Sample Size: 50 mL

Prepared: 02/12/2021 — 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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-23-20211202

21B0192-01RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 02/12/2021 15:34

Instrument: IC930 Analyst: WCW — Analyzed: 02/18/2021 07:24

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0192-01RE2 A

Preparation Batch: BJB0423 — Sample Size: 10 mL

Prepared: 02/12/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	10	1.00	1.00	47.6	mg/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-23-20211202

21B0192-01RE3 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 02/12/2021 15:34

Instrument: IC930 Analyst: WCW — Analyzed: 02/18/2021 07:44

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0192-01RE3 A

Preparation Batch: BJB0423 — Sample Size: 10 mL

Prepared: 02/12/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	4.58	mg/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-49-20211202

21B0192-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/12/2021 10:13

Instrument: NT2 Analyst: PKC — Analyzed: 02/25/2021 20:27

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0192-02 C

Preparation Batch: BJB0749 — Sample Size: 10 mL

Prepared: 02/25/2021 — 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	0.19	ug/L	J
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	1.65	ug/L	
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	2.99	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 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.5*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.0*	*%*	

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-49-20211202

21B0192-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/12/2021 10:13

Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/25/2021 21:46

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-02 A 01

Preparation Batch: BJB0680 — Sample Size: 25 mL

Prepared: 02/23/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	1	0.0850	0.500	4.19	ug/L	

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/25/2021 00:29

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-02 A 01

Preparation Batch: BJB0680 — Sample Size: 25 mL

Prepared: 02/23/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Silver	7440-22-4	1	0.0170	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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-49-20211202

21B0192-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/12/2021 10:13

Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/25/2021 21:46

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-02 A 01

Preparation Batch: BJB0680 — Sample Size: 25 mL

Prepared: 02/23/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	0.472	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	0.0380	ug/L	J
Copper	7440-50-8	1	0.340	0.500	0.846	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	2.47	ug/L	
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	0.904	ug/L	J

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-49-20211202

21B0192-02 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/12/2021 10:13
Instrument: HYDRA Analyst: BLC — Analyzed: 02/25/2021 14:31

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0192-02 A
Preparation Batch: BJB0736 — Sample Size: 20 mL
Prepared: 02/25/2021 — 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 Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-49-20211202

21B0192-03 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/12/2021 10:13
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/25/2021 20:39

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-03 A 02
Preparation Batch: BJB0675 — Sample Size: 25 mL — Filtration Batch: BJB0459
Prepared: 02/23/2021 — Final Volume: 25 mL — Filtration Date: 02/15/2021 16:13

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	1	0.0850	0.500	1.77	ug/L	

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/25/2021 01:01

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-03 A 02
Preparation Batch: BJB0675 — Sample Size: 25 mL — Filtration Batch: BJB0459
Prepared: 02/23/2021 — Final Volume: 25 mL — Filtration Date: 02/15/2021 16:13

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Silver, Dissolved	7440-22-4	1	0.0170	0.200	ND	ug/L	U

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-49-20211202

21B0192-03 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/12/2021 10:13
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/25/2021 20:39

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-03 A 02
Preparation Batch: BJB0675 — Sample Size: 25 mL — Filtration Batch: BJB0459
Prepared: 02/23/2021 — Final Volume: 25 mL — Filtration Date: 02/15/2021 16:13

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	2.22	ug/L	

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/24/2021 01:51

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-03 A 01
Preparation Batch: BJB0675 — Sample Size: 25 mL — Filtration Batch: BJB0459
Prepared: 02/23/2021 — Final Volume: 25 mL — Filtration Date: 02/15/2021 16:13

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	0.281	ug/L	
Copper, Dissolved	7440-50-8	1	0.340	0.500	0.663	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-49-20211202

21B0192-03 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/12/2021 10:13
Instrument: HYDRA Analyst: BLC — Analyzed: 02/25/2021 13:09

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0192-03 A 01
Preparation Batch: BJB0704 — Sample Size: 20 mL — Filtration Batch: BJB0459
Prepared: 02/24/2021 — Final Volume: 20 mL — Filtration Date: 02/15/2021 16:13

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 Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-59-20211202

21B0192-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/12/2021 11:02

Instrument: NT2 Analyst: PKC — Analyzed: 02/25/2021 20:48

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0192-04 G

Preparation Batch: BJB0749 — Sample Size: 10 mL

Prepared: 02/25/2021 — 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 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*96.0*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.5*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-59-20211202

21B0192-04 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/12/2021 11:02
Instrument: NT11 Analyst: VTS — Analyzed: 03/11/2021 16:41

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJB0509; Prepared: 02/18/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21B0192-04 C 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJC0071; Cleaned: 08-Mar-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21B0192-04 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	0.002	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	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 %*	*71.2*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*72.8*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*77.7*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-59-20211202

21B0192-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/12/2021 11:02
Instrument: FID4 Analyst: CTO — Analyzed: 03/12/2021 20:51

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0192-04 A 01
Preparation Batch: BJB0484 — Sample Size: 465 mL
Prepared: 02/18/2021 — 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 %*	*109*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-59-20211202

21B0192-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/12/2021 11:02

Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/25/2021 20:32

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-04 E 01

Preparation Batch: BJB0680 — Sample Size: 25 mL

Prepared: 02/23/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	10.6	ug/L	
Cobalt	7440-48-4	1	0.0290	0.200	4.16	ug/L	
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Silver	7440-22-4	1	0.0170	0.200	ND	ug/L	U

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-59-20211202

21B0192-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/12/2021 11:02

Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/25/2021 20:32

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-04 E 01

Preparation Batch: BJB0680 — Sample Size: 25 mL

Prepared: 02/23/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	6.09	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	0.970	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	2.11	ug/L	
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	3.45	ug/L	J

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-59-20211202

21B0192-04 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/12/2021 11:02
Instrument: HYDRA Analyst: BLC — Analyzed: 02/25/2021 14:54

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0192-04 E
Preparation Batch: BJB0736 — Sample Size: 20 mL
Prepared: 02/25/2021 — 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	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-59-20211202

21B0192-04RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/12/2021 11:02

Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/25/2021 21:20

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-04RE1 E 01

Preparation Batch: BJB0680 — Sample Size: 25 mL

Prepared: 02/23/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	5	0.650	2.50	ND	ug/L	U
Iron	7439-89-6	5	31.4	100	11900	ug/L	D
Manganese	7439-96-5	5	0.425	2.50	631	ug/L	D
Vanadium	7440-62-2	5	0.200	1.00	3.17	ug/L	D

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-59-20211202

21B0192-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/12/2021 11:02

Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/25/2021 17:56

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-05 A 02

Preparation Batch: BJB0675 — Sample Size: 25 mL — Filtration Batch: BJB0459

Prepared: 02/23/2021 — Final Volume: 25 mL — Filtration Date: 02/15/2021 16:13

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.130	0.500	0.205	ug/L	J
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	3.98	ug/L	
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0400	0.200	1.77	ug/L	

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/24/2021 01:37

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-05 A 01

Preparation Batch: BJB0675 — Sample Size: 25 mL — Filtration Batch: BJB0459

Prepared: 02/23/2021 — Final Volume: 25 mL — Filtration Date: 02/15/2021 16:13

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	8.99	ug/L	
Iron, Dissolved	7439-89-6	1	6.27	20.0	9410	ug/L	
Silver, Dissolved	7440-22-4	1	0.0170	0.200	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-59-20211202

21B0192-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/12/2021 11:02
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/25/2021 17:56

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-05 A 02
Preparation Batch: BJB0675 — Sample Size: 25 mL — Filtration Batch: BJB0459
Prepared: 02/23/2021 — Final Volume: 25 mL — Filtration Date: 02/15/2021 16:13

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	1.89	ug/L	

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/24/2021 01:37

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-05 A 01
Preparation Batch: BJB0675 — Sample Size: 25 mL — Filtration Batch: BJB0459
Prepared: 02/23/2021 — Final Volume: 25 mL — Filtration Date: 02/15/2021 16:13

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	5.10	ug/L	
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	U
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	4.58	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-59-20211202

21B0192-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/12/2021 11:02
Instrument: HYDRA Analyst: BLC — Analyzed: 02/25/2021 13:00

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0192-05 A 01
Preparation Batch: BJB0704 — Sample Size: 20 mL — Filtration Batch: BJB0459
Prepared: 02/24/2021 — Final Volume: 20 mL — Filtration Date: 02/15/2021 16:13

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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-59-20211202

21B0192-05RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/12/2021 11:02
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/25/2021 21:24

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-05RE1 A 02
Preparation Batch: BJB0675 — Sample Size: 25 mL — Filtration Batch: BJB0459
Prepared: 02/23/2021 — Final Volume: 25 mL — Filtration Date: 02/15/2021 16:13

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	5	0.425	2.50	590	ug/L	D

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-50-20211202

21B0192-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/12/2021 12:02

Instrument: NT2 Analyst: PKC — Analyzed: 02/25/2021 21:08

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0192-06 E

Preparation Batch: BJB0749 — Sample Size: 10 mL

Prepared: 02/25/2021 — 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	1.45	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	0.08	ug/L	J
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	0.10	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 %*	*104*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*96.1*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*100*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-50-20211202

21B0192-06 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/12/2021 12:02
Instrument: ECD7 Analyst: JGR — Analyzed: 03/12/2021 18:40

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0192-06 A 01
	Preparation Batch: BJB0536	Sample Size: 500 mL	
	Prepared: 02/19/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0192-06 A 01
	Cleanup Batch: CJC0077	Initial Volume: 1 mL	
	Cleaned: 08-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0192-06 A 01
	Cleanup Batch: CJC0075	Initial Volume: 1 mL	
	Cleaned: 08-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0192-06 A 01
	Cleanup Batch: CJC0076	Initial Volume: 1 mL	
	Cleaned: 08-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.018	0.100	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.018	0.100	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.018	0.100	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.018	0.100	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.017	0.100	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*48.2*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*49.8*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*47.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*44.5*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-50-20211202

21B0192-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/12/2021 12:02

Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/25/2021 18:04

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-06 C 01

Preparation Batch: BJB0680 — Sample Size: 25 mL

Prepared: 02/23/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	2	0.170	1.00	265	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-50-20211202

21B0192-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/12/2021 12:02
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/25/2021 18:09

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-07 A 02
Preparation Batch: BJB0675 — Sample Size: 25 mL — Filtration Batch: BJB0459
Prepared: 02/23/2021 — Final Volume: 25 mL — Filtration Date: 02/15/2021 16:13

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	2	0.170	1.00	235	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-52-20211202

21B0192-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/12/2021 13:16

Instrument: NT2 Analyst: PKC — Analyzed: 02/25/2021 21:28

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0192-08 F

Preparation Batch: BJB0749 — Sample Size: 10 mL

Prepared: 02/25/2021 — 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	0.74	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	0.16	ug/L	J
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	2.46	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 %*	*106*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.5*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.0*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-52-20211202

21B0192-08 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/12/2021 13:16

Instrument: NT2 Analyst: PKC — Analyzed: 02/25/2021 21:28

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0192-08 F

Preparation Batch: BJB0749 — Sample Size: 10 mL

Prepared: 02/25/2021 — 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 %*	*95.5*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-52-20211202

21B0192-08 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/12/2021 13:16
Instrument: NT11 Analyst: VTS — Analyzed: 03/11/2021 17:13

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0192-08 A 01
Preparation Batch: BJB0509 — Sample Size: 500 mL
Prepared: 02/18/2021 — Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 21B0192-08 A 01
Cleanup Batch: CJC0071 — Initial Volume: 0.5 mL
Cleaned: 08-Mar-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	0.001	ug/L	J
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	0.084	ug/L	
Dibenzofuran	132-64-9	1	0.002	0.010	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.010	0.003	ug/L	J
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 %*	*63.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*58.0*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*69.8*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-52-20211202

21B0192-08 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/12/2021 13:16
Instrument: ECD7 Analyst: JGR — Analyzed: 03/12/2021 19:00

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0192-08 C 01
	Preparation Batch: BJB0536	Sample Size: 500 mL	
	Prepared: 02/19/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0192-08 C 01
	Cleanup Batch: CJC0077	Initial Volume: 1 mL	
	Cleaned: 08-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0192-08 C 01
	Cleanup Batch: CJC0075	Initial Volume: 1 mL	
	Cleaned: 08-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0192-08 C 01
	Cleanup Batch: CJC0076	Initial Volume: 1 mL	
	Cleaned: 08-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.018	0.100	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.018	0.100	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.018	0.100	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.018	0.100	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.017	0.100	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*50.9*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*52.8*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*48.4*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*44.8*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-52-20211202

21B0192-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/12/2021 13:16

Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/25/2021 20:22

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-08 E 01

Preparation Batch: BJB0680 — Sample Size: 25 mL

Prepared: 02/23/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	5	0.425	2.50	715	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-52-20211202

21B0192-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/12/2021 13:16
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/25/2021 20:27

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-09 A 02
Preparation Batch: BJB0675 — Sample Size: 25 mL — Filtration Batch: BJB0459
Prepared: 02/23/2021 — Final Volume: 25 mL — Filtration Date: 02/15/2021 16:13

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	5	0.425	2.50	667	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-23-20211202

21B0192-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/12/2021 15:34

Instrument: NT2 Analyst: PKC — Analyzed: 02/25/2021 21:49

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0192-10 J

Preparation Batch: BJB0749 — Sample Size: 10 mL

Prepared: 02/25/2021 — 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	0.83	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	0.34	ug/L	
Tetrachloroethene	127-18-4	1	0.09	0.20	1.31	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.1*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.3*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-23-20211202

21B0192-10 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 02/12/2021 15:34

Instrument: FID6 Analyst: PB — Analyzed: 02/22/2021 19:06

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0192-10 I

Preparation Batch: BJB0627 — Sample Size: 10 mL

Prepared: 02/22/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	366	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 %*	*101*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-23-20211202

21B0192-10 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/12/2021 15:34
Instrument: FID4 Analyst: CTO — Analyzed: 03/12/2021 21:12

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0192-10 A 01
Preparation Batch: BJB0484 — Sample Size: 500 mL
Prepared: 02/18/2021 — 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 %*	*96.6*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-23-20211202

21B0192-10 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/12/2021 15:34
Instrument: ECD7 Analyst: JGR — Analyzed: 03/12/2021 19:21

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0192-10 C 01
	Preparation Batch: BJB0536	Sample Size: 450 mL	
	Prepared: 02/19/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0192-10 C 01
	Cleanup Batch: CJC0077	Initial Volume: 1 mL	
	Cleaned: 08-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0192-10 C 01
	Cleanup Batch: CJC0075	Initial Volume: 1 mL	
	Cleaned: 08-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0192-10 C 01
	Cleanup Batch: CJC0076	Initial Volume: 1 mL	
	Cleaned: 08-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.019	0.111	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.019	0.111	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.019	0.111	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.019	0.111	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.019	0.111	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.019	0.111	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.019	0.111	ND	ug/L	U
Aroclor 1262	37324-23-5	1	0.019	0.111	ND	ug/L	U
Aroclor 1268	11100-14-4	1	0.019	0.111	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*51.4*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*53.8*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*51.4*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*44.1*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-23-20211202

21B0192-10 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/12/2021 15:34

Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/26/2021 14:45

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-10 E 01

Preparation Batch: BJB0680 — Sample Size: 25 mL

Prepared: 02/23/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	2	0.260	1.00	0.468	ug/L	J, D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-23-20211202

21B0192-10 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/12/2021 15:34
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/25/2021 22:49

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-10 E 01
Preparation Batch: BJB0680 — Sample Size: 25 mL
Prepared: 02/23/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	18.3	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-23-20211202

21B0192-10RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/12/2021 15:34

Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/25/2021 21:29

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-10RE1 E 01

Preparation Batch: BJB0680 — Sample Size: 25 mL

Prepared: 02/23/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	10	0.850	5.00	1260	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-23-20211202

21B0192-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/12/2021 15:34
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/26/2021 14:53

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-11 A 02
Preparation Batch: BJB0675 — Sample Size: 25 mL — Filtration Batch: BJB0459
Prepared: 02/23/2021 — Final Volume: 25 mL — Filtration Date: 02/15/2021 16:13

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	2	0.260	1.00	ND	ug/L	U

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-23-20211202

21B0192-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/12/2021 15:34
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/25/2021 21:38

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-11 A 02
Preparation Batch: BJB0675 — Sample Size: 25 mL — Filtration Batch: BJB0459
Prepared: 02/23/2021 — Final Volume: 25 mL — Filtration Date: 02/15/2021 16:13

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	6.29	ug/L	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

MW-23-20211202

21B0192-11RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/12/2021 15:34
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/25/2021 21:33

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0192-11RE1 A 02
Preparation Batch: BJB0675 — Sample Size: 25 mL — Filtration Batch: BJB0459
Prepared: 02/23/2021 — Final Volume: 25 mL — Filtration Date: 02/15/2021 16:13

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	10	0.850	5.00	1180	ug/L	D

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Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Volatile Organic Compounds - Quality Control

Batch BJB0749 - 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 (BJB0749-BLK1)				Prepared: 25-Feb-2021 Analyzed: 25-Feb-2021 18:25							
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							U
Surrogate: Toluene-d8	5.06			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.88			ug/L	*5.00*		*97.6*	*80-120*			
Blank (BJB0749-BLK2)				Prepared: 25-Feb-2021 Analyzed: 25-Feb-2021 18:25							
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	5.12			ug/L	*5.00*		*102*	*80-129*			
Surrogate: Toluene-d8	5.06			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.88			ug/L	*5.00*		*97.6*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.03			ug/L	*5.00*		*101*	*80-120*			
LCS (BJB0749-BS1)				Prepared: 25-Feb-2021 Analyzed: 25-Feb-2021 16:44							
Gasoline Range Organics (Tol-Nap)	1050		100	ug/L	1000		105	72-128			
Surrogate: Toluene-d8	5.12			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.01			ug/L	*5.00*		*100*	*80-120*			
LCS (BJB0749-BS2)				Prepared: 25-Feb-2021 Analyzed: 25-Feb-2021 17:24							
Vinyl Chloride	8.65	0.08	0.20	ug/L	10.0		86.5	66-133			
1,1-Dichloroethene	9.34	0.08	0.20	ug/L	10.0		93.4	69-135			
trans-1,2-Dichloroethene	9.10	0.07	0.20	ug/L	10.0		91.0	78-128			
cis-1,2-Dichloroethene	9.58	0.08	0.20	ug/L	10.0		95.8	80-121			
Benzene	9.73	0.05	0.20	ug/L	10.0		97.3	80-120			
Trichloroethene	9.70	0.07	0.20	ug/L	10.0		97.0	80-120			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Volatile Organic Compounds - Quality Control

Batch BJB0749 - 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 (BJB0749-BS2)					Prepared: 25-Feb-2021 Analyzed: 25-Feb-2021 17:24						
Toluene	9.49	0.05	0.20	ug/L	10.0		94.9	80-120			
Tetrachloroethene	9.75	0.09	0.20	ug/L	10.0		97.5	80-120			
Ethylbenzene	9.61	0.05	0.20	ug/L	10.0		96.1	80-120			
m,p-Xylene	19.6	0.14	0.40	ug/L	20.0		98.2	80-121			
o-Xylene	9.74	0.08	0.20	ug/L	10.0		97.4	80-121			
Xylenes, total	29.4	0.22	0.60	ug/L	30.0		97.9	76-127			
Surrogate: 1,2-Dichloroethane-d4	4.97			ug/L	*5.00*		*99.4*	*80-129*			
Surrogate: Toluene-d8	4.99			ug/L	*5.00*		*99.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.14			ug/L	*5.00*		*103*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.97			ug/L	*5.00*		*99.4*	*80-120*			
LCS Dup (BJB0749-BSD1)					Prepared: 25-Feb-2021 Analyzed: 25-Feb-2021 17:04						
Gasoline Range Organics (Tol-Nap)	1080		100	ug/L	1000		108	72-128	3.22	30	
Surrogate: Toluene-d8	5.06			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.99			ug/L	*5.00*		*99.9*	*80-120*			
LCS Dup (BJB0749-BSD2)					Prepared: 25-Feb-2021 Analyzed: 25-Feb-2021 17:44						
Vinyl Chloride	9.27	0.08	0.20	ug/L	10.0		92.7	66-133	6.96	30	
1,1-Dichloroethene	10.0	0.08	0.20	ug/L	10.0		100	69-135	6.84	30	
trans-1,2-Dichloroethene	9.60	0.07	0.20	ug/L	10.0		96.0	78-128	5.32	30	
cis-1,2-Dichloroethene	10.0	0.08	0.20	ug/L	10.0		100	80-121	4.72	30	
Benzene	10.1	0.05	0.20	ug/L	10.0		101	80-120	3.31	30	
Trichloroethene	10.0	0.07	0.20	ug/L	10.0		100	80-120	3.57	30	
Toluene	9.83	0.05	0.20	ug/L	10.0		98.3	80-120	3.46	30	
Tetrachloroethene	9.97	0.09	0.20	ug/L	10.0		99.7	80-120	2.24	30	
Ethylbenzene	9.80	0.05	0.20	ug/L	10.0		98.0	80-120	1.93	30	
m,p-Xylene	20.2	0.14	0.40	ug/L	20.0		101	80-121	2.66	30	
o-Xylene	9.95	0.08	0.20	ug/L	10.0		99.5	80-121	2.13	30	
Xylenes, total	30.1	0.22	0.60	ug/L	30.0		100	76-127	2.49	30	
Surrogate: 1,2-Dichloroethane-d4	4.89			ug/L	*5.00*		*97.8*	*80-129*			
Surrogate: Toluene-d8	5.00			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.14			ug/L	*5.00*		*103*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.91			ug/L	*5.00*		*98.3*	*80-120*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Dissolved Gases - Quality Control

Batch BJB0627 - 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 (BJB0627-BLK1)				Prepared: 22-Feb-2021	Analyzed: 22-Feb-2021 12:56					
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	1960		ug/L	*1800*		*109*	*72-122*			
LCS (BJB0627-BS1)				Prepared: 22-Feb-2021	Analyzed: 22-Feb-2021 11:37					
Methane	643	0.65	ug/L	656		98.0	80-120			
Ethane	1310	1.23	ug/L	1230		106	80-120			
Ethene	1020	1.14	ug/L	1150		89.0	80-120			
Acetylene	935	1.06	ug/L	1060		88.2	73-123			
Surrogate: Propane	1960		ug/L	*1800*		*109*	*62-122*			
LCS Dup (BJB0627-BSD1)				Prepared: 22-Feb-2021	Analyzed: 22-Feb-2021 12:30					
Methane	633	0.65	ug/L	656		96.6	80-120	1.44	30	
Ethane	1320	1.23	ug/L	1230		108	80-120	1.30	30	
Ethene	1030	1.14	ug/L	1150		89.5	80-120	0.50	30	
Acetylene	934	1.06	ug/L	1060		88.1	73-123	0.03	30	
Surrogate: Propane	1940		ug/L	*1800*		*108*	*62-122*			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0509 - 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 (BJB0509-BLK1)				Prepared: 18-Feb-2021 Analyzed: 11-Mar-2021 10:43							
Naphthalene	0.003	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	0.206			ug/L	*0.300*		*68.7*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.152			ug/L	*0.300*		*50.7*	*29-120*			
Surrogate: Fluoranthene-d10	0.226			ug/L	*0.300*		*75.2*	*57-120*			
LCS (BJB0509-BS1)				Prepared: 18-Feb-2021 Analyzed: 11-Mar-2021 11:15							
Naphthalene	0.194	0.001	0.010	ug/L	0.300		64.5	37-120			
2-Methylnaphthalene	0.197	0.001	0.010	ug/L	0.300		65.8	37-120			
1-Methylnaphthalene	0.200	0.0009	0.010	ug/L	0.300		66.7	29-120			
Acenaphthylene	0.187	0.002	0.010	ug/L	0.300		62.4	41-120			
Acenaphthene	0.198	0.003	0.010	ug/L	0.300		66.0	41-120			
Dibenzofuran	0.205	0.002	0.010	ug/L	0.300		68.3	38-120			
Fluorene	0.218	0.002	0.010	ug/L	0.300		72.8	43-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0509 - 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 (BJB0509-BS1)					Prepared: 18-Feb-2021 Analyzed: 11-Mar-2021 11:15						
Phenanthrene	0.214	0.001	0.010	ug/L	0.300		71.2	41-120			
Anthracene	0.161	0.001	0.010	ug/L	0.300		53.8	40-120			
Carbazole	0.205	0.001	0.010	ug/L	0.300		68.5	30-160			
Fluoranthene	0.223	0.002	0.010	ug/L	0.300		74.2	45-120			
Pyrene	0.220	0.001	0.010	ug/L	0.300		73.4	41-120			
Benzo(a)anthracene	0.194	0.0008	0.010	ug/L	0.300		64.6	42-120			
Chrysene	0.218	0.0009	0.010	ug/L	0.300		72.8	44-120			
Benzo(b)fluoranthene	0.200	0.0005	0.010	ug/L	0.300		66.5	44-120			
Benzo(k)fluoranthene	0.248	0.003	0.010	ug/L	0.300		82.6	50-120			
Benzo(j)fluoranthene	0.268	0.002	0.010	ug/L	0.300		89.4	39-160			
Benzofluoranthenes, Total	0.715	0.004	0.010	ug/L	0.900		79.5	46-120			
Benzo(a)pyrene	0.164	0.002	0.010	ug/L	0.300		54.8	35-120			
Perylene	0.172	0.006	0.010	ug/L	0.300		57.5	30-160			
Indeno(1,2,3-cd)pyrene	0.208	0.001	0.010	ug/L	0.300		69.2	37-120			
Dibenzo(a,h)anthracene	0.175	0.001	0.010	ug/L	0.300		58.5	34-120			
Benzo(g,h,i)perylene	0.206	0.001	0.010	ug/L	0.300		68.7	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.206			ug/L	*0.300*		*68.5*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.169			ug/L	*0.300*		*56.3*	*29-120*			
Surrogate: Fluoranthene-d10	0.229			ug/L	*0.300*		*76.5*	*57-120*			
LCS Dup (BJB0509-BSD1)					Prepared: 18-Feb-2021 Analyzed: 11-Mar-2021 11:48						
Naphthalene	0.207	0.001	0.010	ug/L	0.300		69.2	37-120	6.92	30	
2-Methylnaphthalene	0.210	0.001	0.010	ug/L	0.300		70.1	37-120	6.36	30	
1-Methylnaphthalene	0.213	0.0009	0.010	ug/L	0.300		71.0	29-120	6.17	30	
Acenaphthylene	0.199	0.002	0.010	ug/L	0.300		66.5	41-120	6.27	30	
Acenaphthene	0.209	0.003	0.010	ug/L	0.300		69.7	41-120	5.37	30	
Dibenzofuran	0.219	0.002	0.010	ug/L	0.300		73.0	38-120	6.60	30	
Fluorene	0.229	0.002	0.010	ug/L	0.300		76.2	43-120	4.54	30	
Phenanthrene	0.222	0.001	0.010	ug/L	0.300		73.9	41-120	3.73	30	
Anthracene	0.179	0.001	0.010	ug/L	0.300		59.5	40-120	10.20	30	
Carbazole	0.214	0.001	0.010	ug/L	0.300		71.3	30-160	4.00	30	
Fluoranthene	0.229	0.002	0.010	ug/L	0.300		76.5	45-120	3.00	30	
Pyrene	0.226	0.001	0.010	ug/L	0.300		75.2	41-120	2.39	30	
Benzo(a)anthracene	0.204	0.0008	0.010	ug/L	0.300		67.9	42-120	5.11	30	
Chrysene	0.229	0.0009	0.010	ug/L	0.300		76.4	44-120	4.86	30	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0509 - 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 (BJB0509-BSD1)				Prepared: 18-Feb-2021 Analyzed: 11-Mar-2021 11:48							
Benzo(b)fluoranthene	0.205	0.0005	0.010	ug/L	0.300		68.2	44-120	2.52	30	
Benzo(k)fluoranthene	0.257	0.003	0.010	ug/L	0.300		85.6	50-120	3.63	30	
Benzo(j)fluoranthene	0.280	0.002	0.010	ug/L	0.300		93.3	39-160	4.29	30	
Benzofluoranthenes, Total	0.741	0.004	0.010	ug/L	0.900		82.4	46-120	3.57	30	
Benzo(a)pyrene	0.190	0.002	0.010	ug/L	0.300		63.4	35-120	14.70	30	
Perylene	0.197	0.006	0.010	ug/L	0.300		65.7	30-160	13.30	30	
Indeno(1,2,3-cd)pyrene	0.216	0.001	0.010	ug/L	0.300		72.1	37-120	4.03	30	
Dibenzo(a,h)anthracene	0.177	0.001	0.010	ug/L	0.300		59.0	34-120	0.95	30	
Benzo(g,h,i)perylene	0.216	0.001	0.010	ug/L	0.300		72.0	38-120	4.66	30	
Surrogate: 2-Methylnaphthalene-d10	0.213			ug/L	*0.300*		*70.9*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.154			ug/L	*0.300*		*51.5*	*29-120*			
Surrogate: Fluoranthene-d10	0.227			ug/L	*0.300*		*75.8*	*57-120*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Petroleum Hydrocarbons - Quality Control

Batch BJB0484 - 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 (BJB0484-BLK1)				Prepared: 18-Feb-2021	Analyzed: 12-Mar-2021 16:59					
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	0.239		mg/L	*0.225*		*106*	*50-150*			
LCS (BJB0484-BS1)				Prepared: 18-Feb-2021	Analyzed: 12-Mar-2021 17:20					
Diesel Range Organics (C12-C24)	3.00	0.100	mg/L	3.00		100	56-120			
Surrogate: o-Terphenyl	0.251		mg/L	*0.225*		*112*	*50-150*			
LCS Dup (BJB0484-BSD1)				Prepared: 18-Feb-2021	Analyzed: 12-Mar-2021 17:41					
Diesel Range Organics (C12-C24)	3.01	0.100	mg/L	3.00		100	56-120	0.12	30	
Surrogate: o-Terphenyl	0.240		mg/L	*0.225*		*106*	*50-150*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Aroclor PCB - Quality Control

Batch BJB0536 - 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 (BJB0536-BLK1)				Prepared: 19-Feb-2021 Analyzed: 12-Mar-2021 17:38							
Aroclor 1016	ND	0.018	0.100	ug/L							U
Aroclor 1221	ND	0.018	0.100	ug/L							U
Aroclor 1232	ND	0.018	0.100	ug/L							U
Aroclor 1242	ND	0.018	0.100	ug/L							U
Aroclor 1248	ND	0.018	0.100	ug/L							U
Aroclor 1254	ND	0.018	0.100	ug/L							U
Aroclor 1260	ND	0.017	0.100	ug/L							U
Aroclor 1262	ND	0.017	0.100	ug/L							U
Aroclor 1268	ND	0.017	0.100	ug/L							U
Surrogate: Decachlorobiphenyl	0.0370			ug/L	*0.0800*		*46.2*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0325			ug/L	*0.0800*		*40.6*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0357			ug/L	*0.0800*		*44.6*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0298			ug/L	*0.0800*		*37.2*	*39-120*			*
LCS (BJB0536-BS1)				Prepared: 19-Feb-2021 Analyzed: 12-Mar-2021 17:59							
Aroclor 1016 [2C]	0.551	0.018	0.100	ug/L	1.00		55.1	51-120			
Aroclor 1260 [2C]	0.565	0.017	0.100	ug/L	1.00		56.5	56-120			
Surrogate: Decachlorobiphenyl	0.0360			ug/L	*0.0800*		*45.0*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0372			ug/L	*0.0800*		*46.5*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0343			ug/L	*0.0800*		*42.9*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0322			ug/L	*0.0800*		*40.3*	*39-120*			
LCS Dup (BJB0536-BSD1)				Prepared: 19-Feb-2021 Analyzed: 12-Mar-2021 18:19							
Aroclor 1016 [2C]	0.641	0.018	0.100	ug/L	1.00		64.1	51-120	15.10	30	
Aroclor 1260 [2C]	0.672	0.017	0.100	ug/L	1.00		67.2	56-120	17.30	30	
Surrogate: Decachlorobiphenyl	0.0447			ug/L	*0.0800*		*55.8*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0442			ug/L	*0.0800*		*55.3*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0461			ug/L	*0.0800*		*57.7*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0366			ug/L	*0.0800*		*45.7*	*39-120*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Metals and Metallic Compounds - Quality Control

Batch BJB0680 - 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 (BJB0680-BLK1)					Prepared: 23-Feb-2021 Analyzed: 25-Feb-2021 20:13							
Barium	135	0.185	0.0560	0.500	ug/L							J
Barium	137	0.182	0.0530	0.500	ug/L							J
Chromium	52	ND	0.130	0.500	ug/L							U
Chromium	53	ND	0.0700	0.500	ug/L							U
Cobalt	59	ND	0.0290	0.200	ug/L							U
Lead	208	ND	0.0680	0.100	ug/L							U
Manganese	55	ND	0.0850	0.500	ug/L							U
Silver	107	ND	0.0170	0.200	ug/L							U
Vanadium	51a	ND	0.0400	0.200	ug/L							U
Vanadium	51b	ND	0.0160	0.200	ug/L							U
Arsenic	75a	ND	0.0220	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	0.340	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	ND	0.0500	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Selenium	78	ND	0.440	0.500	ug/L							U
Zinc	66	ND	0.820	4.00	ug/L							U
Zinc	67	ND	0.940	4.00	ug/L							U
Blank (BJB0680-BLK2)					Prepared: 23-Feb-2021 Analyzed: 26-Feb-2021 14:20							
Iron	54	ND	6.27	20.0	ug/L							U
Iron	57	ND	1.40	20.0	ug/L							U
LCS (BJB0680-BS1)					Prepared: 23-Feb-2021 Analyzed: 25-Feb-2021 20:18							
Barium	135	25.3	0.0560	0.500	ug/L	25.0		101	80-120			
Barium	137	25.4	0.0530	0.500	ug/L	25.0		102	80-120			
Chromium	52	25.8	0.130	0.500	ug/L	25.0		103	80-120			
Chromium	53	26.1	0.0700	0.500	ug/L	25.0		104	80-120			
Cobalt	59	25.2	0.0290	0.200	ug/L	25.0		101	80-120			
Iron	54	5140	6.27	20.0	ug/L	5000		103	80-120			
Iron	57	5110	1.40	20.0	ug/L	5000		102	80-120			
Lead	208	25.8	0.0680	0.100	ug/L	25.0		103	80-120			
Manganese	55	26.5	0.0850	0.500	ug/L	25.0		106	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Metals and Metallic Compounds - Quality Control

Batch BJB0680 - 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 (BJB0680-BS1)						Prepared: 23-Feb-2021 Analyzed: 25-Feb-2021 20:18						
Silver	107	26.4	0.0170	0.200	ug/L	25.0		106	80-120			
Vanadium	51a	25.4	0.0400	0.200	ug/L	25.0		101	80-120			
Vanadium	51b	25.5	0.0160	0.200	ug/L	25.0		102	80-120			
Arsenic	75a	25.0	0.0220	0.200	ug/L	25.0		100	80-120			
Cadmium	111	25.8	0.0300	0.100	ug/L	25.0		103	80-120			
Cadmium	114	26.1	0.0400	0.100	ug/L	25.0		104	80-120			
Copper	63	25.3	0.340	0.500	ug/L	25.0		101	80-120			
Copper	65	26.0	0.350	0.500	ug/L	25.0		104	80-120			
Nickel	60	25.8	0.0500	0.500	ug/L	25.0		103	80-120			
Nickel	62	25.4	0.220	0.500	ug/L	25.0		102	80-120			
Selenium	78	82.6	0.440	0.500	ug/L	80.0		103	80-120			
Zinc	66	80.9	0.820	4.00	ug/L	80.0		101	80-120			
Zinc	67	81.0	0.940	4.00	ug/L	80.0		101	80-120			
Duplicate (BJB0680-DUP3)			**Source: 21B0192-02**			Prepared: 23-Feb-2021 Analyzed: 25-Feb-2021 21:50						
Chromium	52	0.677	0.130	0.500	ug/L		0.654			3.46	20	
Cobalt	59	0.0860	0.0290	0.200	ug/L		0.0960			11.00	20	J
Iron	57	337	1.40	20.0	ug/L		345			2.46	20	
Manganese	55	4.11	0.0850	0.500	ug/L		4.19			1.83	20	
Vanadium	51a	1.45	0.0400	0.200	ug/L		1.45			0.28	20	
Arsenic	75a	0.443	0.0220	0.200	ug/L		0.472			6.34	20	
Cadmium	111	0.0330	0.0300	0.100	ug/L		0.0380			14.10	20	J
Copper	63	1.26	0.340	0.500	ug/L		0.846			39.40	20	L
Nickel	60	2.44	0.0500	0.500	ug/L		2.47			1.47	20	
Selenium	78	ND	0.440	0.500	ug/L		ND					U
Zinc	66	ND	0.820	4.00	ug/L		0.904					U
Matrix Spike (BJB0680-MS3)			**Source: 21B0192-02**			Prepared: 23-Feb-2021 Analyzed: 25-Feb-2021 21:55						
Chromium	52	23.0	0.130	0.500	ug/L	25.0	0.654	89.5	75-125			
Cobalt	59	25.9	0.0290	0.200	ug/L	25.0	0.0960	103	75-125			
Iron	57	4730	1.40	20.0	ug/L	5000	345	87.7	75-125			
Manganese	55	27.3	0.0850	0.500	ug/L	25.0	4.19	92.6	75-125			
Vanadium	51a	23.6	0.0400	0.200	ug/L	25.0	1.45	88.7	75-125			
Arsenic	75a	25.4	0.0220	0.200	ug/L	25.0	0.472	99.5	75-125			
Cadmium	111	25.0	0.0300	0.100	ug/L	25.0	0.0380	99.9	75-125			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Metals and Metallic Compounds - Quality Control

Batch BJB0680 - 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 (BJB0680-MS3)			**Source: 21B0192-02**			Prepared: 23-Feb-2021		Analyzed: 25-Feb-2021 21:55				
Copper	63	26.2	0.340	0.500	ug/L	25.0	0.846	101	75-125			
Nickel	60	28.2	0.0500	0.500	ug/L	25.0	2.47	103	75-125			
Selenium	78	78.7	0.440	0.500	ug/L	80.0	ND	98.4	75-125			
Zinc	66	79.1	0.820	4.00	ug/L	80.0	0.904	97.7	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJB0680-MSD3)			**Source: 21B0192-02**			Prepared: 23-Feb-2021		Analyzed: 25-Feb-2021 22:01				
Chromium	52	22.3	0.130	0.500	ug/L	25.0	0.654	86.5	75-125	3.27	20	
Cobalt	59	26.1	0.0290	0.200	ug/L	25.0	0.0960	104	75-125	0.78	20	
Iron	57	4660	1.40	20.0	ug/L	5000	345	86.3	75-125	1.47	20	
Manganese	55	25.9	0.0850	0.500	ug/L	25.0	4.19	87.0	75-125	5.29	20	
Vanadium	51a	23.1	0.0400	0.200	ug/L	25.0	1.45	86.5	75-125	2.29	20	
Arsenic	75a	25.2	0.0220	0.200	ug/L	25.0	0.472	98.9	75-125	0.64	20	
Cadmium	111	24.8	0.0300	0.100	ug/L	25.0	0.0380	99.2	75-125	0.66	20	
Copper	63	26.0	0.340	0.500	ug/L	25.0	0.846	101	75-125	0.67	20	
Nickel	60	27.7	0.0500	0.500	ug/L	25.0	2.47	101	75-125	1.48	20	
Selenium	78	78.1	0.440	0.500	ug/L	80.0	ND	97.6	75-125	0.81	20	
Zinc	66	78.0	0.820	4.00	ug/L	80.0	0.904	96.4	75-125	1.39	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 (BJB0680-DUP1)			**Source: 21B0192-02**			Prepared: 23-Feb-2021		Analyzed: 25-Feb-2021 00:34				
Barium	135	3.28	0.0560	0.500	ug/L		3.51			6.92	20	
Lead	208	ND	0.0680	0.100	ug/L		ND					U
Silver	107	ND	0.0170	0.200	ug/L		ND					U
Matrix Spike (BJB0680-MS1)			**Source: 21B0192-02**			Prepared: 23-Feb-2021		Analyzed: 25-Feb-2021 00:40				
Barium	135	28.5	0.0560	0.500	ug/L	25.0	3.51	99.9	75-125			
Lead	208	25.8	0.0680	0.100	ug/L	25.0	ND	103	75-125			
Silver	107	25.4	0.0170	0.200	ug/L	25.0	ND	102	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJB0680-MSD1)			**Source: 21B0192-02**			Prepared: 23-Feb-2021		Analyzed: 25-Feb-2021 00:46				

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Metals and Metallic Compounds - Quality Control

Batch BJB0680 - 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 Dup (BJB0680-MSD1)			**Source: 21B0192-02**		Prepared: 23-Feb-2021	Analyzed: 25-Feb-2021 00:46						
Barium	135	28.6	0.0560	0.500	ug/L	25.0	3.51	101	75-125	0.50	20	
Lead	208	25.8	0.0680	0.100	ug/L	25.0	ND	103	75-125	0.03	20	
Silver	107	24.7	0.0170	0.200	ug/L	25.0	ND	98.8	75-125	2.97	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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Metals and Metallic Compounds - Quality Control

Batch BJB0736 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJB0736-BLK1)				Prepared: 25-Feb-2021 Analyzed: 25-Feb-2021 14:21							
Mercury	ND	0.000013	0.000100	mg/L							U
LCS (BJB0736-BS1)				Prepared: 25-Feb-2021 Analyzed: 25-Feb-2021 14:28							
Mercury	0.00226	0.000013	0.000100	mg/L	0.00200		113	80-120			
Duplicate (BJB0736-DUP1)		**Source: 21B0192-02**		Prepared: 25-Feb-2021 Analyzed: 25-Feb-2021 14:33							
Mercury	ND	0.000013	0.000100	mg/L		ND					U
Matrix Spike (BJB0736-MS1)		**Source: 21B0192-02**		Prepared: 25-Feb-2021 Analyzed: 25-Feb-2021 14:35							
Mercury	0.00118	0.000013	0.000100	mg/L	0.00100	ND	118	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJB0736-MSD1)		**Source: 21B0192-02**		Prepared: 25-Feb-2021 Analyzed: 25-Feb-2021 14:38							
Mercury	0.00127	0.000013	0.000100	mg/L	0.00100	ND	127	75-125	7.18	20	*
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Post Spike (BJB0736-PS1)		**Source: 21B0192-02**		Prepared: 25-Feb-2021 Analyzed: 25-Feb-2021 15:03							
Mercury	0.000840			mg/L	0.00100	ND	84.0	0-200			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJB0675 - 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 (BJB0675-BLK2)						Prepared: 23-Feb-2021 Analyzed: 25-Feb-2021 17:12						
Chromium, Dissolved	52	ND	0.130	0.500	ug/L							U
Cobalt, Dissolved	59	ND	0.0290	0.200	ug/L							U
Chromium, Dissolved	53	ND	0.0700	0.500	ug/L							U
Lead, Dissolved	208	ND	0.0680	0.100	ug/L							U
Manganese, Dissolved	55	0.148	0.0850	0.500	ug/L							J
Vanadium, Dissolved	51a	ND	0.0400	0.200	ug/L							U
Vanadium, Dissolved	51b	ND	0.0160	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
Nickel, Dissolved	60	ND	0.0500	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
LCS (BJB0675-BS2)						Prepared: 23-Feb-2021 Analyzed: 25-Feb-2021 17:16						
Chromium, Dissolved	52	23.8	0.130	0.500	ug/L	25.0		95.3	80-120			
Chromium, Dissolved	53	23.6	0.0700	0.500	ug/L	25.0		94.4	80-120			
Cobalt, Dissolved	59	23.6	0.0290	0.200	ug/L	25.0		94.3	80-120			
Lead, Dissolved	208	23.4	0.0680	0.100	ug/L	25.0		93.5	80-120			
Manganese, Dissolved	55	23.8	0.0850	0.500	ug/L	25.0		95.3	80-120			
Vanadium, Dissolved	51a	23.5	0.0400	0.200	ug/L	25.0		94.0	80-120			
Vanadium, Dissolved	51b	23.4	0.0160	0.200	ug/L	25.0		93.7	80-120			
Cadmium, Dissolved	111	22.5	0.0300	0.100	ug/L	25.0		89.8	80-120			
Cadmium, Dissolved	114	23.3	0.0400	0.100	ug/L	25.0		93.2	80-120			
Nickel, Dissolved	60	23.8	0.0500	0.500	ug/L	25.0		95.3	80-120			
Nickel, Dissolved	62	23.2	0.220	0.500	ug/L	25.0		92.7	80-120			
Duplicate (BJB0675-DUP3)			**Source: 21B0192-03**			Prepared: 23-Feb-2021 Analyzed: 25-Feb-2021 20:44						
Chromium, Dissolved	52	0.488	0.130	0.500	ug/L		0.523			6.92	20	J
Cobalt, Dissolved	59	0.0670	0.0290	0.200	ug/L		0.0590			12.70	20	J
Manganese, Dissolved	55	1.83	0.0850	0.500	ug/L		1.77			3.61	20	
Vanadium, Dissolved	51a	1.10	0.0400	0.200	ug/L		1.07			2.21	20	
Cadmium, Dissolved	111	0.0420	0.0300	0.100	ug/L		ND					J
Nickel, Dissolved	60	2.27	0.0500	0.500	ug/L		2.22			2.14	20	
Matrix Spike (BJB0675-MS3)			**Source: 21B0192-03**			Prepared: 23-Feb-2021 Analyzed: 25-Feb-2021 20:49						
Chromium, Dissolved	52	22.4	0.130	0.500	ug/L	25.0	0.523	87.5	75-125			
Cobalt, Dissolved	59	26.6	0.0290	0.200	ug/L	25.0	0.0590	106	75-125			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJB0675 - 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 (BJB0675-MS3)			**Source: 21B0192-03**			Prepared: 23-Feb-2021		Analyzed: 25-Feb-2021 20:49				
Manganese, Dissolved	55	24.1	0.0850	0.500	ug/L	25.0	1.77	89.3	75-125			
Vanadium, Dissolved	51a	22.9	0.0400	0.200	ug/L	25.0	1.07	87.3	75-125			
Cadmium, Dissolved	111	25.1	0.0300	0.100	ug/L	25.0	ND	100	75-125			
Nickel, Dissolved	60	28.3	0.0500	0.500	ug/L	25.0	2.22	104	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJB0675-MSD3)			**Source: 21B0192-03**			Prepared: 23-Feb-2021		Analyzed: 25-Feb-2021 20:55				
Chromium, Dissolved	52	22.6	0.130	0.500	ug/L	25.0	0.523	88.4	75-125	1.10	20	
Cobalt, Dissolved	59	25.9	0.0290	0.200	ug/L	25.0	0.0590	103	75-125	2.65	20	
Manganese, Dissolved	55	24.3	0.0850	0.500	ug/L	25.0	1.77	90.0	75-125	0.67	20	
Vanadium, Dissolved	51a	23.4	0.0400	0.200	ug/L	25.0	1.07	89.3	75-125	2.19	20	
Cadmium, Dissolved	111	24.6	0.0300	0.100	ug/L	25.0	ND	98.3	75-125	2.16	20	
Nickel, Dissolved	60	28.0	0.0500	0.500	ug/L	25.0	2.22	103	75-125	1.28	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
Blank (BJB0675-BLK1)						Prepared: 23-Feb-2021		Analyzed: 24-Feb-2021 01:27				
Barium, Dissolved	135	ND	0.0560	0.500	ug/L							U
Barium, Dissolved	137	ND	0.0530	0.500	ug/L							U
Iron, Dissolved	54	9.34	6.27	20.0	ug/L							J
Iron, Dissolved	57	ND	1.40	20.0	ug/L							U
Silver, Dissolved	107	ND	0.0170	0.200	ug/L							U
Arsenic, Dissolved	75a	ND	0.0220	0.200	ug/L							U
Copper, Dissolved	63	ND	0.340	0.500	ug/L							U
Copper, Dissolved	65	ND	0.350	0.500	ug/L							U
Selenium, Dissolved	78	ND	0.440	0.500	ug/L							U
Zinc, Dissolved	66	ND	0.820	4.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	4.00	ug/L							U
LCS (BJB0675-BS1)						Prepared: 23-Feb-2021		Analyzed: 24-Feb-2021 01:32				
Barium, Dissolved	135	23.3	0.0560	0.500	ug/L	25.0		93.4	80-120			
Barium, Dissolved	137	23.7	0.0530	0.500	ug/L	25.0		94.8	80-120			
Iron, Dissolved	54	5150	6.27	20.0	ug/L	5000		103	80-120			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJB0675 - 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
LCS (BJB0675-BS1)						Prepared: 23-Feb-2021		Analyzed: 24-Feb-2021 01:32				
Iron, Dissolved	57	5040	1.40	20.0	ug/L	5000		101	80-120			
Silver, Dissolved	107	23.2	0.0170	0.200	ug/L	25.0		92.9	80-120			
Arsenic, Dissolved	75a	23.8	0.0220	0.200	ug/L	25.0		95.1	80-120			
Copper, Dissolved	63	26.5	0.340	0.500	ug/L	25.0		106	80-120			
Copper, Dissolved	65	26.7	0.350	0.500	ug/L	25.0		107	80-120			
Selenium, Dissolved	78	72.3	0.440	0.500	ug/L	80.0		90.3	80-120			
Zinc, Dissolved	66	80.5	0.820	4.00	ug/L	80.0		101	80-120			
Zinc, Dissolved	67	75.7	0.940	4.00	ug/L	80.0		94.6	80-120			
Duplicate (BJB0675-DUP1)			**Source: 21B0192-03**			Prepared: 23-Feb-2021		Analyzed: 24-Feb-2021 01:57				
Barium, Dissolved	135	3.04	0.0560	0.500	ug/L		2.94			3.27	20	
Iron, Dissolved	54	19.7	6.27	20.0	ug/L		19.2			2.73	20	J
Silver, Dissolved	107	ND	0.0170	0.200	ug/L		ND					U
Arsenic, Dissolved	75a	0.268	0.0220	0.200	ug/L		0.281			4.74	20	
Copper, Dissolved	63	0.704	0.340	0.500	ug/L		0.663			6.00	20	
Selenium, Dissolved	78	ND	0.440	0.500	ug/L		ND					U
Zinc, Dissolved	66	ND	0.820	4.00	ug/L		ND					U
Duplicate (BJB0675-DUP2)			**Source: 21B0192-03**			Prepared: 23-Feb-2021		Analyzed: 25-Feb-2021 01:06				
Lead, Dissolved	208	ND	0.0680	0.100	ug/L		ND					U
Matrix Spike (BJB0675-MS1)			**Source: 21B0192-03**			Prepared: 23-Feb-2021		Analyzed: 24-Feb-2021 02:02				
Barium, Dissolved	135	28.4	0.0560	0.500	ug/L	25.0	2.94	102	75-125			
Iron, Dissolved	54	4660	6.27	20.0	ug/L	5000	19.2	92.7	75-125			
Silver, Dissolved	107	24.4	0.0170	0.200	ug/L	25.0	ND	97.6	75-125			
Arsenic, Dissolved	75a	24.4	0.0220	0.200	ug/L	25.0	0.281	96.4	75-125			
Copper, Dissolved	63	27.4	0.340	0.500	ug/L	25.0	0.663	107	75-125			
Selenium, Dissolved	78	73.8	0.440	0.500	ug/L	80.0	ND	92.3	75-125			
Zinc, Dissolved	66	78.8	0.820	4.00	ug/L	80.0	ND	98.5	75-125			

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

Matrix Spike (BJB0675-MS2)			**Source: 21B0192-03**			Prepared: 23-Feb-2021		Analyzed: 25-Feb-2021 01:11				
Lead, Dissolved	208	27.0	0.0680	0.100	ug/L	25.0	ND	108	75-125			

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

Matrix Spike Dup (BJB0675-MSD1)			**Source: 21B0192-03**			Prepared: 23-Feb-2021		Analyzed: 24-Feb-2021 02:08				

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJB0675 - 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 Dup (BJB0675-MSD1)			**Source: 21B0192-03**			Prepared: 23-Feb-2021	Analyzed: 24-Feb-2021 02:08					
Barium, Dissolved	135	28.1	0.0560	0.500	ug/L	25.0	2.94	100	75-125	1.04	20	
Iron, Dissolved	54	4640	6.27	20.0	ug/L	5000	19.2	92.5	75-125	0.24	20	
Silver, Dissolved	107	24.1	0.0170	0.200	ug/L	25.0	ND	96.4	75-125	1.19	20	
Arsenic, Dissolved	75a	24.9	0.0220	0.200	ug/L	25.0	0.281	98.3	75-125	1.96	20	
Copper, Dissolved	63	27.8	0.340	0.500	ug/L	25.0	0.663	109	75-125	1.70	20	
Selenium, Dissolved	78	72.3	0.440	0.500	ug/L	80.0	ND	90.3	75-125	2.16	20	
Zinc, Dissolved	66	81.2	0.820	4.00	ug/L	80.0	ND	102	75-125	3.01	20	

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

Matrix Spike Dup (BJB0675-MSD2)			**Source: 21B0192-03**			Prepared: 23-Feb-2021	Analyzed: 25-Feb-2021 01:18					
Lead, Dissolved	208	26.1	0.0680	0.100	ug/L	25.0	ND	105	75-125	3.35	20	

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

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJB0704 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJB0704-BLK1)					Prepared: 24-Feb-2021		Analyzed: 25-Feb-2021 12:55				
Mercury, Dissolved	ND	0.000013	0.000100	mg/L							U
LCS (BJB0704-BS1)					Prepared: 24-Feb-2021		Analyzed: 25-Feb-2021 12:57				
Mercury, Dissolved	0.00199	0.000013	0.000100	mg/L	0.00200		99.4	80-120			
Duplicate (BJB0704-DUP1)		**Source: 21B0192-05**			Prepared: 24-Feb-2021		Analyzed: 25-Feb-2021 13:02				
Mercury, Dissolved	ND	0.000013	0.000100	mg/L		ND					U
Matrix Spike (BJB0704-MS1)		**Source: 21B0192-05**			Prepared: 24-Feb-2021		Analyzed: 25-Feb-2021 13:04				
Mercury, Dissolved	0.00113	0.000013	0.000100	mg/L	0.00100	ND	113	75-125			

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

Matrix Spike Dup (BJB0704-MSD1)		**Source: 21B0192-05**			Prepared: 24-Feb-2021		Analyzed: 25-Feb-2021 13:07				
Mercury, Dissolved	0.00104	0.000013	0.000100	mg/L	0.00100	ND	104	75-125	7.75	20	

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

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Wet Chemistry - Quality Control

Batch BJB0423 - 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 (BJB0423-BLK1)				Prepared: 12-Feb-2021 Analyzed: 12-Feb-2021 22:23							
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 (BJB0423-BLK2)				Prepared: 12-Feb-2021 Analyzed: 17-Feb-2021 22:28							
Sulfate	ND	0.100	0.100	mg/L							U
LCS (BJB0423-BS1)				Prepared: 12-Feb-2021 Analyzed: 12-Feb-2021 22:43							
Chloride	4.88	0.100	0.100	mg/L	5.00		97.5	90-110			
Nitrate-N	5.12	0.100	0.100	mg/L	5.00		102	90-110			
Nitrite-N	5.01	0.100	0.100	mg/L	5.00		100	90-110			
LCS (BJB0423-BS2)				Prepared: 12-Feb-2021 Analyzed: 17-Feb-2021 22:48							
Sulfate	5.10	0.100	0.100	mg/L	5.00		102	90-110			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Wet Chemistry - Quality Control

Batch BJB0424 - 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 (BJB0424-BLK1)				Prepared: 12-Feb-2021 Analyzed: 12-Feb-2021 16:59							
Sulfite	ND	1.4	1.4	mg/L							U
LCS (BJB0424-BS1)				Prepared: 12-Feb-2021 Analyzed: 12-Feb-2021 16:59							
Sulfite	4.0	1.4	1.4	mg/L	5.02		79.0	75-100			
Duplicate (BJB0424-DUP1)		**Source: 21B0192-01**		Prepared: 12-Feb-2021 Analyzed: 12-Feb-2021 16:59							
Sulfite	ND	1.4	1.4	mg/L		ND					H, U

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Wet Chemistry - Quality Control

Batch BJB0426 - No Prep Wet Chem

Instrument: UV1800-1 Analyst: WCW

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJB0426-BLK1)				Prepared: 12-Feb-2021 Analyzed: 12-Feb-2021 17:53							
Hexavalent Chromium	ND	0.013	0.013	mg/L							U
LCS (BJB0426-BS1)				Prepared: 12-Feb-2021 Analyzed: 12-Feb-2021 17:53							
Hexavalent Chromium	0.608	0.013	0.013	mg/L	0.625		97.3	85-115			D

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Wet Chemistry - Quality Control

Batch BJB0427 - No Prep Wet Chem

Instrument: UV1800-2 Analyst: WMT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJB0427-BLK1)				Prepared: 12-Feb-2021 Analyzed: 12-Feb-2021 18:53							
Ferrous Iron	ND	0.040	0.040	mg/L							U
LCS (BJB0427-BS1)				Prepared: 12-Feb-2021 Analyzed: 12-Feb-2021 18:53							
Ferrous Iron	0.471	0.040	0.040	mg/L	0.501		94.1	90-110			
Duplicate (BJB0427-DUP1)		**Source: 21B0192-01**		Prepared: 12-Feb-2021 Analyzed: 12-Feb-2021 19:17							
Ferrous Iron	36.2	0.800	0.800	mg/L		37.1			2.35	20	D
Matrix Spike (BJB0427-MS1)		**Source: 21B0192-01**		Prepared: 12-Feb-2021 Analyzed: 12-Feb-2021 19:31							
Ferrous Iron	55.7	2.22	2.22	mg/L	22.2	37.1	83.5	75-125			D

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

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Certified Analyses included in this Report

Analyte	Certifications
EPA 300.0 in Water	
Chloride	DoD-ELAP,WA-DW,NELAP
Chloride	DoD-ELAP,WADOE,NELAP
Nitrate-N	DoD-ELAP,WA-DW,NELAP
Nitrate-N	DoD-ELAP,WADOE,NELAP
Nitrite-N	DoD-ELAP,WA-DW,NELAP
Nitrite-N	DoD-ELAP,WADOE,NELAP
Sulfate	DoD-ELAP,WA-DW,NELAP
Sulfate	DoD-ELAP,WADOE,NELAP
EPA 6020B in Water	
Silver-107	WA-DW,DoD-ELAP,NELAP
Silver-107	WADOE,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-135	NELAP,DoD-ELAP,ADEC
Barium-137	NELAP,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	DoD-ELAP,NELAP
Cobalt-59	DoD-ELAP,NELAP,WADOE
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,DoD-ELAP,ADEC
Chromium-53	NELAP,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-54	NELAP,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,DoD-ELAP
Manganese-55	NELAP,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Lead-208	NELAP,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51a	NELAP,DoD-ELAP,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,ADEC
Silver-107	WA-DW,DoD-ELAP,NELAP
Silver-107	DoD-ELAP,NELAP

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Barium-135	NELAP,DoD-ELAP,ADEC
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,DoD-ELAP,ADEC
Cobalt-59	NELAP,DoD-ELAP,WADOE
Cobalt-59	NELAP,DoD-ELAP
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-54	NELAP,DoD-ELAP
Iron-57	NELAP,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,DoD-ELAP
Lead-208	NELAP,DoD-ELAP,ADEC
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC

EPA 6020B UCT-KED in Water

Arsenic-75a	WA-DW,DoD-ELAP,ADEC,NELAP
Arsenic-75a	WADOE,DoD-ELAP,ADEC,NELAP
Cadmium-111	NELAP,DoD-ELAP,ADEC
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,DoD-ELAP,ADEC
Copper-63	NELAP,DoD-ELAP
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,DoD-ELAP,ADEC
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Selenium-78	NELAP,DoD-ELAP

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Analytical Report

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Zinc-66	WADOE,DoD-ELAP
Zinc-66	WA-DW,DoD-ELAP
Zinc-67	WADOE,DoD-ELAP
Zinc-67	WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
Arsenic-75a	NELAP,DoD-ELAP,ADEC
Cadmium-111	NELAP,DoD-ELAP,ADEC
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-63	NELAP,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,DoD-ELAP
Nickel-60	NELAP,DoD-ELAP,ADEC
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Selenium-78	NELAP,DoD-ELAP
Zinc-66	NELAP,DoD-ELAP
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
EPA 7470A in Water	
Mercury	WADOE,NELAP,DoD-ELAP
Mercury	NELAP,DoD-ELAP
Mercury	NELAP,DoD-ELAP
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8082A in Water	
Aroclor 1016	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1016	ADEC,DoD-ELAP,NELAP
Aroclor-1016 (1)	ADEC
Aroclor-1016 (1)	ADEC
Aroclor-1016 (2)	ADEC
Aroclor-1016 (2)	ADEC
Aroclor-1016 (3)	ADEC
Aroclor-1016 (3)	ADEC
Aroclor-1016 (4)	ADEC

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Aroclor-1016 (4)	ADEC
Aroclor 1016 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1016 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1016 (1) [2C]	ADEC
Aroclor-1016 (1) [2C]	ADEC
Aroclor-1016 (2) [2C]	ADEC
Aroclor-1016 (2) [2C]	ADEC
Aroclor-1016 (3) [2C]	ADEC
Aroclor-1016 (3) [2C]	ADEC
Aroclor-1016 (4) [2C]	ADEC
Aroclor-1016 (4) [2C]	ADEC
Aroclor 1221	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1221	ADEC,DoD-ELAP,NELAP
Aroclor-1221 (1)	ADEC
Aroclor-1221 (1)	ADEC
Aroclor-1221 (2)	ADEC
Aroclor-1221 (2)	ADEC
Aroclor-1221 (3)	ADEC
Aroclor-1221 (3)	ADEC
Aroclor 1221 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor 1221 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1221 (1) [2C]	ADEC
Aroclor-1221 (1) [2C]	ADEC
Aroclor-1221 (2) [2C]	ADEC
Aroclor-1221 (2) [2C]	ADEC
Aroclor-1221 (3) [2C]	ADEC
Aroclor-1221 (3) [2C]	ADEC
Aroclor-1221 (4) [2C]	ADEC
Aroclor-1221 (4) [2C]	ADEC
Aroclor 1232	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1232	ADEC,DoD-ELAP,NELAP
Aroclor-1232 (1)	ADEC
Aroclor-1232 (1)	ADEC
Aroclor-1232 (2)	ADEC
Aroclor-1232 (2)	ADEC
Aroclor-1232 (3)	ADEC
Aroclor-1232 (3)	ADEC
Aroclor-1232 (4)	ADEC
Aroclor-1232 (4)	ADEC

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Aroclor 1232 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1232 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1232 (1) [2C]	ADEC
Aroclor-1232 (1) [2C]	ADEC
Aroclor-1232 (2) [2C]	ADEC
Aroclor-1232 (2) [2C]	ADEC
Aroclor-1232 (3) [2C]	ADEC
Aroclor-1232 (3) [2C]	ADEC
Aroclor-1232 (4) [2C]	ADEC
Aroclor-1232 (4) [2C]	ADEC
Aroclor 1242	ADEC,DoD-ELAP,NELAP
Aroclor 1242	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1242 (1)	ADEC
Aroclor-1242 (1)	ADEC
Aroclor-1242 (2)	ADEC
Aroclor-1242 (2)	ADEC
Aroclor-1242 (3)	ADEC
Aroclor-1242 (3)	ADEC
Aroclor-1242 (4)	ADEC
Aroclor-1242 (4)	ADEC
Aroclor 1242 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1242 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1242 (1) [2C]	ADEC
Aroclor-1242 (1) [2C]	ADEC
Aroclor-1242 (2) [2C]	ADEC
Aroclor-1242 (2) [2C]	ADEC
Aroclor-1242 (3) [2C]	ADEC
Aroclor-1242 (3) [2C]	ADEC
Aroclor-1242 (4) [2C]	ADEC
Aroclor-1242 (4) [2C]	ADEC
Aroclor 1248	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1248	ADEC,DoD-ELAP,NELAP
Aroclor-1248 (1)	ADEC
Aroclor-1248 (1)	ADEC
Aroclor-1248 (2)	ADEC
Aroclor-1248 (2)	ADEC
Aroclor-1248 (3)	ADEC
Aroclor-1248 (3)	ADEC
Aroclor-1248 (4)	ADEC

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Aroclor-1248 (4)	ADEC
Aroclor 1248 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor 1248 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1248 (1) [2C]	ADEC
Aroclor-1248 (1) [2C]	ADEC
Aroclor-1248 (2) [2C]	ADEC
Aroclor-1248 (2) [2C]	ADEC
Aroclor-1248 (3) [2C]	ADEC
Aroclor-1248 (3) [2C]	ADEC
Aroclor-1248 (4) [2C]	ADEC
Aroclor-1248 (4) [2C]	ADEC
Aroclor 1254	ADEC,DoD-ELAP,NELAP
Aroclor 1254	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1254 (1)	ADEC
Aroclor-1254 (1)	ADEC
Aroclor-1254 (2)	ADEC
Aroclor-1254 (2)	ADEC
Aroclor-1254 (3)	ADEC
Aroclor-1254 (3)	ADEC
Aroclor-1254 (4)	ADEC
Aroclor-1254 (4)	ADEC
Aroclor-1254 (5)	ADEC
Aroclor-1254 (5)	ADEC
Aroclor 1254 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor 1254 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1254 (1) [2C]	ADEC
Aroclor-1254 (1) [2C]	ADEC
Aroclor-1254 (2) [2C]	ADEC
Aroclor-1254 (2) [2C]	ADEC
Aroclor-1254 (3) [2C]	ADEC
Aroclor-1254 (3) [2C]	ADEC
Aroclor-1254 (4) [2C]	ADEC
Aroclor-1254 (4) [2C]	ADEC
Aroclor-1254 (5) [2C]	ADEC
Aroclor-1254 (5) [2C]	ADEC
Aroclor 1260	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1260	ADEC,DoD-ELAP,NELAP
Aroclor-1260 (1)	ADEC
Aroclor-1260 (1)	ADEC

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Aroclor-1260 (2)	ADEC
Aroclor-1260 (2)	ADEC
Aroclor-1260 (3)	ADEC
Aroclor-1260 (3)	ADEC
Aroclor-1260 (4)	ADEC
Aroclor-1260 (4)	ADEC
Aroclor-1260 (5)	ADEC
Aroclor-1260 (5)	ADEC
Aroclor 1260 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1260 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1260 (1) [2C]	ADEC
Aroclor-1260 (1) [2C]	ADEC
Aroclor-1260 (2) [2C]	ADEC
Aroclor-1260 (2) [2C]	ADEC
Aroclor-1260 (3) [2C]	ADEC
Aroclor-1260 (3) [2C]	ADEC
Aroclor-1260 (4) [2C]	ADEC
Aroclor-1260 (4) [2C]	ADEC
Aroclor 1262	ADEC,DoD-ELAP,NELAP
Aroclor 1262	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1262 (1)	ADEC
Aroclor-1262 (1)	ADEC
Aroclor-1262 (2)	ADEC
Aroclor-1262 (2)	ADEC
Aroclor-1262 (3)	ADEC
Aroclor-1262 (3)	ADEC
Aroclor-1262 (4)	ADEC
Aroclor-1262 (4)	ADEC
Aroclor-1262 (5)	ADEC
Aroclor-1262 (5)	ADEC
Aroclor 1262 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor 1262 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1262 (1) [2C]	ADEC
Aroclor-1262 (1) [2C]	ADEC
Aroclor-1262 (2) [2C]	ADEC
Aroclor-1262 (2) [2C]	ADEC
Aroclor-1262 (3) [2C]	ADEC
Aroclor-1262 (3) [2C]	ADEC
Aroclor-1262 (4) [2C]	ADEC

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Aroclor-1262 (4) [2C]	ADEC
Aroclor-1262 (5) [2C]	ADEC
Aroclor-1262 (5) [2C]	ADEC
Aroclor 1268	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1268	ADEC,DoD-ELAP,NELAP
Aroclor-1268 (1)	ADEC
Aroclor-1268 (1)	ADEC
Aroclor-1268 (2)	ADEC
Aroclor-1268 (2)	ADEC
Aroclor-1268 (3)	ADEC
Aroclor-1268 (3)	ADEC
Aroclor-1268 (4)	ADEC
Aroclor-1268 (4)	ADEC
Aroclor 1268 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1268 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1268 (1) [2C]	ADEC
Aroclor-1268 (1) [2C]	ADEC
Aroclor-1268 (2) [2C]	ADEC
Aroclor-1268 (2) [2C]	ADEC
Aroclor-1268 (3) [2C]	ADEC
Aroclor-1268 (3) [2C]	ADEC
Aroclor-1268 (4) [2C]	ADEC
Aroclor-1268 (4) [2C]	ADEC

EPA 8260D in Water

Chloromethane	DoD-ELAP,ADEC,NELAP
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP
Chloroethane	DoD-ELAP,ADEC,NELAP
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP
Acrolein	DoD-ELAP,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP
Acetone	DoD-ELAP,ADEC,NELAP

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Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP
Iodomethane	DoD-ELAP,NELAP
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP
Vinyl Acetate	DoD-ELAP,NELAP
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP
2-Butanone	DoD-ELAP,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP
Bromochloromethane	DoD-ELAP,ADEC,NELAP
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP

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1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP
Dibromomethane	DoD-ELAP,ADEC,NELAP
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP
2-Hexanone	DoD-ELAP,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE

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Styrene	DoD-ELAP,NELAP
Bromoform	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP
n-Propylbenzene	DoD-ELAP,NELAP
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP
s-Butylbenzene	DoD-ELAP,NELAP
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
n-Butylbenzene	DoD-ELAP,NELAP
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP
n-Hexane	
n-Hexane	WADOE
2-Pentanone	WADOE
2-Pentanone	

EPA 8270E-SIM in Water

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

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

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

EPA RSK-175 in Water

Methane	NELAP
Methane	NELAP
Ethane	NELAP
Ethane	NELAP
Ethene	NELAP
Ethene	NELAP
Acetylene	NELAP
Acetylene	NELAP

NWTPH-Dx in Water

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP
Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP

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Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

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

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

NWTPHg in Water

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

SM 3500-Cr B-09 in Water

Hexavalent Chromium	NELAP
Hexavalent Chromium	WADOE,NELAP

SM 3500-Fe B-97 in Water

Ferrous Iron	NELAP
Ferrous Iron	WADOE,NELAP

SM 4500-SO3 B-00 in Water

Sulfite	NELAP
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

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Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 09:24

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.
L	Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to +/- RL instead of 20% RPD
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

21 July 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)
21B0227	N/A

Susan Dunnihoo Digitally signed by Susan Dunnihoo
Date: 2021.07.21 13:19:27 -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.

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ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21B0227	Turn-around Requested: Standard
ARI Client Company: Shannon & Wilson	Phone: 206-695-6811
Client Contact: Shoshana Howard	
Client Project Name: LDW	
Client Project #: 21-1-12596	Samplers: CTC/MRH

Page: 1	of 2
Date: 2/16/21	Ice Present? Yes
No. of Coolers: 3	Cooler Temps: See COF

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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 (low level VC)	MTBE	PAHs	Full list SVOCs	See page 2	Notes/Comments
TB-4-20211602	2/16/21	0800	Water	1	X	~~X~~ 20	X		X			~~X~~ NO	
MW-8-20211602	2/16/21	0853		10	X	X	X		X			X	
MW-72-20211602		1006		~~10~~ 12		X	☆	X		☆	X	X	☆: hold for analysis if TPH is detected
MS/MSD-MW-72-20211602		1006		16	X	X	X	X		X			
MW-64-20211602		1253		12		X	X	X		X		X	
MW-68-20211602		1503		12		X	X	X			X	X	

HVOCs: c,t,1DCE; c1s-1,2 DCE; trans-1,2 DCE; TCE; PCE; VC

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Lab to filter for metals Please refer to LDW project for Methods	Printed Name: Mitchell Hatfield	Printed Name: Jacob Leith	Printed Name:	Printed Name:
	Company: SWI	Company: ARI	Company:	Company:
	Date & Time: 2/16/21 1605	Date & Time: 02/16/2021 1605	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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21B0227	Turn-around Requested: Standard	Page: 2 of 2	
ARI Client Company: Shannon & Wilson	Phone: 206-695-6911	Date: 2/16/21	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 3	Cooler Temps: See COC
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: CTC/MKH		

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Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Full list Metals (total & diss)	Metals - A (total & dissolved)	Limited list SVOCs	PCBs	Attenuation indicators				Notes/Comments
TB-4-20211602	See	page	1	→									Metals-A: As, Ni, Hg, Se, ~~Ag, Zn~~
MW-8-20211602	See	page	1	→		X							
MW-72-20211602	See	page	1	→	X								Limited SVOCs: DEHP, dibutyl phthalate, ODCB;
MS/MSD-MW-72-20211602	See	page	1	→	X		X	X					1,4-DCB, 2,4-dimethyl phenol; benzoic Acid; BBP,
MW-64-20211602	See	page	1	→	X			X					NDPHA; PCP
MW-68-20211602	See	page	1	→	X			X					~~Attenuation indicators: Please refer to LDW project analytical methods~~

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Lab to filter for metals Please refer to LDW project for methods	Printed Name: Mitchell Hatfield	Printed Name: Jacob Salter	Printed Name:	Printed Name:
	Company: SWI	Company: ARI	Company:	Company:
	Date & Time: 2/16/21 1605	Date & Time: 02/16/2021 1605	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
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-4-20211602	21B0227-01	Water	16-Feb-2021 15:03	17-Feb-2021 16:05
MW-8-20211602	21B0227-02	Water	16-Feb-2021 08:53	17-Feb-2021 16:05
MW-8-20211602	21B0227-03	Water	16-Feb-2021 08:53	17-Feb-2021 16:05
MW-72-20211602	21B0227-04	Water	16-Feb-2021 10:06	17-Feb-2021 16:05
MW-72-20211602	21B0227-05	Water	16-Feb-2021 10:06	17-Feb-2021 16:05
MS/MSD-MW-72-20211602	21B0227-06	Water	16-Feb-2021 10:06	17-Feb-2021 16:05
MS/MSD-MW-72-20211602	21B0227-07	Water	16-Feb-2021 10:06	17-Feb-2021 16:05
MW-64-20211602	21B0227-08	Water	16-Feb-2021 12:53	17-Feb-2021 16:05
MW-64-20211602	21B0227-09	Water	16-Feb-2021 12:53	17-Feb-2021 16:05
MW-68-20211602	21B0227-10	Water	16-Feb-2021 15:03	17-Feb-2021 16:05
MW-68-20211602	21B0227-11	Water	16-Feb-2021 15:03	17-Feb-2021 16:05

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish
Work Order: 21B0227

Sample receipt

Samples as listed on the preceding page were received 17-Feb-2021 16:05 under ARI work order 21B0227. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Sample MW-72-20211602 was received with instructions on the CoC to only run BTEX and SIM-PAH if TPH was detected. As no TPH was detected, this sample was not analyzed for either parameter.

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.

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.

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.

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

The duplicate relative percent difference (RPD) was within advisory control limits.

Semivolatiles - EPA Method SW8270E

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

The results for 2,4-dinitrophenol and hexachlorocyclopentadiene were outside limits high in the second source calibration verification SJB0096-SCV1. The results for hexachlorocyclopentadiene, 4-nitrophenol, fluorene and pentachlorophenol were outside limits low in SJC0182-ICV1. Associated positive results have been "Q"-flagged.

Internal standard areas were within limits.

The surrogate percent recovery for d5-phenol was low in samples MW-72-20211602, MW-68-20211602 and the method blank BJB0600-BLK1.

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

The blank spike (BS/LCS) percent recoveries for phenol, 4-chloroaniline and 3,3'-dichlorobenzidine were outside limits low but within limits for the blank spike duplicate (BSD/LCSD). The relative percent difference (RPD) outside limits for 3-nitroaniline and 3,3-dichlorobenzidine. Outliers have been flagged on the summary sheet.

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) percent recoveries and relative percent difference (RPD) were within advisory control limits.

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.

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

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) percent recoveries and relative percent difference (RPD) were within advisory 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.

Diesel Range Organics - WA-Ecology Method NW-TPHD

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) percent recoveries and 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.

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.

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

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

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

The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits.

The duplicate (DUP) relative percent differences (RPD) were within advisory control limits.

Total and Dissolved Hg - 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.

The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits.

The duplicate (DUP) relative percent differences (RPD) were within advisory control limits.

REVISION: Revised to correct VOC reported for MW-72 and MW-8.

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.

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Analytical Chemists and Consultants

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WORK ORDER

21B0227

Client: Shannon & Wilson, Inc
Project Manager: Amanda Volgardsen Johnson
Project: Lower Duwamish
Project Number: Lower Duwamish/21-1-12596

Preservation Confirmation

Container ID	Container Type	pH
21B0227-01 A	VOA Vial, Clear, 40 mL, HCL	
21B0227-02 A	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21B0227-02 B	Glass NM, Amber, 500 mL	
21B0227-02 C	Glass NM, Amber, 500 mL	
21B0227-02 D	VOA Vial, Clear, 40 mL, HCL	
21B0227-02 E	VOA Vial, Clear, 40 mL, HCL	
21B0227-02 F	VOA Vial, Clear, 40 mL, HCL	
21B0227-02 G	VOA Vial, Clear, 40 mL, HCL	
21B0227-02 H	VOA Vial, Clear, 40 mL, HCL	
21B0227-02 I	VOA Vial, Clear, 40 mL, HCL	
21B0227-03 A	HDPE NM, 500 mL	>2 Fail
21B0227-04 A	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21B0227-04 B	Glass NM, Amber, 500 mL	
21B0227-04 C	Glass NM, Amber, 500 mL	
21B0227-04 D	Glass NM, Amber, 500 mL	
21B0227-04 E	Glass NM, Amber, 500 mL	
21B0227-04 F	Glass NM, Amber, 500 mL	
21B0227-04 G	Glass NM, Amber, 500 mL	
21B0227-04 H	VOA Vial, Clear, 40 mL, HCL	
21B0227-04 I	VOA Vial, Clear, 40 mL, HCL	
21B0227-04 J	VOA Vial, Clear, 40 mL, HCL	
21B0227-04 K	VOA Vial, Clear, 40 mL, HCL	
21B0227-05 A	HDPE NM, 500 mL	>2 Fail
21B0227-06 A	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21B0227-06 B	Glass NM, Amber, 500 mL	
21B0227-06 C	Glass NM, Amber, 500 mL	
21B0227-06 D	Glass NM, Amber, 500 mL	
21B0227-06 E	Glass NM, Amber, 500 mL	
21B0227-06 F	Glass NM, Amber, 500 mL	
21B0227-06 G	Glass NM, Amber, 500 mL	
21B0227-06 H	Glass NM, Amber, 500 mL	
21B0227-06 I	Glass NM, Amber, 500 mL	
21B0227-06 J	VOA Vial, Clear, 40 mL, HCL	
21B0227-06 K	VOA Vial, Clear, 40 mL, HCL	
21B0227-06 L	VOA Vial, Clear, 40 mL, HCL	

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Analytical Chemists and Consultants

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WORK ORDER

21B0227

Client: Shannon & Wilson, Inc	**Project Manager: Amanda Volgardsen Johnson**
Project: Lower Duwamish	**Project Number: Lower Duwamish/21-1-12596**

21B0227-06 M	VOA Vial, Clear, 40 mL, HCL	
21B0227-06 N	VOA Vial, Clear, 40 mL, HCL	
21B0227-06 O	VOA Vial, Clear, 40 mL, HCL	
21B0227-07 A	HDPE NM, 500 mL	>2 Fail
21B0227-08 A	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21B0227-08 B	Glass NM, Amber, 500 mL	
21B0227-08 C	Glass NM, Amber, 500 mL	
21B0227-08 D	Glass NM, Amber, 500 mL	
21B0227-08 E	Glass NM, Amber, 500 mL	
21B0227-08 F	Glass NM, Amber, 500 mL	
21B0227-08 G	Glass NM, Amber, 500 mL	
21B0227-08 H	VOA Vial, Clear, 40 mL, HCL	
21B0227-08 I	VOA Vial, Clear, 40 mL, HCL	
21B0227-08 J	VOA Vial, Clear, 40 mL, HCL	
21B0227-08 K	VOA Vial, Clear, 40 mL, HCL	
21B0227-09 A	HDPE NM, 500 mL	>2 Fail
21B0227-10 A	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21B0227-10 B	Glass NM, Amber, 500 mL	
21B0227-10 C	Glass NM, Amber, 500 mL	
21B0227-10 D	Glass NM, Amber, 500 mL	
21B0227-10 E	Glass NM, Amber, 500 mL	
21B0227-10 F	Glass NM, Amber, 500 mL	
21B0227-10 G	Glass NM, Amber, 500 mL	
21B0227-10 H	VOA Vial, Clear, 40 mL, HCL	
21B0227-10 I	VOA Vial, Clear, 40 mL, HCL	
21B0227-10 J	VOA Vial, Clear, 40 mL, HCL	
21B0227-10 K	VOA Vial, Clear, 40 mL, HCL	
21B0227-11 A	HDPE NM, 500 mL	>2 Fail

KO
Preservation Confirmed By

2/17/21
Date

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Date

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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: 21B0227 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 1605 4.4 2.4 4.6 ___ ___ ___

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

Cooler Accepted by: JG Date: 02/16/21 Time: 1605

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	2/8/21	

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

Samples Logged by: KD Date: 2/17/21 Time: 1255 Labels checked by: KP

*** 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:

ms/msD logged as separate sample to fit client needs.

By: KD Date: 2/17/21

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Analytical Chemists and Consultants

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WORK ORDER

21B0227

Client: Shannon & Wilson, Inc
Project: Lower Duwamish

Project Manager: Amanda Volgardsen Johnson
Project Number: Lower Duwamish/21-1-12596

Preservation Confirmation

Container ID	Container Type	pH
21B0227-01 A	VOA Vial, Clear, 40 mL, HCL	
21B0227-02 A	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21B0227-02 B	Glass NM, Amber, 500 mL	
21B0227-02 C	Glass NM, Amber, 500 mL	
21B0227-02 D	VOA Vial, Clear, 40 mL, HCL	
21B0227-02 E	VOA Vial, Clear, 40 mL, HCL	
21B0227-02 F	VOA Vial, Clear, 40 mL, HCL	
21B0227-02 G	VOA Vial, Clear, 40 mL, HCL	
21B0227-02 H	VOA Vial, Clear, 40 mL, HCL	
21B0227-02 I	VOA Vial, Clear, 40 mL, HCL	
21B0227-03 A	HDPE NM, 500 mL	>2 Fail (1)
21B0227-04 A	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21B0227-04 B	Glass NM, Amber, 500 mL	
21B0227-04 C	Glass NM, Amber, 500 mL	
21B0227-04 D	Glass NM, Amber, 500 mL	
21B0227-04 E	Glass NM, Amber, 500 mL	
21B0227-04 F	Glass NM, Amber, 500 mL	
21B0227-04 G	Glass NM, Amber, 500 mL	
21B0227-04 H	VOA Vial, Clear, 40 mL, HCL	
21B0227-04 I	VOA Vial, Clear, 40 mL, HCL	
21B0227-04 J	VOA Vial, Clear, 40 mL, HCL	
21B0227-04 K	VOA Vial, Clear, 40 mL, HCL	
21B0227-05 A	HDPE NM, 500 mL	>2 Fail (1)
21B0227-06 A	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21B0227-06 B	Glass NM, Amber, 500 mL	
21B0227-06 C	Glass NM, Amber, 500 mL	
21B0227-06 D	Glass NM, Amber, 500 mL	
21B0227-06 E	Glass NM, Amber, 500 mL	
21B0227-06 F	Glass NM, Amber, 500 mL	
21B0227-06 G	Glass NM, Amber, 500 mL	
21B0227-06 H	Glass NM, Amber, 500 mL	
21B0227-06 I	Glass NM, Amber, 500 mL	
21B0227-06 J	VOA Vial, Clear, 40 mL, HCL	
21B0227-06 K	VOA Vial, Clear, 40 mL, HCL	
21B0227-06 L	VOA Vial, Clear, 40 mL, HCL	

(1) Filtered ~~at~~ 0.45 um and preserved to pH < 2.0 with 0.75 ml conc. HNO3 (I10976).

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Analytical Chemists and Consultants

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WORK ORDER

21B0227

Client: Shannon & Wilson, Inc
Project Manager: Amanda Volgardsen Johnson
Project: Lower Duwamish
Project Number: Lower Duwamish/21-1-12596

21B0227-06 M	VOA Vial, Clear, 40 mL, HCL	
21B0227-06 N	VOA Vial, Clear, 40 mL, HCL	
21B0227-06 O	VOA Vial, Clear, 40 mL, HCL	
21B0227-07 A	HDPE NM, 500 mL	>2 Fail (1)
21B0227-08 A	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21B0227-08 B	Glass NM, Amber, 500 mL	
21B0227-08 C	Glass NM, Amber, 500 mL	
21B0227-08 D	Glass NM, Amber, 500 mL	
21B0227-08 E	Glass NM, Amber, 500 mL	
21B0227-08 F	Glass NM, Amber, 500 mL	
21B0227-08 G	Glass NM, Amber, 500 mL	
21B0227-08 H	VOA Vial, Clear, 40 mL, HCL	
21B0227-08 I	VOA Vial, Clear, 40 mL, HCL	
21B0227-08 J	VOA Vial, Clear, 40 mL, HCL	
21B0227-08 K	VOA Vial, Clear, 40 mL, HCL	
21B0227-09 A	HDPE NM, 500 mL	>2 Fail (1)
21B0227-10 A	HDPE NM, 500 mL, 1:1 HNO3	<2 Pass
21B0227-10 B	Glass NM, Amber, 500 mL	
21B0227-10 C	Glass NM, Amber, 500 mL	
21B0227-10 D	Glass NM, Amber, 500 mL	
21B0227-10 E	Glass NM, Amber, 500 mL	
21B0227-10 F	Glass NM, Amber, 500 mL	
21B0227-10 G	Glass NM, Amber, 500 mL	
21B0227-10 H	VOA Vial, Clear, 40 mL, HCL	
21B0227-10 I	VOA Vial, Clear, 40 mL, HCL	
21B0227-10 J	VOA Vial, Clear, 40 mL, HCL	
21B0227-10 K	VOA Vial, Clear, 40 mL, HCL	
21B0227-11 A	HDPE NM, 500 mL	>2 Fail (1)

KO
Preservation Confirmed By

2/17/21
Date

(1) Filtered at 0.45 um and preserved to pH <2.0 with 0.75 mL Conc. HNO_3 (I0976). mL 2/19/21

Reviewed By

Date

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

TB-4-20211602

21B0227-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/16/2021 15:03

Instrument: NT2 Analyst: PKC — Analyzed: 02/26/2021 12:47

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0227-01 A

Preparation Batch: BJB0703 — Sample Size: 10 mL

Prepared: 02/26/2021 — 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
Methyl tert-butyl Ether	1634-04-4	1	0.14	0.50	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*102*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*97.6*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*100*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

TB-4-20211602

21B0227-01 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/16/2021 15:03

Instrument: NT2 Analyst: PKC — Analyzed: 02/26/2021 12:47

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0227-01 A

Preparation Batch: BJB0703 — Sample Size: 10 mL

Prepared: 02/26/2021 — 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 %*	*97.6*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-8-20211602

21B0227-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/16/2021 08:53

Instrument: NT2 Analyst: PKC — Analyzed: 02/26/2021 15:13

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0227-02 F

Preparation Batch: BJB0703 — Sample Size: 10 mL

Prepared: 02/26/2021 — 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
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 %*	*94.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*100*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-8-20211602

21B0227-02 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/16/2021 08:53

Instrument: NT2 Analyst: PKC — Analyzed: 02/26/2021 15:13

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0227-02 F

Preparation Batch: BJB0703 — Sample Size: 10 mL

Prepared: 02/26/2021 — 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 %*	*94.3*	*%*	

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-8-20211602

21B0227-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/16/2021 08:53
Instrument: FID4 Analyst: CTO — Analyzed: 03/10/2021 16:40

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0227-02 B 01
Preparation Batch: BJB0576 — Sample Size: 500 mL
Prepared: 02/19/2021 — 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 %*	*78.5*	*%*	

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-8-20211602

21B0227-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/16/2021 08:53

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 14:27

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-02 A 01

Preparation Batch: BJB0786 — Sample Size: 25 mL

Prepared: 02/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver	7440-22-4	1	0.0170	0.200	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/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-8-20211602

21B0227-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/16/2021 08:53

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 23:31

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-02 A 01

Preparation Batch: BJB0786 — Sample Size: 25 mL

Prepared: 02/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	1.03	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	0.812	ug/L	
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	ND	ug/L	U

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-8-20211602

21B0227-02 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/16/2021 08:53
Instrument: HYDRA Analyst: BLC — Analyzed: 03/02/2021 14:22

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0227-02 A
Preparation Batch: BJC0013 — Sample Size: 20 mL
Prepared: 03/01/2021 — 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 Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-8-20211602

21B0227-03 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/16/2021 08:53

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 17:53

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-03 A 02

Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570

Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver, Dissolved	7440-22-4	1	0.0170	0.200	ND	ug/L	U

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

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400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-8-20211602

21B0227-03 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/16/2021 08:53

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 17:53

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-03 A 02

Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570

Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	0.389	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	0.660	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	ND	ug/L	U

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-8-20211602

21B0227-03 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/16/2021 08:53
Instrument: HYDRA Analyst: BLC — Analyzed: 03/02/2021 13:48

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0227-03 A 01
Preparation Batch: BJB0770 — Sample Size: 20 mL — Filtration Batch: BJB0570
Prepared: 02/26/2021 — Final Volume: 20 mL — Filtration Date: 02/19/2021 11:15

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 Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-72-20211602

21B0227-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/16/2021 10:06

Instrument: NT2 Analyst: PKC — Analyzed: 02/26/2021 15:34

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0227-04 I

Preparation Batch: BJB0703 — Sample Size: 10 mL

Prepared: 02/26/2021 — 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 %*	*105*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.5*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.7*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-72-20211602

21B0227-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/16/2021 10:06
Instrument: NT16 Analyst: PB — Analyzed: 03/01/2021 12:56

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0227-04 J
Preparation Batch: BJC0017 — Sample Size: 10 mL
Prepared: 03/01/2021 — 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 %*	*98.6*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*95.3*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*97.6*	*%*	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-72-20211602

21B0227-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/16/2021 10:06

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 19:53

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0227-04 D 01

Preparation Batch: BJB0600 — Sample Size: 1000 mL

Prepared: 02/23/2021 — 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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400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-72-20211602

21B0227-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/16/2021 10:06

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 19:53

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 %*	*47.1*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*26.0*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*83.4*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*65.3*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*80.5*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*78.6*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*102*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-72-20211602

21B0227-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/16/2021 10:06

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 19:53

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: p-Terphenyl-d14		*30-160 %*	*88.5*	*%*	

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MW-72-20211602

21B0227-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/16/2021 10:06
Instrument: FID4 Analyst: CTO — Analyzed: 03/10/2021 17:01

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0227-04 C 01
Preparation Batch: BJB0576 — Sample Size: 500 mL
Prepared: 02/19/2021 — 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 %*	*121*	*%*	

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MW-72-20211602

21B0227-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/16/2021 10:06

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 23:36

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-04 A 01

Preparation Batch: BJB0786 — Sample Size: 25 mL

Prepared: 02/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	2.85	ug/L	
Chromium	7440-47-3	1	0.130	0.500	0.235	ug/L	J
Cobalt	7440-48-4	1	0.0290	0.200	0.409	ug/L	
Iron	7439-89-6	1	6.27	20.0	178	ug/L	
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese	7439-96-5	1	0.0850	0.500	35.8	ug/L	
Silver	7440-22-4	1	0.0170	0.200	ND	ug/L	U
Vanadium	7440-62-2	1	0.0400	0.200	1.43	ug/L	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-72-20211602

21B0227-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/16/2021 10:06

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 23:36

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-04 A 01

Preparation Batch: BJB0786 — Sample Size: 25 mL

Prepared: 02/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	0.627	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	0.923	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	1.17	ug/L	
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	0.991	ug/L	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-72-20211602

21B0227-04 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/16/2021 10:06
Instrument: HYDRA Analyst: BLC — Analyzed: 03/02/2021 14:25

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0227-04 A
Preparation Batch: BJC0013 — Sample Size: 20 mL
Prepared: 03/01/2021 — 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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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-72-20211602

21B0227-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/16/2021 10:06
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 17:57

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-05 A 02
Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570
Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	2.46	ug/L	
Chromium, Dissolved	7440-47-3	1	0.130	0.500	0.167	ug/L	J
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	0.385	ug/L	
Iron, Dissolved	7439-89-6	1	6.27	20.0	9.27	ug/L	J
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	1	0.0850	0.500	30.4	ug/L	
Silver, Dissolved	7440-22-4	1	0.0170	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0400	0.200	1.17	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-72-20211602

21B0227-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/16/2021 10:06
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/26/2021 22:20

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-05 A 02
Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570
Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	0.546	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	0.727	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	1.15	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	0.992	ug/L	J

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-72-20211602

21B0227-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/16/2021 10:06
Instrument: HYDRA Analyst: BLC — Analyzed: 03/02/2021 13:50

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0227-05 A 01
Preparation Batch: BJB0770 — Sample Size: 20 mL — Filtration Batch: BJB0570
Prepared: 02/26/2021 — Final Volume: 20 mL — Filtration Date: 02/19/2021 11:15

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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MS/MSD-MW-72-20211602

21B0227-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/16/2021 10:06

Instrument: NT2 Analyst: PKC — Analyzed: 02/26/2021 15:54

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0227-06 K

Preparation Batch: BJB0703 — Sample Size: 10 mL

Prepared: 02/26/2021 — 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
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 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.2*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MS/MSD-MW-72-20211602

21B0227-06 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/16/2021 10:06
Instrument: NT2 Analyst: PKC — Analyzed: 02/26/2021 15:54

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0227-06 K
Preparation Batch: BJB0703 — Sample Size: 10 mL
Prepared: 02/26/2021 — 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 %*	*95.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MS/MSD-MW-72-20211602

21B0227-06 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/16/2021 10:06

Instrument: NT16 Analyst: PB — Analyzed: 03/01/2021 13:17

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0227-06 L

Preparation Batch: BJC0017 — Sample Size: 10 mL

Prepared: 03/01/2021 — 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 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*96.7*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MS/MSD-MW-72-20211602

21B0227-06 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/16/2021 10:06

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 20:30

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0227-06 E 01

Preparation Batch: BJB0600 — Sample Size: 1000 mL

Prepared: 02/23/2021 — 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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MS/MSD-MW-72-20211602

21B0227-06 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/16/2021 10:06

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 20:30

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 %*	*49.1*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*27.5*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*78.4*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*66.7*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*83.5*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*76.8*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*103*	*%*	

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MS/MSD-MW-72-20211602

21B0227-06 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/16/2021 10:06

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 20:30

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: p-Terphenyl-d14		*30-160 %*	*91.6*	*%*	

Analytical Resources, Incorporated
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Analytical Report

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400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MS/MSD-MW-72-20211602

21B0227-06 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/16/2021 10:06
Instrument: NT11 Analyst: VTS — Analyzed: 03/17/2021 12:09

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJB0671; Prepared: 02/23/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21B0227-06 I 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJC0091; Cleaned: 09-Mar-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21B0227-06 I 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	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	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 %*	*78.3*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*57.4*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*81.0*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MS/MSD-MW-72-20211602

21B0227-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/16/2021 10:06
Instrument: FID4 Analyst: CTO — Analyzed: 03/10/2021 17:23

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0227-06 B 01
Preparation Batch: BJB0576 — Sample Size: 500 mL
Prepared: 02/19/2021 — 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 %*	*116*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MS/MSD-MW-72-20211602

21B0227-06 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/16/2021 10:06
Instrument: ECD7 Analyst: JGR — Analyzed: 03/12/2021 19:41

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0227-06 G 01
	Preparation Batch: BJB0607	Sample Size: 500 mL	
	Prepared: 02/23/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0227-06 G 01
	Cleanup Batch: CJC0107	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0227-06 G 01
	Cleanup Batch: CJC0105	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0227-06 G 01
	Cleanup Batch: CJC0106	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.018	0.100	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.018	0.100	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.018	0.100	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.018	0.100	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.017	0.100	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*59.8*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*56.8*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*62.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*47.7*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MS/MSD-MW-72-20211602

21B0227-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/16/2021 10:06
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 22:50

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-06 A 01
Preparation Batch: BJB0786 — Sample Size: 25 mL
Prepared: 02/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	2.70	ug/L	
Chromium	7440-47-3	2	0.260	1.00	0.262	ug/L	J, D
Cobalt	7440-48-4	1	0.0290	0.200	0.402	ug/L	
Iron	7439-89-6	2	12.5	40.0	79.1	ug/L	D
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese	7439-96-5	2	0.170	1.00	31.7	ug/L	D
Vanadium	7440-62-2	2	0.0800	0.400	1.46	ug/L	D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 03/05/2021 18:34

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-06 A 01
Preparation Batch: BJB0786 — Sample Size: 25 mL
Prepared: 02/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver	7440-22-4	2	0.0340	0.400	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/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MS/MSD-MW-72-20211602

21B0227-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/16/2021 10:06

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 22:50

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-06 A 01

Preparation Batch: BJB0786 — Sample Size: 25 mL

Prepared: 02/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	0.648	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	0.892	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	1.16	ug/L	
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	0.890	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MS/MSD-MW-72-20211602

21B0227-06 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/16/2021 10:06
Instrument: HYDRA Analyst: BLC — Analyzed: 03/02/2021 14:09

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0227-06 A
Preparation Batch: BJC0013 — Sample Size: 20 mL
Prepared: 03/01/2021 — 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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MS/MSD-MW-72-20211602

21B0227-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/16/2021 10:06
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 18:06

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-07 A 02
Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570
Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	2.15	ug/L	
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	0.320	ug/L	
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Silver, Dissolved	7440-22-4	1	0.0170	0.200	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/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MS/MSD-MW-72-20211602

21B0227-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/16/2021 10:06
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/26/2021 22:33

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-07 A 02
Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570
Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	0.498	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	0.687	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	1.01	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	0.828	ug/L	J

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MS/MSD-MW-72-20211602

21B0227-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/16/2021 10:06
Instrument: HYDRA Analyst: BLC — Analyzed: 03/02/2021 13:25

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0227-07 A 01
Preparation Batch: BJB0770 — Sample Size: 20 mL — Filtration Batch: BJB0570
Prepared: 02/26/2021 — Final Volume: 20 mL — Filtration Date: 02/19/2021 11:15

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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MS/MSD-MW-72-20211602

21B0227-07RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/16/2021 10:06
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 20:05

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-07RE1 A 02
Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570
Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	2	0.260	1.00	ND	ug/L	U
Iron, Dissolved	7439-89-6	2	12.5	40.0	ND	ug/L	U
Manganese, Dissolved	7439-96-5	2	0.170	1.00	28.5	ug/L	D
Vanadium, Dissolved	7440-62-2	2	0.0800	0.400	1.16	ug/L	D

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Shannon & Wilson, Inc	Project: Lower Duwamish	
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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-64-20211602

21B0227-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/16/2021 12:53

Instrument: NT2 Analyst: PKC — Analyzed: 02/26/2021 16:14

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0227-08 H

Preparation Batch: BJB0703 — Sample Size: 10 mL

Prepared: 02/26/2021 — 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	0.39	ug/L	
1,1-Dichloroethene	75-35-4	1	0.08	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	6.48	ug/L	
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 %*	*104*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.5*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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MW-64-20211602

21B0227-08 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/16/2021 12:53
Instrument: NT16 Analyst: PB — Analyzed: 03/01/2021 13:58

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0227-08 J
Preparation Batch: BJC0017 — Sample Size: 10 mL
Prepared: 03/01/2021 — 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	144	ng/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*95.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*99.4*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-64-20211602

21B0227-08 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/16/2021 12:53
Instrument: NT11 Analyst: VTS — Analyzed: 03/17/2021 12:42

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJB0671; Prepared: 02/23/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21B0227-08 F 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJC0091; Cleaned: 09-Mar-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21B0227-08 F 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	0.023	ug/L	
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	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 %*	*73.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*62.6*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*81.0*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-64-20211602

21B0227-08 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/16/2021 12:53
Instrument: FID4 Analyst: CTO — Analyzed: 03/10/2021 17:44

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0227-08 B 01
Preparation Batch: BJB0576 — Sample Size: 500 mL
Prepared: 02/19/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.977	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*124*	*%*	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-64-20211602

21B0227-08 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/16/2021 12:53
Instrument: ECD7 Analyst: JGR — Analyzed: 03/12/2021 20:02

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0227-08 D 01
	Preparation Batch: BJB0607	Sample Size: 475 mL	
	Prepared: 02/23/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0227-08 D 01
	Cleanup Batch: CJC0107	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0227-08 D 01
	Cleanup Batch: CJC0105	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0227-08 D 01
	Cleanup Batch: CJC0106	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.018	0.105	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.018	0.105	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.018	0.105	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.018	0.105	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.018	0.105	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.018	0.105	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.018	0.105	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*45.5*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*50.0*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*44.0*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*46.0*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-64-20211602

21B0227-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/16/2021 12:53

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 23:40

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-08 A 01

Preparation Batch: BJB0786 — Sample Size: 25 mL

Prepared: 02/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	18.1	ug/L	
Chromium	7440-47-3	2	0.260	1.00	3.69	ug/L	D
Cobalt	7440-48-4	1	0.0290	0.200	0.406	ug/L	
Iron	7439-89-6	2	12.5	40.0	8810	ug/L	D
Lead	7439-92-1	1	0.0680	0.100	1.51	ug/L	
Manganese	7439-96-5	5	0.425	2.50	652	ug/L	D
Vanadium	7440-62-2	2	0.0800	0.400	2.49	ug/L	D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 03/05/2021 18:26

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-08 A 01

Preparation Batch: BJB0786 — Sample Size: 25 mL

Prepared: 02/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver	7440-22-4	2	0.0340	0.400	ND	ug/L	U

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400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-64-20211602

21B0227-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/16/2021 12:53

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 23:40

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-08 A 01

Preparation Batch: BJB0786 — Sample Size: 25 mL

Prepared: 02/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	5.07	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	3.24	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	5.58	ug/L	
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	2.50	ug/L	J

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-64-20211602

21B0227-08 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/16/2021 12:53
Instrument: HYDRA Analyst: BLC — Analyzed: 03/02/2021 14:27

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0227-08 A
Preparation Batch: BJC0013 — Sample Size: 20 mL
Prepared: 03/01/2021 — 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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-64-20211602

21B0227-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/16/2021 12:53

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 18:02

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-09 A 02

Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570

Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	1.89	ug/L	
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	0.264	ug/L	
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Silver, Dissolved	7440-22-4	1	0.0170	0.200	ND	ug/L	U

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400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-64-20211602

21B0227-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/16/2021 12:53
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/26/2021 22:24

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-09 A 02
Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570
Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	2.42	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	0.906	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	ND	ug/L	U

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400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-64-20211602

21B0227-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/16/2021 12:53
Instrument: HYDRA Analyst: BLC — Analyzed: 03/02/2021 13:52

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0227-09 A 01
Preparation Batch: BJB0770 — Sample Size: 20 mL — Filtration Batch: BJB0570
Prepared: 02/26/2021 — Final Volume: 20 mL — Filtration Date: 02/19/2021 11:15

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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-64-20211602

21B0227-09RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/16/2021 12:53
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 20:00

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-09RE1 A 02
Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570
Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	2	0.260	1.00	0.760	ug/L	J, D
Iron, Dissolved	7439-89-6	2	12.5	40.0	236	ug/L	D
Manganese, Dissolved	7439-96-5	2	0.170	1.00	482	ug/L	D
Vanadium, Dissolved	7440-62-2	2	0.0800	0.400	0.530	ug/L	D

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-68-20211602

21B0227-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/16/2021 15:03

Instrument: NT2 Analyst: PKC — Analyzed: 02/26/2021 16:34

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0227-10 J

Preparation Batch: BJB0703 — Sample Size: 10 mL

Prepared: 02/26/2021 — 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	0.62	ug/L	
1,1-Dichloroethene	75-35-4	1	0.08	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	0.23	ug/L	
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 %*	*105*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.5*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.2*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-68-20211602

21B0227-10 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/16/2021 15:03
Instrument: NT16 Analyst: PB — Analyzed: 03/01/2021 14:18

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0227-10 K
Preparation Batch: BJC0017 — Sample Size: 10 mL
Prepared: 03/01/2021 — 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	334	ng/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*94.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*98.7*	*%*	

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MW-68-20211602

21B0227-10 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/16/2021 15:03

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 21:08

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0227-10 C 01

Preparation Batch: BJB0600 — Sample Size: 1000 mL

Prepared: 02/23/2021 — 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	0.07	ug/L	J
3-Nitroaniline	99-09-2	1	0.2	1.0	ND	ug/L	U

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400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-68-20211602

21B0227-10 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/16/2021 15:03

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 21:08

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	0.06	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	0.2	ug/L	J
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 %*	*46.7*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*25.8*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*71.6*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*59.1*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*76.5*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*78.7*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*87.1*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-68-20211602

21B0227-10 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/16/2021 15:03

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 21:08

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: p-Terphenyl-d14		*30-160 %*	*84.0*	*%*	

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MW-68-20211602

21B0227-10 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/16/2021 15:03
Instrument: FID4 Analyst: CTO — Analyzed: 03/10/2021 18:05

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0227-10 B 01
Preparation Batch: BJB0576 — Sample Size: 500 mL
Prepared: 02/19/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.957	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	0.426	mg/L	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*106*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-68-20211602

21B0227-10 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/16/2021 15:03
Instrument: ECD7 Analyst: JGR — Analyzed: 03/12/2021 20:22

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0227-10 E 01
	Preparation Batch: BJB0607	Sample Size: 500 mL	
	Prepared: 02/23/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0227-10 E 01
	Cleanup Batch: CJC0107	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0227-10 E 01
	Cleanup Batch: CJC0105	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0227-10 E 01
	Cleanup Batch: CJC0106	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.018	0.100	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.018	0.100	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.018	0.100	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.018	0.100	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.017	0.100	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*58.7*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*63.9*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*62.1*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*52.0*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-68-20211602

21B0227-10 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/16/2021 15:03

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 23:45

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-10 A 01

Preparation Batch: BJB0786 — Sample Size: 25 mL

Prepared: 02/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	15.5	ug/L	
Chromium	7440-47-3	2	0.260	1.00	9.49	ug/L	D
Cobalt	7440-48-4	1	0.0290	0.200	0.954	ug/L	
Iron	7439-89-6	2	12.5	40.0	580	ug/L	D
Lead	7439-92-1	1	0.0680	0.100	2.74	ug/L	
Manganese	7439-96-5	2	0.170	1.00	257	ug/L	D
Vanadium	7440-62-2	2	0.0800	0.400	44.4	ug/L	D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 03/05/2021 18:30

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-10 A 01

Preparation Batch: BJB0786 — Sample Size: 25 mL

Prepared: 02/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver	7440-22-4	2	0.0340	0.400	ND	ug/L	U

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-68-20211602

21B0227-10 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/16/2021 15:03

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 23:45

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-10 A 01

Preparation Batch: BJB0786 — Sample Size: 25 mL

Prepared: 02/26/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	10.7	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	0.156	ug/L	
Copper	7440-50-8	1	0.340	0.500	9.16	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	3.64	ug/L	
Selenium	7782-49-2	1	0.440	0.500	2.15	ug/L	
Zinc	7440-66-6	1	0.820	4.00	9.21	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-68-20211602

21B0227-10 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/16/2021 15:03
Instrument: HYDRA Analyst: BLC — Analyzed: 03/02/2021 14:29

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0227-10 A
Preparation Batch: BJC0013 — Sample Size: 20 mL
Prepared: 03/01/2021 — 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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-68-20211602

21B0227-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/16/2021 15:03

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 16:57

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-11 A 02

Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570

Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	9.19	ug/L	
Chromium, Dissolved	7440-47-3	1	0.130	0.500	6.57	ug/L	
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	0.609	ug/L	
Iron, Dissolved	7439-89-6	1	6.27	20.0	17.1	ug/L	J
Lead, Dissolved	7439-92-1	1	0.0680	0.100	0.151	ug/L	
Manganese, Dissolved	7439-96-5	1	0.0850	0.500	180	ug/L	
Silver, Dissolved	7440-22-4	1	0.0170	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0400	0.200	37.6	ug/L	

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Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-68-20211602

21B0227-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/16/2021 15:03

Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/26/2021 22:29

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0227-11 A 02

Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570

Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	9.79	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	0.109	ug/L	
Copper, Dissolved	7440-50-8	1	0.340	0.500	6.74	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	2.49	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	2.01	ug/L	
Zinc, Dissolved	7440-66-6	1	0.820	4.00	1.75	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

MW-68-20211602

21B0227-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/16/2021 15:03
Instrument: HYDRA Analyst: BLC — Analyzed: 03/02/2021 13:55

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0227-11 A 01
Preparation Batch: BJB0770 — Sample Size: 20 mL — Filtration Batch: BJB0570
Prepared: 02/26/2021 — Final Volume: 20 mL — Filtration Date: 02/19/2021 11:15

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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Volatile Organic Compounds - Quality Control

Batch BJB0703 - 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 (BJB0703-BLK1)					Prepared: 26-Feb-2021		Analyzed: 26-Feb-2021 12:27				
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	4.75			ug/L	*5.00*		*95.0*	*80-120*			
Blank (BJB0703-BLK2)					Prepared: 26-Feb-2021		Analyzed: 26-Feb-2021 12:27				
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	5.10			ug/L	*5.00*		*102*	*80-129*			
Surrogate: Toluene-d8	4.94			ug/L	*5.00*		*98.7*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.75			ug/L	*5.00*		*95.0*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.07			ug/L	*5.00*		*101*	*80-120*			
LCS (BJB0703-BS1)					Prepared: 26-Feb-2021		Analyzed: 26-Feb-2021 10:33				
Gasoline Range Organics (Tol-Nap)	886		100	ug/L	1000		88.6	72-128			
Surrogate: Toluene-d8	5.14			ug/L	*5.00*		*103*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.95			ug/L	*5.00*		*99.1*	*80-120*			
LCS (BJB0703-BS2)					Prepared: 26-Feb-2021		Analyzed: 26-Feb-2021 11:14				
Vinyl Chloride	9.58	0.08	0.20	ug/L	10.0		95.8	66-133			
1,1-Dichloroethene	10.5	0.08	0.20	ug/L	10.0		105	69-135			
trans-1,2-Dichloroethene	9.97	0.07	0.20	ug/L	10.0		99.7	78-128			
cis-1,2-Dichloroethene	9.88	0.08	0.20	ug/L	10.0		98.8	80-121			
Benzene	10.0	0.05	0.20	ug/L	10.0		100	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Volatile Organic Compounds - Quality Control

Batch BJB0703 - 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 (BJB0703-BS2)					Prepared: 26-Feb-2021 Analyzed: 26-Feb-2021 11:14						
Trichloroethene	9.92	0.07	0.20	ug/L	10.0		99.2	80-120			
Toluene	9.88	0.05	0.20	ug/L	10.0		98.8	80-120			
Tetrachloroethene	9.92	0.09	0.20	ug/L	10.0		99.2	80-120			
Ethylbenzene	9.85	0.05	0.20	ug/L	10.0		98.5	80-120			
m,p-Xylene	20.1	0.14	0.40	ug/L	20.0		100	80-121			
o-Xylene	9.84	0.08	0.20	ug/L	10.0		98.4	80-121			
Xylenes, total	29.9	0.22	0.60	ug/L	30.0		99.7	76-127			
Methyl tert-butyl Ether	10.6	0.14	0.50	ug/L	10.0		106	71-132			
Surrogate: 1,2-Dichloroethane-d4	5.02			ug/L	*5.00*		*100*	*80-129*			
Surrogate: Toluene-d8	5.11			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.00			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.93			ug/L	*5.00*		*98.7*	*80-120*			
LCS Dup (BJB0703-BSD1)					Prepared: 26-Feb-2021 Analyzed: 26-Feb-2021 10:54						
Gasoline Range Organics (Tol-Nap)	976		100	ug/L	1000		97.6	72-128	9.77	30	
Surrogate: Toluene-d8	5.09			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.06			ug/L	*5.00*		*101*	*80-120*			
LCS Dup (BJB0703-BSD2)					Prepared: 26-Feb-2021 Analyzed: 26-Feb-2021 11:35						
Vinyl Chloride	9.90	0.08	0.20	ug/L	10.0		99.0	66-133	3.21	30	
1,1-Dichloroethene	10.9	0.08	0.20	ug/L	10.0		109	69-135	3.32	30	
trans-1,2-Dichloroethene	10.5	0.07	0.20	ug/L	10.0		105	78-128	5.21	30	
cis-1,2-Dichloroethene	10.1	0.08	0.20	ug/L	10.0		101	80-121	2.21	30	
Benzene	10.2	0.05	0.20	ug/L	10.0		102	80-120	1.66	30	
Trichloroethene	9.94	0.07	0.20	ug/L	10.0		99.4	80-120	0.25	30	
Toluene	9.80	0.05	0.20	ug/L	10.0		98.0	80-120	0.78	30	
Tetrachloroethene	10.1	0.09	0.20	ug/L	10.0		101	80-120	1.39	30	
Ethylbenzene	9.90	0.05	0.20	ug/L	10.0		99.0	80-120	0.51	30	
m,p-Xylene	20.4	0.14	0.40	ug/L	20.0		102	80-121	1.91	30	
o-Xylene	10.0	0.08	0.20	ug/L	10.0		100	80-121	2.15	30	
Xylenes, total	30.5	0.22	0.60	ug/L	30.0		102	76-127	1.99	30	
Methyl tert-butyl Ether	10.8	0.14	0.50	ug/L	10.0		108	71-132	1.94	30	
Surrogate: 1,2-Dichloroethane-d4	5.14			ug/L	*5.00*		*103*	*80-129*			
Surrogate: Toluene-d8	5.04			ug/L	*5.00*		*101*	*80-120*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Volatile Organic Compounds - Quality Control

Batch BJB0703 - 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 (BJB0703-BSD2)				Prepared: 26-Feb-2021 Analyzed: 26-Feb-2021 11:35							
Surrogate: 4-Bromofluorobenzene	5.14			ug/L	*5.00*		*103*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.98			ug/L	*5.00*		*99.5*	*80-120*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Volatile Organic Compounds - SIM - Quality Control

Batch BJC0017 - 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 (BJC0017-BLK1)					Prepared: 01-Mar-2021 Analyzed: 01-Mar-2021 10:07						
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	4370			ng/L	*5000*		*87.3*	*80-129*			
Surrogate: Toluene-d8	4980			ng/L	*5000*		*99.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4440			ng/L	*5000*		*88.8*	*75-125*			
LCS (BJC0017-BS1)					Prepared: 01-Mar-2021 Analyzed: 01-Mar-2021 09:08						
Vinyl chloride	1860	5.01	20.0	ng/L	2000		93.2	62-141			
Surrogate: 1,2-Dichloroethane-d4	4470			ng/L	*5000*		*89.4*	*80-129*			
Surrogate: Toluene-d8	4670			ng/L	*5000*		*93.4*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5100			ng/L	*5000*		*102*	*75-125*			
LCS Dup (BJC0017-BSD1)					Prepared: 01-Mar-2021 Analyzed: 01-Mar-2021 09:47						
Vinyl chloride	1770	5.01	20.0	ng/L	2000		88.3	62-141	5.46	30	
Surrogate: 1,2-Dichloroethane-d4	4780			ng/L	*5000*		*95.6*	*80-129*			
Surrogate: Toluene-d8	5010			ng/L	*5000*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5230			ng/L	*5000*		*105*	*75-125*			
Duplicate (BJC0017-DUP1)		**Source: 21B0227-06**			Prepared: 01-Mar-2021 Analyzed: 01-Mar-2021 13:37						
Vinyl chloride	ND	5.01	20.0	ng/L		ND					U
Surrogate: 1,2-Dichloroethane-d4	4760			ng/L	*5000*	*5500*	*95.2*	*80-129*			
Surrogate: Toluene-d8	4720			ng/L	*5000*	*5020*	*94.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4780			ng/L	*5000*	*4840*	*95.6*	*75-125*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BLK1)				Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 18:01							
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

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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BLK1)				Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 18:01							
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	3.46			ug/L	*7.50*		*46.1*	*30-160*			
Surrogate: Phenol-d5	1.84			ug/L	*7.50*		*24.6*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	5.47			ug/L	*7.50*		*72.9*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	2.79			ug/L	*5.00*		*55.8*	*30-160*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BLK1)				Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 18:01							
Surrogate: Nitrobenzene-d5	3.90			ug/L	*5.00*		*78.0*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.36			ug/L	*5.00*		*67.3*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.34			ug/L	*7.50*		*84.6*	*30-160*			
Surrogate: p-Terphenyl-d14	4.27			ug/L	*5.00*		*85.5*	*30-160*			
LCS (BJB0600-BS1)				Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 18:38							
Phenol	1.5	0.01	0.2	ug/L	5.00		29.7	30-160			*
bis(2-chloroethyl) ether	3.9	0.03	0.2	ug/L	5.00		78.0	30-160			
2-Chlorophenol	3.4	0.03	0.2	ug/L	5.00		67.5	30-160			
1,3-Dichlorobenzene	2.9	0.03	0.2	ug/L	5.00		57.7	30-160			
1,4-Dichlorobenzene	3.0	0.03	0.2	ug/L	5.00		59.0	30-160			
1,2-Dichlorobenzene	3.0	0.03	0.2	ug/L	5.00		59.4	30-160			
Benzyl Alcohol	2.2	0.02	0.2	ug/L	5.00		43.6	30-160			
2,2'-Oxybis(1-chloropropane)	3.2	0.03	0.2	ug/L	5.00		64.6	30-160			
2-Methylphenol	2.5	0.03	0.2	ug/L	5.00		49.7	30-160			
Hexachloroethane	2.5	0.04	0.2	ug/L	5.00		49.9	30-160			
N-Nitroso-di-n-Propylamine	2.9	0.04	0.2	ug/L	5.00		59.0	30-160			
4-Methylphenol	2.3	0.03	0.2	ug/L	5.00		46.9	30-160			
Nitrobenzene	3.8	0.03	0.2	ug/L	5.00		76.1	30-160			
Isophorone	4.5	0.03	0.2	ug/L	5.00		90.3	30-160			
2-Nitrophenol	3.2	0.04	1.0	ug/L	5.00		64.3	30-160			
2,4-Dimethylphenol	8.1	0.3	1.0	ug/L	13.0		62.1	30-160			
Bis(2-Chloroethoxy)methane	3.6	0.03	0.2	ug/L	5.00		71.5	30-160			
2,4-Dichlorophenol	10.3	0.1	1.0	ug/L	13.0		79.0	30-160			
1,2,4-Trichlorobenzene	3.0	0.03	0.2	ug/L	5.00		60.3	30-160			
Naphthalene	3.3	0.03	0.2	ug/L	5.00		66.3	30-160			
Benzoic acid	10.0	0.1	2.0	ug/L	23.0		43.5	30-160			
4-Chloroaniline	0.4	0.04	1.0	ug/L	13.0		2.95	30-160			*, J
Hexachlorobutadiene	2.4	0.04	0.2	ug/L	5.00		47.0	30-160			
4-Chloro-3-Methylphenol	11.7	0.1	1.0	ug/L	13.0		90.2	30-160			
2-Methylnaphthalene	3.1	0.03	0.2	ug/L	5.00		62.8	30-160			
Hexachlorocyclopentadiene	4.2	0.1	1.0	ug/L	13.0		32.3	30-160			Q
2,4,6-Trichlorophenol	10.7	0.2	1.0	ug/L	13.0		82.6	30-160			
2,4,5-Trichlorophenol	11.0	0.1	1.0	ug/L	13.0		84.5	30-160			
2-Chloronaphthalene	3.7	0.03	0.2	ug/L	5.00		74.0	30-160			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BS1)				Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 18:38							
2-Nitroaniline	13.0	0.2	1.0	ug/L	13.0		100	30-160			
Acenaphthylene	3.1	0.02	0.2	ug/L	5.00		61.2	30-160			
Dimethylphthalate	3.7	0.04	0.2	ug/L	5.00		73.6	30-160			
2,6-Dinitrotoluene	11.7	0.2	1.0	ug/L	13.0		90.2	30-160			
Acenaphthene	3.3	0.03	0.2	ug/L	5.00		66.1	30-160			
3-Nitroaniline	8.2	0.2	1.0	ug/L	13.0		63.3	30-160			
2,4-Dinitrophenol	21.1	0.2	2.0	ug/L	23.0		91.6	30-160			
Dibenzofuran	3.2	0.02	0.2	ug/L	5.00		64.9	30-160			
4-Nitrophenol	4.1	0.06	1.0	ug/L	13.0		31.6	30-160			Q
2,4-Dinitrotoluene	12.9	0.1	1.0	ug/L	13.0		99.1	30-160			
Fluorene	2.8	0.02	0.2	ug/L	5.00		55.8	30-160			Q
4-Chlorophenylphenyl ether	3.0	0.02	0.2	ug/L	5.00		60.3	30-160			
Diethyl phthalate	3.6	0.06	0.2	ug/L	5.00		72.7	30-160			
4-Nitroaniline	11.7	0.2	1.0	ug/L	13.0		90.1	30-160			
4,6-Dinitro-2-methylphenol	25.1	0.4	2.0	ug/L	23.0		109	30-160			
N-Nitrosodiphenylamine	3.5	0.03	0.2	ug/L	5.00		69.0	30-160			
4-Bromophenyl phenyl ether	4.0	0.02	0.2	ug/L	5.00		79.2	30-160			
Hexachlorobenzene	3.7	0.04	0.2	ug/L	5.00		73.5	30-160			
Pentachlorophenol	8.0	0.1	1.0	ug/L	13.0		61.9	30-160			Q
Phenanthrene	4.0	0.02	0.2	ug/L	5.00		80.5	30-160			
Anthracene	3.8	0.03	0.2	ug/L	5.00		75.2	30-160			
Carbazole	4.0	0.04	0.2	ug/L	5.00		80.9	30-160			
Di-n-Butylphthalate	4.2	0.05	0.2	ug/L	5.00		84.2	30-160			
Fluoranthene	4.0	0.03	0.2	ug/L	5.00		80.4	30-160			
Pyrene	3.9	0.03	0.2	ug/L	5.00		77.4	30-160			
Butylbenzylphthalate	4.1	0.07	0.2	ug/L	5.00		81.2	30-160			
Benzo(a)anthracene	3.8	0.04	0.2	ug/L	5.00		75.1	30-160			
3,3'-Dichlorobenzidine	2.3	0.3	1.0	ug/L	8.00		28.3	30-160			*
Chrysene	3.9	0.04	0.2	ug/L	5.00		77.4	30-160			
bis(2-Ethylhexyl)phthalate	4.1	0.2	0.2	ug/L	5.00		82.5	30-160			
Di-n-Octylphthalate	4.1	0.05	0.2	ug/L	5.00		81.1	30-160			
Benzofluoranthenes, Total	8.1	0.08	0.4	ug/L	10.0		81.3	30-160			
Benzo(a)pyrene	3.8	0.05	0.2	ug/L	5.00		75.6	30-160			
Indeno(1,2,3-cd)pyrene	4.0	0.06	0.2	ug/L	5.00		80.7	30-160			
Dibenzo(a,h)anthracene	4.2	0.07	0.2	ug/L	5.00		84.0	30-160			

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BS1)					Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 18:38						
Benzo(g,h,i)perylene	4.0	0.04	0.2	ug/L	5.00		79.2	30-160			
1-Methylnaphthalene	3.3	0.03	0.2	ug/L	5.00		65.4	30-160			
Surrogate: 2-Fluorophenol	4.20			ug/L	*7.50*		*56.0*	*30-160*			
Surrogate: Phenol-d5	2.66			ug/L	*7.50*		*35.5*	*30-160*			
Surrogate: 2-Chlorophenol-d4	6.36			ug/L	*7.50*		*84.8*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.10			ug/L	*5.00*		*62.1*	*30-160*			
Surrogate: Nitrobenzene-d5	4.26			ug/L	*5.00*		*85.2*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.87			ug/L	*5.00*		*77.4*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.27			ug/L	*7.50*		*83.5*	*30-160*			
Surrogate: p-Terphenyl-d14	4.29			ug/L	*5.00*		*85.7*	*30-160*			
LCS Dup (BJB0600-BSD1)					Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 19:15						
Phenol	1.7	0.01	0.2	ug/L	5.00		34.5	30-160	15.00	30	
bis(2-chloroethyl) ether	4.0	0.03	0.2	ug/L	5.00		80.7	30-160	3.36	30	
2-Chlorophenol	3.7	0.03	0.2	ug/L	5.00		73.5	30-160	8.59	30	
1,3-Dichlorobenzene	2.5	0.03	0.2	ug/L	5.00		50.7	30-160	12.90	30	
1,4-Dichlorobenzene	2.7	0.03	0.2	ug/L	5.00		53.1	30-160	10.60	30	
1,2-Dichlorobenzene	2.6	0.03	0.2	ug/L	5.00		52.0	30-160	13.10	30	
Benzyl Alcohol	2.5	0.02	0.2	ug/L	5.00		50.6	30-160	15.00	30	
2,2'-Oxybis(1-chloropropane)	3.3	0.03	0.2	ug/L	5.00		65.1	30-160	0.63	30	
2-Methylphenol	2.8	0.03	0.2	ug/L	5.00		55.3	30-160	10.60	30	
Hexachloroethane	2.1	0.04	0.2	ug/L	5.00		42.7	30-160	15.40	30	
N-Nitroso-di-n-Propylamine	3.4	0.04	0.2	ug/L	5.00		68.0	30-160	14.30	30	
4-Methylphenol	2.7	0.03	0.2	ug/L	5.00		54.6	30-160	15.10	30	
Nitrobenzene	4.0	0.03	0.2	ug/L	5.00		79.3	30-160	4.03	30	
Isophorone	5.3	0.03	0.2	ug/L	5.00		105	30-160	15.40	30	
2-Nitrophenol	3.4	0.04	1.0	ug/L	5.00		68.5	30-160	6.33	30	
2,4-Dimethylphenol	8.7	0.3	1.0	ug/L	13.0		66.8	30-160	7.23	30	
Bis(2-Chloroethoxy)methane	3.9	0.03	0.2	ug/L	5.00		78.0	30-160	8.63	30	
2,4-Dichlorophenol	10.5	0.1	1.0	ug/L	13.0		80.9	30-160	2.36	30	
1,2,4-Trichlorobenzene	2.7	0.03	0.2	ug/L	5.00		54.1	30-160	10.80	30	
Naphthalene	3.2	0.03	0.2	ug/L	5.00		63.3	30-160	4.68	30	
Benzoic acid	11.1	0.1	2.0	ug/L	23.0		48.3	30-160	10.50	30	
4-Chloroaniline	0.9	0.04	1.0	ug/L	13.0		6.61	30-160	76.50	30	*, J
Hexachlorobutadiene	2.1	0.04	0.2	ug/L	5.00		42.1	30-160	11.20	30	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BSD1)					Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 19:15						
4-Chloro-3-Methylphenol	13.2	0.1	1.0	ug/L	13.0		101	30-160	11.80	30	
2-Methylnaphthalene	3.1	0.03	0.2	ug/L	5.00		62.0	30-160	1.18	30	
Hexachlorocyclopentadiene	4.2	0.1	1.0	ug/L	13.0		32.1	30-160	0.69	30	Q
2,4,6-Trichlorophenol	12.8	0.2	1.0	ug/L	13.0		98.3	30-160	17.40	30	
2,4,5-Trichlorophenol	13.4	0.1	1.0	ug/L	13.0		103	30-160	20.00	30	
2-Chloronaphthalene	4.0	0.03	0.2	ug/L	5.00		80.8	30-160	8.78	30	
2-Nitroaniline	16.5	0.2	1.0	ug/L	13.0		127	30-160	23.60	30	
Acenaphthylene	3.5	0.02	0.2	ug/L	5.00		70.7	30-160	14.30	30	
Dimethylphthalate	4.5	0.04	0.2	ug/L	5.00		90.5	30-160	20.50	30	
2,6-Dinitrotoluene	14.3	0.2	1.0	ug/L	13.0		110	30-160	20.10	30	
Acenaphthene	4.0	0.03	0.2	ug/L	5.00		79.6	30-160	18.60	30	
3-Nitroaniline	11.5	0.2	1.0	ug/L	13.0		88.4	30-160	33.00	30	*
2,4-Dinitrophenol	24.8	0.2	2.0	ug/L	23.0		108	30-160	16.20	30	
Dibenzofuran	3.8	0.02	0.2	ug/L	5.00		76.1	30-160	15.90	30	
4-Nitrophenol	5.3	0.06	1.0	ug/L	13.0		40.6	30-160	24.70	30	Q
2,4-Dinitrotoluene	16.0	0.1	1.0	ug/L	13.0		123	30-160	21.90	30	
Fluorene	3.3	0.02	0.2	ug/L	5.00		65.9	30-160	16.60	30	Q
4-Chlorophenylphenyl ether	3.0	0.02	0.2	ug/L	5.00		59.3	30-160	1.70	30	
Diethyl phthalate	4.9	0.06	0.2	ug/L	5.00		97.3	30-160	29.00	30	
4-Nitroaniline	14.8	0.2	1.0	ug/L	13.0		114	30-160	23.30	30	
4,6-Dinitro-2-methylphenol	30.0	0.4	2.0	ug/L	23.0		130	30-160	17.70	30	
N-Nitrosodiphenylamine	4.3	0.03	0.2	ug/L	5.00		85.6	30-160	21.40	30	
4-Bromophenyl phenyl ether	4.7	0.02	0.2	ug/L	5.00		94.0	30-160	17.10	30	
Hexachlorobenzene	4.3	0.04	0.2	ug/L	5.00		86.8	30-160	16.60	30	
Pentachlorophenol	9.5	0.1	1.0	ug/L	13.0		73.0	30-160	16.50	30	Q
Phenanthrene	4.9	0.02	0.2	ug/L	5.00		98.4	30-160	20.00	30	
Anthracene	4.6	0.03	0.2	ug/L	5.00		91.9	30-160	20.00	30	
Carbazole	5.1	0.04	0.2	ug/L	5.00		103	30-160	24.00	30	
Di-n-Butylphthalate	5.4	0.05	0.2	ug/L	5.00		108	30-160	24.70	30	
Fluoranthene	5.0	0.03	0.2	ug/L	5.00		99.8	30-160	21.50	30	
Pyrene	4.9	0.03	0.2	ug/L	5.00		97.1	30-160	22.60	30	
Butylbenzylphthalate	5.0	0.07	0.2	ug/L	5.00		100	30-160	20.70	30	
Benzo(a)anthracene	4.6	0.04	0.2	ug/L	5.00		92.9	30-160	21.20	30	
3,3'-Dichlorobenzidine	4.0	0.3	1.0	ug/L	8.00		49.6	30-160	54.60	30	*
Chrysene	4.9	0.04	0.2	ug/L	5.00		97.9	30-160	23.40	30	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BSD1)					Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 19:15						
bis(2-Ethylhexyl)phthalate	5.3	0.2	0.2	ug/L	5.00		106	30-160	24.70	30	
Di-n-Octylphthalate	5.1	0.05	0.2	ug/L	5.00		102	30-160	23.00	30	
Benzofluoranthenes, Total	10.3	0.08	0.4	ug/L	10.0		103	30-160	23.10	30	
Benzo(a)pyrene	4.8	0.05	0.2	ug/L	5.00		96.5	30-160	24.30	30	
Indeno(1,2,3-cd)pyrene	5.1	0.06	0.2	ug/L	5.00		101	30-160	22.70	30	
Dibenzo(a,h)anthracene	5.3	0.07	0.2	ug/L	5.00		106	30-160	23.60	30	
Benzo(g,h,i)perylene	5.1	0.04	0.2	ug/L	5.00		102	30-160	25.10	30	
1-Methylnaphthalene	3.3	0.03	0.2	ug/L	5.00		66.3	30-160	1.35	30	
Surrogate: 2-Fluorophenol	4.15			ug/L	*7.50*		*55.3*	*30-160*			
Surrogate: Phenol-d5	2.78			ug/L	*7.50*		*37.0*	*30-160*			
Surrogate: 2-Chlorophenol-d4	6.84			ug/L	*7.50*		*91.3*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	2.42			ug/L	*5.00*		*48.5*	*30-160*			
Surrogate: Nitrobenzene-d5	4.17			ug/L	*5.00*		*83.4*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.78			ug/L	*5.00*		*75.7*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	7.18			ug/L	*7.50*		*95.7*	*30-160*			
Surrogate: p-Terphenyl-d14	4.88			ug/L	*5.00*		*97.6*	*30-160*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0671 - 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 (BJB0671-BLK1)				Prepared: 23-Feb-2021 Analyzed: 17-Mar-2021 10:00							
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	0.234			ug/L	*0.300*		*78.1*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.249			ug/L	*0.300*		*82.9*	*29-120*			
Surrogate: Fluoranthene-d10	0.247			ug/L	*0.300*		*82.2*	*57-120*			
LCS (BJB0671-BS1)				Prepared: 23-Feb-2021 Analyzed: 17-Mar-2021 10:32							
Naphthalene	0.211	0.001	0.010	ug/L	0.300		70.4	37-120			
2-Methylnaphthalene	0.228	0.001	0.010	ug/L	0.300		75.9	37-120			
1-Methylnaphthalene	0.232	0.0009	0.010	ug/L	0.300		77.4	29-120			
Acenaphthylene	0.187	0.002	0.010	ug/L	0.300		62.4	41-120			
Acenaphthene	0.198	0.003	0.010	ug/L	0.300		65.9	41-120			
Dibenzofuran	0.204	0.002	0.010	ug/L	0.300		67.8	38-120			
Fluorene	0.219	0.002	0.010	ug/L	0.300		72.8	43-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0671 - 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 (BJB0671-BS1)					Prepared: 23-Feb-2021 Analyzed: 17-Mar-2021 10:32						
Phenanthrene	0.228	0.001	0.010	ug/L	0.300		76.1	41-120			
Anthracene	0.194	0.001	0.010	ug/L	0.300		64.8	40-120			
Carbazole	0.238	0.001	0.010	ug/L	0.300		79.3	30-160			
Fluoranthene	0.235	0.002	0.010	ug/L	0.300		78.4	45-120			
Pyrene	0.237	0.001	0.010	ug/L	0.300		78.9	41-120			
Benzo(a)anthracene	0.220	0.0008	0.010	ug/L	0.300		73.4	42-120			
Chrysene	0.223	0.0009	0.010	ug/L	0.300		74.4	44-120			
Benzo(b)fluoranthene	0.219	0.0005	0.010	ug/L	0.300		73.1	44-120			
Benzo(k)fluoranthene	0.255	0.003	0.010	ug/L	0.300		85.0	50-120			
Benzo(j)fluoranthene	0.270	0.002	0.010	ug/L	0.300		90.2	39-160			
Benzofluoranthenes, Total	0.745	0.004	0.010	ug/L	0.900		82.8	46-120			
Benzo(a)pyrene	0.214	0.002	0.010	ug/L	0.300		71.5	35-120			
Perylene	0.206	0.006	0.010	ug/L	0.300		68.6	30-160			
Indeno(1,2,3-cd)pyrene	0.249	0.001	0.010	ug/L	0.300		83.1	37-120			
Dibenzo(a,h)anthracene	0.243	0.001	0.010	ug/L	0.300		80.9	34-120			
Benzo(g,h,i)perylene	0.242	0.001	0.010	ug/L	0.300		80.6	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.249			ug/L	*0.300*		*82.9*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.250			ug/L	*0.300*		*83.3*	*29-120*			
Surrogate: Fluoranthene-d10	0.247			ug/L	*0.300*		*82.4*	*57-120*			
LCS Dup (BJB0671-BSD1)					Prepared: 23-Feb-2021 Analyzed: 17-Mar-2021 11:04						
Naphthalene	0.226	0.001	0.010	ug/L	0.300		75.4	37-120	6.92	30	
2-Methylnaphthalene	0.245	0.001	0.010	ug/L	0.300		81.5	37-120	7.18	30	
1-Methylnaphthalene	0.248	0.0009	0.010	ug/L	0.300		82.7	29-120	6.64	30	
Acenaphthylene	0.200	0.002	0.010	ug/L	0.300		66.6	41-120	6.49	30	
Acenaphthene	0.213	0.003	0.010	ug/L	0.300		71.1	41-120	7.69	30	
Dibenzofuran	0.218	0.002	0.010	ug/L	0.300		72.6	38-120	6.78	30	
Fluorene	0.234	0.002	0.010	ug/L	0.300		78.2	43-120	7.05	30	
Phenanthrene	0.249	0.001	0.010	ug/L	0.300		82.8	41-120	8.50	30	
Anthracene	0.198	0.001	0.010	ug/L	0.300		65.8	40-120	1.63	30	
Carbazole	0.250	0.001	0.010	ug/L	0.300		83.2	30-160	4.84	30	
Fluoranthene	0.251	0.002	0.010	ug/L	0.300		83.6	45-120	6.38	30	
Pyrene	0.253	0.001	0.010	ug/L	0.300		84.4	41-120	6.71	30	
Benzo(a)anthracene	0.233	0.0008	0.010	ug/L	0.300		77.6	42-120	5.53	30	
Chrysene	0.242	0.0009	0.010	ug/L	0.300		80.8	44-120	8.24	30	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0671 - 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 (BJB0671-BSD1)				Prepared: 23-Feb-2021 Analyzed: 17-Mar-2021 11:04							
Benzo(b)fluoranthene	0.218	0.0005	0.010	ug/L	0.300		72.7	44-120	0.51	30	
Benzo(k)fluoranthene	0.276	0.003	0.010	ug/L	0.300		92.0	50-120	7.90	30	
Benzo(j)fluoranthene	0.307	0.002	0.010	ug/L	0.300		102	39-160	12.70	30	
Benzofluoranthenes, Total	0.801	0.004	0.010	ug/L	0.900		89.1	46-120	7.33	30	
Benzo(a)pyrene	0.204	0.002	0.010	ug/L	0.300		68.1	35-120	4.87	30	
Perylene	0.210	0.006	0.010	ug/L	0.300		70.1	30-160	2.23	30	
Indeno(1,2,3-cd)pyrene	0.259	0.001	0.010	ug/L	0.300		86.5	37-120	3.98	30	
Dibenzo(a,h)anthracene	0.249	0.001	0.010	ug/L	0.300		83.1	34-120	2.69	30	
Benzo(g,h,i)perylene	0.253	0.001	0.010	ug/L	0.300		84.5	38-120	4.77	30	
Surrogate: 2-Methylnaphthalene-d10	0.253			ug/L	*0.300*		*84.2*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.245			ug/L	*0.300*		*81.5*	*29-120*			
Surrogate: Fluoranthene-d10	0.253			ug/L	*0.300*		*84.3*	*57-120*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Petroleum Hydrocarbons - Quality Control

Batch BJB0576 - 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 (BJB0576-BLK1)				Prepared: 19-Feb-2021	Analyzed: 10-Mar-2021 15:36					
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	0.251		mg/L	*0.225*		*112*	*50-150*			
LCS (BJB0576-BS1)				Prepared: 19-Feb-2021	Analyzed: 10-Mar-2021 15:58					
Diesel Range Organics (C12-C24)	3.14	0.100	mg/L	3.00		105	56-120			
Surrogate: o-Terphenyl	0.257		mg/L	*0.225*		*114*	*50-150*			
LCS Dup (BJB0576-BSD1)				Prepared: 19-Feb-2021	Analyzed: 10-Mar-2021 16:19					
Diesel Range Organics (C12-C24)	3.26	0.100	mg/L	3.00		109	56-120	3.75	30	
Surrogate: o-Terphenyl	0.266		mg/L	*0.225*		*118*	*50-150*			
Matrix Spike (BJB0576-MS1)	**Source: 21B0227-06**			Prepared: 19-Feb-2021	Analyzed: 10-Mar-2021 18:47					
Diesel Range Organics (C12-C24)	2.96	0.100	mg/L	3.00	ND	97.4	56-120			
Surrogate: o-Terphenyl	0.250		mg/L	*0.225*	*0.260*	*111*	*50-150*			

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

Matrix Spike Dup (BJB0576-MSD1)	**Source: 21B0227-06**			Prepared: 19-Feb-2021	Analyzed: 10-Mar-2021 19:09					
Diesel Range Organics (C12-C24)	3.02	0.100	mg/L	3.00	ND	99.3	56-120	1.95	30	
Surrogate: o-Terphenyl	0.228		mg/L	*0.225*	*0.260*	*101*	*50-150*			

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

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Aroclor PCB - Quality Control

Batch BJB0607 - 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 (BJB0607-BLK1)				Prepared: 23-Feb-2021 Analyzed: 09-Mar-2021 15:59							
Aroclor 1016	ND	0.018	0.100	ug/L							U
Aroclor 1221	ND	0.018	0.100	ug/L							U
Aroclor 1232	ND	0.018	0.100	ug/L							U
Aroclor 1242	ND	0.018	0.100	ug/L							U
Aroclor 1248	ND	0.018	0.100	ug/L							U
Aroclor 1254	ND	0.018	0.100	ug/L							U
Aroclor 1260	ND	0.017	0.100	ug/L							U
Surrogate: Decachlorobiphenyl	0.0491			ug/L	*0.0800*		*61.4*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0525			ug/L	*0.0800*		*65.6*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0492			ug/L	*0.0800*		*61.4*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0401			ug/L	*0.0800*		*50.1*	*39-120*			
LCS (BJB0607-BS1)				Prepared: 23-Feb-2021 Analyzed: 09-Mar-2021 16:40							
Aroclor 1016	0.783	0.018	0.100	ug/L	1.00		78.3	51-120			
Aroclor 1260 [2C]	0.861	0.017	0.100	ug/L	1.00		86.1	56-120			
Surrogate: Decachlorobiphenyl	0.0594			ug/L	*0.0800*		*74.2*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0585			ug/L	*0.0800*		*73.1*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0555			ug/L	*0.0800*		*69.3*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0453			ug/L	*0.0800*		*56.7*	*39-120*			
LCS Dup (BJB0607-BSD1)				Prepared: 23-Feb-2021 Analyzed: 09-Mar-2021 16:19							
Aroclor 1016	0.763	0.018	0.100	ug/L	1.00		76.3	51-120	2.64	30	
Aroclor 1260	0.835	0.017	0.100	ug/L	1.00		83.5	56-120	0.81	30	
Surrogate: Decachlorobiphenyl	0.0489			ug/L	*0.0800*		*61.1*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0572			ug/L	*0.0800*		*71.5*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0492			ug/L	*0.0800*		*61.5*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0421			ug/L	*0.0800*		*52.6*	*39-120*			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Metals and Metallic Compounds - Quality Control

Batch BJB0786 - 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 (BJB0786-BLK1)					Prepared: 26-Feb-2021 Analyzed: 01-Mar-2021 14:59							
Barium	135	ND	0.0560	0.500	ug/L							U
Barium	137	ND	0.0530	0.500	ug/L							U
Chromium	52	0.247	0.130	0.500	ug/L							J
Chromium	53	0.238	0.0700	0.500	ug/L							J
Cobalt	59	ND	0.0290	0.200	ug/L							U
Iron	54	9.33	6.27	20.0	ug/L							J
Iron	57	4.54	1.40	20.0	ug/L							J
Lead	208	ND	0.0680	0.100	ug/L							U
Manganese	55	ND	0.0850	0.500	ug/L							U
Silver	107	ND	0.0170	0.200	ug/L							U
Vanadium	51a	ND	0.0400	0.200	ug/L							U
Vanadium	51b	ND	0.0160	0.200	ug/L							U
Arsenic	75a	ND	0.0220	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	0.340	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	ND	0.0500	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Selenium	78	ND	0.440	0.500	ug/L							U
Zinc	66	ND	0.820	4.00	ug/L							U
Zinc	67	ND	0.940	4.00	ug/L							U
LCS (BJB0786-BS1)					Prepared: 26-Feb-2021 Analyzed: 01-Mar-2021 15:03							
Barium	135	24.3	0.0560	0.500	ug/L	25.0		97.3	80-120			
Barium	137	24.7	0.0530	0.500	ug/L	25.0		98.6	80-120			
Chromium	52	24.2	0.130	0.500	ug/L	25.0		96.8	80-120			
Chromium	53	24.9	0.0700	0.500	ug/L	25.0		99.7	80-120			
Cobalt	59	25.0	0.0290	0.200	ug/L	25.0		99.9	80-120			
Iron	54	4830	6.27	20.0	ug/L	5000		96.5	80-120			
Iron	57	4840	1.40	20.0	ug/L	5000		96.9	80-120			
Lead	208	24.0	0.0680	0.100	ug/L	25.0		96.2	80-120			
Manganese	55	24.6	0.0850	0.500	ug/L	25.0		98.4	80-120			
Silver	107	25.9	0.0170	0.200	ug/L	25.0		104	80-120			
Vanadium	51a	23.7	0.0400	0.200	ug/L	25.0		94.8	80-120			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Metals and Metallic Compounds - Quality Control

Batch BJB0786 - 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 (BJB0786-BS1)						Prepared: 26-Feb-2021 Analyzed: 01-Mar-2021 15:03						
Vanadium	51b	23.9	0.0160	0.200	ug/L	25.0		95.6	80-120			
Arsenic	75a	24.4	0.0220	0.200	ug/L	25.0		97.7	80-120			
Cadmium	111	25.2	0.0300	0.100	ug/L	25.0		101	80-120			
Cadmium	114	24.3	0.0400	0.100	ug/L	25.0		97.4	80-120			
Copper	63	24.9	0.340	0.500	ug/L	25.0		99.6	80-120			
Copper	65	25.1	0.350	0.500	ug/L	25.0		100	80-120			
Nickel	60	25.2	0.0500	0.500	ug/L	25.0		101	80-120			
Nickel	62	24.6	0.220	0.500	ug/L	25.0		98.6	80-120			
Selenium	78	79.5	0.440	0.500	ug/L	80.0		99.4	80-120			
Zinc	66	79.8	0.820	4.00	ug/L	80.0		99.8	80-120			
Zinc	67	78.2	0.940	4.00	ug/L	80.0		97.8	80-120			
Duplicate (BJB0786-DUP1)			**Source: 21B0227-06**			Prepared: 26-Feb-2021 Analyzed: 01-Mar-2021 22:55						
Barium	135	2.71	0.0560	0.500	ug/L		2.70			0.22	20	
Cobalt	59	0.398	0.0290	0.200	ug/L		0.402			1.00	20	
Lead	208	ND	0.0680	0.100	ug/L		ND					U
Arsenic	75a	0.647	0.0220	0.200	ug/L		0.648			0.15	20	
Cadmium	111	0.0310	0.0300	0.100	ug/L		ND					J
Copper	63	0.886	0.340	0.500	ug/L		0.892			0.68	20	
Nickel	60	1.13	0.0500	0.500	ug/L		1.16			3.23	20	
Selenium	78	ND	0.440	0.500	ug/L		ND					U
Zinc	66	ND	0.820	4.00	ug/L		0.890					U
Duplicate (BJB0786-DUP2)			**Source: 21B0227-06**			Prepared: 26-Feb-2021 Analyzed: 02-Mar-2021 23:04						
Chromium	52	0.298	0.260	1.00	ug/L		0.262			12.90	20	J, D
Iron	54	82.0	12.5	40.0	ug/L		79.1			3.59	20	D
Manganese	55	31.8	0.170	1.00	ug/L		31.7			0.16	20	D
Vanadium	51a	1.48	0.0800	0.400	ug/L		1.46			1.50	20	D
Matrix Spike (BJB0786-MS1)			**Source: 21B0227-06**			Prepared: 26-Feb-2021 Analyzed: 01-Mar-2021 23:00						
Barium	135	27.8	0.0560	0.500	ug/L	25.0	2.70	100	75-125			
Cobalt	59	25.9	0.0290	0.200	ug/L	25.0	0.402	102	75-125			
Lead	208	23.8	0.0680	0.100	ug/L	25.0	ND	95.2	75-125			
Arsenic	75a	25.7	0.0220	0.200	ug/L	25.0	0.648	100	75-125			
Cadmium	111	24.1	0.0300	0.100	ug/L	25.0	ND	96.4	75-125			
Copper	63	25.4	0.340	0.500	ug/L	25.0	0.892	97.9	75-125			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Metals and Metallic Compounds - Quality Control

Batch BJB0786 - 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 (BJB0786-MS1)			**Source: 21B0227-06**			Prepared: 26-Feb-2021		Analyzed: 01-Mar-2021 23:00				
Nickel	60	26.3	0.0500	0.500	ug/L	25.0	1.16	100	75-125			
Selenium	78	78.8	0.440	0.500	ug/L	80.0	ND	98.5	75-125			
Zinc	66	76.1	0.820	4.00	ug/L	80.0	0.890	94.0	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BJB0786-MS2)			**Source: 21B0227-06**			Prepared: 26-Feb-2021		Analyzed: 02-Mar-2021 23:10				
Chromium	52	22.6	0.260	1.00	ug/L	25.0	0.262	89.5	75-125			D
Iron	54	4360	12.5	40.0	ug/L	5000	79.1	85.6	75-125			D
Manganese	55	52.2	0.170	1.00	ug/L	25.0	31.7	81.6	75-125			D
Vanadium	51a	23.3	0.0800	0.400	ug/L	25.0	1.46	87.4	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJB0786-MSD1)			**Source: 21B0227-06**			Prepared: 26-Feb-2021		Analyzed: 01-Mar-2021 23:06				
Barium	135	27.2	0.0560	0.500	ug/L	25.0	2.70	98.1	75-125	2.08	20	
Cobalt	59	25.5	0.0290	0.200	ug/L	25.0	0.402	100	75-125	1.68	20	
Lead	208	24.1	0.0680	0.100	ug/L	25.0	ND	96.3	75-125	1.08	20	
Arsenic	75a	25.3	0.0220	0.200	ug/L	25.0	0.648	98.5	75-125	1.77	20	
Cadmium	111	23.6	0.0300	0.100	ug/L	25.0	ND	94.6	75-125	1.87	20	
Copper	63	25.4	0.340	0.500	ug/L	25.0	0.892	97.9	75-125	0.06	20	
Nickel	60	26.2	0.0500	0.500	ug/L	25.0	1.16	100	75-125	0.36	20	
Selenium	78	79.7	0.440	0.500	ug/L	80.0	ND	99.6	75-125	1.14	20	
Zinc	66	76.2	0.820	4.00	ug/L	80.0	0.890	94.1	75-125	0.11	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJB0786-MSD2)			**Source: 21B0227-06**			Prepared: 26-Feb-2021		Analyzed: 02-Mar-2021 23:16				
Chromium	52	22.7	0.260	1.00	ug/L	25.0	0.262	89.8	75-125	0.27	20	D
Iron	54	4410	12.5	40.0	ug/L	5000	79.1	86.7	75-125	1.23	20	D
Manganese	55	52.9	0.170	1.00	ug/L	25.0	31.7	84.5	75-125	1.37	20	D
Vanadium	51a	23.2	0.0800	0.400	ug/L	25.0	1.46	87.0	75-125	0.46	20	D
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

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Metals and Metallic Compounds - Quality Control

Batch BJB0786 - 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
Duplicate (BJB0786-DUP3)			**Source: 21B0227-06**		Prepared: 26-Feb-2021 Analyzed: 05-Mar-2021 18:38							
Silver	107	ND	0.0340	0.400	ug/L		ND					U
Matrix Spike (BJB0786-MS3)			**Source: 21B0227-06**		Prepared: 26-Feb-2021 Analyzed: 05-Mar-2021 18:43							
Silver	107	25.5	0.0340	0.400	ug/L	25.0	ND	102	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJB0786-MSD3)			**Source: 21B0227-06**		Prepared: 26-Feb-2021 Analyzed: 05-Mar-2021 18:48							
Silver	107	25.2	0.0340	0.400	ug/L	25.0	ND	101	75-125	1.39	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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Metals and Metallic Compounds - Quality Control

Batch BJC0013 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0013-BLK1)				Prepared: 01-Mar-2021 Analyzed: 02-Mar-2021 14:04							
Mercury	ND	0.000013	0.000100	mg/L							U
LCS (BJC0013-BS1)				Prepared: 01-Mar-2021 Analyzed: 02-Mar-2021 14:06							
Mercury	0.00199	0.000013	0.000100	mg/L	0.00200		99.4	80-120			
Duplicate (BJC0013-DUP1)		**Source: 21B0227-06**		Prepared: 01-Mar-2021 Analyzed: 02-Mar-2021 14:15							
Mercury	ND	0.000013	0.000100	mg/L		ND					U
Matrix Spike (BJC0013-MS1)		**Source: 21B0227-06**		Prepared: 01-Mar-2021 Analyzed: 02-Mar-2021 14:18							
Mercury	0.000951	0.000013	0.000100	mg/L	0.00100	ND	95.1	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJC0013-MSD1)		**Source: 21B0227-06**		Prepared: 01-Mar-2021 Analyzed: 02-Mar-2021 14:20							
Mercury	0.000938	0.000013	0.000100	mg/L	0.00100	ND	93.8	75-125	1.43	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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJB0738 - 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 (BJB0738-BLK1)					Prepared: 25-Feb-2021 Analyzed: 26-Feb-2021 15:39							
Barium, Dissolved	135	ND	0.0560	0.500	ug/L							U
Barium, Dissolved	137	ND	0.0530	0.500	ug/L							U
Chromium, Dissolved	52	ND	0.130	0.500	ug/L							U
Chromium, Dissolved	53	0.153	0.0700	0.500	ug/L							J
Cobalt, Dissolved	59	ND	0.0290	0.200	ug/L							U
Iron, Dissolved	54	8.34	6.27	20.0	ug/L							J
Lead, Dissolved	208	ND	0.0680	0.100	ug/L							U
Manganese, Dissolved	55	ND	0.0850	0.500	ug/L							U
Silver, Dissolved	107	ND	0.0170	0.200	ug/L							U
Vanadium, Dissolved	51a	ND	0.0400	0.200	ug/L							U
Vanadium, Dissolved	51b	ND	0.0160	0.200	ug/L							U
Arsenic, Dissolved	75a	ND	0.0220	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	0.340	0.500	ug/L							U
Copper, Dissolved	65	ND	0.350	0.500	ug/L							U
Nickel, Dissolved	60	ND	0.0500	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
Selenium, Dissolved	78	ND	0.440	0.500	ug/L							U
Zinc, Dissolved	66	ND	0.820	4.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	4.00	ug/L							U
Blank (BJB0738-BLK2)					Prepared: 25-Feb-2021 Analyzed: 01-Mar-2021 14:52							
Iron, Dissolved	57	ND	1.40	20.0	ug/L							U
LCS (BJB0738-BS1)					Prepared: 25-Feb-2021 Analyzed: 26-Feb-2021 15:43							
Barium, Dissolved	135	24.7	0.0560	0.500	ug/L	25.0		98.8	80-120			
Barium, Dissolved	137	24.4	0.0530	0.500	ug/L	25.0		97.7	80-120			
Chromium, Dissolved	52	24.6	0.130	0.500	ug/L	25.0		98.4	80-120			
Cobalt, Dissolved	59	25.9	0.0290	0.200	ug/L	25.0		104	80-120			
Chromium, Dissolved	53	25.4	0.0700	0.500	ug/L	25.0		102	80-120			
Iron, Dissolved	54	4950	6.27	20.0	ug/L	5000		99.0	80-120			
Iron, Dissolved	57	5010	1.40	20.0	ug/L	5000		100	80-120			
Lead, Dissolved	208	24.9	0.0680	0.100	ug/L	25.0		99.4	80-120			
Manganese, Dissolved	55	25.3	0.0850	0.500	ug/L	25.0		101	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJB0738 - 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 (BJB0738-BS1)						Prepared: 25-Feb-2021 Analyzed: 26-Feb-2021 15:43						
Silver, Dissolved	107	26.8	0.0170	0.200	ug/L	25.0		107	80-120			
Vanadium, Dissolved	51a	24.1	0.0400	0.200	ug/L	25.0		96.6	80-120			
Vanadium, Dissolved	51b	24.4	0.0160	0.200	ug/L	25.0		97.5	80-120			
Arsenic, Dissolved	75a	24.5	0.0220	0.200	ug/L	25.0		97.8	80-120			
Cadmium, Dissolved	111	24.8	0.0300	0.100	ug/L	25.0		99.2	80-120			
Cadmium, Dissolved	114	24.5	0.0400	0.100	ug/L	25.0		97.8	80-120			
Copper, Dissolved	63	25.3	0.340	0.500	ug/L	25.0		101	80-120			
Copper, Dissolved	65	25.4	0.350	0.500	ug/L	25.0		102	80-120			
Nickel, Dissolved	60	25.0	0.0500	0.500	ug/L	25.0		99.9	80-120			
Nickel, Dissolved	62	25.4	0.220	0.500	ug/L	25.0		102	80-120			
Selenium, Dissolved	78	77.2	0.440	0.500	ug/L	80.0		96.6	80-120			
Zinc, Dissolved	66	77.5	0.820	4.00	ug/L	80.0		96.9	80-120			
Zinc, Dissolved	67	74.6	0.940	4.00	ug/L	80.0		93.2	80-120			
Duplicate (BJB0738-DUP1)			**Source: 21B0227-07**			Prepared: 25-Feb-2021 Analyzed: 26-Feb-2021 22:38						
Cobalt, Dissolved	59	0.320	0.0290	0.200	ug/L		0.320			0.00		
Arsenic, Dissolved	75a	0.532	0.0220	0.200	ug/L		0.498			6.60	20	
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L		ND					U
Copper, Dissolved	63	0.676	0.340	0.500	ug/L		0.687			1.61	20	
Nickel, Dissolved	60	1.05	0.0500	0.500	ug/L		1.01			3.70	20	
Selenium, Dissolved	78	ND	0.440	0.500	ug/L		ND					U
Zinc, Dissolved	66	0.832	0.820	4.00	ug/L		0.828			0.48	20	J
Duplicate (BJB0738-DUP3)			**Source: 21B0227-07**			Prepared: 25-Feb-2021 Analyzed: 01-Mar-2021 18:11						
Barium, Dissolved	135	2.15	0.0560	0.500	ug/L		2.15			0.14	20	
Lead, Dissolved	208	ND	0.0680	0.100	ug/L		ND					U
Silver, Dissolved	107	ND	0.0170	0.200	ug/L		ND					U
Duplicate (BJB0738-DUP5)			**Source: 21B0227-07RE1**			Prepared: 25-Feb-2021 Analyzed: 01-Mar-2021 20:09						
Chromium, Dissolved	52	ND	0.260	1.00	ug/L		ND					U
Iron, Dissolved	54	ND	12.5	40.0	ug/L		ND					U
Manganese, Dissolved	55	28.6	0.170	1.00	ug/L		28.5			0.48	20	D
Vanadium, Dissolved	51a	1.16	0.0800	0.400	ug/L		1.16			0.34	20	D
Matrix Spike (BJB0738-MS1)			**Source: 21B0227-07**			Prepared: 25-Feb-2021 Analyzed: 26-Feb-2021 22:43						
Cobalt, Dissolved	59	26.0	0.0290	0.200	ug/L	25.0	0.320	103	75-125			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJB0738 - 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 (BJB0738-MS1)			**Source: 21B0227-07**			Prepared: 25-Feb-2021		Analyzed: 26-Feb-2021 22:43				
Arsenic, Dissolved	75a	25.0	0.0220	0.200	ug/L	25.0	0.498	98.0	75-125			
Cadmium, Dissolved	111	25.1	0.0300	0.100	ug/L	25.0	ND	100	75-125			
Copper, Dissolved	63	25.5	0.340	0.500	ug/L	25.0	0.687	99.4	75-125			
Nickel, Dissolved	60	26.3	0.0500	0.500	ug/L	25.0	1.01	101	75-125			
Selenium, Dissolved	78	77.0	0.440	0.500	ug/L	80.0	ND	96.2	75-125			
Zinc, Dissolved	66	77.3	0.820	4.00	ug/L	80.0	0.828	95.6	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BJB0738-MS3)			**Source: 21B0227-07**			Prepared: 25-Feb-2021		Analyzed: 01-Mar-2021 18:16				
Barium, Dissolved	135	27.2	0.0560	0.500	ug/L	25.0	2.15	100	75-125			
Lead, Dissolved	208	24.7	0.0680	0.100	ug/L	25.0	ND	98.8	75-125			
Silver, Dissolved	107	27.5	0.0170	0.200	ug/L	25.0	ND	110	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BJB0738-MS5)			**Source: 21B0227-07RE1**			Prepared: 25-Feb-2021		Analyzed: 01-Mar-2021 20:14				
Chromium, Dissolved	52	23.0	0.260	1.00	ug/L	25.0	ND	91.8	75-125			D
Iron, Dissolved	54	4540	12.5	40.0	ug/L	5000	ND	90.8	75-125			D
Manganese, Dissolved	55	51.8	0.170	1.00	ug/L	25.0	28.5	93.4	75-125			D
Vanadium, Dissolved	51a	23.5	0.0800	0.400	ug/L	25.0	1.16	89.5	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJB0738-MSD1)			**Source: 21B0227-07**			Prepared: 25-Feb-2021		Analyzed: 26-Feb-2021 22:49				
Cobalt, Dissolved	59	26.0	0.0290	0.200	ug/L	25.0	0.320	103	75-125	0.17	20	
Arsenic, Dissolved	75a	24.7	0.0220	0.200	ug/L	25.0	0.498	96.9	75-125	1.17	20	
Cadmium, Dissolved	111	25.4	0.0300	0.100	ug/L	25.0	ND	102	75-125	1.20	20	
Copper, Dissolved	63	25.6	0.340	0.500	ug/L	25.0	0.687	99.8	75-125	0.35	20	
Nickel, Dissolved	60	25.8	0.0500	0.500	ug/L	25.0	1.01	99.2	75-125	1.91	20	
Selenium, Dissolved	78	76.6	0.440	0.500	ug/L	80.0	ND	95.7	75-125	0.52	20	
Zinc, Dissolved	66	77.2	0.820	4.00	ug/L	80.0	0.828	95.4	75-125	0.17	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJB0738-MSD3)			**Source: 21B0227-07**			Prepared: 25-Feb-2021		Analyzed: 01-Mar-2021 18:22				
Barium, Dissolved	135	27.2	0.0560	0.500	ug/L	25.0	2.15	100	75-125	0.10	20	
Lead, Dissolved	208	24.4	0.0680	0.100	ug/L	25.0	ND	97.5	75-125	1.26	20	
Silver, Dissolved	107	27.4	0.0170	0.200	ug/L	25.0	ND	109	75-125	0.58	20	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJB0738 - 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
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJB0738-MSD5)			**Source: 21B0227-07RE1**			Prepared: 25-Feb-2021		Analyzed: 01-Mar-2021 20:20				
Chromium, Dissolved	52	23.5	0.260	1.00	ug/L	25.0	ND	93.8	75-125	2.13	20	D
Iron, Dissolved	54	4660	12.5	40.0	ug/L	5000	ND	93.3	75-125	2.65	20	D
Manganese, Dissolved	55	52.9	0.170	1.00	ug/L	25.0	28.5	97.8	75-125	2.10	20	D
Vanadium, Dissolved	51a	23.9	0.0800	0.400	ug/L	25.0	1.16	91.1	75-125	1.70	20	D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJB0770 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJB0770-BLK1)				Prepared: 26-Feb-2021 Analyzed: 02-Mar-2021 13:20							
Mercury, Dissolved	ND	0.000013	0.000100	mg/L							U
LCS (BJB0770-BS1)				Prepared: 26-Feb-2021 Analyzed: 02-Mar-2021 13:22							
Mercury, Dissolved	0.00215	0.000013	0.000100	mg/L	0.00200		107	80-120			
Duplicate (BJB0770-DUP1)		**Source: 21B0227-07**		Prepared: 26-Feb-2021 Analyzed: 02-Mar-2021 13:27							
Mercury, Dissolved	ND	0.000013	0.000100	mg/L		ND					U
Matrix Spike (BJB0770-MS1)		**Source: 21B0227-07**		Prepared: 26-Feb-2021 Analyzed: 02-Mar-2021 13:29							
Mercury, Dissolved	0.00109	0.000013	0.000100	mg/L	0.00100	ND	109	75-125			

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

Matrix Spike Dup (BJB0770-MSD1)		**Source: 21B0227-07**		Prepared: 26-Feb-2021 Analyzed: 02-Mar-2021 13:31							
Mercury, Dissolved	0.00109	0.000013	0.000100	mg/L	0.00100	ND	109	75-125	0.59	20	

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	
Silver-107	WA-DW,DoD-ELAP,NELAP
Silver-107	WADOE,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-135	NELAP,DoD-ELAP,ADEC
Barium-137	NELAP,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	DoD-ELAP,NELAP
Cobalt-59	DoD-ELAP,NELAP,WADOE
Chromium-52	NELAP,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,DoD-ELAP
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,DoD-ELAP
Manganese-55	NELAP,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Lead-208	NELAP,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51a	NELAP,DoD-ELAP,ADEC
Vanadium-51b	NELAP,DoD-ELAP,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Silver-107	WA-DW,DoD-ELAP,NELAP
Silver-107	DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-135	NELAP,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,DoD-ELAP,ADEC
Cobalt-59	NELAP,DoD-ELAP,WADOE
Cobalt-59	NELAP,DoD-ELAP
Chromium-52	NELAP,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,DoD-ELAP,ADEC

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Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,DoD-ELAP
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,DoD-ELAP
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Lead-208	NELAP,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,ADEC

EPA 6020B UCT-KED in Water

Arsenic-75a	WA-DW,DoD-ELAP,ADEC,NELAP
Arsenic-75a	WADOE,DoD-ELAP,ADEC,NELAP
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-111	NELAP,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,DoD-ELAP,ADEC
Copper-63	NELAP,DoD-ELAP
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-60	NELAP,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Selenium-78	NELAP,DoD-ELAP
Zinc-66	WADOE,DoD-ELAP
Zinc-66	WA-DW,DoD-ELAP
Zinc-67	WA-DW,DoD-ELAP
Zinc-67	WADOE,DoD-ELAP
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
Arsenic-75a	NELAP,DoD-ELAP,ADEC
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-111	NELAP,DoD-ELAP,ADEC
Cadmium-114	NELAP,DoD-ELAP,ADEC

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Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-63	NELAP,DoD-ELAP
Copper-65	NELAP,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-60	NELAP,DoD-ELAP,ADEC
Nickel-62	NELAP,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,DoD-ELAP
Selenium-78	NELAP,WADOE,DoD-ELAP
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-66	NELAP,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,DoD-ELAP
EPA 7470A in Water	
Mercury	WADOE,NELAP,DoD-ELAP
Mercury	NELAP,DoD-ELAP
Mercury	NELAP,DoD-ELAP
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8082A in Water	
Aroclor 1016	ADEC,DoD-ELAP,NELAP
Aroclor 1016	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1016 (1)	ADEC
Aroclor-1016 (1)	ADEC
Aroclor-1016 (2)	ADEC
Aroclor-1016 (2)	ADEC
Aroclor-1016 (3)	ADEC
Aroclor-1016 (3)	ADEC
Aroclor-1016 (4)	ADEC
Aroclor-1016 (4)	ADEC
Aroclor 1016 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor 1016 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1016 (1) [2C]	ADEC
Aroclor-1016 (1) [2C]	ADEC
Aroclor-1016 (2) [2C]	ADEC
Aroclor-1016 (2) [2C]	ADEC
Aroclor-1016 (3) [2C]	ADEC
Aroclor-1016 (3) [2C]	ADEC

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Aroclor-1016 (4) [2C]	ADEC
Aroclor-1016 (4) [2C]	ADEC
Aroclor 1221	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1221	ADEC,DoD-ELAP,NELAP
Aroclor-1221 (1)	ADEC
Aroclor-1221 (1)	ADEC
Aroclor-1221 (2)	ADEC
Aroclor-1221 (2)	ADEC
Aroclor-1221 (3)	ADEC
Aroclor-1221 (3)	ADEC
Aroclor 1221 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1221 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1221 (1) [2C]	ADEC
Aroclor-1221 (1) [2C]	ADEC
Aroclor-1221 (2) [2C]	ADEC
Aroclor-1221 (2) [2C]	ADEC
Aroclor-1221 (3) [2C]	ADEC
Aroclor-1221 (3) [2C]	ADEC
Aroclor-1221 (4) [2C]	ADEC
Aroclor-1221 (4) [2C]	ADEC
Aroclor 1232	ADEC,DoD-ELAP,NELAP
Aroclor 1232	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1232 (1)	ADEC
Aroclor-1232 (1)	ADEC
Aroclor-1232 (2)	ADEC
Aroclor-1232 (2)	ADEC
Aroclor-1232 (3)	ADEC
Aroclor-1232 (3)	ADEC
Aroclor-1232 (4)	ADEC
Aroclor-1232 (4)	ADEC
Aroclor 1232 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor 1232 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1232 (1) [2C]	ADEC
Aroclor-1232 (1) [2C]	ADEC
Aroclor-1232 (2) [2C]	ADEC
Aroclor-1232 (2) [2C]	ADEC
Aroclor-1232 (3) [2C]	ADEC
Aroclor-1232 (3) [2C]	ADEC
Aroclor-1232 (4) [2C]	ADEC

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Aroclor-1232 (4) [2C]	ADEC
Aroclor 1242	ADEC,DoD-ELAP,NELAP
Aroclor 1242	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1242 (1)	ADEC
Aroclor-1242 (1)	ADEC
Aroclor-1242 (2)	ADEC
Aroclor-1242 (2)	ADEC
Aroclor-1242 (3)	ADEC
Aroclor-1242 (3)	ADEC
Aroclor-1242 (4)	ADEC
Aroclor-1242 (4)	ADEC
Aroclor 1242 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor 1242 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1242 (1) [2C]	ADEC
Aroclor-1242 (1) [2C]	ADEC
Aroclor-1242 (2) [2C]	ADEC
Aroclor-1242 (2) [2C]	ADEC
Aroclor-1242 (3) [2C]	ADEC
Aroclor-1242 (3) [2C]	ADEC
Aroclor-1242 (4) [2C]	ADEC
Aroclor-1242 (4) [2C]	ADEC
Aroclor 1248	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1248	ADEC,DoD-ELAP,NELAP
Aroclor-1248 (1)	ADEC
Aroclor-1248 (1)	ADEC
Aroclor-1248 (2)	ADEC
Aroclor-1248 (2)	ADEC
Aroclor-1248 (3)	ADEC
Aroclor-1248 (3)	ADEC
Aroclor-1248 (4)	ADEC
Aroclor-1248 (4)	ADEC
Aroclor 1248 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1248 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1248 (1) [2C]	ADEC
Aroclor-1248 (1) [2C]	ADEC
Aroclor-1248 (2) [2C]	ADEC
Aroclor-1248 (2) [2C]	ADEC
Aroclor-1248 (3) [2C]	ADEC
Aroclor-1248 (3) [2C]	ADEC

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Aroclor-1248 (4) [2C]	ADEC
Aroclor-1248 (4) [2C]	ADEC
Aroclor 1254	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1254	ADEC,DoD-ELAP,NELAP
Aroclor-1254 (1)	ADEC
Aroclor-1254 (1)	ADEC
Aroclor-1254 (2)	ADEC
Aroclor-1254 (2)	ADEC
Aroclor-1254 (3)	ADEC
Aroclor-1254 (3)	ADEC
Aroclor-1254 (4)	ADEC
Aroclor-1254 (4)	ADEC
Aroclor-1254 (5)	ADEC
Aroclor-1254 (5)	ADEC
Aroclor 1254 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor 1254 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1254 (1) [2C]	ADEC
Aroclor-1254 (1) [2C]	ADEC
Aroclor-1254 (2) [2C]	ADEC
Aroclor-1254 (2) [2C]	ADEC
Aroclor-1254 (3) [2C]	ADEC
Aroclor-1254 (3) [2C]	ADEC
Aroclor-1254 (4) [2C]	ADEC
Aroclor-1254 (4) [2C]	ADEC
Aroclor-1254 (5) [2C]	ADEC
Aroclor-1254 (5) [2C]	ADEC
Aroclor 1260	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1260	ADEC,DoD-ELAP,NELAP
Aroclor-1260 (1)	ADEC
Aroclor-1260 (1)	ADEC
Aroclor-1260 (2)	ADEC
Aroclor-1260 (2)	ADEC
Aroclor-1260 (3)	ADEC
Aroclor-1260 (3)	ADEC
Aroclor-1260 (4)	ADEC
Aroclor-1260 (4)	ADEC
Aroclor-1260 (5)	ADEC
Aroclor-1260 (5)	ADEC
Aroclor 1260 [2C]	ADEC,DoD-ELAP,NELAP,WADOE

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Aroclor 1260 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1260 (1) [2C]	ADEC
Aroclor-1260 (1) [2C]	ADEC
Aroclor-1260 (2) [2C]	ADEC
Aroclor-1260 (2) [2C]	ADEC
Aroclor-1260 (3) [2C]	ADEC
Aroclor-1260 (3) [2C]	ADEC
Aroclor-1260 (4) [2C]	ADEC
Aroclor-1260 (4) [2C]	ADEC
Aroclor 1262	ADEC,DoD-ELAP,NELAP
Aroclor 1262	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1262 (1)	ADEC
Aroclor-1262 (1)	ADEC
Aroclor-1262 (2)	ADEC
Aroclor-1262 (2)	ADEC
Aroclor-1262 (3)	ADEC
Aroclor-1262 (3)	ADEC
Aroclor-1262 (4)	ADEC
Aroclor-1262 (4)	ADEC
Aroclor-1262 (5)	ADEC
Aroclor-1262 (5)	ADEC
Aroclor 1262 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1262 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1262 (1) [2C]	ADEC
Aroclor-1262 (1) [2C]	ADEC
Aroclor-1262 (2) [2C]	ADEC
Aroclor-1262 (2) [2C]	ADEC
Aroclor-1262 (3) [2C]	ADEC
Aroclor-1262 (3) [2C]	ADEC
Aroclor-1262 (4) [2C]	ADEC
Aroclor-1262 (4) [2C]	ADEC
Aroclor-1262 (5) [2C]	ADEC
Aroclor-1262 (5) [2C]	ADEC
Aroclor 1268	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1268	ADEC,DoD-ELAP,NELAP
Aroclor-1268 (1)	ADEC
Aroclor-1268 (1)	ADEC
Aroclor-1268 (2)	ADEC
Aroclor-1268 (2)	ADEC

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Aroclor-1268 (3)	ADEC
Aroclor-1268 (3)	ADEC
Aroclor-1268 (4)	ADEC
Aroclor-1268 (4)	ADEC
Aroclor 1268 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1268 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1268 (1) [2C]	ADEC
Aroclor-1268 (1) [2C]	ADEC
Aroclor-1268 (2) [2C]	ADEC
Aroclor-1268 (2) [2C]	ADEC
Aroclor-1268 (3) [2C]	ADEC
Aroclor-1268 (3) [2C]	ADEC
Aroclor-1268 (4) [2C]	ADEC
Aroclor-1268 (4) [2C]	ADEC

EPA 8260D in Water

Chloromethane	DoD-ELAP,ADEC,NELAP
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP
Bromomethane	DoD-ELAP,ADEC,NELAP
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP
Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP
Iodomethane	DoD-ELAP,NELAP
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP
Acrylonitrile	DoD-ELAP,NELAP,WADOE

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

Carbon Disulfide	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP
Bromochloromethane	DoD-ELAP,ADEC,NELAP
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP
Trichloroethene	DoD-ELAP,ADEC,NELAP
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP

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4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP
2-Hexanone	DoD-ELAP,NELAP
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP
Tetrachloroethene	DoD-ELAP,ADEC,NELAP
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP
Chlorobenzene	DoD-ELAP,ADEC,NELAP
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP

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n-Propylbenzene	DoD-ELAP,NELAP
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE

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Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP
n-Hexane	WADOE
n-Hexane	
2-Pentanone	
2-Pentanone	WADOE
EPA 8260D-SIM in Water	
Acrylonitrile	NELAP,WADOE
Acrylonitrile	NELAP
Vinyl chloride	NELAP,WADOE
Vinyl chloride	NELAP
1,1-Dichloroethene	NELAP
1,1-Dichloroethene	NELAP,WADOE
cis-1,2-Dichloroethene	NELAP,WADOE
cis-1,2-Dichloroethene	NELAP
trans-1,2-Dichloroethene	NELAP
trans-1,2-Dichloroethene	NELAP,WADOE
Trichloroethene	NELAP
Trichloroethene	NELAP,WADOE
Tetrachloroethene	NELAP
Tetrachloroethene	NELAP,WADOE
1,1,2,2-Tetrachloroethane	NELAP
1,1,2,2-Tetrachloroethane	NELAP,WADOE
1,2-Dichloroethane	NELAP
1,2-Dichloroethane	NELAP,WADOE
Benzene	NELAP,WADOE
Benzene	NELAP
EPA 8270E in Water	
Phenol	NELAP,DoD-ELAP
Phenol	NELAP,DoD-ELAP
bis(2-chloroethyl) ether	NELAP,DoD-ELAP
bis(2-chloroethyl) ether	NELAP,DoD-ELAP
2-Chlorophenol	NELAP,DoD-ELAP
2-Chlorophenol	NELAP,DoD-ELAP
1,3-Dichlorobenzene	NELAP,DoD-ELAP
1,3-Dichlorobenzene	NELAP,DoD-ELAP
1,4-Dichlorobenzene	NELAP,DoD-ELAP
1,4-Dichlorobenzene	NELAP,DoD-ELAP

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1,2-Dichlorobenzene	NELAP,DoD-ELAP
1,2-Dichlorobenzene	NELAP,DoD-ELAP
Benzyl Alcohol	NELAP,DoD-ELAP
Benzyl Alcohol	NELAP,DoD-ELAP
2,2'-Oxybis(1-chloropropane)	NELAP,DoD-ELAP
2,2'-Oxybis(1-chloropropane)	NELAP,DoD-ELAP
2-Methylphenol	NELAP,DoD-ELAP
2-Methylphenol	NELAP,DoD-ELAP
Hexachloroethane	NELAP,DoD-ELAP
Hexachloroethane	NELAP,DoD-ELAP
N-Nitroso-di-n-Propylamine	NELAP,DoD-ELAP
N-Nitroso-di-n-Propylamine	NELAP,DoD-ELAP
4-Methylphenol	NELAP,DoD-ELAP
4-Methylphenol	NELAP,DoD-ELAP
Nitrobenzene	NELAP,DoD-ELAP
Nitrobenzene	NELAP,DoD-ELAP
Isophorone	NELAP,DoD-ELAP
Isophorone	NELAP,DoD-ELAP
2-Nitrophenol	NELAP,DoD-ELAP
2-Nitrophenol	NELAP,DoD-ELAP
2,4-Dimethylphenol	NELAP,DoD-ELAP
2,4-Dimethylphenol	NELAP,DoD-ELAP
Bis(2-Chloroethoxy)methane	NELAP,DoD-ELAP
Bis(2-Chloroethoxy)methane	NELAP,DoD-ELAP
2,4-Dichlorophenol	NELAP,DoD-ELAP
2,4-Dichlorophenol	NELAP,DoD-ELAP
1,2,4-Trichlorobenzene	NELAP,DoD-ELAP
1,2,4-Trichlorobenzene	NELAP,DoD-ELAP
Naphthalene	NELAP,DoD-ELAP
Naphthalene	NELAP,DoD-ELAP
Benzoic acid	NELAP,DoD-ELAP
Benzoic acid	NELAP,DoD-ELAP
4-Chloroaniline	NELAP,DoD-ELAP
4-Chloroaniline	NELAP,DoD-ELAP
Hexachlorobutadiene	NELAP,DoD-ELAP
Hexachlorobutadiene	NELAP,DoD-ELAP
4-Chloro-3-Methylphenol	NELAP,DoD-ELAP
4-Chloro-3-Methylphenol	NELAP,DoD-ELAP
2-Methylnaphthalene	NELAP,DoD-ELAP

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2-Methylnaphthalene	NELAP,DoD-ELAP
Hexachlorocyclopentadiene	NELAP,DoD-ELAP
Hexachlorocyclopentadiene	NELAP,DoD-ELAP
2,4,6-Trichlorophenol	NELAP,DoD-ELAP
2,4,6-Trichlorophenol	NELAP,DoD-ELAP
2,4,5-Trichlorophenol	NELAP,DoD-ELAP
2,4,5-Trichlorophenol	NELAP,DoD-ELAP
2-Chloronaphthalene	NELAP,DoD-ELAP
2-Chloronaphthalene	NELAP,DoD-ELAP
2-Nitroaniline	NELAP,DoD-ELAP
2-Nitroaniline	NELAP,DoD-ELAP
Acenaphthylene	NELAP,DoD-ELAP
Acenaphthylene	NELAP,DoD-ELAP
Dimethylphthalate	NELAP,DoD-ELAP
Dimethylphthalate	NELAP,DoD-ELAP
2,6-Dinitrotoluene	NELAP,DoD-ELAP
2,6-Dinitrotoluene	NELAP,DoD-ELAP
Acenaphthene	NELAP,DoD-ELAP
Acenaphthene	NELAP,DoD-ELAP
3-Nitroaniline	NELAP,DoD-ELAP
3-Nitroaniline	NELAP,DoD-ELAP
2,4-Dinitrophenol	NELAP,DoD-ELAP
2,4-Dinitrophenol	NELAP,DoD-ELAP
Dibenzofuran	NELAP,DoD-ELAP
Dibenzofuran	NELAP,DoD-ELAP
4-Nitrophenol	NELAP,DoD-ELAP
4-Nitrophenol	NELAP,DoD-ELAP
2,4-Dinitrotoluene	NELAP,DoD-ELAP
2,4-Dinitrotoluene	NELAP,DoD-ELAP
Fluorene	NELAP,DoD-ELAP
Fluorene	NELAP,DoD-ELAP
4-Chlorophenylphenyl ether	NELAP,DoD-ELAP
4-Chlorophenylphenyl ether	NELAP,DoD-ELAP
Diethyl phthalate	NELAP,DoD-ELAP
Diethyl phthalate	NELAP,DoD-ELAP
4-Nitroaniline	NELAP,DoD-ELAP
4-Nitroaniline	NELAP,DoD-ELAP
4,6-Dinitro-2-methylphenol	NELAP,DoD-ELAP
4,6-Dinitro-2-methylphenol	NELAP,DoD-ELAP

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

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Benzo(a)pyrene	NELAP,DoD-ELAP
Indeno(1,2,3-cd)pyrene	NELAP,DoD-ELAP
Indeno(1,2,3-cd)pyrene	NELAP,DoD-ELAP
Dibenzo(a,h)anthracene	NELAP,DoD-ELAP
Dibenzo(a,h)anthracene	NELAP,DoD-ELAP
Benzo(g,h,i)perylene	NELAP,DoD-ELAP
Benzo(g,h,i)perylene	NELAP,DoD-ELAP
N-Nitrosodimethylamine	NELAP,DoD-ELAP
N-Nitrosodimethylamine	NELAP,DoD-ELAP
1-Methylnaphthalene	NELAP,DoD-ELAP
1-Methylnaphthalene	NELAP,DoD-ELAP

EPA 8270E-SIM in Water

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

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

NWTPH-Dx in Water

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE

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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

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

NWTPHg in Water

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

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

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

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish/21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 11:20

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
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)
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).
V	Sample container has been compromised
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 July 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)
21B0239	N/A

Susan Dunnihoo

Digitally signed by Susan Dunnihoo
Date: 2021.07.21 14:26:22 -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.

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ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21B0239	Turn-around Requested: Standard	Page: 1 of 2	
ARI Client Company: Shannon & Wilson	Phone: 206-695-6811	Date: 2/17/21	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 3	Cooler Temps: See CRF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: CTL/MRH		

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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 (Low level VG)	PAHs	Full list SVOCs	PCBs	See page 2	Notes/Comments
TB-5-20211702	2/17/21	0810	Water	1	X		X	X					
MW-63-20211702		0851		12		X	X	X		X	X	X	
MW-103-20211702		0906		12		X	X	X		X	X	X	
MW-60-20211702		1055		19	X	X	X	X	X		X	X	
MW-71-20211702		1154		14	X	X	X	X	X		X	X	
MW-43-20211702		1444		10		X	X	X			X	X	

Comments/Special Instructions
- Lab to filter for metals
- Please refer to project methods & analyte lists

	Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)				
Printed Name:	Mitchell Hatfield	Jacob Shelton		
Company:	SWI	ARI		
Date & Time:	2/17/21 1530	02/17/2021 1530		

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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 2180239	Turn-around Requested: Standard	Page: 2 of 2	
ARI Client Company: Shannon & Wilson	Phone: 206-695-6811	Date: 2/17/21	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 3	Cooler Temps: See COC
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: CTC/MRH		

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Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Full list metals	Attenuation indicators	Metals - total & dissolved: Manganese only						Notes/Comments
MW-63-20211702	See page 1 →				X								Full list Metals (total & diss): As, Ba, Cr, Mn, Ni, Cd, Co, Cu, Fe, Pb, Hg, Se, Ag, V, Zn
MW-103-20211702	See page 1 →				X								Attenuation indicators: • Nitrate, Nitrite, Sulfate • Chloride • Sulfate
MW-60-20211702	See page 1 →				X	X							• Ferrous Iron • Dissolved Mn
MW-71-20211702	See page 1 →				X								• MEE
MW-43-20211702	See page 1 →						X						

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
• Low to filter metals • Please refer to project analyte list & methods	Printed Name: Mitchell Hatfield	Printed Name: Sarah Hatch	Printed Name:	Printed Name:
	Company: SWI	Company: ARI	Company:	Company:
	Date & Time: 2/17/21 1530	Date & Time: 02/17/2021 1530	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
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-60-20211702	21B0239-01	Water	17-Feb-2021 10:55	17-Feb-2021 15:30
TB-5-20211702	21B0239-02	Water	17-Feb-2021 14:44	17-Feb-2021 15:30
MW-63-20211702	21B0239-03	Water	17-Feb-2021 08:51	17-Feb-2021 15:30
MW-63-20211702	21B0239-04	Water	17-Feb-2021 08:51	17-Feb-2021 15:30
MW-103-20211702	21B0239-05	Water	17-Feb-2021 09:06	17-Feb-2021 15:30
MW-103-20211702	21B0239-06	Water	17-Feb-2021 09:06	17-Feb-2021 15:30
MW-60-20211702	21B0239-07	Water	17-Feb-2021 10:55	17-Feb-2021 15:30
MW-60-20211702	21B0239-08	Water	17-Feb-2021 10:55	17-Feb-2021 15:30
MW-71-20211702	21B0239-09	Water	17-Feb-2021 11:54	17-Feb-2021 15:30
MW-71-20211702	21B0239-10	Water	17-Feb-2021 11:54	17-Feb-2021 15:30
MW-43-20211702	21B0239-11	Water	17-Feb-2021 14:44	17-Feb-2021 15:30
MW-43-20211702	21B0239-12	Water	17-Feb-2021 14:44	17-Feb-2021 15:30

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.

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish
Work Order: 21B0239

Sample receipt

Samples as listed on the preceding page were received 17-Feb-2021 15:30 under ARI work order 21B0239. For details regarding sample receipt, please refer to the Cooler Receipt Form. Only one vial was received for the trip blank.

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.

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

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 Hexachlorocyclopentadiene, 4-Nitrophenol, Fluorene and Pentachlorophenol which were 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 samples 21B0239-03, 21B0239-05, the method blank and the LCS.

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 Phenol, 4-Chloroaniline, 3,3'-Dichlorobenzene and 3-Nitroaniline which were out of control low and have been flagged within the QC section of this report.

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

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 21B0239-03 in Total Metals batch BJB0758 and in association with sample 21B0239-06 in Dissolved Metals batch BJB0738. 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 within this report.

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 21B0239-01 Anion batch BJB07486, Ferrous Iron batch BJB0510 and Sulfite batch BJB0511. The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits except Sulfate percent recovery which was out of control low in the MS.

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Total Hg - 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 21B0239-03 in Total Mercury batch BJB0736 and in association with sample 21B0239-10 in Dissolved Mercury batch BJB0770. 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 and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits

REVISION: Revised to add trans-1,2-dichloroethene to VOC reports.

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Printed: 02/17/2021 15:57:42

WORK ORDER

21B0239

Client: Shannon & Wilson, Inc	**Project Manager: Amanda Volgardsen Johnson**
Project: Lower Duwamish	**Project Number: 21-1-12596**

Report To:
Shannon & Wilson, Inc
Meg Strong
400 N 34th St., Suite 100
Seattle, WA 98103-8636
Phone: (206) 695-6787
Fax: -

Invoice To:
Shannon & Wilson, Inc
Meg Strong
400 N 34th St., Suite 100
Seattle, WA 98103-8636
Phone :(206) 695-6787
Fax: -

Date Due:	04-Mar-2021 18:00 (10 day TAT)		
Received By:	Jacob Walter	Date Received:	17-Feb-2021 15:30
Logged In By:	Jacob Walter	Date Logged In:	17-Feb-2021 15:49

Samples Received at: **0.7°C**

Intact, properly signed and dated custody seals attached to outside of cooler(s)	Yes	Custody papers included with the cooler	Yes
Custody papers properly filled out (in, signed, analyses requested, etc)	Yes	Was a temperature blank included in the cooler	Yes
Was sufficient ice used (if appropriate)	Yes	All bottles sealed in individual plastic bags	Yes
All bottles arrived in good condition (unbroken)	Yes	All bottle labels complete and legible	Yes
Number of containers listed on COC match number received	Yes	Bottle labels and tags agree with COC	Yes
Correct bottles used for the requested analyses	Yes	All VOC vials free of air bubbles	Yes
Analyses/bottles require preservation (attach preservation sheet excluding VOC)	Yes	Sufficient amount of sample sent in each bottle	Yes
Sample split at ARI	Yes		

21B0239-01 MW-60-20211702 [Water] Sampled 17-Feb-2021 10:55

Chloride, IC, EPA 300.0	03/04/2021	10	03/17/2021
Iron, Ferrous SM 3500-Fe B-97	03/04/2021	10	02/18/2021
Nitrate-N, IC, EPA 300.0	03/04/2021	10	02/19/2021
Nitrite-N, IC, EPA 300.0	03/04/2021	10	02/19/2021
Sulfate, IC, EPA 300.0	03/04/2021	10	03/17/2021
Sulfite-SO3 SM 4500-SO3 B-00	03/04/2021	10	02/17/2021

Preservation Confirmation

Container ID	Container Type	pH
21B0239-01 A	HDPE NM, 500 mL	
21B0239-01 B	Small OJ, 500 mL, EDTA	Lab to check pH
21B0239-01 C	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH

JG
Preservation Confirmed By

02/17/2021
Date

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 2/18/2021 9:54:57AM

WORK ORDER

21B0239

Client: Shannon & Wilson, Inc
Project Manager: Amanda Volgardsen Johnson
Project: Lower Duwamish
Project Number: 21-1-12596

Preservation Confirmation

Container ID	Container Type	pH	
21B0239-01 A	HDPE NM, 500 mL		
21B0239-01 B	Small OJ, 500 mL, EDTA	Lab to check pH	
21B0239-01 C	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH	
21B0239-02 A	VOA Vial, Clear, 40 mL, HCL		
21B0239-03 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0239-03 B	Glass NM, Amber, 500 mL		
21B0239-03 C	Glass NM, Amber, 500 mL		
21B0239-03 D	Glass NM, Amber, 500 mL		
21B0239-03 E	Glass NM, Amber, 500 mL		
21B0239-03 F	Glass NM, Amber, 500 mL		
21B0239-03 G	Glass NM, Amber, 500 mL		
21B0239-03 H	VOA Vial, Clear, 40 mL, HCL		
21B0239-03 I	VOA Vial, Clear, 40 mL, HCL		
21B0239-03 J	VOA Vial, Clear, 40 mL, HCL		
21B0239-03 K	VOA Vial, Clear, 40 mL, HCL		
21B0239-04 A	HDPE NM, 500 mL	> 2	Fail
21B0239-05 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0239-05 B	Glass NM, Amber, 500 mL		
21B0239-05 C	Glass NM, Amber, 500 mL		
21B0239-05 D	Glass NM, Amber, 500 mL		
21B0239-05 E	Glass NM, Amber, 500 mL		
21B0239-05 F	Glass NM, Amber, 500 mL		
21B0239-05 G	Glass NM, Amber, 500 mL		
21B0239-05 H	VOA Vial, Clear, 40 mL, HCL		
21B0239-05 I	VOA Vial, Clear, 40 mL, HCL		
21B0239-05 J	VOA Vial, Clear, 40 mL, HCL		
21B0239-05 K	VOA Vial, Clear, 40 mL, HCL		
21B0239-06 A	HDPE NM, 500 mL	> 2	Fail
21B0239-07 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0239-07 B	Glass NM, Amber, 500 mL		
21B0239-07 C	Glass NM, Amber, 500 mL		
21B0239-07 D	Glass NM, Amber, 500 mL		
21B0239-07 E	Glass NM, Amber, 500 mL		
21B0239-07 F	Glass NM, Amber, 500 mL		
21B0239-07 G	Glass NM, Amber, 500 mL		

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WORK ORDER

21B0239

Client: Shannon & Wilson, Inc | **Project Manager:** Amanda Volgardsen Johnson

Project: Lower Duwamish | **Project Number:** 21-1-12596

21B0239-07 H	VOA Vial, Clear, 40 mL, HCL		
21B0239-07 I	VOA Vial, Clear, 40 mL, HCL		
21B0239-07 J	VOA Vial, Clear, 40 mL, HCL		
21B0239-07 K	VOA Vial, Clear, 40 mL, HCL		
21B0239-07 L	VOA Vial, Clear, 40 mL, HCL		
21B0239-07 M	VOA Vial, Clear, 40 mL, HCL		
21B0239-07 N	VOA Vial, Clear, 40 mL, HCL		
21B0239-07 O	VOA Vial, Clear, 40 mL, HCL		
21B0239-08 A	HDPE NM, 500 mL	>2	Fail
21B0239-09 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0239-09 B	Glass NM, Amber, 500 mL		
21B0239-09 C	Glass NM, Amber, 500 mL		
21B0239-09 D	Glass NM, Amber, 500 mL		
21B0239-09 E	Glass NM, Amber, 500 mL		
21B0239-09 F	Glass NM, Amber, 500 mL		
21B0239-09 G	Glass NM, Amber, 500 mL		
21B0239-09 H	VOA Vial, Clear, 40 mL, HCL		
21B0239-09 I	VOA Vial, Clear, 40 mL, HCL		
21B0239-09 J	VOA Vial, Clear, 40 mL, HCL		
21B0239-09 K	VOA Vial, Clear, 40 mL, HCL		
21B0239-09 L	VOA Vial, Clear, 40 mL, HCL		
21B0239-09 M	VOA Vial, Clear, 40 mL, HCL		
21B0239-10 A	HDPE NM, 500 mL	>2	Fail
21B0239-11 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0239-11 B	Glass NM, Amber, 500 mL		
21B0239-11 C	Glass NM, Amber, 500 mL		
21B0239-11 D	Glass NM, Amber, 500 mL		
21B0239-11 E	Glass NM, Amber, 500 mL		
21B0239-11 H	VOA Vial, Clear, 40 mL, HCL		
21B0239-11 I	VOA Vial, Clear, 40 mL, HCL		
21B0239-11 J	VOA Vial, Clear, 40 mL, HCL		
21B0239-11 K	VOA Vial, Clear, 40 mL, HCL		
21B0239-12 A	HDPE NM, 500 mL	>2	Fail

SC
Preservation Confirmed By

2/18/21
Date

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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: 21B0239 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 1530 0.7 3.8 2.4 ____ ____ ____

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D00 (5206)

Cooler Accepted by: JG Date: 02/17/2021 Time: 1530

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	2/18/21	

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

Samples Logged by: SC Date: 2/18/21 Time: 0858 Labels checked by: SC

***** 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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WORK ORDER

21B0239

Client: Shannon & Wilson, Inc	**Project Manager: Amanda Volgardsen Johnson**
Project: Lower Duwamish	**Project Number: 21-1-12596**

Preservation Confirmation

Container ID	Container Type	pH	
21B0239-01 A	HDPE NM, 500 mL		
21B0239-01 B	Small OJ, 500 mL, EDTA	Lab to check pH	
21B0239-01 C	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH	
21B0239-02 A	VOA Vial, Clear, 40 mL, HCL		
21B0239-03 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0239-03 B	Glass NM, Amber, 500 mL		
21B0239-03 C	Glass NM, Amber, 500 mL		
21B0239-03 D	Glass NM, Amber, 500 mL		
21B0239-03 E	Glass NM, Amber, 500 mL		
21B0239-03 F	Glass NM, Amber, 500 mL		
21B0239-03 G	Glass NM, Amber, 500 mL		
21B0239-03 H	VOA Vial, Clear, 40 mL, HCL		
21B0239-03 I	VOA Vial, Clear, 40 mL, HCL		
21B0239-03 J	VOA Vial, Clear, 40 mL, HCL		
21B0239-03 K	VOA Vial, Clear, 40 mL, HCL		
21B0239-04 A	HDPE NM, 500 mL	> 2	Fail (1)
21B0239-05 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0239-05 B	Glass NM, Amber, 500 mL		
21B0239-05 C	Glass NM, Amber, 500 mL		
21B0239-05 D	Glass NM, Amber, 500 mL		
21B0239-05 E	Glass NM, Amber, 500 mL		
21B0239-05 F	Glass NM, Amber, 500 mL		
21B0239-05 G	Glass NM, Amber, 500 mL		
21B0239-05 H	VOA Vial, Clear, 40 mL, HCL		
21B0239-05 I	VOA Vial, Clear, 40 mL, HCL		
21B0239-05 J	VOA Vial, Clear, 40 mL, HCL		
21B0239-05 K	VOA Vial, Clear, 40 mL, HCL		
21B0239-06 A	HDPE NM, 500 mL	> 2	Fail (1)
21B0239-07 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0239-07 B	Glass NM, Amber, 500 mL		
21B0239-07 C	Glass NM, Amber, 500 mL		
21B0239-07 D	Glass NM, Amber, 500 mL		
21B0239-07 E	Glass NM, Amber, 500 mL		
21B0239-07 F	Glass NM, Amber, 500 mL		
21B0239-07 G	Glass NM, Amber, 500 mL		

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WORK ORDER

21B0239

Client: Shannon & Wilson, Inc
Project Manager: Amanda Volgardsen Johnson
Project: Lower Duwamish
Project Number: 21-1-12596

21B0239-07 H	VOA Vial, Clear, 40 mL, HCL		
21B0239-07 I	VOA Vial, Clear, 40 mL, HCL		
21B0239-07 J	VOA Vial, Clear, 40 mL, HCL		
21B0239-07 K	VOA Vial, Clear, 40 mL, HCL		
21B0239-07 L	VOA Vial, Clear, 40 mL, HCL		
21B0239-07 M	VOA Vial, Clear, 40 mL, HCL		
21B0239-07 N	VOA Vial, Clear, 40 mL, HCL		
21B0239-07 O	VOA Vial, Clear, 40 mL, HCL		
21B0239-08 A	HDPE NM, 500 mL	>2	Fail (1)
21B0239-09 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0239-09 B	Glass NM, Amber, 500 mL		
21B0239-09 C	Glass NM, Amber, 500 mL		
21B0239-09 D	Glass NM, Amber, 500 mL		
21B0239-09 E	Glass NM, Amber, 500 mL		
21B0239-09 F	Glass NM, Amber, 500 mL		
21B0239-09 G	Glass NM, Amber, 500 mL		
21B0239-09 H	VOA Vial, Clear, 40 mL, HCL		
21B0239-09 I	VOA Vial, Clear, 40 mL, HCL		
21B0239-09 J	VOA Vial, Clear, 40 mL, HCL		
21B0239-09 K	VOA Vial, Clear, 40 mL, HCL		
21B0239-09 L	VOA Vial, Clear, 40 mL, HCL		
21B0239-09 M	VOA Vial, Clear, 40 mL, HCL		
21B0239-10 A	HDPE NM, 500 mL	>2	Fail (1)
21B0239-11 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0239-11 B	Glass NM, Amber, 500 mL		
21B0239-11 C	Glass NM, Amber, 500 mL		
21B0239-11 D	Glass NM, Amber, 500 mL		
21B0239-11 E	Glass NM, Amber, 500 mL		
21B0239-11 H	VOA Vial, Clear, 40 mL, HCL		
21B0239-11 I	VOA Vial, Clear, 40 mL, HCL		
21B0239-11 J	VOA Vial, Clear, 40 mL, HCL		
21B0239-11 K	VOA Vial, Clear, 40 mL, HCL		
21B0239-12 A	HDPE NM, 500 mL	>2	Fail (1)

SC
Preservation Confirmed By

2/18/21
Date

(1) Filtered ~~at~~ 0.45um and preserved to pH<2.0 with 0.75 mL conc. HNO_3 (I10976), mr ~~2/17/21~~ 2/17/21

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Date

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-60-20211702

21B0239-01 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 02/17/2021 10:55

Instrument: IC930 Analyst: WCW — Analyzed: 02/17/2021 19:28

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0239-01 A

Preparation Batch: BJB0486 — Sample Size: 10 mL

Prepared: 02/17/2021 — 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	0.642	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

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	5.09	mg/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-60-20211702

21B0239-01 (Water)

Wet Chemistry

Method: SM 4500-SO3 B-00 — Sampled: 02/17/2021 10:55

Instrument: N/A Analyst: UW — Analyzed: 02/17/2021 16:22

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0239-01

Preparation Batch: BJB0511 — Sample Size: 50 mL

Prepared: 02/17/2021 — 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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-60-20211702

21B0239-01RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 02/17/2021 10:55

Instrument: IC930 Analyst: WCW — Analyzed: 02/18/2021 08:04

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0239-01RE1 A

Preparation Batch: BJB0486 — Sample Size: 10 mL

Prepared: 02/17/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	2	0.200	0.200	12.2	mg/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-60-20211702

21B0239-01RE2 (Water)

Wet Chemistry

Method: SM 3500-Fe B-97 — Sampled: 02/17/2021 10:55

Instrument: UV1800-2 Analyst: BF — Analyzed: 02/17/2021 18:21

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0239-01RE2 C

Preparation Batch: BJB0510 — Sample Size: 5 mL

Prepared: 02/17/2021 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ferrous Iron		50	2.00	2.00	36.9	mg/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

TB-5-20211702

21B0239-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/17/2021 14:44

Instrument: NT2 Analyst: PKC — Analyzed: 02/26/2021 13:08

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0239-02 A

Preparation Batch: BJB0703 — Sample Size: 10 mL

Prepared: 02/26/2021 — 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 %*	*99.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

TB-5-20211702

21B0239-02 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/17/2021 14:44
Instrument: NT2 Analyst: PKC — Analyzed: 02/26/2021 13:08

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0239-02 A
Preparation Batch: BJB0703 — Sample Size: 10 mL
Prepared: 02/26/2021 — 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 %*	*95.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-63-20211702

21B0239-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/17/2021 08:51

Instrument: NT2 Analyst: PKC — Analyzed: 02/26/2021 16:54

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0239-03 J

Preparation Batch: BJB0703 — Sample Size: 10 mL

Prepared: 02/26/2021 — 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 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*94.4*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.4*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-63-20211702

21B0239-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/17/2021 08:51

Instrument: NT16 Analyst: PB — Analyzed: 03/01/2021 16:40

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0239-03 H

Preparation Batch: BJC0017 — Sample Size: 10 mL

Prepared: 03/01/2021 — 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 %*	*101*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*94.8*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-63-20211702

21B0239-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/17/2021 08:51

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 21:45

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0239-03 C 01

Preparation Batch: BJB0600 — Sample Size: 1000 mL

Prepared: 02/23/2021 — 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 Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-63-20211702

21B0239-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/17/2021 08:51

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 21:45

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 %*	*46.6*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*27.6*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*89.4*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*61.1*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*87.5*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*78.0*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*100*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-63-20211702

21B0239-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/17/2021 08:51

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 21:45

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: p-Terphenyl-d14		*30-160 %*	*94.3*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-63-20211702

21B0239-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/17/2021 08:51
Instrument: FID4 Analyst: CTO — Analyzed: 03/10/2021 18:26

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0239-03 B 01
Preparation Batch: BJB0576 — Sample Size: 500 mL
Prepared: 02/19/2021 — 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 %*	*114*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-63-20211702

21B0239-03 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/17/2021 08:51
Instrument: ECD7 Analyst: JGR — Analyzed: 03/12/2021 20:43

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0239-03 E 01
	Preparation Batch: BJB0607	Sample Size: 500 mL	
	Prepared: 02/23/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0239-03 E 01
	Cleanup Batch: CJC0107	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0239-03 E 01
	Cleanup Batch: CJC0105	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0239-03 E 01
	Cleanup Batch: CJC0106	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.018	0.100	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.018	0.100	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.018	0.100	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.018	0.100	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.017	0.100	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*62.5*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*54.9*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*66.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*46.3*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-63-20211702

21B0239-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/17/2021 08:51

Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/26/2021 21:13

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-03 A 01

Preparation Batch: BJB0758 — Sample Size: 25 mL

Prepared: 02/25/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	14.4	ug/L	
Chromium	7440-47-3	2	0.260	1.00	1.24	ug/L	D
Cobalt	7440-48-4	1	0.0290	0.200	0.698	ug/L	
Iron	7439-89-6	2	12.5	40.0	11400	ug/L	D
Lead	7439-92-1	1	0.0680	0.100	0.492	ug/L	
Manganese	7439-96-5	2	0.170	1.00	80.5	ug/L	D
Silver	7440-22-4	1	0.0170	0.200	ND	ug/L	U
Vanadium	7440-62-2	2	0.0800	0.400	9.65	ug/L	D

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-63-20211702

21B0239-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/17/2021 08:51

Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/26/2021 21:13

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-03 A 01

Preparation Batch: BJB0758 — Sample Size: 25 mL

Prepared: 02/25/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	28.0	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	0.0510	ug/L	J
Copper	7440-50-8	1	0.340	0.500	4.19	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	3.51	ug/L	
Selenium	7782-49-2	1	0.440	0.500	0.942	ug/L	
Zinc	7440-66-6	1	0.820	4.00	6.40	ug/L	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-63-20211702

21B0239-03 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/17/2021 08:51

Instrument: HYDRA Analyst: BLC — Analyzed: 02/25/2021 14:40

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0239-03 A

Preparation Batch: BJB0736 — Sample Size: 20 mL

Prepared: 02/25/2021 — 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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-63-20211702

21B0239-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/17/2021 08:51
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/26/2021 23:22

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-04 A 02
Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570
Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	4.01	ug/L	
Chromium, Dissolved	7440-47-3	1	0.130	0.500	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	0.236	ug/L	
Iron, Dissolved	7439-89-6	1	6.27	20.0	61.9	ug/L	
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	1	0.0850	0.500	24.3	ug/L	
Silver, Dissolved	7440-22-4	1	0.0170	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0400	0.200	2.02	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-63-20211702

21B0239-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/17/2021 08:51
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/26/2021 23:22

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-04 A 02
Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570
Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	1.19	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	0.0520	ug/L	J
Copper, Dissolved	7440-50-8	1	0.340	0.500	1.80	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	2.41	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	0.854	ug/L	
Zinc, Dissolved	7440-66-6	1	0.820	4.00	1.13	ug/L	J

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-63-20211702

21B0239-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/17/2021 08:51
Instrument: HYDRA Analyst: BLC — Analyzed: 03/02/2021 13:57

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0239-04 A 01
Preparation Batch: BJB0770 — Sample Size: 20 mL — Filtration Batch: BJB0570
Prepared: 02/26/2021 — Final Volume: 20 mL — Filtration Date: 02/19/2021 11:15

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
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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-103-20211702

21B0239-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/17/2021 09:06

Instrument: NT2 Analyst: PKC — Analyzed: 02/26/2021 17:14

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0239-05 H

Preparation Batch: BJB0703 — Sample Size: 10 mL

Prepared: 02/26/2021 — 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 %*	*104*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*91.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.7*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-103-20211702

21B0239-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/17/2021 09:06

Instrument: NT16 Analyst: PB — Analyzed: 03/01/2021 17:00

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0239-05 J

Preparation Batch: BJC0017 — Sample Size: 10 mL

Prepared: 03/01/2021 — 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 %*	*109*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*93.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*97.5*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-103-20211702

21B0239-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/17/2021 09:06
Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 22:22

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0239-05 C 01
Preparation Batch: BJB0600 — Sample Size: 1000 mL
Prepared: 02/23/2021 — 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 Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-103-20211702

21B0239-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/17/2021 09:06
Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 22:22

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 %*	*45.5*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*25.1*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*84.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*48.0*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*76.9*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*65.2*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*99.0*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-103-20211702

21B0239-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/17/2021 09:06

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 22:22

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: p-Terphenyl-d14		*30-160 %*	*88.7*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-103-20211702

21B0239-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/17/2021 09:06
Instrument: FID4 Analyst: CTO — Analyzed: 03/10/2021 19:30

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0239-05 B 01
Preparation Batch: BJB0576 — Sample Size: 500 mL
Prepared: 02/19/2021 — 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 %*	*118*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-103-20211702

21B0239-05 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/17/2021 09:06
Instrument: ECD7 Analyst: JGR — Analyzed: 03/12/2021 21:44

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0239-05 E 01
	Preparation Batch: BJB0607	Sample Size: 500 mL	
	Prepared: 02/23/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0239-05 E 01
	Cleanup Batch: CJC0107	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0239-05 E 01
	Cleanup Batch: CJC0105	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0239-05 E 01
	Cleanup Batch: CJC0106	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.018	0.100	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.018	0.100	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.018	0.100	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.018	0.100	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.017	0.100	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*64.4*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*56.8*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*67.7*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*48.0*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-103-20211702

21B0239-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/17/2021 09:06
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/27/2021 01:39

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-05 A 01
Preparation Batch: BJB0758 — Sample Size: 25 mL
Prepared: 02/25/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	4.80	ug/L	
Chromium	7440-47-3	1	0.130	0.500	0.162	ug/L	J
Cobalt	7440-48-4	1	0.0290	0.200	0.268	ug/L	
Iron	7439-89-6	1	6.27	20.0	740	ug/L	
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese	7439-96-5	1	0.0850	0.500	27.8	ug/L	
Silver	7440-22-4	1	0.0170	0.200	ND	ug/L	U
Vanadium	7440-62-2	1	0.0400	0.200	2.45	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-103-20211702

21B0239-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/17/2021 09:06
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/27/2021 01:39

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-05 A 01
Preparation Batch: BJB0758 — Sample Size: 25 mL
Prepared: 02/25/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	2.98	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	0.0340	ug/L	J
Copper	7440-50-8	1	0.340	0.500	2.05	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	2.44	ug/L	
Selenium	7782-49-2	1	0.440	0.500	0.884	ug/L	
Zinc	7440-66-6	1	0.820	4.00	0.993	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-103-20211702

21B0239-05 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/17/2021 09:06
Instrument: HYDRA Analyst: BLC — Analyzed: 02/25/2021 14:56

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0239-05 A
Preparation Batch: BJB0736 — Sample Size: 20 mL
Prepared: 02/25/2021 — 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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-103-20211702

21B0239-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/17/2021 09:06
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/26/2021 23:40

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-06 A 02
Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570
Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	4.06	ug/L	
Chromium, Dissolved	7440-47-3	1	0.130	0.500	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	0.232	ug/L	
Iron, Dissolved	7439-89-6	1	6.27	20.0	91.1	ug/L	
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	1	0.0850	0.500	25.9	ug/L	
Silver, Dissolved	7440-22-4	1	0.0170	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0400	0.200	2.02	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-103-20211702

21B0239-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/17/2021 09:06
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/26/2021 23:40

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-06 A 02
Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570
Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	1.16	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	0.0380	ug/L	J
Copper, Dissolved	7440-50-8	1	0.340	0.500	1.66	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	2.30	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	0.769	ug/L	
Zinc, Dissolved	7440-66-6	1	0.820	4.00	1.20	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-103-20211702

21B0239-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/17/2021 09:06
Instrument: HYDRA Analyst: BLC — Analyzed: 03/02/2021 13:59

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0239-06 A 01
Preparation Batch: BJB0770 — Sample Size: 20 mL — Filtration Batch: BJB0570
Prepared: 02/26/2021 — Final Volume: 20 mL — Filtration Date: 02/19/2021 11:15

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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-60-20211702

21B0239-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/17/2021 10:55

Instrument: NT2 Analyst: PKC — Analyzed: 02/26/2021 17:35

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0239-07 H

Preparation Batch: BJB0703 — Sample Size: 10 mL

Prepared: 02/26/2021 — 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	0.47	ug/L	
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	0.21	ug/L	
Xylenes, total	1330-20-7	1	0.22	0.60	0.32	ug/L	J
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*104*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
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: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-60-20211702

21B0239-07 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/17/2021 10:55

Instrument: NT2 Analyst: PKC — Analyzed: 02/26/2021 17:35

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0239-07 H

Preparation Batch: BJB0703 — Sample Size: 10 mL

Prepared: 02/26/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	170	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*95.3*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-60-20211702

21B0239-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/17/2021 10:55
Instrument: NT16 Analyst: PB — Analyzed: 03/01/2021 17:20

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0239-07 J
Preparation Batch: BJC0017 — Sample Size: 10 mL
Prepared: 03/01/2021 — 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	27.9	ng/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*98.1*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*93.2*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*103*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-60-20211702

21B0239-07 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/17/2021 10:55
Instrument: NT11 Analyst: VTS — Analyzed: 03/17/2021 13:15

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0239-07 F 01
Preparation Batch: BJB0671 — Sample Size: 500 mL
Prepared: 02/23/2021 — Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 21B0239-07 F 01
Cleanup Batch: CJC0091 — Initial Volume: 0.5 mL
Cleaned: 09-Mar-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	0.029	ug/L	
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.030	ug/L	
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	2.13	ug/L	E
Acenaphthylene	208-96-8	1	0.002	0.010	0.075	ug/L	
Acenaphthene	83-32-9	1	0.003	0.010	8.05	ug/L	E
Dibenzofuran	132-64-9	1	0.002	0.010	0.038	ug/L	
Fluorene	86-73-7	1	0.002	0.010	3.18	ug/L	E
Phenanthrene	85-01-8	1	0.001	0.010	0.934	ug/L	
Anthracene	120-12-7	1	0.001	0.010	0.149	ug/L	
Carbazole	86-74-8	1	0.001	0.010	0.114	ug/L	
Fluoranthene	206-44-0	1	0.002	0.010	0.020	ug/L	
Pyrene	129-00-0	1	0.001	0.010	0.007	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 %*	*87.6*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*63.8*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*80.7*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-60-20211702

21B0239-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/17/2021 10:55
Instrument: FID4 Analyst: CTO — Analyzed: 03/10/2021 19:51

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0239-07 B 01
Preparation Batch: BJB0576 — Sample Size: 500 mL
Prepared: 02/19/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	1.32	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*103*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-60-20211702

21B0239-07 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/17/2021 10:55
Instrument: ECD7 Analyst: JGR — Analyzed: 03/12/2021 22:05

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0239-07 D 01
	Preparation Batch: BJB0607	Sample Size: 500 mL	
	Prepared: 02/23/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0239-07 D 01
	Cleanup Batch: CJC0107	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0239-07 D 01
	Cleanup Batch: CJC0105	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0239-07 D 01
	Cleanup Batch: CJC0106	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.018	0.100	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.018	0.100	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.018	0.100	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.018	0.100	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.017	0.100	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*62.2*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*57.9*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*63.0*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*55.3*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-60-20211702

21B0239-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/17/2021 10:55

Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/27/2021 01:30

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-07 A 01

Preparation Batch: BJB0758 — Sample Size: 25 mL

Prepared: 02/25/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	2	0.112	1.00	21.5	ug/L	D
Chromium	7440-47-3	2	0.260	1.00	1.57	ug/L	D
Cobalt	7440-48-4	2	0.0580	0.400	1.86	ug/L	D
Iron	7439-89-6	2	12.5	40.0	30700	ug/L	D
Lead	7439-92-1	2	0.136	0.200	0.354	ug/L	D
Manganese	7439-96-5	10	0.850	5.00	1380	ug/L	D
Silver	7440-22-4	2	0.0340	0.400	ND	ug/L	U
Vanadium	7440-62-2	2	0.0800	0.400	7.37	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-60-20211702

21B0239-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/17/2021 10:55
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/27/2021 01:30

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-07 A 01
Preparation Batch: BJB0758 — Sample Size: 25 mL
Prepared: 02/25/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.0440	0.400	18.5	ug/L	D
Cadmium	7440-43-9	2	0.0600	0.200	ND	ug/L	U
Copper	7440-50-8	2	0.680	1.00	2.10	ug/L	D
Nickel	7440-02-0	2	0.100	1.00	3.29	ug/L	D
Selenium	7782-49-2	2	0.880	1.00	ND	ug/L	U
Zinc	7440-66-6	2	1.64	8.00	3.72	ug/L	J, D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-60-20211702

21B0239-07 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/17/2021 10:55

Instrument: HYDRA Analyst: BLC — Analyzed: 02/25/2021 14:58

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0239-07 A

Preparation Batch: BJB0736 — Sample Size: 20 mL

Prepared: 02/25/2021 — 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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-60-20211702

21B0239-07RE1 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/17/2021 10:55
Instrument: NT11 Analyst: VTS — Analyzed: 03/19/2021 12:08

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJB0671; Prepared: 02/23/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21B0239-07RE1 F 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJC0091; Cleaned: 09-Mar-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21B0239-07RE1 F 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	50	0.066	0.500	ND	ug/L	U
2-Methylnaphthalene	91-57-6	50	0.051	0.500	ND	ug/L	U
1-Methylnaphthalene	90-12-0	50	0.046	0.500	2.72	ug/L	D
Acenaphthylene	208-96-8	50	0.093	0.500	ND	ug/L	U
Acenaphthene	83-32-9	50	0.145	0.500	35.8	ug/L	D
Dibenzofuran	132-64-9	50	0.076	0.500	ND	ug/L	U
Fluorene	86-73-7	50	0.076	0.500	5.13	ug/L	D
Phenanthrene	85-01-8	50	0.065	0.500	1.10	ug/L	D
Anthracene	120-12-7	50	0.058	0.500	0.157	ug/L	J, D
Carbazole	86-74-8	50	0.061	0.500	0.091	ug/L	J, D
Fluoranthene	206-44-0	50	0.086	0.500	ND	ug/L	U
Pyrene	129-00-0	50	0.059	0.500	ND	ug/L	U
Benzo(a)anthracene	56-55-3	50	0.038	0.500	ND	ug/L	U
Chrysene	218-01-9	50	0.045	0.500	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	50	0.023	0.500	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	50	0.161	0.500	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	50	0.094	0.500	ND	ug/L	U
Benzofluoranthenes, Total		50	0.178	0.500	ND	ug/L	U
Benzo(a)pyrene	50-32-8	50	0.124	0.500	ND	ug/L	U
Perylene	1985-5-0	50	0.293	0.500	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	50	0.051	0.500	0.091	ug/L	J, D
Dibenzo(a,h)anthracene	53-70-3	50	0.067	0.500	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	50	0.071	0.500	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*93.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*77.6*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*79.3*	*%*	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-60-20211702

21B0239-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/17/2021 10:55
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/26/2021 23:26

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-08 A 02
Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570
Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	1.54	ug/L	
Chromium, Dissolved	7440-47-3	2	0.260	1.00	0.410	ug/L	J, D
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	1.22	ug/L	
Iron, Dissolved	7439-89-6	2	2.80	40.0	4250	ug/L	D
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Silver, Dissolved	7440-22-4	1	0.0170	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	2	0.0800	0.400	0.634	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-60-20211702

21B0239-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/17/2021 10:55
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/26/2021 23:26

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-08 A 02
Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570
Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	2.99	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	1.57	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	1.13	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-60-20211702

21B0239-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/17/2021 10:55
Instrument: HYDRA Analyst: BLC — Analyzed: 03/02/2021 14:02

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0239-08 A 01
Preparation Batch: BJB0770 — Sample Size: 20 mL — Filtration Batch: BJB0570
Prepared: 02/26/2021 — Final Volume: 20 mL — Filtration Date: 02/19/2021 11:15

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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-60-20211702

21B0239-08RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/17/2021 10:55
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 19:05

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-08RE1 A 02
Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570
Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	10	0.850	5.00	1190	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-71-20211702

21B0239-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/17/2021 11:54

Instrument: NT2 Analyst: PKC — Analyzed: 02/26/2021 17:55

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0239-09 J

Preparation Batch: BJB0703 — Sample Size: 10 mL

Prepared: 02/26/2021 — 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 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*102*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-71-20211702

21B0239-09 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/17/2021 11:54

Instrument: NT2 Analyst: PKC — Analyzed: 02/26/2021 17:55

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0239-09 J

Preparation Batch: BJB0703 — Sample Size: 10 mL

Prepared: 02/26/2021 — 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 %*	*93.8*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-71-20211702

21B0239-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/17/2021 11:54
Instrument: NT16 Analyst: PB — Analyzed: 03/01/2021 17:40

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0239-09 H
Preparation Batch: BJC0017 — Sample Size: 10 mL
Prepared: 03/01/2021 — 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 %*	*97.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*96.5*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-71-20211702

21B0239-09 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/17/2021 11:54
Instrument: NT11 Analyst: VTS — Analyzed: 03/17/2021 13:47

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0239-09 F 01
Preparation Batch: BJB0671 — Sample Size: 500 mL
Prepared: 02/23/2021 — Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 21B0239-09 F 01
Cleanup Batch: CJC0091 — Initial Volume: 0.5 mL
Cleaned: 09-Mar-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	0.005	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	0.013	ug/L	
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	0.143	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	0.024	ug/L	
Phenanthrene	85-01-8	1	0.001	0.010	0.006	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	0.098	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	0.011	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 %*	*74.4*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*59.4*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*81.1*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-71-20211702

21B0239-09 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/17/2021 11:54
Instrument: FID4 Analyst: CTO — Analyzed: 03/10/2021 20:12

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0239-09 B 01
Preparation Batch: BJB0576 — Sample Size: 500 mL
Prepared: 02/19/2021 — 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 %*	*107*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-71-20211702

21B0239-09 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/17/2021 11:54
Instrument: ECD7 Analyst: JGR — Analyzed: 03/12/2021 22:25

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0239-09 D 01
	Preparation Batch: BJB0607	Sample Size: 500 mL	
	Prepared: 02/23/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0239-09 D 01
	Cleanup Batch: CJC0107	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0239-09 D 01
	Cleanup Batch: CJC0105	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0239-09 D 01
	Cleanup Batch: CJC0106	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.018	0.100	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.018	0.100	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.018	0.100	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.018	0.100	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.017	0.100	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*64.7*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*60.8*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*67.8*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*50.9*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-71-20211702

21B0239-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/17/2021 11:54

Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/27/2021 01:34

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-09 A 01

Preparation Batch: BJB0758 — Sample Size: 25 mL

Prepared: 02/25/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	2	0.112	1.00	7.32	ug/L	D
Chromium	7440-47-3	2	0.260	1.00	0.570	ug/L	J, D
Cobalt	7440-48-4	2	0.0580	0.400	1.02	ug/L	D
Iron	7439-89-6	2	12.5	40.0	10400	ug/L	D
Lead	7439-92-1	2	0.136	0.200	0.504	ug/L	D
Manganese	7439-96-5	2	0.170	1.00	427	ug/L	D
Silver	7440-22-4	2	0.0340	0.400	ND	ug/L	U
Vanadium	7440-62-2	2	0.0800	0.400	3.36	ug/L	D

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-71-20211702

21B0239-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/17/2021 11:54
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/27/2021 01:34

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-09 A 01
Preparation Batch: BJB0758 — Sample Size: 25 mL
Prepared: 02/25/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.0440	0.400	6.86	ug/L	D
Cadmium	7440-43-9	2	0.0600	0.200	ND	ug/L	U
Copper	7440-50-8	2	0.680	1.00	2.02	ug/L	D
Nickel	7440-02-0	2	0.100	1.00	0.558	ug/L	J, D
Selenium	7782-49-2	2	0.880	1.00	ND	ug/L	U
Zinc	7440-66-6	2	1.64	8.00	2.51	ug/L	J, D

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-71-20211702

21B0239-09 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/17/2021 11:54
Instrument: HYDRA Analyst: BLC — Analyzed: 02/25/2021 15:01

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0239-09 A
Preparation Batch: BJB0736 — Sample Size: 20 mL
Prepared: 02/25/2021 — 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	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-71-20211702

21B0239-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/17/2021 11:54
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 17:45

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-10 A 02
Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570
Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	2.04	ug/L	
Chromium, Dissolved	7440-47-3	1	0.130	0.500	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	0.714	ug/L	
Iron, Dissolved	7439-89-6	1	1.40	20.0	1840	ug/L	
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Silver, Dissolved	7440-22-4	1	0.0170	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0400	0.200	0.301	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-71-20211702

21B0239-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/17/2021 11:54
Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/26/2021 23:31

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-10 A 02
Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570
Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	2.92	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	0.383	ug/L	J
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	0.171	ug/L	J
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	1.12	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-71-20211702

21B0239-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/17/2021 11:54
Instrument: HYDRA Analyst: BLC — Analyzed: 03/02/2021 13:34

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0239-10 A 01
Preparation Batch: BJB0770 — Sample Size: 20 mL — Filtration Batch: BJB0570
Prepared: 02/26/2021 — Final Volume: 20 mL — Filtration Date: 02/19/2021 11:15

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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-71-20211702

21B0239-10RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/17/2021 11:54
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 17:41

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-10RE1 A 02
Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570
Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	5	0.425	2.50	395	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-43-20211702

21B0239-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/17/2021 14:44

Instrument: NT2 Analyst: PKC — Analyzed: 02/26/2021 18:15

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0239-11 H

Preparation Batch: BJB0703 — Sample Size: 10 mL

Prepared: 02/26/2021 — 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	0.44	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	0.19	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	0.09	ug/L	J
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 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*94.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-43-20211702

21B0239-11 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/17/2021 14:44

Instrument: NT16 Analyst: PB — Analyzed: 03/01/2021 18:00

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0239-11 I

Preparation Batch: BJC0017 — Sample Size: 10 mL

Prepared: 03/01/2021 — 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	248	ng/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*106*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*93.4*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*98.9*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-43-20211702

21B0239-11 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/17/2021 14:44
Instrument: FID4 Analyst: CTO — Analyzed: 03/10/2021 20:33

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0239-11 B 01
Preparation Batch: BJB0576 — Sample Size: 500 mL
Prepared: 02/19/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.134	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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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-43-20211702

21B0239-11 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/17/2021 14:44
Instrument: ECD7 Analyst: JGR — Analyzed: 03/12/2021 22:46

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0239-11 D 01
	Preparation Batch: BJB0607	Sample Size: 500 mL	
	Prepared: 02/23/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0239-11 D 01
	Cleanup Batch: CJC0107	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0239-11 D 01
	Cleanup Batch: CJC0105	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0239-11 D 01
	Cleanup Batch: CJC0106	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.018	0.100	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.018	0.100	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.018	0.100	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.018	0.100	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.017	0.100	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*58.7*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*60.4*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*61.5*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*50.1*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-43-20211702

21B0239-11 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/17/2021 14:44

Instrument: ICPMS1 Analyst: MCB — Analyzed: 02/27/2021 01:44

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-11 A 01

Preparation Batch: BJB0758 — Sample Size: 25 mL

Prepared: 02/25/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	1	0.0850	0.500	190	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

MW-43-20211702

21B0239-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/17/2021 14:44
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/01/2021 19:15

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0239-12 A 02
Preparation Batch: BJB0738 — Sample Size: 25 mL — Filtration Batch: BJB0570
Prepared: 02/25/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 11:15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	2	0.170	1.00	207	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Volatile Organic Compounds - Quality Control

Batch BJB0703 - 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 (BJB0703-BLK1)				Prepared: 26-Feb-2021 Analyzed: 26-Feb-2021 12:27							
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	4.75			ug/L	*5.00*		*95.0*	*80-120*			
Blank (BJB0703-BLK2)				Prepared: 26-Feb-2021 Analyzed: 26-Feb-2021 12:27							
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	5.10			ug/L	*5.00*		*102*	*80-129*			
Surrogate: Toluene-d8	4.94			ug/L	*5.00*		*98.7*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.75			ug/L	*5.00*		*95.0*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.07			ug/L	*5.00*		*101*	*80-120*			
LCS (BJB0703-BS1)				Prepared: 26-Feb-2021 Analyzed: 26-Feb-2021 10:33							
Gasoline Range Organics (Tol-Nap)	886		100	ug/L	1000		88.6	72-128			
Surrogate: Toluene-d8	5.14			ug/L	*5.00*		*103*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.95			ug/L	*5.00*		*99.1*	*80-120*			
LCS (BJB0703-BS2)				Prepared: 26-Feb-2021 Analyzed: 26-Feb-2021 11:14							
Vinyl Chloride	9.58	0.08	0.20	ug/L	10.0		95.8	66-133			
1,1-Dichloroethene	10.5	0.08	0.20	ug/L	10.0		105	69-135			
trans-1,2-Dichloroethene	9.97	0.07	0.20	ug/L	10.0		99.7	78-128			
cis-1,2-Dichloroethene	9.88	0.08	0.20	ug/L	10.0		98.8	80-121			
Benzene	10.0	0.05	0.20	ug/L	10.0		100	80-120			
Trichloroethene	9.92	0.07	0.20	ug/L	10.0		99.2	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Volatile Organic Compounds - Quality Control

Batch BJB0703 - 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 (BJB0703-BS2)					Prepared: 26-Feb-2021 Analyzed: 26-Feb-2021 11:14						
Toluene	9.88	0.05	0.20	ug/L	10.0		98.8	80-120			
Tetrachloroethene	9.92	0.09	0.20	ug/L	10.0		99.2	80-120			
Ethylbenzene	9.85	0.05	0.20	ug/L	10.0		98.5	80-120			
m,p-Xylene	20.1	0.14	0.40	ug/L	20.0		100	80-121			
o-Xylene	9.84	0.08	0.20	ug/L	10.0		98.4	80-121			
Xylenes, total	29.9	0.22	0.60	ug/L	30.0		99.7	76-127			
Surrogate: 1,2-Dichloroethane-d4	5.02			ug/L	*5.00*		*100*	*80-129*			
Surrogate: Toluene-d8	5.11			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.00			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.93			ug/L	*5.00*		*98.7*	*80-120*			
LCS Dup (BJB0703-BSD1)					Prepared: 26-Feb-2021 Analyzed: 26-Feb-2021 10:54						
Gasoline Range Organics (Tol-Nap)	976		100	ug/L	1000		97.6	72-128	9.77	30	
Surrogate: Toluene-d8	5.09			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.06			ug/L	*5.00*		*101*	*80-120*			
LCS Dup (BJB0703-BSD2)					Prepared: 26-Feb-2021 Analyzed: 26-Feb-2021 11:35						
Vinyl Chloride	9.90	0.08	0.20	ug/L	10.0		99.0	66-133	3.21	30	
1,1-Dichloroethene	10.9	0.08	0.20	ug/L	10.0		109	69-135	3.32	30	
trans-1,2-Dichloroethene	10.5	0.07	0.20	ug/L	10.0		105	78-128	5.21	30	
cis-1,2-Dichloroethene	10.1	0.08	0.20	ug/L	10.0		101	80-121	2.21	30	
Benzene	10.2	0.05	0.20	ug/L	10.0		102	80-120	1.66	30	
Trichloroethene	9.94	0.07	0.20	ug/L	10.0		99.4	80-120	0.25	30	
Toluene	9.80	0.05	0.20	ug/L	10.0		98.0	80-120	0.78	30	
Tetrachloroethene	10.1	0.09	0.20	ug/L	10.0		101	80-120	1.39	30	
Ethylbenzene	9.90	0.05	0.20	ug/L	10.0		99.0	80-120	0.51	30	
m,p-Xylene	20.4	0.14	0.40	ug/L	20.0		102	80-121	1.91	30	
o-Xylene	10.0	0.08	0.20	ug/L	10.0		100	80-121	2.15	30	
Xylenes, total	30.5	0.22	0.60	ug/L	30.0		102	76-127	1.99	30	
Surrogate: 1,2-Dichloroethane-d4	5.14			ug/L	*5.00*		*103*	*80-129*			
Surrogate: Toluene-d8	5.04			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.14			ug/L	*5.00*		*103*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.98			ug/L	*5.00*		*99.5*	*80-120*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Volatile Organic Compounds - SIM - Quality Control

Batch BJC0017 - 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 (BJC0017-BLK1)					Prepared: 01-Mar-2021 Analyzed: 01-Mar-2021 10:07						
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	4370			ng/L	*5000*		*87.3*	*80-129*			
Surrogate: Toluene-d8	4980			ng/L	*5000*		*99.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4440			ng/L	*5000*		*88.8*	*75-125*			
LCS (BJC0017-BS1)					Prepared: 01-Mar-2021 Analyzed: 01-Mar-2021 09:08						
Vinyl chloride	1860	5.01	20.0	ng/L	2000		93.2	62-141			
Surrogate: 1,2-Dichloroethane-d4	4470			ng/L	*5000*		*89.4*	*80-129*			
Surrogate: Toluene-d8	4670			ng/L	*5000*		*93.4*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5100			ng/L	*5000*		*102*	*75-125*			
LCS Dup (BJC0017-BSD1)					Prepared: 01-Mar-2021 Analyzed: 01-Mar-2021 09:47						
Vinyl chloride	1770	5.01	20.0	ng/L	2000		88.3	62-141	5.46	30	
Surrogate: 1,2-Dichloroethane-d4	4780			ng/L	*5000*		*95.6*	*80-129*			
Surrogate: Toluene-d8	5010			ng/L	*5000*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5230			ng/L	*5000*		*105*	*75-125*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BLK1)				Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 18:01							
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

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BLK1)				Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 18:01							
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	3.46			ug/L	*7.50*		*46.1*	*30-160*			
Surrogate: Phenol-d5	1.84			ug/L	*7.50*		*24.6*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	5.47			ug/L	*7.50*		*72.9*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	2.79			ug/L	*5.00*		*55.8*	*30-160*			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BLK1)				Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 18:01							
Surrogate: Nitrobenzene-d5	3.90			ug/L	*5.00*		*78.0*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.36			ug/L	*5.00*		*67.3*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.34			ug/L	*7.50*		*84.6*	*30-160*			
Surrogate: p-Terphenyl-d14	4.27			ug/L	*5.00*		*85.5*	*30-160*			
LCS (BJB0600-BS1)				Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 18:38							
Phenol	1.5	0.01	0.2	ug/L	5.00		29.7	30-160			*
bis(2-chloroethyl) ether	3.9	0.03	0.2	ug/L	5.00		78.0	30-160			
2-Chlorophenol	3.4	0.03	0.2	ug/L	5.00		67.5	30-160			
1,3-Dichlorobenzene	2.9	0.03	0.2	ug/L	5.00		57.7	30-160			
1,4-Dichlorobenzene	3.0	0.03	0.2	ug/L	5.00		59.0	30-160			
1,2-Dichlorobenzene	3.0	0.03	0.2	ug/L	5.00		59.4	30-160			
Benzyl Alcohol	2.2	0.02	0.2	ug/L	5.00		43.6	30-160			
2,2'-Oxybis(1-chloropropane)	3.2	0.03	0.2	ug/L	5.00		64.6	30-160			
2-Methylphenol	2.5	0.03	0.2	ug/L	5.00		49.7	30-160			
Hexachloroethane	2.5	0.04	0.2	ug/L	5.00		49.9	30-160			
N-Nitroso-di-n-Propylamine	2.9	0.04	0.2	ug/L	5.00		59.0	30-160			
4-Methylphenol	2.3	0.03	0.2	ug/L	5.00		46.9	30-160			
Nitrobenzene	3.8	0.03	0.2	ug/L	5.00		76.1	30-160			
Isophorone	4.5	0.03	0.2	ug/L	5.00		90.3	30-160			
2-Nitrophenol	3.2	0.04	1.0	ug/L	5.00		64.3	30-160			
2,4-Dimethylphenol	8.1	0.3	1.0	ug/L	13.0		62.1	30-160			
Bis(2-Chloroethoxy)methane	3.6	0.03	0.2	ug/L	5.00		71.5	30-160			
2,4-Dichlorophenol	10.3	0.1	1.0	ug/L	13.0		79.0	30-160			
1,2,4-Trichlorobenzene	3.0	0.03	0.2	ug/L	5.00		60.3	30-160			
Naphthalene	3.3	0.03	0.2	ug/L	5.00		66.3	30-160			
Benzoic acid	10.0	0.1	2.0	ug/L	23.0		43.5	30-160			
4-Chloroaniline	0.4	0.04	1.0	ug/L	13.0		2.95	30-160			*, J
Hexachlorobutadiene	2.4	0.04	0.2	ug/L	5.00		47.0	30-160			
4-Chloro-3-Methylphenol	11.7	0.1	1.0	ug/L	13.0		90.2	30-160			
2-Methylnaphthalene	3.1	0.03	0.2	ug/L	5.00		62.8	30-160			
Hexachlorocyclopentadiene	4.2	0.1	1.0	ug/L	13.0		32.3	30-160			Q
2,4,6-Trichlorophenol	10.7	0.2	1.0	ug/L	13.0		82.6	30-160			
2,4,5-Trichlorophenol	11.0	0.1	1.0	ug/L	13.0		84.5	30-160			
2-Chloronaphthalene	3.7	0.03	0.2	ug/L	5.00		74.0	30-160			

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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BS1)				Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 18:38							
2-Nitroaniline	13.0	0.2	1.0	ug/L	13.0		100	30-160			
Acenaphthylene	3.1	0.02	0.2	ug/L	5.00		61.2	30-160			
Dimethylphthalate	3.7	0.04	0.2	ug/L	5.00		73.6	30-160			
2,6-Dinitrotoluene	11.7	0.2	1.0	ug/L	13.0		90.2	30-160			
Acenaphthene	3.3	0.03	0.2	ug/L	5.00		66.1	30-160			
3-Nitroaniline	8.2	0.2	1.0	ug/L	13.0		63.3	30-160			
2,4-Dinitrophenol	21.1	0.2	2.0	ug/L	23.0		91.6	30-160			
Dibenzofuran	3.2	0.02	0.2	ug/L	5.00		64.9	30-160			
4-Nitrophenol	4.1	0.06	1.0	ug/L	13.0		31.6	30-160			Q
2,4-Dinitrotoluene	12.9	0.1	1.0	ug/L	13.0		99.1	30-160			
Fluorene	2.8	0.02	0.2	ug/L	5.00		55.8	30-160			Q
4-Chlorophenylphenyl ether	3.0	0.02	0.2	ug/L	5.00		60.3	30-160			
Diethyl phthalate	3.6	0.06	0.2	ug/L	5.00		72.7	30-160			
4-Nitroaniline	11.7	0.2	1.0	ug/L	13.0		90.1	30-160			
4,6-Dinitro-2-methylphenol	25.1	0.4	2.0	ug/L	23.0		109	30-160			
N-Nitrosodiphenylamine	3.5	0.03	0.2	ug/L	5.00		69.0	30-160			
4-Bromophenyl phenyl ether	4.0	0.02	0.2	ug/L	5.00		79.2	30-160			
Hexachlorobenzene	3.7	0.04	0.2	ug/L	5.00		73.5	30-160			
Pentachlorophenol	8.0	0.1	1.0	ug/L	13.0		61.9	30-160			Q
Phenanthrene	4.0	0.02	0.2	ug/L	5.00		80.5	30-160			
Anthracene	3.8	0.03	0.2	ug/L	5.00		75.2	30-160			
Carbazole	4.0	0.04	0.2	ug/L	5.00		80.9	30-160			
Di-n-Butylphthalate	4.2	0.05	0.2	ug/L	5.00		84.2	30-160			
Fluoranthene	4.0	0.03	0.2	ug/L	5.00		80.4	30-160			
Pyrene	3.9	0.03	0.2	ug/L	5.00		77.4	30-160			
Butylbenzylphthalate	4.1	0.07	0.2	ug/L	5.00		81.2	30-160			
Benzo(a)anthracene	3.8	0.04	0.2	ug/L	5.00		75.1	30-160			
3,3'-Dichlorobenzidine	2.3	0.3	1.0	ug/L	8.00		28.3	30-160			*
Chrysene	3.9	0.04	0.2	ug/L	5.00		77.4	30-160			
bis(2-Ethylhexyl)phthalate	4.1	0.2	0.2	ug/L	5.00		82.5	30-160			
Di-n-Octylphthalate	4.1	0.05	0.2	ug/L	5.00		81.1	30-160			
Benzofluoranthenes, Total	8.1	0.08	0.4	ug/L	10.0		81.3	30-160			
Benzo(a)pyrene	3.8	0.05	0.2	ug/L	5.00		75.6	30-160			
Indeno(1,2,3-cd)pyrene	4.0	0.06	0.2	ug/L	5.00		80.7	30-160			
Dibenzo(a,h)anthracene	4.2	0.07	0.2	ug/L	5.00		84.0	30-160			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BS1)					Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 18:38						
Benzo(g,h,i)perylene	4.0	0.04	0.2	ug/L	5.00		79.2	30-160			
1-Methylnaphthalene	3.3	0.03	0.2	ug/L	5.00		65.4	30-160			
Surrogate: 2-Fluorophenol	4.20			ug/L	*7.50*		*56.0*	*30-160*			
Surrogate: Phenol-d5	2.66			ug/L	*7.50*		*35.5*	*30-160*			
Surrogate: 2-Chlorophenol-d4	6.36			ug/L	*7.50*		*84.8*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.10			ug/L	*5.00*		*62.1*	*30-160*			
Surrogate: Nitrobenzene-d5	4.26			ug/L	*5.00*		*85.2*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.87			ug/L	*5.00*		*77.4*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.27			ug/L	*7.50*		*83.5*	*30-160*			
Surrogate: p-Terphenyl-d14	4.29			ug/L	*5.00*		*85.7*	*30-160*			
LCS Dup (BJB0600-BSD1)					Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 19:15						
Phenol	1.7	0.01	0.2	ug/L	5.00		34.5	30-160	15.00	30	
bis(2-chloroethyl) ether	4.0	0.03	0.2	ug/L	5.00		80.7	30-160	3.36	30	
2-Chlorophenol	3.7	0.03	0.2	ug/L	5.00		73.5	30-160	8.59	30	
1,3-Dichlorobenzene	2.5	0.03	0.2	ug/L	5.00		50.7	30-160	12.90	30	
1,4-Dichlorobenzene	2.7	0.03	0.2	ug/L	5.00		53.1	30-160	10.60	30	
1,2-Dichlorobenzene	2.6	0.03	0.2	ug/L	5.00		52.0	30-160	13.10	30	
Benzyl Alcohol	2.5	0.02	0.2	ug/L	5.00		50.6	30-160	15.00	30	
2,2'-Oxybis(1-chloropropane)	3.3	0.03	0.2	ug/L	5.00		65.1	30-160	0.63	30	
2-Methylphenol	2.8	0.03	0.2	ug/L	5.00		55.3	30-160	10.60	30	
Hexachloroethane	2.1	0.04	0.2	ug/L	5.00		42.7	30-160	15.40	30	
N-Nitroso-di-n-Propylamine	3.4	0.04	0.2	ug/L	5.00		68.0	30-160	14.30	30	
4-Methylphenol	2.7	0.03	0.2	ug/L	5.00		54.6	30-160	15.10	30	
Nitrobenzene	4.0	0.03	0.2	ug/L	5.00		79.3	30-160	4.03	30	
Isophorone	5.3	0.03	0.2	ug/L	5.00		105	30-160	15.40	30	
2-Nitrophenol	3.4	0.04	1.0	ug/L	5.00		68.5	30-160	6.33	30	
2,4-Dimethylphenol	8.7	0.3	1.0	ug/L	13.0		66.8	30-160	7.23	30	
Bis(2-Chloroethoxy)methane	3.9	0.03	0.2	ug/L	5.00		78.0	30-160	8.63	30	
2,4-Dichlorophenol	10.5	0.1	1.0	ug/L	13.0		80.9	30-160	2.36	30	
1,2,4-Trichlorobenzene	2.7	0.03	0.2	ug/L	5.00		54.1	30-160	10.80	30	
Naphthalene	3.2	0.03	0.2	ug/L	5.00		63.3	30-160	4.68	30	
Benzoic acid	11.1	0.1	2.0	ug/L	23.0		48.3	30-160	10.50	30	
4-Chloroaniline	0.9	0.04	1.0	ug/L	13.0		6.61	30-160	76.50	30	*, J
Hexachlorobutadiene	2.1	0.04	0.2	ug/L	5.00		42.1	30-160	11.20	30	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BSD1)					Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 19:15						
4-Chloro-3-Methylphenol	13.2	0.1	1.0	ug/L	13.0		101	30-160	11.80	30	
2-Methylnaphthalene	3.1	0.03	0.2	ug/L	5.00		62.0	30-160	1.18	30	
Hexachlorocyclopentadiene	4.2	0.1	1.0	ug/L	13.0		32.1	30-160	0.69	30	Q
2,4,6-Trichlorophenol	12.8	0.2	1.0	ug/L	13.0		98.3	30-160	17.40	30	
2,4,5-Trichlorophenol	13.4	0.1	1.0	ug/L	13.0		103	30-160	20.00	30	
2-Chloronaphthalene	4.0	0.03	0.2	ug/L	5.00		80.8	30-160	8.78	30	
2-Nitroaniline	16.5	0.2	1.0	ug/L	13.0		127	30-160	23.60	30	
Acenaphthylene	3.5	0.02	0.2	ug/L	5.00		70.7	30-160	14.30	30	
Dimethylphthalate	4.5	0.04	0.2	ug/L	5.00		90.5	30-160	20.50	30	
2,6-Dinitrotoluene	14.3	0.2	1.0	ug/L	13.0		110	30-160	20.10	30	
Acenaphthene	4.0	0.03	0.2	ug/L	5.00		79.6	30-160	18.60	30	
3-Nitroaniline	11.5	0.2	1.0	ug/L	13.0		88.4	30-160	33.00	30	*
2,4-Dinitrophenol	24.8	0.2	2.0	ug/L	23.0		108	30-160	16.20	30	
Dibenzofuran	3.8	0.02	0.2	ug/L	5.00		76.1	30-160	15.90	30	
4-Nitrophenol	5.3	0.06	1.0	ug/L	13.0		40.6	30-160	24.70	30	Q
2,4-Dinitrotoluene	16.0	0.1	1.0	ug/L	13.0		123	30-160	21.90	30	
Fluorene	3.3	0.02	0.2	ug/L	5.00		65.9	30-160	16.60	30	Q
4-Chlorophenylphenyl ether	3.0	0.02	0.2	ug/L	5.00		59.3	30-160	1.70	30	
Diethyl phthalate	4.9	0.06	0.2	ug/L	5.00		97.3	30-160	29.00	30	
4-Nitroaniline	14.8	0.2	1.0	ug/L	13.0		114	30-160	23.30	30	
4,6-Dinitro-2-methylphenol	30.0	0.4	2.0	ug/L	23.0		130	30-160	17.70	30	
N-Nitrosodiphenylamine	4.3	0.03	0.2	ug/L	5.00		85.6	30-160	21.40	30	
4-Bromophenyl phenyl ether	4.7	0.02	0.2	ug/L	5.00		94.0	30-160	17.10	30	
Hexachlorobenzene	4.3	0.04	0.2	ug/L	5.00		86.8	30-160	16.60	30	
Pentachlorophenol	9.5	0.1	1.0	ug/L	13.0		73.0	30-160	16.50	30	Q
Phenanthrene	4.9	0.02	0.2	ug/L	5.00		98.4	30-160	20.00	30	
Anthracene	4.6	0.03	0.2	ug/L	5.00		91.9	30-160	20.00	30	
Carbazole	5.1	0.04	0.2	ug/L	5.00		103	30-160	24.00	30	
Di-n-Butylphthalate	5.4	0.05	0.2	ug/L	5.00		108	30-160	24.70	30	
Fluoranthene	5.0	0.03	0.2	ug/L	5.00		99.8	30-160	21.50	30	
Pyrene	4.9	0.03	0.2	ug/L	5.00		97.1	30-160	22.60	30	
Butylbenzylphthalate	5.0	0.07	0.2	ug/L	5.00		100	30-160	20.70	30	
Benzo(a)anthracene	4.6	0.04	0.2	ug/L	5.00		92.9	30-160	21.20	30	
3,3'-Dichlorobenzidine	4.0	0.3	1.0	ug/L	8.00		49.6	30-160	54.60	30	*
Chrysene	4.9	0.04	0.2	ug/L	5.00		97.9	30-160	23.40	30	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BSD1)					Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 19:15						
bis(2-Ethylhexyl)phthalate	5.3	0.2	0.2	ug/L	5.00		106	30-160	24.70	30	
Di-n-Octylphthalate	5.1	0.05	0.2	ug/L	5.00		102	30-160	23.00	30	
Benzofluoranthenes, Total	10.3	0.08	0.4	ug/L	10.0		103	30-160	23.10	30	
Benzo(a)pyrene	4.8	0.05	0.2	ug/L	5.00		96.5	30-160	24.30	30	
Indeno(1,2,3-cd)pyrene	5.1	0.06	0.2	ug/L	5.00		101	30-160	22.70	30	
Dibenzo(a,h)anthracene	5.3	0.07	0.2	ug/L	5.00		106	30-160	23.60	30	
Benzo(g,h,i)perylene	5.1	0.04	0.2	ug/L	5.00		102	30-160	25.10	30	
1-Methylnaphthalene	3.3	0.03	0.2	ug/L	5.00		66.3	30-160	1.35	30	
Surrogate: 2-Fluorophenol	4.15			ug/L	*7.50*		*55.3*	*30-160*			
Surrogate: Phenol-d5	2.78			ug/L	*7.50*		*37.0*	*30-160*			
Surrogate: 2-Chlorophenol-d4	6.84			ug/L	*7.50*		*91.3*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	2.42			ug/L	*5.00*		*48.5*	*30-160*			
Surrogate: Nitrobenzene-d5	4.17			ug/L	*5.00*		*83.4*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.78			ug/L	*5.00*		*75.7*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	7.18			ug/L	*7.50*		*95.7*	*30-160*			
Surrogate: p-Terphenyl-d14	4.88			ug/L	*5.00*		*97.6*	*30-160*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0671 - 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 (BJB0671-BLK1)				Prepared: 23-Feb-2021 Analyzed: 17-Mar-2021 10:00							
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	0.234			ug/L	*0.300*		*78.1*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.249			ug/L	*0.300*		*82.9*	*29-120*			
Surrogate: Fluoranthene-d10	0.247			ug/L	*0.300*		*82.2*	*57-120*			
LCS (BJB0671-BS1)				Prepared: 23-Feb-2021 Analyzed: 17-Mar-2021 10:32							
Naphthalene	0.211	0.001	0.010	ug/L	0.300		70.4	37-120			
2-Methylnaphthalene	0.228	0.001	0.010	ug/L	0.300		75.9	37-120			
1-Methylnaphthalene	0.232	0.0009	0.010	ug/L	0.300		77.4	29-120			
Acenaphthylene	0.187	0.002	0.010	ug/L	0.300		62.4	41-120			
Acenaphthene	0.198	0.003	0.010	ug/L	0.300		65.9	41-120			
Dibenzofuran	0.204	0.002	0.010	ug/L	0.300		67.8	38-120			
Fluorene	0.219	0.002	0.010	ug/L	0.300		72.8	43-120			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0671 - 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 (BJB0671-BS1)					Prepared: 23-Feb-2021 Analyzed: 17-Mar-2021 10:32						
Phenanthrene	0.228	0.001	0.010	ug/L	0.300		76.1	41-120			
Anthracene	0.194	0.001	0.010	ug/L	0.300		64.8	40-120			
Carbazole	0.238	0.001	0.010	ug/L	0.300		79.3	30-160			
Fluoranthene	0.235	0.002	0.010	ug/L	0.300		78.4	45-120			
Pyrene	0.237	0.001	0.010	ug/L	0.300		78.9	41-120			
Benzo(a)anthracene	0.220	0.0008	0.010	ug/L	0.300		73.4	42-120			
Chrysene	0.223	0.0009	0.010	ug/L	0.300		74.4	44-120			
Benzo(b)fluoranthene	0.219	0.0005	0.010	ug/L	0.300		73.1	44-120			
Benzo(k)fluoranthene	0.255	0.003	0.010	ug/L	0.300		85.0	50-120			
Benzo(j)fluoranthene	0.270	0.002	0.010	ug/L	0.300		90.2	39-160			
Benzofluoranthenes, Total	0.745	0.004	0.010	ug/L	0.900		82.8	46-120			
Benzo(a)pyrene	0.214	0.002	0.010	ug/L	0.300		71.5	35-120			
Perylene	0.206	0.006	0.010	ug/L	0.300		68.6	30-160			
Indeno(1,2,3-cd)pyrene	0.249	0.001	0.010	ug/L	0.300		83.1	37-120			
Dibenzo(a,h)anthracene	0.243	0.001	0.010	ug/L	0.300		80.9	34-120			
Benzo(g,h,i)perylene	0.242	0.001	0.010	ug/L	0.300		80.6	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.249			ug/L	*0.300*		*82.9*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.250			ug/L	*0.300*		*83.3*	*29-120*			
Surrogate: Fluoranthene-d10	0.247			ug/L	*0.300*		*82.4*	*57-120*			
LCS Dup (BJB0671-BSD1)					Prepared: 23-Feb-2021 Analyzed: 17-Mar-2021 11:04						
Naphthalene	0.226	0.001	0.010	ug/L	0.300		75.4	37-120	6.92	30	
2-Methylnaphthalene	0.245	0.001	0.010	ug/L	0.300		81.5	37-120	7.18	30	
1-Methylnaphthalene	0.248	0.0009	0.010	ug/L	0.300		82.7	29-120	6.64	30	
Acenaphthylene	0.200	0.002	0.010	ug/L	0.300		66.6	41-120	6.49	30	
Acenaphthene	0.213	0.003	0.010	ug/L	0.300		71.1	41-120	7.69	30	
Dibenzofuran	0.218	0.002	0.010	ug/L	0.300		72.6	38-120	6.78	30	
Fluorene	0.234	0.002	0.010	ug/L	0.300		78.2	43-120	7.05	30	
Phenanthrene	0.249	0.001	0.010	ug/L	0.300		82.8	41-120	8.50	30	
Anthracene	0.198	0.001	0.010	ug/L	0.300		65.8	40-120	1.63	30	
Carbazole	0.250	0.001	0.010	ug/L	0.300		83.2	30-160	4.84	30	
Fluoranthene	0.251	0.002	0.010	ug/L	0.300		83.6	45-120	6.38	30	
Pyrene	0.253	0.001	0.010	ug/L	0.300		84.4	41-120	6.71	30	
Benzo(a)anthracene	0.233	0.0008	0.010	ug/L	0.300		77.6	42-120	5.53	30	
Chrysene	0.242	0.0009	0.010	ug/L	0.300		80.8	44-120	8.24	30	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0671 - 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 (BJB0671-BSD1)					Prepared: 23-Feb-2021 Analyzed: 17-Mar-2021 11:04						
Benzo(b)fluoranthene	0.218	0.0005	0.010	ug/L	0.300		72.7	44-120	0.51	30	
Benzo(k)fluoranthene	0.276	0.003	0.010	ug/L	0.300		92.0	50-120	7.90	30	
Benzo(j)fluoranthene	0.307	0.002	0.010	ug/L	0.300		102	39-160	12.70	30	
Benzofluoranthenes, Total	0.801	0.004	0.010	ug/L	0.900		89.1	46-120	7.33	30	
Benzo(a)pyrene	0.204	0.002	0.010	ug/L	0.300		68.1	35-120	4.87	30	
Perylene	0.210	0.006	0.010	ug/L	0.300		70.1	30-160	2.23	30	
Indeno(1,2,3-cd)pyrene	0.259	0.001	0.010	ug/L	0.300		86.5	37-120	3.98	30	
Dibenzo(a,h)anthracene	0.249	0.001	0.010	ug/L	0.300		83.1	34-120	2.69	30	
Benzo(g,h,i)perylene	0.253	0.001	0.010	ug/L	0.300		84.5	38-120	4.77	30	
Surrogate: 2-Methylnaphthalene-d10	0.253			ug/L	*0.300*		*84.2*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.245			ug/L	*0.300*		*81.5*	*29-120*			
Surrogate: Fluoranthene-d10	0.253			ug/L	*0.300*		*84.3*	*57-120*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Petroleum Hydrocarbons - Quality Control

Batch BJB0576 - 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 (BJB0576-BLK1)				Prepared: 19-Feb-2021	Analyzed: 10-Mar-2021 15:36					
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	0.251		mg/L	*0.225*		*112*	*50-150*			
LCS (BJB0576-BS1)				Prepared: 19-Feb-2021	Analyzed: 10-Mar-2021 15:58					
Diesel Range Organics (C12-C24)	3.14	0.100	mg/L	3.00		105	56-120			
Surrogate: o-Terphenyl	0.257		mg/L	*0.225*		*114*	*50-150*			
LCS Dup (BJB0576-BSD1)				Prepared: 19-Feb-2021	Analyzed: 10-Mar-2021 16:19					
Diesel Range Organics (C12-C24)	3.26	0.100	mg/L	3.00		109	56-120	3.75	30	
Surrogate: o-Terphenyl	0.266		mg/L	*0.225*		*118*	*50-150*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Aroclor PCB - Quality Control

Batch BJB0607 - 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 (BJB0607-BLK1)				Prepared: 23-Feb-2021 Analyzed: 09-Mar-2021 15:59							
Aroclor 1016	ND	0.018	0.100	ug/L							U
Aroclor 1221	ND	0.018	0.100	ug/L							U
Aroclor 1232	ND	0.018	0.100	ug/L							U
Aroclor 1242	ND	0.018	0.100	ug/L							U
Aroclor 1248	ND	0.018	0.100	ug/L							U
Aroclor 1254	ND	0.018	0.100	ug/L							U
Aroclor 1260	ND	0.017	0.100	ug/L							U
Surrogate: Decachlorobiphenyl	0.0491			ug/L	*0.0800*		*61.4*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0525			ug/L	*0.0800*		*65.6*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0492			ug/L	*0.0800*		*61.4*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0401			ug/L	*0.0800*		*50.1*	*39-120*			
LCS (BJB0607-BS1)				Prepared: 23-Feb-2021 Analyzed: 09-Mar-2021 16:40							
Aroclor 1016	0.783	0.018	0.100	ug/L	1.00		78.3	51-120			
Aroclor 1260 [2C]	0.861	0.017	0.100	ug/L	1.00		86.1	56-120			
Surrogate: Decachlorobiphenyl	0.0594			ug/L	*0.0800*		*74.2*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0585			ug/L	*0.0800*		*73.1*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0555			ug/L	*0.0800*		*69.3*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0453			ug/L	*0.0800*		*56.7*	*39-120*			
LCS Dup (BJB0607-BSD1)				Prepared: 23-Feb-2021 Analyzed: 09-Mar-2021 16:19							
Aroclor 1016	0.763	0.018	0.100	ug/L	1.00		76.3	51-120	2.64	30	
Aroclor 1260	0.835	0.017	0.100	ug/L	1.00		83.5	56-120	0.81	30	
Surrogate: Decachlorobiphenyl	0.0489			ug/L	*0.0800*		*61.1*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0572			ug/L	*0.0800*		*71.5*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0492			ug/L	*0.0800*		*61.5*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0421			ug/L	*0.0800*		*52.6*	*39-120*			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Metals and Metallic Compounds - Quality Control

Batch BJB0736 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJB0736-BLK1)				Prepared: 25-Feb-2021 Analyzed: 25-Feb-2021 14:21							
Mercury	ND	0.000013	0.000100	mg/L							U
LCS (BJB0736-BS1)				Prepared: 25-Feb-2021 Analyzed: 25-Feb-2021 14:28							
Mercury	0.00226	0.000013	0.000100	mg/L	0.00200		113	80-120			
Duplicate (BJB0736-DUP2)		**Source: 21B0239-03**		Prepared: 25-Feb-2021 Analyzed: 25-Feb-2021 14:47							
Mercury	ND	0.000013	0.000100	mg/L		ND					U
Matrix Spike (BJB0736-MS2)		**Source: 21B0239-03**		Prepared: 25-Feb-2021 Analyzed: 25-Feb-2021 14:49							
Mercury	0.00122	0.000013	0.000100	mg/L	0.00100	ND	122	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJB0736-MSD2)		**Source: 21B0239-03**		Prepared: 25-Feb-2021 Analyzed: 25-Feb-2021 14:51							
Mercury	0.00115	0.000013	0.000100	mg/L	0.00100	ND	115	75-125	6.26	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Metals and Metallic Compounds - Quality Control

Batch BJB0758 - 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 (BJB0758-BLK1)					Prepared: 25-Feb-2021 Analyzed: 26-Feb-2021 14:24							
Barium	135	ND	0.0560	0.500	ug/L							U
Barium	137	ND	0.0530	0.500	ug/L							U
Chromium	52	ND	0.130	0.500	ug/L							U
Chromium	53	0.0930	0.0700	0.500	ug/L							J
Cobalt	59	ND	0.0290	0.200	ug/L							U
Iron	54	6.40	6.27	20.0	ug/L							J
Iron	57	ND	1.40	20.0	ug/L							U
Lead	208	ND	0.0680	0.100	ug/L							U
Manganese	55	0.162	0.0850	0.500	ug/L							J
Silver	107	ND	0.0170	0.200	ug/L							U
Vanadium	51a	ND	0.0400	0.200	ug/L							U
Vanadium	51b	ND	0.0160	0.200	ug/L							U
Arsenic	75a	ND	0.0220	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	0.340	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	0.0810	0.0500	0.500	ug/L							J
Nickel	62	ND	0.220	0.500	ug/L							U
Selenium	78	ND	0.440	0.500	ug/L							U
Zinc	66	ND	0.820	4.00	ug/L							U
Zinc	67	ND	0.940	4.00	ug/L							U
LCS (BJB0758-BS1)					Prepared: 25-Feb-2021 Analyzed: 26-Feb-2021 14:29							
Barium	135	24.4	0.0560	0.500	ug/L	25.0		97.7	80-120			
Barium	137	24.7	0.0530	0.500	ug/L	25.0		98.7	80-120			
Chromium	52	24.2	0.130	0.500	ug/L	25.0		96.9	80-120			
Chromium	53	25.0	0.0700	0.500	ug/L	25.0		99.9	80-120			
Cobalt	59	25.1	0.0290	0.200	ug/L	25.0		101	80-120			
Iron	54	4950	6.27	20.0	ug/L	5000		99.0	80-120			
Iron	57	4900	1.40	20.0	ug/L	5000		98.1	80-120			
Lead	208	25.0	0.0680	0.100	ug/L	25.0		100	80-120			
Manganese	55	24.8	0.0850	0.500	ug/L	25.0		99.3	80-120			
Silver	107	25.9	0.0170	0.200	ug/L	25.0		104	80-120			
Vanadium	51a	23.9	0.0400	0.200	ug/L	25.0		95.5	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Metals and Metallic Compounds - Quality Control

Batch BJB0758 - 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 (BJB0758-BS1)						Prepared: 25-Feb-2021 Analyzed: 26-Feb-2021 14:29						
Vanadium	51b	24.1	0.0160	0.200	ug/L	25.0		96.4	80-120			
Arsenic	75a	24.7	0.0220	0.200	ug/L	25.0		98.9	80-120			
Cadmium	111	25.4	0.0300	0.100	ug/L	25.0		102	80-120			
Cadmium	114	25.2	0.0400	0.100	ug/L	25.0		101	80-120			
Copper	63	24.9	0.340	0.500	ug/L	25.0		99.8	80-120			
Copper	65	25.0	0.350	0.500	ug/L	25.0		99.8	80-120			
Nickel	60	25.0	0.0500	0.500	ug/L	25.0		100	80-120			
Nickel	62	25.4	0.220	0.500	ug/L	25.0		102	80-120			
Selenium	78	79.0	0.440	0.500	ug/L	80.0		98.8	80-120			
Zinc	66	80.0	0.820	4.00	ug/L	80.0		100	80-120			
Zinc	67	77.3	0.940	4.00	ug/L	80.0		96.6	80-120			
Duplicate (BJB0758-DUP1)			**Source: 21B0239-03**			Prepared: 25-Feb-2021 Analyzed: 26-Feb-2021 21:17						
Barium	135	14.6	0.0560	0.500	ug/L		14.4			1.84	20	
Cobalt	59	0.706	0.0290	0.200	ug/L		0.698			1.14	20	
Lead	208	0.432	0.0680	0.100	ug/L		0.492			13.00	20	
Silver	107	ND	0.0170	0.200	ug/L		ND					U
Arsenic	75a	29.1	0.0220	0.200	ug/L		28.0			3.87	20	
Cadmium	111	0.0340	0.0300	0.100	ug/L		0.0510			40.00	20	L, J
Copper	63	4.27	0.340	0.500	ug/L		4.19			1.89	20	
Nickel	60	3.55	0.0500	0.500	ug/L		3.51			1.02	20	
Selenium	78	1.16	0.440	0.500	ug/L		0.942			21.00	20	L
Zinc	66	3.75	0.820	4.00	ug/L		6.40			52.30	20	L, J
Duplicate (BJB0758-DUP2)			**Source: 21B0239-03**			Prepared: 25-Feb-2021 Analyzed: 01-Mar-2021 19:24						
Chromium	52	1.35	0.260	1.00	ug/L		1.24			8.51	20	D
Iron	54	11800	12.5	40.0	ug/L		11400			3.37	20	D
Manganese	55	82.4	0.170	1.00	ug/L		80.5			2.34	20	D
Vanadium	51a	9.82	0.0800	0.400	ug/L		9.65			1.71	20	D
Matrix Spike (BJB0758-MS1)			**Source: 21B0239-03**			Prepared: 25-Feb-2021 Analyzed: 26-Feb-2021 21:22						
Barium	135	39.9	0.0560	0.500	ug/L	25.0	14.4	102	75-125			
Cobalt	59	26.0	0.0290	0.200	ug/L	25.0	0.698	101	75-125			
Lead	208	23.5	0.0680	0.100	ug/L	25.0	0.492	92.0	75-125			
Silver	107	22.9	0.0170	0.200	ug/L	25.0	ND	91.6	75-125			
Arsenic	75a	54.1	0.0220	0.200	ug/L	25.0	28.0	104	75-125			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Metals and Metallic Compounds - Quality Control

Batch BJB0758 - 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 (BJB0758-MS1)			**Source: 21B0239-03**			Prepared: 25-Feb-2021		Analyzed: 26-Feb-2021 21:22				
Cadmium	111	24.4	0.0300	0.100	ug/L	25.0	0.0510	97.3	75-125			
Copper	63	28.5	0.340	0.500	ug/L	25.0	4.19	97.4	75-125			
Nickel	60	28.0	0.0500	0.500	ug/L	25.0	3.51	98.1	75-125			
Selenium	78	74.6	0.440	0.500	ug/L	80.0	0.942	92.1	75-125			
Zinc	66	77.9	0.820	4.00	ug/L	80.0	6.40	89.4	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BJB0758-MS2)			**Source: 21B0239-03**			Prepared: 25-Feb-2021		Analyzed: 01-Mar-2021 19:29				
Chromium	52	22.6	0.260	1.00	ug/L	25.0	1.24	85.5	75-125			D
Iron	54	16300	12.5	40.0	ug/L	5000	11400	96.1	75-125			D
Manganese	55	104	0.170	1.00	ug/L	25.0	80.5	94.9	75-125			D
Vanadium	51a	31.4	0.0800	0.400	ug/L	25.0	9.65	87.1	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJB0758-MSD1)			**Source: 21B0239-03**			Prepared: 25-Feb-2021		Analyzed: 26-Feb-2021 21:28				
Barium	135	37.0	0.0560	0.500	ug/L	25.0	14.4	90.5	75-125	7.73	20	
Cobalt	59	26.2	0.0290	0.200	ug/L	25.0	0.698	102	75-125	0.84	20	
Lead	208	23.4	0.0680	0.100	ug/L	25.0	0.492	91.8	75-125	0.15	20	
Silver	107	23.5	0.0170	0.200	ug/L	25.0	ND	93.9	75-125	2.54	20	
Arsenic	75a	51.6	0.0220	0.200	ug/L	25.0	28.0	94.6	75-125	4.55	20	
Cadmium	111	23.7	0.0300	0.100	ug/L	25.0	0.0510	94.6	75-125	2.83	20	
Copper	63	28.0	0.340	0.500	ug/L	25.0	4.19	95.2	75-125	1.91	20	
Nickel	60	27.8	0.0500	0.500	ug/L	25.0	3.51	97.2	75-125	0.87	20	
Selenium	78	76.4	0.440	0.500	ug/L	80.0	0.942	94.3	75-125	2.31	20	
Zinc	66	77.1	0.820	4.00	ug/L	80.0	6.40	88.4	75-125	1.03	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJB0758-MSD2)			**Source: 21B0239-03**			Prepared: 25-Feb-2021		Analyzed: 01-Mar-2021 19:35				
Chromium	52	22.7	0.260	1.00	ug/L	25.0	1.24	85.8	75-125	0.34	20	D
Iron	54	16000	12.5	40.0	ug/L	5000	11400	90.1	75-125	1.85	20	D
Manganese	55	101	0.170	1.00	ug/L	25.0	80.5	83.8	75-125	2.70	20	D
Vanadium	51a	30.6	0.0800	0.400	ug/L	25.0	9.65	83.7	75-125	2.72	20	D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												

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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJB0738 - 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 (BJB0738-BLK1)					Prepared: 25-Feb-2021 Analyzed: 26-Feb-2021 15:39							
Barium, Dissolved	135	ND	0.0560	0.500	ug/L							U
Barium, Dissolved	137	ND	0.0530	0.500	ug/L							U
Chromium, Dissolved	52	ND	0.130	0.500	ug/L							U
Cobalt, Dissolved	59	ND	0.0290	0.200	ug/L							U
Chromium, Dissolved	53	0.153	0.0700	0.500	ug/L							J
Iron, Dissolved	54	8.34	6.27	20.0	ug/L							J
Lead, Dissolved	208	ND	0.0680	0.100	ug/L							U
Manganese, Dissolved	55	ND	0.0850	0.500	ug/L							U
Silver, Dissolved	107	ND	0.0170	0.200	ug/L							U
Vanadium, Dissolved	51a	ND	0.0400	0.200	ug/L							U
Vanadium, Dissolved	51b	ND	0.0160	0.200	ug/L							U
Arsenic, Dissolved	75a	ND	0.0220	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	0.340	0.500	ug/L							U
Copper, Dissolved	65	ND	0.350	0.500	ug/L							U
Nickel, Dissolved	60	ND	0.0500	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
Selenium, Dissolved	78	ND	0.440	0.500	ug/L							U
Zinc, Dissolved	66	ND	0.820	4.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	4.00	ug/L							U
Blank (BJB0738-BLK2)					Prepared: 25-Feb-2021 Analyzed: 01-Mar-2021 14:52							
Iron, Dissolved	57	ND	1.40	20.0	ug/L							U
LCS (BJB0738-BS1)					Prepared: 25-Feb-2021 Analyzed: 26-Feb-2021 15:43							
Barium, Dissolved	135	24.7	0.0560	0.500	ug/L	25.0		98.8	80-120			
Barium, Dissolved	137	24.4	0.0530	0.500	ug/L	25.0		97.7	80-120			
Chromium, Dissolved	52	24.6	0.130	0.500	ug/L	25.0		98.4	80-120			
Cobalt, Dissolved	59	25.9	0.0290	0.200	ug/L	25.0		104	80-120			
Chromium, Dissolved	53	25.4	0.0700	0.500	ug/L	25.0		102	80-120			
Iron, Dissolved	54	4950	6.27	20.0	ug/L	5000		99.0	80-120			
Iron, Dissolved	57	5010	1.40	20.0	ug/L	5000		100	80-120			
Lead, Dissolved	208	24.9	0.0680	0.100	ug/L	25.0		99.4	80-120			
Manganese, Dissolved	55	25.3	0.0850	0.500	ug/L	25.0		101	80-120			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJB0738 - 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 (BJB0738-BS1)						Prepared: 25-Feb-2021 Analyzed: 26-Feb-2021 15:43						
Silver, Dissolved	107	26.8	0.0170	0.200	ug/L	25.0		107	80-120			
Vanadium, Dissolved	51a	24.1	0.0400	0.200	ug/L	25.0		96.6	80-120			
Vanadium, Dissolved	51b	24.4	0.0160	0.200	ug/L	25.0		97.5	80-120			
Arsenic, Dissolved	75a	24.5	0.0220	0.200	ug/L	25.0		97.8	80-120			
Cadmium, Dissolved	111	24.8	0.0300	0.100	ug/L	25.0		99.2	80-120			
Cadmium, Dissolved	114	24.5	0.0400	0.100	ug/L	25.0		97.8	80-120			
Copper, Dissolved	63	25.3	0.340	0.500	ug/L	25.0		101	80-120			
Copper, Dissolved	65	25.4	0.350	0.500	ug/L	25.0		102	80-120			
Nickel, Dissolved	60	25.0	0.0500	0.500	ug/L	25.0		99.9	80-120			
Nickel, Dissolved	62	25.4	0.220	0.500	ug/L	25.0		102	80-120			
Selenium, Dissolved	78	77.2	0.440	0.500	ug/L	80.0		96.6	80-120			
Zinc, Dissolved	66	77.5	0.820	4.00	ug/L	80.0		96.9	80-120			
Zinc, Dissolved	67	74.6	0.940	4.00	ug/L	80.0		93.2	80-120			
Duplicate (BJB0738-DUP2)			**Source: 21B0239-06**			Prepared: 25-Feb-2021 Analyzed: 26-Feb-2021 23:44						
Barium, Dissolved	135	3.89	0.0560	0.500	ug/L		4.06			4.18	20	
Chromium, Dissolved	52	ND	0.130	0.500	ug/L		ND					U
Cobalt, Dissolved	59	0.229	0.0290	0.200	ug/L		0.232			1.30	20	
Iron, Dissolved	54	88.0	6.27	20.0	ug/L		91.1			3.44	20	
Lead, Dissolved	208	ND	0.0680	0.100	ug/L		ND					U
Manganese, Dissolved	55	25.3	0.0850	0.500	ug/L		25.9			2.39	20	
Silver, Dissolved	107	ND	0.0170	0.200	ug/L		ND					U
Vanadium, Dissolved	51a	1.96	0.0400	0.200	ug/L		2.02			3.17	20	
Arsenic, Dissolved	75a	1.16	0.0220	0.200	ug/L		1.16			0.35	20	
Cadmium, Dissolved	111	0.0340	0.0300	0.100	ug/L		0.0380			11.10	20	J
Copper, Dissolved	63	1.65	0.340	0.500	ug/L		1.66			0.60	20	
Nickel, Dissolved	60	2.33	0.0500	0.500	ug/L		2.30			1.51	20	
Selenium, Dissolved	78	0.712	0.440	0.500	ug/L		0.769			7.70	20	
Zinc, Dissolved	66	1.09	0.820	4.00	ug/L		1.20			9.17	20	J
Matrix Spike (BJB0738-MS2)			**Source: 21B0239-06**			Prepared: 25-Feb-2021 Analyzed: 26-Feb-2021 23:49						
Barium, Dissolved	135	28.3	0.0560	0.500	ug/L	25.0	4.06	96.9	75-125			
Chromium, Dissolved	52	20.7	0.130	0.500	ug/L	25.0	ND	82.9	75-125			
Cobalt, Dissolved	59	26.2	0.0290	0.200	ug/L	25.0	0.232	104	75-125			
Iron, Dissolved	54	4470	6.27	20.0	ug/L	5000	91.1	87.6	75-125			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJB0738 - 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 (BJB0738-MS2)			**Source: 21B0239-06**			Prepared: 25-Feb-2021	Analyzed: 26-Feb-2021 23:49					
Lead, Dissolved	208	24.3	0.0680	0.100	ug/L	25.0	ND	97.2	75-125			
Manganese, Dissolved	55	47.2	0.0850	0.500	ug/L	25.0	25.9	85.0	75-125			
Silver, Dissolved	107	25.6	0.0170	0.200	ug/L	25.0	ND	102	75-125			
Vanadium, Dissolved	51a	22.7	0.0400	0.200	ug/L	25.0	2.02	82.5	75-125			
Arsenic, Dissolved	75a	25.9	0.0220	0.200	ug/L	25.0	1.16	98.8	75-125			
Cadmium, Dissolved	111	24.3	0.0300	0.100	ug/L	25.0	0.0380	97.2	75-125			
Copper, Dissolved	63	26.5	0.340	0.500	ug/L	25.0	1.66	99.4	75-125			
Nickel, Dissolved	60	27.3	0.0500	0.500	ug/L	25.0	2.30	100	75-125			
Selenium, Dissolved	78	76.5	0.440	0.500	ug/L	80.0	0.769	94.6	75-125			
Zinc, Dissolved	66	75.3	0.820	4.00	ug/L	80.0	1.20	92.7	75-125			

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

Matrix Spike Dup (BJB0738-MSD2)			**Source: 21B0239-06**			Prepared: 25-Feb-2021	Analyzed: 26-Feb-2021 23:55					
Barium, Dissolved	135	28.0	0.0560	0.500	ug/L	25.0	4.06	95.8	75-125	0.97	20	
Chromium, Dissolved	52	20.6	0.130	0.500	ug/L	25.0	ND	82.6	75-125	0.38	20	
Cobalt, Dissolved	59	26.2	0.0290	0.200	ug/L	25.0	0.232	104	75-125	0.11	20	
Iron, Dissolved	54	4460	6.27	20.0	ug/L	5000	91.1	87.4	75-125	0.13	20	
Lead, Dissolved	208	24.0	0.0680	0.100	ug/L	25.0	ND	96.1	75-125	1.17	20	
Manganese, Dissolved	55	47.4	0.0850	0.500	ug/L	25.0	25.9	86.1	75-125	0.55	20	
Silver, Dissolved	107	25.7	0.0170	0.200	ug/L	25.0	ND	103	75-125	0.38	20	
Vanadium, Dissolved	51a	22.6	0.0400	0.200	ug/L	25.0	2.02	82.3	75-125	0.31	20	
Arsenic, Dissolved	75a	26.0	0.0220	0.200	ug/L	25.0	1.16	99.3	75-125	0.52	20	
Cadmium, Dissolved	111	24.8	0.0300	0.100	ug/L	25.0	0.0380	99.1	75-125	1.91	20	
Copper, Dissolved	63	26.6	0.340	0.500	ug/L	25.0	1.66	99.8	75-125	0.33	20	
Nickel, Dissolved	60	27.2	0.0500	0.500	ug/L	25.0	2.30	99.5	75-125	0.48	20	
Selenium, Dissolved	78	77.2	0.440	0.500	ug/L	80.0	0.769	95.5	75-125	0.95	20	
Zinc, Dissolved	66	76.1	0.820	4.00	ug/L	80.0	1.20	93.6	75-125	0.94	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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJB0770 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJB0770-BLK1)				Prepared: 26-Feb-2021	Analyzed: 02-Mar-2021 13:20						
Mercury, Dissolved	ND	0.000013	0.000100	mg/L							U
LCS (BJB0770-BS1)				Prepared: 26-Feb-2021	Analyzed: 02-Mar-2021 13:22						
Mercury, Dissolved	0.00215	0.000013	0.000100	mg/L	0.00200		107	80-120			
Duplicate (BJB0770-DUP2)		**Source: 21B0239-10**		Prepared: 26-Feb-2021	Analyzed: 02-Mar-2021 13:36						
Mercury, Dissolved	ND	0.000013	0.000100	mg/L		ND					U
Matrix Spike (BJB0770-MS2)		**Source: 21B0239-10**		Prepared: 26-Feb-2021	Analyzed: 02-Mar-2021 13:38						
Mercury, Dissolved	0.000960	0.000013	0.000100	mg/L	0.00100	ND	95.9	75-125			

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

Matrix Spike Dup (BJB0770-MSD2)		**Source: 21B0239-10**		Prepared: 26-Feb-2021	Analyzed: 02-Mar-2021 13:41						
Mercury, Dissolved	0.00104	0.000013	0.000100	mg/L	0.00100	ND	104	75-125	8.47	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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Wet Chemistry - Quality Control

Batch BJB0486 - No Prep Wet Chem

Instrument: IC930 Analyst: WCW

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJB0486-BLK1)				Prepared: 17-Feb-2021 Analyzed: 17-Feb-2021 18:27							
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 (BJB0486-BS1)				Prepared: 17-Feb-2021 Analyzed: 17-Feb-2021 18:48							
Chloride	4.84	0.100	0.100	mg/L	5.00		96.9	90-110			
Nitrate-N	5.12	0.100	0.100	mg/L	5.00		102	90-110			
Nitrite-N	4.95	0.100	0.100	mg/L	5.00		99.0	90-110			
Sulfate	4.96	0.100	0.100	mg/L	5.00		99.2	90-110			
Duplicate (BJB0486-DUP1)		**Source: 21B0239-01**		Prepared: 17-Feb-2021 Analyzed: 17-Feb-2021 19:48							
Nitrate-N	0.642	0.100	0.100	mg/L		0.642			0.00		
Nitrite-N	ND	0.100	0.100	mg/L		ND					U
Sulfate	5.02	0.100	0.100	mg/L		5.09			1.40	20	
Duplicate (BJB0486-DUP2)		**Source: 21B0239-01RE1**		Prepared: 17-Feb-2021 Analyzed: 18-Feb-2021 08:24							
Chloride	12.1	0.200	0.200	mg/L		12.2			1.01	20	D
Matrix Spike (BJB0486-MS1)		**Source: 21B0239-01**		Prepared: 17-Feb-2021 Analyzed: 17-Feb-2021 20:08							
Nitrate-N	2.59	0.100	0.100	mg/L	2.00	0.642	97.4	75-125			
Nitrite-N	2.05	0.100	0.100	mg/L	2.00	ND	102	75-125			
Sulfate	6.47	0.100	0.100	mg/L	2.00	5.09	69.2	75-125			*

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

Matrix Spike (BJB0486-MS2)		**Source: 21B0239-01RE1**		Prepared: 17-Feb-2021 Analyzed: 18-Feb-2021 08:44							
Chloride	13.8	0.200	0.300	mg/L	2.00	12.2	82.9	75-125			D

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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Wet Chemistry - Quality Control

Batch BJB0510 - 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 (BJB0510-BLK1)				Prepared: 17-Feb-2021 Analyzed: 17-Feb-2021 17:34							
Ferrous Iron	ND	0.040	0.040	mg/L							U
LCS (BJB0510-BS1)				Prepared: 17-Feb-2021 Analyzed: 17-Feb-2021 17:35							
Ferrous Iron	0.549	0.040	0.040	mg/L	0.501		110	90-110			
Duplicate (BJB0510-DUP3)		**Source: 21B0239-01RE2**		Prepared: 17-Feb-2021 Analyzed: 17-Feb-2021 18:21							
Ferrous Iron	36.6	2.00	2.00	mg/L		36.9			0.68	20	D
Matrix Spike (BJB0510-MS3)		**Source: 21B0239-01RE2**		Prepared: 17-Feb-2021 Analyzed: 17-Feb-2021 18:22							
Ferrous Iron	54.1	2.00	2.00	mg/L	20.0	36.9	85.9	75-125			D

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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Wet Chemistry - Quality Control

Batch BJB0511 - 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 (BJB0511-BLK1)				Prepared: 17-Feb-2021 Analyzed: 17-Feb-2021 16:22							
Sulfite	ND	1.4	1.4	mg/L							U
LCS (BJB0511-BS1)				Prepared: 17-Feb-2021 Analyzed: 17-Feb-2021 16:22							
Sulfite	4.0	1.4	1.4	mg/L	5.01		79.1	75-100			
Duplicate (BJB0511-DUP1)		**Source: 21B0239-01**		Prepared: 17-Feb-2021 Analyzed: 17-Feb-2021 16:22							
Sulfite	ND	1.4	1.4	mg/L		ND					H, U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Certified Analyses included in this Report

Analyte	Certifications
EPA 300.0 in Water	
Chloride	DoD-ELAP,WA-DW,NELAP
Chloride	DoD-ELAP,WADOE,NELAP
Nitrate-N	DoD-ELAP,WADOE,NELAP
Nitrate-N	DoD-ELAP,WA-DW,NELAP
Nitrite-N	DoD-ELAP,WA-DW,NELAP
Nitrite-N	DoD-ELAP,WADOE,NELAP
Sulfate	DoD-ELAP,WADOE,NELAP
Sulfate	DoD-ELAP,WA-DW,NELAP
EPA 6020B in Water	
Silver-107	WA-DW,DoD-ELAP,NELAP
Silver-107	WADOE,DoD-ELAP,NELAP
Barium-135	NELAP,DoD-ELAP,ADEC
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	DoD-ELAP,NELAP
Cobalt-59	DoD-ELAP,NELAP,WADOE
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,DoD-ELAP,ADEC
Chromium-53	NELAP,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,DoD-ELAP
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,DoD-ELAP
Lead-208	NELAP,DoD-ELAP,ADEC
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,ADEC
Silver-107	DoD-ELAP,NELAP
Silver-107	WA-DW,DoD-ELAP,NELAP

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Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-135	NELAP,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,DoD-ELAP,ADEC
Cobalt-59	NELAP,DoD-ELAP
Cobalt-59	NELAP,DoD-ELAP,WADOE
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,DoD-ELAP,ADEC
Chromium-53	NELAP,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,DoD-ELAP
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,DoD-ELAP
Lead-208	NELAP,DoD-ELAP,ADEC
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51a	NELAP,DoD-ELAP,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,ADEC

EPA 6020B UCT-KED in Water

Arsenic-75a	WADOE,DoD-ELAP,ADEC,NELAP
Arsenic-75a	WA-DW,DoD-ELAP,ADEC,NELAP
Cadmium-111	NELAP,DoD-ELAP,ADEC
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,DoD-ELAP,ADEC
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-63	NELAP,DoD-ELAP
Copper-65	NELAP,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,DoD-ELAP,ADEC
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Selenium-78	NELAP,DoD-ELAP

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Zinc-66	WADOE,DoD-ELAP
Zinc-66	WA-DW,DoD-ELAP
Zinc-67	WADOE,DoD-ELAP
Zinc-67	WA-DW,DoD-ELAP
Arsenic-75a	NELAP,DoD-ELAP,ADEC
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-111	NELAP,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,DoD-ELAP,ADEC
Copper-63	NELAP,DoD-ELAP
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,DoD-ELAP
Nickel-60	NELAP,DoD-ELAP,ADEC
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Selenium-78	NELAP,DoD-ELAP
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-66	NELAP,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,DoD-ELAP
EPA 7470A in Water	
Mercury	WADOE,NELAP,DoD-ELAP
Mercury	NELAP,DoD-ELAP
Mercury	NELAP,DoD-ELAP
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8082A in Water	
Aroclor 1016	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1016	ADEC,DoD-ELAP,NELAP
Aroclor-1016 (1)	ADEC
Aroclor-1016 (1)	ADEC
Aroclor-1016 (2)	ADEC
Aroclor-1016 (2)	ADEC
Aroclor-1016 (3)	ADEC
Aroclor-1016 (3)	ADEC
Aroclor-1016 (4)	ADEC

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Aroclor-1016 (4)	ADEC
Aroclor 1016 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor 1016 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1016 (1) [2C]	ADEC
Aroclor-1016 (1) [2C]	ADEC
Aroclor-1016 (2) [2C]	ADEC
Aroclor-1016 (2) [2C]	ADEC
Aroclor-1016 (3) [2C]	ADEC
Aroclor-1016 (3) [2C]	ADEC
Aroclor-1016 (4) [2C]	ADEC
Aroclor-1016 (4) [2C]	ADEC
Aroclor 1221	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1221	ADEC,DoD-ELAP,NELAP
Aroclor-1221 (1)	ADEC
Aroclor-1221 (1)	ADEC
Aroclor-1221 (2)	ADEC
Aroclor-1221 (2)	ADEC
Aroclor-1221 (3)	ADEC
Aroclor-1221 (3)	ADEC
Aroclor 1221 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor 1221 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1221 (1) [2C]	ADEC
Aroclor-1221 (1) [2C]	ADEC
Aroclor-1221 (2) [2C]	ADEC
Aroclor-1221 (2) [2C]	ADEC
Aroclor-1221 (3) [2C]	ADEC
Aroclor-1221 (3) [2C]	ADEC
Aroclor-1221 (4) [2C]	ADEC
Aroclor-1221 (4) [2C]	ADEC
Aroclor 1232	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1232	ADEC,DoD-ELAP,NELAP
Aroclor-1232 (1)	ADEC
Aroclor-1232 (1)	ADEC
Aroclor-1232 (2)	ADEC
Aroclor-1232 (2)	ADEC
Aroclor-1232 (3)	ADEC
Aroclor-1232 (3)	ADEC
Aroclor-1232 (4)	ADEC
Aroclor-1232 (4)	ADEC

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Aroclor 1232 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1232 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1232 (1) [2C]	ADEC
Aroclor-1232 (1) [2C]	ADEC
Aroclor-1232 (2) [2C]	ADEC
Aroclor-1232 (2) [2C]	ADEC
Aroclor-1232 (3) [2C]	ADEC
Aroclor-1232 (3) [2C]	ADEC
Aroclor-1232 (4) [2C]	ADEC
Aroclor-1232 (4) [2C]	ADEC
Aroclor 1242	ADEC,DoD-ELAP,NELAP
Aroclor 1242	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1242 (1)	ADEC
Aroclor-1242 (1)	ADEC
Aroclor-1242 (2)	ADEC
Aroclor-1242 (2)	ADEC
Aroclor-1242 (3)	ADEC
Aroclor-1242 (3)	ADEC
Aroclor-1242 (4)	ADEC
Aroclor-1242 (4)	ADEC
Aroclor 1242 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1242 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1242 (1) [2C]	ADEC
Aroclor-1242 (1) [2C]	ADEC
Aroclor-1242 (2) [2C]	ADEC
Aroclor-1242 (2) [2C]	ADEC
Aroclor-1242 (3) [2C]	ADEC
Aroclor-1242 (3) [2C]	ADEC
Aroclor-1242 (4) [2C]	ADEC
Aroclor-1242 (4) [2C]	ADEC
Aroclor 1248	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1248	ADEC,DoD-ELAP,NELAP
Aroclor-1248 (1)	ADEC
Aroclor-1248 (1)	ADEC
Aroclor-1248 (2)	ADEC
Aroclor-1248 (2)	ADEC
Aroclor-1248 (3)	ADEC
Aroclor-1248 (3)	ADEC
Aroclor-1248 (4)	ADEC

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Aroclor-1248 (4)	ADEC
Aroclor 1248 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1248 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1248 (1) [2C]	ADEC
Aroclor-1248 (1) [2C]	ADEC
Aroclor-1248 (2) [2C]	ADEC
Aroclor-1248 (2) [2C]	ADEC
Aroclor-1248 (3) [2C]	ADEC
Aroclor-1248 (3) [2C]	ADEC
Aroclor-1248 (4) [2C]	ADEC
Aroclor-1248 (4) [2C]	ADEC
Aroclor 1254	ADEC,DoD-ELAP,NELAP
Aroclor 1254	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1254 (1)	ADEC
Aroclor-1254 (1)	ADEC
Aroclor-1254 (2)	ADEC
Aroclor-1254 (2)	ADEC
Aroclor-1254 (3)	ADEC
Aroclor-1254 (3)	ADEC
Aroclor-1254 (4)	ADEC
Aroclor-1254 (4)	ADEC
Aroclor-1254 (5)	ADEC
Aroclor-1254 (5)	ADEC
Aroclor 1254 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor 1254 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1254 (1) [2C]	ADEC
Aroclor-1254 (1) [2C]	ADEC
Aroclor-1254 (2) [2C]	ADEC
Aroclor-1254 (2) [2C]	ADEC
Aroclor-1254 (3) [2C]	ADEC
Aroclor-1254 (3) [2C]	ADEC
Aroclor-1254 (4) [2C]	ADEC
Aroclor-1254 (4) [2C]	ADEC
Aroclor-1254 (5) [2C]	ADEC
Aroclor-1254 (5) [2C]	ADEC
Aroclor 1260	ADEC,DoD-ELAP,NELAP
Aroclor 1260	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1260 (1)	ADEC
Aroclor-1260 (1)	ADEC

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Aroclor-1260 (2)	ADEC
Aroclor-1260 (2)	ADEC
Aroclor-1260 (3)	ADEC
Aroclor-1260 (3)	ADEC
Aroclor-1260 (4)	ADEC
Aroclor-1260 (4)	ADEC
Aroclor-1260 (5)	ADEC
Aroclor-1260 (5)	ADEC
Aroclor 1260 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1260 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1260 (1) [2C]	ADEC
Aroclor-1260 (1) [2C]	ADEC
Aroclor-1260 (2) [2C]	ADEC
Aroclor-1260 (2) [2C]	ADEC
Aroclor-1260 (3) [2C]	ADEC
Aroclor-1260 (3) [2C]	ADEC
Aroclor-1260 (4) [2C]	ADEC
Aroclor-1260 (4) [2C]	ADEC
Aroclor 1262	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1262	ADEC,DoD-ELAP,NELAP
Aroclor-1262 (1)	ADEC
Aroclor-1262 (1)	ADEC
Aroclor-1262 (2)	ADEC
Aroclor-1262 (2)	ADEC
Aroclor-1262 (3)	ADEC
Aroclor-1262 (3)	ADEC
Aroclor-1262 (4)	ADEC
Aroclor-1262 (4)	ADEC
Aroclor-1262 (5)	ADEC
Aroclor-1262 (5)	ADEC
Aroclor 1262 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1262 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1262 (1) [2C]	ADEC
Aroclor-1262 (1) [2C]	ADEC
Aroclor-1262 (2) [2C]	ADEC
Aroclor-1262 (2) [2C]	ADEC
Aroclor-1262 (3) [2C]	ADEC
Aroclor-1262 (3) [2C]	ADEC
Aroclor-1262 (4) [2C]	ADEC

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Aroclor-1262 (4) [2C]	ADEC
Aroclor-1262 (5) [2C]	ADEC
Aroclor-1262 (5) [2C]	ADEC
Aroclor 1268	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1268	ADEC,DoD-ELAP,NELAP
Aroclor-1268 (1)	ADEC
Aroclor-1268 (1)	ADEC
Aroclor-1268 (2)	ADEC
Aroclor-1268 (2)	ADEC
Aroclor-1268 (3)	ADEC
Aroclor-1268 (3)	ADEC
Aroclor-1268 (4)	ADEC
Aroclor-1268 (4)	ADEC
Aroclor 1268 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1268 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1268 (1) [2C]	ADEC
Aroclor-1268 (1) [2C]	ADEC
Aroclor-1268 (2) [2C]	ADEC
Aroclor-1268 (2) [2C]	ADEC
Aroclor-1268 (3) [2C]	ADEC
Aroclor-1268 (3) [2C]	ADEC
Aroclor-1268 (4) [2C]	ADEC
Aroclor-1268 (4) [2C]	ADEC

EPA 8260D in Water

Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloromethane	DoD-ELAP,ADEC,NELAP
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP
Bromomethane	DoD-ELAP,ADEC,NELAP
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP

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Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP
Iodomethane	DoD-ELAP,NELAP
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP
Acrylonitrile	DoD-ELAP,NELAP
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP
Benzene	DoD-ELAP,ADEC,NELAP
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP

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1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP
Dibromomethane	DoD-ELAP,ADEC,NELAP
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP
Styrene	DoD-ELAP,NELAP

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Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP
Bromobenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP
s-Butylbenzene	DoD-ELAP,NELAP
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE

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1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP
Naphthalene	DoD-ELAP,ADEC,NELAP
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP
n-Hexane	
n-Hexane	WADOE
2-Pentanone	WADOE
2-Pentanone	

EPA 8260D-SIM in Water

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

EPA 8270E in Water

Phenol	NELAP,DoD-ELAP

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Phenol	NELAP,DoD-ELAP
bis(2-chloroethyl) ether	NELAP,DoD-ELAP
bis(2-chloroethyl) ether	NELAP,DoD-ELAP
2-Chlorophenol	NELAP,DoD-ELAP
2-Chlorophenol	NELAP,DoD-ELAP
1,3-Dichlorobenzene	NELAP,DoD-ELAP
1,3-Dichlorobenzene	NELAP,DoD-ELAP
1,4-Dichlorobenzene	NELAP,DoD-ELAP
1,4-Dichlorobenzene	NELAP,DoD-ELAP
1,2-Dichlorobenzene	NELAP,DoD-ELAP
1,2-Dichlorobenzene	NELAP,DoD-ELAP
Benzyl Alcohol	NELAP,DoD-ELAP
Benzyl Alcohol	NELAP,DoD-ELAP
2,2'-Oxybis(1-chloropropane)	NELAP,DoD-ELAP
2,2'-Oxybis(1-chloropropane)	NELAP,DoD-ELAP
2-Methylphenol	NELAP,DoD-ELAP
2-Methylphenol	NELAP,DoD-ELAP
Hexachloroethane	NELAP,DoD-ELAP
Hexachloroethane	NELAP,DoD-ELAP
N-Nitroso-di-n-Propylamine	NELAP,DoD-ELAP
N-Nitroso-di-n-Propylamine	NELAP,DoD-ELAP
4-Methylphenol	NELAP,DoD-ELAP
4-Methylphenol	NELAP,DoD-ELAP
Nitrobenzene	NELAP,DoD-ELAP
Nitrobenzene	NELAP,DoD-ELAP
Isophorone	NELAP,DoD-ELAP
Isophorone	NELAP,DoD-ELAP
2-Nitrophenol	NELAP,DoD-ELAP
2-Nitrophenol	NELAP,DoD-ELAP
2,4-Dimethylphenol	NELAP,DoD-ELAP
2,4-Dimethylphenol	NELAP,DoD-ELAP
Bis(2-Chloroethoxy)methane	NELAP,DoD-ELAP
Bis(2-Chloroethoxy)methane	NELAP,DoD-ELAP
2,4-Dichlorophenol	NELAP,DoD-ELAP
2,4-Dichlorophenol	NELAP,DoD-ELAP
1,2,4-Trichlorobenzene	NELAP,DoD-ELAP
1,2,4-Trichlorobenzene	NELAP,DoD-ELAP
Naphthalene	NELAP,DoD-ELAP
Naphthalene	NELAP,DoD-ELAP

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Benzoic acid	NELAP,DoD-ELAP
Benzoic acid	NELAP,DoD-ELAP
4-Chloroaniline	NELAP,DoD-ELAP
4-Chloroaniline	NELAP,DoD-ELAP
Hexachlorobutadiene	NELAP,DoD-ELAP
Hexachlorobutadiene	NELAP,DoD-ELAP
4-Chloro-3-Methylphenol	NELAP,DoD-ELAP
4-Chloro-3-Methylphenol	NELAP,DoD-ELAP
2-Methylnaphthalene	NELAP,DoD-ELAP
2-Methylnaphthalene	NELAP,DoD-ELAP
Hexachlorocyclopentadiene	NELAP,DoD-ELAP
Hexachlorocyclopentadiene	NELAP,DoD-ELAP
2,4,6-Trichlorophenol	NELAP,DoD-ELAP
2,4,6-Trichlorophenol	NELAP,DoD-ELAP
2,4,5-Trichlorophenol	NELAP,DoD-ELAP
2,4,5-Trichlorophenol	NELAP,DoD-ELAP
2-Chloronaphthalene	NELAP,DoD-ELAP
2-Chloronaphthalene	NELAP,DoD-ELAP
2-Nitroaniline	NELAP,DoD-ELAP
2-Nitroaniline	NELAP,DoD-ELAP
Acenaphthylene	NELAP,DoD-ELAP
Acenaphthylene	NELAP,DoD-ELAP
Dimethylphthalate	NELAP,DoD-ELAP
Dimethylphthalate	NELAP,DoD-ELAP
2,6-Dinitrotoluene	NELAP,DoD-ELAP
2,6-Dinitrotoluene	NELAP,DoD-ELAP
Acenaphthene	NELAP,DoD-ELAP
Acenaphthene	NELAP,DoD-ELAP
3-Nitroaniline	NELAP,DoD-ELAP
3-Nitroaniline	NELAP,DoD-ELAP
2,4-Dinitrophenol	NELAP,DoD-ELAP
2,4-Dinitrophenol	NELAP,DoD-ELAP
Dibenzofuran	NELAP,DoD-ELAP
Dibenzofuran	NELAP,DoD-ELAP
4-Nitrophenol	NELAP,DoD-ELAP
4-Nitrophenol	NELAP,DoD-ELAP
2,4-Dinitrotoluene	NELAP,DoD-ELAP
2,4-Dinitrotoluene	NELAP,DoD-ELAP
Fluorene	NELAP,DoD-ELAP

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Fluorene	NELAP,DoD-ELAP
4-Chlorophenylphenyl ether	NELAP,DoD-ELAP
4-Chlorophenylphenyl ether	NELAP,DoD-ELAP
Diethyl phthalate	NELAP,DoD-ELAP
Diethyl phthalate	NELAP,DoD-ELAP
4-Nitroaniline	NELAP,DoD-ELAP
4-Nitroaniline	NELAP,DoD-ELAP
4,6-Dinitro-2-methylphenol	NELAP,DoD-ELAP
4,6-Dinitro-2-methylphenol	NELAP,DoD-ELAP
N-Nitrosodiphenylamine	NELAP,DoD-ELAP
N-Nitrosodiphenylamine	NELAP,DoD-ELAP
4-Bromophenyl phenyl ether	NELAP,DoD-ELAP
4-Bromophenyl phenyl ether	NELAP,DoD-ELAP
Hexachlorobenzene	NELAP,DoD-ELAP
Hexachlorobenzene	NELAP,DoD-ELAP
Pentachlorophenol	NELAP,DoD-ELAP
Pentachlorophenol	NELAP,DoD-ELAP
Phenanthrene	NELAP,DoD-ELAP
Phenanthrene	NELAP,DoD-ELAP
Anthracene	NELAP,DoD-ELAP
Anthracene	NELAP,DoD-ELAP
Carbazole	NELAP,DoD-ELAP
Carbazole	NELAP,DoD-ELAP
Di-n-Butylphthalate	NELAP,DoD-ELAP
Di-n-Butylphthalate	NELAP,DoD-ELAP
Fluoranthene	NELAP,DoD-ELAP
Fluoranthene	NELAP,DoD-ELAP
Pyrene	NELAP,DoD-ELAP
Pyrene	NELAP,DoD-ELAP
Butylbenzylphthalate	NELAP,DoD-ELAP
Butylbenzylphthalate	NELAP,DoD-ELAP
Benzo(a)anthracene	NELAP,DoD-ELAP
Benzo(a)anthracene	NELAP,DoD-ELAP
3,3'-Dichlorobenzidine	NELAP,DoD-ELAP
3,3'-Dichlorobenzidine	NELAP,DoD-ELAP
Chrysene	NELAP,DoD-ELAP
Chrysene	NELAP,DoD-ELAP
bis(2-Ethylhexyl)phthalate	NELAP,DoD-ELAP
bis(2-Ethylhexyl)phthalate	NELAP,DoD-ELAP

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Di-n-Octylphthalate	NELAP,DoD-ELAP
Di-n-Octylphthalate	NELAP,DoD-ELAP
Benzo(b)fluoranthene	NELAP,DoD-ELAP
Benzo(b)fluoranthene	NELAP,DoD-ELAP
Benzo(k)fluoranthene	NELAP,DoD-ELAP
Benzo(k)fluoranthene	NELAP,DoD-ELAP
Benzofluoranthenes, Total	NELAP
Benzofluoranthenes, Total	NELAP
Benzo(a)pyrene	NELAP,DoD-ELAP
Benzo(a)pyrene	NELAP,DoD-ELAP
Indeno(1,2,3-cd)pyrene	NELAP,DoD-ELAP
Indeno(1,2,3-cd)pyrene	NELAP,DoD-ELAP
Dibenzo(a,h)anthracene	NELAP,DoD-ELAP
Dibenzo(a,h)anthracene	NELAP,DoD-ELAP
Benzo(g,h,i)perylene	NELAP,DoD-ELAP
Benzo(g,h,i)perylene	NELAP,DoD-ELAP
N-Nitrosodimethylamine	NELAP,DoD-ELAP
N-Nitrosodimethylamine	NELAP,DoD-ELAP
1-Methylnaphthalene	NELAP,DoD-ELAP
1-Methylnaphthalene	NELAP,DoD-ELAP

EPA 8270E-SIM in Water

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

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

NWTPH-Dx in Water

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP

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

NWTPHg in Water

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-Nap)	DoD-ELAP

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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

Gasoline Range Organics (2MP-TMB)	DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	ADEC,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP
SM 3500-Fe B-97 in Water	
Ferrous Iron	NELAP
Ferrous Iron	WADOE,NELAP
SM 4500-SO3 B-00 in Water	
Sulfite	NELAP
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

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 13:46

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.
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).
V	Sample container has been compromised
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 July 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)
21B0255	N/A

Susan Dunnihoo

Digitally signed by Susan Dunnihoo
Date: 2021.07.21 15:52:54 -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.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21B0255	Turn-around Requested: Standard
ARI Client Company: Shannon & Wilson	Phone: 206-695-6811
Client Contact: Shoshana Howard	
Client Project Name: IDW	
Client Project #: 21-1-12596	Samplers: DES/MRH

Page: 1 of 2

Date: 2/18/2021 Ice Present? Yes

No. of Coolers: 3 Cooler Temps: See CRF

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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 (low and vol)	PAHs	Attenuation indicators	Full list SVOCs	see page 2	Notes/Comments
					Analysis Requested								Attenuation indicators: • Nitrate, Nitrite, Sulfate • chloride • Sulfate • Ferrous Iron • Dissolved Mn • MEE
TB-6-20211802	2/18/21	0824	Water	1	X		X	X					
MW-9-20211802		0840		10	X	X	X					X	
MW-58-20211802		1025		~~14~~ 15		X	X	X	X	X		X	
MW-57-20211802		1053		10		X	X	X	X			X	
MW-30-20211802		1150		13	X	X		X		X		X	
MW-75-20211802		1309		12		X	X	X			X	X	
MW-62-20211802		1414		12		X	X	X	X			X	
MW-54-20211802		1530		14		X	X	X	X			X	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
• Lab to filter for metals • Please refer to project methods & analyte list	Printed Name: DANIEL SCHWICHT	Printed Name: Jacob Haltv	Printed Name:	Printed Name:
	Company: SWI	Company: ARI	Company:	Company:
	Date & Time: 18-FEB-21, 1629	Date & Time: 02/18/2021 1629	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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21B0255	Turn-around Requested: Standard
ARI Client Company: Shannon & Wilson	Phone: 206-695-6811
Client Contact: Shoshana Howard	
Client Project Name: LDW	
Client Project #: 21-1-12594	Samplers: DES/MRH

Page: 2 of 2

Date: 2/18/21 | Ice Present? Yes

No. of Coolers: 3 | 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	Full list metals (total & dissolved)	1	Manganese total & diss.	PLBS	Limited list SVOCs				Notes/Comments
MW-9-20211802	see page 1 →				*No	X							1 = Metals (total & diss) only: As, Mn, Cd, Cu
MW-59-20211802	see page 1 →				X								
MW-57-20211802	see page 1 →				X		*No						
MW-30-20211802	see page 1 →						X						
MW-75-20211802	see page 1 →				X			X					
MW-62-20211802	see page 1 →				X			X					
MW-54-20211802	see page 1 →				X			X	X				

Full list metals = As, Ba, Cr, Ni, Cd, Co, Cu, Fe, Pb, Hg, Se, Ag, V, Zn

Comments/Special Instructions
- Lab to filter for metals
- Please refer to project manuals & analyte lists

Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Printed Name: DANIEL SCHWICHT	Printed Name: Jacob Lalte	Printed Name:	Printed Name:
Company: SWI	Company: ARI	Company:	Company:
Date & Time: 18-FEB-21, 16:29	Date & Time: 02/18/2021 1629	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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-58-20211802	21B0255-01	Water	18-Feb-2021 10:25	18-Feb-2021 16:29
MW-30-20211802	21B0255-02	Water	18-Feb-2021 11:50	18-Feb-2021 16:29
TB-6-20211802	21B0255-03	Water	18-Feb-2021 08:24	18-Feb-2021 16:29
MW-9-20211802	21B0255-04	Water	18-Feb-2021 08:40	18-Feb-2021 16:29
MW-9-20211802	21B0255-05	Water	18-Feb-2021 08:40	18-Feb-2021 16:29
MW-58-20211802	21B0255-06	Water	18-Feb-2021 10:25	18-Feb-2021 16:29
MW-58-20211802	21B0255-07	Water	18-Feb-2021 10:25	18-Feb-2021 16:29
MW-57-20211802	21B0255-08	Water	18-Feb-2021 10:53	18-Feb-2021 16:29
MW-57-20211802	21B0255-09	Water	18-Feb-2021 10:53	18-Feb-2021 16:29
MW-30-20211802	21B0255-10	Water	18-Feb-2021 11:50	18-Feb-2021 16:29
MW-30-20211802	21B0255-11	Water	18-Feb-2021 11:50	18-Feb-2021 16:29
MW-75-20211802	21B0255-12	Water	18-Feb-2021 13:09	18-Feb-2021 16:29
MW-75-20211802	21B0255-13	Water	18-Feb-2021 13:09	18-Feb-2021 16:29
MW-62-20211802	21B0255-14	Water	18-Feb-2021 14:14	18-Feb-2021 16:29
MW-62-20211802	21B0255-15	Water	18-Feb-2021 14:14	18-Feb-2021 16:29
MW-54-20211802	21B0255-16	Water	18-Feb-2021 15:30	18-Feb-2021 16:29
MW-54-20211802	21B0255-17	Water	18-Feb-2021 15:30	18-Feb-2021 16:29

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.

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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	21-Jul-2021 15:02

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish
Work Order: 21B0255

Sample receipt

Samples as listed on the preceding page were received 18-Feb-2021 16:29 under ARI work order 21B0255. For details regarding sample receipt, please refer to the Cooler Receipt Form. Only one vial was received for the trip blank, which was analyzed for the volatile list.

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.

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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	21-Jul-2021 15:02

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 except analytes flagged in the QC section of this report which were out of control low in the LCSD.

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 Hexachlorocyclopentadiene, 4-Nitrophenol, Fluorene, Pentachlorophenol and 4-Chlorophenylphenyl ether which were out of control low. All samples which contain analyte have been flagged with a "Q" qualifier. Note the samples were analyzed in two sequences. The sequence run with the LCS had passing 4-Chlorophenylphenyl ether.

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 21C0255-16 and the method blank. Deviations are 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 Phenol, 4-Chloroaniline and 3,3'-Dichlorobenzidine percent recoveries which were out of

control low and 3-Nitroaniline RPD. Deviations have been flagged within the QC section of this report.

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 except Phenol-d5 which was out of control low in sample 21C0255-12 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

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 21B0255-04 in Total Metals batch BJC0047 and in association with sample 21C0255-13 in Dissolved Metals batch BJC0054. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits except Nickel which has been flagged within the QC section of this report. The matrix spike/matrix spike duplicate (MS/MSD) percent recovery and relative percent difference (RPD) were within advisory control limits except Vanadium which was out of control low in the MS and MSD and Chromium which was out of control low in the MSD and have been flagged within the QC section of this report.

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.

Analytical Resources, Incorporated
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	21-Jul-2021 15:02

Sample specific QC was performed in association with sample 21C0255-01 in Sulfite batch BJC0547, Anions batch BJB0549 and Ferrous Iron in batch BJB0552.The matrix spike (MS) percent recoveries and the duplicate (DUP) 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 21C0255-016 in Total Mercury batch BJC0066 and in association with sample 21C0255-07 in Dissolved Mercury batch BJC0052. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike/matrix spike duplicate (MS/MSD) percent recovery 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

REVISION: Revised for correct VOC lists.

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Printed: 02/18/2021 16:47:08

WORK ORDER

21B0255

Client: Shannon & Wilson, Inc
Project Manager: Amanda Volgardsen Johnson
Project: Lower Duwamish
Project Number: Lower Duwamish

Preservation Confirmation

Container ID	Container Type	pH
21B0255-01 A	HDPE NM, 500 mL	
21B0255-01 B	Small OJ, 500 mL, EDTA	Lab to check pH
21B0255-01 C	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH
21B0255-02 A	HDPE NM, 500 mL	
21B0255-02 B	Small OJ, 500 mL, EDTA	Lab to check pH
21B0255-02 C	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH

TSW
Preservation Confirmed By

02/18/2021
Date

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 2/19/2021 10:00:25AM

WORK ORDER

21B0255

Client: Shannon & Wilson, Inc
Project Manager: Amanda Volgardsen Johnson
Project: Lower Duwamish
Project Number: Lower Duwamish

Preservation Confirmation

Container ID	Container Type	pH	
21B0255-01 A	HDPE NM, 500 mL		
21B0255-01 B	Small OJ, 500 mL, EDTA	Lab to check pH	
21B0255-01 C	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH	
21B0255-02 A	HDPE NM, 500 mL		
21B0255-02 B	Small OJ, 500 mL, EDTA	Lab to check pH	
21B0255-02 C	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH	
21B0255-03 A	VOA Vial, Clear, 40 mL, HCL		
21B0255-04 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0255-04 B	Glass NM, Amber, 500 mL		
21B0255-04 C	Glass NM, Amber, 500 mL		
21B0255-04 D	VOA Vial, Clear, 40 mL, HCL		
21B0255-04 E	VOA Vial, Clear, 40 mL, HCL		
21B0255-04 F	VOA Vial, Clear, 40 mL, HCL		
21B0255-04 G	VOA Vial, Clear, 40 mL, HCL		
21B0255-04 H	VOA Vial, Clear, 40 mL, HCL		
21B0255-04 I	VOA Vial, Clear, 40 mL, HCL		
21B0255-05 A	HDPE NM, 500 mL	> 2	Fail
21B0255-06 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0255-06 B	Glass NM, Amber, 500 mL		
21B0255-06 C	Glass NM, Amber, 500 mL		
21B0255-06 D	Glass NM, Amber, 500 mL		
21B0255-06 E	Glass NM, Amber, 500 mL		
21B0255-06 F	VOA Vial, Clear, 40 mL, HCL		
21B0255-06 G	VOA Vial, Clear, 40 mL, HCL		
21B0255-06 H	VOA Vial, Clear, 40 mL, HCL		
21B0255-06 I	VOA Vial, Clear, 40 mL, HCL		
21B0255-06 J	VOA Vial, Clear, 40 mL, HCL		
21B0255-06 K	VOA Vial, Clear, 40 mL, HCL		
21B0255-07 A	HDPE NM, 500 mL	> 2	Fail
21B0255-08 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0255-08 B	Glass NM, Amber, 500 mL		
21B0255-08 C	Glass NM, Amber, 500 mL		
21B0255-08 D	Glass NM, Amber, 500 mL		
21B0255-08 E	Glass NM, Amber, 500 mL		
21B0255-08 F	VOA Vial, Clear, 40 mL, HCL		

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 2/19/2021 10:00:25AM

WORK ORDER

21B0255

Client: Shannon & Wilson, Inc | **Project Manager:** Amanda Volgardsen Johnson

Project: Lower Duwamish | **Project Number:** Lower Duwamish

21B0255-08 G	VOA Vial, Clear, 40 mL, HCL		
21B0255-08 H	VOA Vial, Clear, 40 mL, HCL		
21B0255-08 I	VOA Vial, Clear, 40 mL, HCL		
21B0255-09 A	HDPE NM, 500 mL	>2	Fail
21B0255-10 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0255-10 B	Glass NM, Amber, 500 mL		
21B0255-10 C	Glass NM, Amber, 500 mL		
21B0255-10 D	VOA Vial, Clear, 40 mL, HCL		
21B0255-10 E	VOA Vial, Clear, 40 mL, HCL		
21B0255-10 F	VOA Vial, Clear, 40 mL, HCL		
21B0255-10 G	VOA Vial, Clear, 40 mL, HCL		
21B0255-10 H	VOA Vial, Clear, 40 mL, HCL		
21B0255-10 I	VOA Vial, Clear, 40 mL, HCL		
21B0255-11 A	HDPE NM, 500 mL	>2	Fail
21B0255-12 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0255-12 B	Glass NM, Amber, 500 mL		
21B0255-12 C	Glass NM, Amber, 500 mL		
21B0255-12 D	Glass NM, Amber, 500 mL		
21B0255-12 E	Glass NM, Amber, 500 mL		
21B0255-12 F	Glass NM, Amber, 500 mL		
21B0255-12 G	Glass NM, Amber, 500 mL		
21B0255-12 H	VOA Vial, Clear, 40 mL, HCL		
21B0255-12 I	VOA Vial, Clear, 40 mL, HCL		
21B0255-12 J	VOA Vial, Clear, 40 mL, HCL		
21B0255-12 K	VOA Vial, Clear, 40 mL, HCL		
21B0255-13 A	HDPE NM, 500 mL	>2	Fail
21B0255-14 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0255-14 B	Glass NM, Amber, 500 mL		
21B0255-14 C	Glass NM, Amber, 500 mL		
21B0255-14 D	Glass NM, Amber, 500 mL		
21B0255-14 E	Glass NM, Amber, 500 mL		
21B0255-14 F	Glass NM, Amber, 500 mL		
21B0255-14 G	Glass NM, Amber, 500 mL		
21B0255-14 H	VOA Vial, Clear, 40 mL, HCL		
21B0255-14 I	VOA Vial, Clear, 40 mL, HCL		
21B0255-14 J	VOA Vial, Clear, 40 mL, HCL		
21B0255-14 K	VOA Vial, Clear, 40 mL, HCL		

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 2/19/2021 10:00:25AM

WORK ORDER

21B0255

Client: Shannon & Wilson, Inc	**Project Manager: Amanda Volgardsen Johnson**
Project: Lower Duwamish	**Project Number: Lower Duwamish**

21B0255-15 A	HDPE NM, 500 mL	>2	Fail
21B0255-16 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0255-16 B	Glass NM, Amber, 500 mL		
21B0255-16 C	Glass NM, Amber, 500 mL		
21B0255-16 D	Glass NM, Amber, 500 mL		
21B0255-16 E	Glass NM, Amber, 500 mL		
21B0255-16 F	Glass NM, Amber, 500 mL		
21B0255-16 G	Glass NM, Amber, 500 mL		
21B0255-16 H	Glass NM, Amber, 500 mL		
21B0255-16 I	Glass NM, Amber, 500 mL		
21B0255-16 J	VOA Vial, Clear, 40 mL, HCL		
21B0255-16 K	VOA Vial, Clear, 40 mL, HCL		
21B0255-16 L	VOA Vial, Clear, 40 mL, HCL		
21B0255-16 M	VOA Vial, Clear, 40 mL, HCL		
21B0255-17 A	HDPE NM, 500 mL	>2	Fail

SC
Preservation Confirmed By

2/19/21
Date

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Shannon Hillson Project Name: LDW

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

Assigned ARI Job No: 21B0255 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	1629					
		LJ	3.7	2.8		

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D00506

Cooler Accepted by: JG Date: 02/18/2021 Time: 1629

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	2/8/21	

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

Samples Logged by: SC Date: 2/19/21 Time: 0912 Labels checked by: SC

***** 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 Chemists and Consultants

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WORK ORDER

21B0255

Client: Shannon & Wilson, Inc	**Project Manager:** Amanda Volgardsen Johnson
Project: Lower Duwamish	**Project Number:** Lower Duwamish

Preservation Confirmation

Container ID	Container Type	pH		
21B0255-01 A	HDPE NM, 500 mL			
21B0255-01 B	Small OJ, 500 mL, EDTA	Lab to check pH		
21B0255-01 C	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH		
21B0255-02 A	HDPE NM, 500 mL			
21B0255-02 B	Small OJ, 500 mL, EDTA	Lab to check pH		
21B0255-02 C	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH		
21B0255-03 A	VOA Vial, Clear, 40 mL, HCL			
21B0255-04 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass	
21B0255-04 B	Glass NM, Amber, 500 mL			
21B0255-04 C	Glass NM, Amber, 500 mL			
21B0255-04 D	VOA Vial, Clear, 40 mL, HCL			
21B0255-04 E	VOA Vial, Clear, 40 mL, HCL			
21B0255-04 F	VOA Vial, Clear, 40 mL, HCL			
21B0255-04 G	VOA Vial, Clear, 40 mL, HCL			
21B0255-04 H	VOA Vial, Clear, 40 mL, HCL			
21B0255-04 I	VOA Vial, Clear, 40 mL, HCL			
21B0255-05 A	HDPE NM, 500 mL	> 2	Fail	(1)
21B0255-06 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass	
21B0255-06 B	Glass NM, Amber, 500 mL			
21B0255-06 C	Glass NM, Amber, 500 mL			
21B0255-06 D	Glass NM, Amber, 500 mL			
21B0255-06 E	Glass NM, Amber, 500 mL			
21B0255-06 F	VOA Vial, Clear, 40 mL, HCL			
21B0255-06 G	VOA Vial, Clear, 40 mL, HCL			
21B0255-06 H	VOA Vial, Clear, 40 mL, HCL			
21B0255-06 I	VOA Vial, Clear, 40 mL, HCL			
21B0255-06 J	VOA Vial, Clear, 40 mL, HCL			
21B0255-06 K	VOA Vial, Clear, 40 mL, HCL			
21B0255-07 A	HDPE NM, 500 mL	> 2	Fail	(1)
21B0255-08 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass	
21B0255-08 B	Glass NM, Amber, 500 mL			
21B0255-08 C	Glass NM, Amber, 500 mL			
21B0255-08 D	Glass NM, Amber, 500 mL			
21B0255-08 E	Glass NM, Amber, 500 mL			
21B0255-08 F	VOA Vial, Clear, 40 mL, HCL			

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WORK ORDER

21B0255

Client: Shannon & Wilson, Inc	**Project Manager:** Amanda Volgardsen Johnson
Project: Lower Duwamish	**Project Number:** Lower Duwamish

21B0255-08 G	VOA Vial, Clear, 40 mL, HCL		
21B0255-08 H	VOA Vial, Clear, 40 mL, HCL		
21B0255-08 I	VOA Vial, Clear, 40 mL, HCL		
21B0255-09 A	HDPE NM, 500 mL	>2	Fail (1)
21B0255-10 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0255-10 B	Glass NM, Amber, 500 mL		
21B0255-10 C	Glass NM, Amber, 500 mL		
21B0255-10 D	VOA Vial, Clear, 40 mL, HCL		
21B0255-10 E	VOA Vial, Clear, 40 mL, HCL		
21B0255-10 F	VOA Vial, Clear, 40 mL, HCL		
21B0255-10 G	VOA Vial, Clear, 40 mL, HCL		
21B0255-10 H	VOA Vial, Clear, 40 mL, HCL		
21B0255-10 I	VOA Vial, Clear, 40 mL, HCL		
21B0255-11 A	HDPE NM, 500 mL	>2	Fail (1)
21B0255-12 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0255-12 B	Glass NM, Amber, 500 mL		
21B0255-12 C	Glass NM, Amber, 500 mL		
21B0255-12 D	Glass NM, Amber, 500 mL		
21B0255-12 E	Glass NM, Amber, 500 mL		
21B0255-12 F	Glass NM, Amber, 500 mL		
21B0255-12 G	Glass NM, Amber, 500 mL		
21B0255-12 H	VOA Vial, Clear, 40 mL, HCL		
21B0255-12 I	VOA Vial, Clear, 40 mL, HCL		
21B0255-12 J	VOA Vial, Clear, 40 mL, HCL		
21B0255-12 K	VOA Vial, Clear, 40 mL, HCL		
21B0255-13 A	HDPE NM, 500 mL	>2	Fail (1)
21B0255-14 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0255-14 B	Glass NM, Amber, 500 mL		
21B0255-14 C	Glass NM, Amber, 500 mL		
21B0255-14 D	Glass NM, Amber, 500 mL		
21B0255-14 E	Glass NM, Amber, 500 mL		
21B0255-14 F	Glass NM, Amber, 500 mL		
21B0255-14 G	Glass NM, Amber, 500 mL		
21B0255-14 H	VOA Vial, Clear, 40 mL, HCL		
21B0255-14 I	VOA Vial, Clear, 40 mL, HCL		
21B0255-14 J	VOA Vial, Clear, 40 mL, HCL		
21B0255-14 K	VOA Vial, Clear, 40 mL, HCL		

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Date

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Analytical Chemists and Consultants

Printed: 2/19/2021 10:00:25AM

WORK ORDER

21B0255

Client: Shannon & Wilson, Inc		**Project Manager: Amanda Volgardsen Johnson**		
Project: Lower Duwamish		**Project Number: Lower Duwamish**		
21B0255-15 A	HDPE NM, 500 mL	>2	Fail	(1)
21B0255-16 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass	
21B0255-16 B	Glass NM, Amber, 500 mL			
21B0255-16 C	Glass NM, Amber, 500 mL			
21B0255-16 D	Glass NM, Amber, 500 mL			
21B0255-16 E	Glass NM, Amber, 500 mL			
21B0255-16 F	Glass NM, Amber, 500 mL			
21B0255-16 G	Glass NM, Amber, 500 mL			
21B0255-16 H	Glass NM, Amber, 500 mL			
21B0255-16 I	Glass NM, Amber, 500 mL			
21B0255-16 J	VOA Vial, Clear, 40 mL, HCL			
21B0255-16 K	VOA Vial, Clear, 40 mL, HCL			
21B0255-16 L	VOA Vial, Clear, 40 mL, HCL			
21B0255-16 M	VOA Vial, Clear, 40 mL, HCL			
21B0255-17 A	HDPE NM, 500 mL	>2	Fail	(1)

SC
Preservation Confirmed By

2/19/21
Date

(1) Filtered at 0.45µm and preserved to pH<2.0 with 0.75mL conc. HNO_3 (J554).
SD 02/19/21

Reviewed By

Date

Analytical Resources, Incorporated
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	21-Jul-2021 15:02

MW-58-20211802

21B0255-01 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 02/18/2021 10:25

Instrument: IC930 Analyst: WCW — Analyzed: 02/18/2021 19:32

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0255-01 A

Preparation Batch: BJB0549 — Sample Size: 10 mL

Prepared: 02/18/2021 — 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	1.52	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 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	21-Jul-2021 15:02

MW-58-20211802

21B0255-01 (Water)

Wet Chemistry

Method: SM 3500-Fe B-97 — Sampled: 02/18/2021 10:25

Instrument: UV1800-2 Analyst: WMT — Analyzed: 02/18/2021 19:29

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0255-01 C

Preparation Batch: BJB0552 — Sample Size: 5 mL

Prepared: 02/18/2021 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ferrous Iron		1	0.040	0.040	1.04	mg/L	

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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	21-Jul-2021 15:02

MW-58-20211802

21B0255-01 (Water)

Wet Chemistry

Method: SM 4500-SO3 B-00 — Sampled: 02/18/2021 10:25

Instrument: N/A Analyst: UW — Analyzed: 02/18/2021 16:58

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0255-01

Preparation Batch: BJB0547 — Sample Size: 50 mL

Prepared: 02/18/2021 — 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 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	21-Jul-2021 15:02

MW-58-20211802

21B0255-01RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 02/18/2021 10:25

Instrument: IC930 Analyst: WCW — Analyzed: 02/18/2021 20:52

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0255-01RE1 A

Preparation Batch: BJB0549 — Sample Size: 10 mL

Prepared: 02/18/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	21	2.10	2.10	30.9	mg/L	D

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	21	2.10	2.10	91.1	mg/L	D

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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	21-Jul-2021 15:02

MW-30-20211802

21B0255-02 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 02/18/2021 11:50

Instrument: IC930 Analyst: WCW — Analyzed: 02/18/2021 20:32

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0255-02 A

Preparation Batch: BJB0549 — Sample Size: 10 mL

Prepared: 02/18/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	0.100	0.100	7.26	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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

MW-30-20211802

21B0255-02 (Water)

Wet Chemistry

Method: SM 3500-Fe B-97 — Sampled: 02/18/2021 11:50

Instrument: UV1800-2 Analyst: WMT — Analyzed: 02/18/2021 19:28

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0255-02 C

Preparation Batch: BJB0552 — Sample Size: 5 mL

Prepared: 02/18/2021 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ferrous Iron		50	2.00	2.00	58.9	mg/L	D

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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	21-Jul-2021 15:02

MW-30-20211802

21B0255-02 (Water)

Wet Chemistry

Method: SM 4500-SO3 B-00 — Sampled: 02/18/2021 11:50

Instrument: N/A Analyst: UW — Analyzed: 02/18/2021 16:58

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0255-02

Preparation Batch: BJB0547 — Sample Size: 50 mL

Prepared: 02/18/2021 — 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 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	21-Jul-2021 15:02

MW-30-20211802

21B0255-02RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 02/18/2021 11:50

Instrument: IC930 Analyst: WCW — Analyzed: 02/18/2021 22:31

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0255-02RE1 A

Preparation Batch: BJB0549 — Sample Size: 10 mL

Prepared: 02/18/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	26	2.60	2.60	117	mg/L	D

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

TB-6-20211802

21B0255-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/18/2021 08:24

Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 12:59

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0255-03 A

Preparation Batch: BJB0793 — Sample Size: 10 mL

Prepared: 03/01/2021 — 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 %*	*105*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.1*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*100*	*%*	

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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	21-Jul-2021 15:02

TB-6-20211802

21B0255-03 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/18/2021 08:24

Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 12:59

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0255-03 A

Preparation Batch: BJC0019 — Sample Size: 10 mL

Prepared: 03/01/2021 — 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 %*	*99.6*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*95.1*	*%*	

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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	21-Jul-2021 15:02

MW-9-20211802

21B0255-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/18/2021 08:40
Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 15:09

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0255-04 E
Preparation Batch: BJB0793 — Sample Size: 10 mL
Prepared: 03/01/2021 — 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	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
Surrogate: Toluene-d8				*80-120 %*	*99.4*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.0*	*%*	

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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	21-Jul-2021 15:02

MW-9-20211802

21B0255-04 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/18/2021 08:40
Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 15:09

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0255-04 E
Preparation Batch: BJC0019 — Sample Size: 10 mL
Prepared: 03/01/2021 — 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 %*	*99.4*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*93.0*	*%*	

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

MW-9-20211802

21B0255-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/18/2021 08:40
Instrument: FID4 Analyst: CTO — Analyzed: 03/11/2021 15:10

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0255-04 B 01
Preparation Batch: BJB0727 — Sample Size: 500 mL
Prepared: 02/25/2021 — 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 %*	*136*	*%*	

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

MW-9-20211802

21B0255-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/18/2021 08:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/03/2021 20:28

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-04 A 01
Preparation Batch: BJC0047 — Sample Size: 25 mL
Prepared: 03/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	5	0.425	2.50	874	ug/L	D

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Analytical Resources, Incorporated
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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	21-Jul-2021 15:02

MW-9-20211802

21B0255-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/18/2021 08:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/03/2021 00:07

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-04 A 01
Preparation Batch: BJC0047 — Sample Size: 25 mL
Prepared: 03/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	2.48	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	0.543	ug/L	
Copper	7440-50-8	1	0.340	0.500	1.72	ug/L	

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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	21-Jul-2021 15:02

MW-9-20211802

21B0255-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/18/2021 08:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 20:08

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-05 A 02
Preparation Batch: BJC0054 — Sample Size: 25 mL — Filtration Batch: BJB0585
Prepared: 03/02/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 17:12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	5	0.425	2.50	842	ug/L	D

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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	21-Jul-2021 15:02

MW-9-20211802

21B0255-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/18/2021 08:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 02:49

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-05 A 02
Preparation Batch: BJC0054 — Sample Size: 25 mL — Filtration Batch: BJB0585
Prepared: 03/02/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 17:12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	0.437	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	0.244	ug/L	
Copper, Dissolved	7440-50-8	1	0.340	0.500	0.512	ug/L	

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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	21-Jul-2021 15:02

MW-58-20211802

21B0255-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/18/2021 10:25

Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 15:30

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0255-06 G

Preparation Batch: BJB0793 — Sample Size: 10 mL

Prepared: 03/01/2021 — 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	0.48	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.06	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	0.52	ug/L	
m,p-Xylene	179601-23-1	1	0.14	0.40	1.26	ug/L	
o-Xylene	95-47-6	1	0.08	0.20	0.28	ug/L	
Xylenes, total	1330-20-7	1	0.22	0.60	1.54	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*109*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*92.7*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*100*	*%*	

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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	21-Jul-2021 15:02

MW-58-20211802

21B0255-06 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/18/2021 10:25

Instrument: NT16 Analyst: PB — Analyzed: 03/02/2021 22:01

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0255-06 H

Preparation Batch: BJC0063 — Sample Size: 10 mL

Prepared: 03/02/2021 — 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 %*	*92.2*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*91.3*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*100*	*%*	

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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	21-Jul-2021 15:02

MW-58-20211802

21B0255-06 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/18/2021 10:25
Instrument: NT11 Analyst: VTS — Analyzed: 03/17/2021 14:20

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0255-06 B 01
Preparation Batch: BJB0671 — Sample Size: 460 mL
Prepared: 02/23/2021 — Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 21B0255-06 B 01
Cleanup Batch: CJC0091 — Initial Volume: 0.5 mL
Cleaned: 09-Mar-2021 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.011	0.007	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.011	0.006	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.001	0.011	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.002	0.011	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.011	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.002	0.011	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.011	ND	ug/L	U
Phenanthrene	85-01-8	1	0.001	0.011	ND	ug/L	U
Anthracene	120-12-7	1	0.001	0.011	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.011	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.011	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.011	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.0008	0.011	ND	ug/L	U
Chrysene	218-01-9	1	0.001	0.011	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.011	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.011	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.011	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.011	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.003	0.011	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.011	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.011	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.011	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.002	0.011	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*77.7*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*52.1*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*77.8*	*%*	

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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	21-Jul-2021 15:02

MW-58-20211802

21B0255-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/18/2021 10:25

Instrument: FID4 Analyst: CTO — Analyzed: 03/11/2021 15:32

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0255-06 D 01

Preparation Batch: BJB0727 — Sample Size: 500 mL

Prepared: 02/25/2021 — 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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

MW-58-20211802

21B0255-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/18/2021 10:25

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 02:53

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-06 A 01

Preparation Batch: BJC0047 — Sample Size: 25 mL

Prepared: 03/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	13.1	ug/L	
Chromium	7440-47-3	2	0.260	1.00	0.608	ug/L	J, D
Cobalt	7440-48-4	1	0.0290	0.200	16.8	ug/L	
Iron	7439-89-6	2	12.5	40.0	1440	ug/L	D
Lead	7439-92-1	1	0.0680	0.100	0.146	ug/L	
Vanadium	7440-62-2	2	0.0800	0.400	1.52	ug/L	D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 03/05/2021 19:24

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-06 A 01

Preparation Batch: BJC0047 — Sample Size: 25 mL

Prepared: 03/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver	7440-22-4	2	0.0340	0.400	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	21-Jul-2021 15:02

MW-58-20211802

21B0255-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/18/2021 10:25

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 02:53

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-06 A 01

Preparation Batch: BJC0047 — Sample Size: 25 mL

Prepared: 03/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	2.40	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	0.101	ug/L	
Copper	7440-50-8	1	0.340	0.500	2.98	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	18.0	ug/L	
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	17.1	ug/L	

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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	21-Jul-2021 15:02

MW-58-20211802

21B0255-06 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/18/2021 10:25

Instrument: HYDRA Analyst: BLC — Analyzed: 03/04/2021 13:50

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0255-06 A

Preparation Batch: BJC0066 — Sample Size: 20 mL

Prepared: 03/02/2021 — 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 Resources, Incorporated
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	21-Jul-2021 15:02

MW-58-20211802

21B0255-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/18/2021 10:25

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 02:58

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-07 A 02

Preparation Batch: BJC0054 — Sample Size: 25 mL — Filtration Batch: BJB0585

Prepared: 03/02/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 17:12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	12.6	ug/L	
Chromium, Dissolved	7440-47-3	2	0.260	1.00	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	17.4	ug/L	
Iron, Dissolved	7439-89-6	2	12.5	40.0	22.5	ug/L	J, D
Lead, Dissolved	7439-92-1	1	0.0680	0.100	0.0840	ug/L	J
Vanadium, Dissolved	7440-62-2	2	0.0800	0.400	ND	ug/L	U

Instrument: ICPMS2 Analyst: MCB — Analyzed: 03/05/2021 19:28

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-07 A 02

Preparation Batch: BJC0054 — Sample Size: 25 mL — Filtration Batch: BJB0585

Prepared: 03/02/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 17:12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver, Dissolved	7440-22-4	2	0.0340	0.400	ND	ug/L	U

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Analytical Resources, Incorporated
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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	21-Jul-2021 15:02

MW-58-20211802

21B0255-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/18/2021 10:25

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 02:58

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-07 A 02

Preparation Batch: BJC0054 — Sample Size: 25 mL — Filtration Batch: BJB0585

Prepared: 03/02/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 17:12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	0.987	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	0.121	ug/L	
Copper, Dissolved	7440-50-8	1	0.340	0.500	2.35	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	18.4	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	17.3	ug/L	

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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	21-Jul-2021 15:02

MW-58-20211802

21B0255-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/18/2021 10:25
Instrument: HYDRA Analyst: BLC — Analyzed: 03/02/2021 15:30

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0255-07 A 01
Preparation Batch: BJC0052 — Sample Size: 20 mL — Filtration Batch: BJB0585
Prepared: 03/02/2021 — Final Volume: 20 mL — Filtration Date: 02/19/2021 17:12

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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

MW-57-20211802

21B0255-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/18/2021 10:53

Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 15:50

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0255-08 G

Preparation Batch: BJB0793 — Sample Size: 10 mL

Prepared: 03/01/2021 — 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 %*	*105*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*94.7*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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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	21-Jul-2021 15:02

MW-57-20211802

21B0255-08 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/18/2021 10:53

Instrument: NT16 Analyst: PB — Analyzed: 03/02/2021 22:21

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0255-08 I

Preparation Batch: BJC0063 — Sample Size: 10 mL

Prepared: 03/02/2021 — 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 %*	*87.7*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*90.5*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*92.8*	*%*	

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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	21-Jul-2021 15:02

MW-57-20211802

21B0255-08 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/18/2021 10:53
Instrument: NT11 Analyst: VTS — Analyzed: 03/17/2021 14:53

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0255-08 B 01
Preparation Batch: BJB0671 — Sample Size: 465 mL
Prepared: 02/23/2021 — Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 21B0255-08 B 01
Cleanup Batch: CJC0091 — Initial Volume: 0.5 mL
Cleaned: 09-Mar-2021 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.011	0.009	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.011	0.019	ug/L	
1-Methylnaphthalene	90-12-0	1	0.001	0.011	0.017	ug/L	
Acenaphthylene	208-96-8	1	0.002	0.011	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.011	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.002	0.011	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.011	ND	ug/L	U
Phenanthrene	85-01-8	1	0.001	0.011	ND	ug/L	U
Anthracene	120-12-7	1	0.001	0.011	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.011	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.011	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.011	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.0008	0.011	ND	ug/L	U
Chrysene	218-01-9	1	0.001	0.011	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.011	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.011	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.011	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.011	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.003	0.011	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.011	0.014	ug/L	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.011	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.011	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.002	0.011	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*74.0*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*52.2*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*78.5*	*%*	

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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	21-Jul-2021 15:02

MW-57-20211802

21B0255-08 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/18/2021 10:53

Instrument: FID4 Analyst: CTO — Analyzed: 03/11/2021 15:53

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0255-08 D 01

Preparation Batch: BJB0727 — Sample Size: 500 mL

Prepared: 02/25/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.301	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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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	21-Jul-2021 15:02

MW-57-20211802

21B0255-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/18/2021 10:53

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 03:02

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-08 A 01

Preparation Batch: BJC0047 — Sample Size: 25 mL

Prepared: 03/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	4.49	ug/L	
Chromium	7440-47-3	2	0.260	1.00	2.69	ug/L	D
Cobalt	7440-48-4	1	0.0290	0.200	3.68	ug/L	
Iron	7439-89-6	2	12.5	40.0	7610	ug/L	D
Lead	7439-92-1	1	0.0680	0.100	0.590	ug/L	
Vanadium	7440-62-2	2	0.0800	0.400	16.1	ug/L	D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 03/05/2021 19:32

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-08 A 01

Preparation Batch: BJC0047 — Sample Size: 25 mL

Prepared: 03/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver	7440-22-4	2	0.0340	0.400	0.134	ug/L	J, D

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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	21-Jul-2021 15:02

MW-57-20211802

21B0255-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/18/2021 10:53

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 03:02

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-08 A 01

Preparation Batch: BJC0047 — Sample Size: 25 mL

Prepared: 03/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	14.3	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	13.9	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	6.75	ug/L	
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	1.68	ug/L	J

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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	21-Jul-2021 15:02

MW-57-20211802

21B0255-08 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/18/2021 10:53

Instrument: HYDRA Analyst: BLC — Analyzed: 03/04/2021 13:52

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0255-08 A

Preparation Batch: BJC0066 — Sample Size: 20 mL

Prepared: 03/02/2021 — 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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

MW-57-20211802

21B0255-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/18/2021 10:53
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 03:53

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-09 A 02
Preparation Batch: BJC0054 — Sample Size: 25 mL — Filtration Batch: BJB0585
Prepared: 03/02/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 17:12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	1.26	ug/L	
Chromium, Dissolved	7440-47-3	2	0.260	1.00	1.84	ug/L	D
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	3.22	ug/L	
Iron, Dissolved	7439-89-6	2	12.5	40.0	2700	ug/L	D
Lead, Dissolved	7439-92-1	1	0.0680	0.100	0.163	ug/L	
Vanadium, Dissolved	7440-62-2	2	0.0800	0.400	7.77	ug/L	D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 03/05/2021 19:36

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-09 A 02
Preparation Batch: BJC0054 — Sample Size: 25 mL — Filtration Batch: BJB0585
Prepared: 03/02/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 17:12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver, Dissolved	7440-22-4	2	0.0340	0.400	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	21-Jul-2021 15:02

MW-57-20211802

21B0255-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/18/2021 10:53

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 03:53

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-09 A 02

Preparation Batch: BJC0054 — Sample Size: 25 mL — Filtration Batch: BJB0585

Prepared: 03/02/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 17:12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	9.24	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	3.89	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	5.57	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	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	21-Jul-2021 15:02

MW-57-20211802

21B0255-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/18/2021 10:53
Instrument: HYDRA Analyst: BLC — Analyzed: 03/02/2021 15:44

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0255-09 A 01
Preparation Batch: BJC0052 — Sample Size: 20 mL — Filtration Batch: BJB0585
Prepared: 03/02/2021 — Final Volume: 20 mL — Filtration Date: 02/19/2021 17:12

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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

MW-30-20211802

21B0255-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/18/2021 11:50

Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 16:10

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0255-10 G

Preparation Batch: BJB0793 — Sample Size: 10 mL

Prepared: 03/01/2021 — 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 %*	*107*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*94.0*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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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	21-Jul-2021 15:02

MW-30-20211802

21B0255-10 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/18/2021 11:50

Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 16:10

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0255-10 G

Preparation Batch: BJC0019 — Sample Size: 10 mL

Prepared: 03/01/2021 — 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 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*94.0*	*%*	

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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	21-Jul-2021 15:02

MW-30-20211802

21B0255-10 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/18/2021 11:50

Instrument: NT16 Analyst: PB — Analyzed: 03/02/2021 22:41

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0255-10 I

Preparation Batch: BJC0063 — Sample Size: 10 mL

Prepared: 03/02/2021 — 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 %*	*90.6*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*94.1*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*93.2*	*%*	

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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	21-Jul-2021 15:02

MW-30-20211802

21B0255-10 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/18/2021 11:50
Instrument: FID4 Analyst: CTO — Analyzed: 03/11/2021 16:14

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0255-10 B 01
Preparation Batch: BJB0727 — Sample Size: 500 mL
Prepared: 02/25/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	3.01	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	0.867	mg/L	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*133*	*%*	

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Analytical Resources, Incorporated
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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	21-Jul-2021 15:02

MW-30-20211802

21B0255-10 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/18/2021 11:50

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 19:59

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-10 A 01

Preparation Batch: BJC0047 — Sample Size: 25 mL

Prepared: 03/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	10	0.850	5.00	1320	ug/L	D

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Analytical Resources, Incorporated
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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	21-Jul-2021 15:02

MW-30-20211802

21B0255-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/18/2021 11:50

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 20:03

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-11 A 02

Preparation Batch: BJC0054 — Sample Size: 25 mL — Filtration Batch: BJB0585

Prepared: 03/02/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 17:12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	10	0.850	5.00	1270	ug/L	D

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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	21-Jul-2021 15:02

MW-75-20211802

21B0255-12 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/18/2021 13:09

Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 16:30

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0255-12 H

Preparation Batch: BJB0793 — Sample Size: 10 mL

Prepared: 03/01/2021 — 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 %*	*109*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.3*	*%*	

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

MW-75-20211802

21B0255-12 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/18/2021 13:09

Instrument: NT16 Analyst: PB — Analyzed: 03/02/2021 23:01

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0255-12 I

Preparation Batch: BJC0063 — Sample Size: 10 mL

Prepared: 03/02/2021 — 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 %*	*99.0*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*94.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*97.5*	*%*	

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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	21-Jul-2021 15:02

MW-75-20211802

21B0255-12 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/18/2021 13:09

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 22:59

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0255-12 B 01

Preparation Batch: BJB0600 — Sample Size: 1000 mL

Prepared: 02/23/2021 — 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 Resources, Incorporated
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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	21-Jul-2021 15:02

MW-75-20211802

21B0255-12 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/18/2021 13:09

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 22:59

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 %*	*48.5*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*28.0*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*90.4*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*50.9*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*83.0*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*77.4*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*105*	*%*	

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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	21-Jul-2021 15:02

MW-75-20211802

21B0255-12 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/18/2021 13:09

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 22:59

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: p-Terphenyl-d14		*30-160 %*	*90.1*	*%*	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

MW-75-20211802

21B0255-12 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/18/2021 13:09

Instrument: FID4 Analyst: CTO — Analyzed: 03/11/2021 16:35

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0255-12 F 01

Preparation Batch: BJB0727 — Sample Size: 500 mL

Prepared: 02/25/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.294	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	0.364	mg/L	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*130*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

MW-75-20211802

21B0255-12 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/18/2021 13:09
Instrument: ECD7 Analyst: JGR — Analyzed: 03/12/2021 23:06

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0255-12 D 01
	Preparation Batch: BJB0607	Sample Size: 500 mL	
	Prepared: 02/23/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0255-12 D 01
	Cleanup Batch: CJC0107	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0255-12 D 01
	Cleanup Batch: CJC0105	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0255-12 D 01
	Cleanup Batch: CJC0106	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.018	0.100	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.018	0.100	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.018	0.100	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.018	0.100	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.017	0.100	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*64.4*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*59.0*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*67.7*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*50.6*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

MW-75-20211802

21B0255-12 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/18/2021 13:09

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 04:02

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-12 A 01

Preparation Batch: BJC0047 — Sample Size: 25 mL

Prepared: 03/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	5.32	ug/L	
Chromium	7440-47-3	2	0.260	1.00	0.314	ug/L	J, D
Cobalt	7440-48-4	1	0.0290	0.200	2.01	ug/L	
Iron	7439-89-6	2	12.5	40.0	2150	ug/L	D
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Vanadium	7440-62-2	2	0.0800	0.400	0.576	ug/L	D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 03/05/2021 19:39

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-12 A 01

Preparation Batch: BJC0047 — Sample Size: 25 mL

Prepared: 03/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver	7440-22-4	2	0.0340	0.400	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	21-Jul-2021 15:02

MW-75-20211802

21B0255-12 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/18/2021 13:09

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 04:02

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-12 A 01

Preparation Batch: BJC0047 — Sample Size: 25 mL

Prepared: 03/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	0.215	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	4.74	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	7.86	ug/L	
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	5.49	ug/L	

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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	21-Jul-2021 15:02

MW-75-20211802

21B0255-12 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/18/2021 13:09

Instrument: HYDRA Analyst: BLC — Analyzed: 03/04/2021 13:55

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0255-12 A

Preparation Batch: BJC0066 — Sample Size: 20 mL

Prepared: 03/02/2021 — 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 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	21-Jul-2021 15:02

MW-75-20211802

21B0255-13 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/18/2021 13:09

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 03:11

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-13 A 02

Preparation Batch: BJC0054 — Sample Size: 25 mL — Filtration Batch: BJB0585

Prepared: 03/02/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 17:12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	4.85	ug/L	
Chromium, Dissolved	7440-47-3	2	0.260	1.00	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	1.89	ug/L	
Iron, Dissolved	7439-89-6	2	12.5	40.0	35.2	ug/L	J, D
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	2	0.0800	0.400	0.0900	ug/L	J, D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 03/05/2021 20:43

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-13 A 02

Preparation Batch: BJC0054 — Sample Size: 25 mL — Filtration Batch: BJB0585

Prepared: 03/02/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 17:12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver, Dissolved	7440-22-4	2	0.0340	0.400	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	21-Jul-2021 15:02

MW-75-20211802

21B0255-13 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/18/2021 13:09

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 03:11

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-13 A 02

Preparation Batch: BJC0054 — Sample Size: 25 mL — Filtration Batch: BJB0585

Prepared: 03/02/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 17:12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	0.0990	ug/L	J
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	1.82	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	7.25	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	2.39	ug/L	J

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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	21-Jul-2021 15:02

MW-75-20211802

21B0255-13 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/18/2021 13:09
Instrument: HYDRA Analyst: BLC — Analyzed: 03/02/2021 15:46

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0255-13 A 01
Preparation Batch: BJC0052 — Sample Size: 20 mL — Filtration Batch: BJB0585
Prepared: 03/02/2021 — Final Volume: 20 mL — Filtration Date: 02/19/2021 17:12

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 Resources, Incorporated
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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	21-Jul-2021 15:02

MW-62-20211802

21B0255-14 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/18/2021 14:14

Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 16:50

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0255-14 K

Preparation Batch: BJB0793 — Sample Size: 10 mL

Prepared: 03/01/2021 — 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 %*	*105*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*91.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.9*	*%*	

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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	21-Jul-2021 15:02

MW-62-20211802

21B0255-14 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/18/2021 14:14

Instrument: NT16 Analyst: PB — Analyzed: 03/02/2021 23:21

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0255-14 H

Preparation Batch: BJC0063 — Sample Size: 10 mL

Prepared: 03/02/2021 — 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 %*	*93.2*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*92.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*93.6*	*%*	

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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	21-Jul-2021 15:02

MW-62-20211802

21B0255-14 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/18/2021 14:14
Instrument: NT11 Analyst: VTS — Analyzed: 03/18/2021 17:41

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0255-14 D 01
Preparation Batch: BJB0671 — Sample Size: 470 mL
Prepared: 02/23/2021 — Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 21B0255-14 D 01
Cleanup Batch: CJC0091 — Initial Volume: 0.5 mL
Cleaned: 09-Mar-2021 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.011	0.005	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.011	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.001	0.011	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.002	0.011	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.011	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.002	0.011	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.011	ND	ug/L	U
Phenanthrene	85-01-8	1	0.001	0.011	ND	ug/L	U
Anthracene	120-12-7	1	0.001	0.011	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.011	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.011	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.011	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.0008	0.011	ND	ug/L	U
Chrysene	218-01-9	1	0.001	0.011	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.011	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.003	0.011	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.011	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.011	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.003	0.011	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.011	0.023	ug/L	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.011	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.011	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.002	0.011	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*76.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*63.6*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*78.4*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

MW-62-20211802

21B0255-14 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/18/2021 14:14

Instrument: FID4 Analyst: CTO — Analyzed: 03/11/2021 16:56

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0255-14 F 01

Preparation Batch: BJB0727 — Sample Size: 500 mL

Prepared: 02/25/2021 — 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 %*	*121*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

MW-62-20211802

21B0255-14 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/18/2021 14:14
Instrument: ECD7 Analyst: JGR — Analyzed: 03/12/2021 23:27

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0255-14 B 01
	Preparation Batch: BJB0607	Sample Size: 470 mL	
	Prepared: 02/23/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0255-14 B 01
	Cleanup Batch: CJC0107	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0255-14 B 01
	Cleanup Batch: CJC0105	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0255-14 B 01
	Cleanup Batch: CJC0106	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.019	0.106	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.019	0.106	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.019	0.106	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.019	0.106	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.019	0.106	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.019	0.106	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.019	0.106	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*70.7*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*75.5*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*75.4*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*60.4*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

MW-62-20211802

21B0255-14 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/18/2021 14:14

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 04:07

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-14 A 01

Preparation Batch: BJC0047 — Sample Size: 25 mL

Prepared: 03/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	10.6	ug/L	
Chromium	7440-47-3	2	0.260	1.00	1.04	ug/L	D
Cobalt	7440-48-4	1	0.0290	0.200	5.47	ug/L	
Iron	7439-89-6	2	12.5	40.0	3500	ug/L	D
Lead	7439-92-1	1	0.0680	0.100	0.616	ug/L	
Vanadium	7440-62-2	2	0.0800	0.400	5.62	ug/L	D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 03/05/2021 19:43

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-14 A 01

Preparation Batch: BJC0047 — Sample Size: 25 mL

Prepared: 03/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver	7440-22-4	2	0.0340	0.400	ND	ug/L	U

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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	21-Jul-2021 15:02

MW-62-20211802

21B0255-14 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/18/2021 14:14

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 04:07

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-14 A 01

Preparation Batch: BJC0047 — Sample Size: 25 mL

Prepared: 03/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	5.53	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	4.94	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	3.99	ug/L	
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	3.61	ug/L	J

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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	21-Jul-2021 15:02

MW-62-20211802

21B0255-14 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/18/2021 14:14

Instrument: HYDRA Analyst: BLC — Analyzed: 03/04/2021 13:57

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0255-14 A

Preparation Batch: BJC0066 — Sample Size: 20 mL

Prepared: 03/02/2021 — 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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

MW-62-20211802

21B0255-15 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/18/2021 14:14

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 04:11

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-15 A 02

Preparation Batch: BJC0054 — Sample Size: 25 mL — Filtration Batch: BJB0585

Prepared: 03/02/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 17:12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	7.06	ug/L	
Chromium, Dissolved	7440-47-3	2	0.260	1.00	0.466	ug/L	J, D
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	5.15	ug/L	
Iron, Dissolved	7439-89-6	2	12.5	40.0	604	ug/L	D
Lead, Dissolved	7439-92-1	1	0.0680	0.100	0.0930	ug/L	J
Vanadium, Dissolved	7440-62-2	2	0.0800	0.400	1.09	ug/L	D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 03/05/2021 19:48

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-15 A 02

Preparation Batch: BJC0054 — Sample Size: 25 mL — Filtration Batch: BJB0585

Prepared: 03/02/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 17:12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver, Dissolved	7440-22-4	2	0.0340	0.400	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	21-Jul-2021 15:02

MW-62-20211802

21B0255-15 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/18/2021 14:14

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 04:11

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-15 A 02

Preparation Batch: BJC0054 — Sample Size: 25 mL — Filtration Batch: BJB0585

Prepared: 03/02/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 17:12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	2.16	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	2.76	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	3.45	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	2.28	ug/L	J

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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	21-Jul-2021 15:02

MW-62-20211802

21B0255-15 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/18/2021 14:14
Instrument: HYDRA Analyst: BLC — Analyzed: 03/02/2021 15:48

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0255-15 A 01
Preparation Batch: BJC0052 — Sample Size: 20 mL — Filtration Batch: BJB0585
Prepared: 03/02/2021 — Final Volume: 20 mL — Filtration Date: 02/19/2021 17:12

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: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

MW-54-20211802

21B0255-16 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/18/2021 15:30

Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 17:11

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0255-16 L

Preparation Batch: BJB0793 — Sample Size: 10 mL

Prepared: 03/01/2021 — 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	0.23	ug/L	
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 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*92.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*100*	*%*	

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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	21-Jul-2021 15:02

MW-54-20211802

21B0255-16 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/18/2021 15:30

Instrument: NT16 Analyst: PB — Analyzed: 03/02/2021 23:41

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0255-16 J

Preparation Batch: BJC0063 — Sample Size: 10 mL

Prepared: 03/02/2021 — 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 %*	*95.7*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*95.1*	*%*	

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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	21-Jul-2021 15:02

MW-54-20211802

21B0255-16 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/18/2021 15:30

Instrument: NT10 Analyst: VTS — Analyzed: 03/13/2021 21:30

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0255-16 B 01

Preparation Batch: BJB0600 — Sample Size: 1000 mL

Prepared: 02/23/2021 — 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 %*	*45.0*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*23.0*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*81.2*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*63.1*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*74.5*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*75.8*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*94.0*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*81.5*	*%*	

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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	21-Jul-2021 15:02

MW-54-20211802

21B0255-16 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/18/2021 15:30
Instrument: NT11 Analyst: VTS — Analyzed: 03/18/2021 18:13

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJB0671; Prepared: 02/23/2021; Sample Size: 455 mL; Final Volume: 0.5 mL — Extract ID: 21B0255-16 F 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJC0091; Cleaned: 09-Mar-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21B0255-16 F 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.011	0.004	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.001	0.011	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.001	0.011	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.002	0.011	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.011	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.002	0.011	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.011	ND	ug/L	U
Phenanthrene	85-01-8	1	0.001	0.011	ND	ug/L	U
Anthracene	120-12-7	1	0.001	0.011	ND	ug/L	U
Carbazole	86-74-8	1	0.001	0.011	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.011	ND	ug/L	U
Pyrene	129-00-0	1	0.001	0.011	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.0008	0.011	ND	ug/L	U
Chrysene	218-01-9	1	0.001	0.011	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.0005	0.011	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.004	0.011	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	1	0.002	0.011	ND	ug/L	U
Benzofluoranthenes, Total		1	0.004	0.011	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.003	0.011	ND	ug/L	U
Perylene	1985-5-0	1	0.006	0.011	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.001	0.011	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.001	0.011	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.002	0.011	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*	*78.3*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*58.6*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*80.1*	*%*	

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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	21-Jul-2021 15:02

MW-54-20211802

21B0255-16 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/18/2021 15:30

Instrument: FID4 Analyst: CTO — Analyzed: 03/11/2021 17:18

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0255-16 H 01

Preparation Batch: BJB0727 — Sample Size: 500 mL

Prepared: 02/25/2021 — 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 %*	*115*	*%*	

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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	21-Jul-2021 15:02

MW-54-20211802

21B0255-16 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/18/2021 15:30
Instrument: ECD7 Analyst: JGR — Analyzed: 03/12/2021 23:48

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0255-16 D 01
	Preparation Batch: BJB0607	Sample Size: 465 mL	
	Prepared: 02/23/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0255-16 D 01
	Cleanup Batch: CJC0107	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0255-16 D 01
	Cleanup Batch: CJC0105	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0255-16 D 01
	Cleanup Batch: CJC0106	Initial Volume: 1 mL	
	Cleaned: 09-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.019	0.108	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.019	0.108	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.019	0.108	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.019	0.108	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.019	0.108	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.019	0.108	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.019	0.108	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*66.0*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*60.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*69.4*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*54.5*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

MW-54-20211802

21B0255-16 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/18/2021 15:30

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 04:16

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-16 A 01

Preparation Batch: BJC0047 — Sample Size: 25 mL

Prepared: 03/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	9.92	ug/L	
Chromium	7440-47-3	2	0.260	1.00	1.20	ug/L	D
Cobalt	7440-48-4	1	0.0290	0.200	0.113	ug/L	J
Iron	7439-89-6	2	12.5	40.0	73.7	ug/L	D
Lead	7439-92-1	1	0.0680	0.100	0.185	ug/L	
Vanadium	7440-62-2	2	0.0800	0.400	14.9	ug/L	D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 03/05/2021 19:52

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-16 A 01

Preparation Batch: BJC0047 — Sample Size: 25 mL

Prepared: 03/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver	7440-22-4	2	0.0340	0.400	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	21-Jul-2021 15:02

MW-54-20211802

21B0255-16 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/18/2021 15:30

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 04:16

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-16 A 01

Preparation Batch: BJC0047 — Sample Size: 25 mL

Prepared: 03/02/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	5.72	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	1.64	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	0.606	ug/L	
Selenium	7782-49-2	1	0.440	0.500	1.35	ug/L	
Zinc	7440-66-6	1	0.820	4.00	2.67	ug/L	J

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

MW-54-20211802

21B0255-16 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/18/2021 15:30

Instrument: HYDRA Analyst: BLC — Analyzed: 03/04/2021 13:25

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0255-16 A

Preparation Batch: BJC0066 — Sample Size: 20 mL

Prepared: 03/02/2021 — 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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

MW-54-20211802

21B0255-17 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/18/2021 15:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 04:21

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-17 A 02
Preparation Batch: BJC0054 — Sample Size: 25 mL — Filtration Batch: BJB0585
Prepared: 03/02/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 17:12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	9.02	ug/L	
Chromium, Dissolved	7440-47-3	2	0.260	1.00	1.04	ug/L	D
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	0.0790	ug/L	J
Iron, Dissolved	7439-89-6	2	12.5	40.0	ND	ug/L	U
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	2	0.0800	0.400	14.1	ug/L	D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 03/05/2021 19:58

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-17 A 02
Preparation Batch: BJC0054 — Sample Size: 25 mL — Filtration Batch: BJB0585
Prepared: 03/02/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 17:12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver, Dissolved	7440-22-4	2	0.0340	0.400	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	21-Jul-2021 15:02

MW-54-20211802

21B0255-17 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/18/2021 15:30

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 04:21

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0255-17 A 02

Preparation Batch: BJC0054 — Sample Size: 25 mL — Filtration Batch: BJB0585

Prepared: 03/02/2021 — Final Volume: 25 mL — Filtration Date: 02/19/2021 17:12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	5.41	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	0.991	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	0.510	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	1.05	ug/L	
Zinc, Dissolved	7440-66-6	1	0.820	4.00	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	21-Jul-2021 15:02

MW-54-20211802

21B0255-17 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/18/2021 15:30
Instrument: HYDRA Analyst: BLC — Analyzed: 03/02/2021 15:51

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0255-17 A 01
Preparation Batch: BJC0052 — Sample Size: 20 mL — Filtration Batch: BJB0585
Prepared: 03/02/2021 — Final Volume: 20 mL — Filtration Date: 02/19/2021 17:12

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

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

Volatile Organic Compounds - Quality Control

Batch BJB0793 - 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 (BJB0793-BLK1)				Prepared: 01-Mar-2021 Analyzed: 01-Mar-2021 11:58							
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	5.15			ug/L	*5.00*		*103*	*80-129*			
Surrogate: Toluene-d8	4.95			ug/L	*5.00*		*98.9*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.72			ug/L	*5.00*		*94.5*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.00			ug/L	*5.00*		*100*	*80-120*			
LCS (BJB0793-BS1)				Prepared: 01-Mar-2021 Analyzed: 01-Mar-2021 10:54							
Vinyl Chloride	9.37	0.08	0.20	ug/L	10.0		93.7	66-133			
1,1-Dichloroethene	10.5	0.08	0.20	ug/L	10.0		105	69-135			
trans-1,2-Dichloroethene	9.92	0.07	0.20	ug/L	10.0		99.2	78-128			
cis-1,2-Dichloroethene	9.82	0.08	0.20	ug/L	10.0		98.2	80-121			
Benzene	9.88	0.05	0.20	ug/L	10.0		98.8	80-120			
Trichloroethene	9.80	0.07	0.20	ug/L	10.0		98.0	80-120			
Toluene	9.49	0.05	0.20	ug/L	10.0		94.9	80-120			
Tetrachloroethene	9.84	0.09	0.20	ug/L	10.0		98.4	80-120			
Ethylbenzene	9.65	0.05	0.20	ug/L	10.0		96.5	80-120			
m,p-Xylene	19.7	0.14	0.40	ug/L	20.0		98.6	80-121			
o-Xylene	9.66	0.08	0.20	ug/L	10.0		96.6	80-121			
Xylenes, total	29.4	0.22	0.60	ug/L	30.0		97.9	76-127			
Surrogate: 1,2-Dichloroethane-d4	5.24			ug/L	*5.00*		*105*	*80-129*			
Surrogate: Toluene-d8	4.95			ug/L	*5.00*		*99.1*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.10			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.96			ug/L	*5.00*		*99.1*	*80-120*			

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Analytical Report

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

Volatile Organic Compounds - Quality Control

Batch BJB0793 - 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 (BJB0793-BSD1)					Prepared: 01-Mar-2021 Analyzed: 01-Mar-2021 11:16						
Vinyl Chloride	7.83	0.08	0.20	ug/L	10.0		78.3	66-133	17.90	30	
1,1-Dichloroethene	8.62	0.08	0.20	ug/L	10.0		86.2	69-135	19.70	30	
trans-1,2-Dichloroethene	8.03	0.07	0.20	ug/L	10.0		80.3	78-128	21.00	30	
cis-1,2-Dichloroethene	7.72	0.08	0.20	ug/L	10.0		77.2	80-121	24.00	30	*
Benzene	7.99	0.05	0.20	ug/L	10.0		79.9	80-120	21.20	30	*
Trichloroethene	7.94	0.07	0.20	ug/L	10.0		79.4	80-120	20.90	30	*
Toluene	7.63	0.05	0.20	ug/L	10.0		76.3	80-120	21.80	30	*
Tetrachloroethene	8.10	0.09	0.20	ug/L	10.0		81.0	80-120	19.40	30	
Ethylbenzene	7.84	0.05	0.20	ug/L	10.0		78.4	80-120	20.70	30	*
m,p-Xylene	16.0	0.14	0.40	ug/L	20.0		79.8	80-121	21.00	30	*
o-Xylene	7.85	0.08	0.20	ug/L	10.0		78.5	80-121	20.60	30	*
Xylenes, total	23.8	0.22	0.60	ug/L	30.0		79.4	76-127	20.90	30	
Surrogate: 1,2-Dichloroethane-d4	4.95			ug/L	*5.00*		*99.1*	*80-129*			
Surrogate: Toluene-d8	5.00			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.12			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.92			ug/L	*5.00*		*98.5*	*80-120*			

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

Volatile Organic Compounds - Quality Control

Batch BJC0019 - 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 (BJC0019-BLK1)				Prepared: 01-Mar-2021	Analyzed: 01-Mar-2021 11:58					
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.95		ug/L	*5.00*		*98.9*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.72		ug/L	*5.00*		*94.5*	*80-120*			
LCS (BJC0019-BS1)				Prepared: 01-Mar-2021	Analyzed: 01-Mar-2021 09:41					
Gasoline Range Organics (Tol-Nap)	1080	100	ug/L	1000		108	72-128			
Surrogate: Toluene-d8	5.13		ug/L	*5.00*		*103*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.02		ug/L	*5.00*		*100*	*80-120*			
LCS Dup (BJC0019-BSD1)				Prepared: 01-Mar-2021	Analyzed: 01-Mar-2021 10:02					
Gasoline Range Organics (Tol-Nap)	1150	100	ug/L	1000		115	72-128	5.69	30	
Surrogate: Toluene-d8	5.09		ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.98		ug/L	*5.00*		*99.5*	*80-120*			

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

Volatile Organic Compounds - SIM - Quality Control

Batch BJC0063 - 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 (BJC0063-BLK1)				Prepared: 02-Mar-2021 Analyzed: 02-Mar-2021 15:59							
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	4680			ng/L	*5000*		*93.6*	*80-129*			
Surrogate: Toluene-d8	4760			ng/L	*5000*		*95.1*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4840			ng/L	*5000*		*96.8*	*75-125*			
LCS (BJC0063-BS1)				Prepared: 02-Mar-2021 Analyzed: 02-Mar-2021 14:42							
Vinyl chloride	1990	5.01	20.0	ng/L	2000		99.3	62-141			
Surrogate: 1,2-Dichloroethane-d4	5270			ng/L	*5000*		*105*	*80-129*			
Surrogate: Toluene-d8	4970			ng/L	*5000*		*99.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5270			ng/L	*5000*		*105*	*75-125*			
LCS Dup (BJC0063-BSD1)				Prepared: 02-Mar-2021 Analyzed: 02-Mar-2021 16:20							
Vinyl chloride	1910	5.01	20.0	ng/L	2000		95.7	62-141	3.75	30	
Surrogate: 1,2-Dichloroethane-d4	4670			ng/L	*5000*		*93.3*	*80-129*			
Surrogate: Toluene-d8	4750			ng/L	*5000*		*95.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5180			ng/L	*5000*		*104*	*75-125*			

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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	21-Jul-2021 15:02

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BLK1)				Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 18:01							
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 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	21-Jul-2021 15:02

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BLK1)				Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 18:01							
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	3.46			ug/L	*7.50*		*46.1*	*30-160*			
Surrogate: Phenol-d5	1.84			ug/L	*7.50*		*24.6*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	5.47			ug/L	*7.50*		*72.9*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	2.79			ug/L	*5.00*		*55.8*	*30-160*			

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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	21-Jul-2021 15:02

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BLK1)				Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 18:01							
Surrogate: Nitrobenzene-d5	3.90			ug/L	*5.00*		*78.0*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.36			ug/L	*5.00*		*67.3*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.34			ug/L	*7.50*		*84.6*	*30-160*			
Surrogate: p-Terphenyl-d14	4.27			ug/L	*5.00*		*85.5*	*30-160*			
LCS (BJB0600-BS1)				Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 18:38							
Phenol	1.5	0.01	0.2	ug/L	5.00		29.7	30-160			*
bis(2-chloroethyl) ether	3.9	0.03	0.2	ug/L	5.00		78.0	30-160			
2-Chlorophenol	3.4	0.03	0.2	ug/L	5.00		67.5	30-160			
1,3-Dichlorobenzene	2.9	0.03	0.2	ug/L	5.00		57.7	30-160			
1,4-Dichlorobenzene	3.0	0.03	0.2	ug/L	5.00		59.0	30-160			
1,2-Dichlorobenzene	3.0	0.03	0.2	ug/L	5.00		59.4	30-160			
Benzyl Alcohol	2.2	0.02	0.2	ug/L	5.00		43.6	30-160			
2,2'-Oxybis(1-chloropropane)	3.2	0.03	0.2	ug/L	5.00		64.6	30-160			
2-Methylphenol	2.5	0.03	0.2	ug/L	5.00		49.7	30-160			
Hexachloroethane	2.5	0.04	0.2	ug/L	5.00		49.9	30-160			
N-Nitroso-di-n-Propylamine	2.9	0.04	0.2	ug/L	5.00		59.0	30-160			
4-Methylphenol	2.3	0.03	0.2	ug/L	5.00		46.9	30-160			
Nitrobenzene	3.8	0.03	0.2	ug/L	5.00		76.1	30-160			
Isophorone	4.5	0.03	0.2	ug/L	5.00		90.3	30-160			
2-Nitrophenol	3.2	0.04	1.0	ug/L	5.00		64.3	30-160			
2,4-Dimethylphenol	8.1	0.3	1.0	ug/L	13.0		62.1	30-160			
Bis(2-Chloroethoxy)methane	3.6	0.03	0.2	ug/L	5.00		71.5	30-160			
2,4-Dichlorophenol	10.3	0.1	1.0	ug/L	13.0		79.0	30-160			
1,2,4-Trichlorobenzene	3.0	0.03	0.2	ug/L	5.00		60.3	30-160			
Naphthalene	3.3	0.03	0.2	ug/L	5.00		66.3	30-160			
Benzoic acid	10.0	0.1	2.0	ug/L	23.0		43.5	30-160			
4-Chloroaniline	0.4	0.04	1.0	ug/L	13.0		2.95	30-160			*, J
Hexachlorobutadiene	2.4	0.04	0.2	ug/L	5.00		47.0	30-160			
4-Chloro-3-Methylphenol	11.7	0.1	1.0	ug/L	13.0		90.2	30-160			
2-Methylnaphthalene	3.1	0.03	0.2	ug/L	5.00		62.8	30-160			
Hexachlorocyclopentadiene	4.2	0.1	1.0	ug/L	13.0		32.3	30-160			Q
2,4,6-Trichlorophenol	10.7	0.2	1.0	ug/L	13.0		82.6	30-160			
2,4,5-Trichlorophenol	11.0	0.1	1.0	ug/L	13.0		84.5	30-160			
2-Chloronaphthalene	3.7	0.03	0.2	ug/L	5.00		74.0	30-160			

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BS1)					Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 18:38						
2-Nitroaniline	13.0	0.2	1.0	ug/L	13.0		100	30-160			
Acenaphthylene	3.1	0.02	0.2	ug/L	5.00		61.2	30-160			
Dimethylphthalate	3.7	0.04	0.2	ug/L	5.00		73.6	30-160			
2,6-Dinitrotoluene	11.7	0.2	1.0	ug/L	13.0		90.2	30-160			
Acenaphthene	3.3	0.03	0.2	ug/L	5.00		66.1	30-160			
3-Nitroaniline	8.2	0.2	1.0	ug/L	13.0		63.3	30-160			
2,4-Dinitrophenol	21.1	0.2	2.0	ug/L	23.0		91.6	30-160			
Dibenzofuran	3.2	0.02	0.2	ug/L	5.00		64.9	30-160			
4-Nitrophenol	4.1	0.06	1.0	ug/L	13.0		31.6	30-160			Q
2,4-Dinitrotoluene	12.9	0.1	1.0	ug/L	13.0		99.1	30-160			
Fluorene	2.8	0.02	0.2	ug/L	5.00		55.8	30-160			Q
4-Chlorophenylphenyl ether	3.0	0.02	0.2	ug/L	5.00		60.3	30-160			
Diethyl phthalate	3.6	0.06	0.2	ug/L	5.00		72.7	30-160			
4-Nitroaniline	11.7	0.2	1.0	ug/L	13.0		90.1	30-160			
4,6-Dinitro-2-methylphenol	25.1	0.4	2.0	ug/L	23.0		109	30-160			
N-Nitrosodiphenylamine	3.5	0.03	0.2	ug/L	5.00		69.0	30-160			
4-Bromophenyl phenyl ether	4.0	0.02	0.2	ug/L	5.00		79.2	30-160			
Hexachlorobenzene	3.7	0.04	0.2	ug/L	5.00		73.5	30-160			
Pentachlorophenol	8.0	0.1	1.0	ug/L	13.0		61.9	30-160			Q
Phenanthrene	4.0	0.02	0.2	ug/L	5.00		80.5	30-160			
Anthracene	3.8	0.03	0.2	ug/L	5.00		75.2	30-160			
Carbazole	4.0	0.04	0.2	ug/L	5.00		80.9	30-160			
Di-n-Butylphthalate	4.2	0.05	0.2	ug/L	5.00		84.2	30-160			
Fluoranthene	4.0	0.03	0.2	ug/L	5.00		80.4	30-160			
Pyrene	3.9	0.03	0.2	ug/L	5.00		77.4	30-160			
Butylbenzylphthalate	4.1	0.07	0.2	ug/L	5.00		81.2	30-160			
Benzo(a)anthracene	3.8	0.04	0.2	ug/L	5.00		75.1	30-160			
3,3'-Dichlorobenzidine	2.3	0.3	1.0	ug/L	8.00		28.3	30-160			*
Chrysene	3.9	0.04	0.2	ug/L	5.00		77.4	30-160			
bis(2-Ethylhexyl)phthalate	4.1	0.2	0.2	ug/L	5.00		82.5	30-160			
Di-n-Octylphthalate	4.1	0.05	0.2	ug/L	5.00		81.1	30-160			
Benzofluoranthenes, Total	8.1	0.08	0.4	ug/L	10.0		81.3	30-160			
Benzo(a)pyrene	3.8	0.05	0.2	ug/L	5.00		75.6	30-160			
Indeno(1,2,3-cd)pyrene	4.0	0.06	0.2	ug/L	5.00		80.7	30-160			
Dibenzo(a,h)anthracene	4.2	0.07	0.2	ug/L	5.00		84.0	30-160			

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BS1)					Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 18:38						
Benzo(g,h,i)perylene	4.0	0.04	0.2	ug/L	5.00		79.2	30-160			
1-Methylnaphthalene	3.3	0.03	0.2	ug/L	5.00		65.4	30-160			
Surrogate: 2-Fluorophenol	4.20			ug/L	*7.50*		*56.0*	*30-160*			
Surrogate: Phenol-d5	2.66			ug/L	*7.50*		*35.5*	*30-160*			
Surrogate: 2-Chlorophenol-d4	6.36			ug/L	*7.50*		*84.8*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.10			ug/L	*5.00*		*62.1*	*30-160*			
Surrogate: Nitrobenzene-d5	4.26			ug/L	*5.00*		*85.2*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.87			ug/L	*5.00*		*77.4*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.27			ug/L	*7.50*		*83.5*	*30-160*			
Surrogate: p-Terphenyl-d14	4.29			ug/L	*5.00*		*85.7*	*30-160*			
LCS Dup (BJB0600-BSD1)					Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 19:15						
Phenol	1.7	0.01	0.2	ug/L	5.00		34.5	30-160	15.00	30	
bis(2-chloroethyl) ether	4.0	0.03	0.2	ug/L	5.00		80.7	30-160	3.36	30	
2-Chlorophenol	3.7	0.03	0.2	ug/L	5.00		73.5	30-160	8.59	30	
1,3-Dichlorobenzene	2.5	0.03	0.2	ug/L	5.00		50.7	30-160	12.90	30	
1,4-Dichlorobenzene	2.7	0.03	0.2	ug/L	5.00		53.1	30-160	10.60	30	
1,2-Dichlorobenzene	2.6	0.03	0.2	ug/L	5.00		52.0	30-160	13.10	30	
Benzyl Alcohol	2.5	0.02	0.2	ug/L	5.00		50.6	30-160	15.00	30	
2,2'-Oxybis(1-chloropropane)	3.3	0.03	0.2	ug/L	5.00		65.1	30-160	0.63	30	
2-Methylphenol	2.8	0.03	0.2	ug/L	5.00		55.3	30-160	10.60	30	
Hexachloroethane	2.1	0.04	0.2	ug/L	5.00		42.7	30-160	15.40	30	
N-Nitroso-di-n-Propylamine	3.4	0.04	0.2	ug/L	5.00		68.0	30-160	14.30	30	
4-Methylphenol	2.7	0.03	0.2	ug/L	5.00		54.6	30-160	15.10	30	
Nitrobenzene	4.0	0.03	0.2	ug/L	5.00		79.3	30-160	4.03	30	
Isophorone	5.3	0.03	0.2	ug/L	5.00		105	30-160	15.40	30	
2-Nitrophenol	3.4	0.04	1.0	ug/L	5.00		68.5	30-160	6.33	30	
2,4-Dimethylphenol	8.7	0.3	1.0	ug/L	13.0		66.8	30-160	7.23	30	
Bis(2-Chloroethoxy)methane	3.9	0.03	0.2	ug/L	5.00		78.0	30-160	8.63	30	
2,4-Dichlorophenol	10.5	0.1	1.0	ug/L	13.0		80.9	30-160	2.36	30	
1,2,4-Trichlorobenzene	2.7	0.03	0.2	ug/L	5.00		54.1	30-160	10.80	30	
Naphthalene	3.2	0.03	0.2	ug/L	5.00		63.3	30-160	4.68	30	
Benzoic acid	11.1	0.1	2.0	ug/L	23.0		48.3	30-160	10.50	30	
4-Chloroaniline	0.9	0.04	1.0	ug/L	13.0		6.61	30-160	76.50	30	*, J
Hexachlorobutadiene	2.1	0.04	0.2	ug/L	5.00		42.1	30-160	11.20	30	

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BSD1)					Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 19:15						
4-Chloro-3-Methylphenol	13.2	0.1	1.0	ug/L	13.0		101	30-160	11.80	30	
2-Methylnaphthalene	3.1	0.03	0.2	ug/L	5.00		62.0	30-160	1.18	30	
Hexachlorocyclopentadiene	4.2	0.1	1.0	ug/L	13.0		32.1	30-160	0.69	30	Q
2,4,6-Trichlorophenol	12.8	0.2	1.0	ug/L	13.0		98.3	30-160	17.40	30	
2,4,5-Trichlorophenol	13.4	0.1	1.0	ug/L	13.0		103	30-160	20.00	30	
2-Chloronaphthalene	4.0	0.03	0.2	ug/L	5.00		80.8	30-160	8.78	30	
2-Nitroaniline	16.5	0.2	1.0	ug/L	13.0		127	30-160	23.60	30	
Acenaphthylene	3.5	0.02	0.2	ug/L	5.00		70.7	30-160	14.30	30	
Dimethylphthalate	4.5	0.04	0.2	ug/L	5.00		90.5	30-160	20.50	30	
2,6-Dinitrotoluene	14.3	0.2	1.0	ug/L	13.0		110	30-160	20.10	30	
Acenaphthene	4.0	0.03	0.2	ug/L	5.00		79.6	30-160	18.60	30	
3-Nitroaniline	11.5	0.2	1.0	ug/L	13.0		88.4	30-160	33.00	30	*
2,4-Dinitrophenol	24.8	0.2	2.0	ug/L	23.0		108	30-160	16.20	30	
Dibenzofuran	3.8	0.02	0.2	ug/L	5.00		76.1	30-160	15.90	30	
4-Nitrophenol	5.3	0.06	1.0	ug/L	13.0		40.6	30-160	24.70	30	Q
2,4-Dinitrotoluene	16.0	0.1	1.0	ug/L	13.0		123	30-160	21.90	30	
Fluorene	3.3	0.02	0.2	ug/L	5.00		65.9	30-160	16.60	30	Q
4-Chlorophenylphenyl ether	3.0	0.02	0.2	ug/L	5.00		59.3	30-160	1.70	30	
Diethyl phthalate	4.9	0.06	0.2	ug/L	5.00		97.3	30-160	29.00	30	
4-Nitroaniline	14.8	0.2	1.0	ug/L	13.0		114	30-160	23.30	30	
4,6-Dinitro-2-methylphenol	30.0	0.4	2.0	ug/L	23.0		130	30-160	17.70	30	
N-Nitrosodiphenylamine	4.3	0.03	0.2	ug/L	5.00		85.6	30-160	21.40	30	
4-Bromophenyl phenyl ether	4.7	0.02	0.2	ug/L	5.00		94.0	30-160	17.10	30	
Hexachlorobenzene	4.3	0.04	0.2	ug/L	5.00		86.8	30-160	16.60	30	
Pentachlorophenol	9.5	0.1	1.0	ug/L	13.0		73.0	30-160	16.50	30	Q
Phenanthrene	4.9	0.02	0.2	ug/L	5.00		98.4	30-160	20.00	30	
Anthracene	4.6	0.03	0.2	ug/L	5.00		91.9	30-160	20.00	30	
Carbazole	5.1	0.04	0.2	ug/L	5.00		103	30-160	24.00	30	
Di-n-Butylphthalate	5.4	0.05	0.2	ug/L	5.00		108	30-160	24.70	30	
Fluoranthene	5.0	0.03	0.2	ug/L	5.00		99.8	30-160	21.50	30	
Pyrene	4.9	0.03	0.2	ug/L	5.00		97.1	30-160	22.60	30	
Butylbenzylphthalate	5.0	0.07	0.2	ug/L	5.00		100	30-160	20.70	30	
Benzo(a)anthracene	4.6	0.04	0.2	ug/L	5.00		92.9	30-160	21.20	30	
3,3'-Dichlorobenzidine	4.0	0.3	1.0	ug/L	8.00		49.6	30-160	54.60	30	*
Chrysene	4.9	0.04	0.2	ug/L	5.00		97.9	30-160	23.40	30	

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

Semivolatile Organic Compounds - Quality Control

Batch BJB0600 - 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 (BJB0600-BSD1)					Prepared: 23-Feb-2021 Analyzed: 12-Mar-2021 19:15						
bis(2-Ethylhexyl)phthalate	5.3	0.2	0.2	ug/L	5.00		106	30-160	24.70	30	
Di-n-Octylphthalate	5.1	0.05	0.2	ug/L	5.00		102	30-160	23.00	30	
Benzofluoranthenes, Total	10.3	0.08	0.4	ug/L	10.0		103	30-160	23.10	30	
Benzo(a)pyrene	4.8	0.05	0.2	ug/L	5.00		96.5	30-160	24.30	30	
Indeno(1,2,3-cd)pyrene	5.1	0.06	0.2	ug/L	5.00		101	30-160	22.70	30	
Dibenzo(a,h)anthracene	5.3	0.07	0.2	ug/L	5.00		106	30-160	23.60	30	
Benzo(g,h,i)perylene	5.1	0.04	0.2	ug/L	5.00		102	30-160	25.10	30	
1-Methylnaphthalene	3.3	0.03	0.2	ug/L	5.00		66.3	30-160	1.35	30	
Surrogate: 2-Fluorophenol	4.15			ug/L	*7.50*		*55.3*	*30-160*			
Surrogate: Phenol-d5	2.78			ug/L	*7.50*		*37.0*	*30-160*			
Surrogate: 2-Chlorophenol-d4	6.84			ug/L	*7.50*		*91.3*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	2.42			ug/L	*5.00*		*48.5*	*30-160*			
Surrogate: Nitrobenzene-d5	4.17			ug/L	*5.00*		*83.4*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.78			ug/L	*5.00*		*75.7*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	7.18			ug/L	*7.50*		*95.7*	*30-160*			
Surrogate: p-Terphenyl-d14	4.88			ug/L	*5.00*		*97.6*	*30-160*			

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0671 - 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 (BJB0671-BLK1)				Prepared: 23-Feb-2021 Analyzed: 17-Mar-2021 10:00							
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	0.234			ug/L	*0.300*		*78.1*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.249			ug/L	*0.300*		*82.9*	*29-120*			
Surrogate: Fluoranthene-d10	0.247			ug/L	*0.300*		*82.2*	*57-120*			
LCS (BJB0671-BS1)				Prepared: 23-Feb-2021 Analyzed: 17-Mar-2021 10:32							
Naphthalene	0.211	0.001	0.010	ug/L	0.300		70.4	37-120			
2-Methylnaphthalene	0.228	0.001	0.010	ug/L	0.300		75.9	37-120			
1-Methylnaphthalene	0.232	0.0009	0.010	ug/L	0.300		77.4	29-120			
Acenaphthylene	0.187	0.002	0.010	ug/L	0.300		62.4	41-120			
Acenaphthene	0.198	0.003	0.010	ug/L	0.300		65.9	41-120			
Dibenzofuran	0.204	0.002	0.010	ug/L	0.300		67.8	38-120			
Fluorene	0.219	0.002	0.010	ug/L	0.300		72.8	43-120			

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0671 - 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 (BJB0671-BS1)					Prepared: 23-Feb-2021 Analyzed: 17-Mar-2021 10:32						
Phenanthrene	0.228	0.001	0.010	ug/L	0.300		76.1	41-120			
Anthracene	0.194	0.001	0.010	ug/L	0.300		64.8	40-120			
Carbazole	0.238	0.001	0.010	ug/L	0.300		79.3	30-160			
Fluoranthene	0.235	0.002	0.010	ug/L	0.300		78.4	45-120			
Pyrene	0.237	0.001	0.010	ug/L	0.300		78.9	41-120			
Benzo(a)anthracene	0.220	0.0008	0.010	ug/L	0.300		73.4	42-120			
Chrysene	0.223	0.0009	0.010	ug/L	0.300		74.4	44-120			
Benzo(b)fluoranthene	0.219	0.0005	0.010	ug/L	0.300		73.1	44-120			
Benzo(k)fluoranthene	0.255	0.003	0.010	ug/L	0.300		85.0	50-120			
Benzo(j)fluoranthene	0.270	0.002	0.010	ug/L	0.300		90.2	39-160			
Benzofluoranthenes, Total	0.745	0.004	0.010	ug/L	0.900		82.8	46-120			
Benzo(a)pyrene	0.214	0.002	0.010	ug/L	0.300		71.5	35-120			
Perylene	0.206	0.006	0.010	ug/L	0.300		68.6	30-160			
Indeno(1,2,3-cd)pyrene	0.249	0.001	0.010	ug/L	0.300		83.1	37-120			
Dibenzo(a,h)anthracene	0.243	0.001	0.010	ug/L	0.300		80.9	34-120			
Benzo(g,h,i)perylene	0.242	0.001	0.010	ug/L	0.300		80.6	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.249			ug/L	*0.300*		*82.9*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.250			ug/L	*0.300*		*83.3*	*29-120*			
Surrogate: Fluoranthene-d10	0.247			ug/L	*0.300*		*82.4*	*57-120*			
LCS Dup (BJB0671-BSD1)					Prepared: 23-Feb-2021 Analyzed: 17-Mar-2021 11:04						
Naphthalene	0.226	0.001	0.010	ug/L	0.300		75.4	37-120	6.92	30	
2-Methylnaphthalene	0.245	0.001	0.010	ug/L	0.300		81.5	37-120	7.18	30	
1-Methylnaphthalene	0.248	0.0009	0.010	ug/L	0.300		82.7	29-120	6.64	30	
Acenaphthylene	0.200	0.002	0.010	ug/L	0.300		66.6	41-120	6.49	30	
Acenaphthene	0.213	0.003	0.010	ug/L	0.300		71.1	41-120	7.69	30	
Dibenzofuran	0.218	0.002	0.010	ug/L	0.300		72.6	38-120	6.78	30	
Fluorene	0.234	0.002	0.010	ug/L	0.300		78.2	43-120	7.05	30	
Phenanthrene	0.249	0.001	0.010	ug/L	0.300		82.8	41-120	8.50	30	
Anthracene	0.198	0.001	0.010	ug/L	0.300		65.8	40-120	1.63	30	
Carbazole	0.250	0.001	0.010	ug/L	0.300		83.2	30-160	4.84	30	
Fluoranthene	0.251	0.002	0.010	ug/L	0.300		83.6	45-120	6.38	30	
Pyrene	0.253	0.001	0.010	ug/L	0.300		84.4	41-120	6.71	30	
Benzo(a)anthracene	0.233	0.0008	0.010	ug/L	0.300		77.6	42-120	5.53	30	
Chrysene	0.242	0.0009	0.010	ug/L	0.300		80.8	44-120	8.24	30	

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0671 - 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 (BJB0671-BSD1)					Prepared: 23-Feb-2021 Analyzed: 17-Mar-2021 11:04						
Benzo(b)fluoranthene	0.218	0.0005	0.010	ug/L	0.300		72.7	44-120	0.51	30	
Benzo(k)fluoranthene	0.276	0.003	0.010	ug/L	0.300		92.0	50-120	7.90	30	
Benzo(j)fluoranthene	0.307	0.002	0.010	ug/L	0.300		102	39-160	12.70	30	
Benzofluoranthenes, Total	0.801	0.004	0.010	ug/L	0.900		89.1	46-120	7.33	30	
Benzo(a)pyrene	0.204	0.002	0.010	ug/L	0.300		68.1	35-120	4.87	30	
Perylene	0.210	0.006	0.010	ug/L	0.300		70.1	30-160	2.23	30	
Indeno(1,2,3-cd)pyrene	0.259	0.001	0.010	ug/L	0.300		86.5	37-120	3.98	30	
Dibenzo(a,h)anthracene	0.249	0.001	0.010	ug/L	0.300		83.1	34-120	2.69	30	
Benzo(g,h,i)perylene	0.253	0.001	0.010	ug/L	0.300		84.5	38-120	4.77	30	
Surrogate: 2-Methylnaphthalene-d10	0.253			ug/L	*0.300*		*84.2*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.245			ug/L	*0.300*		*81.5*	*29-120*			
Surrogate: Fluoranthene-d10	0.253			ug/L	*0.300*		*84.3*	*57-120*			

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

Petroleum Hydrocarbons - Quality Control

Batch BJB0727 - 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 (BJB0727-BLK1)				Prepared: 25-Feb-2021	Analyzed: 11-Mar-2021 14:07					
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	0.250		mg/L	*0.225*		*111*	*50-150*			
LCS (BJB0727-BS1)				Prepared: 25-Feb-2021	Analyzed: 11-Mar-2021 14:28					
Diesel Range Organics (C12-C24)	3.58	0.100	mg/L	3.00		119	56-120			
Surrogate: o-Terphenyl	0.307		mg/L	*0.225*		*137*	*50-150*			
LCS Dup (BJB0727-BSD1)				Prepared: 25-Feb-2021	Analyzed: 11-Mar-2021 14:49					
Diesel Range Organics (C12-C24)	3.33	0.100	mg/L	3.00		111	56-120	7.17	30	
Surrogate: o-Terphenyl	0.276		mg/L	*0.225*		*123*	*50-150*			

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

Aroclor PCB - Quality Control

Batch BJB0607 - 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 (BJB0607-BLK1)				Prepared: 23-Feb-2021 Analyzed: 09-Mar-2021 15:59							
Aroclor 1016	ND	0.018	0.100	ug/L							U
Aroclor 1221	ND	0.018	0.100	ug/L							U
Aroclor 1232	ND	0.018	0.100	ug/L							U
Aroclor 1242	ND	0.018	0.100	ug/L							U
Aroclor 1248	ND	0.018	0.100	ug/L							U
Aroclor 1254	ND	0.018	0.100	ug/L							U
Aroclor 1260	ND	0.017	0.100	ug/L							U
Surrogate: Decachlorobiphenyl	0.0491			ug/L	*0.0800*		*61.4*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0525			ug/L	*0.0800*		*65.6*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0492			ug/L	*0.0800*		*61.4*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0401			ug/L	*0.0800*		*50.1*	*39-120*			
LCS (BJB0607-BS1)				Prepared: 23-Feb-2021 Analyzed: 09-Mar-2021 16:40							
Aroclor 1016	0.783	0.018	0.100	ug/L	1.00		78.3	51-120			
Aroclor 1260 [2C]	0.861	0.017	0.100	ug/L	1.00		86.1	56-120			
Surrogate: Decachlorobiphenyl	0.0594			ug/L	*0.0800*		*74.2*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0585			ug/L	*0.0800*		*73.1*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0555			ug/L	*0.0800*		*69.3*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0453			ug/L	*0.0800*		*56.7*	*39-120*			
LCS Dup (BJB0607-BSD1)				Prepared: 23-Feb-2021 Analyzed: 09-Mar-2021 16:19							
Aroclor 1016	0.763	0.018	0.100	ug/L	1.00		76.3	51-120	2.64	30	
Aroclor 1260	0.835	0.017	0.100	ug/L	1.00		83.5	56-120	0.81	30	
Surrogate: Decachlorobiphenyl	0.0489			ug/L	*0.0800*		*61.1*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0572			ug/L	*0.0800*		*71.5*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0492			ug/L	*0.0800*		*61.5*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0421			ug/L	*0.0800*		*52.6*	*39-120*			

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

Metals and Metallic Compounds - Quality Control

Batch BJC0047 - 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 (BJC0047-BLK1)					Prepared: 02-Mar-2021 Analyzed: 02-Mar-2021 15:24							
Barium	135	ND	0.0560	0.500	ug/L							U
Barium	137	ND	0.0530	0.500	ug/L							U
Chromium	52	ND	0.130	0.500	ug/L							U
Chromium	53	ND	0.0700	0.500	ug/L							U
Cobalt	59	ND	0.0290	0.200	ug/L							U
Iron	54	ND	6.27	20.0	ug/L							U
Iron	57	ND	1.40	20.0	ug/L							U
Lead	208	ND	0.0680	0.100	ug/L							U
Manganese	55	ND	0.0850	0.500	ug/L							U
Silver	107	ND	0.0170	0.200	ug/L							U
Vanadium	51a	ND	0.0400	0.200	ug/L							U
Vanadium	51b	ND	0.0160	0.200	ug/L							U
Arsenic	75a	ND	0.0220	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	0.340	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	ND	0.0500	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Selenium	78	ND	0.440	0.500	ug/L							U
Zinc	66	ND	0.820	4.00	ug/L							U
Blank (BJC0047-BLK2)					Prepared: 02-Mar-2021 Analyzed: 03-Mar-2021 14:46							
Zinc	67	ND	0.940	4.00	ug/L							U
LCS (BJC0047-BS1)					Prepared: 02-Mar-2021 Analyzed: 02-Mar-2021 15:28							
Barium	135	24.9	0.0560	0.500	ug/L	25.0		99.5	80-120			
Barium	137	24.9	0.0530	0.500	ug/L	25.0		99.8	80-120			
Chromium	52	24.7	0.130	0.500	ug/L	25.0		98.9	80-120			
Chromium	53	25.2	0.0700	0.500	ug/L	25.0		101	80-120			
Cobalt	59	25.7	0.0290	0.200	ug/L	25.0		103	80-120			
Iron	54	4840	6.27	20.0	ug/L	5000		96.8	80-120			
Iron	57	4810	1.40	20.0	ug/L	5000		96.3	80-120			
Lead	208	25.9	0.0680	0.100	ug/L	25.0		103	80-120			
Manganese	55	24.3	0.0850	0.500	ug/L	25.0		97.2	80-120			

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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	21-Jul-2021 15:02

Metals and Metallic Compounds - Quality Control

Batch BJC0047 - 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 (BJC0047-BS1)						Prepared: 02-Mar-2021 Analyzed: 02-Mar-2021 15:28						
Silver	107	27.0	0.0170	0.200	ug/L	25.0		108	80-120			
Vanadium	51a	23.9	0.0400	0.200	ug/L	25.0		95.5	80-120			
Vanadium	51b	24.0	0.0160	0.200	ug/L	25.0		96.1	80-120			
Arsenic	75a	25.0	0.0220	0.200	ug/L	25.0		99.9	80-120			
Cadmium	111	26.2	0.0300	0.100	ug/L	25.0		105	80-120			
Cadmium	114	25.6	0.0400	0.100	ug/L	25.0		102	80-120			
Copper	63	26.1	0.340	0.500	ug/L	25.0		104	80-120			
Copper	65	26.3	0.350	0.500	ug/L	25.0		105	80-120			
Nickel	60	26.2	0.0500	0.500	ug/L	25.0		105	80-120			
Nickel	62	25.7	0.220	0.500	ug/L	25.0		103	80-120			
Selenium	78	81.0	0.440	0.500	ug/L	80.0		101	80-120			
Zinc	66	83.8	0.820	4.00	ug/L	80.0		105	80-120			
LCS (BJC0047-BS2)						Prepared: 02-Mar-2021 Analyzed: 03-Mar-2021 14:50						
Zinc	67	79.5	0.940	4.00	ug/L	80.0		99.4	80-120			
Duplicate (BJC0047-DUP1)			**Source: 21B0255-04**			Prepared: 02-Mar-2021 Analyzed: 03-Mar-2021 00:12						
Barium	135	9.25	0.0560	0.500	ug/L		10.7			14.60	20	
Chromium	52	0.298	0.130	0.500	ug/L		0.284			4.81	20	J
Cobalt	59	2.59	0.0290	0.200	ug/L		2.85			9.40	20	
Lead	208	ND	0.0680	0.100	ug/L		0.102					U
Vanadium	51a	0.808	0.0400	0.200	ug/L		0.855			5.65	20	
Arsenic	75a	2.31	0.0220	0.200	ug/L		2.48			7.26	20	
Copper	63	1.54	0.340	0.500	ug/L		1.72			11.20	20	
Nickel	60	1.48	0.0500	0.500	ug/L		2.08			33.70	20	*
Selenium	78	ND	0.440	0.500	ug/L		ND					U
Zinc	66	1.75	0.820	4.00	ug/L		6.11			111.00	20	L, J
Duplicate (BJC0047-DUP3)			**Source: 21B0255-04**			Prepared: 02-Mar-2021 Analyzed: 03-Mar-2021 20:33						
Iron	54	13800	31.4	100	ug/L		13700			0.26	20	D
Manganese	55	882	0.425	2.50	ug/L		874			0.93	20	D
Matrix Spike (BJC0047-MS1)			**Source: 21B0255-04**			Prepared: 02-Mar-2021 Analyzed: 03-Mar-2021 00:17						
Barium	135	34.7	0.0560	0.500	ug/L	25.0	10.7	96.1	75-125			
Chromium	52	19.1	0.130	0.500	ug/L	25.0	0.284	75.3	75-125			
Cobalt	59	29.5	0.0290	0.200	ug/L	25.0	2.85	107	75-125			

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

Metals and Metallic Compounds - Quality Control

Batch BJC0047 - 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 (BJC0047-MS1)			**Source: 21B0255-04**			Prepared: 02-Mar-2021		Analyzed: 03-Mar-2021 00:17				
Lead	208	24.5	0.0680	0.100	ug/L	25.0	0.102	97.5	75-125			
Vanadium	51a	19.4	0.0400	0.200	ug/L	25.0	0.855	74.2	75-125			*
Arsenic	75a	27.2	0.0220	0.200	ug/L	25.0	2.48	98.9	75-125			
Cadmium	111	25.3	0.0300	0.100	ug/L	25.0	0.543	99.2	75-125			
Copper	63	26.6	0.340	0.500	ug/L	25.0	1.72	99.7	75-125			
Nickel	60	27.4	0.0500	0.500	ug/L	25.0	2.08	101	75-125			
Selenium	78	77.0	0.440	0.500	ug/L	80.0	ND	96.2	75-125			
Zinc	66	79.0	0.820	4.00	ug/L	80.0	6.11	91.1	75-125			

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

Matrix Spike (BJC0047-MS3)			**Source: 21B0255-04**			Prepared: 02-Mar-2021		Analyzed: 03-Mar-2021 20:37				
Iron	54	18500	31.4	100	ug/L	5000	13700	96.6	75-125			D
Manganese	55	916	0.425	2.50	ug/L	25.0	874	166	75-125			HC, D

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

Matrix Spike Dup (BJC0047-MSD1)			**Source: 21B0255-04**			Prepared: 02-Mar-2021		Analyzed: 03-Mar-2021 00:24				
Barium	135	34.7	0.0560	0.500	ug/L	25.0	10.7	96.0	75-125	0.08	20	
Chromium	52	18.8	0.130	0.500	ug/L	25.0	0.284	74.1	75-125	1.52	20	*
Cobalt	59	28.4	0.0290	0.200	ug/L	25.0	2.85	102	75-125	3.71	20	
Lead	208	24.3	0.0680	0.100	ug/L	25.0	0.102	97.0	75-125	0.51	20	
Vanadium	51a	19.2	0.0400	0.200	ug/L	25.0	0.855	73.2	75-125	1.26	20	*
Arsenic	75a	26.3	0.0220	0.200	ug/L	25.0	2.48	95.1	75-125	3.51	20	
Cadmium	111	24.7	0.0300	0.100	ug/L	25.0	0.543	96.5	75-125	2.68	20	
Copper	63	25.9	0.340	0.500	ug/L	25.0	1.72	96.9	75-125	2.67	20	
Nickel	60	26.4	0.0500	0.500	ug/L	25.0	2.08	97.5	75-125	3.68	20	
Selenium	78	74.7	0.440	0.500	ug/L	80.0	ND	93.4	75-125	3.02	20	
Zinc	66	83.0	0.820	4.00	ug/L	80.0	6.11	96.1	75-125	4.93	20	

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

Matrix Spike Dup (BJC0047-MSD3)			**Source: 21B0255-04**			Prepared: 02-Mar-2021		Analyzed: 03-Mar-2021 20:43				
Iron	54	18200	31.4	100	ug/L	5000	13700	90.0	75-125	1.81	20	D
Manganese	55	898	0.425	2.50	ug/L	25.0	874	97.2	75-125	1.88	20	HC, D

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

Instrument: ICPMS2 Analyst: MCB

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

Metals and Metallic Compounds - Quality Control

Batch BJC0047 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Duplicate (BJC0047-DUP2)			**Source: 21B0255-04**		Prepared: 02-Mar-2021	Analyzed: 05-Mar-2021 15:28						
Silver	107	ND	0.0170	0.200	ug/L		ND					U
Duplicate (BJC0047-DUP4)			**Source: 21B0255-04**		Prepared: 02-Mar-2021	Analyzed: 05-Mar-2021 18:21						
Cadmium	111	0.518	0.0300	0.100	ug/L		0.543			4.71	20	
Matrix Spike (BJC0047-MS2)			**Source: 21B0255-04**		Prepared: 02-Mar-2021	Analyzed: 05-Mar-2021 15:34						
Silver	107	24.5	0.0170	0.200	ug/L	25.0	ND	98.1	75-125			

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

Matrix Spike Dup (BJC0047-MSD2)			**Source: 21B0255-04**		Prepared: 02-Mar-2021	Analyzed: 05-Mar-2021 15:41						
Silver	107	24.6	0.0170	0.200	ug/L	25.0	ND	98.2	75-125	0.18	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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

Metals and Metallic Compounds - Quality Control

Batch BJC0066 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0066-BLK1)				Prepared: 02-Mar-2021 Analyzed: 04-Mar-2021 13:20							
Mercury	ND	0.000013	0.000100	mg/L							U
LCS (BJC0066-BS1)				Prepared: 02-Mar-2021 Analyzed: 04-Mar-2021 13:22							
Mercury	0.00190	0.000013	0.000100	mg/L	0.00200		95.1	80-120			
Duplicate (BJC0066-DUP1)		**Source: 21B0255-16**		Prepared: 02-Mar-2021 Analyzed: 04-Mar-2021 13:27							
Mercury	ND	0.000013	0.000100	mg/L		ND					U
Matrix Spike (BJC0066-MS1)		**Source: 21B0255-16**		Prepared: 02-Mar-2021 Analyzed: 04-Mar-2021 13:29							
Mercury	0.000994	0.000013	0.000100	mg/L	0.00100	ND	99.4	75-125			

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

Matrix Spike Dup (BJC0066-MSD1)		**Source: 21B0255-16**		Prepared: 02-Mar-2021 Analyzed: 04-Mar-2021 13:32							
Mercury	0.00100	0.000013	0.000100	mg/L	0.00100	ND	100	75-125	0.64	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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0052 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0052-BLK1)					Prepared: 02-Mar-2021 Analyzed: 02-Mar-2021 15:25						
Mercury, Dissolved	ND	0.000013	0.000100	mg/L							U
LCS (BJC0052-BS1)					Prepared: 02-Mar-2021 Analyzed: 02-Mar-2021 15:27						
Mercury, Dissolved	0.00182	0.000013	0.000100	mg/L	0.00200		91.2	80-120			
Duplicate (BJC0052-DUP1)		**Source: 21B0255-07**			Prepared: 02-Mar-2021 Analyzed: 02-Mar-2021 15:32						
Mercury, Dissolved	ND	0.000013	0.000100	mg/L		ND					U
Matrix Spike (BJC0052-MS1)		**Source: 21B0255-07**			Prepared: 02-Mar-2021 Analyzed: 02-Mar-2021 15:39						
Mercury, Dissolved	0.000993	0.000013	0.000100	mg/L	0.00100	ND	99.3	75-125			

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

Matrix Spike Dup (BJC0052-MSD1)		**Source: 21B0255-07**			Prepared: 02-Mar-2021 Analyzed: 02-Mar-2021 15:41						
Mercury, Dissolved	0.000834	0.000013	0.000100	mg/L	0.00100	ND	83.4	75-125	17.40	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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0054 - 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 (BJC0054-BLK1)					Prepared: 02-Mar-2021 Analyzed: 03-Mar-2021 16:21							
Barium, Dissolved	135	ND	0.0560	0.500	ug/L							U
Barium, Dissolved	137	ND	0.0530	0.500	ug/L							U
Chromium, Dissolved	52	0.131	0.130	0.500	ug/L							J
Chromium, Dissolved	53	0.122	0.0700	0.500	ug/L							J
Cobalt, Dissolved	59	ND	0.0290	0.200	ug/L							U
Iron, Dissolved	54	6.90	6.27	20.0	ug/L							J
Iron, Dissolved	57	ND	1.40	20.0	ug/L							U
Lead, Dissolved	208	ND	0.0680	0.100	ug/L							U
Manganese, Dissolved	55	0.124	0.0850	0.500	ug/L							J
Silver, Dissolved	107	ND	0.0170	0.200	ug/L							U
Vanadium, Dissolved	51a	ND	0.0400	0.200	ug/L							U
Vanadium, Dissolved	51b	ND	0.0160	0.200	ug/L							U
Arsenic, Dissolved	75a	ND	0.0220	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	0.340	0.500	ug/L							U
Copper, Dissolved	65	ND	0.350	0.500	ug/L							U
Nickel, Dissolved	60	ND	0.0500	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
Selenium, Dissolved	78	ND	0.440	0.500	ug/L							U
Zinc, Dissolved	66	ND	0.820	4.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	4.00	ug/L							U
LCS (BJC0054-BS1)					Prepared: 02-Mar-2021 Analyzed: 03-Mar-2021 16:06							
Barium, Dissolved	135	25.5	0.0560	0.500	ug/L	25.0		102	80-120			
Barium, Dissolved	137	25.1	0.0530	0.500	ug/L	25.0		101	80-120			
Chromium, Dissolved	52	25.4	0.130	0.500	ug/L	25.0		101	80-120			
Cobalt, Dissolved	59	25.2	0.0290	0.200	ug/L	25.0		101	80-120			
Chromium, Dissolved	53	25.6	0.0700	0.500	ug/L	25.0		102	80-120			
Iron, Dissolved	54	4880	6.27	20.0	ug/L	5000		97.7	80-120			
Iron, Dissolved	57	4890	1.40	20.0	ug/L	5000		97.8	80-120			
Lead, Dissolved	208	25.2	0.0680	0.100	ug/L	25.0		101	80-120			
Manganese, Dissolved	55	26.2	0.0850	0.500	ug/L	25.0		105	80-120			
Silver, Dissolved	107	27.5	0.0170	0.200	ug/L	25.0		110	80-120			
Vanadium, Dissolved	51a	25.5	0.0400	0.200	ug/L	25.0		102	80-120			

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0054 - 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 (BJC0054-BS1)						Prepared: 02-Mar-2021 Analyzed: 03-Mar-2021 16:06						
Vanadium, Dissolved	51b	25.6	0.0160	0.200	ug/L	25.0		102	80-120			
Arsenic, Dissolved	75a	24.7	0.0220	0.200	ug/L	25.0		98.9	80-120			
Cadmium, Dissolved	111	25.3	0.0300	0.100	ug/L	25.0		101	80-120			
Cadmium, Dissolved	114	24.9	0.0400	0.100	ug/L	25.0		99.6	80-120			
Copper, Dissolved	63	25.4	0.340	0.500	ug/L	25.0		102	80-120			
Copper, Dissolved	65	25.3	0.350	0.500	ug/L	25.0		101	80-120			
Nickel, Dissolved	60	25.3	0.0500	0.500	ug/L	25.0		101	80-120			
Nickel, Dissolved	62	25.3	0.220	0.500	ug/L	25.0		101	80-120			
Selenium, Dissolved	78	77.8	0.440	0.500	ug/L	80.0		97.3	80-120			
Zinc, Dissolved	66	79.0	0.820	4.00	ug/L	80.0		98.8	80-120			
Zinc, Dissolved	67	77.8	0.940	4.00	ug/L	80.0		97.2	80-120			
Duplicate (BJC0054-DUP1)			**Source: 21B0255-13**			Prepared: 02-Mar-2021 Analyzed: 04-Mar-2021 03:16						
Barium, Dissolved	135	4.95	0.0560	0.500	ug/L		4.85			2.02	20	
Cobalt, Dissolved	59	1.94	0.0290	0.200	ug/L		1.89			2.72	20	
Lead, Dissolved	208	ND	0.0680	0.100	ug/L		ND					U
Arsenic, Dissolved	75a	0.109	0.0220	0.200	ug/L		0.0990			9.62	20	J
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L		ND					U
Copper, Dissolved	63	1.92	0.340	0.500	ug/L		1.82			5.51	20	
Nickel, Dissolved	60	7.70	0.0500	0.500	ug/L		7.25			6.06	20	
Selenium, Dissolved	78	ND	0.440	0.500	ug/L		ND					U
Zinc, Dissolved	66	3.47	0.820	4.00	ug/L		2.39			37.00	20	L, J
Duplicate (BJC0054-DUP2)			**Source: 21B0255-13**			Prepared: 02-Mar-2021 Analyzed: 04-Mar-2021 21:10						
Chromium, Dissolved	52	0.426	0.260	1.00	ug/L		ND					J, D
Iron, Dissolved	54	30.0	12.5	40.0	ug/L		35.2			16.10	20	J, D
Manganese, Dissolved	55	252	0.170	1.00	ug/L		257			1.72	20	D
Vanadium, Dissolved	51a	0.0820	0.0800	0.400	ug/L		0.0900			9.30	20	J, D
Matrix Spike (BJC0054-MS1)			**Source: 21B0255-13**			Prepared: 02-Mar-2021 Analyzed: 04-Mar-2021 03:21						
Barium, Dissolved	135	28.9	0.0560	0.500	ug/L	25.0	4.85	96.0	75-125			
Cobalt, Dissolved	59	27.5	0.0290	0.200	ug/L	25.0	1.89	102	75-125			
Lead, Dissolved	208	25.1	0.0680	0.100	ug/L	25.0	ND	101	75-125			
Arsenic, Dissolved	75a	24.2	0.0220	0.200	ug/L	25.0	0.0990	96.6	75-125			
Cadmium, Dissolved	111	24.4	0.0300	0.100	ug/L	25.0	ND	97.7	75-125			
Copper, Dissolved	63	26.1	0.340	0.500	ug/L	25.0	1.82	97.2	75-125			

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0054 - 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 (BJC0054-MS1)			**Source: 21B0255-13**			Prepared: 02-Mar-2021		Analyzed: 04-Mar-2021 03:21				
Nickel, Dissolved	60	32.0	0.0500	0.500	ug/L	25.0	7.25	99.0	75-125			
Selenium, Dissolved	78	74.9	0.440	0.500	ug/L	80.0	ND	93.6	75-125			
Zinc, Dissolved	66	75.7	0.820	4.00	ug/L	80.0	2.39	91.6	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BJC0054-MS2)			**Source: 21B0255-13**			Prepared: 02-Mar-2021		Analyzed: 04-Mar-2021 21:15				
Chromium, Dissolved	52	22.3	0.260	1.00	ug/L	25.0	ND	89.1	75-125			D
Iron, Dissolved	54	4470	12.5	40.0	ug/L	5000	35.2	88.7	75-125			D
Manganese, Dissolved	55	274	0.170	1.00	ug/L	25.0	257	69.1	75-125			HC, D
Vanadium, Dissolved	51a	22.9	0.0800	0.400	ug/L	25.0	0.0900	91.4	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0054-MSD1)			**Source: 21B0255-13**			Prepared: 02-Mar-2021		Analyzed: 04-Mar-2021 03:27				
Barium, Dissolved	135	28.6	0.0560	0.500	ug/L	25.0	4.85	94.9	75-125	1.02	20	
Cobalt, Dissolved	59	27.7	0.0290	0.200	ug/L	25.0	1.89	103	75-125	0.86	20	
Lead, Dissolved	208	25.5	0.0680	0.100	ug/L	25.0	ND	102	75-125	1.51	20	
Arsenic, Dissolved	75a	24.1	0.0220	0.200	ug/L	25.0	0.0990	96.0	75-125	0.61	20	
Cadmium, Dissolved	111	24.3	0.0300	0.100	ug/L	25.0	ND	97.3	75-125	0.42	20	
Copper, Dissolved	63	26.4	0.340	0.500	ug/L	25.0	1.82	98.2	75-125	0.98	20	
Nickel, Dissolved	60	32.3	0.0500	0.500	ug/L	25.0	7.25	100	75-125	0.87	20	
Selenium, Dissolved	78	73.9	0.440	0.500	ug/L	80.0	ND	92.4	75-125	1.31	20	
Zinc, Dissolved	66	77.4	0.820	4.00	ug/L	80.0	2.39	93.8	75-125	2.24	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0054-MSD2)			**Source: 21B0255-13**			Prepared: 02-Mar-2021		Analyzed: 04-Mar-2021 21:21				
Chromium, Dissolved	52	22.2	0.260	1.00	ug/L	25.0	ND	89.0	75-125	0.17	20	D
Iron, Dissolved	54	4420	12.5	40.0	ug/L	5000	35.2	87.6	75-125	1.18	20	D
Manganese, Dissolved	55	267	0.170	1.00	ug/L	25.0	257	41.1	75-125	2.59	20	HC, D
Vanadium, Dissolved	51a	22.8	0.0800	0.400	ug/L	25.0	0.0900	91.0	75-125	0.37	20	D
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

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0054 - 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
Duplicate (BJC0054-DUP3)			**Source: 21B0255-13**		Prepared: 02-Mar-2021	Analyzed: 05-Mar-2021 20:48						
Silver, Dissolved	107	ND	0.0340	0.400	ug/L		ND					U
Matrix Spike (BJC0054-MS3)			**Source: 21B0255-13**		Prepared: 02-Mar-2021	Analyzed: 05-Mar-2021 20:52						
Silver, Dissolved	107	24.7	0.0340	0.400	ug/L	25.0	ND	98.9	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0054-MSD3)			**Source: 21B0255-13**		Prepared: 02-Mar-2021	Analyzed: 05-Mar-2021 20:57						
Silver, Dissolved	107	24.3	0.0340	0.400	ug/L	25.0	ND	97.4	75-125	1.56	20	D
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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

Wet Chemistry - Quality Control

Batch BJB0547 - 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 (BJB0547-BLK1)				Prepared: 18-Feb-2021 Analyzed: 18-Feb-2021 16:58							
Sulfite	ND	1.4	1.4	mg/L							U
LCS (BJB0547-BS1)				Prepared: 18-Feb-2021 Analyzed: 18-Feb-2021 16:58							
Sulfite	4.1	1.4	1.4	mg/L	4.99		81.4	75-100			
Duplicate (BJB0547-DUP1)		**Source: 21B0255-01**		Prepared: 18-Feb-2021 Analyzed: 18-Feb-2021 16:58							
Sulfite	ND	1.4	1.4	mg/L		ND					H, 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	21-Jul-2021 15:02

Wet Chemistry - Quality Control

Batch BJB0549 - No Prep Wet Chem

Instrument: IC930 Analyst: WCW

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJB0549-BLK1)				Prepared: 18-Feb-2021 Analyzed: 18-Feb-2021 18:52							
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 (BJB0549-BS1)				Prepared: 18-Feb-2021 Analyzed: 18-Feb-2021 19:12							
Chloride	4.85	0.100	0.100	mg/L	5.00		97.1	90-110			
Nitrate-N	5.13	0.100	0.100	mg/L	5.00		103	90-110			
Nitrite-N	4.96	0.100	0.100	mg/L	5.00		99.3	90-110			
Sulfate	5.03	0.100	0.100	mg/L	5.00		101	90-110			
Duplicate (BJB0549-DUP1)		**Source: 21B0255-01**		Prepared: 18-Feb-2021 Analyzed: 18-Feb-2021 19:52							
Nitrate-N	1.52	0.100	0.100	mg/L		1.52			0.00		
Nitrite-N	ND	0.100	0.100	mg/L		ND					U
Duplicate (BJB0549-DUP2)		**Source: 21B0255-01RE1**		Prepared: 18-Feb-2021 Analyzed: 18-Feb-2021 21:12							
Chloride	30.8	2.10	2.10	mg/L		30.9			0.14	20	D
Sulfate	90.0	2.10	2.10	mg/L		91.1			1.17	20	D
Matrix Spike (BJB0549-MS1)		**Source: 21B0255-01**		Prepared: 18-Feb-2021 Analyzed: 18-Feb-2021 20:12							
Nitrate-N	3.50	0.100	0.100	mg/L	2.00	1.52	99.3	75-125			
Nitrite-N	2.01	0.100	0.100	mg/L	2.00	ND	100	75-125			

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

Matrix Spike (BJB0549-MS3)		**Source: 21B0255-01RE1**		Prepared: 18-Feb-2021 Analyzed: 19-Feb-2021 12:20							
Chloride	60.3	1.00	1.00	mg/L	30.0	30.9	98.0	75-125			D

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

Matrix Spike (BJB0549-MS4)		**Source: 21B0255-01RE1**		Prepared: 18-Feb-2021 Analyzed: 19-Feb-2021 12:39							
Sulfate	160	2.50	2.50	mg/L	100	91.1	69.3	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	21-Jul-2021 15:02

Wet Chemistry - Quality Control

Batch BJB0552 - No Prep Wet Chem

Instrument: UV1800-2 Analyst: WMT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJB0552-BLK1)				Prepared: 18-Feb-2021 Analyzed: 18-Feb-2021 19:27							
Ferrous Iron	ND	0.040	0.040	mg/L							U
LCS (BJB0552-BS1)				Prepared: 18-Feb-2021 Analyzed: 18-Feb-2021 19:28							
Ferrous Iron	0.512	0.040	0.040	mg/L	0.501		102	90-110			
Duplicate (BJB0552-DUP1)		**Source: 21B0255-01**		Prepared: 18-Feb-2021 Analyzed: 18-Feb-2021 19:38							
Ferrous Iron	1.02	0.040	0.040	mg/L		1.04			1.84	20	
Matrix Spike (BJB0552-MS1)		**Source: 21B0255-01**		Prepared: 18-Feb-2021 Analyzed: 18-Feb-2021 19:38							
Ferrous Iron	1.41	0.041	0.041	mg/L	0.409	1.04	90.1	75-125			

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	21-Jul-2021 15:02

Certified Analyses included in this Report

Analyte	Certifications
EPA 300.0 in Water	
Chloride	DoD-ELAP,WA-DW,NELAP
Chloride	DoD-ELAP,WADOE,NELAP
Nitrate-N	DoD-ELAP,WADOE,NELAP
Nitrate-N	DoD-ELAP,WA-DW,NELAP
Nitrite-N	DoD-ELAP,WA-DW,NELAP
Nitrite-N	DoD-ELAP,WADOE,NELAP
Sulfate	DoD-ELAP,WADOE,NELAP
Sulfate	DoD-ELAP,WA-DW,NELAP
EPA 6020B in Water	
Silver-107	WA-DW,DoD-ELAP,NELAP
Silver-107	WADOE,DoD-ELAP,NELAP
Barium-135	NELAP,DoD-ELAP,ADEC
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	DoD-ELAP,NELAP
Cobalt-59	DoD-ELAP,NELAP,WADOE
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,DoD-ELAP,ADEC
Chromium-53	NELAP,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,DoD-ELAP
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,DoD-ELAP
Lead-208	NELAP,DoD-ELAP,ADEC
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,ADEC
Silver-107	DoD-ELAP,NELAP
Silver-107	WA-DW,DoD-ELAP,NELAP

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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	21-Jul-2021 15:02

Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-135	NELAP,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,DoD-ELAP,ADEC
Cobalt-59	NELAP,DoD-ELAP
Cobalt-59	NELAP,DoD-ELAP,WADOE
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,DoD-ELAP,ADEC
Chromium-53	NELAP,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,DoD-ELAP
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,DoD-ELAP
Lead-208	NELAP,DoD-ELAP,ADEC
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51a	NELAP,DoD-ELAP,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,ADEC

EPA 6020B UCT-KED in Water

Arsenic-75a	WADOE,DoD-ELAP,ADEC,NELAP
Arsenic-75a	WA-DW,DoD-ELAP,ADEC,NELAP
Cadmium-111	NELAP,DoD-ELAP,ADEC
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,DoD-ELAP,ADEC
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-63	NELAP,DoD-ELAP
Copper-65	NELAP,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,DoD-ELAP,ADEC
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Selenium-78	NELAP,DoD-ELAP

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	21-Jul-2021 15:02

Zinc-66	WADOE,DoD-ELAP
Zinc-66	WA-DW,DoD-ELAP
Zinc-67	WADOE,DoD-ELAP
Zinc-67	WA-DW,DoD-ELAP
Arsenic-75a	NELAP,DoD-ELAP,ADEC
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-111	NELAP,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,DoD-ELAP,ADEC
Copper-63	NELAP,DoD-ELAP
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,DoD-ELAP
Nickel-60	NELAP,DoD-ELAP,ADEC
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,DoD-ELAP,ADEC
Selenium-78	NELAP,WADOE,DoD-ELAP
Selenium-78	NELAP,DoD-ELAP
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-66	NELAP,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,DoD-ELAP
EPA 7470A in Water	
Mercury	WADOE,NELAP,DoD-ELAP
Mercury	NELAP,DoD-ELAP
Mercury	NELAP,DoD-ELAP
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8082A in Water	
Aroclor 1016	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1016	ADEC,DoD-ELAP,NELAP
Aroclor-1016 (1)	ADEC
Aroclor-1016 (1)	ADEC
Aroclor-1016 (2)	ADEC
Aroclor-1016 (2)	ADEC
Aroclor-1016 (3)	ADEC
Aroclor-1016 (3)	ADEC
Aroclor-1016 (4)	ADEC

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Aroclor-1016 (4)	ADEC
Aroclor 1016 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor 1016 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1016 (1) [2C]	ADEC
Aroclor-1016 (1) [2C]	ADEC
Aroclor-1016 (2) [2C]	ADEC
Aroclor-1016 (2) [2C]	ADEC
Aroclor-1016 (3) [2C]	ADEC
Aroclor-1016 (3) [2C]	ADEC
Aroclor-1016 (4) [2C]	ADEC
Aroclor-1016 (4) [2C]	ADEC
Aroclor 1221	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1221	ADEC,DoD-ELAP,NELAP
Aroclor-1221 (1)	ADEC
Aroclor-1221 (1)	ADEC
Aroclor-1221 (2)	ADEC
Aroclor-1221 (2)	ADEC
Aroclor-1221 (3)	ADEC
Aroclor-1221 (3)	ADEC
Aroclor 1221 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor 1221 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1221 (1) [2C]	ADEC
Aroclor-1221 (1) [2C]	ADEC
Aroclor-1221 (2) [2C]	ADEC
Aroclor-1221 (2) [2C]	ADEC
Aroclor-1221 (3) [2C]	ADEC
Aroclor-1221 (3) [2C]	ADEC
Aroclor-1221 (4) [2C]	ADEC
Aroclor-1221 (4) [2C]	ADEC
Aroclor 1232	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1232	ADEC,DoD-ELAP,NELAP
Aroclor-1232 (1)	ADEC
Aroclor-1232 (1)	ADEC
Aroclor-1232 (2)	ADEC
Aroclor-1232 (2)	ADEC
Aroclor-1232 (3)	ADEC
Aroclor-1232 (3)	ADEC
Aroclor-1232 (4)	ADEC
Aroclor-1232 (4)	ADEC

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Aroclor 1232 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1232 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1232 (1) [2C]	ADEC
Aroclor-1232 (1) [2C]	ADEC
Aroclor-1232 (2) [2C]	ADEC
Aroclor-1232 (2) [2C]	ADEC
Aroclor-1232 (3) [2C]	ADEC
Aroclor-1232 (3) [2C]	ADEC
Aroclor-1232 (4) [2C]	ADEC
Aroclor-1232 (4) [2C]	ADEC
Aroclor 1242	ADEC,DoD-ELAP,NELAP
Aroclor 1242	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1242 (1)	ADEC
Aroclor-1242 (1)	ADEC
Aroclor-1242 (2)	ADEC
Aroclor-1242 (2)	ADEC
Aroclor-1242 (3)	ADEC
Aroclor-1242 (3)	ADEC
Aroclor-1242 (4)	ADEC
Aroclor-1242 (4)	ADEC
Aroclor 1242 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1242 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1242 (1) [2C]	ADEC
Aroclor-1242 (1) [2C]	ADEC
Aroclor-1242 (2) [2C]	ADEC
Aroclor-1242 (2) [2C]	ADEC
Aroclor-1242 (3) [2C]	ADEC
Aroclor-1242 (3) [2C]	ADEC
Aroclor-1242 (4) [2C]	ADEC
Aroclor-1242 (4) [2C]	ADEC
Aroclor 1248	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1248	ADEC,DoD-ELAP,NELAP
Aroclor-1248 (1)	ADEC
Aroclor-1248 (1)	ADEC
Aroclor-1248 (2)	ADEC
Aroclor-1248 (2)	ADEC
Aroclor-1248 (3)	ADEC
Aroclor-1248 (3)	ADEC
Aroclor-1248 (4)	ADEC

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Aroclor-1248 (4)	ADEC
Aroclor 1248 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1248 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1248 (1) [2C]	ADEC
Aroclor-1248 (1) [2C]	ADEC
Aroclor-1248 (2) [2C]	ADEC
Aroclor-1248 (2) [2C]	ADEC
Aroclor-1248 (3) [2C]	ADEC
Aroclor-1248 (3) [2C]	ADEC
Aroclor-1248 (4) [2C]	ADEC
Aroclor-1248 (4) [2C]	ADEC
Aroclor 1254	ADEC,DoD-ELAP,NELAP
Aroclor 1254	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1254 (1)	ADEC
Aroclor-1254 (1)	ADEC
Aroclor-1254 (2)	ADEC
Aroclor-1254 (2)	ADEC
Aroclor-1254 (3)	ADEC
Aroclor-1254 (3)	ADEC
Aroclor-1254 (4)	ADEC
Aroclor-1254 (4)	ADEC
Aroclor-1254 (5)	ADEC
Aroclor-1254 (5)	ADEC
Aroclor 1254 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor 1254 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1254 (1) [2C]	ADEC
Aroclor-1254 (1) [2C]	ADEC
Aroclor-1254 (2) [2C]	ADEC
Aroclor-1254 (2) [2C]	ADEC
Aroclor-1254 (3) [2C]	ADEC
Aroclor-1254 (3) [2C]	ADEC
Aroclor-1254 (4) [2C]	ADEC
Aroclor-1254 (4) [2C]	ADEC
Aroclor-1254 (5) [2C]	ADEC
Aroclor-1254 (5) [2C]	ADEC
Aroclor 1260	ADEC,DoD-ELAP,NELAP
Aroclor 1260	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1260 (1)	ADEC
Aroclor-1260 (1)	ADEC

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Aroclor-1260 (2)	ADEC
Aroclor-1260 (2)	ADEC
Aroclor-1260 (3)	ADEC
Aroclor-1260 (3)	ADEC
Aroclor-1260 (4)	ADEC
Aroclor-1260 (4)	ADEC
Aroclor-1260 (5)	ADEC
Aroclor-1260 (5)	ADEC
Aroclor 1260 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1260 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1260 (1) [2C]	ADEC
Aroclor-1260 (1) [2C]	ADEC
Aroclor-1260 (2) [2C]	ADEC
Aroclor-1260 (2) [2C]	ADEC
Aroclor-1260 (3) [2C]	ADEC
Aroclor-1260 (3) [2C]	ADEC
Aroclor-1260 (4) [2C]	ADEC
Aroclor-1260 (4) [2C]	ADEC
Aroclor 1262	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1262	ADEC,DoD-ELAP,NELAP
Aroclor-1262 (1)	ADEC
Aroclor-1262 (1)	ADEC
Aroclor-1262 (2)	ADEC
Aroclor-1262 (2)	ADEC
Aroclor-1262 (3)	ADEC
Aroclor-1262 (3)	ADEC
Aroclor-1262 (4)	ADEC
Aroclor-1262 (4)	ADEC
Aroclor-1262 (5)	ADEC
Aroclor-1262 (5)	ADEC
Aroclor 1262 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1262 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1262 (1) [2C]	ADEC
Aroclor-1262 (1) [2C]	ADEC
Aroclor-1262 (2) [2C]	ADEC
Aroclor-1262 (2) [2C]	ADEC
Aroclor-1262 (3) [2C]	ADEC
Aroclor-1262 (3) [2C]	ADEC
Aroclor-1262 (4) [2C]	ADEC

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Aroclor-1262 (4) [2C]	ADEC
Aroclor-1262 (5) [2C]	ADEC
Aroclor-1262 (5) [2C]	ADEC
Aroclor 1268	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1268	ADEC,DoD-ELAP,NELAP
Aroclor-1268 (1)	ADEC
Aroclor-1268 (1)	ADEC
Aroclor-1268 (2)	ADEC
Aroclor-1268 (2)	ADEC
Aroclor-1268 (3)	ADEC
Aroclor-1268 (3)	ADEC
Aroclor-1268 (4)	ADEC
Aroclor-1268 (4)	ADEC
Aroclor 1268 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1268 [2C]	ADEC,DoD-ELAP,NELAP
Aroclor-1268 (1) [2C]	ADEC
Aroclor-1268 (1) [2C]	ADEC
Aroclor-1268 (2) [2C]	ADEC
Aroclor-1268 (2) [2C]	ADEC
Aroclor-1268 (3) [2C]	ADEC
Aroclor-1268 (3) [2C]	ADEC
Aroclor-1268 (4) [2C]	ADEC
Aroclor-1268 (4) [2C]	ADEC

EPA 8260D in Water

Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloromethane	DoD-ELAP,ADEC,NELAP
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP
Bromomethane	DoD-ELAP,ADEC,NELAP
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP

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Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP
Iodomethane	DoD-ELAP,NELAP
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP
Acrylonitrile	DoD-ELAP,NELAP
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP
Benzene	DoD-ELAP,ADEC,NELAP
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP

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1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP
Dibromomethane	DoD-ELAP,ADEC,NELAP
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP
Styrene	DoD-ELAP,NELAP

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Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP
Bromobenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP
s-Butylbenzene	DoD-ELAP,NELAP
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE

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1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP
Naphthalene	DoD-ELAP,ADEC,NELAP
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP
n-Hexane	
n-Hexane	WADOE
2-Pentanone	WADOE
2-Pentanone	

EPA 8260D-SIM in Water

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

EPA 8270E in Water

Phenol	NELAP,DoD-ELAP

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Analytical Resources, Incorporated
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	21-Jul-2021 15:02

Phenol	NELAP,DoD-ELAP
bis(2-chloroethyl) ether	NELAP,DoD-ELAP
bis(2-chloroethyl) ether	NELAP,DoD-ELAP
2-Chlorophenol	NELAP,DoD-ELAP
2-Chlorophenol	NELAP,DoD-ELAP
1,3-Dichlorobenzene	NELAP,DoD-ELAP
1,3-Dichlorobenzene	NELAP,DoD-ELAP
1,4-Dichlorobenzene	NELAP,DoD-ELAP
1,4-Dichlorobenzene	NELAP,DoD-ELAP
1,2-Dichlorobenzene	NELAP,DoD-ELAP
1,2-Dichlorobenzene	NELAP,DoD-ELAP
Benzyl Alcohol	NELAP,DoD-ELAP
Benzyl Alcohol	NELAP,DoD-ELAP
2,2'-Oxybis(1-chloropropane)	NELAP,DoD-ELAP
2,2'-Oxybis(1-chloropropane)	NELAP,DoD-ELAP
2-Methylphenol	NELAP,DoD-ELAP
2-Methylphenol	NELAP,DoD-ELAP
Hexachloroethane	NELAP,DoD-ELAP
Hexachloroethane	NELAP,DoD-ELAP
N-Nitroso-di-n-Propylamine	NELAP,DoD-ELAP
N-Nitroso-di-n-Propylamine	NELAP,DoD-ELAP
4-Methylphenol	NELAP,DoD-ELAP
4-Methylphenol	NELAP,DoD-ELAP
Nitrobenzene	NELAP,DoD-ELAP
Nitrobenzene	NELAP,DoD-ELAP
Isophorone	NELAP,DoD-ELAP
Isophorone	NELAP,DoD-ELAP
2-Nitrophenol	NELAP,DoD-ELAP
2-Nitrophenol	NELAP,DoD-ELAP
2,4-Dimethylphenol	NELAP,DoD-ELAP
2,4-Dimethylphenol	NELAP,DoD-ELAP
Bis(2-Chloroethoxy)methane	NELAP,DoD-ELAP
Bis(2-Chloroethoxy)methane	NELAP,DoD-ELAP
2,4-Dichlorophenol	NELAP,DoD-ELAP
2,4-Dichlorophenol	NELAP,DoD-ELAP
1,2,4-Trichlorobenzene	NELAP,DoD-ELAP
1,2,4-Trichlorobenzene	NELAP,DoD-ELAP
Naphthalene	NELAP,DoD-ELAP
Naphthalene	NELAP,DoD-ELAP

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

Benzoic acid	NELAP,DoD-ELAP
Benzoic acid	NELAP,DoD-ELAP
4-Chloroaniline	NELAP,DoD-ELAP
4-Chloroaniline	NELAP,DoD-ELAP
Hexachlorobutadiene	NELAP,DoD-ELAP
Hexachlorobutadiene	NELAP,DoD-ELAP
4-Chloro-3-Methylphenol	NELAP,DoD-ELAP
4-Chloro-3-Methylphenol	NELAP,DoD-ELAP
2-Methylnaphthalene	NELAP,DoD-ELAP
2-Methylnaphthalene	NELAP,DoD-ELAP
Hexachlorocyclopentadiene	NELAP,DoD-ELAP
Hexachlorocyclopentadiene	NELAP,DoD-ELAP
2,4,6-Trichlorophenol	NELAP,DoD-ELAP
2,4,6-Trichlorophenol	NELAP,DoD-ELAP
2,4,5-Trichlorophenol	NELAP,DoD-ELAP
2,4,5-Trichlorophenol	NELAP,DoD-ELAP
2-Chloronaphthalene	NELAP,DoD-ELAP
2-Chloronaphthalene	NELAP,DoD-ELAP
2-Nitroaniline	NELAP,DoD-ELAP
2-Nitroaniline	NELAP,DoD-ELAP
Acenaphthylene	NELAP,DoD-ELAP
Acenaphthylene	NELAP,DoD-ELAP
Dimethylphthalate	NELAP,DoD-ELAP
Dimethylphthalate	NELAP,DoD-ELAP
2,6-Dinitrotoluene	NELAP,DoD-ELAP
2,6-Dinitrotoluene	NELAP,DoD-ELAP
Acenaphthene	NELAP,DoD-ELAP
Acenaphthene	NELAP,DoD-ELAP
3-Nitroaniline	NELAP,DoD-ELAP
3-Nitroaniline	NELAP,DoD-ELAP
2,4-Dinitrophenol	NELAP,DoD-ELAP
2,4-Dinitrophenol	NELAP,DoD-ELAP
Dibenzofuran	NELAP,DoD-ELAP
Dibenzofuran	NELAP,DoD-ELAP
4-Nitrophenol	NELAP,DoD-ELAP
4-Nitrophenol	NELAP,DoD-ELAP
2,4-Dinitrotoluene	NELAP,DoD-ELAP
2,4-Dinitrotoluene	NELAP,DoD-ELAP
Fluorene	NELAP,DoD-ELAP

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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	21-Jul-2021 15:02

Fluorene	NELAP,DoD-ELAP
4-Chlorophenylphenyl ether	NELAP,DoD-ELAP
4-Chlorophenylphenyl ether	NELAP,DoD-ELAP
Diethyl phthalate	NELAP,DoD-ELAP
Diethyl phthalate	NELAP,DoD-ELAP
4-Nitroaniline	NELAP,DoD-ELAP
4-Nitroaniline	NELAP,DoD-ELAP
4,6-Dinitro-2-methylphenol	NELAP,DoD-ELAP
4,6-Dinitro-2-methylphenol	NELAP,DoD-ELAP
N-Nitrosodiphenylamine	NELAP,DoD-ELAP
N-Nitrosodiphenylamine	NELAP,DoD-ELAP
4-Bromophenyl phenyl ether	NELAP,DoD-ELAP
4-Bromophenyl phenyl ether	NELAP,DoD-ELAP
Hexachlorobenzene	NELAP,DoD-ELAP
Hexachlorobenzene	NELAP,DoD-ELAP
Pentachlorophenol	NELAP,DoD-ELAP
Pentachlorophenol	NELAP,DoD-ELAP
Phenanthrene	NELAP,DoD-ELAP
Phenanthrene	NELAP,DoD-ELAP
Anthracene	NELAP,DoD-ELAP
Anthracene	NELAP,DoD-ELAP
Carbazole	NELAP,DoD-ELAP
Carbazole	NELAP,DoD-ELAP
Di-n-Butylphthalate	NELAP,DoD-ELAP
Di-n-Butylphthalate	NELAP,DoD-ELAP
Fluoranthene	NELAP,DoD-ELAP
Fluoranthene	NELAP,DoD-ELAP
Pyrene	NELAP,DoD-ELAP
Pyrene	NELAP,DoD-ELAP
Butylbenzylphthalate	NELAP,DoD-ELAP
Butylbenzylphthalate	NELAP,DoD-ELAP
Benzo(a)anthracene	NELAP,DoD-ELAP
Benzo(a)anthracene	NELAP,DoD-ELAP
3,3'-Dichlorobenzidine	NELAP,DoD-ELAP
3,3'-Dichlorobenzidine	NELAP,DoD-ELAP
Chrysene	NELAP,DoD-ELAP
Chrysene	NELAP,DoD-ELAP
bis(2-Ethylhexyl)phthalate	NELAP,DoD-ELAP
bis(2-Ethylhexyl)phthalate	NELAP,DoD-ELAP

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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	21-Jul-2021 15:02

Di-n-Octylphthalate	NELAP,DoD-ELAP
Di-n-Octylphthalate	NELAP,DoD-ELAP
Benzo(b)fluoranthene	NELAP,DoD-ELAP
Benzo(b)fluoranthene	NELAP,DoD-ELAP
Benzo(k)fluoranthene	NELAP,DoD-ELAP
Benzo(k)fluoranthene	NELAP,DoD-ELAP
Benzofluoranthenes, Total	NELAP
Benzofluoranthenes, Total	NELAP
Benzo(a)pyrene	NELAP,DoD-ELAP
Benzo(a)pyrene	NELAP,DoD-ELAP
Indeno(1,2,3-cd)pyrene	NELAP,DoD-ELAP
Indeno(1,2,3-cd)pyrene	NELAP,DoD-ELAP
Dibenzo(a,h)anthracene	NELAP,DoD-ELAP
Dibenzo(a,h)anthracene	NELAP,DoD-ELAP
Benzo(g,h,i)perylene	NELAP,DoD-ELAP
Benzo(g,h,i)perylene	NELAP,DoD-ELAP
N-Nitrosodimethylamine	NELAP,DoD-ELAP
N-Nitrosodimethylamine	NELAP,DoD-ELAP
1-Methylnaphthalene	NELAP,DoD-ELAP
1-Methylnaphthalene	NELAP,DoD-ELAP

EPA 8270E-SIM in Water

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
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Seattle WA, 98103-8636	Project Manager: Meg Strong	21-Jul-2021 15:02

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

NWTPH-Dx in Water

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP

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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	21-Jul-2021 15:02

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

NWTPHg in Water

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-Nap)	DoD-ELAP

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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	21-Jul-2021 15:02

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

SM 3500-Fe B-97 in Water

Ferrous Iron	NELAP
Ferrous Iron	WADOE,NELAP

SM 4500-SO3 B-00 in Water

Sulfite	NELAP
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

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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	21-Jul-2021 15:02

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
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.
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
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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

05 August 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)
21B0272	N/A

Susan Dunnihoo

Digitally signed by Susan Dunnihoo
Date: 2021.08.05 11:00:58 -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.

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

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21B0272	Turn-around Requested: Standard	Page: 1 of 2	
ARI Client Company: Shannon & Wilson	Phone: 206-695-6911	Date: 2/19/2021	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 3	Cooler Temps: See COC
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: MRH/DES		

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	Analysis Requested: TPH-G	TPH-Dx	BTEX	HVOCs	MTBE	PAHs	PCBs	see page 2	Notes/Comments
TB-7-20211902	2/19/21	07:50	WATER	1	X		X	X					
MW-4-20211902		0839		10	X	X	X		X			X	
MW-3-20211902		0931		10	X	X	X	X	X			X	
MW-11-20211902		1053		10	X	X			X			X	
MW-14-20211902		1224		17	X	X	X	X	X			X	
MW-10R-20211902		1350		12		X	X	X		X	X	X	
MW-15-20211902		1500		15	X	X		X				X	

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
• Lab to filter for metals • Please refer to project for methods & analyte lists	(Signature) DAlight	(Signature)	(Signature)	(Signature)
	Printed Name: DANIEL SCHWICHT	Printed Name: Jacob Haltz	Printed Name:	Printed Name:
	Company: SWI	Company: ARI	Company:	Company:
	Date & Time: 19-FEB-21, 16:07	Date & Time: 02/19/2021 1601	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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21B0272	Turn-around Requested: Standard	Page: 2 of 2	
ARI Client Company: Shannon & Wilson	Phone: 206-695-6811	Date: 2/19/2021	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 3	Cooler Temps: See COC F
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: MKH/DES		

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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	Analysis Requested: 1	Metals total & dissolved - lead only	Metals total & diss. As, Mn only	2	Limited list SVOCs	Attenuation indicators	Full list Metals	Metals total & diss. - Co only	Notes/Comments
MW-4-20211902	See page 1 →				X								1= Metals total & dissolved: As, Mn, Ni, Cd, Cu, Pb, Hg, Se, Ag, Zn
MW-3-20211902	See page 1 →					X							
MW-11-20211902	See page 1 →						X						2= Metals total & diss: As, Cr, Mn, Ni, Cd, Co, Cu, Pb, Hg, Se, Ag, Zn
MW-14-20211902	See page 1 →							X	X	X			
MW-10R-20211902	See page 1 →										X		Attenuation indicators: •Nitrate, Nitrite, Sulfate •chloride •Sulfide •Ferrous iron •Dissolved Mn •MEE
MW-15-20211902	See page 1 →									X		X	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
• Lab to filter for metals • Please refer to project memos & analyte lists	Printed Name: DANIEL SCHWIGHT	Printed Name: Jacob Hatle	Printed Name:	Printed Name:
	Company: SWI	Company: ARI	Company:	Company:
	Date & Time: 19-FEB-21, 16:01	Date & Time: 02/19/2021 1601	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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	05-Aug-2021 10:17

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-14-20211902	21B0272-01	Water	19-Feb-2021 12:24	19-Feb-2021 16:01
MW-15-20211902	21B0272-02	Water	19-Feb-2021 15:00	19-Feb-2021 16:01
TB-7-20211902	21B0272-03	Water	19-Feb-2021 15:00	19-Feb-2021 16:01
MW-4-20211902	21B0272-04	Water	19-Feb-2021 08:39	19-Feb-2021 16:01
MW-4-20211902	21B0272-05	Water	19-Feb-2021 08:39	19-Feb-2021 16:01
MW-3-20211902	21B0272-06	Water	19-Feb-2021 09:31	19-Feb-2021 16:01
MW-3-20211902	21B0272-07	Water	19-Feb-2021 09:31	19-Feb-2021 16:01
MW-11-20211902	21B0272-08	Water	19-Feb-2021 10:53	19-Feb-2021 16:01
MW-11-20211902	21B0272-09	Water	19-Feb-2021 10:53	19-Feb-2021 16:01
MW-14-20211902	21B0272-10	Water	19-Feb-2021 12:24	19-Feb-2021 16:01
MW-14-20211902	21B0272-11	Water	19-Feb-2021 12:24	19-Feb-2021 16:01
MW-10R-20211902	21B0272-12	Water	19-Feb-2021 13:50	19-Feb-2021 16:01
MW-10R-20211902	21B0272-13	Water	19-Feb-2021 13:50	19-Feb-2021 16:01
MW-15-20211902	21B0272-14	Water	19-Feb-2021 15:00	19-Feb-2021 16:01
MW-15-20211902	21B0272-15	Water	19-Feb-2021 15:00	19-Feb-2021 16:01

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.

Analytical Resources, Incorporated
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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	05-Aug-2021 10:17

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish
Work Order: 21B0272

Sample receipt

Samples as listed on the preceding page were received 19-Feb-2021 16:01 under ARI work order 21B0272. For details regarding sample receipt, please refer to the Cooler Receipt Form.

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 (BS/LCS) spike recoveries and relative percent difference (RPD) for batch BJB0793 were within control limits. The blank spike duplicate (BSD/LCSD) has spike recoveries outside limits, attributed to a poor injection. As the LCSD is not required by the method, outliers have been flagged and no further action was taken.

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 differences (RPD) were within control limits.

Gasoline Range Organics - WA-Ecology Method NW-TPHG

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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	05-Aug-2021 10:17

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.

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.

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 recovery for d5-phenol was low of limits for the method blank BJB0763-BLK.

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

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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	05-Aug-2021 10:17

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.

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.

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.

The matrix spike (MS) percent recoveries and the duplicate (DUP) 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.

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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	05-Aug-2021 10:17

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 matrix spike/matrix spike duplicate (MS/MSD) recoveries of mercury were within advisory limits The MS/MSD RPD (20.4%) was outside advisory limits (20%) for total mercury BJC0112-MSD1. 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, with the exception of sulfite which has been "H"-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.

The reference material (SRM) percent recoveries were within 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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WORK ORDER

21B0272

Client: Shannon & Wilson, Inc
Project Manager: Amanda Volgardsen Johnson
Project: Lower Duwamish
Project Number: Lower Duwamish

Preservation Confirmation

Container ID	Container Type	pH
21B0272-01 A	HDPE NM, 500 mL	
21B0272-01 B	Small OJ, 500 mL, EDTA	Lab to check pH
21B0272-01 C	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH
21B0272-02 A	HDPE NM, 500 mL	
21B0272-02 B	Small OJ, 500 mL, EDTA	Lab to check pH
21B0272-02 C	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH

JS
Preservation Confirmed By

02/19/2021
Date

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Shannon & Wilson Project Name: LDM

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

Assigned ARI Job No: 21B0272 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 1601 2.8 4.3 2.3 ____ ____ ____

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

Cooler Accepted by: JSm Date: 02/19/2021 Time: 1601

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?			(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) JSm
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	2/8/21	

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

Samples Logged by: SL Date: 2/22/21 Time: 0851 Labels checked by: SL

*** 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 Chemists and Consultants

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WORK ORDER

21B0272

Client: Shannon & Wilson, Inc
Project Manager: Amanda Volgardsen Johnson
Project: Lower Duwamish
Project Number: Lower Duwamish

Preservation Confirmation

Container ID	Container Type	pH	
21B0272-01 A	HDPE NM, 500 mL		
21B0272-01 B	Small OJ, 500 mL, EDTA	Lab to check pH	
21B0272-01 C	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH	
21B0272-02 A	HDPE NM, 500 mL		
21B0272-02 B	Small OJ, 500 mL, EDTA	Lab to check pH	
21B0272-02 C	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH	
21B0272-03 A	VOA Vial, Clear, 40 mL, HCL		
21B0272-04 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0272-04 B	Glass NM, Amber, 500 mL		
21B0272-04 C	Glass NM, Amber, 500 mL		
21B0272-04 D	VOA Vial, Clear, 40 mL, HCL		
21B0272-04 E	VOA Vial, Clear, 40 mL, HCL		
21B0272-04 F	VOA Vial, Clear, 40 mL, HCL		
21B0272-04 G	VOA Vial, Clear, 40 mL, HCL		
21B0272-04 H	VOA Vial, Clear, 40 mL, HCL		
21B0272-04 I	VOA Vial, Clear, 40 mL, HCL		
21B0272-05 A	HDPE NM, 500 mL	> 2	Fail
21B0272-06 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0272-06 B	Glass NM, Amber, 500 mL		
21B0272-06 C	Glass NM, Amber, 500 mL		
21B0272-06 D	VOA Vial, Amber, 40 mL, HCL		
21B0272-06 E	VOA Vial, Amber, 40 mL, HCL		
21B0272-06 F	VOA Vial, Amber, 40 mL, HCL		
21B0272-06 G	VOA Vial, Amber, 40 mL, HCL		
21B0272-06 H	VOA Vial, Amber, 40 mL, HCL		
21B0272-06 I	VOA Vial, Amber, 40 mL, HCL		
21B0272-07 A	HDPE NM, 500 mL	> 2	Fail
21B0272-08 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0272-08 B	Glass NM, Amber, 500 mL		
21B0272-08 C	Glass NM, Amber, 500 mL		
21B0272-08 D	VOA Vial, Amber, 40 mL, HCL		
21B0272-08 E	VOA Vial, Amber, 40 mL, HCL		
21B0272-08 F	VOA Vial, Amber, 40 mL, HCL		
21B0272-08 G	VOA Vial, Amber, 40 mL, HCL		
21B0272-08 H	VOA Vial, Amber, 40 mL, HCL		

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WORK ORDER

21B0272

Client: Shannon & Wilson, Inc | **Project Manager:** Amanda Volgardsen Johnson

Project: Lower Duwamish | **Project Number:** Lower Duwamish

21B0272-08 I	VOA Vial, Clear, 40 mL, HCL		
21B0272-09 A	HDPE NM, 500 mL	>2	Fail
21B0272-10 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0272-10 B	Glass NM, Amber, 500 mL		
21B0272-10 C	Glass NM, Amber, 500 mL		
21B0272-10 D	Glass NM, Amber, 500 mL		
21B0272-10 E	Glass NM, Amber, 500 mL		
21B0272-10 F	VOA Vial, Amber, 40 mL, HCL		
21B0272-10 G	VOA Vial, Amber, 40 mL, HCL		
21B0272-10 H	VOA Vial, Amber, 40 mL, HCL		
21B0272-10 I	VOA Vial, Amber, 40 mL, HCL		
21B0272-10 J	VOA Vial, Amber, 40 mL, HCL		
21B0272-10 K	VOA Vial, Amber, 40 mL, HCL		
21B0272-10 L	VOA Vial, Amber, 40 mL, HCL		
21B0272-10 M	VOA Vial, Amber, 40 mL, HCL		
21B0272-11 A	HDPE NM, 500 mL	>2	Fail
21B0272-12 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0272-12 B	Glass NM, Amber, 500 mL		
21B0272-12 C	Glass NM, Amber, 500 mL		
21B0272-12 D	Glass NM, Amber, 500 mL		
21B0272-12 E	Glass NM, Amber, 500 mL		
21B0272-12 F	Glass NM, Amber, 500 mL		
21B0272-12 G	Glass NM, Amber, 500 mL		
21B0272-12 H	VOA Vial, Amber, 40 mL, HCL		
21B0272-12 I	VOA Vial, Amber, 40 mL, HCL		
21B0272-12 J	VOA Vial, Amber, 40 mL, HCL		
21B0272-12 K	VOA Vial, Amber, 40 mL, HCL		
21B0272-13 A	HDPE NM, 500 mL	>2	Fail
21B0272-14 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0272-14 B	Glass NM, Amber, 500 mL		
21B0272-14 C	Glass NM, Amber, 500 mL		
21B0272-14 D	VOA Vial, Amber, 40 mL, HCL		
21B0272-14 E	VOA Vial, Amber, 40 mL, HCL		
21B0272-14 F	VOA Vial, Amber, 40 mL, HCL		
21B0272-14 G	VOA Vial, Amber, 40 mL, HCL		
21B0272-14 H	VOA Vial, Amber, 40 mL, HCL		
21B0272-14 I	VOA Vial, Amber, 40 mL, HCL		

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WORK ORDER

21B0272

Client: Shannon & Wilson, Inc	**Project Manager: Amanda Volgardsen Johnson**
Project: Lower Duwamish	**Project Number: Lower Duwamish**

21B0272-14 J	VOA Vial, Amber, 40 mL, HCL		
21B0272-14 K	VOA Vial, Amber, 40 mL, HCL		
21B0272-15 A	HDPE NM, 500 mL	>2	Fail

SL
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2/22/21
Date

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WORK ORDER

21B0272

Client: Shannon & Wilson, Inc	**Project Manager: Amanda Volgardsen Johnson**
Project: Lower Duwamish	**Project Number: Lower Duwamish**

21B0272-08 I	VOA Vial, Clear, 40 mL, HCL		
21B0272-09 A	HDPE NM, 500 mL	>2	Fail (1)
21B0272-10 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0272-10 B	Glass NM, Amber, 500 mL		
21B0272-10 C	Glass NM, Amber, 500 mL		
21B0272-10 D	Glass NM, Amber, 500 mL		
21B0272-10 E	Glass NM, Amber, 500 mL		
21B0272-10 F	VOA Vial, Amber, 40 mL, HCL		
21B0272-10 G	VOA Vial, Amber, 40 mL, HCL		
21B0272-10 H	VOA Vial, Amber, 40 mL, HCL		
21B0272-10 I	VOA Vial, Amber, 40 mL, HCL		
21B0272-10 J	VOA Vial, Amber, 40 mL, HCL		
21B0272-10 K	VOA Vial, Amber, 40 mL, HCL		
21B0272-10 L	VOA Vial, Amber, 40 mL, HCL		
21B0272-10 M	VOA Vial, Amber, 40 mL, HCL		
21B0272-11 A	HDPE NM, 500 mL	>2	Fail (1)
21B0272-12 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0272-12 B	Glass NM, Amber, 500 mL		
21B0272-12 C	Glass NM, Amber, 500 mL		
21B0272-12 D	Glass NM, Amber, 500 mL		
21B0272-12 E	Glass NM, Amber, 500 mL		
21B0272-12 F	Glass NM, Amber, 500 mL		
21B0272-12 G	Glass NM, Amber, 500 mL		
21B0272-12 H	VOA Vial, Amber, 40 mL, HCL		
21B0272-12 I	VOA Vial, Amber, 40 mL, HCL		
21B0272-12 J	VOA Vial, Amber, 40 mL, HCL		
21B0272-12 K	VOA Vial, Amber, 40 mL, HCL		
21B0272-13 A	HDPE NM, 500 mL	>2	Fail (1)
21B0272-14 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0272-14 B	Glass NM, Amber, 500 mL		
21B0272-14 C	Glass NM, Amber, 500 mL		
21B0272-14 D	VOA Vial, Amber, 40 mL, HCL		
21B0272-14 E	VOA Vial, Amber, 40 mL, HCL		
21B0272-14 F	VOA Vial, Amber, 40 mL, HCL		
21B0272-14 G	VOA Vial, Amber, 40 mL, HCL		
21B0272-14 H	VOA Vial, Amber, 40 mL, HCL		
21B0272-14 I	VOA Vial, Amber, 40 mL, HCL		

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WORK ORDER

21B0272

Client: Shannon & Wilson, Inc	**Project Manager:** Amanda Volgardsen Johnson
Project: Lower Duwamish	**Project Number:** Lower Duwamish

Preservation Confirmation

Container ID	Container Type	pH	
21B0272-01 A	HDPE NM, 500 mL		
21B0272-01 B	Small OJ, 500 mL, EDTA	Lab to check pH	
21B0272-01 C	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH	
21B0272-02 A	HDPE NM, 500 mL		
21B0272-02 B	Small OJ, 500 mL, EDTA	Lab to check pH	
21B0272-02 C	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH	
21B0272-03 A	VOA Vial, Clear, 40 mL, HCL		
21B0272-04 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0272-04 B	Glass NM, Amber, 500 mL		
21B0272-04 C	Glass NM, Amber, 500 mL		
21B0272-04 D	VOA Vial, Clear, 40 mL, HCL		
21B0272-04 E	VOA Vial, Clear, 40 mL, HCL		
21B0272-04 F	VOA Vial, Clear, 40 mL, HCL		
21B0272-04 G	VOA Vial, Clear, 40 mL, HCL		
21B0272-04 H	VOA Vial, Clear, 40 mL, HCL		
21B0272-04 I	VOA Vial, Clear, 40 mL, HCL		
21B0272-05 A	HDPE NM, 500 mL	> 2	Fail (1)
21B0272-06 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0272-06 B	Glass NM, Amber, 500 mL		
21B0272-06 C	Glass NM, Amber, 500 mL		
21B0272-06 D	VOA Vial, Amber, 40 mL, HCL		
21B0272-06 E	VOA Vial, Amber, 40 mL, HCL		
21B0272-06 F	VOA Vial, Amber, 40 mL, HCL		
21B0272-06 G	VOA Vial, Amber, 40 mL, HCL		
21B0272-06 H	VOA Vial, Amber, 40 mL, HCL		
21B0272-06 I	VOA Vial, Amber, 40 mL, HCL		
21B0272-07 A	HDPE NM, 500 mL	> 2	Fail (1)
21B0272-08 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0272-08 B	Glass NM, Amber, 500 mL		
21B0272-08 C	Glass NM, Amber, 500 mL		
21B0272-08 D	VOA Vial, Amber, 40 mL, HCL		
21B0272-08 E	VOA Vial, Amber, 40 mL, HCL		
21B0272-08 F	VOA Vial, Amber, 40 mL, HCL		
21B0272-08 G	VOA Vial, Amber, 40 mL, HCL		
21B0272-08 H	VOA Vial, Amber, 40 mL, HCL		

Reviewed By

Date

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WORK ORDER

21B0272

Client: Shannon & Wilson, Inc	**Project Manager: Amanda Volgardsen Johnson**
Project: Lower Duwamish	**Project Number: Lower Duwamish**

21B0272-14 J	VOA Vial, Amber, 40 mL, HCL		
21B0272-14 K	VOA Vial, Amber, 40 mL, HCL		
21B0272-15 A	HDPE NM, 500 mL	>2	Fail (1)

SL
Preservation Confirmed By

2/22/21
Date

(1) Filtered at 0.45 um and preserved to pH < 2.0 with 0.75 mm Conc. HNO_3 (J554). mm 2/22/21

Reviewed By

Date

Analytical Resources, Incorporated
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	05-Aug-2021 10:17

MW-14-20211902

21B0272-01 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 02/19/2021 12:24

Instrument: IC930 Analyst: WCW — Analyzed: 02/19/2021 19:41

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0272-01 A

Preparation Batch: BJB0583 — Sample Size: 10 mL

Prepared: 02/19/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	0.100	0.100	9.29	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	0.741	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

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	8.77	mg/L	

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

MW-14-20211902

21B0272-01 (Water)

Wet Chemistry

Method: SM 3500-Fe B-97 — Sampled: 02/19/2021 12:24

Instrument: UV1800-2 Analyst: WMT — Analyzed: 02/19/2021 19:40

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0272-01 C

Preparation Batch: BJB0586 — Sample Size: 5 mL

Prepared: 02/19/2021 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ferrous Iron		1	0.040	0.040	1.64	mg/L	

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

MW-14-20211902

21B0272-01 (Water)

Wet Chemistry

Method: SM 4500-SO3 B-00 — Sampled: 02/19/2021 12:24

Instrument: N/A Analyst: UW — Analyzed: 02/19/2021 16:33

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0272-01

Preparation Batch: BJB0581 — Sample Size: 50 mL

Prepared: 02/19/2021 — 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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	05-Aug-2021 10:17

MW-15-20211902

21B0272-02 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 02/19/2021 15:00

Instrument: IC930 Analyst: WCW — Analyzed: 02/19/2021 20:41

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0272-02 A

Preparation Batch: BJB0583 — Sample Size: 10 mL

Prepared: 02/19/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	0.100	0.100	1.22	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	0.972	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

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	8.92	mg/L	

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

MW-15-20211902

21B0272-02 (Water)

Wet Chemistry

Method: SM 3500-Fe B-97 — Sampled: 02/19/2021 15:00

Instrument: UV1800-2 Analyst: WMT — Analyzed: 02/19/2021 19:43

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0272-02 C

Preparation Batch: BJB0586 — Sample Size: 5 mL

Prepared: 02/19/2021 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ferrous Iron		1	0.040	0.040	ND	mg/L	U

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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	05-Aug-2021 10:17

MW-15-20211902

21B0272-02 (Water)

Wet Chemistry

Method: SM 4500-SO3 B-00 — Sampled: 02/19/2021 15:00

Instrument: N/A Analyst: UW — Analyzed: 02/19/2021 16:33

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0272-02

Preparation Batch: BJB0581 — Sample Size: 50 mL

Prepared: 02/19/2021 — 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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	05-Aug-2021 10:17

TB-7-20211902

21B0272-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/19/2021 15:00

Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 13:20

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0272-03 A

Preparation Batch: BJB0793 — Sample Size: 10 mL

Prepared: 03/01/2021 — 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 %*	*106*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*94.5*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*100*	*%*	

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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	05-Aug-2021 10:17

TB-7-20211902

21B0272-03 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/19/2021 15:00
Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 13:20

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0272-03 A
Preparation Batch: BJC0019 — Sample Size: 10 mL
Prepared: 03/01/2021 — 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 %*	*99.7*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*94.5*	*%*	

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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	05-Aug-2021 10:17

MW-4-20211902

21B0272-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/19/2021 08:39
Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 17:31

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0272-04 F
Preparation Batch: BJB0793 — Sample Size: 10 mL
Prepared: 03/01/2021 — 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	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
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*94.2*	*%*	

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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	05-Aug-2021 10:17

MW-4-20211902

21B0272-04 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/19/2021 08:39
Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 17:31

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0272-04 F
Preparation Batch: BJC0019 — Sample Size: 10 mL
Prepared: 03/01/2021 — 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 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*94.2*	*%*	

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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	05-Aug-2021 10:17

MW-4-20211902

21B0272-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/19/2021 08:39
Instrument: NT16 Analyst: PB — Analyzed: 03/03/2021 13:03

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0272-04 D
Preparation Batch: BJC0090 — Sample Size: 10 mL
Prepared: 03/03/2021 — 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 %*	*98.1*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*93.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*98.0*	*%*	

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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	05-Aug-2021 10:17

MW-4-20211902

21B0272-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/19/2021 08:39
Instrument: FID4 Analyst: CTO — Analyzed: 03/11/2021 17:39

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0272-04 B 01
Preparation Batch: BJB0727 — Sample Size: 500 mL
Prepared: 02/25/2021 — 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 %*	*82.6*	*%*	

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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	05-Aug-2021 10:17

MW-4-20211902

21B0272-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/19/2021 08:39
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 04:27

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-04 A 01
Preparation Batch: BJC0081 — Sample Size: 25 mL
Prepared: 03/03/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese	7439-96-5	2	0.170	1.00	22.7	ug/L	D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 03/05/2021 20:22

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-04 A 01
Preparation Batch: BJC0081 — Sample Size: 25 mL
Prepared: 03/03/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver	7440-22-4	2	0.0340	0.400	ND	ug/L	U

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Analytical Report

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	05-Aug-2021 10:17

MW-4-20211902

21B0272-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/19/2021 08:39
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 04:27

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-04 A 01
Preparation Batch: BJC0081 — Sample Size: 25 mL
Prepared: 03/03/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	2.37	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	0.0330	ug/L	J
Copper	7440-50-8	1	0.340	0.500	3.20	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	1.81	ug/L	
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	1.88	ug/L	J

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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	05-Aug-2021 10:17

MW-4-20211902

21B0272-04 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/19/2021 08:39
Instrument: HYDRA Analyst: BLC — Analyzed: 03/04/2021 14:58

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0272-04 A
Preparation Batch: BJC0112 — Sample Size: 20 mL
Prepared: 03/04/2021 — 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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4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

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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	05-Aug-2021 10:17

MW-4-20211902

21B0272-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/19/2021 08:39
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 05:03

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-05 A 02
Preparation Batch: BJC0088 — Sample Size: 25 mL — Filtration Batch: BJB0633
Prepared: 03/03/2021 — Final Volume: 25 mL — Filtration Date: 02/22/2021 14:27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	2	0.170	1.00	11.9	ug/L	D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 03/05/2021 20:27

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-05 A 02
Preparation Batch: BJC0088 — Sample Size: 25 mL — Filtration Batch: BJB0633
Prepared: 03/03/2021 — Final Volume: 25 mL — Filtration Date: 02/22/2021 14:27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver, Dissolved	7440-22-4	2	0.0340	0.400	ND	ug/L	U

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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	05-Aug-2021 10:17

MW-4-20211902

21B0272-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/19/2021 08:39
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 05:03

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-05 A 02
Preparation Batch: BJC0088 — Sample Size: 25 mL — Filtration Batch: BJB0633
Prepared: 03/03/2021 — Final Volume: 25 mL — Filtration Date: 02/22/2021 14:27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	2.08	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	0.0330	ug/L	J
Copper, Dissolved	7440-50-8	1	0.340	0.500	2.79	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	1.60	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	0.443	ug/L	J
Zinc, Dissolved	7440-66-6	1	0.820	4.00	1.86	ug/L	J

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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	05-Aug-2021 10:17

MW-4-20211902

21B0272-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/19/2021 08:39
Instrument: HYDRA Analyst: BLC — Analyzed: 03/04/2021 14:21

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0272-05 A 01
Preparation Batch: BJC0089 — Sample Size: 20 mL — Filtration Batch: BJB0633
Prepared: 03/03/2021 — Final Volume: 20 mL — Filtration Date: 02/22/2021 14:27

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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	05-Aug-2021 10:17

MW-3-20211902

21B0272-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/19/2021 09:31

Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 17:51

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0272-06 D

Preparation Batch: BJB0793 — Sample Size: 10 mL

Prepared: 03/01/2021 — 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
Methyl tert-butyl Ether	1634-04-4	1	0.14	0.50	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*105*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*91.5*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.5*	*%*	

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

MW-3-20211902

21B0272-06 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/19/2021 09:31
Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 17:51

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0272-06 D
Preparation Batch: BJC0019 — Sample Size: 10 mL
Prepared: 03/01/2021 — 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 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*91.5*	*%*	

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

MW-3-20211902

21B0272-06 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/19/2021 09:31
Instrument: NT16 Analyst: PB — Analyzed: 03/03/2021 13:23

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0272-06 F
Preparation Batch: BJC0090 — Sample Size: 10 mL
Prepared: 03/03/2021 — 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 %*	*93.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*95.8*	*%*	

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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	05-Aug-2021 10:17

MW-3-20211902

21B0272-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/19/2021 09:31
Instrument: FID4 Analyst: CTO — Analyzed: 03/11/2021 18:00

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0272-06 B 01
Preparation Batch: BJB0727 — Sample Size: 500 mL
Prepared: 02/25/2021 — 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 %*	*126*	*%*	

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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	05-Aug-2021 10:17

MW-3-20211902

21B0272-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/19/2021 09:31

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 04:33

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-06 A 01

Preparation Batch: BJC0081 — Sample Size: 25 mL

Prepared: 03/03/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	3.15	ug/L	

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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	05-Aug-2021 10:17

MW-3-20211902

21B0272-07 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/19/2021 09:31
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 05:08

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-07 A 02
Preparation Batch: BJC0088 — Sample Size: 25 mL — Filtration Batch: BJB0633
Prepared: 03/03/2021 — Final Volume: 25 mL — Filtration Date: 02/22/2021 14:27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U

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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	05-Aug-2021 10:17

MW-11-20211902

21B0272-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/19/2021 10:53

Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 18:11

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0272-08 D

Preparation Batch: BJB0793 — Sample Size: 10 mL

Prepared: 03/01/2021 — 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 %*	*107*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*92.4*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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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	05-Aug-2021 10:17

MW-11-20211902

21B0272-08 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/19/2021 10:53

Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 18:11

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0272-08 D

Preparation Batch: BJC0019 — Sample Size: 10 mL

Prepared: 03/01/2021 — 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 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*92.4*	*%*	

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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	05-Aug-2021 10:17

MW-11-20211902

21B0272-08 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/19/2021 10:53
Instrument: FID4 Analyst: CTO — Analyzed: 03/11/2021 18:21

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0272-08 B 01
Preparation Batch: BJB0727 — Sample Size: 500 mL
Prepared: 02/25/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.670	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*118*	*%*	

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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	05-Aug-2021 10:17

MW-11-20211902

21B0272-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/19/2021 10:53

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 20:14

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-08 A 01

Preparation Batch: BJC0081 — Sample Size: 25 mL

Prepared: 03/03/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	5	0.425	2.50	595	ug/L	D

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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	05-Aug-2021 10:17

MW-11-20211902

21B0272-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/19/2021 10:53

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 04:59

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-08 A 01

Preparation Batch: BJC0081 — Sample Size: 25 mL

Prepared: 03/03/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	3.48	ug/L	

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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	05-Aug-2021 10:17

MW-11-20211902

21B0272-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/19/2021 10:53
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 20:21

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-09 A 02
Preparation Batch: BJC0088 — Sample Size: 25 mL — Filtration Batch: BJB0633
Prepared: 03/03/2021 — Final Volume: 25 mL — Filtration Date: 02/22/2021 14:27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	5	0.425	2.50	564	ug/L	D

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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	05-Aug-2021 10:17

MW-11-20211902

21B0272-09 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/19/2021 10:53
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 05:13

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-09 A 02
Preparation Batch: BJC0088 — Sample Size: 25 mL — Filtration Batch: BJB0633
Prepared: 03/03/2021 — Final Volume: 25 mL — Filtration Date: 02/22/2021 14:27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	1.78	ug/L	

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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	05-Aug-2021 10:17

MW-14-20211902

21B0272-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/19/2021 12:24

Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 18:31

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0272-10 F

Preparation Batch: BJB0793 — Sample Size: 10 mL

Prepared: 03/01/2021 — 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
Methyl tert-butyl Ether	1634-04-4	1	0.14	0.50	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*105*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*100*	*%*	

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

MW-14-20211902

21B0272-10 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/19/2021 12:24

Instrument: NT2 Analyst: PKC — Analyzed: 03/01/2021 18:31

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0272-10 F

Preparation Batch: BJC0019 — Sample Size: 10 mL

Prepared: 03/01/2021 — 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 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*93.3*	*%*	

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

MW-14-20211902

21B0272-10 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/19/2021 12:24

Instrument: NT16 Analyst: PB — Analyzed: 03/03/2021 14:04

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0272-10 K

Preparation Batch: BJC0090 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*95.4*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*93.4*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*97.3*	*%*	

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

MW-14-20211902

21B0272-10 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/19/2021 12:24

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 14:53

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0272-10 D 01

Preparation Batch: BJB0763 — Sample Size: 1000 mL

Prepared: 02/26/2021 — 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 %*	*26.5*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*87.5*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*66.4*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*83.5*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*76.6*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*93.8*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*84.1*	*%*	

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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	05-Aug-2021 10:17

MW-14-20211902

21B0272-10 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/19/2021 12:24
Instrument: FID4 Analyst: CTO — Analyzed: 03/11/2021 19:25

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0272-10 B 01
Preparation Batch: BJB0727 — Sample Size: 500 mL
Prepared: 02/25/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.446	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	0.425	mg/L	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*104*	*%*	

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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	05-Aug-2021 10:17

MW-14-20211902

21B0272-10 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/19/2021 12:24

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 22:26

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-10 A 01

Preparation Batch: BJC0081 — Sample Size: 25 mL

Prepared: 03/03/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	2	0.260	1.00	0.280	ug/L	J, D
Cobalt	7440-48-4	1	0.0290	0.200	0.486	ug/L	
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese	7439-96-5	2	0.170	1.00	59.3	ug/L	D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 03/05/2021 20:31

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-10 A 01

Preparation Batch: BJC0081 — Sample Size: 25 mL

Prepared: 03/03/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver	7440-22-4	2	0.0340	0.400	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	05-Aug-2021 10:17

MW-14-20211902

21B0272-10 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/19/2021 12:24

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 05:17

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-10 A 01

Preparation Batch: BJC0081 — Sample Size: 25 mL

Prepared: 03/03/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	0.492	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	1.59	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	1.98	ug/L	
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	0.845	ug/L	J

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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	05-Aug-2021 10:17

MW-14-20211902

21B0272-10 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/19/2021 12:24

Instrument: HYDRA Analyst: BLC — Analyzed: 03/04/2021 15:00

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0272-10 A

Preparation Batch: BJC0112 — Sample Size: 20 mL

Prepared: 03/04/2021 — 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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	05-Aug-2021 10:17

MW-14-20211902

21B0272-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/19/2021 12:24

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 23:09

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-11 A 02

Preparation Batch: BJC0088 — Sample Size: 25 mL — Filtration Batch: BJB0633

Prepared: 03/03/2021 — Final Volume: 25 mL — Filtration Date: 02/22/2021 14:27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	2	0.260	1.00	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	0.411	ug/L	
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	2	0.170	1.00	59.3	ug/L	D
Silver, Dissolved	7440-22-4	2	0.0340	0.400	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	05-Aug-2021 10:17

MW-14-20211902

21B0272-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/19/2021 12:24

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 06:18

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-11 A 02

Preparation Batch: BJC0088 — Sample Size: 25 mL — Filtration Batch: BJB0633

Prepared: 03/03/2021 — Final Volume: 25 mL — Filtration Date: 02/22/2021 14:27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	0.265	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	1.22	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	1.93	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	1.07	ug/L	J

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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	05-Aug-2021 10:17

MW-14-20211902

21B0272-11 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/19/2021 12:24
Instrument: HYDRA Analyst: BLC — Analyzed: 03/04/2021 14:23

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0272-11 A 01
Preparation Batch: BJC0089 — Sample Size: 20 mL — Filtration Batch: BJB0633
Prepared: 03/03/2021 — Final Volume: 20 mL — Filtration Date: 02/22/2021 14:27

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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	05-Aug-2021 10:17

MW-10R-20211902

21B0272-12 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/19/2021 13:50

Instrument: NT2 Analyst: PKC — Analyzed: 03/02/2021 14:21

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0272-12 H

Preparation Batch: BJC0053 — Sample Size: 10 mL

Prepared: 03/02/2021 — 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 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.1*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.7*	*%*	

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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	05-Aug-2021 10:17

MW-10R-20211902

21B0272-12 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/19/2021 13:50

Instrument: NT16 Analyst: PB — Analyzed: 03/03/2021 14:24

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0272-12 J

Preparation Batch: BJC0090 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*92.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*97.5*	*%*	

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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	05-Aug-2021 10:17

MW-10R-20211902

21B0272-12 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/19/2021 13:50
Instrument: NT11 Analyst: VTS — Analyzed: 03/18/2021 11:11

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJB0765; Prepared: 02/26/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21B0272-12 F 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJC0111; Cleaned: 10-Mar-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21B0272-12 F 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	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	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 %*	*76.6*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*54.2*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*78.7*	*%*	

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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	05-Aug-2021 10:17

MW-10R-20211902

21B0272-12 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/19/2021 13:50

Instrument: FID4 Analyst: CTO — Analyzed: 03/11/2021 19:46

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0272-12 D 01

Preparation Batch: BJB0727 — Sample Size: 500 mL

Prepared: 02/25/2021 — 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 %*	*121*	*%*	

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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	05-Aug-2021 10:17

MW-10R-20211902

21B0272-12 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/19/2021 13:50
Instrument: ECD7 Analyst: JGR — Analyzed: 02/25/2021 13:43

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0272-12 B 01
	Preparation Batch: BJB0691	Sample Size: 500 mL	
	Prepared: 02/24/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0272-12 B 01
	Cleanup Batch: CJB0168	Initial Volume: 1 mL	
	Cleaned: 25-Feb-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0272-12 B 01
	Cleanup Batch: CJB0166	Initial Volume: 1 mL	
	Cleaned: 25-Feb-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0272-12 B 01
	Cleanup Batch: CJB0167	Initial Volume: 1 mL	
	Cleaned: 25-Feb-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.018	0.100	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.018	0.100	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.018	0.100	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.018	0.100	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.017	0.100	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*68.8*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*72.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*75.2*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*60.0*	*%*	

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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	05-Aug-2021 10:17

MW-10R-20211902

21B0272-12 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/19/2021 13:50

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 06:14

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-12 A 01

Preparation Batch: BJC0081 Sample Size: 25 mL

Prepared: 03/03/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	3.15	ug/L	
Chromium	7440-47-3	2	0.260	1.00	0.478	ug/L	J, D
Cobalt	7440-48-4	1	0.0290	0.200	0.396	ug/L	
Iron	7439-89-6	2	12.5	40.0	1540	ug/L	D
Lead	7439-92-1	1	0.0680	0.100	0.171	ug/L	
Manganese	7439-96-5	2	0.170	1.00	74.7	ug/L	D
Vanadium	7440-62-2	2	0.0800	0.400	1.95	ug/L	D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 03/05/2021 20:39

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-12 A 01

Preparation Batch: BJC0081 Sample Size: 25 mL

Prepared: 03/03/2021 Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver	7440-22-4	2	0.0340	0.400	ND	ug/L	U

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Analytical Resources, Incorporated
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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	05-Aug-2021 10:17

MW-10R-20211902

21B0272-12 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/19/2021 13:50

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 06:14

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-12 A 01

Preparation Batch: BJC0081 — Sample Size: 25 mL

Prepared: 03/03/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	0.885	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	2.28	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	1.51	ug/L	
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	5.11	ug/L	

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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	05-Aug-2021 10:17

MW-10R-20211902

21B0272-12 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/19/2021 13:50

Instrument: HYDRA Analyst: BLC — Analyzed: 03/04/2021 14:30

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0272-12 A

Preparation Batch: BJC0112 — Sample Size: 20 mL

Prepared: 03/04/2021 — 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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	05-Aug-2021 10:17

MW-10R-20211902

21B0272-13 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/19/2021 13:50

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 06:23

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-13 A 02

Preparation Batch: BJC0088 — Sample Size: 25 mL — Filtration Batch: BJB0633

Prepared: 03/03/2021 — Final Volume: 25 mL — Filtration Date: 02/22/2021 14:27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	2.41	ug/L	
Chromium, Dissolved	7440-47-3	2	0.260	1.00	0.318	ug/L	J, D
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	0.306	ug/L	
Iron, Dissolved	7439-89-6	2	12.5	40.0	885	ug/L	D
Lead, Dissolved	7439-92-1	1	0.0680	0.100	0.0720	ug/L	J
Manganese, Dissolved	7439-96-5	2	0.170	1.00	69.8	ug/L	D
Vanadium, Dissolved	7440-62-2	2	0.0800	0.400	1.08	ug/L	D

Instrument: ICPMS2 Analyst: MCB — Analyzed: 03/05/2021 21:21

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-13 A 02

Preparation Batch: BJC0088 — Sample Size: 25 mL — Filtration Batch: BJB0633

Prepared: 03/03/2021 — Final Volume: 25 mL — Filtration Date: 02/22/2021 14:27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver, Dissolved	7440-22-4	2	0.0340	0.400	ND	ug/L	U

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Analytical Resources, Incorporated
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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	05-Aug-2021 10:17

MW-10R-20211902

21B0272-13 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/19/2021 13:50

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 06:23

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-13 A 02

Preparation Batch: BJC0088 — Sample Size: 25 mL — Filtration Batch: BJB0633

Prepared: 03/03/2021 — Final Volume: 25 mL — Filtration Date: 02/22/2021 14:27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	0.528	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	1.78	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	1.33	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	1.15	ug/L	J

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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	05-Aug-2021 10:17

MW-10R-20211902

21B0272-13 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/19/2021 13:50
Instrument: HYDRA Analyst: BLC — Analyzed: 03/04/2021 14:07

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0272-13 A 01
Preparation Batch: BJC0089 — Sample Size: 20 mL — Filtration Batch: BJB0633
Prepared: 03/03/2021 — Final Volume: 20 mL — Filtration Date: 02/22/2021 14:27

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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	05-Aug-2021 10:17

MW-15-20211902

21B0272-14 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/19/2021 15:00

Instrument: NT2 Analyst: PKC — Analyzed: 03/02/2021 14:42

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0272-14 D

Preparation Batch: BJC0053 — Sample Size: 10 mL

Prepared: 03/02/2021 — 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 %*	*107*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*94.2*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.8*	*%*	

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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	05-Aug-2021 10:17

MW-15-20211902

21B0272-14 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/19/2021 15:00

Instrument: NT2 Analyst: PKC — Analyzed: 03/02/2021 14:42

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0272-14 D

Preparation Batch: BJC0053 — Sample Size: 10 mL

Prepared: 03/02/2021 — 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 %*	*94.2*	*%*	

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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	05-Aug-2021 10:17

MW-15-20211902

21B0272-14 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/19/2021 15:00

Instrument: NT16 Analyst: PB — Analyzed: 03/03/2021 14:45

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0272-14 I

Preparation Batch: BJC0090 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*96.5*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*94.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*97.6*	*%*	

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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	05-Aug-2021 10:17

MW-15-20211902

21B0272-14 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/19/2021 15:00
Instrument: FID4 Analyst: CTO — Analyzed: 03/11/2021 20:07

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0272-14 B 01
Preparation Batch: BJB0727 — Sample Size: 500 mL
Prepared: 02/25/2021 — 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 %*	*111*	*%*	

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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	05-Aug-2021 10:17

MW-15-20211902

21B0272-14 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/19/2021 15:00

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 05:22

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-14 A 01

Preparation Batch: BJC0081 — Sample Size: 25 mL

Prepared: 03/03/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cobalt	7440-48-4	1	0.0290	0.200	0.351	ug/L	

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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	05-Aug-2021 10:17

MW-15-20211902

21B0272-15 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/19/2021 15:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/04/2021 06:28

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0272-15 A 02
Preparation Batch: BJC0088 — Sample Size: 25 mL — Filtration Batch: BJB0633
Prepared: 03/03/2021 — Final Volume: 25 mL — Filtration Date: 02/22/2021 14:27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	0.294	ug/L	

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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	05-Aug-2021 10:17

Volatile Organic Compounds - Quality Control

Batch BJB0793 - 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 (BJB0793-BLK1)				Prepared: 01-Mar-2021 Analyzed: 01-Mar-2021 11:58							
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	5.15			ug/L	*5.00*		*103*	*80-129*			
Surrogate: Toluene-d8	4.95			ug/L	*5.00*		*98.9*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.72			ug/L	*5.00*		*94.5*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.00			ug/L	*5.00*		*100*	*80-120*			
LCS (BJB0793-BS1)				Prepared: 01-Mar-2021 Analyzed: 01-Mar-2021 10:54							
Vinyl Chloride	9.37	0.08	0.20	ug/L	10.0		93.7	66-133			
1,1-Dichloroethene	10.5	0.08	0.20	ug/L	10.0		105	69-135			
trans-1,2-Dichloroethene	9.92	0.07	0.20	ug/L	10.0		99.2	78-128			
cis-1,2-Dichloroethene	9.82	0.08	0.20	ug/L	10.0		98.2	80-121			
Benzene	9.88	0.05	0.20	ug/L	10.0		98.8	80-120			
Trichloroethene	9.80	0.07	0.20	ug/L	10.0		98.0	80-120			
Toluene	9.49	0.05	0.20	ug/L	10.0		94.9	80-120			
Tetrachloroethene	9.84	0.09	0.20	ug/L	10.0		98.4	80-120			
Ethylbenzene	9.65	0.05	0.20	ug/L	10.0		96.5	80-120			
m,p-Xylene	19.7	0.14	0.40	ug/L	20.0		98.6	80-121			
o-Xylene	9.66	0.08	0.20	ug/L	10.0		96.6	80-121			
Xylenes, total	29.4	0.22	0.60	ug/L	30.0		97.9	76-127			
Methyl tert-butyl Ether	9.99	0.14	0.50	ug/L	10.0		99.9	71-132			
Surrogate: 1,2-Dichloroethane-d4	5.24			ug/L	*5.00*		*105*	*80-129*			
Surrogate: Toluene-d8	4.95			ug/L	*5.00*		*99.1*	*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	05-Aug-2021 10:17

Volatile Organic Compounds - Quality Control

Batch BJB0793 - 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 (BJB0793-BS1)					Prepared: 01-Mar-2021 Analyzed: 01-Mar-2021 10:54						
Surrogate: 4-Bromofluorobenzene	5.10			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.96			ug/L	*5.00*		*99.1*	*80-120*			
LCS Dup (BJB0793-BSD1)					Prepared: 01-Mar-2021 Analyzed: 01-Mar-2021 11:16						
Vinyl Chloride	7.83	0.08	0.20	ug/L	10.0		78.3	66-133	17.90	30	
1,1-Dichloroethene	8.62	0.08	0.20	ug/L	10.0		86.2	69-135	19.70	30	
trans-1,2-Dichloroethene	8.03	0.07	0.20	ug/L	10.0		80.3	78-128	21.00	30	
cis-1,2-Dichloroethene	7.72	0.08	0.20	ug/L	10.0		77.2	80-121	24.00	30	*
Benzene	7.99	0.05	0.20	ug/L	10.0		79.9	80-120	21.20	30	*
Trichloroethene	7.94	0.07	0.20	ug/L	10.0		79.4	80-120	20.90	30	*
Toluene	7.63	0.05	0.20	ug/L	10.0		76.3	80-120	21.80	30	*
Tetrachloroethene	8.10	0.09	0.20	ug/L	10.0		81.0	80-120	19.40	30	
Ethylbenzene	7.84	0.05	0.20	ug/L	10.0		78.4	80-120	20.70	30	*
m,p-Xylene	16.0	0.14	0.40	ug/L	20.0		79.8	80-121	21.00	30	*
o-Xylene	7.85	0.08	0.20	ug/L	10.0		78.5	80-121	20.60	30	*
Xylenes, total	23.8	0.22	0.60	ug/L	30.0		79.4	76-127	20.90	30	
Methyl tert-butyl Ether	8.28	0.14	0.50	ug/L	10.0		82.8	71-132	18.70	30	
Surrogate: 1,2-Dichloroethane-d4	4.95			ug/L	*5.00*		*99.1*	*80-129*			
Surrogate: Toluene-d8	5.00			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.12			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.92			ug/L	*5.00*		*98.5*	*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	05-Aug-2021 10:17

Volatile Organic Compounds - Quality Control

Batch BJC0019 - 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 (BJC0019-BLK1)				Prepared: 01-Mar-2021 Analyzed: 01-Mar-2021 11:58						
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.95		ug/L	*5.00*		*98.9*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.72		ug/L	*5.00*		*94.5*	*80-120*			
LCS (BJC0019-BS1)				Prepared: 01-Mar-2021 Analyzed: 01-Mar-2021 09:41						
Gasoline Range Organics (Tol-Nap)	1080	100	ug/L	1000		108	72-128			
Surrogate: Toluene-d8	5.13		ug/L	*5.00*		*103*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.02		ug/L	*5.00*		*100*	*80-120*			
LCS Dup (BJC0019-BSD1)				Prepared: 01-Mar-2021 Analyzed: 01-Mar-2021 10:02						
Gasoline Range Organics (Tol-Nap)	1150	100	ug/L	1000		115	72-128	5.69	30	
Surrogate: Toluene-d8	5.09		ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.98		ug/L	*5.00*		*99.5*	*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	05-Aug-2021 10:17

Volatile Organic Compounds - Quality Control

Batch BJC0053 - 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 (BJC0053-BLK1)				Prepared: 02-Mar-2021 Analyzed: 02-Mar-2021 11:58							
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							U
Surrogate: Toluene-d8	5.02			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.61			ug/L	*5.00*		*92.2*	*80-120*			
Blank (BJC0053-BLK2)				Prepared: 02-Mar-2021 Analyzed: 02-Mar-2021 11:58							
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	5.23			ug/L	*5.00*		*105*	*80-129*			
Surrogate: Toluene-d8	5.02			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.61			ug/L	*5.00*		*92.2*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.93			ug/L	*5.00*		*98.6*	*80-120*			
LCS (BJC0053-BS1)				Prepared: 02-Mar-2021 Analyzed: 02-Mar-2021 10:13							
Gasoline Range Organics (Tol-Nap)	1130		100	ug/L	1000		113	72-128			
Surrogate: Toluene-d8	5.16			ug/L	*5.00*		*103*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.85			ug/L	*5.00*		*97.0*	*80-120*			
LCS (BJC0053-BS2)				Prepared: 02-Mar-2021 Analyzed: 02-Mar-2021 10:54							
Vinyl Chloride	10.1	0.08	0.20	ug/L	10.0		101	66-133			
1,1-Dichloroethene	11.5	0.08	0.20	ug/L	10.0		115	69-135			
trans-1,2-Dichloroethene	10.6	0.07	0.20	ug/L	10.0		106	78-128			
cis-1,2-Dichloroethene	10.1	0.08	0.20	ug/L	10.0		101	80-121			
Benzene	10.2	0.05	0.20	ug/L	10.0		102	80-120			
Trichloroethene	9.90	0.07	0.20	ug/L	10.0		99.0	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	05-Aug-2021 10:17

Volatile Organic Compounds - Quality Control

Batch BJC0053 - 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 (BJC0053-BS2)					Prepared: 02-Mar-2021 Analyzed: 02-Mar-2021 10:54						
Toluene	9.76	0.05	0.20	ug/L	10.0		97.6	80-120			
Tetrachloroethene	9.74	0.09	0.20	ug/L	10.0		97.4	80-120			
Ethylbenzene	9.64	0.05	0.20	ug/L	10.0		96.4	80-120			
m,p-Xylene	19.9	0.14	0.40	ug/L	20.0		99.3	80-121			
o-Xylene	9.73	0.08	0.20	ug/L	10.0		97.3	80-121			
Xylenes, total	29.6	0.22	0.60	ug/L	30.0		98.7	76-127			
Surrogate: 1,2-Dichloroethane-d4	5.05			ug/L	*5.00*		*101*	*80-129*			
Surrogate: Toluene-d8	5.07			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.94			ug/L	*5.00*		*98.9*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.86			ug/L	*5.00*		*97.3*	*80-120*			
LCS Dup (BJC0053-BSD1)					Prepared: 02-Mar-2021 Analyzed: 02-Mar-2021 10:33						
Gasoline Range Organics (Tol-Nap)	1030		100	ug/L	1000		103	72-128	9.33	30	
Surrogate: Toluene-d8	5.14			ug/L	*5.00*		*103*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.95			ug/L	*5.00*		*99.0*	*80-120*			
LCS Dup (BJC0053-BSD2)					Prepared: 02-Mar-2021 Analyzed: 02-Mar-2021 11:14						
Vinyl Chloride	9.62	0.08	0.20	ug/L	10.0		96.2	66-133	4.74	30	
1,1-Dichloroethene	11.1	0.08	0.20	ug/L	10.0		111	69-135	3.52	30	
trans-1,2-Dichloroethene	10.3	0.07	0.20	ug/L	10.0		103	78-128	3.33	30	
cis-1,2-Dichloroethene	9.96	0.08	0.20	ug/L	10.0		99.6	80-121	1.15	30	
Benzene	10.0	0.05	0.20	ug/L	10.0		100	80-120	1.61	30	
Trichloroethene	9.64	0.07	0.20	ug/L	10.0		96.4	80-120	2.57	30	
Toluene	9.58	0.05	0.20	ug/L	10.0		95.8	80-120	1.87	30	
Tetrachloroethene	9.71	0.09	0.20	ug/L	10.0		97.1	80-120	0.27	30	
Ethylbenzene	9.59	0.05	0.20	ug/L	10.0		95.9	80-120	0.51	30	
m,p-Xylene	19.9	0.14	0.40	ug/L	20.0		99.5	80-121	0.11	30	
o-Xylene	9.64	0.08	0.20	ug/L	10.0		96.4	80-121	0.96	30	
Xylenes, total	29.5	0.22	0.60	ug/L	30.0		98.4	76-127	0.24	30	
Surrogate: 1,2-Dichloroethane-d4	5.14			ug/L	*5.00*		*103*	*80-129*			
Surrogate: Toluene-d8	5.01			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.93			ug/L	*5.00*		*98.7*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.90			ug/L	*5.00*		*98.0*	*80-120*			

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

Volatile Organic Compounds - SIM - Quality Control

Batch BJC0090 - 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 (BJC0090-BLK1)					Prepared: 03-Mar-2021 Analyzed: 03-Mar-2021 12:15						
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	4520			ng/L	*5000*		*90.4*	*80-129*			
Surrogate: Toluene-d8	4680			ng/L	*5000*		*93.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4610			ng/L	*5000*		*92.2*	*75-125*			
LCS (BJC0090-BS1)					Prepared: 03-Mar-2021 Analyzed: 03-Mar-2021 10:37						
Vinyl chloride	1720	5.01	20.0	ng/L	2000		85.9	62-141			
Surrogate: 1,2-Dichloroethane-d4	4740			ng/L	*5000*		*94.7*	*80-129*			
Surrogate: Toluene-d8	4710			ng/L	*5000*		*94.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5240			ng/L	*5000*		*105*	*75-125*			
LCS Dup (BJC0090-BSD1)					Prepared: 03-Mar-2021 Analyzed: 03-Mar-2021 10:57						
Vinyl chloride	1860	5.01	20.0	ng/L	2000		92.8	62-141	7.66	30	
Surrogate: 1,2-Dichloroethane-d4	5050			ng/L	*5000*		*101*	*80-129*			
Surrogate: Toluene-d8	4990			ng/L	*5000*		*99.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5140			ng/L	*5000*		*103*	*75-125*			

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

Semivolatile Organic Compounds - Quality Control

Batch BJB0763 - 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 (BJB0763-BLK1)				Prepared: 26-Feb-2021 Analyzed: 12-Mar-2021 13:01							
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	3.91			ug/L	*7.50*		*52.1*	*30-160*			
Surrogate: Phenol-d5	1.74			ug/L	*7.50*		*23.2*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	5.78			ug/L	*7.50*		*77.1*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.11			ug/L	*5.00*		*62.3*	*30-160*			
Surrogate: Nitrobenzene-d5	3.94			ug/L	*5.00*		*78.9*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.18			ug/L	*5.00*		*63.6*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.56			ug/L	*7.50*		*87.5*	*30-160*			
Surrogate: p-Terphenyl-d14	3.96			ug/L	*5.00*		*79.1*	*30-160*			
LCS (BJB0763-BS1)				Prepared: 26-Feb-2021 Analyzed: 12-Mar-2021 13:38							
1,4-Dichlorobenzene	3.0	0.03	0.2	ug/L	5.00		60.1	30-160			
1,2-Dichlorobenzene	3.0	0.03	0.2	ug/L	5.00		59.9	30-160			
2,4-Dimethylphenol	8.3	0.3	1.0	ug/L	13.0		64.0	30-160			
Benzoic acid	8.6	0.1	2.0	ug/L	23.0		37.6	30-160			
N-Nitrosodiphenylamine	3.8	0.03	0.2	ug/L	5.00		75.9	30-160			
Pentachlorophenol	7.8	0.1	1.0	ug/L	13.0		59.9	30-160			Q
Di-n-Butylphthalate	4.4	0.05	0.2	ug/L	5.00		88.9	30-160			
Butylbenzylphthalate	4.4	0.07	0.2	ug/L	5.00		87.2	30-160			
bis(2-Ethylhexyl)phthalate	4.0	0.2	0.2	ug/L	5.00		79.7	30-160			
Surrogate: 2-Fluorophenol	4.67			ug/L	*7.50*		*62.2*	*30-160*			
Surrogate: Phenol-d5	3.13			ug/L	*7.50*		*41.8*	*30-160*			
Surrogate: 2-Chlorophenol-d4	7.54			ug/L	*7.50*		*100*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.41			ug/L	*5.00*		*68.2*	*30-160*			
Surrogate: Nitrobenzene-d5	4.18			ug/L	*5.00*		*83.6*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.19			ug/L	*5.00*		*83.9*	*30-160*			

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

Semivolatile Organic Compounds - Quality Control

Batch BJB0763 - 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 (BJB0763-BS1)					Prepared: 26-Feb-2021		Analyzed: 12-Mar-2021 13:38				
Surrogate: 2,4,6-Tribromophenol	6.64			ug/L	*7.50*		*88.5*	*30-160*			
Surrogate: p-Terphenyl-d14	4.58			ug/L	*5.00*		*91.6*	*30-160*			
LCS Dup (BJB0763-BSD1)					Prepared: 26-Feb-2021		Analyzed: 12-Mar-2021 14:16				
1,4-Dichlorobenzene	3.7	0.03	0.2	ug/L	5.00		73.1	30-160	19.50	30	
1,2-Dichlorobenzene	3.6	0.03	0.2	ug/L	5.00		71.7	30-160	18.10	30	
2,4-Dimethylphenol	9.1	0.3	1.0	ug/L	13.0		69.9	30-160	8.88	30	
Benzoic acid	8.5	0.1	2.0	ug/L	23.0		36.9	30-160	1.91	30	
N-Nitrosodiphenylamine	4.4	0.03	0.2	ug/L	5.00		87.6	30-160	14.40	30	
Pentachlorophenol	8.8	0.1	1.0	ug/L	13.0		67.8	30-160	12.40	30	Q
Di-n-Butylphthalate	5.1	0.05	0.2	ug/L	5.00		102	30-160	13.20	30	
Butylbenzylphthalate	4.8	0.07	0.2	ug/L	5.00		96.4	30-160	10.00	30	
bis(2-Ethylhexyl)phthalate	4.9	0.2	0.2	ug/L	5.00		97.2	30-160	19.80	30	
Surrogate: 2-Fluorophenol	4.85			ug/L	*7.50*		*64.7*	*30-160*			
Surrogate: Phenol-d5	2.99			ug/L	*7.50*		*39.8*	*30-160*			
Surrogate: 2-Chlorophenol-d4	7.15			ug/L	*7.50*		*95.3*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.58			ug/L	*5.00*		*71.7*	*30-160*			
Surrogate: Nitrobenzene-d5	4.29			ug/L	*5.00*		*85.8*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.28			ug/L	*5.00*		*85.7*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.75			ug/L	*7.50*		*90.1*	*30-160*			
Surrogate: p-Terphenyl-d14	4.67			ug/L	*5.00*		*93.4*	*30-160*			

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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	05-Aug-2021 10:17

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0765 - 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 (BJB0765-BLK1)				Prepared: 26-Feb-2021 Analyzed: 18-Mar-2021 09:34							
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	0.237			ug/L	*0.300*		*79.2*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.154			ug/L	*0.300*		*51.3*	*29-120*			
Surrogate: Fluoranthene-d10	0.239			ug/L	*0.300*		*79.6*	*57-120*			
LCS (BJB0765-BS1)				Prepared: 26-Feb-2021 Analyzed: 18-Mar-2021 10:07							
Naphthalene	0.212	0.001	0.010	ug/L	0.300		70.8	37-120			
2-Methylnaphthalene	0.230	0.001	0.010	ug/L	0.300		76.8	37-120			
1-Methylnaphthalene	0.235	0.0009	0.010	ug/L	0.300		78.3	29-120			
Acenaphthylene	0.185	0.002	0.010	ug/L	0.300		61.7	41-120			
Acenaphthene	0.195	0.003	0.010	ug/L	0.300		64.9	41-120			
Dibenzofuran	0.199	0.002	0.010	ug/L	0.300		66.2	38-120			
Fluorene	0.211	0.002	0.010	ug/L	0.300		70.5	43-120			

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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	05-Aug-2021 10:17

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0765 - 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 (BJB0765-BS1)					Prepared: 26-Feb-2021 Analyzed: 18-Mar-2021 10:07						
Phenanthrene	0.228	0.001	0.010	ug/L	0.300		76.0	41-120			
Anthracene	0.199	0.001	0.010	ug/L	0.300		66.5	40-120			
Carbazole	0.226	0.001	0.010	ug/L	0.300		75.4	30-160			
Fluoranthene	0.238	0.002	0.010	ug/L	0.300		79.4	45-120			
Pyrene	0.235	0.001	0.010	ug/L	0.300		78.3	41-120			
Benzo(a)anthracene	0.205	0.0008	0.010	ug/L	0.300		68.3	42-120			
Chrysene	0.230	0.0009	0.010	ug/L	0.300		76.7	44-120			
Benzo(b)fluoranthene	0.198	0.0005	0.010	ug/L	0.300		66.1	44-120			
Benzo(k)fluoranthene	0.229	0.003	0.010	ug/L	0.300		76.4	50-120			
Benzo(j)fluoranthene	0.310	0.002	0.010	ug/L	0.300		103	39-160			
Benzofluoranthenes, Total	0.738	0.004	0.010	ug/L	0.900		82.0	46-120			
Benzo(a)pyrene	0.204	0.002	0.010	ug/L	0.300		67.9	35-120			
Perylene	0.184	0.006	0.010	ug/L	0.300		61.3	30-160			
Indeno(1,2,3-cd)pyrene	0.220	0.001	0.010	ug/L	0.300		73.4	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	0.222	0.001	0.010	ug/L	0.300		73.9	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.237			ug/L	*0.300*		*78.9*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.189			ug/L	*0.300*		*63.0*	*29-120*			
Surrogate: Fluoranthene-d10	0.233			ug/L	*0.300*		*77.7*	*57-120*			
LCS Dup (BJB0765-BSD1)					Prepared: 26-Feb-2021 Analyzed: 18-Mar-2021 10:39						
Naphthalene	0.219	0.001	0.010	ug/L	0.300		73.2	37-120	3.28	30	
2-Methylnaphthalene	0.241	0.001	0.010	ug/L	0.300		80.5	37-120	4.69	30	
1-Methylnaphthalene	0.244	0.0009	0.010	ug/L	0.300		81.3	29-120	3.71	30	
Acenaphthylene	0.197	0.002	0.010	ug/L	0.300		65.5	41-120	6.06	30	
Acenaphthene	0.208	0.003	0.010	ug/L	0.300		69.2	41-120	6.46	30	
Dibenzofuran	0.211	0.002	0.010	ug/L	0.300		70.2	38-120	5.86	30	
Fluorene	0.225	0.002	0.010	ug/L	0.300		74.9	43-120	6.12	30	
Phenanthrene	0.248	0.001	0.010	ug/L	0.300		82.8	41-120	8.51	30	
Anthracene	0.222	0.001	0.010	ug/L	0.300		73.9	40-120	10.60	30	
Carbazole	0.244	0.001	0.010	ug/L	0.300		81.3	30-160	7.44	30	
Fluoranthene	0.261	0.002	0.010	ug/L	0.300		86.9	45-120	8.95	30	
Pyrene	0.258	0.001	0.010	ug/L	0.300		85.9	41-120	9.29	30	
Benzo(a)anthracene	0.220	0.0008	0.010	ug/L	0.300		73.3	42-120	7.07	30	
Chrysene	0.249	0.0009	0.010	ug/L	0.300		83.1	44-120	7.98	30	

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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	05-Aug-2021 10:17

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0765 - 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 (BJB0765-BSD1)				Prepared: 26-Feb-2021 Analyzed: 18-Mar-2021 10:39							
Benzo(b)fluoranthene	0.217	0.0005	0.010	ug/L	0.300		72.2	44-120	8.74	30	
Benzo(k)fluoranthene	0.247	0.003	0.010	ug/L	0.300		82.4	50-120	7.62	30	
Benzo(j)fluoranthene	0.341	0.002	0.010	ug/L	0.300		114	39-160	9.39	30	
Benzofluoranthenes, Total	0.805	0.004	0.010	ug/L	0.900		89.4	46-120	8.67	30	
Benzo(a)pyrene	0.229	0.002	0.010	ug/L	0.300		76.4	35-120	11.80	30	
Perylene	0.208	0.006	0.010	ug/L	0.300		69.3	30-160	12.20	30	
Indeno(1,2,3-cd)pyrene	0.241	0.001	0.010	ug/L	0.300		80.3	37-120	8.97	30	
Dibenzo(a,h)anthracene	0.220	0.001	0.010	ug/L	0.300		73.4	34-120	8.57	30	
Benzo(g,h,i)perylene	0.241	0.001	0.010	ug/L	0.300		80.4	38-120	8.31	30	
Surrogate: 2-Methylnaphthalene-d10	0.249			ug/L	*0.300*		*83.0*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.203			ug/L	*0.300*		*67.6*	*29-120*			
Surrogate: Fluoranthene-d10	0.257			ug/L	*0.300*		*85.5*	*57-120*			

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

Petroleum Hydrocarbons - Quality Control

Batch BJB0727 - 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 (BJB0727-BLK1)				Prepared: 25-Feb-2021	Analyzed: 11-Mar-2021 14:07					
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	0.250		mg/L	*0.225*		*111*	*50-150*			
LCS (BJB0727-BS1)				Prepared: 25-Feb-2021	Analyzed: 11-Mar-2021 14:28					
Diesel Range Organics (C12-C24)	3.58	0.100	mg/L	3.00		119	56-120			
Surrogate: o-Terphenyl	0.307		mg/L	*0.225*		*137*	*50-150*			
LCS Dup (BJB0727-BSD1)				Prepared: 25-Feb-2021	Analyzed: 11-Mar-2021 14:49					
Diesel Range Organics (C12-C24)	3.33	0.100	mg/L	3.00		111	56-120	7.17	30	
Surrogate: o-Terphenyl	0.276		mg/L	*0.225*		*123*	*50-150*			

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

Aroclor PCB - Quality Control

Batch BJB0691 - 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 (BJB0691-BLK1)				Prepared: 24-Feb-2021 Analyzed: 25-Feb-2021 12:42							
Aroclor 1016	ND	0.018	0.100	ug/L							U
Aroclor 1221	ND	0.018	0.100	ug/L							U
Aroclor 1232	ND	0.018	0.100	ug/L							U
Aroclor 1242	ND	0.018	0.100	ug/L							U
Aroclor 1248	ND	0.018	0.100	ug/L							U
Aroclor 1254	ND	0.018	0.100	ug/L							U
Aroclor 1260	ND	0.017	0.100	ug/L							U
Surrogate: Decachlorobiphenyl	0.0508			ug/L	*0.0800*		*63.5*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0528			ug/L	*0.0800*		*65.9*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0547			ug/L	*0.0800*		*68.4*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0459			ug/L	*0.0800*		*57.4*	*39-120*			
LCS (BJB0691-BS1)				Prepared: 24-Feb-2021 Analyzed: 25-Feb-2021 13:02							
Aroclor 1016	0.767	0.018	0.100	ug/L	1.00		76.7	51-120			
Aroclor 1260 [2C]	0.800	0.017	0.100	ug/L	1.00		80.0	56-120			
Surrogate: Decachlorobiphenyl	0.0576			ug/L	*0.0800*		*72.0*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0576			ug/L	*0.0800*		*71.9*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0624			ug/L	*0.0800*		*78.0*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0464			ug/L	*0.0800*		*58.0*	*39-120*			
LCS Dup (BJB0691-BSD1)				Prepared: 24-Feb-2021 Analyzed: 25-Feb-2021 13:23							
Aroclor 1016 [2C]	0.740	0.018	0.100	ug/L	1.00		74.0	51-120	0.73	30	
Aroclor 1260 [2C]	0.767	0.017	0.100	ug/L	1.00		76.7	56-120	4.21	30	
Surrogate: Decachlorobiphenyl	0.0540			ug/L	*0.0800*		*67.5*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0527			ug/L	*0.0800*		*65.9*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0593			ug/L	*0.0800*		*74.1*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0466			ug/L	*0.0800*		*58.3*	*39-120*			

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

Metals and Metallic Compounds - Quality Control

Batch BJC0081 - 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 (BJC0081-BLK1)					Prepared: 03-Mar-2021 Analyzed: 03-Mar-2021 16:11							
Barium	135	ND	0.0560	0.500	ug/L							U
Barium	137	ND	0.0530	0.500	ug/L							U
Chromium	52	ND	0.130	0.500	ug/L							U
Chromium	53	0.0940	0.0700	0.500	ug/L							J
Cobalt	59	ND	0.0290	0.200	ug/L							U
Iron	54	ND	6.27	20.0	ug/L							U
Iron	57	ND	1.40	20.0	ug/L							U
Lead	208	ND	0.0680	0.100	ug/L							U
Manganese	55	ND	0.0850	0.500	ug/L							U
Silver	107	ND	0.0170	0.200	ug/L							U
Vanadium	51a	ND	0.0400	0.200	ug/L							U
Vanadium	51b	0.0180	0.0160	0.200	ug/L							J
Arsenic	75a	ND	0.0220	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	0.340	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	ND	0.0500	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Selenium	78	ND	0.440	0.500	ug/L							U
Zinc	66	1.32	0.820	4.00	ug/L							J
Zinc	67	1.37	0.940	4.00	ug/L							J
LCS (BJC0081-BS1)					Prepared: 03-Mar-2021 Analyzed: 03-Mar-2021 16:15							
Barium	135	25.7	0.0560	0.500	ug/L	25.0		103	80-120			
Barium	137	25.6	0.0530	0.500	ug/L	25.0		102	80-120			
Chromium	52	25.3	0.130	0.500	ug/L	25.0		101	80-120			
Chromium	53	25.5	0.0700	0.500	ug/L	25.0		102	80-120			
Cobalt	59	25.4	0.0290	0.200	ug/L	25.0		102	80-120			
Iron	54	4880	6.27	20.0	ug/L	5000		97.5	80-120			
Iron	57	4900	1.40	20.0	ug/L	5000		98.0	80-120			
Lead	208	25.2	0.0680	0.100	ug/L	25.0		101	80-120			
Manganese	55	25.9	0.0850	0.500	ug/L	25.0		104	80-120			
Silver	107	28.1	0.0170	0.200	ug/L	25.0		112	80-120			
Vanadium	51a	26.0	0.0400	0.200	ug/L	25.0		104	80-120			

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

Metals and Metallic Compounds - Quality Control

Batch BJC0081 - 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 (BJC0081-BS1)						Prepared: 03-Mar-2021 Analyzed: 03-Mar-2021 16:15						
Vanadium	51b	26.0	0.0160	0.200	ug/L	25.0		104	80-120			
Arsenic	75a	25.4	0.0220	0.200	ug/L	25.0		102	80-120			
Cadmium	111	24.8	0.0300	0.100	ug/L	25.0		99.3	80-120			
Cadmium	114	24.7	0.0400	0.100	ug/L	25.0		98.6	80-120			
Copper	63	25.6	0.340	0.500	ug/L	25.0		102	80-120			
Copper	65	25.1	0.350	0.500	ug/L	25.0		100	80-120			
Nickel	60	25.4	0.0500	0.500	ug/L	25.0		102	80-120			
Nickel	62	25.6	0.220	0.500	ug/L	25.0		102	80-120			
Selenium	78	81.9	0.440	0.500	ug/L	80.0		102	80-120			
Zinc	66	81.4	0.820	4.00	ug/L	80.0		102	80-120			
Zinc	67	77.6	0.940	4.00	ug/L	80.0		97.0	80-120			
Duplicate (BJC0081-DUP2)			**Source: 21B0272-14**			Prepared: 03-Mar-2021 Analyzed: 04-Mar-2021 05:27						
Barium	135	1.37	0.0560	0.500	ug/L		1.31			4.57	20	
Cobalt	59	0.360	0.0290	0.200	ug/L		0.351			2.53	20	
Lead	208	ND	0.0680	0.100	ug/L		ND					U
Arsenic	75a	0.320	0.0220	0.200	ug/L		0.334			4.28	20	
Cadmium	111	ND	0.0300	0.100	ug/L		ND					U
Copper	63	1.11	0.340	0.500	ug/L		1.08			2.64	20	
Nickel	60	1.68	0.0500	0.500	ug/L		1.67			0.66	20	
Selenium	78	ND	0.440	0.500	ug/L		ND					U
Zinc	66	ND	0.820	4.00	ug/L		ND					U
Duplicate (BJC0081-DUP4)			**Source: 21B0272-14**			Prepared: 03-Mar-2021 Analyzed: 04-Mar-2021 23:18						
Chromium	52	0.278	0.260	1.00	ug/L		ND					J, D
Iron	54	42.9	12.5	40.0	ug/L		29.6			36.80	20	L, D
Manganese	55	8.58	0.170	1.00	ug/L		7.61			11.90	20	D
Vanadium	51a	1.36	0.0800	0.400	ug/L		1.25			8.74	20	D
Matrix Spike (BJC0081-MS2)			**Source: 21B0272-14**			Prepared: 03-Mar-2021 Analyzed: 04-Mar-2021 05:32						
Barium	135	25.7	0.0560	0.500	ug/L	25.0	1.31	97.4	75-125			
Cobalt	59	25.8	0.0290	0.200	ug/L	25.0	0.351	102	75-125			
Lead	208	25.3	0.0680	0.100	ug/L	25.0	ND	101	75-125			
Arsenic	75a	24.1	0.0220	0.200	ug/L	25.0	0.334	95.2	75-125			
Cadmium	111	24.4	0.0300	0.100	ug/L	25.0	ND	97.6	75-125			
Copper	63	25.7	0.340	0.500	ug/L	25.0	1.08	98.6	75-125			

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

Metals and Metallic Compounds - Quality Control

Batch BJC0081 - 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 (BJC0081-MS2)			**Source: 21B0272-14**			Prepared: 03-Mar-2021		Analyzed: 04-Mar-2021 05:32				
Nickel	60	26.8	0.0500	0.500	ug/L	25.0	1.67	101	75-125			
Selenium	78	73.8	0.440	0.500	ug/L	80.0	ND	92.2	75-125			
Zinc	66	77.4	0.820	4.00	ug/L	80.0	ND	96.8	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BJC0081-MS4)			**Source: 21B0272-14**			Prepared: 03-Mar-2021		Analyzed: 04-Mar-2021 23:23				
Chromium	52	23.0	0.260	1.00	ug/L	25.0	ND	91.8	75-125			D
Iron	54	4310	12.5	40.0	ug/L	5000	29.6	85.5	75-125			D
Manganese	55	30.5	0.170	1.00	ug/L	25.0	7.61	91.6	75-125			D
Vanadium	51a	24.1	0.0800	0.400	ug/L	25.0	1.25	91.6	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0081-MSD2)			**Source: 21B0272-14**			Prepared: 03-Mar-2021		Analyzed: 04-Mar-2021 05:38				
Barium	135	26.6	0.0560	0.500	ug/L	25.0	1.31	101	75-125	3.44	20	
Cobalt	59	26.0	0.0290	0.200	ug/L	25.0	0.351	103	75-125	0.76	20	
Lead	208	25.4	0.0680	0.100	ug/L	25.0	ND	102	75-125	0.24	20	
Arsenic	75a	24.5	0.0220	0.200	ug/L	25.0	0.334	96.8	75-125	1.67	20	
Cadmium	111	24.6	0.0300	0.100	ug/L	25.0	ND	98.4	75-125	0.87	20	
Copper	63	26.1	0.340	0.500	ug/L	25.0	1.08	99.9	75-125	1.26	20	
Nickel	60	27.1	0.0500	0.500	ug/L	25.0	1.67	102	75-125	1.15	20	
Selenium	78	75.7	0.440	0.500	ug/L	80.0	ND	94.7	75-125	2.64	20	
Zinc	66	77.9	0.820	4.00	ug/L	80.0	ND	97.3	75-125	0.55	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0081-MSD4)			**Source: 21B0272-14**			Prepared: 03-Mar-2021		Analyzed: 04-Mar-2021 23:29				
Chromium	52	22.9	0.260	1.00	ug/L	25.0	ND	91.6	75-125	0.31	20	D
Iron	54	4310	12.5	40.0	ug/L	5000	29.6	85.5	75-125	0.02	20	D
Manganese	55	30.4	0.170	1.00	ug/L	25.0	7.61	91.3	75-125	0.30	20	D
Vanadium	51a	24.5	0.0800	0.400	ug/L	25.0	1.25	93.0	75-125	1.42	20	D
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

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

Metals and Metallic Compounds - Quality Control

Batch BJC0081 - 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
Duplicate (BJC0081-DUP6)			**Source: 21B0272-14**		Prepared: 03-Mar-2021		Analyzed: 05-Mar-2021 21:29					
Silver	107	ND	0.0340	0.400	ug/L		ND					U
Matrix Spike (BJC0081-MS6)			**Source: 21B0272-14**		Prepared: 03-Mar-2021		Analyzed: 05-Mar-2021 21:34					
Silver	107	24.0	0.0340	0.400	ug/L	25.0	ND	95.9	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0081-MSD6)			**Source: 21B0272-14**		Prepared: 03-Mar-2021		Analyzed: 05-Mar-2021 21:39					
Silver	107	25.1	0.0340	0.400	ug/L	25.0	ND	101	75-125	4.76	20	D
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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	05-Aug-2021 10:17

Metals and Metallic Compounds - Quality Control

Batch BJC0112 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0112-BLK1)				Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 14:25							
Mercury	ND	0.000013	0.000100	mg/L							U
LCS (BJC0112-BS1)				Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 14:28							
Mercury	0.00207	0.000013	0.000100	mg/L	0.00200		103	80-120			
Duplicate (BJC0112-DUP1)		**Source: 21B0272-12**		Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 14:32							
Mercury	0.000233	0.000013	0.000100	mg/L		ND					
Matrix Spike (BJC0112-MS1)		**Source: 21B0272-12**		Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 14:39							
Mercury	0.000972	0.000013	0.000100	mg/L	0.00100	ND	97.2	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJC0112-MSD1)		**Source: 21B0272-12**		Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 14:41							
Mercury	0.00119	0.000013	0.000100	mg/L	0.00100	ND	119	75-125	20.40	20	*
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Post Spike (BJC0112-PS1)		**Source: 21B0272-12**		Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 15:23							
Mercury	0.000667			mg/L	0.000660	ND	101	0-200			

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0088 - 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 (BJC0088-BLK1)					Prepared: 03-Mar-2021 Analyzed: 04-Mar-2021 01:21							
Barium, Dissolved	135	ND	0.0560	0.500	ug/L							U
Barium, Dissolved	137	ND	0.0530	0.500	ug/L							U
Chromium, Dissolved	52	ND	0.130	0.500	ug/L							U
Cobalt, Dissolved	59	ND	0.0290	0.200	ug/L							U
Chromium, Dissolved	53	ND	0.0700	0.500	ug/L							U
Iron, Dissolved	54	9.55	6.27	20.0	ug/L							J
Iron, Dissolved	57	ND	1.40	20.0	ug/L							U
Lead, Dissolved	208	ND	0.0680	0.100	ug/L							U
Manganese, Dissolved	55	ND	0.0850	0.500	ug/L							U
Silver, Dissolved	107	ND	0.0170	0.200	ug/L							U
Vanadium, Dissolved	51a	ND	0.0400	0.200	ug/L							U
Vanadium, Dissolved	51b	ND	0.0160	0.200	ug/L							U
Arsenic, Dissolved	75a	ND	0.0220	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	0.340	0.500	ug/L							U
Copper, Dissolved	65	ND	0.350	0.500	ug/L							U
Nickel, Dissolved	60	ND	0.0500	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
Selenium, Dissolved	78	ND	0.440	0.500	ug/L							U
Zinc, Dissolved	66	ND	0.820	4.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	4.00	ug/L							U
LCS (BJC0088-BS1)					Prepared: 03-Mar-2021 Analyzed: 04-Mar-2021 01:25							
Barium, Dissolved	135	25.6	0.0560	0.500	ug/L	25.0		103	80-120			
Barium, Dissolved	137	25.5	0.0530	0.500	ug/L	25.0		102	80-120			
Chromium, Dissolved	52	25.6	0.130	0.500	ug/L	25.0		103	80-120			
Chromium, Dissolved	53	25.0	0.0700	0.500	ug/L	25.0		99.8	80-120			
Cobalt, Dissolved	59	24.8	0.0290	0.200	ug/L	25.0		99.2	80-120			
Iron, Dissolved	54	4770	6.27	20.0	ug/L	5000		95.4	80-120			
Iron, Dissolved	57	4780	1.40	20.0	ug/L	5000		95.5	80-120			
Lead, Dissolved	208	24.8	0.0680	0.100	ug/L	25.0		99.1	80-120			
Manganese, Dissolved	55	25.3	0.0850	0.500	ug/L	25.0		101	80-120			
Silver, Dissolved	107	27.1	0.0170	0.200	ug/L	25.0		109	80-120			
Vanadium, Dissolved	51a	25.1	0.0400	0.200	ug/L	25.0		101	80-120			

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0088 - 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 (BJC0088-BS1)						Prepared: 03-Mar-2021 Analyzed: 04-Mar-2021 01:25						
Vanadium, Dissolved	51b	24.9	0.0160	0.200	ug/L	25.0		99.7	80-120			
Arsenic, Dissolved	75a	25.4	0.0220	0.200	ug/L	25.0		102	80-120			
Cadmium, Dissolved	111	24.9	0.0300	0.100	ug/L	25.0		99.5	80-120			
Cadmium, Dissolved	114	24.8	0.0400	0.100	ug/L	25.0		99.2	80-120			
Copper, Dissolved	63	25.2	0.340	0.500	ug/L	25.0		101	80-120			
Copper, Dissolved	65	25.0	0.350	0.500	ug/L	25.0		100	80-120			
Nickel, Dissolved	60	25.1	0.0500	0.500	ug/L	25.0		100	80-120			
Nickel, Dissolved	62	25.0	0.220	0.500	ug/L	25.0		100	80-120			
Selenium, Dissolved	78	80.1	0.440	0.500	ug/L	80.0		100	80-120			
Zinc, Dissolved	66	76.7	0.820	4.00	ug/L	80.0		95.9	80-120			
Zinc, Dissolved	67	74.4	0.940	4.00	ug/L	80.0		93.0	80-120			
Duplicate (BJC0088-DUP1)			**Source: 21B0272-15**			Prepared: 03-Mar-2021 Analyzed: 04-Mar-2021 06:33						
Barium, Dissolved	135	1.23	0.0560	0.500	ug/L		1.23			0.08	20	
Cobalt, Dissolved	59	0.309	0.0290	0.200	ug/L		0.294			4.98	20	
Lead, Dissolved	208	ND	0.0680	0.100	ug/L		ND					U
Arsenic, Dissolved	75a	0.292	0.0220	0.200	ug/L		0.311			6.30	20	
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L		ND					U
Copper, Dissolved	63	0.921	0.340	0.500	ug/L		1.07			14.50	20	
Nickel, Dissolved	60	1.55	0.0500	0.500	ug/L		1.66			6.62	20	
Selenium, Dissolved	78	ND	0.440	0.500	ug/L		ND					U
Zinc, Dissolved	66	0.936	0.820	4.00	ug/L		1.14			19.70	20	J
Duplicate (BJC0088-DUP2)			**Source: 21B0272-15**			Prepared: 03-Mar-2021 Analyzed: 04-Mar-2021 23:42						
Chromium, Dissolved	52	ND	0.260	1.00	ug/L		ND					U
Iron, Dissolved	54	16.5	12.5	40.0	ug/L		15.3			7.77	20	J, D
Manganese, Dissolved	55	6.80	0.170	1.00	ug/L		6.73			0.98	20	D
Vanadium, Dissolved	51a	1.18	0.0800	0.400	ug/L		1.16			1.20	20	D
Matrix Spike (BJC0088-MS1)			**Source: 21B0272-15**			Prepared: 03-Mar-2021 Analyzed: 04-Mar-2021 06:38						
Barium, Dissolved	135	25.4	0.0560	0.500	ug/L	25.0	1.23	96.6	75-125			
Cobalt, Dissolved	59	25.6	0.0290	0.200	ug/L	25.0	0.294	101	75-125			
Lead, Dissolved	208	24.8	0.0680	0.100	ug/L	25.0	ND	99.1	75-125			
Arsenic, Dissolved	75a	24.0	0.0220	0.200	ug/L	25.0	0.311	94.8	75-125			
Cadmium, Dissolved	111	24.4	0.0300	0.100	ug/L	25.0	ND	97.8	75-125			
Copper, Dissolved	63	25.5	0.340	0.500	ug/L	25.0	1.07	97.7	75-125			

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0088 - 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 (BJC0088-MS1)			**Source: 21B0272-15**			Prepared: 03-Mar-2021		Analyzed: 04-Mar-2021 06:38				
Nickel, Dissolved	60	26.6	0.0500	0.500	ug/L	25.0	1.66	99.8	75-125			
Selenium, Dissolved	78	74.2	0.440	0.500	ug/L	80.0	ND	92.7	75-125			
Zinc, Dissolved	66	76.7	0.820	4.00	ug/L	80.0	1.14	94.4	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BJC0088-MS2)			**Source: 21B0272-15**			Prepared: 03-Mar-2021		Analyzed: 04-Mar-2021 23:47				
Chromium, Dissolved	52	23.1	0.260	1.00	ug/L	25.0	ND	92.3	75-125			D
Iron, Dissolved	54	4320	12.5	40.0	ug/L	5000	15.3	86.2	75-125			D
Manganese, Dissolved	55	29.5	0.170	1.00	ug/L	25.0	6.73	91.2	75-125			D
Vanadium, Dissolved	51a	24.4	0.0800	0.400	ug/L	25.0	1.16	92.8	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0088-MSD1)			**Source: 21B0272-15**			Prepared: 03-Mar-2021		Analyzed: 04-Mar-2021 06:43				
Barium, Dissolved	135	25.6	0.0560	0.500	ug/L	25.0	1.23	97.5	75-125	0.90	20	
Cobalt, Dissolved	59	26.0	0.0290	0.200	ug/L	25.0	0.294	103	75-125	1.73	20	
Lead, Dissolved	208	25.3	0.0680	0.100	ug/L	25.0	ND	101	75-125	2.26	20	
Arsenic, Dissolved	75a	24.6	0.0220	0.200	ug/L	25.0	0.311	97.3	75-125	2.61	20	
Cadmium, Dissolved	111	24.6	0.0300	0.100	ug/L	25.0	ND	98.2	75-125	0.43	20	
Copper, Dissolved	63	25.9	0.340	0.500	ug/L	25.0	1.07	99.2	75-125	1.50	20	
Nickel, Dissolved	60	26.8	0.0500	0.500	ug/L	25.0	1.66	101	75-125	0.85	20	
Selenium, Dissolved	78	75.6	0.440	0.500	ug/L	80.0	ND	94.5	75-125	1.86	20	
Zinc, Dissolved	66	78.8	0.820	4.00	ug/L	80.0	1.14	97.1	75-125	2.73	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0088-MSD2)			**Source: 21B0272-15**			Prepared: 03-Mar-2021		Analyzed: 04-Mar-2021 23:53				
Chromium, Dissolved	52	23.2	0.260	1.00	ug/L	25.0	ND	92.9	75-125	0.66	20	D
Iron, Dissolved	54	4430	12.5	40.0	ug/L	5000	15.3	88.4	75-125	2.52	20	D
Manganese, Dissolved	55	29.7	0.170	1.00	ug/L	25.0	6.73	91.8	75-125	0.53	20	D
Vanadium, Dissolved	51a	24.6	0.0800	0.400	ug/L	25.0	1.16	93.9	75-125	1.04	20	D
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

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Analytical Resources, Incorporated
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	05-Aug-2021 10:17

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0088 - 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
Duplicate (BJC0088-DUP3)			**Source: 21B0272-15**			Prepared: 03-Mar-2021	Analyzed: 05-Mar-2021 21:51					
Silver, Dissolved	107	ND	0.0340	0.400	ug/L		ND					U
Matrix Spike (BJC0088-MS3)			**Source: 21B0272-15**			Prepared: 03-Mar-2021	Analyzed: 05-Mar-2021 21:55					
Silver, Dissolved	107	25.0	0.0340	0.400	ug/L	25.0	ND	100	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0088-MSD3)			**Source: 21B0272-15**			Prepared: 03-Mar-2021	Analyzed: 05-Mar-2021 22:01					
Silver, Dissolved	107	24.2	0.0340	0.400	ug/L	25.0	ND	96.8	75-125	3.26	20	D
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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	05-Aug-2021 10:17

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0089 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0089-BLK1)					Prepared: 03-Mar-2021	Analyzed: 04-Mar-2021 13:59					
Mercury, Dissolved	ND	0.000013	0.000100	mg/L							U
LCS (BJC0089-BS1)					Prepared: 03-Mar-2021	Analyzed: 04-Mar-2021 14:02					
Mercury, Dissolved	0.00199	0.000013	0.000100	mg/L	0.00200		99.7	80-120			
Duplicate (BJC0089-DUP1)		**Source: 21B0272-13**			Prepared: 03-Mar-2021	Analyzed: 04-Mar-2021 14:09					
Mercury, Dissolved	ND	0.000013	0.000100	mg/L		ND					U
Matrix Spike (BJC0089-MS1)		**Source: 21B0272-13**			Prepared: 03-Mar-2021	Analyzed: 04-Mar-2021 14:11					
Mercury, Dissolved	0.000933	0.000013	0.000100	mg/L	0.00100	ND	93.3	75-125			

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

Matrix Spike Dup (BJC0089-MSD1)		**Source: 21B0272-13**			Prepared: 03-Mar-2021	Analyzed: 04-Mar-2021 14:18					
Mercury, Dissolved	0.000901	0.000013	0.000100	mg/L	0.00100	ND	90.0	75-125	3.50	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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	05-Aug-2021 10:17

Wet Chemistry - Quality Control

Batch BJB0581 - 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 (BJB0581-BLK1)				Prepared: 19-Feb-2021 Analyzed: 19-Feb-2021 16:33							
Sulfite	ND	1.4	1.4	mg/L							U
LCS (BJB0581-BS1)				Prepared: 19-Feb-2021 Analyzed: 19-Feb-2021 16:33							
Sulfite	4.0	1.4	1.4	mg/L	5.01		79.8	75-100			
Duplicate (BJB0581-DUP1)		**Source: 21B0272-01**		Prepared: 19-Feb-2021 Analyzed: 19-Feb-2021 16:33							
Sulfite	ND	1.4	1.4	mg/L		ND					H, U

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Analytical Resources, Incorporated
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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	05-Aug-2021 10:17

Wet Chemistry - Quality Control

Batch BJB0583 - No Prep Wet Chem

Instrument: IC930 Analyst: WCW

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJB0583-BLK1)				Prepared: 19-Feb-2021 Analyzed: 19-Feb-2021 19:01							
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 (BJB0583-BS1)				Prepared: 19-Feb-2021 Analyzed: 19-Feb-2021 19:21							
Chloride	4.86	0.100	0.100	mg/L	5.00		97.1	90-110			
Nitrate-N	5.15	0.100	0.100	mg/L	5.00		103	90-110			
Nitrite-N	4.96	0.100	0.100	mg/L	5.00		99.1	90-110			
Sulfate	4.97	0.100	0.100	mg/L	5.00		99.3	90-110			
Duplicate (BJB0583-DUP1)		**Source: 21B0272-01**		Prepared: 19-Feb-2021 Analyzed: 19-Feb-2021 20:01							
Chloride	9.31	0.100	0.100	mg/L		9.29			0.28	20	
Nitrate-N	0.743	0.100	0.100	mg/L		0.741			0.27	20	
Nitrite-N	ND	0.100	0.100	mg/L		ND					U
Sulfate	8.77	0.100	0.100	mg/L		8.77			0.06	20	
Matrix Spike (BJB0583-MS1)		**Source: 21B0272-01**		Prepared: 19-Feb-2021 Analyzed: 19-Feb-2021 20:21							
Nitrate-N	2.71	0.100	0.100	mg/L	2.00	0.741	98.5	75-125			
Nitrite-N	2.00	0.100	0.100	mg/L	2.00	ND	99.9	75-125			
Sulfate	10.7	0.100	0.100	mg/L	2.00	8.77	96.8	75-125			E

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

Matrix Spike (BJB0583-MS2)		**Source: 21B0272-01**		Prepared: 19-Feb-2021 Analyzed: 19-Feb-2021 21:01							
Chloride	10.9	0.100	0.200	mg/L	2.00	9.29	81.3	75-125			D

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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	05-Aug-2021 10:17

Wet Chemistry - Quality Control

Batch BJB0586 - No Prep Wet Chem

Instrument: UV1800-2 Analyst: WMT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJB0586-BLK1)				Prepared: 19-Feb-2021 Analyzed: 19-Feb-2021 19:39							
Ferrous Iron	ND	0.040	0.040	mg/L							U
LCS (BJB0586-BS1)				Prepared: 19-Feb-2021 Analyzed: 19-Feb-2021 19:40							
Ferrous Iron	0.495	0.040	0.040	mg/L	0.501		98.9	90-110			
Duplicate (BJB0586-DUP1)		**Source: 21B0272-01**		Prepared: 19-Feb-2021 Analyzed: 19-Feb-2021 19:41							
Ferrous Iron	1.65	0.040	0.040	mg/L		1.64			0.18	20	
Matrix Spike (BJB0586-MS1)		**Source: 21B0272-01**		Prepared: 19-Feb-2021 Analyzed: 19-Feb-2021 19:41							
Ferrous Iron	2.05	0.041	0.041	mg/L	0.409	1.64	99.6	75-125			E

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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	05-Aug-2021 10:17

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
Cobalt-59	DoD-ELAP,NELAP,WADOE
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
Cobalt-59	NELAP,DoD-ELAP,WADOE
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
Copper-63	NELAP,WADOE,DoD-ELAP

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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	05-Aug-2021 10:17

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
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
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	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1016 (1)	ADEC
Aroclor-1016 (2)	ADEC
Aroclor-1016 (3)	ADEC
Aroclor-1016 (4)	ADEC
Aroclor 1016 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1016 (1) [2C]	ADEC
Aroclor-1016 (2) [2C]	ADEC
Aroclor-1016 (3) [2C]	ADEC
Aroclor-1016 (4) [2C]	ADEC
Aroclor 1221	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1221 (1)	ADEC
Aroclor-1221 (2)	ADEC
Aroclor-1221 (3)	ADEC
Aroclor 1221 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1221 (1) [2C]	ADEC
Aroclor-1221 (2) [2C]	ADEC
Aroclor-1221 (3) [2C]	ADEC
Aroclor-1221 (4) [2C]	ADEC

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Analytical Resources, Incorporated
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Aroclor 1232	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1232 (1)	ADEC
Aroclor-1232 (2)	ADEC
Aroclor-1232 (3)	ADEC
Aroclor-1232 (4)	ADEC
Aroclor 1232 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1232 (1) [2C]	ADEC
Aroclor-1232 (2) [2C]	ADEC
Aroclor-1232 (3) [2C]	ADEC
Aroclor-1232 (4) [2C]	ADEC
Aroclor 1242	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1242 (1)	ADEC
Aroclor-1242 (2)	ADEC
Aroclor-1242 (3)	ADEC
Aroclor-1242 (4)	ADEC
Aroclor 1242 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1242 (1) [2C]	ADEC
Aroclor-1242 (2) [2C]	ADEC
Aroclor-1242 (3) [2C]	ADEC
Aroclor-1242 (4) [2C]	ADEC
Aroclor 1248	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1248 (1)	ADEC
Aroclor-1248 (2)	ADEC
Aroclor-1248 (3)	ADEC
Aroclor-1248 (4)	ADEC
Aroclor 1248 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1248 (1) [2C]	ADEC
Aroclor-1248 (2) [2C]	ADEC
Aroclor-1248 (3) [2C]	ADEC
Aroclor-1248 (4) [2C]	ADEC
Aroclor 1254	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1254 (1)	ADEC
Aroclor-1254 (2)	ADEC
Aroclor-1254 (3)	ADEC
Aroclor-1254 (4)	ADEC
Aroclor-1254 (5)	ADEC
Aroclor 1254 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1254 (1) [2C]	ADEC
Aroclor-1254 (2) [2C]	ADEC

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Aroclor-1254 (3) [2C]	ADEC
Aroclor-1254 (4) [2C]	ADEC
Aroclor-1254 (5) [2C]	ADEC
Aroclor 1260	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1260 (1)	ADEC
Aroclor-1260 (2)	ADEC
Aroclor-1260 (3)	ADEC
Aroclor-1260 (4)	ADEC
Aroclor-1260 (5)	ADEC
Aroclor 1260 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1260 (1) [2C]	ADEC
Aroclor-1260 (2) [2C]	ADEC
Aroclor-1260 (3) [2C]	ADEC
Aroclor-1260 (4) [2C]	ADEC
Aroclor 1262	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1262 (1)	ADEC
Aroclor-1262 (2)	ADEC
Aroclor-1262 (3)	ADEC
Aroclor-1262 (4)	ADEC
Aroclor-1262 (5)	ADEC
Aroclor 1262 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1262 (1) [2C]	ADEC
Aroclor-1262 (2) [2C]	ADEC
Aroclor-1262 (3) [2C]	ADEC
Aroclor-1262 (4) [2C]	ADEC
Aroclor-1262 (5) [2C]	ADEC
Aroclor 1268	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1268 (1)	ADEC
Aroclor-1268 (2)	ADEC
Aroclor-1268 (3)	ADEC
Aroclor-1268 (4)	ADEC
Aroclor 1268 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1268 (1) [2C]	ADEC
Aroclor-1268 (2) [2C]	ADEC
Aroclor-1268 (3) [2C]	ADEC
Aroclor-1268 (4) [2C]	ADEC

EPA 8260D in Water

Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE

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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
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE

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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
1,1-Dichloroethene	NELAP,WADOE
cis-1,2-Dichloroethene	NELAP,WADOE
trans-1,2-Dichloroethene	NELAP,WADOE

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Analytical Chemists and Consultants

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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
Acenaphthylene	NELAP,DoD-ELAP
Dimethylphthalate	NELAP,DoD-ELAP
2,6-Dinitrotoluene	NELAP,DoD-ELAP

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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

EPA 8270E-SIM in Water

Naphthalene	ADEC,DoD-ELAP,NELAP,WADOE
2-Methylnaphthalene	ADEC,DoD-ELAP,NELAP

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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
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

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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

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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)
H	Hold time violation - Hold time was exceeded.
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.
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

31 July 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)
21B0296	N/A

Susan Dunnihoo

Digitally signed by Susan Dunnihoo
Date: 2021.07.31 19:58:57 -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.

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

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21B0296	Turn-around Requested: Standard	Page: 1 of 2	
ARI Client Company: Shannon & Wilson	Phone: 206-695-6811	Date: 2/22/2021	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 3	Cooler Temps: See COF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: MRH/DES		

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	Analysis Requested: TPH-G	TPH-Dx	BTEX	HVOCs	PAHs	Limited SVOCs	PCBs	see page 2	Notes/Comments
TB-8-20212202	2/22/21	07:46	water	1	X		X	X					
MW-53-20212202		0846		15		X	X	X	X	X	X	X	
MW-101-20212202		0901		14		X	X	X	X	X	X	X	
MW-73-20212202		1039		12	X	X	X	X	X			X	
MW-74-20212202		1145		12	X	X	X	X	X			X	
MW-61-20212202		1300		12	X	X	X	X	X			X	
MW-36-20212202		1401		15	X	X	X	X				X	
MW-32-20212202		1505		~~8~~ 10	X	X			X	X		X	
MW-34-20212202		1555		4	X	X							

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
• Lab to filter metals • Please refer to project methods & analyte lists	Printed Name: DANIEL SCHWICHT	Printed Name: Jacob Haltz	Printed Name:	Printed Name:
	Company: SWI	Company: ARI	Company:	Company:
	Date & Time: 22-FEB-21, 16:38	Date & Time: 02/22/2021 1638	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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21B0296	Turn-around Requested: Standard
ARI Client Company: Shannon & Wilson	Phone: 206-695-6811
Client Contact: Shoshana Howard	
Client Project Name: LDW	
Client Project #: 21-1-12596	Samplers: MRH/DES

Page: 2 of 2
Date: 2/22/2021 Ice Present? Yes
No. of Coolers: 3 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	Full list Metals	Hardness	~~Metals~~ 1	Attenuation indicators	Metals (total & diss) Arsenic only				Notes/Comments
MW-53-20212202	see page 1 →				X	X							• Dissolved Mn • MEE
MW-101-20212202	see page 1 →				X								
MW-73-20212202	see page 1 →				X								
MW-74-20212202	see page 1 →				X								
MW-61-20212202	see page 1 →				X								
MW-36-20212202	see page 1 →						X	X					1 = Metals (total & diss): As, Cr, Mn, Ni, Cd,
MW-32-20212202	see page 1 →								X				Co, Cu, Pb, Hg, Se, Ag, Zn

Attenuation indicators
- Nitrate, Nitrite, Sulfate
- Chloride
- Sulfite
- Ferrous Iron

Comments/Special Instructions
- Lab to filter metals
- Please refer to project methods & analyte lists.

Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)	(Signature)	(Signature)	(Signature)
Printed Name: Daniel Schwichtt	Printed Name: Jacob Haltz	Printed Name:	Printed Name:
Company: SWI	Company: ARI	Company:	Company:
Date & Time: 22-Feb-21, 16:38	Date & Time: 02/22/2021 1638	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	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-36-20212202	21B0296-01	Water	22-Feb-2021 14:01	22-Feb-2021 16:38
TB-8-20212202	21B0296-02	Water	22-Feb-2021 15:55	22-Feb-2021 16:38
MW-53-20212202	21B0296-03	Water	22-Feb-2021 08:46	22-Feb-2021 16:38
MW-53-20212202	21B0296-04	Water	22-Feb-2021 08:46	22-Feb-2021 16:38
MW-101-20212202	21B0296-05	Water	22-Feb-2021 09:01	22-Feb-2021 16:38
MW-101-20212202	21B0296-06	Water	22-Feb-2021 09:01	22-Feb-2021 16:38
MW-73-20212202	21B0296-07	Water	22-Feb-2021 10:39	22-Feb-2021 16:38
MW-73-20212202	21B0296-08	Water	22-Feb-2021 10:39	22-Feb-2021 16:38
MW-74-20212202	21B0296-09	Water	22-Feb-2021 11:45	22-Feb-2021 16:38
MW-74-20212202	21B0296-10	Water	22-Feb-2021 11:45	22-Feb-2021 16:38
MW-61-20212202	21B0296-11	Water	22-Feb-2021 13:00	22-Feb-2021 16:38
MW-61-20212202	21B0296-12	Water	22-Feb-2021 13:00	22-Feb-2021 16:38
MW-36-20212202	21B0296-13	Water	22-Feb-2021 14:01	22-Feb-2021 16:38
MW-36-20212202	21B0296-14	Water	22-Feb-2021 13:00	22-Feb-2021 16:38
MW-32-20212202	21B0296-15	Water	22-Feb-2021 15:05	22-Feb-2021 16:38
MW-32-20212202	21B0296-16	Water	22-Feb-2021 15:05	22-Feb-2021 16:38
MW-34-20212202	21B0296-17	Water	22-Feb-2021 15:55	22-Feb-2021 16:38

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.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish
Work Order: 21B0296

Sample receipt

Samples as listed on the preceding page were received 22-Feb-2021 16:38 under ARI work order 21B0296. 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.

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

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 Pentachlorophenol which was out of control low in the initial calibration verification. 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 samples 21B0296-05 and 21B0296-15. 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.

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

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 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 21B0296-15 in Total Metals batch BJC0110 and in association with sample 21B0296-16 in Dissolved Metals batch BJC0116. 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 Sulfite which has been flagged. The Sulfite hold 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.

Sample specific QC was performed in association with sample 21B0296-01 in Sulfite batch BJB0644, Ferrous Iron batch BJB0647 and Anions batch BJB0664. The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

Total Hg - EPA Method 7470/7471

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

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

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 21B0296-11 in Total Mercury batch BJC0112 and in association with sample 21B0296-04 in Dissolve Mercury batch BJC0198. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike/matrix spike duplicate (MS/MSD) and post-digestion spike (PS) percent recoveries were within advisory control limits. The MS/MSD relative percent difference (RPD) was out of advisory control limits. The deviation 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 (BS/LCS) percent recoveries were within control limits.

REVISION; Revised to correct VOC lists.

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.

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 02/22/2021 16:49:01

WORK ORDER

21B0296

Client: Shannon & Wilson, Inc | **Project Manager: Amanda Volgardsen Johnson**

Project: Lower Duwamish | **Project Number: Lower Duwamish**

Report To:
Shannon & Wilson, Inc
Meg Strong
400 N 34th St., Suite 100
Seattle, WA 98103-8636
Phone: (206) 695-6787
Fax: -

Invoice To:
Shannon & Wilson, Inc
Meg Strong
400 N 34th St., Suite 100
Seattle, WA 98103-8636
Phone :(206) 695-6787
Fax: -

Date Due: 09-Mar-2021 18:00 (10 day TAT)

Received By: Jacob Walter | Date Received: 22-Feb-2021 16:38

Logged In By: Jacob Walter | Date Logged In: 22-Feb-2021 16:47

Samples Received at: **4.6°C**

Intact, properly signed and dated custody seals attached to outside of cooler(s)	Yes	Custody papers included with the cooler	Yes
Custody papers properly filled out (in, signed, analyses requested, etc)	Yes	Was a temperature blank included in the cooler	Yes
Was sufficient ice used (if appropriate)	Yes	All bottles sealed in individual plastic bags	Yes
All bottles arrived in good condition (unbroken)	Yes	All bottle labels complete and legible	Yes
Number of containers listed on COC match number received	Yes	Bottle labels and tags agree with COC	Yes
Correct bottles used for the requested analyses	Yes	All VOC vials free of air bubbles	Yes
Analyses/bottles require preservation (attach preservation sheet excluding VOC)	Yes	Sufficient amount of sample sent in each bottle	Yes
Sample split at ARI	Yes		

21B0296-01 MW-36-20212202 [Water] Sampled 22-Feb-2021 14:01

Chloride, IC, EPA 300.0	03/09/2021	10	03/22/2021
Iron, Ferrous SM 3500-Fe B-97	03/09/2021	10	02/23/2021
Nitrate-N, IC, EPA 300.0	03/09/2021	10	02/24/2021
Nitrite-N, IC, EPA 300.0	03/09/2021	10	02/24/2021
Sulfate, IC, EPA 300.0	03/09/2021	10	03/22/2021
Sulfite-SO3 SM 4500-SO3 B-00	03/09/2021	10	02/22/2021

Preservation Confirmation

Container ID	Container Type	pH
21B0296-01 A	HDPE NM, 500 mL	
21B0296-01 B	Small OJ, 500 mL, EDTA	Lab to check pH
21B0296-01 C	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH

JBW
Preservation Confirmed By

02/22/2021
Date

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 2/23/2021 9:43:33AM

WORK ORDER

21B0296

Client: Shannon & Wilson, Inc
Project Manager: Amanda Volgardsen Johnson
Project: Lower Duwamish
Project Number: Lower Duwamish

Preservation Confirmation

Container ID	Container Type	pH	
21B0296-01 A	HDPE NM, 500 mL		
21B0296-01 B	Small OJ, 500 mL, EDTA	Lab to check pH	
21B0296-01 C	Glass NM, Amber, 250 mL, 2 mL HCl	Lab to check pH	
21B0296-02 A	VOA Vial, Clear, 40 mL, HCL		
21B0296-03 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0296-03 B	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0296-03 C	Glass NM, Amber, 500 mL		
21B0296-03 D	Glass NM, Amber, 500 mL		
21B0296-03 E	Glass NM, Amber, 500 mL		
21B0296-03 F	Glass NM, Amber, 500 mL		
21B0296-03 G	Glass NM, Amber, 500 mL		
21B0296-03 H	Glass NM, Amber, 500 mL		
21B0296-03 I	Glass NM, Amber, 500 mL		
21B0296-03 J	Glass NM, Amber, 500 mL		
21B0296-03 K	VOA Vial, Amber, 40 mL, HCL		
21B0296-03 L	VOA Vial, Amber, 40 mL, HCL		
21B0296-03 M	VOA Vial, Amber, 40 mL, HCL		
21B0296-03 N	VOA Vial, Amber, 40 mL, HCL		
21B0296-04 A	HDPE NM, 500 mL	>2	Fail (1)
21B0296-05 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0296-05 B	Glass NM, Amber, 500 mL		
21B0296-05 C	Glass NM, Amber, 500 mL		
21B0296-05 D	Glass NM, Amber, 500 mL		
21B0296-05 E	Glass NM, Amber, 500 mL		
21B0296-05 F	Glass NM, Amber, 500 mL		
21B0296-05 G	Glass NM, Amber, 500 mL		
21B0296-05 H	Glass NM, Amber, 500 mL		
21B0296-05 I	Glass NM, Amber, 500 mL		
21B0296-05 J	VOA Vial, Amber, 40 mL, HCL		
21B0296-05 K	VOA Vial, Amber, 40 mL, HCL		
21B0296-05 L	VOA Vial, Amber, 40 mL, HCL		
21B0296-05 M	VOA Vial, Amber, 40 mL, HCL		
21B0296-06 A	HDPE NM, 500 mL	>2	Pass
21B0296-07 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0296-07 B	Glass NM, Amber, 500 mL		

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 2/23/2021 9:43:33AM

WORK ORDER

21B0296

Client: Shannon & Wilson, Inc	**Project Manager: Amanda Volgardsen Johnson**
Project: Lower Duwamish	**Project Number: Lower Duwamish**

21B0296-07 C	Glass NM, Amber, 500 mL		
21B0296-07 D	Glass NM, Amber, 500 mL		
21B0296-07 E	Glass NM, Amber, 500 mL		
21B0296-07 F	VOA Vial, Amber, 40 mL, HCL		
21B0296-07 G	VOA Vial, Amber, 40 mL, HCL		
21B0296-07 H	VOA Vial, Amber, 40 mL, HCL		
21B0296-07 I	VOA Vial, Amber, 40 mL, HCL		
21B0296-07 J	VOA Vial, Amber, 40 mL, HCL		
21B0296-07 K	VOA Vial, Amber, 40 mL, HCL		
21B0296-08 A	HDPE NM, 500 mL	>2	Fail (1)
21B0296-09 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0296-09 B	Glass NM, Amber, 500 mL		
21B0296-09 C	Glass NM, Amber, 500 mL		
21B0296-09 D	Glass NM, Amber, 500 mL		
21B0296-09 E	Glass NM, Amber, 500 mL		
21B0296-09 F	VOA Vial, Amber, 40 mL, HCL		
21B0296-09 G	VOA Vial, Amber, 40 mL, HCL		
21B0296-09 H	VOA Vial, Amber, 40 mL, HCL		
21B0296-09 I	VOA Vial, Amber, 40 mL, HCL		
21B0296-09 J	VOA Vial, Amber, 40 mL, HCL		
21B0296-09 K	VOA Vial, Amber, 40 mL, HCL		
21B0296-10 A	HDPE NM, 500 mL	>2	Fail (1)
21B0296-11 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0296-11 B	Glass NM, Amber, 500 mL		
21B0296-11 C	Glass NM, Amber, 500 mL		
21B0296-11 D	Glass NM, Amber, 500 mL		
21B0296-11 E	Glass NM, Amber, 500 mL		
21B0296-11 F	VOA Vial, Amber, 40 mL, HCL		
21B0296-11 G	VOA Vial, Amber, 40 mL, HCL		
21B0296-11 H	VOA Vial, Amber, 40 mL, HCL		
21B0296-11 I	VOA Vial, Amber, 40 mL, HCL		
21B0296-11 J	VOA Vial, Amber, 40 mL, HCL		
21B0296-11 K	VOA Vial, Amber, 40 mL, HCL		
21B0296-12 A	HDPE NM, 500 mL	>2	Fail (1)
21B0296-13 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0296-13 B	Glass NM, Amber, 500 mL		
21B0296-13 C	Glass NM, Amber, 500 mL		

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 2/23/2021 9:43:33AM

WORK ORDER

21B0296

Client: Shannon & Wilson, Inc | **Project Manager:** Amanda Volgardsen Johnson

Project: Lower Duwamish | **Project Number:** Lower Duwamish

21B0296-13 D	VOA Vial, Amber, 40 mL, HCL		
21B0296-13 E	VOA Vial, Amber, 40 mL, HCL		
21B0296-13 F	VOA Vial, Amber, 40 mL, HCL		
21B0296-13 G	VOA Vial, Amber, 40 mL, HCL		
21B0296-13 H	VOA Vial, Amber, 40 mL, HCL		
21B0296-13 I	VOA Vial, Amber, 40 mL, HCL		
21B0296-13 J	VOA Vial, Amber, 40 mL, HCL		
21B0296-13 K	VOA Vial, Amber, 40 mL, HCL		
21B0296-14 A	HDPE NM, 500 mL	>2	Fail (1)
21B0296-15 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0296-15 B	Glass NM, Amber, 500 mL		
21B0296-15 C	Glass NM, Amber, 500 mL		
21B0296-15 D	Glass NM, Amber, 500 mL		
21B0296-15 E	Glass NM, Amber, 500 mL		
21B0296-15 F	Glass NM, Amber, 500 mL		
21B0296-15 G	Glass NM, Amber, 500 mL		
21B0296-15 H	VOA Vial, Amber, 40 mL, HCL		
21B0296-15 I	VOA Vial, Amber, 40 mL, HCL		
21B0296-16 A	HDPE NM, 500 mL	>2	Fail (1)
21B0296-17 A	Glass NM, Amber, 500 mL		
21B0296-17 B	Glass NM, Amber, 500 mL		
21B0296-17 C	VOA Vial, Amber, 40 mL, HCL		
21B0296-17 D	VOA Vial, Amber, 40 mL, HCL		

SC
Preservation Confirmed By

2/23/21
Date

(1) Filtered at 0.45 µm and preserved to pH < 2.0 with 0.75 ml Conc. HNO_3 (J554). mk 2/23/21

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-36-20212202

21B0296-01 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 02/22/2021 14:01

Instrument: IC930 Analyst: WCW — Analyzed: 02/23/2021 13:30

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0296-01 A

Preparation Batch: BJB0664 — Sample Size: 10 mL

Prepared: 02/23/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloride	16887-00-6	1	0.100	0.100	5.91	mg/L	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	0.157	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

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	6.75	mg/L	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-36-20212202

21B0296-01 (Water)

Wet Chemistry

Method: SM 3500-Fe B-97 — Sampled: 02/22/2021 14:01

Instrument: UV1800-2 Analyst: WMT — Analyzed: 02/22/2021 20:46

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0296-01 C

Preparation Batch: BJB0647 — Sample Size: 5 mL

Prepared: 02/22/2021 — Final Volume: 5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Ferrous Iron		20	0.800	0.800	17.3	mg/L	D

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Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-36-20212202

21B0296-01 (Water)

Wet Chemistry

Method: SM 4500-SO3 B-00 — Sampled: 02/22/2021 14:01

Instrument: N/A Analyst: UW — Analyzed: 02/22/2021 17:08

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0296-01

Preparation Batch: BJB0644 — Sample Size: 50 mL

Prepared: 02/22/2021 — 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	31-Jul-2021 17:36

TB-8-20212202

21B0296-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/22/2021 15:55

Instrument: NT2 Analyst: LH — Analyzed: 03/03/2021 09:43

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-02 A

Preparation Batch: BJC0074 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*104*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.2*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*98.0*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

TB-8-20212202

21B0296-02 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/22/2021 15:55

Instrument: NT2 Analyst: LH — Analyzed: 03/03/2021 09:43

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-02 A

Preparation Batch: BJC0074 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*98.2*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*98.0*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-53-20212202

21B0296-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/22/2021 08:46

Instrument: NT2 Analyst: LH — Analyzed: 03/03/2021 12:49

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-03 K

Preparation Batch: BJC0074 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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	0.22	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 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.5*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*94.5*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.5*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-53-20212202

21B0296-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/22/2021 08:46

Instrument: NT16 Analyst: PB — Analyzed: 03/03/2021 15:05

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-03 L

Preparation Batch: BJC0090 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*96.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*96.3*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-53-20212202

21B0296-03 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/22/2021 08:46

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 15:31

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0296-03 E 01

Preparation Batch: BJB0763 — Sample Size: 1000 mL

Prepared: 02/26/2021 — 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 %*	*47.7*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*20.7*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*71.6*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*60.8*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*74.5*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*66.7*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*92.9*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*82.6*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-53-20212202

21B0296-03 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/22/2021 08:46

Instrument: NT11 Analyst: VTS — Analyzed: 03/18/2021 11:44

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0296-03 G 01
Preparation Batch: BJB0765 — Sample Size: 500 mL
Prepared: 02/26/2021 — Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 21B0296-03 G 01
Cleanup Batch: CJC0111 — Initial Volume: 0.5 mL
Cleaned: 10-Mar-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	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 %*	*77.1*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*49.5*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*77.9*	*%*	

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MW-53-20212202

21B0296-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/22/2021 08:46
Instrument: FID4 Analyst: CTO — Analyzed: 03/11/2021 22:33

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0296-03 I 01
Preparation Batch: BJC0012 — Sample Size: 500 mL
Prepared: 03/01/2021 — 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 %*	*111*	*%*	

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MW-53-20212202

21B0296-03 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/22/2021 08:46
Instrument: ECD7 Analyst: JGR — Analyzed: 02/25/2021 14:04

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0296-03 C 01
	Preparation Batch: BJB0691	Sample Size: 500 mL	
	Prepared: 02/24/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0296-03 C 01
	Cleanup Batch: CJB0168	Initial Volume: 1 mL	
	Cleaned: 25-Feb-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0296-03 C 01
	Cleanup Batch: CJB0166	Initial Volume: 1 mL	
	Cleaned: 25-Feb-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0296-03 C 01
	Cleanup Batch: CJB0167	Initial Volume: 1 mL	
	Cleaned: 25-Feb-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.018	0.100	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.018	0.100	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.018	0.100	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.018	0.100	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.017	0.100	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*70.5*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*81.5*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*77.5*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*65.7*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-53-20212202

21B0296-03 (Water)

Metals and Metallic Compounds

Method: [CALC] Sampled: 02/22/2021 08:46
Instrument: [CALC] Analyst: MCB Analyzed: 03/11/2021 16:17

Sample Preparation: Preparation Method: [CALC] Extract ID: 21B0296-03
Preparation Batch: [CALC]
Prepared: 03/04/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Hardness		2	0.414	112	mg/L CaCO3	

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MW-53-20212202

21B0296-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/22/2021 08:46

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 01:41

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-03 B 01

Preparation Batch: BJC0110 — Sample Size: 25 mL

Prepared: 03/04/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	3.75	ug/L	
Calcium	7440-70-2	2	3.81	100	14900	ug/L	D
Chromium	7440-47-3	2	0.260	1.00	0.618	ug/L	J, D
Cobalt	7440-48-4	1	0.0290	0.200	0.151	ug/L	J
Iron	7439-89-6	2	12.5	40.0	4260	ug/L	D
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Magnesium	7439-95-4	2	0.614	40.0	18300	ug/L	D
Manganese	7439-96-5	2	0.170	1.00	177	ug/L	D
Silver	7440-22-4	2	0.0340	0.400	ND	ug/L	U
Vanadium	7440-62-2	2	0.0800	0.400	1.40	ug/L	D

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400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-53-20212202

21B0296-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/22/2021 08:46
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 01:41

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-03 B 01
Preparation Batch: BJC0110 — Sample Size: 25 mL
Prepared: 03/04/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	1.41	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel	7440-02-0	1	0.0500	0.500	0.369	ug/L	J
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	1.00	ug/L	J

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Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-53-20212202

21B0296-03 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/22/2021 08:46
Instrument: HYDRA Analyst: BLC — Analyzed: 03/04/2021 15:02

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0296-03 A
Preparation Batch: BJC0112 — Sample Size: 20 mL
Prepared: 03/04/2021 — 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

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400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-53-20212202

21B0296-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/22/2021 08:46

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 02:50

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-04 A 02

Preparation Batch: BJC0116 — Sample Size: 25 mL — Filtration Batch: BJB0672

Prepared: 03/04/2021 — Final Volume: 25 mL — Filtration Date: 02/23/2021 11:34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	2.42	ug/L	
Chromium, Dissolved	7440-47-3	2	0.260	1.00	0.554	ug/L	J, D
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	0.149	ug/L	J
Iron, Dissolved	7439-89-6	2	12.5	40.0	38.1	ug/L	J, D
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	2	0.170	1.00	175	ug/L	D
Silver, Dissolved	7440-22-4	2	0.0340	0.400	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	2	0.0800	0.400	0.112	ug/L	J, D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-53-20212202

21B0296-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/22/2021 08:46
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 02:50

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-04 A 02
Preparation Batch: BJC0116 — Sample Size: 25 mL — Filtration Batch: BJB0672
Prepared: 03/04/2021 — Final Volume: 25 mL — Filtration Date: 02/23/2021 11:34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	0.845	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	0.429	ug/L	J
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	0.953	ug/L	J

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Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-53-20212202

21B0296-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/22/2021 08:46
Instrument: HYDRA Analyst: BLC — Analyzed: 03/10/2021 09:28

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0296-04 A 01
Preparation Batch: BJC0198 — Sample Size: 20 mL — Filtration Batch: BJB0672
Prepared: 03/08/2021 — Final Volume: 20 mL — Filtration Date: 02/23/2021 11:34

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: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-101-20212202

21B0296-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/22/2021 09:01

Instrument: NT2 Analyst: LH — Analyzed: 03/03/2021 13:09

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-05 J

Preparation Batch: BJC0074 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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	0.21	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 %*	*106*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*97.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.1*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-101-20212202

21B0296-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/22/2021 09:01

Instrument: NT16 Analyst: PB — Analyzed: 03/03/2021 15:25

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-05 K

Preparation Batch: BJC0090 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*94.5*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*97.4*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-101-20212202

21B0296-05 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/22/2021 09:01

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 16:08

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0296-05 D 01

Preparation Batch: BJB0763 — Sample Size: 1000 mL

Prepared: 02/26/2021 — 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 %*	*51.8*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*21.0*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*82.5*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*64.2*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*77.5*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*66.1*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*94.9*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*82.7*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-101-20212202

21B0296-05 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/22/2021 09:01
Instrument: NT11 Analyst: VTS — Analyzed: 03/18/2021 12:16

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJB0765; Prepared: 02/26/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21B0296-05 F 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJC0111; Cleaned: 10-Mar-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21B0296-05 F 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	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	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	0.003	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 %*	*76.6*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*52.5*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*80.5*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-101-20212202

21B0296-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/22/2021 09:01
Instrument: FID4 Analyst: CTO — Analyzed: 03/11/2021 22:54

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0296-05 H 01
Preparation Batch: BJC0012 — Sample Size: 500 mL
Prepared: 03/01/2021 — 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 %*	*114*	*%*	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-101-20212202

21B0296-05 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/22/2021 09:01
Instrument: ECD7 Analyst: JGR — Analyzed: 02/25/2021 14:25

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0296-05 B 01
	Preparation Batch: BJB0691	Sample Size: 500 mL	
	Prepared: 02/24/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0296-05 B 01
	Cleanup Batch: CJB0168	Initial Volume: 1 mL	
	Cleaned: 25-Feb-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0296-05 B 01
	Cleanup Batch: CJB0166	Initial Volume: 1 mL	
	Cleaned: 25-Feb-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0296-05 B 01
	Cleanup Batch: CJB0167	Initial Volume: 1 mL	
	Cleaned: 25-Feb-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.018	0.100	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.018	0.100	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.018	0.100	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.018	0.100	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.017	0.100	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*61.0*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*65.4*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*63.7*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*55.6*	*%*	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-101-20212202

21B0296-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/22/2021 09:01

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 01:45

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-05 A 01

Preparation Batch: BJC0110 — Sample Size: 25 mL

Prepared: 03/04/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	3.62	ug/L	
Chromium	7440-47-3	2	0.260	1.00	0.570	ug/L	J, D
Cobalt	7440-48-4	1	0.0290	0.200	0.142	ug/L	J
Iron	7439-89-6	2	12.5	40.0	4390	ug/L	D
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese	7439-96-5	2	0.170	1.00	182	ug/L	D
Silver	7440-22-4	2	0.0340	0.400	ND	ug/L	U
Vanadium	7440-62-2	2	0.0800	0.400	1.41	ug/L	D

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400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-101-20212202

21B0296-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/22/2021 09:01
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 01:45

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-05 A 01
Preparation Batch: BJC0110 — Sample Size: 25 mL
Prepared: 03/04/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	1.40	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel	7440-02-0	1	0.0500	0.500	0.414	ug/L	J
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	1.81	ug/L	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-101-20212202

21B0296-05 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/22/2021 09:01

Instrument: HYDRA Analyst: BLC — Analyzed: 03/04/2021 15:05

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0296-05 A

Preparation Batch: BJC0112 — Sample Size: 20 mL

Prepared: 03/04/2021 — 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	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-101-20212202

21B0296-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/22/2021 09:01
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 03:37

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-06 A 02
Preparation Batch: BJC0116 — Sample Size: 25 mL — Filtration Batch: BJB0672
Prepared: 03/04/2021 — Final Volume: 25 mL — Filtration Date: 02/23/2021 11:34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	2.42	ug/L	
Chromium, Dissolved	7440-47-3	2	0.260	1.00	0.394	ug/L	J, D
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	0.148	ug/L	J
Iron, Dissolved	7439-89-6	2	12.5	40.0	41.3	ug/L	D
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	2	0.170	1.00	177	ug/L	D
Silver, Dissolved	7440-22-4	2	0.0340	0.400	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	2	0.0800	0.400	0.130	ug/L	J, D

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-101-20212202

21B0296-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/22/2021 09:01

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 03:37

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-06 A 02

Preparation Batch: BJC0116 — Sample Size: 25 mL — Filtration Batch: BJB0672

Prepared: 03/04/2021 — Final Volume: 25 mL — Filtration Date: 02/23/2021 11:34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	0.826	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	0.377	ug/L	J
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	0.865	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-101-20212202

21B0296-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/22/2021 09:01
Instrument: HYDRA Analyst: BLC — Analyzed: 03/10/2021 09:37

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0296-06 A 01
Preparation Batch: BJC0198 — Sample Size: 20 mL — Filtration Batch: BJB0672
Prepared: 03/08/2021 — Final Volume: 20 mL — Filtration Date: 02/23/2021 11:34

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	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-73-20212202

21B0296-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/22/2021 10:39

Instrument: NT2 Analyst: LH — Analyzed: 03/03/2021 13:30

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-07 F

Preparation Batch: BJC0074 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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	0.08	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 %*	*106*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*96.0*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*104*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-73-20212202

21B0296-07 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/22/2021 10:39

Instrument: NT2 Analyst: LH — Analyzed: 03/03/2021 13:30

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-07 F

Preparation Batch: BJC0074 — Sample Size: 10 mL

Prepared: 03/03/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	301	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*96.0*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-73-20212202

21B0296-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/22/2021 10:39

Instrument: NT16 Analyst: PB — Analyzed: 03/03/2021 15:46

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-07 G

Preparation Batch: BJC0090 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*90.3*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*95.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*99.0*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-73-20212202

21B0296-07 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/22/2021 10:39
Instrument: NT11 Analyst: VTS — Analyzed: 03/18/2021 12:49

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0296-07 B 01
Preparation Batch: BJB0765 — Sample Size: 500 mL
Prepared: 02/26/2021 — Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 21B0296-07 B 01
Cleanup Batch: CJC0111 — Initial Volume: 0.5 mL
Cleaned: 10-Mar-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	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.009	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	0.062	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	0.011	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 %*	*109*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*80.5*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*86.2*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-73-20212202

21B0296-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/22/2021 10:39
Instrument: FID4 Analyst: CTO — Analyzed: 03/11/2021 23:15

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0296-07 D 01
Preparation Batch: BJC0012 — Sample Size: 500 mL
Prepared: 03/01/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	14.3	mg/L	E
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	2.63	mg/L	
HC ID: RRO						
Surrogate: o-Terphenyl			*50-150 %*	*111*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-73-20212202

21B0296-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/22/2021 10:39

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 02:32

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-07 A 01

Preparation Batch: BJC0110 — Sample Size: 25 mL

Prepared: 03/04/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	14.9	ug/L	
Chromium	7440-47-3	2	0.260	1.00	1.03	ug/L	D
Cobalt	7440-48-4	1	0.0290	0.200	21.7	ug/L	
Iron	7439-89-6	2	12.5	40.0	11500	ug/L	D
Lead	7439-92-1	1	0.0680	0.100	0.0960	ug/L	J
Manganese	7439-96-5	10	0.850	5.00	1490	ug/L	D
Silver	7440-22-4	2	0.0340	0.400	0.0920	ug/L	J, D
Vanadium	7440-62-2	2	0.0800	0.400	2.31	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-73-20212202

21B0296-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/22/2021 10:39

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 02:32

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-07 A 01

Preparation Batch: BJC0110 — Sample Size: 25 mL

Prepared: 03/04/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	1.77	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	0.162	ug/L	
Copper	7440-50-8	1	0.340	0.500	20.9	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	23.4	ug/L	
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	28.0	ug/L	

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-73-20212202

21B0296-07 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/22/2021 10:39
Instrument: HYDRA Analyst: BLC — Analyzed: 03/04/2021 15:07

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0296-07 A
Preparation Batch: BJC0112 — Sample Size: 20 mL
Prepared: 03/04/2021 — 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	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-73-20212202

21B0296-07RE1 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/22/2021 10:39
Instrument: FID4 Analyst: CTO — Analyzed: 03/13/2021 10:24

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0296-07RE1 D 01
Preparation Batch: BJC0012 — Sample Size: 500 mL
Prepared: 03/01/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	5	0.500	10.9	mg/L	D
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	5	1.00	2.42	mg/L	D
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*106*	*%*	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-73-20212202

21B0296-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/22/2021 10:39

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 03:42

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-08 A 02

Preparation Batch: BJC0116 — Sample Size: 25 mL — Filtration Batch: BJB0672

Prepared: 03/04/2021 — Final Volume: 25 mL — Filtration Date: 02/23/2021 11:34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	13.1	ug/L	
Chromium, Dissolved	7440-47-3	2	0.260	1.00	0.948	ug/L	J, D
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	21.0	ug/L	
Iron, Dissolved	7439-89-6	2	12.5	40.0	852	ug/L	D
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	10	0.850	5.00	1350	ug/L	D
Silver, Dissolved	7440-22-4	2	0.0340	0.400	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	2	0.0800	0.400	0.266	ug/L	J, D

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-73-20212202

21B0296-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/22/2021 10:39
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 03:42

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-08 A 02
Preparation Batch: BJC0116 — Sample Size: 25 mL — Filtration Batch: BJB0672
Prepared: 03/04/2021 — Final Volume: 25 mL — Filtration Date: 02/23/2021 11:34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	0.720	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	0.109	ug/L	
Copper, Dissolved	7440-50-8	1	0.340	0.500	2.30	ug/L	
Nickel, Dissolved	7440-02-0	1	0.220	0.500	21.3	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	26.4	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-73-20212202

21B0296-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/22/2021 10:39
Instrument: HYDRA Analyst: BLC — Analyzed: 03/10/2021 09:40

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0296-08 A 01
Preparation Batch: BJC0198 — Sample Size: 20 mL — Filtration Batch: BJB0672
Prepared: 03/08/2021 — Final Volume: 20 mL — Filtration Date: 02/23/2021 11:34

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	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-74-20212202

21B0296-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/22/2021 11:45

Instrument: NT2 Analyst: LH — Analyzed: 03/03/2021 13:51

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-09 F

Preparation Batch: BJC0074 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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	4.21	ug/L	
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 %*	*99.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*98.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-74-20212202

21B0296-09 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/22/2021 11:45

Instrument: NT2 Analyst: LH — Analyzed: 03/03/2021 13:51

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-09 F

Preparation Batch: BJC0074 — Sample Size: 10 mL

Prepared: 03/03/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	216	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*99.7*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*98.3*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-74-20212202

21B0296-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/22/2021 11:45

Instrument: NT16 Analyst: PB — Analyzed: 03/03/2021 16:06

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-09 G

Preparation Batch: BJC0090 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*89.3*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*95.3*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*96.6*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-74-20212202

21B0296-09 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/22/2021 11:45
Instrument: NT11 Analyst: VTS — Analyzed: 03/18/2021 13:21

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0296-09 B 01
Preparation Batch: BJB0765 — Sample Size: 500 mL
Prepared: 02/26/2021 — Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 21B0296-09 B 01
Cleanup Batch: CJC0111 — Initial Volume: 0.5 mL
Cleaned: 10-Mar-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	0.013	ug/L	
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.012	ug/L	
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	0.359	ug/L	
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	0.014	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 %*	*76.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*82.0*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*73.7*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-74-20212202

21B0296-09 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/22/2021 11:45
Instrument: FID4 Analyst: CTO — Analyzed: 03/11/2021 23:36

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0296-09 D 01
Preparation Batch: BJC0012 — Sample Size: 500 mL
Prepared: 03/01/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	2.92	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	1.04	mg/L	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*113*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-74-20212202

21B0296-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/22/2021 11:45

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 02:37

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-09 A 01

Preparation Batch: BJC0110 — Sample Size: 25 mL

Prepared: 03/04/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	29.2	ug/L	
Chromium	7440-47-3	2	0.260	1.00	2.25	ug/L	D
Cobalt	7440-48-4	1	0.0290	0.200	1.67	ug/L	
Iron	7439-89-6	2	12.5	40.0	24100	ug/L	D
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese	7439-96-5	20	1.70	10.0	4270	ug/L	D
Silver	7440-22-4	2	0.0340	0.400	ND	ug/L	U
Vanadium	7440-62-2	2	0.0800	0.400	4.24	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-74-20212202

21B0296-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/22/2021 11:45

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 02:37

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-09 A 01

Preparation Batch: BJC0110 — Sample Size: 25 mL

Prepared: 03/04/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	13.3	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	0.623	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	1.40	ug/L	
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	2.31	ug/L	J

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-74-20212202

21B0296-09 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/22/2021 11:45
Instrument: HYDRA Analyst: BLC — Analyzed: 03/04/2021 15:09

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0296-09 A
Preparation Batch: BJC0112 — Sample Size: 20 mL
Prepared: 03/04/2021 — 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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Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-74-20212202

21B0296-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/22/2021 11:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 03:47

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-10 A 02
Preparation Batch: BJC0116 — Sample Size: 25 mL — Filtration Batch: BJB0672
Prepared: 03/04/2021 — Final Volume: 25 mL — Filtration Date: 02/23/2021 11:34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	13.2	ug/L	
Chromium, Dissolved	7440-47-3	2	0.260	1.00	1.11	ug/L	D
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	1.42	ug/L	
Iron, Dissolved	7439-89-6	2	12.5	40.0	5410	ug/L	D
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	20	1.70	10.0	3870	ug/L	D
Silver, Dissolved	7440-22-4	2	0.0340	0.400	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	2	0.0800	0.400	1.38	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-74-20212202

21B0296-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/22/2021 11:45

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 03:47

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-10 A 02

Preparation Batch: BJC0116 — Sample Size: 25 mL — Filtration Batch: BJB0672

Prepared: 03/04/2021 — Final Volume: 25 mL — Filtration Date: 02/23/2021 11:34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	5.17	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	1.21	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	0.825	ug/L	J

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-74-20212202

21B0296-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/22/2021 11:45
Instrument: HYDRA Analyst: BLC — Analyzed: 03/10/2021 09:42

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0296-10 A 01
Preparation Batch: BJC0198 — Sample Size: 20 mL — Filtration Batch: BJB0672
Prepared: 03/08/2021 — Final Volume: 20 mL — Filtration Date: 02/23/2021 11:34

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: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-61-20212202

21B0296-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/22/2021 13:00

Instrument: NT2 Analyst: LH — Analyzed: 03/03/2021 14:11

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-11 F

Preparation Batch: BJC0074 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*99.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*97.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-61-20212202

21B0296-11 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/22/2021 13:00

Instrument: NT2 Analyst: LH — Analyzed: 03/03/2021 14:11

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-11 F

Preparation Batch: BJC0074 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*97.3*	*%*	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-61-20212202

21B0296-11 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/22/2021 13:00

Instrument: NT16 Analyst: PB — Analyzed: 03/03/2021 16:26

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-11 G

Preparation Batch: BJC0090 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*99.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*95.6*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-61-20212202

21B0296-11 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/22/2021 13:00
Instrument: NT11 Analyst: VTS — Analyzed: 03/18/2021 13:54

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0296-11 B 01
Preparation Batch: BJB0765 — Sample Size: 500 mL
Prepared: 02/26/2021 — Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 21B0296-11 B 01
Cleanup Batch: CJC0111 — Initial Volume: 0.5 mL
Cleaned: 10-Mar-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	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	0.015	ug/L	
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 %*	*74.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*79.2*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*79.4*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-61-20212202

21B0296-11 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/22/2021 13:00
Instrument: FID4 Analyst: CTO — Analyzed: 03/12/2021 00:39

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0296-11 D 01
Preparation Batch: BJC0012 — Sample Size: 500 mL
Prepared: 03/01/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	1.30	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	0.707	mg/L	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*117*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-61-20212202

21B0296-11 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/22/2021 13:00

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 02:41

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-11 A 01

Preparation Batch: BJC0110 — Sample Size: 25 mL

Prepared: 03/04/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	6.86	ug/L	
Chromium	7440-47-3	1	0.130	0.500	0.540	ug/L	
Cobalt	7440-48-4	1	0.0290	0.200	0.477	ug/L	
Iron	7439-89-6	1	6.27	20.0	81.9	ug/L	
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese	7439-96-5	1	0.0850	0.500	61.2	ug/L	
Vanadium	7440-62-2	1	0.0400	0.200	2.09	ug/L	

Instrument: ICPMS2 Analyst: MCB — Analyzed: 03/05/2021 22:41

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-11 A 01

Preparation Batch: BJC0110 — Sample Size: 25 mL

Prepared: 03/04/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Silver	7440-22-4	2	0.0340	0.400	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-61-20212202

21B0296-11 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/22/2021 13:00

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 02:41

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-11 A 01

Preparation Batch: BJC0110 — Sample Size: 25 mL

Prepared: 03/04/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	1.36	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	0.0990	ug/L	J
Copper	7440-50-8	1	0.340	0.500	6.47	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	7.69	ug/L	
Selenium	7782-49-2	1	0.440	0.500	0.683	ug/L	
Zinc	7440-66-6	1	0.820	4.00	1.18	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-61-20212202

21B0296-11 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/22/2021 13:00

Instrument: HYDRA Analyst: BLC — Analyzed: 03/04/2021 14:48

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0296-11 A

Preparation Batch: BJC0112 — Sample Size: 20 mL

Prepared: 03/04/2021 — 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	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-61-20212202

21B0296-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/22/2021 13:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 03:53

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-12 A 02
Preparation Batch: BJC0116 — Sample Size: 25 mL — Filtration Batch: BJB0672
Prepared: 03/04/2021 — Final Volume: 25 mL — Filtration Date: 02/23/2021 11:34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	6.34	ug/L	
Chromium, Dissolved	7440-47-3	1	0.130	0.500	0.357	ug/L	J
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	0.449	ug/L	
Iron, Dissolved	7439-89-6	2	12.5	40.0	51.9	ug/L	D
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	1	0.0850	0.500	52.9	ug/L	
Silver, Dissolved	7440-22-4	2	0.0340	0.400	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0400	0.200	1.93	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-61-20212202

21B0296-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/22/2021 13:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 03:53

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-12 A 02
Preparation Batch: BJC0116 — Sample Size: 25 mL — Filtration Batch: BJB0672
Prepared: 03/04/2021 — Final Volume: 25 mL — Filtration Date: 02/23/2021 11:34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	1.28	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	0.0690	ug/L	J
Copper, Dissolved	7440-50-8	1	0.340	0.500	6.10	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	7.42	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	0.797	ug/L	
Zinc, Dissolved	7440-66-6	1	0.820	4.00	1.44	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-61-20212202

21B0296-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/22/2021 13:00
Instrument: HYDRA Analyst: BLC — Analyzed: 03/10/2021 09:44

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0296-12 A 01
Preparation Batch: BJC0198 — Sample Size: 20 mL — Filtration Batch: BJB0672
Prepared: 03/08/2021 — Final Volume: 20 mL — Filtration Date: 02/23/2021 11:34

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	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-36-20212202

21B0296-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/22/2021 14:01

Instrument: NT2 Analyst: LH — Analyzed: 03/03/2021 14:31

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-13 I

Preparation Batch: BJC0074 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.2*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-36-20212202

21B0296-13 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/22/2021 14:01

Instrument: NT2 Analyst: LH — Analyzed: 03/03/2021 14:31

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-13 I

Preparation Batch: BJC0074 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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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400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-36-20212202

21B0296-13 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/22/2021 14:01

Instrument: NT16 Analyst: PB — Analyzed: 03/03/2021 16:46

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-13 G

Preparation Batch: BJC0090 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*95.3*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*97.2*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-36-20212202

21B0296-13 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/22/2021 14:01
Instrument: FID4 Analyst: CTO — Analyzed: 03/12/2021 01:00

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0296-13 B 01
Preparation Batch: BJC0012 — Sample Size: 500 mL
Prepared: 03/01/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.248	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	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-36-20212202

21B0296-13 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/22/2021 14:01

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/10/2021 22:16

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-13 A 01

Preparation Batch: BJC0110 — Sample Size: 25 mL

Prepared: 03/04/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	2	0.260	1.00	1.44	ug/L	D
Cobalt	7440-48-4	1	0.0290	0.200	0.179	ug/L	J
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Silver	7440-22-4	2	0.0340	0.400	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-36-20212202

21B0296-13 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/22/2021 14:01
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 02:46

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-13 A 01
Preparation Batch: BJC0110 — Sample Size: 25 mL
Prepared: 03/04/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	37.0	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	0.901	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	1.10	ug/L	
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-36-20212202

21B0296-13 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/22/2021 14:01

Instrument: HYDRA Analyst: BLC — Analyzed: 03/04/2021 15:16

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0296-13 A

Preparation Batch: BJC0112 — Sample Size: 20 mL

Prepared: 03/04/2021 — 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	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-36-20212202

21B0296-13RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/22/2021 14:01

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/10/2021 22:07

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-13RE1 A 01

Preparation Batch: BJC0110 — Sample Size: 25 mL

Prepared: 03/04/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	20	1.70	10.0	2110	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-36-20212202

21B0296-14 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/22/2021 13:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/10/2021 22:22

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-14 A 02
Preparation Batch: BJC0116 — Sample Size: 25 mL — Filtration Batch: BJB0672
Prepared: 03/04/2021 — Final Volume: 25 mL — Filtration Date: 02/23/2021 11:34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	2	0.260	1.00	0.602	ug/L	J, D
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	0.150	ug/L	J
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Silver, Dissolved	7440-22-4	2	0.0340	0.400	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-36-20212202

21B0296-14 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/22/2021 13:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 04:01

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-14 A 02
Preparation Batch: BJC0116 — Sample Size: 25 mL — Filtration Batch: BJB0672
Prepared: 03/04/2021 — Final Volume: 25 mL — Filtration Date: 02/23/2021 11:34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	14.8	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	0.897	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	0.825	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-36-20212202

21B0296-14 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/22/2021 13:00
Instrument: HYDRA Analyst: BLC — Analyzed: 03/10/2021 09:51

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0296-14 A 01
Preparation Batch: BJC0198 — Sample Size: 20 mL — Filtration Batch: BJB0672
Prepared: 03/08/2021 — Final Volume: 20 mL — Filtration Date: 02/23/2021 11:34

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	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-36-20212202

21B0296-14RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/22/2021 13:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/10/2021 22:11

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-14RE1 A 02
Preparation Batch: BJC0116 — Sample Size: 25 mL — Filtration Batch: BJB0672
Prepared: 03/04/2021 — Final Volume: 25 mL — Filtration Date: 02/23/2021 11:34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	20	1.70	10.0	2060	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-32-20212202

21B0296-15 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/22/2021 15:05

Instrument: NT2 Analyst: LH — Analyzed: 03/03/2021 14:52

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-15 H

Preparation Batch: BJC0074 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*99.1*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*96.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-32-20212202

21B0296-15 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/22/2021 15:05

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 16:46

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0296-15 B 01

Preparation Batch: BJB0763 — Sample Size: 1000 mL

Prepared: 02/26/2021 — 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 %*	*49.7*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*20.9*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*73.1*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*65.4*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*85.7*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*73.1*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*98.4*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*84.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-32-20212202

21B0296-15 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/22/2021 15:05
Instrument: NT11 Analyst: VTS — Analyzed: 03/18/2021 14:26

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0296-15 D 01
Preparation Batch: BJB0765 — Sample Size: 500 mL
Prepared: 02/26/2021 — Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 21B0296-15 D 01
Cleanup Batch: CJC0111 — Initial Volume: 0.5 mL
Cleaned: 10-Mar-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	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	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 %*	*76.7*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*75.9*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*81.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-32-20212202

21B0296-15 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/22/2021 15:05
Instrument: FID4 Analyst: CTO — Analyzed: 03/12/2021 01:21

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0296-15 F 01
Preparation Batch: BJC0012 — Sample Size: 500 mL
Prepared: 03/01/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.223	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*123*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-32-20212202

21B0296-15 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/22/2021 15:05

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 01:50

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-15 A 01

Preparation Batch: BJC0110 — Sample Size: 25 mL

Prepared: 03/04/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	0.991	ug/L	

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400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-32-20212202

21B0296-16 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/22/2021 15:05
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/05/2021 02:55

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0296-16 A 02
Preparation Batch: BJC0116 — Sample Size: 25 mL — Filtration Batch: BJB0672
Prepared: 03/04/2021 — Final Volume: 25 mL — Filtration Date: 02/23/2021 11:34

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	0.504	ug/L	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-34-20212202

21B0296-17 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/22/2021 15:55

Instrument: NT2 Analyst: LH — Analyzed: 03/03/2021 15:13

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0296-17 D

Preparation Batch: BJC0074 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*98.5*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-34-20212202

21B0296-17 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/22/2021 15:55
Instrument: FID4 Analyst: CTO — Analyzed: 03/12/2021 01:42

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0296-17 A 01
Preparation Batch: BJC0012 — Sample Size: 500 mL
Prepared: 03/01/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	21.7	mg/L	E
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	2.19	mg/L	
HC ID: RRO						
Surrogate: o-Terphenyl			*50-150 %*	*106*	*%*	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

MW-34-20212202

21B0296-17RE1 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/22/2021 15:55
Instrument: FID4 Analyst: CTO — Analyzed: 03/13/2021 10:44

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0296-17RE1 A 01
Preparation Batch: BJC0012 — Sample Size: 500 mL
Prepared: 03/01/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	10	1.00	15.0	mg/L	D
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	10	2.00	2.55	mg/L	D
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*110*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Volatile Organic Compounds - Quality Control

Batch BJC0074 - 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 (BJC0074-BLK1)				Prepared: 03-Mar-2021 Analyzed: 03-Mar-2021 09:22							
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							U
Surrogate: Toluene-d8	4.98			ug/L	*5.00*		*99.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.81			ug/L	*5.00*		*96.3*	*80-120*			
Blank (BJC0074-BLK2)				Prepared: 03-Mar-2021 Analyzed: 03-Mar-2021 09:22							
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
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	5.11			ug/L	*5.00*		*102*	*80-129*			
Surrogate: Toluene-d8	4.98			ug/L	*5.00*		*99.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.81			ug/L	*5.00*		*96.3*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.04			ug/L	*5.00*		*101*	*80-120*			
LCS (BJC0074-BS1)				Prepared: 03-Mar-2021 Analyzed: 03-Mar-2021 07:39							
Gasoline Range Organics (Tol-Nap)	1100		100	ug/L	1000		110	72-128			
Surrogate: Toluene-d8	5.02			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.00			ug/L	*5.00*		*100*	*80-120*			
LCS (BJC0074-BS2)				Prepared: 03-Mar-2021 Analyzed: 03-Mar-2021 07:59							
Vinyl Chloride	9.93	0.08	0.20	ug/L	10.0		99.3	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	10.1	0.08	0.20	ug/L	10.0		101	80-121			
Benzene	10.2	0.05	0.20	ug/L	10.0		102	80-120			
Trichloroethene	10.1	0.07	0.20	ug/L	10.0		101	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Volatile Organic Compounds - Quality Control

Batch BJC0074 - 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 (BJC0074-BS2)					Prepared: 03-Mar-2021 Analyzed: 03-Mar-2021 07:59						
Toluene	9.75	0.05	0.20	ug/L	10.0		97.5	80-120			
Tetrachloroethene	9.71	0.09	0.20	ug/L	10.0		97.1	80-120			
Ethylbenzene	9.71	0.05	0.20	ug/L	10.0		97.1	80-120			
m,p-Xylene	19.9	0.14	0.40	ug/L	20.0		99.4	80-121			
o-Xylene	9.82	0.08	0.20	ug/L	10.0		98.2	80-121			
Xylenes, total	29.7	0.22	0.60	ug/L	30.0		99.0	76-127			
Surrogate: 1,2-Dichloroethane-d4	5.00			ug/L	*5.00*		*100*	*80-129*			
Surrogate: Toluene-d8	5.09			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.98			ug/L	*5.00*		*99.6*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.99			ug/L	*5.00*		*99.9*	*80-120*			
LCS Dup (BJC0074-BSD1)					Prepared: 03-Mar-2021 Analyzed: 03-Mar-2021 08:20						
Gasoline Range Organics (Tol-Nap)	1050		100	ug/L	1000		105	72-128	4.64	30	
Surrogate: Toluene-d8	5.13			ug/L	*5.00*		*103*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.04			ug/L	*5.00*		*101*	*80-120*			
LCS Dup (BJC0074-BSD2)					Prepared: 03-Mar-2021 Analyzed: 03-Mar-2021 08:41						
Vinyl Chloride	9.59	0.08	0.20	ug/L	10.0		95.9	66-133	3.46	30	
1,1-Dichloroethene	10.4	0.08	0.20	ug/L	10.0		104	69-135	2.42	30	
trans-1,2-Dichloroethene	10.1	0.07	0.20	ug/L	10.0		101	78-128	1.55	30	
cis-1,2-Dichloroethene	9.94	0.08	0.20	ug/L	10.0		99.4	80-121	1.52	30	
Benzene	10.0	0.05	0.20	ug/L	10.0		100	80-120	1.64	30	
Trichloroethene	9.77	0.07	0.20	ug/L	10.0		97.7	80-120	3.51	30	
Toluene	9.64	0.05	0.20	ug/L	10.0		96.4	80-120	1.14	30	
Tetrachloroethene	9.74	0.09	0.20	ug/L	10.0		97.4	80-120	0.32	30	
Ethylbenzene	9.63	0.05	0.20	ug/L	10.0		96.3	80-120	0.75	30	
m,p-Xylene	19.7	0.14	0.40	ug/L	20.0		98.5	80-121	0.91	30	
o-Xylene	9.77	0.08	0.20	ug/L	10.0		97.7	80-121	0.59	30	
Xylenes, total	29.5	0.22	0.60	ug/L	30.0		98.2	76-127	0.81	30	
Surrogate: 1,2-Dichloroethane-d4	5.07			ug/L	*5.00*		*101*	*80-129*			
Surrogate: Toluene-d8	5.00			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.09			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.98			ug/L	*5.00*		*99.5*	*80-120*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Volatile Organic Compounds - SIM - Quality Control

Batch BJC0090 - 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 (BJC0090-BLK1)					Prepared: 03-Mar-2021 Analyzed: 03-Mar-2021 12:15						
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	4520			ng/L	*5000*		*90.4*	*80-129*			
Surrogate: Toluene-d8	4680			ng/L	*5000*		*93.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4610			ng/L	*5000*		*92.2*	*75-125*			
LCS (BJC0090-BS1)					Prepared: 03-Mar-2021 Analyzed: 03-Mar-2021 10:37						
Vinyl chloride	1720	5.01	20.0	ng/L	2000		85.9	62-141			
Surrogate: 1,2-Dichloroethane-d4	4740			ng/L	*5000*		*94.7*	*80-129*			
Surrogate: Toluene-d8	4710			ng/L	*5000*		*94.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5240			ng/L	*5000*		*105*	*75-125*			
LCS Dup (BJC0090-BSD1)					Prepared: 03-Mar-2021 Analyzed: 03-Mar-2021 10:57						
Vinyl chloride	1860	5.01	20.0	ng/L	2000		92.8	62-141	7.66	30	
Surrogate: 1,2-Dichloroethane-d4	5050			ng/L	*5000*		*101*	*80-129*			
Surrogate: Toluene-d8	4990			ng/L	*5000*		*99.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5140			ng/L	*5000*		*103*	*75-125*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Semivolatile Organic Compounds - Quality Control

Batch BJB0763 - 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 (BJB0763-BLK1)				Prepared: 26-Feb-2021 Analyzed: 12-Mar-2021 13:01							
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	3.91			ug/L	*7.50*		*52.1*	*30-160*			
Surrogate: Phenol-d5	1.74			ug/L	*7.50*		*23.2*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	5.78			ug/L	*7.50*		*77.1*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.11			ug/L	*5.00*		*62.3*	*30-160*			
Surrogate: Nitrobenzene-d5	3.94			ug/L	*5.00*		*78.9*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.18			ug/L	*5.00*		*63.6*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.56			ug/L	*7.50*		*87.5*	*30-160*			
Surrogate: p-Terphenyl-d14	3.96			ug/L	*5.00*		*79.1*	*30-160*			
LCS (BJB0763-BS1)				Prepared: 26-Feb-2021 Analyzed: 12-Mar-2021 13:38							
1,4-Dichlorobenzene	3.0	0.03	0.2	ug/L	5.00		60.1	30-160			
1,2-Dichlorobenzene	3.0	0.03	0.2	ug/L	5.00		59.9	30-160			
2,4-Dimethylphenol	8.3	0.3	1.0	ug/L	13.0		64.0	30-160			
Benzoic acid	8.6	0.1	2.0	ug/L	23.0		37.6	30-160			
N-Nitrosodiphenylamine	3.8	0.03	0.2	ug/L	5.00		75.9	30-160			
Pentachlorophenol	7.8	0.1	1.0	ug/L	13.0		59.9	30-160			Q
Di-n-Butylphthalate	4.4	0.05	0.2	ug/L	5.00		88.9	30-160			
Butylbenzylphthalate	4.4	0.07	0.2	ug/L	5.00		87.2	30-160			
bis(2-Ethylhexyl)phthalate	4.0	0.2	0.2	ug/L	5.00		79.7	30-160			
Surrogate: 2-Fluorophenol	4.67			ug/L	*7.50*		*62.2*	*30-160*			
Surrogate: Phenol-d5	3.13			ug/L	*7.50*		*41.8*	*30-160*			
Surrogate: 2-Chlorophenol-d4	7.54			ug/L	*7.50*		*100*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.41			ug/L	*5.00*		*68.2*	*30-160*			
Surrogate: Nitrobenzene-d5	4.18			ug/L	*5.00*		*83.6*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.19			ug/L	*5.00*		*83.9*	*30-160*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Semivolatile Organic Compounds - Quality Control

Batch BJB0763 - 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 (BJB0763-BS1)					Prepared: 26-Feb-2021		Analyzed: 12-Mar-2021 13:38				
Surrogate: 2,4,6-Tribromophenol	6.64			ug/L	*7.50*		*88.5*	*30-160*			
Surrogate: p-Terphenyl-d14	4.58			ug/L	*5.00*		*91.6*	*30-160*			
LCS Dup (BJB0763-BSD1)					Prepared: 26-Feb-2021		Analyzed: 12-Mar-2021 14:16				
1,4-Dichlorobenzene	3.7	0.03	0.2	ug/L	5.00		73.1	30-160	19.50	30	
1,2-Dichlorobenzene	3.6	0.03	0.2	ug/L	5.00		71.7	30-160	18.10	30	
2,4-Dimethylphenol	9.1	0.3	1.0	ug/L	13.0		69.9	30-160	8.88	30	
Benzoic acid	8.5	0.1	2.0	ug/L	23.0		36.9	30-160	1.91	30	
N-Nitrosodiphenylamine	4.4	0.03	0.2	ug/L	5.00		87.6	30-160	14.40	30	
Pentachlorophenol	8.8	0.1	1.0	ug/L	13.0		67.8	30-160	12.40	30	Q
Di-n-Butylphthalate	5.1	0.05	0.2	ug/L	5.00		102	30-160	13.20	30	
Butylbenzylphthalate	4.8	0.07	0.2	ug/L	5.00		96.4	30-160	10.00	30	
bis(2-Ethylhexyl)phthalate	4.9	0.2	0.2	ug/L	5.00		97.2	30-160	19.80	30	
Surrogate: 2-Fluorophenol	4.85			ug/L	*7.50*		*64.7*	*30-160*			
Surrogate: Phenol-d5	2.99			ug/L	*7.50*		*39.8*	*30-160*			
Surrogate: 2-Chlorophenol-d4	7.15			ug/L	*7.50*		*95.3*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.58			ug/L	*5.00*		*71.7*	*30-160*			
Surrogate: Nitrobenzene-d5	4.29			ug/L	*5.00*		*85.8*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.28			ug/L	*5.00*		*85.7*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.75			ug/L	*7.50*		*90.1*	*30-160*			
Surrogate: p-Terphenyl-d14	4.67			ug/L	*5.00*		*93.4*	*30-160*			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0765 - 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 (BJB0765-BLK1)				Prepared: 26-Feb-2021 Analyzed: 18-Mar-2021 09:34							
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	0.237			ug/L	*0.300*		*79.2*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.154			ug/L	*0.300*		*51.3*	*29-120*			
Surrogate: Fluoranthene-d10	0.239			ug/L	*0.300*		*79.6*	*57-120*			
LCS (BJB0765-BS1)				Prepared: 26-Feb-2021 Analyzed: 18-Mar-2021 10:07							
Naphthalene	0.212	0.001	0.010	ug/L	0.300		70.8	37-120			
2-Methylnaphthalene	0.230	0.001	0.010	ug/L	0.300		76.8	37-120			
1-Methylnaphthalene	0.235	0.0009	0.010	ug/L	0.300		78.3	29-120			
Acenaphthylene	0.185	0.002	0.010	ug/L	0.300		61.7	41-120			
Acenaphthene	0.195	0.003	0.010	ug/L	0.300		64.9	41-120			
Dibenzofuran	0.199	0.002	0.010	ug/L	0.300		66.2	38-120			
Fluorene	0.211	0.002	0.010	ug/L	0.300		70.5	43-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0765 - 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 (BJB0765-BS1)					Prepared: 26-Feb-2021 Analyzed: 18-Mar-2021 10:07						
Phenanthrene	0.228	0.001	0.010	ug/L	0.300		76.0	41-120			
Anthracene	0.199	0.001	0.010	ug/L	0.300		66.5	40-120			
Carbazole	0.226	0.001	0.010	ug/L	0.300		75.4	30-160			
Fluoranthene	0.238	0.002	0.010	ug/L	0.300		79.4	45-120			
Pyrene	0.235	0.001	0.010	ug/L	0.300		78.3	41-120			
Benzo(a)anthracene	0.205	0.0008	0.010	ug/L	0.300		68.3	42-120			
Chrysene	0.230	0.0009	0.010	ug/L	0.300		76.7	44-120			
Benzo(b)fluoranthene	0.198	0.0005	0.010	ug/L	0.300		66.1	44-120			
Benzo(k)fluoranthene	0.229	0.003	0.010	ug/L	0.300		76.4	50-120			
Benzo(j)fluoranthene	0.310	0.002	0.010	ug/L	0.300		103	39-160			
Benzofluoranthenes, Total	0.738	0.004	0.010	ug/L	0.900		82.0	46-120			
Benzo(a)pyrene	0.204	0.002	0.010	ug/L	0.300		67.9	35-120			
Perylene	0.184	0.006	0.010	ug/L	0.300		61.3	30-160			
Indeno(1,2,3-cd)pyrene	0.220	0.001	0.010	ug/L	0.300		73.4	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	0.222	0.001	0.010	ug/L	0.300		73.9	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.237			ug/L	*0.300*		*78.9*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.189			ug/L	*0.300*		*63.0*	*29-120*			
Surrogate: Fluoranthene-d10	0.233			ug/L	*0.300*		*77.7*	*57-120*			
LCS Dup (BJB0765-BSD1)					Prepared: 26-Feb-2021 Analyzed: 18-Mar-2021 10:39						
Naphthalene	0.219	0.001	0.010	ug/L	0.300		73.2	37-120	3.28	30	
2-Methylnaphthalene	0.241	0.001	0.010	ug/L	0.300		80.5	37-120	4.69	30	
1-Methylnaphthalene	0.244	0.0009	0.010	ug/L	0.300		81.3	29-120	3.71	30	
Acenaphthylene	0.197	0.002	0.010	ug/L	0.300		65.5	41-120	6.06	30	
Acenaphthene	0.208	0.003	0.010	ug/L	0.300		69.2	41-120	6.46	30	
Dibenzofuran	0.211	0.002	0.010	ug/L	0.300		70.2	38-120	5.86	30	
Fluorene	0.225	0.002	0.010	ug/L	0.300		74.9	43-120	6.12	30	
Phenanthrene	0.248	0.001	0.010	ug/L	0.300		82.8	41-120	8.51	30	
Anthracene	0.222	0.001	0.010	ug/L	0.300		73.9	40-120	10.60	30	
Carbazole	0.244	0.001	0.010	ug/L	0.300		81.3	30-160	7.44	30	
Fluoranthene	0.261	0.002	0.010	ug/L	0.300		86.9	45-120	8.95	30	
Pyrene	0.258	0.001	0.010	ug/L	0.300		85.9	41-120	9.29	30	
Benzo(a)anthracene	0.220	0.0008	0.010	ug/L	0.300		73.3	42-120	7.07	30	
Chrysene	0.249	0.0009	0.010	ug/L	0.300		83.1	44-120	7.98	30	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0765 - 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 (BJB0765-BSD1)					Prepared: 26-Feb-2021 Analyzed: 18-Mar-2021 10:39						
Benzo(b)fluoranthene	0.217	0.0005	0.010	ug/L	0.300		72.2	44-120	8.74	30	
Benzo(k)fluoranthene	0.247	0.003	0.010	ug/L	0.300		82.4	50-120	7.62	30	
Benzo(j)fluoranthene	0.341	0.002	0.010	ug/L	0.300		114	39-160	9.39	30	
Benzofluoranthenes, Total	0.805	0.004	0.010	ug/L	0.900		89.4	46-120	8.67	30	
Benzo(a)pyrene	0.229	0.002	0.010	ug/L	0.300		76.4	35-120	11.80	30	
Perylene	0.208	0.006	0.010	ug/L	0.300		69.3	30-160	12.20	30	
Indeno(1,2,3-cd)pyrene	0.241	0.001	0.010	ug/L	0.300		80.3	37-120	8.97	30	
Dibenzo(a,h)anthracene	0.220	0.001	0.010	ug/L	0.300		73.4	34-120	8.57	30	
Benzo(g,h,i)perylene	0.241	0.001	0.010	ug/L	0.300		80.4	38-120	8.31	30	
Surrogate: 2-Methylnaphthalene-d10	0.249			ug/L	*0.300*		*83.0*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.203			ug/L	*0.300*		*67.6*	*29-120*			
Surrogate: Fluoranthene-d10	0.257			ug/L	*0.300*		*85.5*	*57-120*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Petroleum Hydrocarbons - Quality Control

Batch BJC0012 - 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 (BJC0012-BLK1)				Prepared: 01-Mar-2021	Analyzed: 11-Mar-2021 21:31					
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	0.243		mg/L	*0.225*		*108*	*50-150*			
LCS (BJC0012-BS1)				Prepared: 01-Mar-2021	Analyzed: 11-Mar-2021 21:52					
Diesel Range Organics (C12-C24)	3.04	0.100	mg/L	3.00		101	56-120			
Surrogate: o-Terphenyl	0.256		mg/L	*0.225*		*114*	*50-150*			
LCS Dup (BJC0012-BSD1)				Prepared: 01-Mar-2021	Analyzed: 11-Mar-2021 22:13					
Diesel Range Organics (C12-C24)	3.26	0.100	mg/L	3.00		109	56-120	7.07	30	
Surrogate: o-Terphenyl	0.268		mg/L	*0.225*		*119*	*50-150*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Aroclor PCB - Quality Control

Batch BJB0691 - 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 (BJB0691-BLK1)				Prepared: 24-Feb-2021 Analyzed: 25-Feb-2021 12:42							
Aroclor 1016	ND	0.018	0.100	ug/L							U
Aroclor 1221	ND	0.018	0.100	ug/L							U
Aroclor 1232	ND	0.018	0.100	ug/L							U
Aroclor 1242	ND	0.018	0.100	ug/L							U
Aroclor 1248	ND	0.018	0.100	ug/L							U
Aroclor 1254	ND	0.018	0.100	ug/L							U
Aroclor 1260	ND	0.017	0.100	ug/L							U
Surrogate: Decachlorobiphenyl	0.0508			ug/L	*0.0800*		*63.5*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0528			ug/L	*0.0800*		*65.9*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0547			ug/L	*0.0800*		*68.4*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0459			ug/L	*0.0800*		*57.4*	*39-120*			
LCS (BJB0691-BS1)				Prepared: 24-Feb-2021 Analyzed: 25-Feb-2021 13:02							
Aroclor 1016	0.767	0.018	0.100	ug/L	1.00		76.7	51-120			
Aroclor 1260 [2C]	0.800	0.017	0.100	ug/L	1.00		80.0	56-120			
Surrogate: Decachlorobiphenyl	0.0576			ug/L	*0.0800*		*72.0*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0576			ug/L	*0.0800*		*71.9*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0624			ug/L	*0.0800*		*78.0*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0464			ug/L	*0.0800*		*58.0*	*39-120*			
LCS Dup (BJB0691-BSD1)				Prepared: 24-Feb-2021 Analyzed: 25-Feb-2021 13:23							
Aroclor 1016 [2C]	0.740	0.018	0.100	ug/L	1.00		74.0	51-120	0.73	30	
Aroclor 1260 [2C]	0.767	0.017	0.100	ug/L	1.00		76.7	56-120	4.21	30	
Surrogate: Decachlorobiphenyl	0.0540			ug/L	*0.0800*		*67.5*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0527			ug/L	*0.0800*		*65.9*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0593			ug/L	*0.0800*		*74.1*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0466			ug/L	*0.0800*		*58.3*	*39-120*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Metals and Metallic Compounds - Quality Control

Batch BJC0110 - 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 (BJC0110-BLK1)					Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 15:21							
Barium	135	ND	0.0560	0.500	ug/L							U
Barium	137	ND	0.0530	0.500	ug/L							U
Calcium	44	4.68	1.91	50.0	ug/L							J
Chromium	52	ND	0.130	0.500	ug/L							U
Chromium	53	ND	0.0700	0.500	ug/L							U
Cobalt	59	ND	0.0290	0.200	ug/L							U
Iron	54	ND	6.27	20.0	ug/L							U
Iron	57	ND	1.40	20.0	ug/L							U
Lead	208	ND	0.0680	0.100	ug/L							U
Magnesium	24	1.72	0.307	20.0	ug/L							J
Manganese	55	0.218	0.0850	0.500	ug/L							J
Silver	107	ND	0.0170	0.200	ug/L							U
Vanadium	51a	ND	0.0400	0.200	ug/L							U
Vanadium	51b	0.0200	0.0160	0.200	ug/L							J
Arsenic	75a	0.0260	0.0220	0.200	ug/L							J
Cadmium	111	ND	0.0300	0.100	ug/L							U
Cadmium	114	ND	0.0400	0.100	ug/L							U
Copper	63	ND	0.340	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	ND	0.0500	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Selenium	78	ND	0.440	0.500	ug/L							U
Zinc	66	ND	0.820	4.00	ug/L							U
Zinc	67	ND	0.940	4.00	ug/L							U
LCS (BJC0110-BS1)					Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 15:25							
Barium	135	25.0	0.0560	0.500	ug/L	25.0		100	80-120			
Barium	137	25.4	0.0530	0.500	ug/L	25.0		102	80-120			
Calcium	44	4780	1.91	50.0	ug/L	5000		95.6	80-120			
Chromium	52	25.2	0.130	0.500	ug/L	25.0		101	80-120			
Chromium	53	25.2	0.0700	0.500	ug/L	25.0		101	80-120			
Cobalt	59	24.9	0.0290	0.200	ug/L	25.0		99.8	80-120			
Iron	54	4900	6.27	20.0	ug/L	5000		97.9	80-120			
Iron	57	4880	1.40	20.0	ug/L	5000		97.5	80-120			
Lead	208	25.4	0.0680	0.100	ug/L	25.0		101	80-120			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Metals and Metallic Compounds - Quality Control

Batch BJC0110 - 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 (BJC0110-BS1)						Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 15:25						
Magnesium	24	4830	0.307	20.0	ug/L	5000		96.6	80-120			
Manganese	55	25.9	0.0850	0.500	ug/L	25.0		103	80-120			
Silver	107	26.5	0.0170	0.200	ug/L	25.0		106	80-120			
Vanadium	51a	25.2	0.0400	0.200	ug/L	25.0		101	80-120			
Vanadium	51b	25.2	0.0160	0.200	ug/L	25.0		101	80-120			
Arsenic	75a	24.9	0.0220	0.200	ug/L	25.0		99.7	80-120			
Cadmium	111	25.5	0.0300	0.100	ug/L	25.0		102	80-120			
Cadmium	114	25.4	0.0400	0.100	ug/L	25.0		102	80-120			
Copper	63	24.9	0.340	0.500	ug/L	25.0		99.6	80-120			
Copper	65	25.3	0.350	0.500	ug/L	25.0		101	80-120			
Nickel	60	25.1	0.0500	0.500	ug/L	25.0		100	80-120			
Nickel	62	25.1	0.220	0.500	ug/L	25.0		101	80-120			
Selenium	78	80.3	0.440	0.500	ug/L	80.0		100	80-120			
Zinc	66	81.8	0.820	4.00	ug/L	80.0		102	80-120			
Zinc	67	78.7	0.940	4.00	ug/L	80.0		98.4	80-120			
Duplicate (BJC0110-DUP1)			**Source: 21B0296-15**			Prepared: 04-Mar-2021 Analyzed: 05-Mar-2021 01:55						
Barium	135	2.07	0.0560	0.500	ug/L		2.08			0.58	20	
Cobalt	59	0.0910	0.0290	0.200	ug/L		0.0910			0.00		J
Lead	208	ND	0.0680	0.100	ug/L		ND					U
Arsenic	75a	0.970	0.0220	0.200	ug/L		0.991			2.14	20	
Cadmium	111	ND	0.0300	0.100	ug/L		0.0340					U
Copper	63	1.54	0.340	0.500	ug/L		1.32			15.00	20	
Nickel	60	1.88	0.0500	0.500	ug/L		1.75			6.78	20	
Selenium	78	ND	0.440	0.500	ug/L		ND					U
Zinc	66	ND	0.820	4.00	ug/L		ND					U
Duplicate (BJC0110-DUP2)			**Source: 21B0296-15**			Prepared: 04-Mar-2021 Analyzed: 09-Mar-2021 14:57						
Chromium	52	0.418	0.260	1.00	ug/L		0.356			16.00	20	J, D
Iron	54	610	12.5	40.0	ug/L		583			4.47	20	D
Manganese	55	14.6	0.170	1.00	ug/L		13.5			7.94	20	D
Silver	107	ND	0.0340	0.400	ug/L		ND					U
Vanadium	51a	2.90	0.0800	0.400	ug/L		2.68			7.89	20	D
Duplicate (BJC0110-DUP3)			**Source: 21B0296-15**			Prepared: 04-Mar-2021 Analyzed: 11-Mar-2021 16:31						
Calcium	44	14300	3.81	100	ug/L		13500			5.53	20	D

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Metals and Metallic Compounds - Quality Control

Batch BJC0110 - 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
Duplicate (BJC0110-DUP3)			**Source: 21B0296-15**		Prepared: 04-Mar-2021	Analyzed: 11-Mar-2021 16:31						
Magnesium	24	11600	0.614	40.0	ug/L		11400			1.44	20	D
Matrix Spike (BJC0110-MS1)			**Source: 21B0296-15**		Prepared: 04-Mar-2021	Analyzed: 05-Mar-2021 02:00						
Barium	135	26.7	0.0560	0.500	ug/L	25.0	2.08	98.4	75-125			
Cobalt	59	26.9	0.0290	0.200	ug/L	25.0	0.0910	107	75-125			
Lead	208	24.4	0.0680	0.100	ug/L	25.0	ND	97.5	75-125			
Arsenic	75a	26.3	0.0220	0.200	ug/L	25.0	0.991	101	75-125			
Cadmium	111	24.9	0.0300	0.100	ug/L	25.0	0.0340	99.3	75-125			
Copper	63	26.8	0.340	0.500	ug/L	25.0	1.32	102	75-125			
Nickel	60	30.9	0.0500	0.500	ug/L	25.0	1.75	117	75-125			
Selenium	78	76.9	0.440	0.500	ug/L	80.0	ND	96.1	75-125			
Zinc	66	80.1	0.820	4.00	ug/L	80.0	ND	100	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BJC0110-MS2)			**Source: 21B0296-15**		Prepared: 04-Mar-2021	Analyzed: 09-Mar-2021 15:02						
Chromium	52	25.9	0.260	1.00	ug/L	25.0	0.356	102	75-125			D
Iron	54	5430	12.5	40.0	ug/L	5000	583	96.9	75-125			D
Manganese	55	43.0	0.170	1.00	ug/L	25.0	13.5	118	75-125			D
Silver	107	25.2	0.0340	0.400	ug/L	25.0	ND	101	75-125			D
Vanadium	51a	28.9	0.0800	0.400	ug/L	25.0	2.68	105	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BJC0110-MS3)			**Source: 21B0296-15**		Prepared: 04-Mar-2021	Analyzed: 11-Mar-2021 16:36						
Calcium	44	19800	3.81	100	ug/L	5000	13500	125	75-125			D
Magnesium	24	17200	0.614	40.0	ug/L	5000	11400	116	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0110-MSD1)			**Source: 21B0296-15**		Prepared: 04-Mar-2021	Analyzed: 05-Mar-2021 02:06						
Barium	135	26.9	0.0560	0.500	ug/L	25.0	2.08	99.4	75-125	0.89	20	
Cobalt	59	26.9	0.0290	0.200	ug/L	25.0	0.0910	107	75-125	0.10	20	
Lead	208	24.8	0.0680	0.100	ug/L	25.0	ND	99.3	75-125	1.85	20	
Arsenic	75a	26.2	0.0220	0.200	ug/L	25.0	0.991	101	75-125	0.66	20	
Cadmium	111	25.5	0.0300	0.100	ug/L	25.0	0.0340	102	75-125	2.50	20	
Copper	63	26.6	0.340	0.500	ug/L	25.0	1.32	101	75-125	0.78	20	
Nickel	60	27.5	0.0500	0.500	ug/L	25.0	1.75	103	75-125	11.60	20	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Metals and Metallic Compounds - Quality Control

Batch BJC0110 - 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 (BJC0110-MSD1)		**Source: 21B0296-15**			Prepared: 04-Mar-2021 Analyzed: 05-Mar-2021 02:06							
Selenium	78	78.9	0.440	0.500	ug/L	80.0	ND	98.7	75-125	2.59	20	
Zinc	66	80.1	0.820	4.00	ug/L	80.0	ND	100	75-125	0.01	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0110-MSD2)		**Source: 21B0296-15**			Prepared: 04-Mar-2021 Analyzed: 09-Mar-2021 15:08							
Chromium	52	26.2	0.260	1.00	ug/L	25.0	0.356	104	75-125	1.33	20	D
Iron	54	5300	12.5	40.0	ug/L	5000	583	94.4	75-125	2.36	20	D
Manganese	55	39.9	0.170	1.00	ug/L	25.0	13.5	106	75-125	7.30	20	D
Silver	107	25.2	0.0340	0.400	ug/L	25.0	ND	101	75-125	0.11	20	D
Vanadium	51a	29.0	0.0800	0.400	ug/L	25.0	2.68	105	75-125	0.28	20	D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0110-MSD3)		**Source: 21B0296-15**			Prepared: 04-Mar-2021 Analyzed: 11-Mar-2021 16:42							
Calcium	44	18600	3.81	100	ug/L	5000	13500	102	75-125	6.03	20	D
Magnesium	24	16300	0.614	40.0	ug/L	5000	11400	96.7	75-125	5.66	20	D
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	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Metals and Metallic Compounds - Quality Control

Batch BJC0112 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0112-BLK1)				Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 14:25							
Mercury	ND	0.000013	0.000100	mg/L							U
LCS (BJC0112-BS1)				Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 14:28							
Mercury	0.00207	0.000013	0.000100	mg/L	0.00200		103	80-120			
Duplicate (BJC0112-DUP2)		**Source: 21B0296-11**		Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 14:51							
Mercury	0.000065	0.000013	0.000100	mg/L		ND					J
Matrix Spike (BJC0112-MS2)		**Source: 21B0296-11**		Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 14:53							
Mercury	0.000890	0.000013	0.000100	mg/L	0.00100	ND	89.0	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJC0112-MSD2)		**Source: 21B0296-11**		Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 14:55							
Mercury	0.00121	0.000013	0.000100	mg/L	0.00100	ND	121	75-125	30.70	20	*
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Post Spike (BJC0112-PS2)		**Source: 21B0296-11**		Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 15:25							
Mercury	0.000679			mg/L	0.000660	ND	103	0-200			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0116 - 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 (BJC0116-BLK1)					Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 20:42							
Barium, Dissolved	135	ND	0.0560	0.500	ug/L							U
Barium, Dissolved	137	ND	0.0530	0.500	ug/L							U
Chromium, Dissolved	52	0.199	0.130	0.500	ug/L							J
Cobalt, Dissolved	59	ND	0.0290	0.200	ug/L							U
Chromium, Dissolved	53	0.156	0.0700	0.500	ug/L							J
Iron, Dissolved	54	7.75	6.27	20.0	ug/L							J
Iron, Dissolved	57	9.35	1.40	20.0	ug/L							J
Lead, Dissolved	208	ND	0.0680	0.100	ug/L							U
Manganese, Dissolved	55	0.137	0.0850	0.500	ug/L							J
Vanadium, Dissolved	51a	ND	0.0400	0.200	ug/L							U
Vanadium, Dissolved	51b	ND	0.0160	0.200	ug/L							U
Arsenic, Dissolved	75a	ND	0.0220	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	0.340	0.500	ug/L							U
Copper, Dissolved	65	ND	0.350	0.500	ug/L							U
Nickel, Dissolved	60	ND	0.0500	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
Selenium, Dissolved	78	ND	0.440	0.500	ug/L							U
Zinc, Dissolved	66	ND	0.820	4.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	4.00	ug/L							U
Blank (BJC0116-BLK2)					Prepared: 04-Mar-2021 Analyzed: 05-Mar-2021 14:23							
Silver, Dissolved	107	ND	0.0170	0.200	ug/L							U
LCS (BJC0116-BS1)					Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 20:47							
Barium, Dissolved	135	25.5	0.0560	0.500	ug/L	25.0		102	80-120			
Barium, Dissolved	137	25.2	0.0530	0.500	ug/L	25.0		101	80-120			
Chromium, Dissolved	52	24.7	0.130	0.500	ug/L	25.0		98.7	80-120			
Cobalt, Dissolved	59	25.3	0.0290	0.200	ug/L	25.0		101	80-120			
Chromium, Dissolved	53	24.5	0.0700	0.500	ug/L	25.0		98.1	80-120			
Iron, Dissolved	54	4660	6.27	20.0	ug/L	5000		93.2	80-120			
Iron, Dissolved	57	4630	1.40	20.0	ug/L	5000		92.6	80-120			
Lead, Dissolved	208	25.4	0.0680	0.100	ug/L	25.0		101	80-120			
Manganese, Dissolved	55	25.0	0.0850	0.500	ug/L	25.0		100	80-120			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0116 - 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 (BJC0116-BS1)						Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 20:47						
Vanadium, Dissolved	51a	25.1	0.0400	0.200	ug/L	25.0		100	80-120			
Vanadium, Dissolved	51b	25.0	0.0160	0.200	ug/L	25.0		100	80-120			
Arsenic, Dissolved	75a	25.3	0.0220	0.200	ug/L	25.0		101	80-120			
Cadmium, Dissolved	111	25.1	0.0300	0.100	ug/L	25.0		101	80-120			
Cadmium, Dissolved	114	25.0	0.0400	0.100	ug/L	25.0		100	80-120			
Copper, Dissolved	63	25.0	0.340	0.500	ug/L	25.0		99.9	80-120			
Copper, Dissolved	65	25.1	0.350	0.500	ug/L	25.0		101	80-120			
Nickel, Dissolved	60	25.1	0.0500	0.500	ug/L	25.0		100	80-120			
Nickel, Dissolved	62	25.7	0.220	0.500	ug/L	25.0		103	80-120			
Selenium, Dissolved	78	77.2	0.440	0.500	ug/L	80.0		96.5	80-120			
Zinc, Dissolved	66	80.6	0.820	4.00	ug/L	80.0		101	80-120			
Zinc, Dissolved	67	76.1	0.940	4.00	ug/L	80.0		95.1	80-120			
LCS (BJC0116-BS2)						Prepared: 04-Mar-2021 Analyzed: 05-Mar-2021 14:25						
Silver, Dissolved	107	25.7	0.0170	0.200	ug/L	25.0		103	80-120			
Duplicate (BJC0116-DUP1)			Source: 21B0296-16			Prepared: 04-Mar-2021 Analyzed: 05-Mar-2021 03:00						
Barium, Dissolved	135	1.78	0.0560	0.500	ug/L		1.73			2.68	20	
Chromium, Dissolved	52	ND	0.130	0.500	ug/L		ND					U
Cobalt, Dissolved	59	0.0920	0.0290	0.200	ug/L		0.0830			10.30	20	J
Iron, Dissolved	54	8.07	6.27	20.0	ug/L		8.40			3.99	20	J
Lead, Dissolved	208	ND	0.0680	0.100	ug/L		ND					U
Manganese, Dissolved	55	8.54	0.0850	0.500	ug/L		8.53			0.20	20	
Vanadium, Dissolved	51a	1.60	0.0400	0.200	ug/L		1.56			2.28	20	
Arsenic, Dissolved	75a	0.520	0.0220	0.200	ug/L		0.504			3.12	20	
Cadmium, Dissolved	111	0.0310	0.0300	0.100	ug/L		ND					J
Copper, Dissolved	63	1.16	0.340	0.500	ug/L		1.21			3.79	20	
Nickel, Dissolved	60	1.83	0.0500	0.500	ug/L		1.73			5.67	20	
Selenium, Dissolved	78	ND	0.440	0.500	ug/L		ND					U
Zinc, Dissolved	66	ND	0.820	4.00	ug/L		1.09					U
Matrix Spike (BJC0116-MS1)			Source: 21B0296-16			Prepared: 04-Mar-2021 Analyzed: 05-Mar-2021 03:05						
Barium, Dissolved	135	26.1	0.0560	0.500	ug/L	25.0	1.73	97.5	75-125			
Chromium, Dissolved	52	19.2	0.130	0.500	ug/L	25.0	ND	76.8	75-125			
Cobalt, Dissolved	59	26.5	0.0290	0.200	ug/L	25.0	0.0830	106	75-125			
Iron, Dissolved	54	3770	6.27	20.0	ug/L	5000	8.40	75.3	75-125			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0116 - 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 (BJC0116-MS1)			**Source: 21B0296-16**			Prepared: 04-Mar-2021		Analyzed: 05-Mar-2021 03:05				
Lead, Dissolved	208	24.0	0.0680	0.100	ug/L	25.0	ND	95.9	75-125			
Manganese, Dissolved	55	27.9	0.0850	0.500	ug/L	25.0	8.53	77.7	75-125			
Vanadium, Dissolved	51a	21.2	0.0400	0.200	ug/L	25.0	1.56	78.8	75-125			
Arsenic, Dissolved	75a	24.8	0.0220	0.200	ug/L	25.0	0.504	97.3	75-125			
Cadmium, Dissolved	111	25.6	0.0300	0.100	ug/L	25.0	ND	102	75-125			
Copper, Dissolved	63	26.0	0.340	0.500	ug/L	25.0	1.21	99.3	75-125			
Nickel, Dissolved	60	27.2	0.0500	0.500	ug/L	25.0	1.73	102	75-125			
Selenium, Dissolved	78	76.4	0.440	0.500	ug/L	80.0	ND	95.5	75-125			
Zinc, Dissolved	66	79.2	0.820	4.00	ug/L	80.0	1.09	97.6	75-125			

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

Matrix Spike Dup (BJC0116-MSD1)			**Source: 21B0296-16**			Prepared: 04-Mar-2021		Analyzed: 05-Mar-2021 03:11				
Barium, Dissolved	135	26.5	0.0560	0.500	ug/L	25.0	1.73	99.0	75-125	1.38	20	
Chromium, Dissolved	52	19.5	0.130	0.500	ug/L	25.0	ND	78.0	75-125	1.51	20	
Cobalt, Dissolved	59	26.6	0.0290	0.200	ug/L	25.0	0.0830	106	75-125	0.46	20	
Iron, Dissolved	54	3790	6.27	20.0	ug/L	5000	8.40	75.7	75-125	0.49	20	
Lead, Dissolved	208	24.2	0.0680	0.100	ug/L	25.0	ND	97.0	75-125	1.16	20	
Manganese, Dissolved	55	28.3	0.0850	0.500	ug/L	25.0	8.53	79.0	75-125	1.23	20	
Vanadium, Dissolved	51a	21.8	0.0400	0.200	ug/L	25.0	1.56	81.0	75-125	2.56	20	
Arsenic, Dissolved	75a	25.1	0.0220	0.200	ug/L	25.0	0.504	98.6	75-125	1.27	20	
Cadmium, Dissolved	111	24.4	0.0300	0.100	ug/L	25.0	ND	97.8	75-125	4.71	20	
Copper, Dissolved	63	26.0	0.340	0.500	ug/L	25.0	1.21	99.2	75-125	0.10	20	
Nickel, Dissolved	60	27.6	0.0500	0.500	ug/L	25.0	1.73	104	75-125	1.66	20	
Selenium, Dissolved	78	77.6	0.440	0.500	ug/L	80.0	ND	97.1	75-125	1.63	20	
Zinc, Dissolved	66	79.3	0.820	4.00	ug/L	80.0	1.09	97.8	75-125	0.17	20	

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

Matrix Spike Dup (BJC0116-MSD2)			**Source: 21B0296-16**			Prepared: 04-Mar-2021		Analyzed: 08-Mar-2021 17:15				
Silver, Dissolved	107	25.5	0.0340	0.400	ug/L	25.0	ND	102	75-125	5.36	20	D

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

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0116 - 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
Duplicate (BJC0116-DUP2)			**Source: 21B0296-16**		Prepared: 04-Mar-2021 Analyzed: 05-Mar-2021 22:49							
Silver, Dissolved	107	ND	0.0340	0.400	ug/L		ND					U
Matrix Spike (BJC0116-MS2)			**Source: 21B0296-16**		Prepared: 04-Mar-2021 Analyzed: 05-Mar-2021 22:53							
Silver, Dissolved	107	24.2	0.0340	0.400	ug/L	25.0	ND	96.6	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: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0198 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0198-BLK1)					Prepared: 08-Mar-2021 Analyzed: 10-Mar-2021 09:24						
Mercury, Dissolved	ND	0.000013	0.000100	mg/L							U
LCS (BJC0198-BS1)					Prepared: 08-Mar-2021 Analyzed: 10-Mar-2021 09:26						
Mercury, Dissolved	0.00214	0.000013	0.000100	mg/L	0.00200		107	80-120			
Duplicate (BJC0198-DUP1)		**Source: 21B0296-04**			Prepared: 08-Mar-2021 Analyzed: 10-Mar-2021 09:30						
Mercury, Dissolved	ND	0.000013	0.000100	mg/L		ND					U
Matrix Spike (BJC0198-MS1)		**Source: 21B0296-04**			Prepared: 08-Mar-2021 Analyzed: 10-Mar-2021 09:33						
Mercury, Dissolved	0.00111	0.000013	0.000100	mg/L	0.00100	ND	111	75-125			

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

Matrix Spike Dup (BJC0198-MSD1)		**Source: 21B0296-04**			Prepared: 08-Mar-2021 Analyzed: 10-Mar-2021 09:35						
Mercury, Dissolved	0.00105	0.000013	0.000100	mg/L	0.00100	ND	105	75-125	5.52	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	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Wet Chemistry - Quality Control

Batch BJB0644 - 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 (BJB0644-BLK1)				Prepared: 22-Feb-2021	Analyzed: 22-Feb-2021 17:08						
Sulfite	ND	1.4	1.4	mg/L							U
LCS (BJB0644-BS1)				Prepared: 22-Feb-2021	Analyzed: 22-Feb-2021 17:08						
Sulfite	4.0	1.4	1.4	mg/L	4.97		80.5	75-100			
Duplicate (BJB0644-DUP1)		**Source: 21B0296-01**		Prepared: 22-Feb-2021	Analyzed: 22-Feb-2021 17:08						
Sulfite	ND	1.4	1.4	mg/L		ND					H, U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Wet Chemistry - Quality Control

Batch BJB0647 - No Prep Wet Chem

Instrument: UV1800-2 Analyst: WMT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJB0647-BLK1)				Prepared: 22-Feb-2021 Analyzed: 22-Feb-2021 20:33							
Ferrous Iron	ND	0.040	0.040	mg/L							U
LCS (BJB0647-BS1)				Prepared: 22-Feb-2021 Analyzed: 22-Feb-2021 20:34							
Ferrous Iron	0.492	0.040	0.040	mg/L	0.501		98.3	90-110			
Duplicate (BJB0647-DUP1)		**Source: 21B0296-01**		Prepared: 22-Feb-2021 Analyzed: 22-Feb-2021 20:58							
Ferrous Iron	17.3	0.800	0.800	mg/L		17.3			0.00		D
Matrix Spike (BJB0647-MS2)		**Source: 21B0296-01**		Prepared: 22-Feb-2021 Analyzed: 22-Feb-2021 21:09							
Ferrous Iron	19.2	0.801	2.22	mg/L	2.22	17.3	84.8	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: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Wet Chemistry - Quality Control

Batch BJB0664 - No Prep Wet Chem

Instrument: IC930 Analyst: WCW

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJB0664-BLK1)				Prepared: 23-Feb-2021 Analyzed: 23-Feb-2021 12:50							
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 (BJB0664-BS1)				Prepared: 23-Feb-2021 Analyzed: 23-Feb-2021 13:10							
Chloride	4.81	0.100	0.100	mg/L	5.00		96.3	90-110			
Nitrate-N	5.08	0.100	0.100	mg/L	5.00		102	90-110			
Nitrite-N	4.92	0.100	0.100	mg/L	5.00		98.4	90-110			
Sulfate	4.92	0.100	0.100	mg/L	5.00		98.3	90-110			
Duplicate (BJB0664-DUP1)		**Source: 21B0296-01**		Prepared: 23-Feb-2021 Analyzed: 23-Feb-2021 13:50							
Chloride	5.92	0.100	0.100	mg/L		5.91			0.12	20	
Nitrate-N	0.157	0.100	0.100	mg/L		0.157			0.00		
Nitrite-N	ND	0.100	0.100	mg/L		ND					U
Sulfate	6.69	0.100	0.100	mg/L		6.75			0.89	20	
Matrix Spike (BJB0664-MS1)		**Source: 21B0296-01**		Prepared: 23-Feb-2021 Analyzed: 23-Feb-2021 14:10							
Chloride	7.88	0.100	0.100	mg/L	2.00	5.91	98.2	75-125			
Nitrate-N	2.08	0.100	0.100	mg/L	2.00	0.157	96.3	75-125			
Nitrite-N	1.98	0.100	0.100	mg/L	2.00	ND	99.0	75-125			

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

Matrix Spike (BJB0664-MS2)		**Source: 21B0296-01**		Prepared: 23-Feb-2021 Analyzed: 24-Feb-2021 12:04							
Sulfate	8.44	0.100	0.100	mg/L	2.00	6.75	84.1	75-125			

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: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

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
Calcium-44	NELAP,DoD-ELAP,WADOE
Cobalt-59	DoD-ELAP,NELAP,WADOE
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
Magnesium-24	NELAP,DoD-ELAP,WADOE
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
Cobalt-59	NELAP,DoD-ELAP,WADOE
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

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400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
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
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
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	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1016 (1)	ADEC
Aroclor-1016 (2)	ADEC
Aroclor-1016 (3)	ADEC
Aroclor-1016 (4)	ADEC
Aroclor 1016 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1016 (1) [2C]	ADEC
Aroclor-1016 (2) [2C]	ADEC
Aroclor-1016 (3) [2C]	ADEC
Aroclor-1016 (4) [2C]	ADEC
Aroclor 1221	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1221 (1)	ADEC
Aroclor-1221 (2)	ADEC
Aroclor-1221 (3)	ADEC
Aroclor 1221 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1221 (1) [2C]	ADEC
Aroclor-1221 (2) [2C]	ADEC

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Aroclor-1221 (3) [2C]	ADEC
Aroclor-1221 (4) [2C]	ADEC
Aroclor 1232	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1232 (1)	ADEC
Aroclor-1232 (2)	ADEC
Aroclor-1232 (3)	ADEC
Aroclor-1232 (4)	ADEC
Aroclor 1232 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1232 (1) [2C]	ADEC
Aroclor-1232 (2) [2C]	ADEC
Aroclor-1232 (3) [2C]	ADEC
Aroclor-1232 (4) [2C]	ADEC
Aroclor 1242	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1242 (1)	ADEC
Aroclor-1242 (2)	ADEC
Aroclor-1242 (3)	ADEC
Aroclor-1242 (4)	ADEC
Aroclor 1242 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1242 (1) [2C]	ADEC
Aroclor-1242 (2) [2C]	ADEC
Aroclor-1242 (3) [2C]	ADEC
Aroclor-1242 (4) [2C]	ADEC
Aroclor 1248	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1248 (1)	ADEC
Aroclor-1248 (2)	ADEC
Aroclor-1248 (3)	ADEC
Aroclor-1248 (4)	ADEC
Aroclor 1248 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1248 (1) [2C]	ADEC
Aroclor-1248 (2) [2C]	ADEC
Aroclor-1248 (3) [2C]	ADEC
Aroclor-1248 (4) [2C]	ADEC
Aroclor 1254	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1254 (1)	ADEC
Aroclor-1254 (2)	ADEC
Aroclor-1254 (3)	ADEC
Aroclor-1254 (4)	ADEC
Aroclor-1254 (5)	ADEC
Aroclor 1254 [2C]	ADEC,DoD-ELAP,NELAP,WADOE

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

Aroclor-1254 (1) [2C]	ADEC
Aroclor-1254 (2) [2C]	ADEC
Aroclor-1254 (3) [2C]	ADEC
Aroclor-1254 (4) [2C]	ADEC
Aroclor-1254 (5) [2C]	ADEC
Aroclor 1260	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1260 (1)	ADEC
Aroclor-1260 (2)	ADEC
Aroclor-1260 (3)	ADEC
Aroclor-1260 (4)	ADEC
Aroclor-1260 (5)	ADEC
Aroclor 1260 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1260 (1) [2C]	ADEC
Aroclor-1260 (2) [2C]	ADEC
Aroclor-1260 (3) [2C]	ADEC
Aroclor-1260 (4) [2C]	ADEC
Aroclor 1262	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1262 (1)	ADEC
Aroclor-1262 (2)	ADEC
Aroclor-1262 (3)	ADEC
Aroclor-1262 (4)	ADEC
Aroclor-1262 (5)	ADEC
Aroclor 1262 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1262 (1) [2C]	ADEC
Aroclor-1262 (2) [2C]	ADEC
Aroclor-1262 (3) [2C]	ADEC
Aroclor-1262 (4) [2C]	ADEC
Aroclor-1262 (5) [2C]	ADEC
Aroclor 1268	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1268 (1)	ADEC
Aroclor-1268 (2)	ADEC
Aroclor-1268 (3)	ADEC
Aroclor-1268 (4)	ADEC
Aroclor 1268 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1268 (1) [2C]	ADEC
Aroclor-1268 (2) [2C]	ADEC
Aroclor-1268 (3) [2C]	ADEC
Aroclor-1268 (4) [2C]	ADEC

EPA 8260D in Water

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

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
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
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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
1,1-Dichloroethene	NELAP,WADOE

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

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
Acenaphthylene	NELAP,DoD-ELAP

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
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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

EPA 8270E-SIM in Water

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
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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
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

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
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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

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-1256	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	31-Jul-2021 17:36

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
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.
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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

02 August 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)
21B0309	N/A

Susan Dunnihoo

Digitally signed by Susan Dunnihoo
Date: 2021.08.02 08:13:27 -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.

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Cert# 100006-012

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Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 210309	Turn-around Requested: standard	Page: 1	of 2
ARI Client Company: Shannon & Wilson	Phone: 206-695-6811	Date: 2/23/2021	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 3	Cooler Temps: See COC
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: MRH / DES		

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	PCBs	Metals (total & diss) only Mn, Hg	Metals (total & diss) only Cr, Mn, Hg	See page 2	Notes/Comments
TB-9-20212302	2/23/21	07:45	Water	1	X		X	X					
MW-44-20212302		0823		10		X	X	X	X	X			
MW-42-20212302		1006		10		X	X	X	X		X		
MW-67-20212302		1121		12		X	X	X	X			X	
MW-38-20212302		1233		10	X	X	X					X	
MW-37-20212302		1323		12	X	X	X	X				X	
MW-102-20212302		1338		12	X	X	X	X				X	
MW-7-20212302		1445		3								X	

Comments/Special Instructions
- Lab to filter for metals
- Please refer to project methods & analyte lists

	Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)				
Printed Name:	DANIEL SCHWICHT	Jacob Lighter		
Company:	SWI	ARI		
Date & Time:	23-FEB-21-15:33	02/23/2021 1533		

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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21B0309	Turn-around Requested: Standard	Page: 2 of 2	
ARI Client Company: Shannon & Wilson	Phone: 206-695-6811	Date: 2/23/2021	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 3	Cooler Temps: See COC
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: MRH/DES		

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	Full list SVOCs	Full list Metals	Metals (total & diss) Mn only	PAHs	1	Metals (total & diss): Cr only	Hexavalent Chromium		Notes/Comments
MW-67-20212302	See	page	1	→	X	X							
MW-38-20212302	See	page	1	→			X						
MW-37-20212302	See	page	1	→				X	X				1= Metals (total & diss): As, Mn, Ni, Co, Se, Zn
MW-102-20212302	See	page	1	→				X	X				
MW-7-20212302	See	page	1	→						X	X		

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
• Lab to filter for metals • Please refer to project methods & analyte lists	Printed Name: DANIEL SCHWICHT	Printed Name: Jacob Latta	Printed Name:	Printed Name:
	Company: SWI	Company: ARI	Company:	Company:
	Date & Time: 23-FEB-21, 15:33	Date & Time: 02/23/2021 1533	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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-7-20212302	21B0309-01	Water	23-Feb-2021 14:45	23-Feb-2021 15:33
TB-9-20212302	21B0309-02	Water	23-Feb-2021 14:45	23-Feb-2021 15:33
MW-44-20212302	21B0309-03	Water	23-Feb-2021 08:23	23-Feb-2021 15:33
MW-44-20212302	21B0309-04	Water	23-Feb-2021 08:23	23-Feb-2021 15:33
MW-42-20212302	21B0309-05	Water	23-Feb-2021 10:06	23-Feb-2021 15:33
MW-42-20212302	21B0309-06	Water	23-Feb-2021 10:06	23-Feb-2021 15:33
MW-67-20212302	21B0309-07	Water	23-Feb-2021 11:21	23-Feb-2021 15:33
MW-67-20212302	21B0309-08	Water	23-Feb-2021 11:21	23-Feb-2021 15:33
MW-38-20212302	21B0309-09	Water	23-Feb-2021 12:33	23-Feb-2021 15:33
MW-38-20212302	21B0309-10	Water	23-Feb-2021 12:33	23-Feb-2021 15:33
MW-37-20212302	21B0309-11	Water	23-Feb-2021 13:23	23-Feb-2021 15:33
MW-37-20212302	21B0309-12	Water	23-Feb-2021 13:23	23-Feb-2021 15:33
MW-102-20212302	21B0309-13	Water	23-Feb-2021 13:38	23-Feb-2021 15:33
MW-102-20212302	21B0309-14	Water	23-Feb-2021 13:38	23-Feb-2021 15:33
MW-7-20212302	21B0309-15	Water	23-Feb-2021 14:45	23-Feb-2021 15:33
MW-7-20212302	21B0309-16	Water	23-Feb-2021 14:45	23-Feb-2021 15:33

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.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish
Work Order: 21B0309

Sample receipt

Samples as listed on the preceding page were received 23-Feb-2021 15:33 under ARI work order 21B0309. 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 Aroclor 1242 in continuing calibration verification (CCV3) on column zb-5. Data is reported from passing column zb-35 and the samples were not detect.

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

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

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.

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 Hexachlorocyclopentadiene, 4-Nitrophenol, Fluorene and Pentachlorophenol which were out of control low in the initial calibration verification (ICV). 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 21B0309-07 and th method blank. Deviations 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 4-Chloroaniline percent recoveries which have been flagged within the QC section of this

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

report.

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 except Nickel in the original run in batch BJC0224. All QC samples associated with this failure which contain analyte have been flagged with a "B" qualifier. The samples were re-digested and analyzed with passing QC.

Sample specific QC was performed in association with sample 21B0309-15 in Total Metals batch BJC0224, in association with sample 21B0390-07RE1 in Total Nickel batch BJC0342 and in association with sample 21B0309-16 in Dissolved Metals batch BJC0235. The duplicate (DUP) relative percent difference (RPD) were within advisory control limits except Zinc which has been flagged within the QC section of this report. 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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Sample specific QC was performed in association with sample 21B0309-01 in Hexavalent Chromium batch BJB0683. The matrix spike (MS) percent recoveries and the duplicate (DUP) 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 21B0309-03 in Total Mercury batch BJC0219 and in association with sample 21B0309-06 in Dissolved Mercury batch BJC0221. 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 and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

REVISED to correct VOC target list to included trans-1,2-dichloroethene.

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.

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Analytical Chemists and Consultants

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WORK ORDER

21B0309

Client: Shannon & Wilson, Inc	**Project Manager:** Amanda Volgardsen Johnson
Project: Lower Duwamish	**Project Number:** 21-1-12596

Preservation Confirmation

Container ID	Container Type	pH	
21B0309-01 A	HDPE NM, 500 mL		
21B0309-01 A 01	HDPE NM, 500 mL		
21B0309-02 A	VOA Vial, Clear, 40 mL, HCL		
21B0309-03 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0309-03 B	Glass NM, Amber, 500 mL		
21B0309-03 C	Glass NM, Amber, 500 mL		
21B0309-03 D	Glass NM, Amber, 500 mL		
21B0309-03 E	Glass NM, Amber, 500 mL		
21B0309-03 F	VOA Vial, Amber, 40 mL, HCL		
21B0309-03 G	VOA Vial, Amber, 40 mL, HCL		
21B0309-03 H	VOA Vial, Amber, 40 mL, HCL	Bubbles	
21B0309-03 I	VOA Vial, Amber, 40 mL, HCL	Bubbles	
21B0309-04 A	HDPE NM, 500 mL	>2	Fail
21B0309-05 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0309-05 B	Glass NM, Amber, 500 mL		
21B0309-05 C	Glass NM, Amber, 500 mL		
21B0309-05 D	Glass NM, Amber, 500 mL		
21B0309-05 E	Glass NM, Amber, 500 mL		
21B0309-05 F	VOA Vial, Amber, 40 mL, HCL		
21B0309-05 G	VOA Vial, Amber, 40 mL, HCL		
21B0309-05 H	VOA Vial, Amber, 40 mL, HCL		
21B0309-05 I	VOA Vial, Amber, 40 mL, HCL		
21B0309-06 A	HDPE NM, 500 mL	>2	Fail
21B0309-07 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0309-07 B	Glass NM, Amber, 500 mL		
21B0309-07 C	Glass NM, Amber, 500 mL		
21B0309-07 D	Glass NM, Amber, 500 mL		
21B0309-07 E	Glass NM, Amber, 500 mL		
21B0309-07 F	Glass NM, Amber, 500 mL		
21B0309-07 G	Glass NM, Amber, 500 mL		
21B0309-07 H	VOA Vial, Amber, 40 mL, HCL		
21B0309-07 I	VOA Vial, Amber, 40 mL, HCL		
21B0309-07 J	VOA Vial, Amber, 40 mL, HCL		
21B0309-07 K	VOA Vial, Amber, 40 mL, HCL		
21B0309-08 A	HDPE NM, 500 mL	>2	Fail

Reviewed By

Date

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Analytical Chemists and Consultants

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WORK ORDER

21B0309

Client: Shannon & Wilson, Inc | **Project Manager:** Amanda Volgardsen Johnson

Project: Lower Duwamish | **Project Number:** 21-1-12596

21B0309-09 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0309-09 B	Glass NM, Amber, 500 mL		
21B0309-09 C	Glass NM, Amber, 500 mL		
21B0309-09 D	VOA Vial, Amber, 40 mL, HCL		
21B0309-09 E	VOA Vial, Amber, 40 mL, HCL		
21B0309-09 F	VOA Vial, Amber, 40 mL, HCL		
21B0309-09 G	VOA Vial, Amber, 40 mL, HCL		
21B0309-09 H	VOA Vial, Amber, 40 mL, HCL		
21B0309-09 I	VOA Vial, Amber, 40 mL, HCL		
21B0309-10 A	HDPE NM, 500 mL	> 2	Fail
21B0309-11 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0309-11 B	Glass NM, Amber, 500 mL		
21B0309-11 C	Glass NM, Amber, 500 mL		
21B0309-11 D	Glass NM, Amber, 500 mL		
21B0309-11 E	Glass NM, Amber, 500 mL		
21B0309-11 F	VOA Vial, Amber, 40 mL, HCL		
21B0309-11 G	VOA Vial, Amber, 40 mL, HCL		
21B0309-11 H	VOA Vial, Amber, 40 mL, HCL		
21B0309-11 I	VOA Vial, Amber, 40 mL, HCL		
21B0309-11 J	VOA Vial, Amber, 40 mL, HCL		
21B0309-11 K	VOA Vial, Amber, 40 mL, HCL		
21B0309-12 A	HDPE NM, 500 mL	> 2	Fail
21B0309-13 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0309-13 B	Glass NM, Amber, 500 mL		
21B0309-13 C	Glass NM, Amber, 500 mL		
21B0309-13 D	Glass NM, Amber, 500 mL		
21B0309-13 E	Glass NM, Amber, 500 mL		
21B0309-13 F	VOA Vial, Amber, 40 mL, HCL		
21B0309-13 G	VOA Vial, Amber, 40 mL, HCL		
21B0309-13 H	VOA Vial, Amber, 40 mL, HCL		
21B0309-13 I	VOA Vial, Amber, 40 mL, HCL		
21B0309-13 J	VOA Vial, Amber, 40 mL, HCL		
21B0309-13 K	VOA Vial, Amber, 40 mL, HCL		
21B0309-14 A	HDPE NM, 500 mL	> 2	Fail
21B0309-15 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0309-16 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

21B0309

Client: Shannon & Wilson, Inc	**Project Manager: Amanda Volgardsen Johnson**
Project: Lower Duwamish	**Project Number: 21-1-12596**

SC
Preservation Confirmed By

2/24/21
Date

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Shannon & Wilson Project Name: LDW

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

Assigned ARI Job No: 21B0309 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 1533 5.1 5.6 2.0 ____ ____ ____

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

Cooler Accepted by: JG Date: 02/23/2021 Time: 1533

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 2/8/21

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

Samples Logged by: SC Date: 2/24/21 Time: 0914 Labels checked by: SC

***** 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 Chemists and Consultants

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WORK ORDER

21B0309

Client: Shannon & Wilson, Inc	**Project Manager:** Amanda Volgardsen Johnson
Project: Lower Duwamish	**Project Number:** 21-1-12596

21B0309-09 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0309-09 B	Glass NM, Amber, 500 mL		
21B0309-09 C	Glass NM, Amber, 500 mL		
21B0309-09 D	VOA Vial, Amber, 40 mL, HCL		
21B0309-09 E	VOA Vial, Amber, 40 mL, HCL		
21B0309-09 F	VOA Vial, Amber, 40 mL, HCL		
21B0309-09 G	VOA Vial, Amber, 40 mL, HCL		
21B0309-09 H	VOA Vial, Amber, 40 mL, HCL		
21B0309-09 I	VOA Vial, Amber, 40 mL, HCL		
21B0309-10 A	HDPE NM, 500 mL	> 2	Fail (1)
21B0309-11 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0309-11 B	Glass NM, Amber, 500 mL		
21B0309-11 C	Glass NM, Amber, 500 mL		
21B0309-11 D	Glass NM, Amber, 500 mL		
21B0309-11 E	Glass NM, Amber, 500 mL		
21B0309-11 F	VOA Vial, Amber, 40 mL, HCL		
21B0309-11 G	VOA Vial, Amber, 40 mL, HCL		
21B0309-11 H	VOA Vial, Amber, 40 mL, HCL		
21B0309-11 I	VOA Vial, Amber, 40 mL, HCL		
21B0309-11 J	VOA Vial, Amber, 40 mL, HCL		
21B0309-11 K	VOA Vial, Amber, 40 mL, HCL		
21B0309-12 A	HDPE NM, 500 mL	> 2	Fail (1)
21B0309-13 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0309-13 B	Glass NM, Amber, 500 mL		
21B0309-13 C	Glass NM, Amber, 500 mL		
21B0309-13 D	Glass NM, Amber, 500 mL		
21B0309-13 E	Glass NM, Amber, 500 mL		
21B0309-13 F	VOA Vial, Amber, 40 mL, HCL		
21B0309-13 G	VOA Vial, Amber, 40 mL, HCL		
21B0309-13 H	VOA Vial, Amber, 40 mL, HCL		
21B0309-13 I	VOA Vial, Amber, 40 mL, HCL		
21B0309-13 J	VOA Vial, Amber, 40 mL, HCL		
21B0309-13 K	VOA Vial, Amber, 40 mL, HCL		
21B0309-14 A	HDPE NM, 500 mL	> 2	Fail (1)
21B0309-15 A	HDPE NM, 500 mL, 1:1 HNO3	< 2	Pass
21B0309-16 A	HDPE NM, 500 mL	> 2	Fail (1)

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 2/24/2021 9:41:59AM

WORK ORDER

21B0309

Client: Shannon & Wilson, Inc
Project Manager: Amanda Volgardsen Johnson
Project: Lower Duwamish
Project Number: 21-1-12596

Preservation Confirmation

Container ID	Container Type	pH	
21B0309-01 A	HDPE NM, 500 mL		
21B0309-01 A 01	HDPE NM, 500 mL		
21B0309-02 A	VOA Vial, Clear, 40 mL, HCL		
21B0309-03 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0309-03 B	Glass NM, Amber, 500 mL		
21B0309-03 C	Glass NM, Amber, 500 mL		
21B0309-03 D	Glass NM, Amber, 500 mL		
21B0309-03 E	Glass NM, Amber, 500 mL		
21B0309-03 F	VOA Vial, Amber, 40 mL, HCL		
21B0309-03 G	VOA Vial, Amber, 40 mL, HCL		
21B0309-03 H	VOA Vial, Amber, 40 mL, HCL	Bubbles	
21B0309-03 I	VOA Vial, Amber, 40 mL, HCL	Bubbles	
21B0309-04 A	HDPE NM, 500 mL	>2	Fail (1)
21B0309-05 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0309-05 B	Glass NM, Amber, 500 mL		
21B0309-05 C	Glass NM, Amber, 500 mL		
21B0309-05 D	Glass NM, Amber, 500 mL		
21B0309-05 E	Glass NM, Amber, 500 mL		
21B0309-05 F	VOA Vial, Amber, 40 mL, HCL		
21B0309-05 G	VOA Vial, Amber, 40 mL, HCL		
21B0309-05 H	VOA Vial, Amber, 40 mL, HCL		
21B0309-05 I	VOA Vial, Amber, 40 mL, HCL		
21B0309-06 A	HDPE NM, 500 mL	>2	Fail (1)
21B0309-07 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0309-07 B	Glass NM, Amber, 500 mL		
21B0309-07 C	Glass NM, Amber, 500 mL		
21B0309-07 D	Glass NM, Amber, 500 mL		
21B0309-07 E	Glass NM, Amber, 500 mL		
21B0309-07 F	Glass NM, Amber, 500 mL		
21B0309-07 G	Glass NM, Amber, 500 mL		
21B0309-07 H	VOA Vial, Amber, 40 mL, HCL		
21B0309-07 I	VOA Vial, Amber, 40 mL, HCL		
21B0309-07 J	VOA Vial, Amber, 40 mL, HCL		
21B0309-07 K	VOA Vial, Amber, 40 mL, HCL		
21B0309-08 A	HDPE NM, 500 mL	>2	Fail (1)

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 2/24/2021 9:41:59AM

WORK ORDER

21B0309

Client: Shannon & Wilson, Inc	**Project Manager: Amanda Volgardsen Johnson**
Project: Lower Duwamish	**Project Number: 21-1-12596**

SC
Preservation Confirmed By

2/24/21
Date

(1) Filtered at 0.45 µm and preserved to pH < 2.0 with 0.75 ml conc. HNO_3 (J554).
MR 2/24/21

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-7-20212302

21B0309-01 (Water)

Wet Chemistry

Method: SM 3500-Cr B-09 — Sampled: 02/23/2021 14:45

Instrument: UV1800-2 Analyst: BF — Analyzed: 02/23/2021 17:14

Sample Preparation: Preparation Method: SM 5310 A-00, 0.45um filtration — Extract ID: 21B0309-01 A 01

Preparation Batch: BJB0683 — Sample Size: 40 mL

Prepared: 02/23/2021 — 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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

TB-9-20212302

21B0309-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/23/2021 14:45

Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 12:53

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0309-02 A

Preparation Batch: BJC0115 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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 %*	*99.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*96.1*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.4*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

TB-9-20212302

21B0309-02 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/23/2021 14:45
Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 12:53

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0309-02 A
Preparation Batch: BJC0115 — Sample Size: 10 mL
Prepared: 03/04/2021 — 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 %*	*99.6*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*96.1*	*%*	

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-44-20212302

21B0309-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/23/2021 08:23

Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 13:54

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0309-03 G

Preparation Batch: BJC0115 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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 %*	*114*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-44-20212302

21B0309-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/23/2021 08:23

Instrument: NT16 Analyst: PB — Analyzed: 03/03/2021 17:06

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0309-03 H

Preparation Batch: BJC0090 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*106*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*92.5*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-44-20212302

21B0309-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/23/2021 08:23
Instrument: FID4 Analyst: CTO — Analyzed: 03/12/2021 02:02

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0309-03 B 01
Preparation Batch: BJC0012 — Sample Size: 500 mL
Prepared: 03/01/2021 — 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 %*	*114*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-44-20212302

21B0309-03 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/23/2021 08:23
Instrument: ECD7 Analyst: JGR — Analyzed: 03/13/2021 14:39

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0309-03 D 01
	Preparation Batch: BJC0031	Sample Size: 455 mL	
	Prepared: 03/02/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0309-03 D 01
	Cleanup Batch: CJC0132	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0309-03 D 01
	Cleanup Batch: CJC0130	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0309-03 D 01
	Cleanup Batch: CJC0131	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.019	0.110	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.019	0.110	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.019	0.110	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.019	0.110	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.019	0.110	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.019	0.110	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.019	0.110	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*56.6*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*55.2*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*59.4*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*48.3*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-44-20212302

21B0309-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/23/2021 08:23

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 20:59

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-03 A 01

Preparation Batch: BJC0224 — Sample Size: 25 mL

Prepared: 03/09/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	20	1.70	10.0	667	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-44-20212302

21B0309-03 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/23/2021 08:23

Instrument: HYDRA Analyst: BLC — Analyzed: 03/10/2021 09:58

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0309-03 A

Preparation Batch: BJC0219 — Sample Size: 20 mL

Prepared: 03/09/2021 — 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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-44-20212302

21B0309-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/23/2021 08:23

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 21:08

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-04 A 02

Preparation Batch: BJC0235 — Sample Size: 25 mL — Filtration Batch: BJB0708

Prepared: 03/10/2021 — Final Volume: 25 mL — Filtration Date: 02/24/2021 15:30

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	20	1.70	10.0	626	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-44-20212302

21B0309-04 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/23/2021 08:23
Instrument: HYDRA Analyst: BLC — Analyzed: 03/10/2021 10:59

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0309-04 A 01
Preparation Batch: BJC0221 — Sample Size: 20 mL — Filtration Batch: BJB0708
Prepared: 03/09/2021 — Final Volume: 20 mL — Filtration Date: 02/24/2021 15:30

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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-42-20212302

21B0309-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/23/2021 10:06

Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 14:15

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0309-05 H

Preparation Batch: BJC0115 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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 %*	*109*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.6*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Analytical Resources, Incorporated
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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-42-20212302

21B0309-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/23/2021 10:06

Instrument: NT16 Analyst: PB — Analyzed: 03/03/2021 17:27

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0309-05 G

Preparation Batch: BJC0090 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*96.0*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*94.1*	*%*	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-42-20212302

21B0309-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/23/2021 10:06
Instrument: FID4 Analyst: CTO — Analyzed: 03/12/2021 02:23

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0309-05 B 01
Preparation Batch: BJC0012 — Sample Size: 500 mL
Prepared: 03/01/2021 — 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 %*	*95.7*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-42-20212302

21B0309-05 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/23/2021 10:06
Instrument: ECD7 Analyst: JGR — Analyzed: 03/13/2021 14:59

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0309-05 D 01
	Preparation Batch: BJC0031	Sample Size: 470 mL	
	Prepared: 03/02/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0309-05 D 01
	Cleanup Batch: CJC0132	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0309-05 D 01
	Cleanup Batch: CJC0130	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0309-05 D 01
	Cleanup Batch: CJC0131	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.019	0.106	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.019	0.106	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.019	0.106	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.019	0.106	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.019	0.106	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.019	0.106	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.019	0.106	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*59.0*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*53.0*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*62.4*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*46.0*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-42-20212302

21B0309-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/23/2021 10:06

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 22:27

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-05 A 01

Preparation Batch: BJC0224 — Sample Size: 25 mL

Prepared: 03/09/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	2	0.260	1.00	11.0	ug/L	D
Manganese	7439-96-5	2	0.170	1.00	2.19	ug/L	D

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-42-20212302

21B0309-05 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/23/2021 10:06
Instrument: HYDRA Analyst: BLC — Analyzed: 03/10/2021 10:07

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0309-05 A
Preparation Batch: BJC0219 — Sample Size: 20 mL
Prepared: 03/09/2021 — 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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-42-20212302

21B0309-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/23/2021 10:06
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 22:31

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-06 A 02
Preparation Batch: BJC0235 — Sample Size: 25 mL — Filtration Batch: BJB0708
Prepared: 03/10/2021 — Final Volume: 25 mL — Filtration Date: 02/24/2021 15:30

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	2	0.260	1.00	12.0	ug/L	D
Manganese, Dissolved	7439-96-5	2	0.170	1.00	0.782	ug/L	J, D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-42-20212302

21B0309-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/23/2021 10:06
Instrument: HYDRA Analyst: BLC — Analyzed: 03/10/2021 10:49

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0309-06 A 01
Preparation Batch: BJC0221 — Sample Size: 20 mL — Filtration Batch: BJB0708
Prepared: 03/09/2021 — Final Volume: 20 mL — Filtration Date: 02/24/2021 15:30

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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-67-20212302

21B0309-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/23/2021 11:21

Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 14:35

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0309-07 K

Preparation Batch: BJC0115 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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	0.18	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 %*	*108*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*91.1*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.5*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-67-20212302

21B0309-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/23/2021 11:21

Instrument: NT16 Analyst: PB — Analyzed: 03/03/2021 17:47

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0309-07 H

Preparation Batch: BJC0090 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*109*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.1*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*97.0*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-67-20212302

21B0309-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/23/2021 11:21

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 17:23

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0309-07 B 01

Preparation Batch: BJB0763 — Sample Size: 1000 mL

Prepared: 02/26/2021 — 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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-67-20212302

21B0309-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/23/2021 11:21

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 17:23

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	0.2	ug/L	J
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 %*	*48.1*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*19.8*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*74.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*66.7*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*79.0*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*66.3*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*85.6*	*%*	

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-67-20212302

21B0309-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/23/2021 11:21

Instrument: NT10 Analyst: VTS — Analyzed: 03/12/2021 17:23

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: p-Terphenyl-d14		*30-160 %*	*86.5*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-67-20212302

21B0309-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/23/2021 11:21
Instrument: FID4 Analyst: CTO — Analyzed: 03/12/2021 02:44

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0309-07 D 01
Preparation Batch: BJC0012 — Sample Size: 500 mL
Prepared: 03/01/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.127	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	0.245	mg/L	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*120*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-67-20212302

21B0309-07 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/23/2021 11:21
Instrument: ECD7 Analyst: JGR — Analyzed: 03/13/2021 15:20

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0309-07 F 01
	Preparation Batch: BJC0031	Sample Size: 500 mL	
	Prepared: 03/02/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0309-07 F 01
	Cleanup Batch: CJC0132	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0309-07 F 01
	Cleanup Batch: CJC0130	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0309-07 F 01
	Cleanup Batch: CJC0131	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.018	0.100	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.018	0.100	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.018	0.100	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.018	0.100	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.017	0.100	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*62.1*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*60.1*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*64.7*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*48.5*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-67-20212302

21B0309-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/23/2021 11:21

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 01:32

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-07 A 01

Preparation Batch: BJC0224 — Sample Size: 25 mL

Prepared: 03/09/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	8.87	ug/L	
Chromium	7440-47-3	1	0.130	0.500	4.46	ug/L	
Cobalt	7440-48-4	1	0.0290	0.200	0.186	ug/L	J
Iron	7439-89-6	1	6.27	20.0	37.9	ug/L	
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese	7439-96-5	1	0.0850	0.500	36.3	ug/L	
Silver	7440-22-4	1	0.0170	0.200	ND	ug/L	U
Vanadium	7440-62-2	1	0.0400	0.200	2.00	ug/L	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-67-20212302

21B0309-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/23/2021 11:21
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 01:32

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-07 A 01
Preparation Batch: BJC0224 — Sample Size: 25 mL
Prepared: 03/09/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	0.592	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	1.88	ug/L	
Selenium	7782-49-2	1	0.440	0.500	2.05	ug/L	
Zinc	7440-66-6	1	0.820	4.00	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	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-67-20212302

21B0309-07 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/23/2021 11:21
Instrument: HYDRA Analyst: BLC — Analyzed: 03/10/2021 10:10

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0309-07 A
Preparation Batch: BJC0219 — Sample Size: 20 mL
Prepared: 03/09/2021 — 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 Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-67-20212302

21B0309-07RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/23/2021 11:21
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/15/2021 20:18

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-07RE1 A 02
Preparation Batch: BJC0342 — Sample Size: 25 mL
Prepared: 03/15/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nickel	7440-02-0	1	0.0500	0.500	0.700	ug/L	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-67-20212302

21B0309-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/23/2021 11:21
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 01:36

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-08 A 02
Preparation Batch: BJC0235 — Sample Size: 25 mL — Filtration Batch: BJB0708
Prepared: 03/10/2021 — Final Volume: 25 mL — Filtration Date: 02/24/2021 15:30

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	7.92	ug/L	
Chromium, Dissolved	7440-47-3	1	0.130	0.500	4.23	ug/L	
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	0.152	ug/L	J
Iron, Dissolved	7439-89-6	1	6.27	20.0	10.8	ug/L	J
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	1	0.0850	0.500	33.9	ug/L	
Silver, Dissolved	7440-22-4	1	0.0170	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0400	0.200	1.74	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-67-20212302

21B0309-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/23/2021 11:21
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 01:36

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-08 A 02
Preparation Batch: BJC0235 — Sample Size: 25 mL — Filtration Batch: BJB0708
Prepared: 03/10/2021 — Final Volume: 25 mL — Filtration Date: 02/24/2021 15:30

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	0.551	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	1.64	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	0.648	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	2.19	ug/L	
Zinc, Dissolved	7440-66-6	1	0.820	4.00	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-67-20212302

21B0309-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/23/2021 11:21
Instrument: HYDRA Analyst: BLC — Analyzed: 03/10/2021 11:01

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0309-08 A 01
Preparation Batch: BJC0221 — Sample Size: 20 mL — Filtration Batch: BJB0708
Prepared: 03/09/2021 — Final Volume: 20 mL — Filtration Date: 02/24/2021 15:30

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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-38-20212302

21B0309-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/23/2021 12:33

Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 14:55

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0309-09 I

Preparation Batch: BJC0115 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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
Surrogate: Toluene-d8				*80-120 %*	*99.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-38-20212302

21B0309-09 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/23/2021 12:33

Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 14:55

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0309-09 I

Preparation Batch: BJC0115 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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 %*	*99.0*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*93.9*	*%*	

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-38-20212302

21B0309-09 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/23/2021 12:33
Instrument: FID4 Analyst: CTO — Analyzed: 03/12/2021 03:05

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0309-09 B 01
Preparation Batch: BJC0012 — Sample Size: 500 mL
Prepared: 03/01/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.107	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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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-38-20212302

21B0309-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/23/2021 12:33

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 23:43

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-09 A 01

Preparation Batch: BJC0224 — Sample Size: 25 mL

Prepared: 03/09/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	1	0.0850	0.500	9.22	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-38-20212302

21B0309-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/23/2021 12:33
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 23:48

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-10 A 02
Preparation Batch: BJC0235 — Sample Size: 25 mL — Filtration Batch: BJB0708
Prepared: 03/10/2021 — Final Volume: 25 mL — Filtration Date: 02/24/2021 15:30

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	1	0.0850	0.500	9.11	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-37-20212302

21B0309-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/23/2021 13:23

Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 15:16

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0309-11 F

Preparation Batch: BJC0115 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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 %*	*109*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.6*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-37-20212302

21B0309-11 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/23/2021 13:23

Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 15:16

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0309-11 F

Preparation Batch: BJC0115 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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 %*	*93.6*	*%*	

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-37-20212302

21B0309-11 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/23/2021 13:23

Instrument: NT16 Analyst: PB — Analyzed: 03/03/2021 18:27

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0309-11 I

Preparation Batch: BJC0090 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*97.7*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*95.2*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*95.4*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-37-20212302

21B0309-11 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/23/2021 13:23
Instrument: NT11 Analyst: VTS — Analyzed: 03/18/2021 14:59

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0309-11 B 01
Preparation Batch: BJB0765 — Sample Size: 500 mL
Prepared: 02/26/2021 — Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 21B0309-11 B 01
Cleanup Batch: CJC0111 — Initial Volume: 0.5 mL
Cleaned: 10-Mar-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	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 %*	*77.0*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*66.2*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*76.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-37-20212302

21B0309-11 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/23/2021 13:23
Instrument: FID4 Analyst: CTO — Analyzed: 03/12/2021 03:25

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0309-11 D 01
Preparation Batch: BJC0012 — Sample Size: 500 mL
Prepared: 03/01/2021 — 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 %*	*120*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-37-20212302

21B0309-11 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/23/2021 13:23

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 22:36

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-11 A 01

Preparation Batch: BJC0224 — Sample Size: 25 mL

Prepared: 03/09/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	1	0.0850	0.500	0.411	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-37-20212302

21B0309-11 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/23/2021 13:23

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 22:36

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-11 A 01

Preparation Batch: BJC0224 — Sample Size: 25 mL

Prepared: 03/09/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	0.219	ug/L	
Copper	7440-50-8	1	0.340	0.500	0.954	ug/L	
Selenium	7782-49-2	1	0.440	0.500	0.653	ug/L	
Zinc	7440-66-6	1	0.820	4.00	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-37-20212302

21B0309-11RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/23/2021 13:23
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/15/2021 18:19

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-11RE1 A 02
Preparation Batch: BJC0342 — Sample Size: 25 mL
Prepared: 03/15/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nickel	7440-02-0	1	0.0500	0.500	3.87	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-37-20212302

21B0309-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/23/2021 13:23
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 22:40

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-12 A 02
Preparation Batch: BJC0235 — Sample Size: 25 mL — Filtration Batch: BJB0708
Prepared: 03/10/2021 — Final Volume: 25 mL — Filtration Date: 02/24/2021 15:30

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	1	0.0850	0.500	0.173	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-37-20212302

21B0309-12 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/23/2021 13:23
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 22:40

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-12 A 02
Preparation Batch: BJC0235 — Sample Size: 25 mL — Filtration Batch: BJB0708
Prepared: 03/10/2021 — Final Volume: 25 mL — Filtration Date: 02/24/2021 15:30

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	0.242	ug/L	
Copper, Dissolved	7440-50-8	1	0.340	0.500	0.894	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	3.88	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	0.754	ug/L	
Zinc, Dissolved	7440-66-6	1	0.820	4.00	1.31	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-102-20212302

21B0309-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/23/2021 13:38
Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 15:36

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0309-13 I
Preparation Batch: BJC0115 — Sample Size: 10 mL
Prepared: 03/04/2021 — 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 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*92.2*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.0*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-102-20212302

21B0309-13 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/23/2021 13:38
Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 15:36

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0309-13 I
Preparation Batch: BJC0115 — Sample Size: 10 mL
Prepared: 03/04/2021 — 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 %*	*92.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-102-20212302

21B0309-13 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/23/2021 13:38

Instrument: NT16 Analyst: PB — Analyzed: 03/03/2021 18:47

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0309-13 G

Preparation Batch: BJC0090 — Sample Size: 10 mL

Prepared: 03/03/2021 — 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 %*	*95.7*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*92.5*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*97.7*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-102-20212302

21B0309-13 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/23/2021 13:38
Instrument: NT11 Analyst: VTS — Analyzed: 03/18/2021 15:32

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJB0765; Prepared: 02/26/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21B0309-13 B 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJC0111; Cleaned: 10-Mar-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21B0309-13 B 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	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	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 %*	*71.1*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*61.2*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*72.3*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-102-20212302

21B0309-13 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/23/2021 13:38
Instrument: FID4 Analyst: CTO — Analyzed: 03/12/2021 03:46

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0309-13 D 01
Preparation Batch: BJC0012 — Sample Size: 500 mL
Prepared: 03/01/2021 — 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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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-102-20212302

21B0309-13 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/23/2021 13:38
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 22:45

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-13 A 01
Preparation Batch: BJC0224 — Sample Size: 25 mL
Prepared: 03/09/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	1	0.0850	0.500	9.26	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-102-20212302

21B0309-13 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/23/2021 13:38
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 22:45

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-13 A 01
Preparation Batch: BJC0224 — Sample Size: 25 mL
Prepared: 03/09/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	0.264	ug/L	
Copper	7440-50-8	1	0.340	0.500	1.19	ug/L	
Selenium	7782-49-2	1	0.440	0.500	0.763	ug/L	
Zinc	7440-66-6	1	0.820	4.00	0.967	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-102-20212302

21B0309-13RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/23/2021 13:38
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/15/2021 18:28

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-13RE1 A 02
Preparation Batch: BJC0342 — Sample Size: 25 mL
Prepared: 03/15/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nickel	7440-02-0	1	0.0500	0.500	4.75	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-102-20212302

21B0309-14 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/23/2021 13:38
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 23:30

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-14 A 02
Preparation Batch: BJC0235 — Sample Size: 25 mL — Filtration Batch: BJB0708
Prepared: 03/10/2021 — Final Volume: 25 mL — Filtration Date: 02/24/2021 15:30

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	1	0.0850	0.500	0.121	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-102-20212302

21B0309-14 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/23/2021 13:38
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 23:30

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-14 A 02
Preparation Batch: BJC0235 — Sample Size: 25 mL — Filtration Batch: BJB0708
Prepared: 03/10/2021 — Final Volume: 25 mL — Filtration Date: 02/24/2021 15:30

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	0.251	ug/L	
Copper, Dissolved	7440-50-8	1	0.340	0.500	0.875	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	3.59	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	0.674	ug/L	
Zinc, Dissolved	7440-66-6	1	0.820	4.00	0.829	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-7-20212302

21B0309-15 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/23/2021 14:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 22:49

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-15 A 01
Preparation Batch: BJC0224 — Sample Size: 25 mL
Prepared: 03/09/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	1	0.130	0.500	0.564	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

MW-7-20212302

21B0309-16 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/23/2021 14:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 21:30

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0309-16 A 02
Preparation Batch: BJC0235 — Sample Size: 25 mL — Filtration Batch: BJB0708
Prepared: 03/10/2021 — Final Volume: 25 mL — Filtration Date: 02/24/2021 15:30

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.130	0.500	0.436	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Volatile Organic Compounds - Quality Control

Batch BJC0115 - 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 (BJC0115-BLK1)				Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 11:52							
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							U
Surrogate: Toluene-d8	5.03			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.66			ug/L	*5.00*		*93.1*	*80-120*			
Blank (BJC0115-BLK2)				Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 11:52							
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	5.23			ug/L	*5.00*		*105*	*80-129*			
Surrogate: Toluene-d8	5.03			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.66			ug/L	*5.00*		*93.1*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.98			ug/L	*5.00*		*99.7*	*80-120*			
LCS (BJC0115-BS1)				Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 09:52							
Gasoline Range Organics (Tol-Nap)	962		100	ug/L	1000		96.2	72-128			
Surrogate: Toluene-d8	5.08			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.92			ug/L	*5.00*		*98.4*	*80-120*			
LCS (BJC0115-BS2)				Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 10:33							
Vinyl Chloride	9.95	0.08	0.20	ug/L	10.0		99.5	66-133			
1,1-Dichloroethene	11.2	0.08	0.20	ug/L	10.0		112	69-135			
trans-1,2-Dichloroethene	10.6	0.07	0.20	ug/L	10.0		106	78-128			
cis-1,2-Dichloroethene	9.90	0.08	0.20	ug/L	10.0		99.0	80-121			
Benzene	10.0	0.05	0.20	ug/L	10.0		100	80-120			
Trichloroethene	9.72	0.07	0.20	ug/L	10.0		97.2	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Volatile Organic Compounds - Quality Control

Batch BJC0115 - 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 (BJC0115-BS2)					Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 10:33						
Toluene	9.54	0.05	0.20	ug/L	10.0		95.4	80-120			
Tetrachloroethene	9.60	0.09	0.20	ug/L	10.0		96.0	80-120			
Ethylbenzene	9.45	0.05	0.20	ug/L	10.0		94.5	80-120			
m,p-Xylene	19.4	0.14	0.40	ug/L	20.0		97.1	80-121			
o-Xylene	9.56	0.08	0.20	ug/L	10.0		95.6	80-121			
Xylenes, total	29.0	0.22	0.60	ug/L	30.0		96.6	76-127			
Surrogate: 1,2-Dichloroethane-d4	5.20			ug/L	*5.00*		*104*	*80-129*			
Surrogate: Toluene-d8	5.07			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.99			ug/L	*5.00*		*99.8*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.96			ug/L	*5.00*		*99.2*	*80-120*			
LCS Dup (BJC0115-BSD1)					Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 10:13						
Gasoline Range Organics (Tol-Nap)	978		100	ug/L	1000		97.8	72-128	1.72	30	
Surrogate: Toluene-d8	5.09			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.96			ug/L	*5.00*		*99.2*	*80-120*			
LCS Dup (BJC0115-BSD2)					Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 10:53						
Vinyl Chloride	9.95	0.08	0.20	ug/L	10.0		99.5	66-133	0.03	30	
1,1-Dichloroethene	11.2	0.08	0.20	ug/L	10.0		112	69-135	0.12	30	
trans-1,2-Dichloroethene	10.4	0.07	0.20	ug/L	10.0		104	78-128	1.78	30	
cis-1,2-Dichloroethene	10.2	0.08	0.20	ug/L	10.0		102	80-121	2.88	30	
Benzene	10.1	0.05	0.20	ug/L	10.0		101	80-120	1.37	30	
Trichloroethene	9.86	0.07	0.20	ug/L	10.0		98.6	80-120	1.50	30	
Toluene	9.73	0.05	0.20	ug/L	10.0		97.3	80-120	2.02	30	
Tetrachloroethene	9.75	0.09	0.20	ug/L	10.0		97.5	80-120	1.51	30	
Ethylbenzene	9.66	0.05	0.20	ug/L	10.0		96.6	80-120	2.21	30	
m,p-Xylene	19.8	0.14	0.40	ug/L	20.0		99.2	80-121	2.17	30	
o-Xylene	9.82	0.08	0.20	ug/L	10.0		98.2	80-121	2.69	30	
Xylenes, total	29.7	0.22	0.60	ug/L	30.0		98.9	76-127	2.34	30	
Surrogate: 1,2-Dichloroethane-d4	5.14			ug/L	*5.00*		*103*	*80-129*			
Surrogate: Toluene-d8	4.99			ug/L	*5.00*		*99.7*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.97			ug/L	*5.00*		*99.4*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.99			ug/L	*5.00*		*99.7*	*80-120*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Volatile Organic Compounds - SIM - Quality Control

Batch BJC0090 - 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 (BJC0090-BLK1)					Prepared: 03-Mar-2021 Analyzed: 03-Mar-2021 12:15						
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	4520			ng/L	*5000*		*90.4*	*80-129*			
Surrogate: Toluene-d8	4680			ng/L	*5000*		*93.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4610			ng/L	*5000*		*92.2*	*75-125*			
LCS (BJC0090-BS1)					Prepared: 03-Mar-2021 Analyzed: 03-Mar-2021 10:37						
Vinyl chloride	1720	5.01	20.0	ng/L	2000		85.9	62-141			
Surrogate: 1,2-Dichloroethane-d4	4740			ng/L	*5000*		*94.7*	*80-129*			
Surrogate: Toluene-d8	4710			ng/L	*5000*		*94.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5240			ng/L	*5000*		*105*	*75-125*			
LCS Dup (BJC0090-BSD1)					Prepared: 03-Mar-2021 Analyzed: 03-Mar-2021 10:57						
Vinyl chloride	1860	5.01	20.0	ng/L	2000		92.8	62-141	7.66	30	
Surrogate: 1,2-Dichloroethane-d4	5050			ng/L	*5000*		*101*	*80-129*			
Surrogate: Toluene-d8	4990			ng/L	*5000*		*99.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5140			ng/L	*5000*		*103*	*75-125*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Semivolatile Organic Compounds - Quality Control

Batch BJB0763 - 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 (BJB0763-BLK1)				Prepared: 26-Feb-2021 Analyzed: 12-Mar-2021 13:01							
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 Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Semivolatile Organic Compounds - Quality Control

Batch BJB0763 - 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 (BJB0763-BLK1)				Prepared: 26-Feb-2021 Analyzed: 12-Mar-2021 13:01							
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	3.91			ug/L	*7.50*		*52.1*	*30-160*			
Surrogate: Phenol-d5	1.74			ug/L	*7.50*		*23.2*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	5.78			ug/L	*7.50*		*77.1*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.11			ug/L	*5.00*		*62.3*	*30-160*			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Semivolatile Organic Compounds - Quality Control

Batch BJB0763 - 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 (BJB0763-BLK1)				Prepared: 26-Feb-2021 Analyzed: 12-Mar-2021 13:01							
Surrogate: Nitrobenzene-d5	3.94			ug/L	*5.00*		*78.9*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.18			ug/L	*5.00*		*63.6*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.56			ug/L	*7.50*		*87.5*	*30-160*			
Surrogate: p-Terphenyl-d14	3.96			ug/L	*5.00*		*79.1*	*30-160*			
LCS (BJB0763-BS1)				Prepared: 26-Feb-2021 Analyzed: 12-Mar-2021 13:38							
Phenol	1.7	0.01	0.2	ug/L	5.00		33.0	30-160			
bis(2-chloroethyl) ether	4.1	0.03	0.2	ug/L	5.00		81.4	30-160			
2-Chlorophenol	3.6	0.03	0.2	ug/L	5.00		72.5	30-160			
1,3-Dichlorobenzene	3.1	0.03	0.2	ug/L	5.00		61.5	30-160			
1,4-Dichlorobenzene	3.0	0.03	0.2	ug/L	5.00		60.1	30-160			
1,2-Dichlorobenzene	3.0	0.03	0.2	ug/L	5.00		59.9	30-160			
Benzyl Alcohol	2.3	0.02	0.2	ug/L	5.00		45.5	30-160			
2,2'-Oxybis(1-chloropropane)	3.4	0.03	0.2	ug/L	5.00		68.1	30-160			
2-Methylphenol	2.7	0.03	0.2	ug/L	5.00		54.1	30-160			
Hexachloroethane	3.0	0.04	0.2	ug/L	5.00		60.2	30-160			
N-Nitroso-di-n-Propylamine	3.7	0.04	0.2	ug/L	5.00		73.8	30-160			
4-Methylphenol	2.6	0.03	0.2	ug/L	5.00		52.7	30-160			
Nitrobenzene	3.7	0.03	0.2	ug/L	5.00		74.6	30-160			
Isophorone	4.4	0.03	0.2	ug/L	5.00		88.6	30-160			
2-Nitrophenol	3.3	0.04	1.0	ug/L	5.00		65.1	30-160			
2,4-Dimethylphenol	8.3	0.3	1.0	ug/L	13.0		64.0	30-160			
Bis(2-Chloroethoxy)methane	3.6	0.03	0.2	ug/L	5.00		71.1	30-160			
2,4-Dichlorophenol	10.1	0.1	1.0	ug/L	13.0		77.6	30-160			
1,2,4-Trichlorobenzene	2.7	0.03	0.2	ug/L	5.00		54.7	30-160			
Naphthalene	3.1	0.03	0.2	ug/L	5.00		61.2	30-160			
Benzoic acid	8.6	0.1	2.0	ug/L	23.0		37.6	30-160			
4-Chloroaniline	2.2	0.04	1.0	ug/L	13.0		16.8	30-160			*
Hexachlorobutadiene	2.6	0.04	0.2	ug/L	5.00		51.6	30-160			
4-Chloro-3-Methylphenol	11.2	0.1	1.0	ug/L	13.0		86.1	30-160			
2-Methylnaphthalene	3.0	0.03	0.2	ug/L	5.00		60.9	30-160			
Hexachlorocyclopentadiene	7.0	0.1	1.0	ug/L	13.0		53.6	30-160			Q
2,4,6-Trichlorophenol	11.3	0.2	1.0	ug/L	13.0		86.6	30-160			
2,4,5-Trichlorophenol	11.4	0.1	1.0	ug/L	13.0		87.4	30-160			
2-Chloronaphthalene	3.8	0.03	0.2	ug/L	5.00		76.5	30-160			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Semivolatile Organic Compounds - Quality Control

Batch BJB0763 - 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 (BJB0763-BS1)				Prepared: 26-Feb-2021 Analyzed: 12-Mar-2021 13:38							
2-Nitroaniline	15.1	0.2	1.0	ug/L	13.0		116	30-160			
Acenaphthylene	3.3	0.02	0.2	ug/L	5.00		65.1	30-160			
Dimethylphthalate	3.7	0.04	0.2	ug/L	5.00		74.0	30-160			
2,6-Dinitrotoluene	12.8	0.2	1.0	ug/L	13.0		98.7	30-160			
Acenaphthene	3.5	0.03	0.2	ug/L	5.00		69.0	30-160			
3-Nitroaniline	11.2	0.2	1.0	ug/L	13.0		86.3	30-160			
2,4-Dinitrophenol	20.7	0.2	2.0	ug/L	23.0		89.9	30-160			
Dibenzofuran	3.4	0.02	0.2	ug/L	5.00		68.9	30-160			
4-Nitrophenol	4.7	0.06	1.0	ug/L	13.0		36.2	30-160			Q
2,4-Dinitrotoluene	14.3	0.1	1.0	ug/L	13.0		110	30-160			
Fluorene	2.9	0.02	0.2	ug/L	5.00		57.7	30-160			Q
4-Chlorophenylphenyl ether	3.0	0.02	0.2	ug/L	5.00		59.7	30-160			
Diethyl phthalate	3.6	0.06	0.2	ug/L	5.00		72.5	30-160			
4-Nitroaniline	13.9	0.2	1.0	ug/L	13.0		107	30-160			
4,6-Dinitro-2-methylphenol	25.5	0.4	2.0	ug/L	23.0		111	30-160			
N-Nitrosodiphenylamine	3.8	0.03	0.2	ug/L	5.00		75.9	30-160			
4-Bromophenyl phenyl ether	4.1	0.02	0.2	ug/L	5.00		82.2	30-160			
Hexachlorobenzene	3.9	0.04	0.2	ug/L	5.00		78.1	30-160			
Pentachlorophenol	7.8	0.1	1.0	ug/L	13.0		59.9	30-160			Q
Phenanthrene	4.1	0.02	0.2	ug/L	5.00		81.4	30-160			
Anthracene	4.0	0.03	0.2	ug/L	5.00		80.5	30-160			
Carbazole	4.3	0.04	0.2	ug/L	5.00		85.5	30-160			
Di-n-Butylphthalate	4.4	0.05	0.2	ug/L	5.00		88.9	30-160			
Fluoranthene	4.5	0.03	0.2	ug/L	5.00		89.4	30-160			
Pyrene	4.4	0.03	0.2	ug/L	5.00		87.5	30-160			
Butylbenzylphthalate	4.4	0.07	0.2	ug/L	5.00		87.2	30-160			
Benzo(a)anthracene	3.9	0.04	0.2	ug/L	5.00		78.0	30-160			
3,3'-Dichlorobenzidine	7.4	0.3	1.0	ug/L	8.00		92.5	30-160			
Chrysene	4.0	0.04	0.2	ug/L	5.00		79.1	30-160			
bis(2-Ethylhexyl)phthalate	4.0	0.2	0.2	ug/L	5.00		79.7	30-160			
Di-n-Octylphthalate	4.0	0.05	0.2	ug/L	5.00		80.5	30-160			
Benzofluoranthenes, Total	8.3	0.08	0.4	ug/L	10.0		82.6	30-160			
Benzo(a)pyrene	4.1	0.05	0.2	ug/L	5.00		81.6	30-160			
Indeno(1,2,3-cd)pyrene	4.0	0.06	0.2	ug/L	5.00		79.6	30-160			
Dibenzo(a,h)anthracene	4.1	0.07	0.2	ug/L	5.00		81.2	30-160			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Semivolatile Organic Compounds - Quality Control

Batch BJB0763 - 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 (BJB0763-BS1)					Prepared: 26-Feb-2021 Analyzed: 12-Mar-2021 13:38						
Benzo(g,h,i)perylene	4.2	0.04	0.2	ug/L	5.00		83.8	30-160			
1-Methylnaphthalene	3.2	0.03	0.2	ug/L	5.00		63.5	30-160			
Surrogate: 2-Fluorophenol	4.67			ug/L	*7.50*		*62.2*	*30-160*			
Surrogate: Phenol-d5	3.13			ug/L	*7.50*		*41.8*	*30-160*			
Surrogate: 2-Chlorophenol-d4	7.54			ug/L	*7.50*		*100*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.41			ug/L	*5.00*		*68.2*	*30-160*			
Surrogate: Nitrobenzene-d5	4.18			ug/L	*5.00*		*83.6*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.19			ug/L	*5.00*		*83.9*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.64			ug/L	*7.50*		*88.5*	*30-160*			
Surrogate: p-Terphenyl-d14	4.58			ug/L	*5.00*		*91.6*	*30-160*			
LCS Dup (BJB0763-BSD1)					Prepared: 26-Feb-2021 Analyzed: 12-Mar-2021 14:16						
Phenol	1.8	0.01	0.2	ug/L	5.00		35.6	30-160	7.37	30	
bis(2-chloroethyl) ether	4.8	0.03	0.2	ug/L	5.00		95.6	30-160	16.00	30	
2-Chlorophenol	4.1	0.03	0.2	ug/L	5.00		83.0	30-160	13.50	30	
1,3-Dichlorobenzene	3.7	0.03	0.2	ug/L	5.00		73.4	30-160	17.70	30	
1,4-Dichlorobenzene	3.7	0.03	0.2	ug/L	5.00		73.1	30-160	19.50	30	
1,2-Dichlorobenzene	3.6	0.03	0.2	ug/L	5.00		71.7	30-160	18.10	30	
Benzyl Alcohol	2.5	0.02	0.2	ug/L	5.00		49.7	30-160	8.82	30	
2,2'-Oxybis(1-chloropropane)	3.9	0.03	0.2	ug/L	5.00		77.6	30-160	13.00	30	
2-Methylphenol	3.0	0.03	0.2	ug/L	5.00		60.5	30-160	11.00	30	
Hexachloroethane	3.5	0.04	0.2	ug/L	5.00		70.4	30-160	15.60	30	
N-Nitroso-di-n-Propylamine	4.2	0.04	0.2	ug/L	5.00		84.2	30-160	13.10	30	
4-Methylphenol	2.8	0.03	0.2	ug/L	5.00		56.4	30-160	6.80	30	
Nitrobenzene	4.2	0.03	0.2	ug/L	5.00		83.4	30-160	11.20	30	
Isophorone	4.9	0.03	0.2	ug/L	5.00		98.0	30-160	9.99	30	
2-Nitrophenol	3.5	0.04	1.0	ug/L	5.00		70.5	30-160	7.92	30	
2,4-Dimethylphenol	9.1	0.3	1.0	ug/L	13.0		69.9	30-160	8.88	30	
Bis(2-Chloroethoxy)methane	3.9	0.03	0.2	ug/L	5.00		77.5	30-160	8.59	30	
2,4-Dichlorophenol	10.7	0.1	1.0	ug/L	13.0		82.6	30-160	6.26	30	
1,2,4-Trichlorobenzene	3.2	0.03	0.2	ug/L	5.00		64.6	30-160	16.50	30	
Naphthalene	3.7	0.03	0.2	ug/L	5.00		73.4	30-160	18.10	30	
Benzoic acid	8.5	0.1	2.0	ug/L	23.0		36.9	30-160	1.91	30	
4-Chloroaniline	1.4	0.04	1.0	ug/L	13.0		10.9	30-160	42.00	30	*
Hexachlorobutadiene	3.1	0.04	0.2	ug/L	5.00		62.3	30-160	18.80	30	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Semivolatile Organic Compounds - Quality Control

Batch BJB0763 - 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 (BJB0763-BSD1)					Prepared: 26-Feb-2021 Analyzed: 12-Mar-2021 14:16						
4-Chloro-3-Methylphenol	12.1	0.1	1.0	ug/L	13.0		93.0	30-160	7.69	30	
2-Methylnaphthalene	3.4	0.03	0.2	ug/L	5.00		68.1	30-160	11.20	30	
Hexachlorocyclopentadiene	7.6	0.1	1.0	ug/L	13.0		58.2	30-160	8.31	30	Q
2,4,6-Trichlorophenol	12.2	0.2	1.0	ug/L	13.0		94.0	30-160	8.22	30	
2,4,5-Trichlorophenol	12.9	0.1	1.0	ug/L	13.0		99.0	30-160	12.50	30	
2-Chloronaphthalene	4.4	0.03	0.2	ug/L	5.00		87.7	30-160	13.60	30	
2-Nitroaniline	16.2	0.2	1.0	ug/L	13.0		124	30-160	6.71	30	
Acenaphthylene	3.7	0.02	0.2	ug/L	5.00		74.8	30-160	13.90	30	
Dimethylphthalate	4.3	0.04	0.2	ug/L	5.00		85.9	30-160	14.90	30	
2,6-Dinitrotoluene	14.1	0.2	1.0	ug/L	13.0		108	30-160	9.46	30	
Acenaphthene	4.1	0.03	0.2	ug/L	5.00		81.1	30-160	16.00	30	
3-Nitroaniline	11.2	0.2	1.0	ug/L	13.0		86.0	30-160	0.31	30	
2,4-Dinitrophenol	22.9	0.2	2.0	ug/L	23.0		99.6	30-160	10.20	30	
Dibenzofuran	4.0	0.02	0.2	ug/L	5.00		79.4	30-160	14.20	30	
4-Nitrophenol	5.1	0.06	1.0	ug/L	13.0		39.6	30-160	9.00	30	Q
2,4-Dinitrotoluene	15.7	0.1	1.0	ug/L	13.0		121	30-160	9.67	30	
Fluorene	3.3	0.02	0.2	ug/L	5.00		65.9	30-160	13.30	30	Q
4-Chlorophenylphenyl ether	3.4	0.02	0.2	ug/L	5.00		67.6	30-160	12.40	30	
Diethyl phthalate	4.3	0.06	0.2	ug/L	5.00		85.6	30-160	16.50	30	
4-Nitroaniline	15.6	0.2	1.0	ug/L	13.0		120	30-160	11.50	30	
4,6-Dinitro-2-methylphenol	28.3	0.4	2.0	ug/L	23.0		123	30-160	10.40	30	
N-Nitrosodiphenylamine	4.4	0.03	0.2	ug/L	5.00		87.6	30-160	14.40	30	
4-Bromophenyl phenyl ether	4.6	0.02	0.2	ug/L	5.00		92.2	30-160	11.40	30	
Hexachlorobenzene	4.5	0.04	0.2	ug/L	5.00		90.0	30-160	14.20	30	
Pentachlorophenol	8.8	0.1	1.0	ug/L	13.0		67.8	30-160	12.40	30	Q
Phenanthrene	4.8	0.02	0.2	ug/L	5.00		95.5	30-160	15.90	30	
Anthracene	4.7	0.03	0.2	ug/L	5.00		93.6	30-160	15.00	30	
Carbazole	4.7	0.04	0.2	ug/L	5.00		94.7	30-160	10.20	30	
Di-n-Butylphthalate	5.1	0.05	0.2	ug/L	5.00		102	30-160	13.20	30	
Fluoranthene	4.9	0.03	0.2	ug/L	5.00		98.1	30-160	9.18	30	
Pyrene	4.7	0.03	0.2	ug/L	5.00		95.0	30-160	8.16	30	
Butylbenzylphthalate	4.8	0.07	0.2	ug/L	5.00		96.4	30-160	10.00	30	
Benzo(a)anthracene	4.3	0.04	0.2	ug/L	5.00		86.0	30-160	9.68	30	
3,3'-Dichlorobenzidine	7.2	0.3	1.0	ug/L	8.00		89.6	30-160	3.29	30	
Chrysene	4.5	0.04	0.2	ug/L	5.00		90.7	30-160	13.60	30	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Semivolatile Organic Compounds - Quality Control

Batch BJB0763 - 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 (BJB0763-BSD1)					Prepared: 26-Feb-2021 Analyzed: 12-Mar-2021 14:16						
bis(2-Ethylhexyl)phthalate	4.9	0.2	0.2	ug/L	5.00		97.2	30-160	19.80	30	
Di-n-Octylphthalate	4.7	0.05	0.2	ug/L	5.00		93.3	30-160	14.70	30	
Benzofluoranthenes, Total	9.4	0.08	0.4	ug/L	10.0		94.4	30-160	13.40	30	
Benzo(a)pyrene	4.6	0.05	0.2	ug/L	5.00		92.9	30-160	12.90	30	
Indeno(1,2,3-cd)pyrene	4.6	0.06	0.2	ug/L	5.00		93.0	30-160	15.50	30	
Dibenzo(a,h)anthracene	4.8	0.07	0.2	ug/L	5.00		96.2	30-160	16.90	30	
Benzo(g,h,i)perylene	4.8	0.04	0.2	ug/L	5.00		96.0	30-160	13.60	30	
1-Methylnaphthalene	3.6	0.03	0.2	ug/L	5.00		71.5	30-160	11.90	30	
Surrogate: 2-Fluorophenol	4.85			ug/L	*7.50*		*64.7*	*30-160*			
Surrogate: Phenol-d5	2.99			ug/L	*7.50*		*39.8*	*30-160*			
Surrogate: 2-Chlorophenol-d4	7.15			ug/L	*7.50*		*95.3*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.58			ug/L	*5.00*		*71.7*	*30-160*			
Surrogate: Nitrobenzene-d5	4.29			ug/L	*5.00*		*85.8*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.28			ug/L	*5.00*		*85.7*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.75			ug/L	*7.50*		*90.1*	*30-160*			
Surrogate: p-Terphenyl-d14	4.67			ug/L	*5.00*		*93.4*	*30-160*			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0765 - 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 (BJB0765-BLK1)				Prepared: 26-Feb-2021 Analyzed: 18-Mar-2021 09:34							
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	0.237			ug/L	*0.300*		*79.2*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.154			ug/L	*0.300*		*51.3*	*29-120*			
Surrogate: Fluoranthene-d10	0.239			ug/L	*0.300*		*79.6*	*57-120*			
LCS (BJB0765-BS1)				Prepared: 26-Feb-2021 Analyzed: 18-Mar-2021 10:07							
Naphthalene	0.212	0.001	0.010	ug/L	0.300		70.8	37-120			
2-Methylnaphthalene	0.230	0.001	0.010	ug/L	0.300		76.8	37-120			
1-Methylnaphthalene	0.235	0.0009	0.010	ug/L	0.300		78.3	29-120			
Acenaphthylene	0.185	0.002	0.010	ug/L	0.300		61.7	41-120			
Acenaphthene	0.195	0.003	0.010	ug/L	0.300		64.9	41-120			
Dibenzofuran	0.199	0.002	0.010	ug/L	0.300		66.2	38-120			
Fluorene	0.211	0.002	0.010	ug/L	0.300		70.5	43-120			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0765 - 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 (BJB0765-BS1)					Prepared: 26-Feb-2021 Analyzed: 18-Mar-2021 10:07						
Phenanthrene	0.228	0.001	0.010	ug/L	0.300		76.0	41-120			
Anthracene	0.199	0.001	0.010	ug/L	0.300		66.5	40-120			
Carbazole	0.226	0.001	0.010	ug/L	0.300		75.4	30-160			
Fluoranthene	0.238	0.002	0.010	ug/L	0.300		79.4	45-120			
Pyrene	0.235	0.001	0.010	ug/L	0.300		78.3	41-120			
Benzo(a)anthracene	0.205	0.0008	0.010	ug/L	0.300		68.3	42-120			
Chrysene	0.230	0.0009	0.010	ug/L	0.300		76.7	44-120			
Benzo(b)fluoranthene	0.198	0.0005	0.010	ug/L	0.300		66.1	44-120			
Benzo(k)fluoranthene	0.229	0.003	0.010	ug/L	0.300		76.4	50-120			
Benzo(j)fluoranthene	0.310	0.002	0.010	ug/L	0.300		103	39-160			
Benzofluoranthenes, Total	0.738	0.004	0.010	ug/L	0.900		82.0	46-120			
Benzo(a)pyrene	0.204	0.002	0.010	ug/L	0.300		67.9	35-120			
Perylene	0.184	0.006	0.010	ug/L	0.300		61.3	30-160			
Indeno(1,2,3-cd)pyrene	0.220	0.001	0.010	ug/L	0.300		73.4	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	0.222	0.001	0.010	ug/L	0.300		73.9	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.237			ug/L	*0.300*		*78.9*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.189			ug/L	*0.300*		*63.0*	*29-120*			
Surrogate: Fluoranthene-d10	0.233			ug/L	*0.300*		*77.7*	*57-120*			
LCS Dup (BJB0765-BSD1)					Prepared: 26-Feb-2021 Analyzed: 18-Mar-2021 10:39						
Naphthalene	0.219	0.001	0.010	ug/L	0.300		73.2	37-120	3.28	30	
2-Methylnaphthalene	0.241	0.001	0.010	ug/L	0.300		80.5	37-120	4.69	30	
1-Methylnaphthalene	0.244	0.0009	0.010	ug/L	0.300		81.3	29-120	3.71	30	
Acenaphthylene	0.197	0.002	0.010	ug/L	0.300		65.5	41-120	6.06	30	
Acenaphthene	0.208	0.003	0.010	ug/L	0.300		69.2	41-120	6.46	30	
Dibenzofuran	0.211	0.002	0.010	ug/L	0.300		70.2	38-120	5.86	30	
Fluorene	0.225	0.002	0.010	ug/L	0.300		74.9	43-120	6.12	30	
Phenanthrene	0.248	0.001	0.010	ug/L	0.300		82.8	41-120	8.51	30	
Anthracene	0.222	0.001	0.010	ug/L	0.300		73.9	40-120	10.60	30	
Carbazole	0.244	0.001	0.010	ug/L	0.300		81.3	30-160	7.44	30	
Fluoranthene	0.261	0.002	0.010	ug/L	0.300		86.9	45-120	8.95	30	
Pyrene	0.258	0.001	0.010	ug/L	0.300		85.9	41-120	9.29	30	
Benzo(a)anthracene	0.220	0.0008	0.010	ug/L	0.300		73.3	42-120	7.07	30	
Chrysene	0.249	0.0009	0.010	ug/L	0.300		83.1	44-120	7.98	30	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0765 - 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 (BJB0765-BSD1)					Prepared: 26-Feb-2021 Analyzed: 18-Mar-2021 10:39						
Benzo(b)fluoranthene	0.217	0.0005	0.010	ug/L	0.300		72.2	44-120	8.74	30	
Benzo(k)fluoranthene	0.247	0.003	0.010	ug/L	0.300		82.4	50-120	7.62	30	
Benzo(j)fluoranthene	0.341	0.002	0.010	ug/L	0.300		114	39-160	9.39	30	
Benzofluoranthenes, Total	0.805	0.004	0.010	ug/L	0.900		89.4	46-120	8.67	30	
Benzo(a)pyrene	0.229	0.002	0.010	ug/L	0.300		76.4	35-120	11.80	30	
Perylene	0.208	0.006	0.010	ug/L	0.300		69.3	30-160	12.20	30	
Indeno(1,2,3-cd)pyrene	0.241	0.001	0.010	ug/L	0.300		80.3	37-120	8.97	30	
Dibenzo(a,h)anthracene	0.220	0.001	0.010	ug/L	0.300		73.4	34-120	8.57	30	
Benzo(g,h,i)perylene	0.241	0.001	0.010	ug/L	0.300		80.4	38-120	8.31	30	
Surrogate: 2-Methylnaphthalene-d10	0.249			ug/L	*0.300*		*83.0*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.203			ug/L	*0.300*		*67.6*	*29-120*			
Surrogate: Fluoranthene-d10	0.257			ug/L	*0.300*		*85.5*	*57-120*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Petroleum Hydrocarbons - Quality Control

Batch BJC0012 - 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 (BJC0012-BLK1)				Prepared: 01-Mar-2021	Analyzed: 11-Mar-2021 21:31					
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	0.243		mg/L	*0.225*		*108*	*50-150*			
LCS (BJC0012-BS1)				Prepared: 01-Mar-2021	Analyzed: 11-Mar-2021 21:52					
Diesel Range Organics (C12-C24)	3.04	0.100	mg/L	3.00		101	56-120			
Surrogate: o-Terphenyl	0.256		mg/L	*0.225*		*114*	*50-150*			
LCS Dup (BJC0012-BSD1)				Prepared: 01-Mar-2021	Analyzed: 11-Mar-2021 22:13					
Diesel Range Organics (C12-C24)	3.26	0.100	mg/L	3.00		109	56-120	7.07	30	
Surrogate: o-Terphenyl	0.268		mg/L	*0.225*		*119*	*50-150*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Aroclor PCB - Quality Control

Batch BJC0031 - 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 (BJC0031-BLK1)				Prepared: 02-Mar-2021 Analyzed: 13-Mar-2021 13:37							
Aroclor 1016	ND	0.018	0.100	ug/L							U
Aroclor 1221	ND	0.018	0.100	ug/L							U
Aroclor 1232	ND	0.018	0.100	ug/L							U
Aroclor 1242	ND	0.018	0.100	ug/L							U
Aroclor 1248	ND	0.018	0.100	ug/L							U
Aroclor 1254	ND	0.018	0.100	ug/L							U
Aroclor 1260	ND	0.017	0.100	ug/L							U
Surrogate: Decachlorobiphenyl	0.0451			ug/L	*0.0800*		*56.4*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0441			ug/L	*0.0800*		*55.1*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0478			ug/L	*0.0800*		*59.7*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0379			ug/L	*0.0800*		*47.4*	*39-120*			
LCS (BJC0031-BS1)				Prepared: 02-Mar-2021 Analyzed: 13-Mar-2021 13:57							
Aroclor 1016	0.668	0.018	0.100	ug/L	1.00		66.8	51-120			
Aroclor 1260 [2C]	0.720	0.017	0.100	ug/L	1.00		72.0	56-120			
Surrogate: Decachlorobiphenyl	0.0480			ug/L	*0.0800*		*60.0*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0531			ug/L	*0.0800*		*66.4*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0506			ug/L	*0.0800*		*63.2*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0409			ug/L	*0.0800*		*51.1*	*39-120*			
LCS Dup (BJC0031-BSD1)				Prepared: 02-Mar-2021 Analyzed: 13-Mar-2021 14:18							
Aroclor 1016	0.669	0.018	0.100	ug/L	1.00		66.9	51-120	0.08	30	
Aroclor 1260 [2C]	0.734	0.017	0.100	ug/L	1.00		73.4	56-120	1.86	30	
Surrogate: Decachlorobiphenyl	0.0505			ug/L	*0.0800*		*63.1*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0488			ug/L	*0.0800*		*61.0*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0527			ug/L	*0.0800*		*65.9*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0413			ug/L	*0.0800*		*51.6*	*39-120*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Metals and Metallic Compounds - Quality Control

Batch BJC0219 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0219-BLK1)					Prepared: 09-Mar-2021	Analyzed: 10-Mar-2021 09:54					
Mercury	ND	0.000013	0.000100	mg/L							U
LCS (BJC0219-BS1)					Prepared: 09-Mar-2021	Analyzed: 10-Mar-2021 09:56					
Mercury	0.00205	0.000013	0.000100	mg/L	0.00200		102	80-120			
Duplicate (BJC0219-DUP1)		**Source: 21B0309-03**			Prepared: 09-Mar-2021	Analyzed: 10-Mar-2021 10:01					
Mercury	ND	0.000013	0.000100	mg/L		ND					U
Matrix Spike (BJC0219-MS1)		**Source: 21B0309-03**			Prepared: 09-Mar-2021	Analyzed: 10-Mar-2021 10:03					
Mercury	0.00124	0.000013	0.000100	mg/L	0.00100	ND	124	75-125			

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

Matrix Spike Dup (BJC0219-MSD1)		**Source: 21B0309-03**			Prepared: 09-Mar-2021	Analyzed: 10-Mar-2021 10:05					
Mercury	0.00124	0.000013	0.000100	mg/L	0.00100	ND	124	75-125	0.06	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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Metals and Metallic Compounds - Quality Control

Batch BJC0224 - 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 (BJC0224-BLK1)					Prepared: 09-Mar-2021 Analyzed: 10-Mar-2021 15:07							
Barium	135	ND	0.0560	0.500	ug/L							U
Barium	137	ND	0.0530	0.500	ug/L							U
Chromium	52	0.149	0.130	0.500	ug/L							J
Chromium	53	0.0770	0.0700	0.500	ug/L							J
Manganese	55	ND	0.0850	0.500	ug/L							U
Silver	107	ND	0.0170	0.200	ug/L							U
Vanadium	51a	ND	0.0400	0.200	ug/L							U
Vanadium	51b	ND	0.0160	0.200	ug/L							U
Blank (BJC0224-BLK2)					Prepared: 09-Mar-2021 Analyzed: 11-Mar-2021 14:40							
Iron	54	ND	6.27	20.0	ug/L							U
Iron	57	ND	1.40	20.0	ug/L							U
Lead	208	ND	0.0680	0.100	ug/L							U
Arsenic	75a	ND	0.0220	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	0.340	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	0.597	0.0500	0.500	ug/L							
Nickel	62	0.601	0.220	0.500	ug/L							
Selenium	78	ND	0.440	0.500	ug/L							U
Zinc	66	ND	0.820	4.00	ug/L							U
Zinc	67	ND	0.940	4.00	ug/L							U
Blank (BJC0224-BLK3)					Prepared: 09-Mar-2021 Analyzed: 12-Mar-2021 18:36							
Cobalt	59	ND	0.0290	0.200	ug/L							U
LCS (BJC0224-BS1)					Prepared: 09-Mar-2021 Analyzed: 10-Mar-2021 15:11							
Barium	135	25.1	0.0560	0.500	ug/L	25.0		101	80-120			
Barium	137	24.8	0.0530	0.500	ug/L	25.0		99.2	80-120			
Chromium	52	25.3	0.130	0.500	ug/L	25.0		101	80-120			
Chromium	53	25.0	0.0700	0.500	ug/L	25.0		99.9	80-120			
Manganese	55	26.2	0.0850	0.500	ug/L	25.0		105	80-120			
Silver	107	24.8	0.0170	0.200	ug/L	25.0		99.0	80-120			
Vanadium	51a	25.5	0.0400	0.200	ug/L	25.0		102	80-120			
Vanadium	51b	25.4	0.0160	0.200	ug/L	25.0		102	80-120			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Metals and Metallic Compounds - Quality Control

Batch BJC0224 - 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 (BJC0224-BS1)						Prepared: 09-Mar-2021 Analyzed: 10-Mar-2021 15:11						
LCS (BJC0224-BS2)						Prepared: 09-Mar-2021 Analyzed: 11-Mar-2021 14:45						
Iron	54	4910	6.27	20.0	ug/L	5000		98.2	80-120			
Iron	57	4850	1.40	20.0	ug/L	5000		96.9	80-120			
Lead	208	27.2	0.0680	0.100	ug/L	25.0		109	80-120			
Arsenic	75a	25.3	0.0220	0.200	ug/L	25.0		101	80-120			
Cadmium	111	25.5	0.0300	0.100	ug/L	25.0		102	80-120			
Cadmium	114	25.6	0.0400	0.100	ug/L	25.0		102	80-120			
Copper	63	26.2	0.340	0.500	ug/L	25.0		105	80-120			
Copper	65	25.9	0.350	0.500	ug/L	25.0		104	80-120			
Nickel	60	26.1	0.0500	0.500	ug/L	25.0		104	80-120			B
Nickel	62	26.0	0.220	0.500	ug/L	25.0		104	80-120			B
Selenium	78	80.1	0.440	0.500	ug/L	80.0		100	80-120			
Zinc	66	84.2	0.820	4.00	ug/L	80.0		105	80-120			
Zinc	67	80.7	0.940	4.00	ug/L	80.0		101	80-120			
LCS (BJC0224-BS3)						Prepared: 09-Mar-2021 Analyzed: 12-Mar-2021 18:40						
Cobalt	59	26.4	0.0290	0.200	ug/L	25.0		106	80-120			
Duplicate (BJC0224-DUP1)			**Source: 21B0309-15**			Prepared: 09-Mar-2021 Analyzed: 11-Mar-2021 01:50						
Barium	135	4.15	0.0560	0.500	ug/L		4.08			1.78	20	
Cobalt	59	0.186	0.0290	0.200	ug/L		0.145			24.80	20	L, J
Silver	107	ND	0.0170	0.200	ug/L		ND					U
Arsenic	75a	0.220	0.0220	0.200	ug/L		0.208			5.61	20	
Cadmium	111	ND	0.0300	0.100	ug/L		ND					U
Copper	63	1.71	0.340	0.500	ug/L		1.71			0.18	20	
Nickel	60	1.50	0.0500	0.500	ug/L		1.44			4.14	20	B
Selenium	78	ND	0.440	0.500	ug/L		ND					U
Zinc	66	1.29	0.820	4.00	ug/L		1.15			11.60	20	J
Duplicate (BJC0224-DUP2)			**Source: 21B0309-15**			Prepared: 09-Mar-2021 Analyzed: 11-Mar-2021 22:54						
Chromium	52	0.565	0.130	0.500	ug/L		0.564			0.18	20	
Lead	208	ND	0.0680	0.100	ug/L		0.0730					U
Manganese	55	15.6	0.0850	0.500	ug/L		12.8			19.60	20	
Duplicate (BJC0224-DUP3)			**Source: 21B0309-15**			Prepared: 09-Mar-2021 Analyzed: 12-Mar-2021 22:22						

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Metals and Metallic Compounds - Quality Control

Batch BJC0224 - 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
Duplicate (BJC0224-DUP3)			**Source: 21B0309-15**		Prepared: 09-Mar-2021		Analyzed: 12-Mar-2021 22:22					
Iron	54	111	6.27	20.0	ug/L		85.6			26.30	20	*
Vanadium	51a	1.21	0.0400	0.200	ug/L		1.09			10.40	20	
Matrix Spike (BJC0224-MS1)			**Source: 21B0309-15**		Prepared: 09-Mar-2021		Analyzed: 11-Mar-2021 01:55					
Barium	135	28.5	0.0560	0.500	ug/L	25.0	4.08	97.6	75-125			
Cobalt	59	26.9	0.0290	0.200	ug/L	25.0	0.145	107	75-125			
Silver	107	25.0	0.0170	0.200	ug/L	25.0	ND	100	75-125			
Arsenic	75a	24.9	0.0220	0.200	ug/L	25.0	0.208	98.7	75-125			
Cadmium	111	25.6	0.0300	0.100	ug/L	25.0	ND	102	75-125			
Copper	63	28.4	0.340	0.500	ug/L	25.0	1.71	107	75-125			
Nickel	60	28.3	0.0500	0.500	ug/L	25.0	1.44	108	75-125			B
Selenium	78	75.5	0.440	0.500	ug/L	80.0	ND	94.4	75-125			
Zinc	66	79.1	0.820	4.00	ug/L	80.0	1.15	97.4	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BJC0224-MS2)			**Source: 21B0309-15**		Prepared: 09-Mar-2021		Analyzed: 11-Mar-2021 22:59					
Chromium	52	22.4	0.130	0.500	ug/L	25.0	0.564	87.4	75-125			
Lead	208	29.4	0.0680	0.100	ug/L	25.0	0.0730	117	75-125			
Manganese	55	38.5	0.0850	0.500	ug/L	25.0	12.8	103	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BJC0224-MS3)			**Source: 21B0309-15**		Prepared: 09-Mar-2021		Analyzed: 12-Mar-2021 22:26					
Iron	54	4580	6.27	20.0	ug/L	5000	85.6	90.0	75-125			
Vanadium	51a	24.8	0.0400	0.200	ug/L	25.0	1.09	94.9	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0224-MSD1)			**Source: 21B0309-15**		Prepared: 09-Mar-2021		Analyzed: 11-Mar-2021 02:01					
Barium	135	28.5	0.0560	0.500	ug/L	25.0	4.08	97.6	75-125	0.02	20	
Cobalt	59	26.6	0.0290	0.200	ug/L	25.0	0.145	106	75-125	0.82	20	
Silver	107	24.8	0.0170	0.200	ug/L	25.0	ND	99.2	75-125	1.01	20	
Arsenic	75a	24.6	0.0220	0.200	ug/L	25.0	0.208	97.4	75-125	1.35	20	
Cadmium	111	25.2	0.0300	0.100	ug/L	25.0	ND	101	75-125	1.28	20	
Copper	63	28.0	0.340	0.500	ug/L	25.0	1.71	105	75-125	1.45	20	
Nickel	60	27.7	0.0500	0.500	ug/L	25.0	1.44	105	75-125	2.28	20	B
Selenium	78	74.5	0.440	0.500	ug/L	80.0	ND	93.1	75-125	1.34	20	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Metals and Metallic Compounds - Quality Control

Batch BJC0224 - 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 (BJC0224-MSD1)			**Source: 21B0309-15**			Prepared: 09-Mar-2021		Analyzed: 11-Mar-2021 02:01				
Zinc	66	79.2	0.820	4.00	ug/L	80.0	1.15	97.6	75-125	0.22	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0224-MSD2)			**Source: 21B0309-15**			Prepared: 09-Mar-2021		Analyzed: 11-Mar-2021 23:05				
Chromium	52	22.8	0.130	0.500	ug/L	25.0	0.564	88.8	75-125	1.56	20	
Lead	208	29.1	0.0680	0.100	ug/L	25.0	0.0730	116	75-125	0.99	20	
Manganese	55	38.8	0.0850	0.500	ug/L	25.0	12.8	104	75-125	0.77	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0224-MSD3)			**Source: 21B0309-15**			Prepared: 09-Mar-2021		Analyzed: 12-Mar-2021 22:32				
Iron	54	4580	6.27	20.0	ug/L	5000	85.6	89.9	75-125	0.01	20	
Vanadium	51a	24.8	0.0400	0.200	ug/L	25.0	1.09	94.8	75-125	0.18	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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Metals and Metallic Compounds - Quality Control

Batch BJC0342 - 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 (BJC0342-BLK1)					Prepared: 15-Mar-2021 Analyzed: 15-Mar-2021 17:41							
Nickel	60	ND	0.0500	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
LCS (BJC0342-BS1)					Prepared: 15-Mar-2021 Analyzed: 15-Mar-2021 17:45							
Nickel	60	25.7	0.0500	0.500	ug/L	25.0		103	80-120			
Nickel	62	26.0	0.220	0.500	ug/L	25.0		104	80-120			
Duplicate (BJC0342-DUP1)			**Source: 21B0309-07RE1**		Prepared: 15-Mar-2021 Analyzed: 15-Mar-2021 20:24							
Nickel	60	0.710	0.0500	0.500	ug/L		0.700			1.42	20	
Matrix Spike (BJC0342-MS1)			**Source: 21B0309-07RE1**		Prepared: 15-Mar-2021 Analyzed: 15-Mar-2021 20:32							
Nickel	60	27.5	0.0500	0.500	ug/L	25.0	0.700	107	75-125			

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

Matrix Spike Dup (BJC0342-MSD1)			**Source: 21B0309-07RE1**		Prepared: 15-Mar-2021 Analyzed: 15-Mar-2021 20:40							
Nickel	60	27.6	0.0500	0.500	ug/L	25.0	0.700	108	75-125	0.56	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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0221 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0221-BLK1)					Prepared: 09-Mar-2021	Analyzed: 10-Mar-2021 10:40					
Mercury, Dissolved	0.000023	0.000013	0.000100	mg/L							J
LCS (BJC0221-BS1)					Prepared: 09-Mar-2021	Analyzed: 10-Mar-2021 10:47					
Mercury, Dissolved	0.00206	0.000013	0.000100	mg/L	0.00200		103	80-120			
Duplicate (BJC0221-DUP1)		**Source: 21B0309-06**			Prepared: 09-Mar-2021	Analyzed: 10-Mar-2021 10:52					
Mercury, Dissolved	ND	0.000013	0.000100	mg/L		ND					U
Matrix Spike (BJC0221-MS1)		**Source: 21B0309-06**			Prepared: 09-Mar-2021	Analyzed: 10-Mar-2021 10:54					
Mercury, Dissolved	0.00110	0.000013	0.000100	mg/L	0.00100	ND	110	75-125			

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

Matrix Spike Dup (BJC0221-MSD1)		**Source: 21B0309-06**			Prepared: 09-Mar-2021	Analyzed: 10-Mar-2021 10:56					
Mercury, Dissolved	0.00115	0.000013	0.000100	mg/L	0.00100	ND	115	75-125	4.86	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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0235 - 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 (BJC0235-BLK1)					Prepared: 10-Mar-2021 Analyzed: 10-Mar-2021 21:41							
Chromium, Dissolved	52	ND	0.130	0.500	ug/L							U
Chromium, Dissolved	53	0.0850	0.0700	0.500	ug/L							J
Cobalt, Dissolved	59	ND	0.0290	0.200	ug/L							U
Manganese, Dissolved	55	ND	0.0850	0.500	ug/L							U
Silver, Dissolved	107	ND	0.0170	0.200	ug/L							U
Vanadium, Dissolved	51a	ND	0.0400	0.200	ug/L							U
Vanadium, Dissolved	51b	ND	0.0160	0.200	ug/L							U
Arsenic, Dissolved	75a	ND	0.0220	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	0.340	0.500	ug/L							U
Copper, Dissolved	65	ND	0.350	0.500	ug/L							U
Nickel, Dissolved	60	ND	0.0500	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
Selenium, Dissolved	78	ND	0.440	0.500	ug/L							U
Zinc, Dissolved	66	ND	0.820	4.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	4.00	ug/L							U
Blank (BJC0235-BLK2)					Prepared: 10-Mar-2021 Analyzed: 11-Mar-2021 19:32							
Lead, Dissolved	208	ND	0.0680	0.100	ug/L							U
Blank (BJC0235-BLK3)					Prepared: 10-Mar-2021 Analyzed: 12-Mar-2021 18:44							
Barium, Dissolved	135	ND	0.0560	0.500	ug/L							U
Barium, Dissolved	137	ND	0.0530	0.500	ug/L							U
Iron, Dissolved	54	9.59	6.27	20.0	ug/L							J
Iron, Dissolved	57	3.62	1.40	20.0	ug/L							J
LCS (BJC0235-BS1)					Prepared: 10-Mar-2021 Analyzed: 10-Mar-2021 21:45							
Chromium, Dissolved	52	24.1	0.130	0.500	ug/L	25.0		96.3	80-120			
Cobalt, Dissolved	59	25.5	0.0290	0.200	ug/L	25.0		102	80-120			
Chromium, Dissolved	53	24.2	0.0700	0.500	ug/L	25.0		96.7	80-120			
Manganese, Dissolved	55	25.5	0.0850	0.500	ug/L	25.0		102	80-120			
Silver, Dissolved	107	25.9	0.0170	0.200	ug/L	25.0		104	80-120			
Vanadium, Dissolved	51a	24.3	0.0400	0.200	ug/L	25.0		97.2	80-120			
Vanadium, Dissolved	51b	24.3	0.0160	0.200	ug/L	25.0		97.2	80-120			
Arsenic, Dissolved	75a	23.8	0.0220	0.200	ug/L	25.0		95.3	80-120			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0235 - 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 (BJC0235-BS1)						Prepared: 10-Mar-2021 Analyzed: 10-Mar-2021 21:45						
Cadmium, Dissolved	111	25.9	0.0300	0.100	ug/L	25.0		104	80-120			
Cadmium, Dissolved	114	26.6	0.0400	0.100	ug/L	25.0		106	80-120			
Copper, Dissolved	63	26.0	0.340	0.500	ug/L	25.0		104	80-120			
Copper, Dissolved	65	26.1	0.350	0.500	ug/L	25.0		105	80-120			
Nickel, Dissolved	60	25.9	0.0500	0.500	ug/L	25.0		104	80-120			
Nickel, Dissolved	62	26.0	0.220	0.500	ug/L	25.0		104	80-120			
Selenium, Dissolved	78	74.2	0.440	0.500	ug/L	80.0		92.7	80-120			
Zinc, Dissolved	66	79.0	0.820	4.00	ug/L	80.0		98.8	80-120			
Zinc, Dissolved	67	74.5	0.940	4.00	ug/L	80.0		93.1	80-120			
LCS (BJC0235-BS2)						Prepared: 10-Mar-2021 Analyzed: 11-Mar-2021 19:36						
Lead, Dissolved	208	27.8	0.0680	0.100	ug/L	25.0		111	80-120			
LCS (BJC0235-BS3)						Prepared: 10-Mar-2021 Analyzed: 12-Mar-2021 18:49						
Barium, Dissolved	135	25.8	0.0560	0.500	ug/L	25.0		103	80-120			
Barium, Dissolved	137	26.1	0.0530	0.500	ug/L	25.0		104	80-120			
Iron, Dissolved	54	5080	6.27	20.0	ug/L	5000		102	80-120			
Iron, Dissolved	57	5070	1.40	20.0	ug/L	5000		101	80-120			
Duplicate (BJC0235-DUP1)			**Source: 21B0309-16**			Prepared: 10-Mar-2021 Analyzed: 11-Mar-2021 02:55						
Barium, Dissolved	135	3.51	0.0560	0.500	ug/L		3.47			1.15	20	
Manganese, Dissolved	55	2.83	0.0850	0.500	ug/L		2.72			3.90	20	
Silver, Dissolved	107	ND	0.0170	0.200	ug/L		ND					U
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L		ND					U
Duplicate (BJC0235-DUP2)			**Source: 21B0309-16**			Prepared: 10-Mar-2021 Analyzed: 11-Mar-2021 21:35						
Chromium, Dissolved	52	0.439	0.130	0.500	ug/L		0.436			0.69	20	J
Lead, Dissolved	208	ND	0.0680	0.100	ug/L		ND					U
Arsenic, Dissolved	75a	0.187	0.0220	0.200	ug/L		0.174			7.20	20	J
Copper, Dissolved	63	1.52	0.340	0.500	ug/L		1.45			4.57	20	
Nickel, Dissolved	60	1.38	0.0500	0.500	ug/L		1.22			12.80	20	
Selenium, Dissolved	78	ND	0.440	0.500	ug/L		ND					U
Zinc, Dissolved	66	6.01	0.820	4.00	ug/L		1.10			138.00	20	*
Duplicate (BJC0235-DUP3)			**Source: 21B0309-16**			Prepared: 10-Mar-2021 Analyzed: 12-Mar-2021 22:44						
Cobalt, Dissolved	59	0.0710	0.0290	0.200	ug/L		0.0700			1.42	20	J

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0235 - 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
Duplicate (BJC0235-DUP3)			**Source: 21B0309-16**		Prepared: 10-Mar-2021 Analyzed: 12-Mar-2021 22:44							
Iron, Dissolved	54	32.9	6.27	20.0	ug/L		33.0			0.33	20	
Vanadium, Dissolved	51a	0.943	0.0400	0.200	ug/L		0.909			3.67	20	
Matrix Spike (BJC0235-MS1)			**Source: 21B0309-16**		Prepared: 10-Mar-2021 Analyzed: 11-Mar-2021 02:59							
Barium, Dissolved	135	27.8	0.0560	0.500	ug/L	25.0	3.47	97.5	75-125			
Manganese, Dissolved	55	28.1	0.0850	0.500	ug/L	25.0	2.72	101	75-125			
Silver, Dissolved	107	24.6	0.0170	0.200	ug/L	25.0	ND	98.5	75-125			
Cadmium, Dissolved	111	26.3	0.0300	0.100	ug/L	25.0	ND	105	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BJC0235-MS2)			**Source: 21B0309-16**		Prepared: 10-Mar-2021 Analyzed: 11-Mar-2021 21:40							
Chromium, Dissolved	52	22.8	0.130	0.500	ug/L	25.0	0.436	89.6	75-125			
Lead, Dissolved	208	29.5	0.0680	0.100	ug/L	25.0	ND	118	75-125			
Arsenic, Dissolved	75a	24.9	0.0220	0.200	ug/L	25.0	0.174	98.9	75-125			
Copper, Dissolved	63	28.2	0.340	0.500	ug/L	25.0	1.45	107	75-125			
Nickel, Dissolved	60	27.8	0.0500	0.500	ug/L	25.0	1.22	106	75-125			
Selenium, Dissolved	78	75.7	0.440	0.500	ug/L	80.0	ND	94.7	75-125			
Zinc, Dissolved	66	82.0	0.820	4.00	ug/L	80.0	1.10	101	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BJC0235-MS3)			**Source: 21B0309-16**		Prepared: 10-Mar-2021 Analyzed: 12-Mar-2021 22:49							
Cobalt, Dissolved	59	26.7	0.0290	0.200	ug/L	25.0	0.0700	106	75-125			
Iron, Dissolved	54	4590	6.27	20.0	ug/L	5000	33.0	91.1	75-125			
Vanadium, Dissolved	51a	24.8	0.0400	0.200	ug/L	25.0	0.909	95.5	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0235-MSD1)			**Source: 21B0309-16**		Prepared: 10-Mar-2021 Analyzed: 11-Mar-2021 03:05							
Barium, Dissolved	135	28.0	0.0560	0.500	ug/L	25.0	3.47	98.1	75-125	0.60	20	
Manganese, Dissolved	55	28.6	0.0850	0.500	ug/L	25.0	2.72	103	75-125	1.69	20	
Silver, Dissolved	107	25.3	0.0170	0.200	ug/L	25.0	ND	101	75-125	2.56	20	
Cadmium, Dissolved	111	25.2	0.0300	0.100	ug/L	25.0	ND	101	75-125	4.26	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0235-MSD2)			**Source: 21B0309-16**		Prepared: 10-Mar-2021 Analyzed: 11-Mar-2021 21:45							
Chromium, Dissolved	52	23.0	0.130	0.500	ug/L	25.0	0.436	90.1	75-125	0.63	20	

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0235 - 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 (BJC0235-MSD2)			**Source: 21B0309-16**			Prepared: 10-Mar-2021		Analyzed: 11-Mar-2021 21:45				
Lead, Dissolved	208	30.7	0.0680	0.100	ug/L	25.0	ND	123	75-125	4.01	20	
Arsenic, Dissolved	75a	25.2	0.0220	0.200	ug/L	25.0	0.174	99.9	75-125	1.00	20	
Copper, Dissolved	63	28.3	0.340	0.500	ug/L	25.0	1.45	108	75-125	0.57	20	
Nickel, Dissolved	60	28.4	0.0500	0.500	ug/L	25.0	1.22	109	75-125	2.13	20	
Selenium, Dissolved	78	75.6	0.440	0.500	ug/L	80.0	ND	94.5	75-125	0.17	20	
Zinc, Dissolved	66	83.5	0.820	4.00	ug/L	80.0	1.10	103	75-125	1.82	20	

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 (BJC0235-MSD3)			**Source: 21B0309-16**			Prepared: 10-Mar-2021		Analyzed: 12-Mar-2021 22:55				
Cobalt, Dissolved	59	27.4	0.0290	0.200	ug/L	25.0	0.0700	109	75-125	2.80	20	
Iron, Dissolved	54	4580	6.27	20.0	ug/L	5000	33.0	91.0	75-125	0.09	20	
Vanadium, Dissolved	51a	25.0	0.0400	0.200	ug/L	25.0	0.909	96.3	75-125	0.86	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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Wet Chemistry - Quality Control

Batch BJB0683 - 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 (BJB0683-BLK1)				Prepared: 23-Feb-2021 Analyzed: 23-Feb-2021 17:13							
Hexavalent Chromium	ND	0.013	0.013	mg/L							U
LCS (BJB0683-BS1)				Prepared: 23-Feb-2021 Analyzed: 23-Feb-2021 17:14							
Hexavalent Chromium	0.612	0.013	0.013	mg/L	0.625		98.0	85-115			D
Duplicate (BJB0683-DUP1)		**Source: 21B0309-01**		Prepared: 23-Feb-2021 Analyzed: 23-Feb-2021 17:15							
Hexavalent Chromium	ND	0.013	0.013	mg/L		ND					U
Matrix Spike (BJB0683-MS1)		**Source: 21B0309-01**		Prepared: 23-Feb-2021 Analyzed: 23-Feb-2021 17:15							
Hexavalent Chromium	0.065	0.013	0.013	mg/L	0.0625	ND	104	85-115			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: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

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
Cobalt-59	DoD-ELAP,NELAP,WADOE
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
Cobalt-59	NELAP,DoD-ELAP,WADOE
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
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

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
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	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1016 (1)	ADEC
Aroclor-1016 (2)	ADEC
Aroclor-1016 (3)	ADEC
Aroclor-1016 (4)	ADEC
Aroclor 1016 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1016 (1) [2C]	ADEC
Aroclor-1016 (2) [2C]	ADEC
Aroclor-1016 (3) [2C]	ADEC
Aroclor-1016 (4) [2C]	ADEC
Aroclor 1221	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1221 (1)	ADEC
Aroclor-1221 (2)	ADEC
Aroclor-1221 (3)	ADEC
Aroclor 1221 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1221 (1) [2C]	ADEC
Aroclor-1221 (2) [2C]	ADEC
Aroclor-1221 (3) [2C]	ADEC
Aroclor-1221 (4) [2C]	ADEC
Aroclor 1232	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1232 (1)	ADEC
Aroclor-1232 (2)	ADEC
Aroclor-1232 (3)	ADEC
Aroclor-1232 (4)	ADEC
Aroclor 1232 [2C]	ADEC,DoD-ELAP,NELAP,WADOE

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Aroclor-1232 (1) [2C]	ADEC
Aroclor-1232 (2) [2C]	ADEC
Aroclor-1232 (3) [2C]	ADEC
Aroclor-1232 (4) [2C]	ADEC
Aroclor 1242	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1242 (1)	ADEC
Aroclor-1242 (2)	ADEC
Aroclor-1242 (3)	ADEC
Aroclor-1242 (4)	ADEC
Aroclor 1242 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1242 (1) [2C]	ADEC
Aroclor-1242 (2) [2C]	ADEC
Aroclor-1242 (3) [2C]	ADEC
Aroclor-1242 (4) [2C]	ADEC
Aroclor 1248	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1248 (1)	ADEC
Aroclor-1248 (2)	ADEC
Aroclor-1248 (3)	ADEC
Aroclor-1248 (4)	ADEC
Aroclor 1248 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1248 (1) [2C]	ADEC
Aroclor-1248 (2) [2C]	ADEC
Aroclor-1248 (3) [2C]	ADEC
Aroclor-1248 (4) [2C]	ADEC
Aroclor 1254	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1254 (1)	ADEC
Aroclor-1254 (2)	ADEC
Aroclor-1254 (3)	ADEC
Aroclor-1254 (4)	ADEC
Aroclor-1254 (5)	ADEC
Aroclor 1254 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1254 (1) [2C]	ADEC
Aroclor-1254 (2) [2C]	ADEC
Aroclor-1254 (3) [2C]	ADEC
Aroclor-1254 (4) [2C]	ADEC
Aroclor-1254 (5) [2C]	ADEC
Aroclor 1260	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1260 (1)	ADEC
Aroclor-1260 (2)	ADEC

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

Aroclor-1260 (3)	ADEC
Aroclor-1260 (4)	ADEC
Aroclor-1260 (5)	ADEC
Aroclor 1260 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1260 (1) [2C]	ADEC
Aroclor-1260 (2) [2C]	ADEC
Aroclor-1260 (3) [2C]	ADEC
Aroclor-1260 (4) [2C]	ADEC
Aroclor 1262	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1262 (1)	ADEC
Aroclor-1262 (2)	ADEC
Aroclor-1262 (3)	ADEC
Aroclor-1262 (4)	ADEC
Aroclor-1262 (5)	ADEC
Aroclor 1262 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1262 (1) [2C]	ADEC
Aroclor-1262 (2) [2C]	ADEC
Aroclor-1262 (3) [2C]	ADEC
Aroclor-1262 (4) [2C]	ADEC
Aroclor-1262 (5) [2C]	ADEC
Aroclor 1268	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1268 (1)	ADEC
Aroclor-1268 (2)	ADEC
Aroclor-1268 (3)	ADEC
Aroclor-1268 (4)	ADEC
Aroclor 1268 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1268 (1) [2C]	ADEC
Aroclor-1268 (2) [2C]	ADEC
Aroclor-1268 (3) [2C]	ADEC
Aroclor-1268 (4) [2C]	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

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

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
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

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
1,2-Dichloroethane	NELAP,WADOE
Benzene	NELAP,WADOE

EPA 8270E in Water

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

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
Dibenzofuran	NELAP,DoD-ELAP
4-Nitrophenol	NELAP,DoD-ELAP
2,4-Dinitrotoluene	NELAP,DoD-ELAP

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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
Acenaphthene	ADEC,DoD-ELAP,NELAP,WADOE
Dibenzofuran	ADEC,DoD-ELAP,NELAP
Fluorene	ADEC,DoD-ELAP,NELAP,WADOE

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Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
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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
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

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
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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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Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 07:46

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
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.
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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

02 August 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)
21B0322	N/A

Susan Dunnihoo

Digitally signed by Susan Dunnihoo
Date: 2021.08.02 09:45:22 -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.

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

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21B0322	Turn-around Requested: Standard	Page: 1 of 2	
ARI Client Company: Shannon & Wilson	Phone: 206-695-6811	Date: 2/24/2021	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 3	Cooler Temps: See CRF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: MRH/DES		

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	Analysis Requested: TPH-G	TPH-Dx	BTEX	HVOCs	PCBs	Metals (total & diss) only: As, Cr, Fe, Ni, Zn	Hexavalent Chromium	See page 2	Notes/Comments
TB-10-20212402	2/24/21	0821	Water	1	X		X	X					
MW-39-20212402		0928		13	X	X	X	X	X	X	X		
MW-47-20212402		1057		11				X	X		X	X	
MW-46-20212402		1208		15	X	X	X	X			X	X	
MW-45-20212402		1313		10		X	X	X	X			X	
MW-31-20212402		1405		10		X		X				X	

Comments/Special Instructions	Relinquished by: (Signature)	Printed Name:	Company:	Date & Time:	Received by: (Signature)	Printed Name:	Company:	Date & Time:	Relinquished by: (Signature)	Printed Name:	Company:	Date & Time:	Received by: (Signature)	Printed Name:	Company:	Date & Time:
• Lab to filter metals • Please refer to project methods & analyte lists		Daniel Schwicht	SWI	24-FEB-21, 1450		Jacob Hall	ARI	02/24/2021 1450								

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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21B0322	Turn-around Requested: Standard	Page: 2 of 2	
ARI Client Company: Shannon & Wilson	Phone: 206-695-6811	Date: 2/24/2021	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 3	Cooler Temps: See COF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: MRH/DES		

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	Full list SVOCs	Metals (total & diss.) Cr only	PAHs	Limited list SVOCs	1	Metals (total & diss.) Mn only			Notes/Comments
MW-47-20212402	See page 1 →				X	X							
MW-46-20212402	See page 1 →						X	X	X				1 = Metals (total & diss): As, Cr, Mn, Ni, Cu, Pb, Hg, Se, Ag, Zn
MW-45-20212402	See page 1 →									X			
MW-31-20212402	See page 1 →						X	X					

Comments/Special Instructions
- Lab to filter for metals
- Please refer to project methods & analyte lists

Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)	(Signature)	(Signature)	(Signature)
Printed Name: DANIEL SCHWICHT	Printed Name: Jacob Hulte	Printed Name:	Printed Name:
Company: SWI	Company: ARI	Company:	Company:
Date & Time: 24-Feb-21, 14:50	Date & Time: 02/24/2021 1450	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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 08:59

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-39-20212402	21B0322-01	Water	24-Feb-2021 09:28	24-Feb-2021 14:50
MW-47-20212402	21B0322-02	Water	24-Feb-2021 10:57	24-Feb-2021 14:50
MW-46-20212402	21B0322-03	Water	24-Feb-2021 12:08	24-Feb-2021 14:50
TB-10-20212402	21B0322-04	Water	24-Feb-2021 14:05	24-Feb-2021 14:50
MW-39-20212402	21B0322-05	Water	24-Feb-2021 09:28	24-Feb-2021 14:50
MW-39-20212402	21B0322-06	Water	24-Feb-2021 09:28	24-Feb-2021 14:50
MW-47-20212402	21B0322-07	Water	24-Feb-2021 10:57	24-Feb-2021 14:50
MW-47-20212402	21B0322-08	Water	24-Feb-2021 10:57	24-Feb-2021 14:50
MW-46-20212402	21B0322-09	Water	24-Feb-2021 12:08	24-Feb-2021 14:50
MW-46-20212402	21B0322-10	Water	24-Feb-2021 12:08	24-Feb-2021 14:50
MW-45-20212402	21B0322-11	Water	24-Feb-2021 13:13	24-Feb-2021 14:50
MW-45-20212402	21B0322-12	Water	24-Feb-2021 13:13	24-Feb-2021 14:50
MW-31-20212402	21B0322-13	Water	24-Feb-2021 14:05	24-Feb-2021 14:50

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.

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Analytical Resources, Incorporated
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	02-Aug-2021 08:59

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish
Work Order: 21B0322

Sample receipt

Samples as listed on the preceding page were received 24-Feb-2021 14:50 under ARI work order 21B0322. 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 Aroclor 1242 which was out of control high in continuing calibration verification (CCV3) on column zb-5 data reported from passing column zb-35. All samples are non-detect.

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.

Analyst noted that sample 21B0322-09 gas detection was almost entirely Naphthalene.

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 Resources, Incorporated
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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	02-Aug-2021 08:59

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.

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 Hexachlorocyclopentadiene, 2,4-Dinitrophenol, 4-Nitrophenol, Fluorene and Pentachlorophenol which were out of control high in the intial calibration verification (ICV). All sample 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 samples 21B0322-07, 21B0322-09, 21B0322-09RE1 and 21B0322-13. Deviations are flagged within this report.

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

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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	02-Aug-2021 08:59

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits except 4-Chloroaniline and 4-Nitrophenol which were out of control low and have been flagged within the QC section of this report.

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 except 2-Chloronaphthalene and Dibenzofuran which were out of control low in the ICV. All samples which contain the analyte have been flagged with a "Q" qualifier.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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 21B0322-11 in Total Metals batch BJC0127 and in association with sample 21B0322-12 in Dissolved Metals batch BJC0138. 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.

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Analytical Resources, Incorporated
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	02-Aug-2021 08:59

Sample specific QC was performed in association with sample 21C0322-01 in Hexavalent Chromium batch BJB0712. The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits. The matrix spike (MS) percent recovery was out of control high. The post-preparation spike (PS) percent recovery was out of control low. Probable matrix interference. Deviations have been flagged within the QC section of this report.

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 21C0322-10 in Dissolved Mercury batch BJC0220. 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 (BS/LCS) percent recoveries were within control limits.

REVISED to correct SVOC and PAH lists, and dd trans-1,2-dichloroethene.

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WORK ORDER

21B0322

Client: Shannon & Wilson, Inc
Project Manager: Amanda Volgardsen Johnson
Project: Lower Duwamish
Project Number: Lower Duwamish

Preservation Confirmation

Container ID	Container Type	pH	
21B0322-01 A	HDPE NM, 500 mL		
21B0322-01 A 01	HDPE NM, 500 mL		
21B0322-02 A	HDPE NM, 500 mL		
21B0322-02 A 01	HDPE NM, 500 mL		
21B0322-03 A	HDPE NM, 500 mL		
21B0322-03 A 01	HDPE NM, 500 mL		
21B0322-04 A	VOA Vial, Clear, 40 mL, HCL		
21B0322-05 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0322-05 B	Glass NM, Amber, 500 mL		
21B0322-05 C	Glass NM, Amber, 500 mL		
21B0322-05 D	Glass NM, Amber, 500 mL		
21B0322-05 E	Glass NM, Amber, 500 mL		
21B0322-05 F	VOA Vial, Amber, 40 mL, HCL		
21B0322-05 G	VOA Vial, Amber, 40 mL, HCL		
21B0322-05 H	VOA Vial, Amber, 40 mL, HCL		
21B0322-05 I	VOA Vial, Amber, 40 mL, HCL		
21B0322-05 J	VOA Vial, Amber, 40 mL, HCL		
21B0322-05 K	VOA Vial, Amber, 40 mL, HCL		
21B0322-06 A	HDPE NM, 500 mL	>2	Fail
21B0322-07 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0322-07 B	Glass NM, Amber, 500 mL		
21B0322-07 C	Glass NM, Amber, 500 mL		
21B0322-07 D	Glass NM, Amber, 500 mL		
21B0322-07 E	Glass NM, Amber, 500 mL		
21B0322-07 F	VOA Vial, Amber, 40 mL, HCL		
21B0322-07 G	VOA Vial, Amber, 40 mL, HCL		
21B0322-07 H	VOA Vial, Amber, 40 mL, HCL		
21B0322-07 I	VOA Vial, Amber, 40 mL, HCL		
21B0322-08 A	HDPE NM, 500 mL	>2	Fail
21B0322-09 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0322-09 B	Glass NM, Amber, 500 mL		
21B0322-09 C	Glass NM, Amber, 500 mL		
21B0322-09 D	Glass NM, Amber, 500 mL		
21B0322-09 E	Glass NM, Amber, 500 mL		
21B0322-09 F	Glass NM, Amber, 500 mL		

Reviewed By

Date

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Analytical Chemists and Consultants

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WORK ORDER

21B0322

Client: Shannon & Wilson, Inc | **Project Manager:** Amanda Volgardsen Johnson

Project: Lower Duwamish | **Project Number:** Lower Duwamish

21B0322-09 G	Glass NM, Amber, 500 mL		
21B0322-09 H	VOA Vial, Amber, 40 mL, HCL		
21B0322-09 I	VOA Vial, Amber, 40 mL, HCL		
21B0322-09 J	VOA Vial, Amber, 40 mL, HCL		
21B0322-09 K	VOA Vial, Amber, 40 mL, HCL		
21B0322-09 L	VOA Vial, Amber, 40 mL, HCL		
21B0322-09 M	VOA Vial, Amber, 40 mL, HCL		
21B0322-10 A	HDPE NM, 500 mL	>2	Fail
21B0322-11 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0322-11 B	Glass NM, Amber, 500 mL		
21B0322-11 C	Glass NM, Amber, 500 mL		
21B0322-11 D	Glass NM, Amber, 500 mL		
21B0322-11 E	Glass NM, Amber, 500 mL		
21B0322-11 F	VOA Vial, Amber, 40 mL, HCL		
21B0322-11 G	VOA Vial, Amber, 40 mL, HCL		
21B0322-11 H	VOA Vial, Amber, 40 mL, HCL		
21B0322-11 I	VOA Vial, Amber, 40 mL, HCL		
21B0322-12 A	HDPE NM, 500 mL	>2	Fail
21B0322-13 A	Glass NM, Amber, 500 mL		
21B0322-13 B	Glass NM, Amber, 500 mL		
21B0322-13 C	Glass NM, Amber, 500 mL		
21B0322-13 D	Glass NM, Amber, 500 mL		
21B0322-13 E	Glass NM, Amber, 500 mL		
21B0322-13 F	Glass NM, Amber, 500 mL		
21B0322-13 G	VOA Vial, Amber, 40 mL, HCL		
21B0322-13 H	VOA Vial, Amber, 40 mL, HCL		
21B0322-13 I	VOA Vial, Amber, 40 mL, HCL		
21B0322-13 J	VOA Vial, Amber, 40 mL, HCL		

SC
Preservation Confirmed By

2/25/21
Date

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Shannon & Wilson Project Name: LDM

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

Assigned ARI Job No: 21B0322 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 1450 5.6 3.2 5.5

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D00206

Cooler Accepted by: JS Date: 02/24/2021 Time: 1450

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 2/8/21

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

Samples Logged by: SC Date: 2/25/21 Time: 1044 Labels checked by: SC

***** 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 Chemists and Consultants

Printed: 2/25/2021 11:24:23AM

WORK ORDER

21B0322

Client: Shannon & Wilson, Inc	**Project Manager:** Amanda Volgardsen Johnson
Project: Lower Duwamish	**Project Number:** Lower Duwamish

Preservation Confirmation

Container ID	Container Type	pH	
21B0322-01 A	HDPE NM, 500 mL		
21B0322-01 A 01	HDPE NM, 500 mL		
21B0322-02 A	HDPE NM, 500 mL		
21B0322-02 A 01	HDPE NM, 500 mL		
21B0322-03 A	HDPE NM, 500 mL		
21B0322-03 A 01	HDPE NM, 500 mL		
21B0322-04 A	VOA Vial, Clear, 40 mL, HCL		
21B0322-05 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0322-05 B	Glass NM, Amber, 500 mL		
21B0322-05 C	Glass NM, Amber, 500 mL		
21B0322-05 D	Glass NM, Amber, 500 mL		
21B0322-05 E	Glass NM, Amber, 500 mL		
21B0322-05 F	VOA Vial, Amber, 40 mL, HCL		
21B0322-05 G	VOA Vial, Amber, 40 mL, HCL		
21B0322-05 H	VOA Vial, Amber, 40 mL, HCL		
21B0322-05 I	VOA Vial, Amber, 40 mL, HCL		
21B0322-05 J	VOA Vial, Amber, 40 mL, HCL		
21B0322-05 K	VOA Vial, Amber, 40 mL, HCL		
21B0322-06 A	HDPE NM, 500 mL	>2	Fail (1)
21B0322-07 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0322-07 B	Glass NM, Amber, 500 mL		
21B0322-07 C	Glass NM, Amber, 500 mL		
21B0322-07 D	Glass NM, Amber, 500 mL		
21B0322-07 E	Glass NM, Amber, 500 mL		
21B0322-07 F	VOA Vial, Amber, 40 mL, HCL		
21B0322-07 G	VOA Vial, Amber, 40 mL, HCL		
21B0322-07 H	VOA Vial, Amber, 40 mL, HCL		
21B0322-07 I	VOA Vial, Amber, 40 mL, HCL		
21B0322-08 A	HDPE NM, 500 mL	>2	Fail (1)
21B0322-09 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0322-09 B	Glass NM, Amber, 500 mL		
21B0322-09 C	Glass NM, Amber, 500 mL		
21B0322-09 D	Glass NM, Amber, 500 mL		
21B0322-09 E	Glass NM, Amber, 500 mL		
21B0322-09 F	Glass NM, Amber, 500 mL		

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 2/25/2021 11:24:23AM

WORK ORDER

21B0322

Client: Shannon & Wilson, Inc	**Project Manager:** Amanda Volgardsen Johnson
Project: Lower Duwamish	**Project Number:** Lower Duwamish

21B0322-09 G	Glass NM, Amber, 500 mL		
21B0322-09 H	VOA Vial, Amber, 40 mL, HCL		
21B0322-09 I	VOA Vial, Amber, 40 mL, HCL		
21B0322-09 J	VOA Vial, Amber, 40 mL, HCL		
21B0322-09 K	VOA Vial, Amber, 40 mL, HCL		
21B0322-09 L	VOA Vial, Amber, 40 mL, HCL		
21B0322-09 M	VOA Vial, Amber, 40 mL, HCL		
21B0322-10 A	HDPE NM, 500 mL	>2	Fail (1)
21B0322-11 A	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0322-11 B	Glass NM, Amber, 500 mL		
21B0322-11 C	Glass NM, Amber, 500 mL		
21B0322-11 D	Glass NM, Amber, 500 mL		
21B0322-11 E	Glass NM, Amber, 500 mL		
21B0322-11 F	VOA Vial, Amber, 40 mL, HCL		
21B0322-11 G	VOA Vial, Amber, 40 mL, HCL		
21B0322-11 H	VOA Vial, Amber, 40 mL, HCL		
21B0322-11 I	VOA Vial, Amber, 40 mL, HCL		
21B0322-12 A	HDPE NM, 500 mL	>2	Fail (1)
21B0322-13 A	Glass NM, Amber, 500 mL		
21B0322-13 B	Glass NM, Amber, 500 mL		
21B0322-13 C	Glass NM, Amber, 500 mL		
21B0322-13 D	Glass NM, Amber, 500 mL		
21B0322-13 E	Glass NM, Amber, 500 mL		
21B0322-13 F	Glass NM, Amber, 500 mL		
21B0322-13 G	VOA Vial, Amber, 40 mL, HCL		
21B0322-13 H	VOA Vial, Amber, 40 mL, HCL		
21B0322-13 I	VOA Vial, Amber, 40 mL, HCL		
21B0322-13 J	VOA Vial, Amber, 40 mL, HCL		

SC
Preservation Confirmed By

2/25/21
Date

(1) Filtered at 0.45 µm and preserved to pH < 2.0 with 0.75 ml Conc. HNO_3 (J554). ML 2/25/21

Reviewed By

Date

Analytical Resources, Incorporated
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	02-Aug-2021 08:59

MW-39-20212402

21B0322-01 (Water)

Wet Chemistry

Method: SM 3500-Cr B-09 — Sampled: 02/24/2021 09:28

Instrument: UV1800-2 Analyst: WMT — Analyzed: 02/24/2021 18:08

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0322-01 A 01

Preparation Batch: BJB0712 — Sample Size: 40 mL

Prepared: 02/24/2021 — 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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Analytical Resources, Incorporated
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	02-Aug-2021 08:59

MW-47-20212402

21B0322-02 (Water)

Wet Chemistry

Method: SM 3500-Cr B-09 — Sampled: 02/24/2021 10:57

Instrument: UV1800-2 Analyst: WMT — Analyzed: 02/24/2021 18:09

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0322-02 A 01

Preparation Batch: BJB0712 — Sample Size: 40 mL

Prepared: 02/24/2021 — 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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Analytical Resources, Incorporated
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	02-Aug-2021 08:59

MW-46-20212402

21B0322-03 (Water)

Wet Chemistry

Method: SM 3500-Cr B-09 — Sampled: 02/24/2021 12:08

Instrument: UV1800-2 Analyst: WMT — Analyzed: 02/24/2021 18:09

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21B0322-03 A 01

Preparation Batch: BJB0712 — Sample Size: 40 mL

Prepared: 02/24/2021 — 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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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	02-Aug-2021 08:59

TB-10-20212402

21B0322-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/24/2021 14:05

Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 13:13

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0322-04 A

Preparation Batch: BJC0115 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.4*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.6*	*%*	

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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	02-Aug-2021 08:59

TB-10-20212402

21B0322-04 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/24/2021 14:05

Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 13:13

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0322-04 A

Preparation Batch: BJC0115 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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 %*	*93.4*	*%*	

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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	02-Aug-2021 08:59

MW-39-20212402

21B0322-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/24/2021 09:28

Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 15:56

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0322-05 G

Preparation Batch: BJC0115 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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 %*	*110*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*90.2*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.9*	*%*	

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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	02-Aug-2021 08:59

MW-39-20212402

21B0322-05 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/24/2021 09:28

Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 15:56

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0322-05 G

Preparation Batch: BJC0115 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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 %*	*90.2*	*%*	

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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	02-Aug-2021 08:59

MW-39-20212402

21B0322-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/24/2021 09:28

Instrument: NT16 Analyst: PB — Analyzed: 03/05/2021 13:26

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0322-05 K

Preparation Batch: BJC0148 — Sample Size: 10 mL

Prepared: 03/05/2021 — 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 %*	*89.4*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*94.6*	*%*	

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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	02-Aug-2021 08:59

MW-39-20212402

21B0322-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/24/2021 09:28
Instrument: FID4 Analyst: CTO — Analyzed: 03/12/2021 05:30

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0322-05 B 01
Preparation Batch: BJC0012 — Sample Size: 500 mL
Prepared: 03/01/2021 — 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 %*	*114*	*%*	

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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	02-Aug-2021 08:59

MW-39-20212402

21B0322-05 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/24/2021 09:28
Instrument: ECD7 Analyst: JGR — Analyzed: 03/13/2021 15:40

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0322-05 D 01
	Preparation Batch: BJC0031	Sample Size: 500 mL	
	Prepared: 03/02/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0322-05 D 01
	Cleanup Batch: CJC0132	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0322-05 D 01
	Cleanup Batch: CJC0130	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0322-05 D 01
	Cleanup Batch: CJC0131	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.018	0.100	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.018	0.100	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.018	0.100	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.018	0.100	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.017	0.100	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*57.3*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*54.9*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*58.9*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*44.6*	*%*	

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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	02-Aug-2021 08:59

MW-39-20212402

21B0322-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/24/2021 09:28

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 00:30

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0322-05 A 01

Preparation Batch: BJC0127 — Sample Size: 25 mL

Prepared: 03/05/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	2	0.260	1.00	13.7	ug/L	D
Manganese	7439-96-5	2	0.170	1.00	63.7	ug/L	D

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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	02-Aug-2021 08:59

MW-39-20212402

21B0322-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/24/2021 09:28

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 00:30

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0322-05 A 01

Preparation Batch: BJC0127 — Sample Size: 25 mL

Prepared: 03/05/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.0440	0.400	2.24	ug/L	D
Nickel	7440-02-0	2	0.100	1.00	2.21	ug/L	D
Zinc	7440-66-6	2	1.64	8.00	7.25	ug/L	J, D

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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	02-Aug-2021 08:59

MW-39-20212402

21B0322-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/24/2021 09:28
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 00:34

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0322-06 A 02
Preparation Batch: BJC0138 — Sample Size: 25 mL — Filtration Batch: BJB0755
Prepared: 03/05/2021 — Final Volume: 25 mL — Filtration Date: 02/25/2021 15:59

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	2	0.260	1.00	9.54	ug/L	D
Manganese, Dissolved	7439-96-5	2	0.170	1.00	0.362	ug/L	J, D

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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	02-Aug-2021 08:59

MW-39-20212402

21B0322-06 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/24/2021 09:28
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 00:34

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0322-06 A 02
Preparation Batch: BJC0138 — Sample Size: 25 mL — Filtration Batch: BJB0755
Prepared: 03/05/2021 — Final Volume: 25 mL — Filtration Date: 02/25/2021 15:59

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	2	0.0440	0.400	1.18	ug/L	D
Nickel, Dissolved	7440-02-0	2	0.100	1.00	0.170	ug/L	J, D
Zinc, Dissolved	7440-66-6	2	1.64	8.00	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	02-Aug-2021 08:59

MW-47-20212402

21B0322-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/24/2021 10:57

Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 16:16

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0322-07 G

Preparation Batch: BJC0115 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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	0.46	ug/L	
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	0.14	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 %*	*108*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*91.7*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*102*	*%*	

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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	02-Aug-2021 08:59

MW-47-20212402

21B0322-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/24/2021 10:57

Instrument: NT16 Analyst: PB — Analyzed: 03/05/2021 13:46

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0322-07 H

Preparation Batch: BJC0148 — Sample Size: 10 mL

Prepared: 03/05/2021 — 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 %*	*114*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.2*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*92.6*	*%*	

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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	02-Aug-2021 08:59

MW-47-20212402

21B0322-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/24/2021 10:57

Instrument: NT10 Analyst: VTS — Analyzed: 03/11/2021 16:17

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0322-07 D 01

Preparation Batch: BJC0058 — Sample Size: 1000 mL

Prepared: 03/02/2021 — 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 Resources, Incorporated
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	02-Aug-2021 08:59

MW-47-20212402

21B0322-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/24/2021 10:57

Instrument: NT10 Analyst: VTS — Analyzed: 03/11/2021 16:17

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	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 %*	*54.3*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*24.6*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*78.2*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*67.3*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*79.6*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*67.0*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*106*	*%*	

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Analytical Resources, Incorporated
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	02-Aug-2021 08:59

MW-47-20212402

21B0322-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/24/2021 10:57

Instrument: NT10 Analyst: VTS — Analyzed: 03/11/2021 16:17

Analyte	CAS Number	Recovery Limits	Recovery	Units	Notes
Surrogate: p-Terphenyl-d14		*30-160 %*	*85.6*	*%*	

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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	02-Aug-2021 08:59

MW-47-20212402

21B0322-07 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/24/2021 10:57
Instrument: ECD7 Analyst: JGR — Analyzed: 03/13/2021 16:01

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0322-07 B 01
	Preparation Batch: BJC0031	Sample Size: 475 mL	
	Prepared: 03/02/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0322-07 B 01
	Cleanup Batch: CJC0132	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0322-07 B 01
	Cleanup Batch: CJC0130	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0322-07 B 01
	Cleanup Batch: CJC0131	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.018	0.105	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.018	0.105	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.018	0.105	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.018	0.105	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.018	0.105	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.018	0.105	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.018	0.105	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*55.9*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*50.7*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*57.9*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*42.0*	*%*	

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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	02-Aug-2021 08:59

MW-47-20212402

21B0322-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/24/2021 10:57

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 00:45

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0322-07 A 01

Preparation Batch: BJC0127 — Sample Size: 25 mL

Prepared: 03/05/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	1	0.130	0.500	0.258	ug/L	J

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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	02-Aug-2021 08:59

MW-47-20212402

21B0322-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/24/2021 10:57

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 00:49

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0322-08 A 02

Preparation Batch: BJC0138 — Sample Size: 25 mL — Filtration Batch: BJB0755

Prepared: 03/05/2021 — Final Volume: 25 mL — Filtration Date: 02/25/2021 15:59

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.130	0.500	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	02-Aug-2021 08:59

MW-46-20212402

21B0322-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/24/2021 12:08

Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 16:37

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0322-09 J

Preparation Batch: BJC0115 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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	0.10	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	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	0.09	ug/L	J
m,p-Xylene	179601-23-1	1	0.14	0.40	0.18	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	0.32	ug/L	J
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*106*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*102*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.0*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*102*	*%*	

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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	02-Aug-2021 08:59

MW-46-20212402

21B0322-09 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/24/2021 12:08

Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 16:37

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0322-09 J

Preparation Batch: BJC0115 — Sample Size: 10 mL

Prepared: 03/04/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	160	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*102*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*93.0*	*%*	

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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	02-Aug-2021 08:59

MW-46-20212402

21B0322-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/24/2021 12:08

Instrument: NT16 Analyst: PB — Analyzed: 03/05/2021 14:07

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0322-09 K

Preparation Batch: BJC0148 — Sample Size: 10 mL

Prepared: 03/05/2021 — 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	31.1	ng/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*99.4*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*95.8*	*%*	

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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	02-Aug-2021 08:59

MW-46-20212402

21B0322-09 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/24/2021 12:08

Instrument: NT10 Analyst: VTS — Analyzed: 03/11/2021 16:54

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0322-09 F 01

Preparation Batch: BJC0058 — Sample Size: 1000 mL

Prepared: 03/02/2021 — 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	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 %*	*47.3*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*26.7*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*83.0*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*60.5*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*76.6*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*86.4*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*102*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*83.0*	*%*	

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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	02-Aug-2021 08:59

MW-46-20212402

21B0322-09 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/24/2021 12:08
Instrument: NT11 Analyst: VTS — Analyzed: 03/16/2021 17:37

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJC0057; Prepared: 03/03/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21B0322-09 D 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJC0112; Cleaned: 10-Mar-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21B0322-09 D 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	6.56	ug/L	B, E
2-Methylnaphthalene	91-57-6	1	0.001	0.010	2.32	ug/L	E
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	2.08	ug/L	E
Acenaphthylene	208-96-8	1	0.002	0.010	0.072	ug/L	
Acenaphthene	83-32-9	1	0.003	0.010	2.93	ug/L	E
Dibenzofuran	132-64-9	1	0.002	0.010	0.310	ug/L	Q
Fluorene	86-73-7	1	0.002	0.010	0.941	ug/L	
Phenanthrene	85-01-8	1	0.001	0.010	0.378	ug/L	
Anthracene	120-12-7	1	0.001	0.010	0.041	ug/L	
Carbazole	86-74-8	1	0.001	0.010	0.858	ug/L	
Fluoranthene	206-44-0	1	0.002	0.010	0.059	ug/L	
Pyrene	129-00-0	1	0.001	0.010	0.026	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 %*	*84.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*68.5*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*81.9*	*%*	

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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	02-Aug-2021 08:59

MW-46-20212402

21B0322-09 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/24/2021 12:08
Instrument: FID4 Analyst: CTO — Analyzed: 03/12/2021 05:51

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0322-09 B 01
Preparation Batch: BJC0012 — Sample Size: 500 mL
Prepared: 03/01/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.289	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*118*	*%*	

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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	02-Aug-2021 08:59

MW-46-20212402

21B0322-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/24/2021 12:08

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 00:53

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0322-09 A 01

Preparation Batch: BJC0127 — Sample Size: 25 mL

Prepared: 03/05/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	1	0.130	0.500	1.23	ug/L	
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Silver	7440-22-4	1	0.0170	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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 08:59

MW-46-20212402

21B0322-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/24/2021 12:08

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 00:53

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0322-09 A 01

Preparation Batch: BJC0127 — Sample Size: 25 mL

Prepared: 03/05/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	26.1	ug/L	
Copper	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel	7440-02-0	1	0.0500	0.500	0.455	ug/L	J
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	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	02-Aug-2021 08:59

MW-46-20212402

21B0322-09 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/24/2021 12:08

Instrument: HYDRA Analyst: BLC — Analyzed: 03/10/2021 10:12

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0322-09 A

Preparation Batch: BJC0219 — Sample Size: 20 mL

Prepared: 03/09/2021 — 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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 08:59

MW-46-20212402

21B0322-09RE1 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/24/2021 12:08

Instrument: NT10 Analyst: VTS — Analyzed: 03/15/2021 15:28

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0322-09RE1 F 01

Preparation Batch: BJC0058 — Sample Size: 1000 mL

Prepared: 03/02/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,4-Dichlorobenzene	106-46-7	5	0.1	1.0	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	5	0.2	1.0	ND	ug/L	U
2,4-Dimethylphenol	105-67-9	5	1.4	5.0	ND	ug/L	U
Benzoic acid	65-85-0	5	0.7	10.0	ND	ug/L	U
N-Nitrosodiphenylamine	86-30-6	5	0.1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	5	0.7	5.0	ND	ug/L	U
Di-n-Butylphthalate	84-74-2	5	0.3	1.0	ND	ug/L	U
Butylbenzylphthalate	85-68-7	5	0.3	1.0	ND	ug/L	U
bis(2-Ethylhexyl)phthalate	117-81-7	5	0.8	1.0	ND	ug/L	U
Surrogate: 2-Fluorophenol				*30-160 %*	*40.1*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*18.9*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*56.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*50.7*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*62.2*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*59.5*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*67.0*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*74.8*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 08:59

MW-46-20212402

21B0322-09RE1 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/24/2021 12:08
Instrument: NT11 Analyst: VTS — Analyzed: 03/18/2021 16:37

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJC0057; Prepared: 03/03/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21B0322-09RE1 D 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJC0112; Cleaned: 10-Mar-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21B0322-09RE1 D 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	5	0.007	0.050	15.1	ug/L	D, B, E
2-Methylnaphthalene	91-57-6	5	0.005	0.050	2.97	ug/L	D
1-Methylnaphthalene	90-12-0	5	0.005	0.050	2.59	ug/L	D
Acenaphthylene	208-96-8	5	0.009	0.050	0.076	ug/L	D
Acenaphthene	83-32-9	5	0.014	0.050	4.18	ug/L	D
Dibenzofuran	132-64-9	5	0.008	0.050	0.332	ug/L	D
Fluorene	86-73-7	5	0.008	0.050	1.06	ug/L	D
Phenanthrene	85-01-8	5	0.007	0.050	0.402	ug/L	D
Anthracene	120-12-7	5	0.006	0.050	0.043	ug/L	J, D
Carbazole	86-74-8	5	0.006	0.050	0.934	ug/L	D
Fluoranthene	206-44-0	5	0.009	0.050	0.057	ug/L	D
Pyrene	129-00-0	5	0.006	0.050	0.026	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 %*	*90.1*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*56.5*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*80.1*	*%*	

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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	02-Aug-2021 08:59

MW-46-20212402

21B0322-09RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/24/2021 12:08

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 00:38

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0322-09RE1 A 01

Preparation Batch: BJC0127 — Sample Size: 25 mL

Prepared: 03/05/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	10	0.850	5.00	1440	ug/L	D

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Analytical Report

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 08:59

MW-46-20212402

21B0322-09RE2 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/24/2021 12:08
Instrument: NT11 Analyst: VTS — Analyzed: 03/23/2021 12:17

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJC0057; Prepared: 03/03/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21B0322-09RE2 D 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJC0112; Cleaned: 10-Mar-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21B0322-09RE2 D 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	50	0.066	0.500	27.6	ug/L	D, B
2-Methylnaphthalene	91-57-6	50	0.051	0.500	2.82	ug/L	D
1-Methylnaphthalene	90-12-0	50	0.046	0.500	2.41	ug/L	D
Acenaphthylene	208-96-8	50	0.093	0.500	ND	ug/L	U
Acenaphthene	83-32-9	50	0.145	0.500	4.47	ug/L	D
Dibenzofuran	132-64-9	50	0.076	0.500	0.311	ug/L	J, D
Fluorene	86-73-7	50	0.076	0.500	0.989	ug/L	D
Phenanthrene	85-01-8	50	0.065	0.500	0.366	ug/L	J, D
Anthracene	120-12-7	50	0.058	0.500	ND	ug/L	U
Carbazole	86-74-8	50	0.061	0.500	0.805	ug/L	D
Fluoranthene	206-44-0	50	0.086	0.500	ND	ug/L	U
Pyrene	129-00-0	50	0.059	0.500	ND	ug/L	U
Benzo(a)anthracene	56-55-3	50	0.038	0.500	ND	ug/L	U
Chrysene	218-01-9	50	0.045	0.500	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	50	0.023	0.500	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	50	0.161	0.500	ND	ug/L	U
Benzo(j)fluoranthene	205-82-3	50	0.094	0.500	ND	ug/L	U
Benzofluoranthenes, Total		50	0.178	0.500	ND	ug/L	U
Benzo(a)pyrene	50-32-8	50	0.124	0.500	ND	ug/L	U
Perylene	1985-5-0	50	0.293	0.500	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	50	0.051	0.500	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	50	0.067	0.500	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	50	0.071	0.500	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10				*42-120 %*		*D1*	D1
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*		*D1*	D1
Surrogate: Fluoranthene-d10				*57-120 %*		*D1*	D1

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Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 08:59

MW-46-20212402

21B0322-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/24/2021 12:08
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 00:57

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0322-10 A 02
Preparation Batch: BJC0138 — Sample Size: 25 mL — Filtration Batch: BJB0755
Prepared: 03/05/2021 — Final Volume: 25 mL — Filtration Date: 02/25/2021 15:59

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium, Dissolved	7440-47-3	1	0.130	0.500	0.145	ug/L	J
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Silver, Dissolved	7440-22-4	1	0.0170	0.200	ND	ug/L	U

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Analytical Report

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 08:59

MW-46-20212402

21B0322-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/24/2021 12:08
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 00:57

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0322-10 A 02
Preparation Batch: BJC0138 — Sample Size: 25 mL — Filtration Batch: BJB0755
Prepared: 03/05/2021 — Final Volume: 25 mL — Filtration Date: 02/25/2021 15:59

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	1.79	ug/L	
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	0.371	ug/L	J
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	ND	ug/L	U

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Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 08:59

MW-46-20212402

21B0322-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/24/2021 12:08
Instrument: HYDRA Analyst: BLC — Analyzed: 03/10/2021 10:31

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0322-10 A 01
Preparation Batch: BJC0220 — Sample Size: 20 mL — Filtration Batch: BJB0755
Prepared: 03/09/2021 — Final Volume: 20 mL — Filtration Date: 02/25/2021 15:59

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	02-Aug-2021 08:59

MW-46-20212402

21B0322-10RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/24/2021 12:08
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 00:41

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0322-10RE1 A 02
Preparation Batch: BJC0138 — Sample Size: 25 mL — Filtration Batch: BJB0755
Prepared: 03/05/2021 — Final Volume: 25 mL — Filtration Date: 02/25/2021 15:59

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	10	0.850	5.00	1140	ug/L	D

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Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 08:59

MW-45-20212402

21B0322-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/24/2021 13:13

Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 16:57

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0322-11 F

Preparation Batch: BJC0115 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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	0.31	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 %*	*106*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*92.2*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 08:59

MW-45-20212402

21B0322-11 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/24/2021 13:13

Instrument: NT16 Analyst: PB — Analyzed: 03/05/2021 14:27

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0322-11 G

Preparation Batch: BJC0148 — Sample Size: 10 mL

Prepared: 03/05/2021 — 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	106	ng/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*95.9*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*95.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*90.9*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 08:59

MW-45-20212402

21B0322-11 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/24/2021 13:13

Instrument: FID4 Analyst: CTO — Analyzed: 03/12/2021 06:11

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0322-11 B 01

Preparation Batch: BJC0012 — Sample Size: 500 mL

Prepared: 03/01/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.581	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*131*	*%*	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 08:59

MW-45-20212402

21B0322-11 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/24/2021 13:13
Instrument: ECD7 Analyst: JGR — Analyzed: 03/13/2021 16:21

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0322-11 D 01
	Preparation Batch: BJC0031	Sample Size: 465 mL	
	Prepared: 03/02/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0322-11 D 01
	Cleanup Batch: CJC0132	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0322-11 D 01
	Cleanup Batch: CJC0130	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0322-11 D 01
	Cleanup Batch: CJC0131	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.019	0.108	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.019	0.108	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.019	0.108	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.019	0.108	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.019	0.108	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.019	0.108	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.019	0.108	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*55.0*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*51.2*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*56.2*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*41.1*	*%*	

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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	02-Aug-2021 08:59

MW-45-20212402

21B0322-11RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/24/2021 13:13

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 20:55

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0322-11RE1 A 01

Preparation Batch: BJC0127 — Sample Size: 25 mL

Prepared: 03/05/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	20	1.70	10.0	805	ug/L	D

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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	02-Aug-2021 08:59

MW-45-20212402

21B0322-12RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/24/2021 13:13

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 01:25

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0322-12RE1 A 02

Preparation Batch: BJC0138 — Sample Size: 25 mL — Filtration Batch: BJB0755

Prepared: 03/05/2021 — Final Volume: 25 mL — Filtration Date: 02/25/2021 15:59

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	10	0.850	5.00	666	ug/L	D

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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	02-Aug-2021 08:59

MW-31-20212402

21B0322-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/24/2021 14:05

Instrument: NT2 Analyst: PKC — Analyzed: 03/04/2021 17:17

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0322-13 G

Preparation Batch: BJC0115 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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 %*	*107*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*91.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.3*	*%*	

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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	02-Aug-2021 08:59

MW-31-20212402

21B0322-13 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/24/2021 14:05

Instrument: NT16 Analyst: PB — Analyzed: 03/05/2021 14:47

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0322-13 H

Preparation Batch: BJC0148 — Sample Size: 10 mL

Prepared: 03/05/2021 — 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	25.0	ng/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*96.1*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*95.5*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*95.4*	*%*	

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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	02-Aug-2021 08:59

MW-31-20212402

21B0322-13 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/24/2021 14:05
Instrument: NT10 Analyst: VTS — Analyzed: 03/11/2021 17:32

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0322-13 E 01
Preparation Batch: BJC0058 — Sample Size: 1000 mL
Prepared: 03/02/2021 — 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	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 %*	*52.1*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*27.6*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*86.2*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*64.9*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*79.3*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*85.6*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*104*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*81.3*	*%*	

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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	02-Aug-2021 08:59

MW-31-20212402

21B0322-13 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/24/2021 14:05
Instrument: NT11 Analyst: VTS — Analyzed: 03/16/2021 18:09

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJC0057; Prepared: 03/03/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21B0322-13 C 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJC0112; Cleaned: 10-Mar-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21B0322-13 C 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.050	ug/L	B
2-Methylnaphthalene	91-57-6	1	0.001	0.010	0.006	ug/L	J
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.011	ug/L	
Acenaphthylene	208-96-8	1	0.002	0.010	0.016	ug/L	
Acenaphthene	83-32-9	1	0.003	0.010	2.28	ug/L	E
Dibenzofuran	132-64-9	1	0.002	0.010	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.010	0.017	ug/L	
Phenanthrene	85-01-8	1	0.001	0.010	1.27	ug/L	E
Anthracene	120-12-7	1	0.001	0.010	0.078	ug/L	
Carbazole	86-74-8	1	0.001	0.010	ND	ug/L	U
Fluoranthene	206-44-0	1	0.002	0.010	0.039	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	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 %*	*76.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*61.1*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*81.0*	*%*	

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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	02-Aug-2021 08:59

MW-31-20212402

21B0322-13 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/24/2021 14:05
Instrument: FID4 Analyst: CTO — Analyzed: 03/12/2021 06:32

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0322-13 A 01
Preparation Batch: BJC0012 — Sample Size: 500 mL
Prepared: 03/01/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.536	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*140*	*%*	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 08:59

MW-31-20212402

21B0322-13RE1 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/24/2021 14:05
Instrument: NT11 Analyst: VTS — Analyzed: 03/18/2021 17:09

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJC0057; Prepared: 03/03/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21B0322-13RE1 C 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJC0112; Cleaned: 10-Mar-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21B0322-13RE1 C 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	5	0.007	0.050	0.048	ug/L	J, D, B
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	ND	ug/L	U
Acenaphthene	83-32-9	5	0.014	0.050	2.75	ug/L	D
Dibenzofuran	132-64-9	5	0.008	0.050	ND	ug/L	U
Fluorene	86-73-7	5	0.008	0.050	0.017	ug/L	J, D
Phenanthrene	85-01-8	5	0.007	0.050	1.43	ug/L	D
Anthracene	120-12-7	5	0.006	0.050	0.082	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	0.035	ug/L	J, D
Pyrene	129-00-0	5	0.006	0.050	ND	ug/L	U
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 %*	*80.2*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*36.2*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*73.1*	*%*	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 08:59

Volatile Organic Compounds - Quality Control

Batch BJC0115 - 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 (BJC0115-BLK1)				Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 11:52							
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							U
Surrogate: Toluene-d8	5.03			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.66			ug/L	*5.00*		*93.1*	*80-120*			
Blank (BJC0115-BLK2)				Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 11:52							
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	5.23			ug/L	*5.00*		*105*	*80-129*			
Surrogate: Toluene-d8	5.03			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.66			ug/L	*5.00*		*93.1*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.98			ug/L	*5.00*		*99.7*	*80-120*			
LCS (BJC0115-BS1)				Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 09:52							
Gasoline Range Organics (Tol-Nap)	962		100	ug/L	1000		96.2	72-128			
Surrogate: Toluene-d8	5.08			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.92			ug/L	*5.00*		*98.4*	*80-120*			
LCS (BJC0115-BS2)				Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 10:33							
Vinyl Chloride	9.95	0.08	0.20	ug/L	10.0		99.5	66-133			
1,1-Dichloroethene	11.2	0.08	0.20	ug/L	10.0		112	69-135			
trans-1,2-Dichloroethene	10.6	0.07	0.20	ug/L	10.0		106	78-128			
cis-1,2-Dichloroethene	9.90	0.08	0.20	ug/L	10.0		99.0	80-121			
Benzene	10.0	0.05	0.20	ug/L	10.0		100	80-120			
Trichloroethene	9.72	0.07	0.20	ug/L	10.0		97.2	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	02-Aug-2021 08:59

Volatile Organic Compounds - Quality Control

Batch BJC0115 - 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 (BJC0115-BS2)					Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 10:33						
Toluene	9.54	0.05	0.20	ug/L	10.0		95.4	80-120			
Tetrachloroethene	9.60	0.09	0.20	ug/L	10.0		96.0	80-120			
Ethylbenzene	9.45	0.05	0.20	ug/L	10.0		94.5	80-120			
m,p-Xylene	19.4	0.14	0.40	ug/L	20.0		97.1	80-121			
o-Xylene	9.56	0.08	0.20	ug/L	10.0		95.6	80-121			
Xylenes, total	29.0	0.22	0.60	ug/L	30.0		96.6	76-127			
Surrogate: 1,2-Dichloroethane-d4	5.20			ug/L	*5.00*		*104*	*80-129*			
Surrogate: Toluene-d8	5.07			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.99			ug/L	*5.00*		*99.8*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.96			ug/L	*5.00*		*99.2*	*80-120*			
LCS Dup (BJC0115-BSD1)					Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 10:13						
Gasoline Range Organics (Tol-Nap)	978		100	ug/L	1000		97.8	72-128	1.72	30	
Surrogate: Toluene-d8	5.09			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.96			ug/L	*5.00*		*99.2*	*80-120*			
LCS Dup (BJC0115-BSD2)					Prepared: 04-Mar-2021 Analyzed: 04-Mar-2021 10:53						
Vinyl Chloride	9.95	0.08	0.20	ug/L	10.0		99.5	66-133	0.03	30	
1,1-Dichloroethene	11.2	0.08	0.20	ug/L	10.0		112	69-135	0.12	30	
trans-1,2-Dichloroethene	10.4	0.07	0.20	ug/L	10.0		104	78-128	1.78	30	
cis-1,2-Dichloroethene	10.2	0.08	0.20	ug/L	10.0		102	80-121	2.88	30	
Benzene	10.1	0.05	0.20	ug/L	10.0		101	80-120	1.37	30	
Trichloroethene	9.86	0.07	0.20	ug/L	10.0		98.6	80-120	1.50	30	
Toluene	9.73	0.05	0.20	ug/L	10.0		97.3	80-120	2.02	30	
Tetrachloroethene	9.75	0.09	0.20	ug/L	10.0		97.5	80-120	1.51	30	
Ethylbenzene	9.66	0.05	0.20	ug/L	10.0		96.6	80-120	2.21	30	
m,p-Xylene	19.8	0.14	0.40	ug/L	20.0		99.2	80-121	2.17	30	
o-Xylene	9.82	0.08	0.20	ug/L	10.0		98.2	80-121	2.69	30	
Xylenes, total	29.7	0.22	0.60	ug/L	30.0		98.9	76-127	2.34	30	
Surrogate: 1,2-Dichloroethane-d4	5.14			ug/L	*5.00*		*103*	*80-129*			
Surrogate: Toluene-d8	4.99			ug/L	*5.00*		*99.7*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.97			ug/L	*5.00*		*99.4*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.99			ug/L	*5.00*		*99.7*	*80-120*			

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Analytical Resources, Incorporated
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	02-Aug-2021 08:59

Volatile Organic Compounds - SIM - Quality Control

Batch BJC0148 - 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 (BJC0148-BLK1)					Prepared: 05-Mar-2021 Analyzed: 05-Mar-2021 12:02						
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	4490			ng/L	*5000*		*89.8*	*80-129*			
Surrogate: Toluene-d8	4710			ng/L	*5000*		*94.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4820			ng/L	*5000*		*96.4*	*75-125*			
LCS (BJC0148-BS1)					Prepared: 05-Mar-2021 Analyzed: 05-Mar-2021 10:32						
Vinyl chloride	1780	5.01	20.0	ng/L	2000		89.2	62-141			
Surrogate: 1,2-Dichloroethane-d4	4560			ng/L	*5000*		*91.3*	*80-129*			
Surrogate: Toluene-d8	4690			ng/L	*5000*		*93.7*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4870			ng/L	*5000*		*97.5*	*75-125*			
LCS Dup (BJC0148-BSD1)					Prepared: 05-Mar-2021 Analyzed: 05-Mar-2021 11:42						
Vinyl chloride	1960	5.01	20.0	ng/L	2000		97.8	62-141	9.13	30	
Surrogate: 1,2-Dichloroethane-d4	5100			ng/L	*5000*		*102*	*80-129*			
Surrogate: Toluene-d8	4750			ng/L	*5000*		*94.9*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5350			ng/L	*5000*		*107*	*75-125*			

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Analytical Resources, Incorporated
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	02-Aug-2021 08:59

Semivolatile Organic Compounds - Quality Control

Batch BJC0058 - 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 (BJC0058-BLK1)				Prepared: 02-Mar-2021 Analyzed: 11-Mar-2021 14:24							
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

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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	02-Aug-2021 08:59

Semivolatile Organic Compounds - Quality Control

Batch BJC0058 - 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 (BJC0058-BLK1)				Prepared: 02-Mar-2021 Analyzed: 11-Mar-2021 14:24							
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	3.93			ug/L	*7.50*		*52.4*	*30-160*			
Surrogate: Phenol-d5	1.92			ug/L	*7.50*		*25.5*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	5.92			ug/L	*7.50*		*78.9*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.27			ug/L	*5.00*		*65.5*	*30-160*			

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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	02-Aug-2021 08:59

Semivolatile Organic Compounds - Quality Control

Batch BJC0058 - 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 (BJC0058-BLK1)				Prepared: 02-Mar-2021 Analyzed: 11-Mar-2021 14:24							
Surrogate: Nitrobenzene-d5	3.91			ug/L	*5.00*		*78.1*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.52			ug/L	*5.00*		*70.4*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.73			ug/L	*7.50*		*89.7*	*30-160*			
Surrogate: p-Terphenyl-d14	3.89			ug/L	*5.00*		*77.9*	*30-160*			
LCS (BJC0058-BS1)				Prepared: 02-Mar-2021 Analyzed: 11-Mar-2021 15:01							
Phenol	1.9	0.01	0.2	ug/L	5.00		38.6	30-160			
bis(2-chloroethyl) ether	4.7	0.03	0.2	ug/L	5.00		93.5	30-160			
2-Chlorophenol	4.3	0.03	0.2	ug/L	5.00		85.1	30-160			
1,3-Dichlorobenzene	3.8	0.03	0.2	ug/L	5.00		76.0	30-160			
1,4-Dichlorobenzene	3.8	0.03	0.2	ug/L	5.00		76.2	30-160			
1,2-Dichlorobenzene	3.8	0.03	0.2	ug/L	5.00		75.9	30-160			
Benzyl Alcohol	2.6	0.02	0.2	ug/L	5.00		52.6	30-160			
2,2'-Oxybis(1-chloropropane)	4.0	0.03	0.2	ug/L	5.00		79.9	30-160			
2-Methylphenol	3.2	0.03	0.2	ug/L	5.00		63.1	30-160			
Hexachloroethane	3.6	0.04	0.2	ug/L	5.00		72.8	30-160			
N-Nitroso-di-n-Propylamine	4.2	0.04	0.2	ug/L	5.00		83.3	30-160			
4-Methylphenol	3.0	0.03	0.2	ug/L	5.00		60.1	30-160			
Nitrobenzene	4.0	0.03	0.2	ug/L	5.00		79.1	30-160			
Isophorone	4.9	0.03	0.2	ug/L	5.00		98.8	30-160			
2-Nitrophenol	3.8	0.04	1.0	ug/L	5.00		76.7	30-160			
2,4-Dimethylphenol	8.8	0.3	1.0	ug/L	13.0		67.4	30-160			
Bis(2-Chloroethoxy)methane	3.8	0.03	0.2	ug/L	5.00		76.8	30-160			
2,4-Dichlorophenol	11.0	0.1	1.0	ug/L	13.0		84.8	30-160			
1,2,4-Trichlorobenzene	3.5	0.03	0.2	ug/L	5.00		69.5	30-160			
Naphthalene	3.7	0.03	0.2	ug/L	5.00		74.4	30-160			
Benzoic acid	8.8	0.1	2.0	ug/L	23.0		38.4	30-160			
4-Chloroaniline	2.0	0.04	1.0	ug/L	13.0		15.6	30-160			*
Hexachlorobutadiene	3.3	0.04	0.2	ug/L	5.00		66.6	30-160			
4-Chloro-3-Methylphenol	11.7	0.1	1.0	ug/L	13.0		90.1	30-160			
2-Methylnaphthalene	3.7	0.03	0.2	ug/L	5.00		74.2	30-160			
Hexachlorocyclopentadiene	7.1	0.1	1.0	ug/L	13.0		54.9	30-160			Q
2,4,6-Trichlorophenol	12.5	0.2	1.0	ug/L	13.0		96.2	30-160			
2,4,5-Trichlorophenol	12.5	0.1	1.0	ug/L	13.0		96.1	30-160			
2-Chloronaphthalene	4.8	0.03	0.2	ug/L	5.00		96.8	30-160			

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Analytical Resources, Incorporated
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	02-Aug-2021 08:59

Semivolatile Organic Compounds - Quality Control

Batch BJC0058 - 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 (BJC0058-BS1)					Prepared: 02-Mar-2021 Analyzed: 11-Mar-2021 15:01						
2-Nitroaniline	14.6	0.2	1.0	ug/L	13.0		112	30-160			
Acenaphthylene	4.0	0.02	0.2	ug/L	5.00		80.7	30-160			
Dimethylphthalate	4.6	0.04	0.2	ug/L	5.00		91.1	30-160			
2,6-Dinitrotoluene	14.1	0.2	1.0	ug/L	13.0		109	30-160			
Acenaphthene	4.3	0.03	0.2	ug/L	5.00		85.4	30-160			
3-Nitroaniline	12.0	0.2	1.0	ug/L	13.0		92.7	30-160			
2,4-Dinitrophenol	20.1	0.2	2.0	ug/L	23.0		87.4	30-160			Q
Dibenzofuran	4.3	0.02	0.2	ug/L	5.00		86.6	30-160			
4-Nitrophenol	1.9	0.06	1.0	ug/L	13.0		14.5	30-160			*, Q
2,4-Dinitrotoluene	16.2	0.1	1.0	ug/L	13.0		124	30-160			
Fluorene	3.6	0.02	0.2	ug/L	5.00		72.7	30-160			Q
4-Chlorophenylphenyl ether	3.8	0.02	0.2	ug/L	5.00		75.2	30-160			
Diethyl phthalate	4.4	0.06	0.2	ug/L	5.00		88.6	30-160			
4-Nitroaniline	15.5	0.2	1.0	ug/L	13.0		119	30-160			
4,6-Dinitro-2-methylphenol	26.0	0.4	2.0	ug/L	23.0		113	30-160			
N-Nitrosodiphenylamine	4.4	0.03	0.2	ug/L	5.00		88.5	30-160			
4-Bromophenyl phenyl ether	5.0	0.02	0.2	ug/L	5.00		99.5	30-160			
Hexachlorobenzene	4.6	0.04	0.2	ug/L	5.00		93.0	30-160			
Pentachlorophenol	9.9	0.1	1.0	ug/L	13.0		75.8	30-160			Q
Phenanthrene	4.9	0.02	0.2	ug/L	5.00		97.5	30-160			
Anthracene	4.9	0.03	0.2	ug/L	5.00		97.7	30-160			
Carbazole	5.2	0.04	0.2	ug/L	5.00		104	30-160			
Di-n-Butylphthalate	5.4	0.05	0.2	ug/L	5.00		108	30-160			
Fluoranthene	5.2	0.03	0.2	ug/L	5.00		105	30-160			
Pyrene	5.4	0.03	0.2	ug/L	5.00		108	30-160			
Butylbenzylphthalate	4.8	0.07	0.2	ug/L	5.00		95.8	30-160			
Benzo(a)anthracene	4.7	0.04	0.2	ug/L	5.00		93.3	30-160			
3,3'-Dichlorobenzidine	7.2	0.3	1.0	ug/L	8.00		90.3	30-160			
Chrysene	4.8	0.04	0.2	ug/L	5.00		96.0	30-160			
bis(2-Ethylhexyl)phthalate	4.8	0.2	0.2	ug/L	5.00		95.1	30-160			
Di-n-Octylphthalate	4.9	0.05	0.2	ug/L	5.00		97.6	30-160			
Benzofluoranthenes, Total	10.4	0.08	0.4	ug/L	10.0		104	30-160			
Benzo(a)pyrene	5.0	0.05	0.2	ug/L	5.00		100	30-160			
Indeno(1,2,3-cd)pyrene	4.7	0.06	0.2	ug/L	5.00		94.8	30-160			
Dibenzo(a,h)anthracene	4.9	0.07	0.2	ug/L	5.00		97.3	30-160			

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Analytical Resources, Incorporated
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	02-Aug-2021 08:59

Semivolatile Organic Compounds - Quality Control

Batch BJC0058 - 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 (BJC0058-BS1)					Prepared: 02-Mar-2021 Analyzed: 11-Mar-2021 15:01						
Benzo(g,h,i)perylene	5.0	0.04	0.2	ug/L	5.00		100	30-160			
1-Methylnaphthalene	3.8	0.03	0.2	ug/L	5.00		76.5	30-160			
Surrogate: 2-Fluorophenol	4.99			ug/L	*7.50*		*66.5*	*30-160*			
Surrogate: Phenol-d5	3.25			ug/L	*7.50*		*43.4*	*30-160*			
Surrogate: 2-Chlorophenol-d4	7.97			ug/L	*7.50*		*106*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.61			ug/L	*5.00*		*72.1*	*30-160*			
Surrogate: Nitrobenzene-d5	4.15			ug/L	*5.00*		*83.0*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.59			ug/L	*5.00*		*91.9*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	7.91			ug/L	*7.50*		*106*	*30-160*			
Surrogate: p-Terphenyl-d14	4.79			ug/L	*5.00*		*95.8*	*30-160*			
LCS Dup (BJC0058-BSD1)					Prepared: 02-Mar-2021 Analyzed: 11-Mar-2021 15:39						
Phenol	2.0	0.01	0.2	ug/L	5.00		40.1	30-160	3.92	30	
bis(2-chloroethyl) ether	4.9	0.03	0.2	ug/L	5.00		98.0	30-160	4.66	30	
2-Chlorophenol	4.4	0.03	0.2	ug/L	5.00		88.5	30-160	3.93	30	
1,3-Dichlorobenzene	4.1	0.03	0.2	ug/L	5.00		81.6	30-160	7.10	30	
1,4-Dichlorobenzene	4.2	0.03	0.2	ug/L	5.00		83.1	30-160	8.67	30	
1,2-Dichlorobenzene	4.1	0.03	0.2	ug/L	5.00		81.6	30-160	7.33	30	
Benzyl Alcohol	2.7	0.02	0.2	ug/L	5.00		54.0	30-160	2.54	30	
2,2'-Oxybis(1-chloropropane)	4.2	0.03	0.2	ug/L	5.00		83.0	30-160	3.77	30	
2-Methylphenol	3.3	0.03	0.2	ug/L	5.00		65.1	30-160	3.10	30	
Hexachloroethane	4.0	0.04	0.2	ug/L	5.00		80.1	30-160	9.54	30	
N-Nitroso-di-n-Propylamine	4.2	0.04	0.2	ug/L	5.00		84.3	30-160	1.13	30	
4-Methylphenol	3.0	0.03	0.2	ug/L	5.00		60.8	30-160	1.20	30	
Nitrobenzene	4.6	0.03	0.2	ug/L	5.00		92.2	30-160	15.30	30	
Isophorone	5.7	0.03	0.2	ug/L	5.00		114	30-160	14.30	30	
2-Nitrophenol	4.3	0.04	1.0	ug/L	5.00		86.3	30-160	11.70	30	
2,4-Dimethylphenol	10.4	0.3	1.0	ug/L	13.0		80.0	30-160	17.10	30	
Bis(2-Chloroethoxy)methane	4.3	0.03	0.2	ug/L	5.00		86.4	30-160	11.70	30	
2,4-Dichlorophenol	12.8	0.1	1.0	ug/L	13.0		98.6	30-160	15.00	30	
1,2,4-Trichlorobenzene	4.1	0.03	0.2	ug/L	5.00		81.6	30-160	16.00	30	
Naphthalene	4.4	0.03	0.2	ug/L	5.00		88.5	30-160	17.20	30	
Benzoic acid	10.8	0.1	2.0	ug/L	23.0		47.1	30-160	20.30	30	
4-Chloroaniline	2.0	0.04	1.0	ug/L	13.0		15.4	30-160	1.18	30	*
Hexachlorobutadiene	4.0	0.04	0.2	ug/L	5.00		79.9	30-160	18.10	30	

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Analytical Resources, Incorporated
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	02-Aug-2021 08:59

Semivolatile Organic Compounds - Quality Control

Batch BJC0058 - 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 (BJC0058-BSD1)					Prepared: 02-Mar-2021 Analyzed: 11-Mar-2021 15:39						
4-Chloro-3-Methylphenol	14.2	0.1	1.0	ug/L	13.0		109	30-160	19.20	30	
2-Methylnaphthalene	4.3	0.03	0.2	ug/L	5.00		85.0	30-160	13.50	30	
Hexachlorocyclopentadiene	7.9	0.1	1.0	ug/L	13.0		60.8	30-160	10.20	30	Q
2,4,6-Trichlorophenol	13.3	0.2	1.0	ug/L	13.0		102	30-160	6.24	30	
2,4,5-Trichlorophenol	14.0	0.1	1.0	ug/L	13.0		108	30-160	11.50	30	
2-Chloronaphthalene	5.0	0.03	0.2	ug/L	5.00		100	30-160	3.34	30	
2-Nitroaniline	15.7	0.2	1.0	ug/L	13.0		121	30-160	7.55	30	
Acenaphthylene	4.2	0.02	0.2	ug/L	5.00		83.1	30-160	3.00	30	
Dimethylphthalate	4.6	0.04	0.2	ug/L	5.00		92.9	30-160	1.94	30	
2,6-Dinitrotoluene	15.1	0.2	1.0	ug/L	13.0		116	30-160	6.75	30	
Acenaphthene	4.4	0.03	0.2	ug/L	5.00		88.8	30-160	3.88	30	
3-Nitroaniline	12.8	0.2	1.0	ug/L	13.0		98.1	30-160	5.69	30	
2,4-Dinitrophenol	22.8	0.2	2.0	ug/L	23.0		99.3	30-160	12.70	30	Q
Dibenzofuran	4.5	0.02	0.2	ug/L	5.00		90.9	30-160	4.79	30	
4-Nitrophenol	3.0	0.06	1.0	ug/L	13.0		23.2	30-160	45.90	30	*, Q
2,4-Dinitrotoluene	17.3	0.1	1.0	ug/L	13.0		133	30-160	6.49	30	
Fluorene	3.8	0.02	0.2	ug/L	5.00		75.5	30-160	3.82	30	Q
4-Chlorophenylphenyl ether	3.4	0.02	0.2	ug/L	5.00		69.0	30-160	8.56	30	
Diethyl phthalate	4.5	0.06	0.2	ug/L	5.00		91.0	30-160	2.63	30	
4-Nitroaniline	16.4	0.2	1.0	ug/L	13.0		126	30-160	5.45	30	
4,6-Dinitro-2-methylphenol	30.0	0.4	2.0	ug/L	23.0		131	30-160	14.40	30	
N-Nitrosodiphenylamine	4.6	0.03	0.2	ug/L	5.00		92.6	30-160	4.54	30	
4-Bromophenyl phenyl ether	5.3	0.02	0.2	ug/L	5.00		107	30-160	6.95	30	
Hexachlorobenzene	5.0	0.04	0.2	ug/L	5.00		101	30-160	8.03	30	
Pentachlorophenol	10.8	0.1	1.0	ug/L	13.0		83.4	30-160	9.47	30	Q
Phenanthrene	5.3	0.02	0.2	ug/L	5.00		106	30-160	8.77	30	
Anthracene	5.2	0.03	0.2	ug/L	5.00		105	30-160	6.95	30	
Carbazole	5.6	0.04	0.2	ug/L	5.00		111	30-160	7.02	30	
Di-n-Butylphthalate	5.6	0.05	0.2	ug/L	5.00		112	30-160	4.08	30	
Fluoranthene	5.4	0.03	0.2	ug/L	5.00		107	30-160	1.99	30	
Pyrene	5.2	0.03	0.2	ug/L	5.00		104	30-160	4.06	30	
Butylbenzylphthalate	5.0	0.07	0.2	ug/L	5.00		99.4	30-160	3.70	30	
Benzo(a)anthracene	5.0	0.04	0.2	ug/L	5.00		100	30-160	7.37	30	
3,3'-Dichlorobenzidine	8.2	0.3	1.0	ug/L	8.00		102	30-160	12.10	30	
Chrysene	5.2	0.04	0.2	ug/L	5.00		103	30-160	7.48	30	

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Analytical Resources, Incorporated
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	02-Aug-2021 08:59

Semivolatile Organic Compounds - Quality Control

Batch BJC0058 - 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 (BJC0058-BSD1)					Prepared: 02-Mar-2021 Analyzed: 11-Mar-2021 15:39						
bis(2-Ethylhexyl)phthalate	5.0	0.2	0.2	ug/L	5.00		99.4	30-160	4.43	30	
Di-n-Octylphthalate	5.2	0.05	0.2	ug/L	5.00		104	30-160	6.72	30	
Benzofluoranthenes, Total	10.9	0.08	0.4	ug/L	10.0		109	30-160	5.21	30	
Benzo(a)pyrene	5.4	0.05	0.2	ug/L	5.00		108	30-160	7.33	30	
Indeno(1,2,3-cd)pyrene	5.2	0.06	0.2	ug/L	5.00		104	30-160	9.06	30	
Dibenzo(a,h)anthracene	5.3	0.07	0.2	ug/L	5.00		106	30-160	8.73	30	
Benzo(g,h,i)perylene	5.4	0.04	0.2	ug/L	5.00		109	30-160	8.57	30	
1-Methylnaphthalene	4.5	0.03	0.2	ug/L	5.00		89.1	30-160	15.30	30	
Surrogate: 2-Fluorophenol	5.08			ug/L	*7.50*		*67.7*	*30-160*			
Surrogate: Phenol-d5	3.24			ug/L	*7.50*		*43.2*	*30-160*			
Surrogate: 2-Chlorophenol-d4	7.47			ug/L	*7.50*		*99.6*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.75			ug/L	*5.00*		*75.0*	*30-160*			
Surrogate: Nitrobenzene-d5	4.62			ug/L	*5.00*		*92.5*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.68			ug/L	*5.00*		*93.7*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	7.77			ug/L	*7.50*		*104*	*30-160*			
Surrogate: p-Terphenyl-d14	4.85			ug/L	*5.00*		*96.9*	*30-160*			

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Analytical Resources, Incorporated
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	02-Aug-2021 08:59

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJC0057 - 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 (BJC0057-BLK1)				Prepared: 03-Mar-2021 Analyzed: 16-Mar-2021 15:59							
Naphthalene	0.017	0.001	0.010	ug/L							
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*		*73.1*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.242			ug/L	*0.300*		*80.5*	*29-120*			
Surrogate: Fluoranthene-d10	0.235			ug/L	*0.300*		*78.2*	*57-120*			
LCS (BJC0057-BS1)				Prepared: 03-Mar-2021 Analyzed: 16-Mar-2021 16:32							
Naphthalene	0.220	0.001	0.010	ug/L	0.300		73.3	37-120			B
2-Methylnaphthalene	0.218	0.001	0.010	ug/L	0.300		72.6	37-120			
1-Methylnaphthalene	0.226	0.0009	0.010	ug/L	0.300		75.2	29-120			
Acenaphthylene	0.194	0.002	0.010	ug/L	0.300		64.5	41-120			
Acenaphthene	0.195	0.003	0.010	ug/L	0.300		65.0	41-120			
Dibenzofuran	0.191	0.002	0.010	ug/L	0.300		63.8	38-120			Q
Fluorene	0.207	0.002	0.010	ug/L	0.300		68.9	43-120			

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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	02-Aug-2021 08:59

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJC0057 - 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 (BJC0057-BS1)					Prepared: 03-Mar-2021 Analyzed: 16-Mar-2021 16:32						
Phenanthrene	0.226	0.001	0.010	ug/L	0.300		75.2	41-120			
Anthracene	0.215	0.001	0.010	ug/L	0.300		71.7	40-120			
Carbazole	0.237	0.001	0.010	ug/L	0.300		79.0	30-160			
Fluoranthene	0.239	0.002	0.010	ug/L	0.300		79.6	45-120			
Pyrene	0.243	0.001	0.010	ug/L	0.300		80.9	41-120			
Benzo(a)anthracene	0.228	0.0008	0.010	ug/L	0.300		76.1	42-120			
Chrysene	0.223	0.0009	0.010	ug/L	0.300		74.4	44-120			
Benzo(b)fluoranthene	0.249	0.0005	0.010	ug/L	0.300		83.1	44-120			
Benzo(k)fluoranthene	0.224	0.003	0.010	ug/L	0.300		74.7	50-120			
Benzo(j)fluoranthene	0.248	0.002	0.010	ug/L	0.300		82.5	39-160			
Benzofluoranthenes, Total	0.721	0.004	0.010	ug/L	0.900		80.1	46-120			
Benzo(a)pyrene	0.222	0.002	0.010	ug/L	0.300		74.0	35-120			
Perylene	0.193	0.006	0.010	ug/L	0.300		64.5	30-160			
Indeno(1,2,3-cd)pyrene	0.256	0.001	0.010	ug/L	0.300		85.3	37-120			
Dibenzo(a,h)anthracene	0.247	0.001	0.010	ug/L	0.300		82.3	34-120			
Benzo(g,h,i)perylene	0.237	0.001	0.010	ug/L	0.300		79.0	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.245			ug/L	*0.300*		*81.7*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.262			ug/L	*0.300*		*87.3*	*29-120*			
Surrogate: Fluoranthene-d10	0.254			ug/L	*0.300*		*84.7*	*57-120*			
LCS Dup (BJC0057-BSD1)					Prepared: 03-Mar-2021 Analyzed: 16-Mar-2021 17:04						
Naphthalene	0.228	0.001	0.010	ug/L	0.300		76.1	37-120	3.66	30	B
2-Methylnaphthalene	0.233	0.001	0.010	ug/L	0.300		77.6	37-120	6.71	30	
1-Methylnaphthalene	0.240	0.0009	0.010	ug/L	0.300		79.9	29-120	6.05	30	
Acenaphthylene	0.203	0.002	0.010	ug/L	0.300		67.6	41-120	4.72	30	
Acenaphthene	0.207	0.003	0.010	ug/L	0.300		68.9	41-120	5.70	30	
Dibenzofuran	0.201	0.002	0.010	ug/L	0.300		67.2	38-120	5.14	30	Q
Fluorene	0.218	0.002	0.010	ug/L	0.300		72.7	43-120	5.29	30	
Phenanthrene	0.234	0.001	0.010	ug/L	0.300		78.0	41-120	3.62	30	
Anthracene	0.220	0.001	0.010	ug/L	0.300		73.5	40-120	2.52	30	
Carbazole	0.245	0.001	0.010	ug/L	0.300		81.6	30-160	3.19	30	
Fluoranthene	0.252	0.002	0.010	ug/L	0.300		84.0	45-120	5.33	30	
Pyrene	0.252	0.001	0.010	ug/L	0.300		84.0	41-120	3.80	30	
Benzo(a)anthracene	0.235	0.0008	0.010	ug/L	0.300		78.2	42-120	2.79	30	
Chrysene	0.236	0.0009	0.010	ug/L	0.300		78.7	44-120	5.54	30	

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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	02-Aug-2021 08:59

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJC0057 - 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 (BJC0057-BSD1)					Prepared: 03-Mar-2021 Analyzed: 16-Mar-2021 17:04						
Benzo(b)fluoranthene	0.239	0.0005	0.010	ug/L	0.300		79.8	44-120	4.00	30	
Benzo(k)fluoranthene	0.233	0.003	0.010	ug/L	0.300		77.8	50-120	4.08	30	
Benzo(j)fluoranthene	0.283	0.002	0.010	ug/L	0.300		94.4	39-160	13.40	30	
Benzofluoranthenes, Total	0.756	0.004	0.010	ug/L	0.900		84.0	46-120	4.77	30	
Benzo(a)pyrene	0.228	0.002	0.010	ug/L	0.300		76.0	35-120	2.68	30	
Perylene	0.198	0.006	0.010	ug/L	0.300		66.1	30-160	2.43	30	
Indeno(1,2,3-cd)pyrene	0.258	0.001	0.010	ug/L	0.300		86.1	37-120	0.92	30	
Dibenzo(a,h)anthracene	0.247	0.001	0.010	ug/L	0.300		82.2	34-120	0.16	30	
Benzo(g,h,i)perylene	0.246	0.001	0.010	ug/L	0.300		82.0	38-120	3.83	30	
Surrogate: 2-Methylnaphthalene-d10	0.244			ug/L	*0.300*		*81.5*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.250			ug/L	*0.300*		*83.3*	*29-120*			
Surrogate: Fluoranthene-d10	0.253			ug/L	*0.300*		*84.2*	*57-120*			

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Analytical Resources, Incorporated
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	02-Aug-2021 08:59

Petroleum Hydrocarbons - Quality Control

Batch BJC0012 - 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 (BJC0012-BLK1)				Prepared: 01-Mar-2021	Analyzed: 11-Mar-2021 21:31					
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	0.243		mg/L	*0.225*		*108*	*50-150*			
LCS (BJC0012-BS1)				Prepared: 01-Mar-2021	Analyzed: 11-Mar-2021 21:52					
Diesel Range Organics (C12-C24)	3.04	0.100	mg/L	3.00		101	56-120			
Surrogate: o-Terphenyl	0.256		mg/L	*0.225*		*114*	*50-150*			
LCS Dup (BJC0012-BSD1)				Prepared: 01-Mar-2021	Analyzed: 11-Mar-2021 22:13					
Diesel Range Organics (C12-C24)	3.26	0.100	mg/L	3.00		109	56-120	7.07	30	
Surrogate: o-Terphenyl	0.268		mg/L	*0.225*		*119*	*50-150*			

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Analytical Resources, Incorporated
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	02-Aug-2021 08:59

Aroclor PCB - Quality Control

Batch BJC0031 - 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 (BJC0031-BLK1)				Prepared: 02-Mar-2021 Analyzed: 13-Mar-2021 13:37							
Aroclor 1016	ND	0.018	0.100	ug/L							U
Aroclor 1221	ND	0.018	0.100	ug/L							U
Aroclor 1232	ND	0.018	0.100	ug/L							U
Aroclor 1242	ND	0.018	0.100	ug/L							U
Aroclor 1248	ND	0.018	0.100	ug/L							U
Aroclor 1254	ND	0.018	0.100	ug/L							U
Aroclor 1260	ND	0.017	0.100	ug/L							U
Surrogate: Decachlorobiphenyl	0.0451			ug/L	*0.0800*		*56.4*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0441			ug/L	*0.0800*		*55.1*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0478			ug/L	*0.0800*		*59.7*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0379			ug/L	*0.0800*		*47.4*	*39-120*			
LCS (BJC0031-BS1)				Prepared: 02-Mar-2021 Analyzed: 13-Mar-2021 13:57							
Aroclor 1016	0.668	0.018	0.100	ug/L	1.00		66.8	51-120			
Aroclor 1260 [2C]	0.720	0.017	0.100	ug/L	1.00		72.0	56-120			
Surrogate: Decachlorobiphenyl	0.0480			ug/L	*0.0800*		*60.0*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0531			ug/L	*0.0800*		*66.4*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0506			ug/L	*0.0800*		*63.2*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0409			ug/L	*0.0800*		*51.1*	*39-120*			
LCS Dup (BJC0031-BSD1)				Prepared: 02-Mar-2021 Analyzed: 13-Mar-2021 14:18							
Aroclor 1016	0.669	0.018	0.100	ug/L	1.00		66.9	51-120	0.08	30	
Aroclor 1260 [2C]	0.734	0.017	0.100	ug/L	1.00		73.4	56-120	1.86	30	
Surrogate: Decachlorobiphenyl	0.0505			ug/L	*0.0800*		*63.1*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0488			ug/L	*0.0800*		*61.0*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0527			ug/L	*0.0800*		*65.9*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0413			ug/L	*0.0800*		*51.6*	*39-120*			

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Analytical Resources, Incorporated
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	02-Aug-2021 08:59

Metals and Metallic Compounds - Quality Control

Batch BJC0127 - 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 (BJC0127-BLK1)					Prepared: 04-Mar-2021 Analyzed: 05-Mar-2021 17:56							
Lead	208	ND	0.0680	0.100	ug/L							U
Silver	107	ND	0.0170	0.200	ug/L							U
Arsenic	75a	ND	0.0220	0.200	ug/L							U
Copper	63	ND	0.340	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	ND	0.0500	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Selenium	78	ND	0.440	0.500	ug/L							U
Zinc	66	ND	0.820	4.00	ug/L							U
Zinc	67	ND	0.940	4.00	ug/L							U
Blank (BJC0127-BLK2)					Prepared: 04-Mar-2021 Analyzed: 08-Mar-2021 15:44							
Chromium	52	ND	0.130	0.500	ug/L							U
Chromium	53	ND	0.0700	0.500	ug/L							U
Blank (BJC0127-BLK3)					Prepared: 04-Mar-2021 Analyzed: 09-Mar-2021 19:11							
Manganese	55	ND	0.0850	0.500	ug/L							U
LCS (BJC0127-BS1)					Prepared: 04-Mar-2021 Analyzed: 05-Mar-2021 18:00							
Lead	208	26.7	0.0680	0.100	ug/L	25.0		107	80-120			
Silver	107	25.9	0.0170	0.200	ug/L	25.0		104	80-120			
Arsenic	75a	24.5	0.0220	0.200	ug/L	25.0		98.1	80-120			
Copper	63	24.7	0.340	0.500	ug/L	25.0		98.8	80-120			
Copper	65	25.1	0.350	0.500	ug/L	25.0		100	80-120			
Nickel	60	25.3	0.0500	0.500	ug/L	25.0		101	80-120			
Nickel	62	24.4	0.220	0.500	ug/L	25.0		97.4	80-120			
Selenium	78	79.7	0.440	0.500	ug/L	80.0		99.6	80-120			
Zinc	66	80.3	0.820	4.00	ug/L	80.0		100	80-120			
Zinc	67	73.9	0.940	4.00	ug/L	80.0		92.4	80-120			
LCS (BJC0127-BS2)					Prepared: 04-Mar-2021 Analyzed: 08-Mar-2021 15:48							
Chromium	52	26.4	0.130	0.500	ug/L	25.0		105	80-120			
Chromium	53	26.9	0.0700	0.500	ug/L	25.0		107	80-120			
LCS (BJC0127-BS3)					Prepared: 04-Mar-2021 Analyzed: 09-Mar-2021 19:15							
Manganese	55	28.2	0.0850	0.500	ug/L	25.0		113	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	02-Aug-2021 08:59

Metals and Metallic Compounds - Quality Control

Batch BJC0127 - 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
Duplicate (BJC0127-DUP1)			**Source: 21B0322-11**		Prepared: 04-Mar-2021		Analyzed: 11-Mar-2021 23:58					
Chromium	52	0.438	0.130	0.500	ug/L		0.447			2.03	20	J
Lead	208	ND	0.0680	0.100	ug/L		ND					U
Silver	107	ND	0.0170	0.200	ug/L		ND					U
Arsenic	75a	0.438	0.0220	0.200	ug/L		0.434			0.92	20	
Copper	63	ND	0.340	0.500	ug/L		ND					U
Nickel	60	0.190	0.0500	0.500	ug/L		0.170			11.10	20	J
Selenium	78	ND	0.440	0.500	ug/L		ND					U
Zinc	66	ND	0.820	4.00	ug/L		1.33					U
Duplicate (BJC0127-DUP2)			**Source: 21B0322-11RE1**		Prepared: 04-Mar-2021		Analyzed: 10-Mar-2021 19:40					
Manganese	55	792	1.70	10.0	ug/L		805			1.58	20	D
Matrix Spike (BJC0127-MS1)			**Source: 21B0322-11**		Prepared: 04-Mar-2021		Analyzed: 12-Mar-2021 00:02					
Chromium	52	20.7	0.130	0.500	ug/L	25.0	0.447	81.1	75-125			
Lead	208	28.9	0.0680	0.100	ug/L	25.0	ND	115	75-125			
Silver	107	24.5	0.0170	0.200	ug/L	25.0	ND	98.1	75-125			
Arsenic	75a	24.4	0.0220	0.200	ug/L	25.0	0.434	95.9	75-125			
Copper	63	25.6	0.340	0.500	ug/L	25.0	ND	103	75-125			
Nickel	60	26.6	0.0500	0.500	ug/L	25.0	0.170	106	75-125			
Selenium	78	70.4	0.440	0.500	ug/L	80.0	ND	88.0	75-125			
Zinc	66	75.6	0.820	4.00	ug/L	80.0	1.33	92.9	75-125			

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

Matrix Spike (BJC0127-MS2)			**Source: 21B0322-11RE1**		Prepared: 04-Mar-2021		Analyzed: 10-Mar-2021 19:45					
Manganese	55	828	1.70	10.0	ug/L	25.0	805	91.3	75-125			HC, D

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

Matrix Spike Dup (BJC0127-MSD1)			**Source: 21B0322-11**		Prepared: 04-Mar-2021		Analyzed: 12-Mar-2021 00:07					
Chromium	52	21.3	0.130	0.500	ug/L	25.0	0.447	83.3	75-125	2.68	20	
Lead	208	30.7	0.0680	0.100	ug/L	25.0	ND	123	75-125	6.23	20	
Silver	107	25.0	0.0170	0.200	ug/L	25.0	ND	100	75-125	2.07	20	
Arsenic	75a	25.3	0.0220	0.200	ug/L	25.0	0.434	99.3	75-125	3.40	20	
Copper	63	26.9	0.340	0.500	ug/L	25.0	ND	107	75-125	4.65	20	
Nickel	60	27.6	0.0500	0.500	ug/L	25.0	0.170	110	75-125	3.45	20	
Selenium	78	72.6	0.440	0.500	ug/L	80.0	ND	90.7	75-125	3.03	20	
Zinc	66	78.7	0.820	4.00	ug/L	80.0	1.33	96.7	75-125	3.94	20	

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Analytical Resources, Incorporated
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	02-Aug-2021 08:59

Metals and Metallic Compounds - Quality Control

Batch BJC0127 - 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 (BJC0127-MSD1)			**Source: 21B0322-11**			Prepared: 04-Mar-2021	Analyzed: 12-Mar-2021 00:07					
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0127-MSD2)			**Source: 21B0322-11RE1**			Prepared: 04-Mar-2021	Analyzed: 10-Mar-2021 19:50					
Manganese	55	815	1.70	10.0	ug/L	25.0	805	37.9	75-125	1.62	20	HC, D
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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 08:59

Metals and Metallic Compounds - Quality Control

Batch BJC0219 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0219-BLK1)				Prepared: 09-Mar-2021 Analyzed: 10-Mar-2021 09:54							
Mercury	ND	0.000013	0.000100	mg/L							U
LCS (BJC0219-BS1)				Prepared: 09-Mar-2021 Analyzed: 10-Mar-2021 09:56							
Mercury	0.00205	0.000013	0.000100	mg/L	0.00200		102	80-120			

Analytical Resources, Incorporated
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	02-Aug-2021 08:59

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0138 - 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 (BJC0138-BLK1)						Prepared: 05-Mar-2021 Analyzed: 05-Mar-2021 19:15						
Chromium, Dissolved	52	0.244	0.130	0.500	ug/L							J
Chromium, Dissolved	53	0.201	0.0700	0.500	ug/L							J
Lead, Dissolved	208	ND	0.0680	0.100	ug/L							U
Silver, Dissolved	107	ND	0.0170	0.200	ug/L							U
Arsenic, Dissolved	75a	ND	0.0220	0.200	ug/L							U
Copper, Dissolved	63	ND	0.340	0.500	ug/L							U
Copper, Dissolved	65	ND	0.350	0.500	ug/L							U
Nickel, Dissolved	60	ND	0.0500	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
Selenium, Dissolved	78	ND	0.440	0.500	ug/L							U
Zinc, Dissolved	66	ND	0.820	4.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	4.00	ug/L							U
Blank (BJC0138-BLK2)						Prepared: 05-Mar-2021 Analyzed: 10-Mar-2021 16:56						
Manganese, Dissolved	55	ND	0.0850	0.500	ug/L							U
LCS (BJC0138-BS1)						Prepared: 05-Mar-2021 Analyzed: 05-Mar-2021 19:19						
Chromium, Dissolved	52	28.4	0.130	0.500	ug/L	25.0		114	80-120			
Chromium, Dissolved	53	28.2	0.0700	0.500	ug/L	25.0		113	80-120			
Lead, Dissolved	208	26.4	0.0680	0.100	ug/L	25.0		106	80-120			
Silver, Dissolved	107	24.9	0.0170	0.200	ug/L	25.0		99.6	80-120			
Arsenic, Dissolved	75a	23.5	0.0220	0.200	ug/L	25.0		94.0	80-120			
Copper, Dissolved	63	23.9	0.340	0.500	ug/L	25.0		95.7	80-120			
Copper, Dissolved	65	24.4	0.350	0.500	ug/L	25.0		97.6	80-120			
Nickel, Dissolved	60	23.5	0.0500	0.500	ug/L	25.0		94.1	80-120			
Nickel, Dissolved	62	23.3	0.220	0.500	ug/L	25.0		93.2	80-120			
Selenium, Dissolved	78	75.2	0.440	0.500	ug/L	80.0		94.0	80-120			
Zinc, Dissolved	66	75.8	0.820	4.00	ug/L	80.0		94.7	80-120			
Zinc, Dissolved	67	70.0	0.940	4.00	ug/L	80.0		87.5	80-120			
LCS (BJC0138-BS2)						Prepared: 05-Mar-2021 Analyzed: 10-Mar-2021 17:00						
Manganese, Dissolved	55	25.0	0.0850	0.500	ug/L	25.0		99.8	80-120			
Duplicate (BJC0138-DUP1)			**Source: 21B0322-12**			Prepared: 05-Mar-2021 Analyzed: 12-Mar-2021 01:48						
Chromium, Dissolved	52	0.199	0.130	0.500	ug/L		0.247			21.50	20	L, J
Arsenic, Dissolved	75a	0.255	0.0220	0.200	ug/L		0.283			10.40	20	

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Analytical Resources, Incorporated
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	02-Aug-2021 08:59

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0138 - 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
Duplicate (BJC0138-DUP1)			**Source: 21B0322-12**		Prepared: 05-Mar-2021		Analyzed: 12-Mar-2021 01:48					
Copper, Dissolved	63	ND	0.340	0.500	ug/L		ND					U
Nickel, Dissolved	60	0.195	0.0500	0.500	ug/L		0.197			1.02	20	J
Selenium, Dissolved	78	ND	0.440	0.500	ug/L		ND					U
Zinc, Dissolved	66	ND	0.820	4.00	ug/L		0.959					U
Duplicate (BJC0138-DUP2)			**Source: 21B0322-12RE1**		Prepared: 05-Mar-2021		Analyzed: 12-Mar-2021 01:28					
Manganese, Dissolved	55	666	0.850	5.00	ug/L		666			0.06	20	D
Duplicate (BJC0138-DUP3)			**Source: 21B0322-12**		Prepared: 05-Mar-2021		Analyzed: 12-Mar-2021 21:10					
Lead, Dissolved	208	ND	0.0680	0.100	ug/L		ND					U
Silver, Dissolved	107	ND	0.0170	0.200	ug/L		ND					U
Matrix Spike (BJC0138-MS1)			**Source: 21B0322-12**		Prepared: 05-Mar-2021		Analyzed: 12-Mar-2021 01:52					
Chromium, Dissolved	52	21.0	0.130	0.500	ug/L	25.0	0.247	82.9	75-125			
Arsenic, Dissolved	75a	24.7	0.0220	0.200	ug/L	25.0	0.283	97.6	75-125			
Copper, Dissolved	63	26.5	0.340	0.500	ug/L	25.0	ND	106	75-125			
Nickel, Dissolved	60	27.3	0.0500	0.500	ug/L	25.0	0.197	108	75-125			
Selenium, Dissolved	78	71.3	0.440	0.500	ug/L	80.0	ND	89.1	75-125			
Zinc, Dissolved	66	79.1	0.820	4.00	ug/L	80.0	0.959	97.6	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BJC0138-MS2)			**Source: 21B0322-12RE1**		Prepared: 05-Mar-2021		Analyzed: 12-Mar-2021 01:32					
Manganese, Dissolved	55	713	0.850	5.00	ug/L	25.0	666	188	75-125			HC, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BJC0138-MS3)			**Source: 21B0322-12**		Prepared: 05-Mar-2021		Analyzed: 12-Mar-2021 21:15					
Lead, Dissolved	208	25.3	0.0680	0.100	ug/L	25.0	ND	101	75-125			
Silver, Dissolved	107	24.6	0.0170	0.200	ug/L	25.0	ND	98.5	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0138-MSD1)			**Source: 21B0322-12**		Prepared: 05-Mar-2021		Analyzed: 12-Mar-2021 01:57					
Chromium, Dissolved	52	21.6	0.130	0.500	ug/L	25.0	0.247	85.5	75-125	3.14	20	
Arsenic, Dissolved	75a	24.8	0.0220	0.200	ug/L	25.0	0.283	98.0	75-125	0.45	20	
Copper, Dissolved	63	27.4	0.340	0.500	ug/L	25.0	ND	109	75-125	3.08	20	
Nickel, Dissolved	60	27.8	0.0500	0.500	ug/L	25.0	0.197	110	75-125	1.71	20	
Selenium, Dissolved	78	71.7	0.440	0.500	ug/L	80.0	ND	89.6	75-125	0.48	20	

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Analytical Resources, Incorporated
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	02-Aug-2021 08:59

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0138 - 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 (BJC0138-MSD1)			**Source: 21B0322-12**			Prepared: 05-Mar-2021		Analyzed: 12-Mar-2021 01:57				
Zinc, Dissolved	66	80.9	0.820	4.00	ug/L	80.0	0.959	100	75-125	2.31	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0138-MSD2)			**Source: 21B0322-12RE1**			Prepared: 05-Mar-2021		Analyzed: 12-Mar-2021 01:36				
Manganese, Dissolved	55	713	0.850	5.00	ug/L	25.0	666	188	75-125	0.01	20	HC, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0138-MSD3)			**Source: 21B0322-12**			Prepared: 05-Mar-2021		Analyzed: 12-Mar-2021 21:21				
Lead, Dissolved	208	25.6	0.0680	0.100	ug/L	25.0	ND	102	75-125	0.84	20	
Silver, Dissolved	107	24.5	0.0170	0.200	ug/L	25.0	ND	98.2	75-125	0.32	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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 08:59

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0220 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0220-BLK1)					Prepared: 09-Mar-2021	Analyzed: 10-Mar-2021 10:26					
Mercury, Dissolved	ND	0.000013	0.000100	mg/L							U
LCS (BJC0220-BS1)					Prepared: 09-Mar-2021	Analyzed: 10-Mar-2021 10:28					
Mercury, Dissolved	0.00211	0.000013	0.000100	mg/L	0.00200		105	80-120			
Duplicate (BJC0220-DUP1)		**Source: 21B0322-10**			Prepared: 09-Mar-2021	Analyzed: 10-Mar-2021 10:33					
Mercury, Dissolved	ND	0.000013	0.000100	mg/L		ND					U
Matrix Spike (BJC0220-MS1)		**Source: 21B0322-10**			Prepared: 09-Mar-2021	Analyzed: 10-Mar-2021 10:35					
Mercury, Dissolved	0.00110	0.000013	0.000100	mg/L	0.00100	ND	110	75-125			

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

Matrix Spike Dup (BJC0220-MSD1)		**Source: 21B0322-10**			Prepared: 09-Mar-2021	Analyzed: 10-Mar-2021 10:38					
Mercury, Dissolved	0.00110	0.000013	0.000100	mg/L	0.00100	ND	110	75-125	0.10	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	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 08:59

Wet Chemistry - Quality Control

Batch BJB0712 - No Prep Wet Chem

Instrument: UV1800-2 Analyst: WMT

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJB0712-BLK1)				Prepared: 24-Feb-2021 Analyzed: 24-Feb-2021 18:07							
Hexavalent Chromium	ND	0.013	0.013	mg/L							U
LCS (BJB0712-BS1)				Prepared: 24-Feb-2021 Analyzed: 24-Feb-2021 18:07							
Hexavalent Chromium	0.627	0.013	0.013	mg/L	0.625		100	85-115			D
Duplicate (BJB0712-DUP1)		**Source: 21B0322-01**		Prepared: 24-Feb-2021 Analyzed: 24-Feb-2021 18:08							
Hexavalent Chromium	ND	0.013	0.013	mg/L		ND					U
Matrix Spike (BJB0712-MS1)		**Source: 21B0322-01**		Prepared: 24-Feb-2021 Analyzed: 24-Feb-2021 18:09							
Hexavalent Chromium	0.073	0.013	0.013	mg/L	0.0625	ND	116	85-115			*, K, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Post Spike (BJB0712-PS1)		**Source: 21B0322-01**		Prepared: 24-Feb-2021 Analyzed: 24-Feb-2021 18:22							
Hexavalent Chromium	0.037			mg/L	0.249	ND	9.03	85-115			*

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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	02-Aug-2021 08:59

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Silver-107	WADOE,WA-DW,DoD-ELAP,NELAP
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
Silver-107	WA-DW,DoD-ELAP,NELAP
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
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
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	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1016 (1)	ADEC
Aroclor-1016 (2)	ADEC

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Aroclor-1016 (3)	ADEC
Aroclor-1016 (4)	ADEC
Aroclor 1016 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1016 (1) [2C]	ADEC
Aroclor-1016 (2) [2C]	ADEC
Aroclor-1016 (3) [2C]	ADEC
Aroclor-1016 (4) [2C]	ADEC
Aroclor 1221	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1221 (1)	ADEC
Aroclor-1221 (2)	ADEC
Aroclor-1221 (3)	ADEC
Aroclor 1221 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1221 (1) [2C]	ADEC
Aroclor-1221 (2) [2C]	ADEC
Aroclor-1221 (3) [2C]	ADEC
Aroclor-1221 (4) [2C]	ADEC
Aroclor 1232	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1232 (1)	ADEC
Aroclor-1232 (2)	ADEC
Aroclor-1232 (3)	ADEC
Aroclor-1232 (4)	ADEC
Aroclor 1232 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1232 (1) [2C]	ADEC
Aroclor-1232 (2) [2C]	ADEC
Aroclor-1232 (3) [2C]	ADEC
Aroclor-1232 (4) [2C]	ADEC
Aroclor 1242	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1242 (1)	ADEC
Aroclor-1242 (2)	ADEC
Aroclor-1242 (3)	ADEC
Aroclor-1242 (4)	ADEC
Aroclor 1242 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1242 (1) [2C]	ADEC
Aroclor-1242 (2) [2C]	ADEC
Aroclor-1242 (3) [2C]	ADEC
Aroclor-1242 (4) [2C]	ADEC
Aroclor 1248	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1248 (1)	ADEC
Aroclor-1248 (2)	ADEC

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Aroclor-1248 (3)	ADEC
Aroclor-1248 (4)	ADEC
Aroclor 1248 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1248 (1) [2C]	ADEC
Aroclor-1248 (2) [2C]	ADEC
Aroclor-1248 (3) [2C]	ADEC
Aroclor-1248 (4) [2C]	ADEC
Aroclor 1254	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1254 (1)	ADEC
Aroclor-1254 (2)	ADEC
Aroclor-1254 (3)	ADEC
Aroclor-1254 (4)	ADEC
Aroclor-1254 (5)	ADEC
Aroclor 1254 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1254 (1) [2C]	ADEC
Aroclor-1254 (2) [2C]	ADEC
Aroclor-1254 (3) [2C]	ADEC
Aroclor-1254 (4) [2C]	ADEC
Aroclor-1254 (5) [2C]	ADEC
Aroclor 1260	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1260 (1)	ADEC
Aroclor-1260 (2)	ADEC
Aroclor-1260 (3)	ADEC
Aroclor-1260 (4)	ADEC
Aroclor-1260 (5)	ADEC
Aroclor 1260 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1260 (1) [2C]	ADEC
Aroclor-1260 (2) [2C]	ADEC
Aroclor-1260 (3) [2C]	ADEC
Aroclor-1260 (4) [2C]	ADEC
Aroclor 1262	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1262 (1)	ADEC
Aroclor-1262 (2)	ADEC
Aroclor-1262 (3)	ADEC
Aroclor-1262 (4)	ADEC
Aroclor-1262 (5)	ADEC
Aroclor 1262 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1262 (1) [2C]	ADEC
Aroclor-1262 (2) [2C]	ADEC

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Aroclor-1262 (3) [2C]	ADEC
Aroclor-1262 (4) [2C]	ADEC
Aroclor-1262 (5) [2C]	ADEC
Aroclor 1268	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1268 (1)	ADEC
Aroclor-1268 (2)	ADEC
Aroclor-1268 (3)	ADEC
Aroclor-1268 (4)	ADEC
Aroclor 1268 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1268 (1) [2C]	ADEC
Aroclor-1268 (2) [2C]	ADEC
Aroclor-1268 (3) [2C]	ADEC
Aroclor-1268 (4) [2C]	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

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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
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

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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
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

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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
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

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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
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

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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

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

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.

Analytical Resources, Incorporated
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	02-Aug-2021 08:59

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
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.
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
NRS	This surrogate not reported due to chromatographic 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).
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

02 August 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)
21B0344	N/A

Susan Dunnihoo

Digitally signed by Susan Dunnihoo
Date: 2021.08.02 11:49:51 -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.

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

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21B0344	Turn-around Requested: Standard	Page: 1 of 3	
ARI Client Company: Shannon & Wilson	Phone: 206-695-6811	Date: 2/25/2021	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 3	Cooler Temps: See CRF
Client Project Name: LOW			
Client Project #: 21-1-12596	Samplers: DES/MRH		

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	Analysis Requested: TPH-G	TPH-Dx	BTEX	HVOCs	PCBs	PAHs	Limited list SVOCs	See page 2	Notes/Comments
TB-11-20212502	2/25/21	0902	Water	1	X		X	X					
MW-6-20212502	↓	0950	↓	12	X	X	X	X	X			X	
MW-65-20212502		1100		16	X	X	X	X	X	X	X	X	
MW-13R-20212502		1226		8	X	X	X						
MW-40-20212502		1333		12		X		X		X	X	X	
MW-41-20212502	↓	1413	↓	9		X		X		X	X	X	

Comments/Special Instructions
- Lab to filter for metals
- Please refer to project methods & analyte lists

	Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)				
Printed Name:	Daniel Schwicht	Kenny Dang		
Company:	SWI	ARI		
Date & Time:	25-FEB-21, 1525	2/25/21 1525		

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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21B0344	Turn-around Requested: Standard	Page: 2 of 3	
ARI Client Company: Shannon & Wilson	Phone: 206-695-6911	Date: 2/25/2021	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 3	Cooler Temps: see COC
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: DES/MRH		

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Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: 1	Analysis Requested: Full list metals (total & diss)	Analysis Requested: 2	Notes/Comments
MW-6-20212502	see page 1 →				X			1= Metals (total & diss): As, Cu
MW-65-20212502	see page 1 →					X		
MW-40-20212502	see page 1 →						X	2= Metals (total & diss) As, Mn, Ni, Cd, Cu, Pb, Hg, Se, Ag, Zn
MW-41-20212502	see page 1 →						X	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
• Lab to filter metals • Please refer to project methods & analyte lists	Printed Name: DANIEL SCHWICHT	Printed Name: Kenny Dang	Printed Name:	Printed Name:
	Company: SWI	Company: ARI	Company:	Company:
	Date & Time: 25 FEB 21 1525	Date & Time: 2/25/21 1525	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

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21B0344	Turn-around Requested: Standard	Page: 3 of 3	
ARI Client Company: Shannon & Wilson	Phone: 206-695-6911	Date: 2/25/2021	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 3	Cooler Temps: See CRF
Client Project Name: LOW			
Client Project #: 21-1-12596	Samplers: DES/MRH		

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Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Porosity	Notes/Comments
MW-54: 10.5-13: 02032021	02/03/2021	1555	Soil	1 Shelby tube	X	Select a SP-SM layer for testing
MW-54: 17-19.5: 02042021	02/04/2021	0930	Soil	1 Shelby tube	X	Select SL-SM layer for testing
MW-70: 12-14.5: 02022021	02/02/2021	1530	Soil	1 Shelby tube	X	Select SM layer for testing
MW-70: 16.5-19: 02022021	02/02/2021	1550	Soil	1 Shelby tube	X	Select SP layer for testing

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
*Please note selected depth interval of test specimen within report	Printed Name: DANIEL SCHWICHT	Printed Name: Kenny Dang	Printed Name:	Printed Name:
	Company: SWI	Company: ARI	Company:	Company:
	Date & Time: 25-FEB-21 1525	Date & Time: 2/25/21 1525	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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TB-11-20212502	21B0344-01	Water	25-Feb-2021 09:02	25-Feb-2021 15:25
MW-6-20212502	21B0344-02	Water	25-Feb-2021 09:50	25-Feb-2021 15:25
MW-6-20212502	21B0344-03	Water	25-Feb-2021 09:50	25-Feb-2021 15:25
MW-65-20212502	21B0344-04	Water	25-Feb-2021 11:00	25-Feb-2021 15:25
MW-65-20212502	21B0344-05	Water	25-Feb-2021 11:00	25-Feb-2021 15:25
MW-13R-20212502	21B0344-06	Water	25-Feb-2021 12:26	25-Feb-2021 15:25
MW-40-20212502	21B0344-07	Water	25-Feb-2021 13:33	25-Feb-2021 15:25
MW-40-20212502	21B0344-08	Water	25-Feb-2021 13:33	25-Feb-2021 15:25
MW-41-20212502	21B0344-09	Water	25-Feb-2021 14:13	25-Feb-2021 15:25
MW-41-20212502	21B0344-10	Water	25-Feb-2021 14:13	25-Feb-2021 15:25
MW-54:10.5-13:02032021	21B0344-11	Solid	03-Feb-2021 15:55	25-Feb-2021 15:25
MW-54:17-19.5:02042021	21B0344-12	Solid	04-Feb-2021 08:30	25-Feb-2021 15:25
MW-70:12-14.5:02022021	21B0344-13	Solid	04-Feb-2021 15:30	25-Feb-2021 15:25
MW-70:16.5-19:02022021	21B0344-14	Solid	04-Feb-2021 15:50	25-Feb-2021 15:25

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.

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish
Work Order: 21B0344

Revised Report - May 19, 2021

This report was revised to include subcontracted Porosity analysis.

Sample receipt

Samples as listed on the preceding page were received 25-Feb-2021 15:25 under ARI work order 21B0344. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Porosity

The samples were subcontracted to Materials Testing and Consulting (MTC) for Porosity analysis. The MTC report is included in entirety.

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 Aroclor 1242 which was out of control high in the continuing calibration verification (CCV) on column zb-5. Data reported from passing column zb-35. All samples are non-detect.

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 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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

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.

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 Pentachlorophenol which was out of control low in the initial calibration verification (ICV). All samples which contain analyte have been flagged with a "Q" qualifier.

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.

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

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 (MB) and samples 21B0344-04, 21B0344-07 and 21C0344-09. Deviations have been flagged within this report.

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

The blank spike (BS/LCS) percent recoveries 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 except 2-Chloronaphthalene and Dibenzofuran which were 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.

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

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.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits except Total Nickel. All associated 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 21B0344-08 in Dissolved Metals batch BJC0290 and in association with sample 21B0344-05 in Dissolved Antimony batch BJC0401. 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.

Total and Dissolved Mercury - EPA Method 7470/7471

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

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 21B0344-04 in Total Mercury batch BJC0250 and in association with sample 21B0344-10 in Dissolved Mercury batch BJC0252. 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 (BS/LCS) percent recoveries were within control limits.

Porosity

The samples were submitted to Materials Testing & Consulting, Inc. (MTC) for Porosity analysis. The MTC report is included here in its entirety.

REVISON 2 to add trans-1,2-dichloroethene to VOC list

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.

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 02/26/2021 09:26:52

WORK ORDER

21B0344

Client: Shannon & Wilson, Inc	**Project Manager: Amanda Volgardsen Johnson**
Project: Lower Duwamish	**Project Number: 21-1-12596**

Preservation Confirmation

Container ID	Container Type	pH	
21B0344-01 A	VOA Vial, Clear, 40 mL, HCL		
21B0344-02 A	Glass NM, Amber, 500 mL		
21B0344-02 B	Glass NM, Amber, 500 mL		
21B0344-02 C	Glass NM, Amber, 500 mL		
21B0344-02 D	Glass NM, Amber, 500 mL		
21B0344-02 E	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0344-02 F	VOA Vial, Amber, 40 mL, HCL		
21B0344-02 G	VOA Vial, Amber, 40 mL, HCL		
21B0344-02 H	VOA Vial, Amber, 40 mL, HCL		
21B0344-02 I	VOA Vial, Amber, 40 mL, HCL		
21B0344-02 J	VOA Vial, Amber, 40 mL, HCL		
21B0344-02 K	VOA Vial, Amber, 40 mL, HCL		
21B0344-03 A	HDPE NM, 500 mL	>2	Fail (1)
21B0344-04 A	Glass NM, Amber, 500 mL		
21B0344-04 B	Glass NM, Amber, 500 mL		
21B0344-04 C	Glass NM, Amber, 500 mL		
21B0344-04 D	Glass NM, Amber, 500 mL		
21B0344-04 E	Glass NM, Amber, 500 mL		
21B0344-04 F	Glass NM, Amber, 500 mL		
21B0344-04 G	Glass NM, Amber, 500 mL		
21B0344-04 H	Glass NM, Amber, 500 mL		
21B0344-04 I	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0344-04 J	VOA Vial, Amber, 40 mL, HCL		
21B0344-04 K	VOA Vial, Amber, 40 mL, HCL		
21B0344-04 L	VOA Vial, Amber, 40 mL, HCL		
21B0344-04 M	VOA Vial, Amber, 40 mL, HCL		
21B0344-04 N	VOA Vial, Amber, 40 mL, HCL		
21B0344-04 O	VOA Vial, Amber, 40 mL, HCL		
21B0344-05 A	HDPE NM, 500 mL	>2	Fail (1)
21B0344-06 A	Glass NM, Amber, 500 mL		
21B0344-06 B	Glass NM, Amber, 500 mL		
21B0344-06 C	VOA Vial, Amber, 40 mL, HCL		
21B0344-06 D	VOA Vial, Amber, 40 mL, HCL		
21B0344-06 E	VOA Vial, Amber, 40 mL, HCL		
21B0344-06 F	VOA Vial, Amber, 40 mL, HCL		

Reviewed By

Date

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 02/26/2021 09:26:52

WORK ORDER

21B0344

Client: Shannon & Wilson, Inc
Project Manager: Amanda Volgardsen Johnson
Project: Lower Duwamish
Project Number: 21-1-12596

21B0344-06 G	VOA Vial, Amber, 40 mL, HCL		
21B0344-06 H	VOA Vial, Amber, 40 mL, HCL		
21B0344-07 A	Glass NM, Amber, 500 mL		
21B0344-07 B	Glass NM, Amber, 500 mL		
21B0344-07 C	Glass NM, Amber, 500 mL		
21B0344-07 D	Glass NM, Amber, 500 mL		
21B0344-07 E	Glass NM, Amber, 500 mL		
21B0344-07 F	Glass NM, Amber, 500 mL		
21B0344-07 G	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0344-07 H	VOA Vial, Amber, 40 mL, HCL		
21B0344-07 I	VOA Vial, Amber, 40 mL, HCL		
21B0344-07 J	VOA Vial, Amber, 40 mL, HCL		
21B0344-07 K	VOA Vial, Amber, 40 mL, HCL		
21B0344-08 A	HDPE NM, 500 mL	>2	Fail (1)
21B0344-09 A	Glass NM, Amber, 1000 mL		
21B0344-09 B	Glass NM, Amber, 1000 mL		
21B0344-09 C	Glass NM, Amber, 1000 mL		
21B0344-09 D	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
21B0344-09 E	VOA Vial, Amber, 40 mL, HCL		
21B0344-09 F	VOA Vial, Amber, 40 mL, HCL		
21B0344-09 G	VOA Vial, Amber, 40 mL, HCL		
21B0344-09 H	VOA Vial, Amber, 40 mL, HCL		
21B0344-10 A	HDPE NM, 500 mL	>2	Fail (1)
21B0344-11 A	Miscellaneous Container		
21B0344-12 A	Miscellaneous Container		
21B0344-13 A	Miscellaneous Container		
21B0344-14 A	Miscellaneous Container		

Preservation Confirmed By

02/26/2021
Date

(1) Filtered at 0.45 um and preserved to pH <2.0 with 0.75 ml Conc. HNO_3 (1554). ML ~~3/01/21~~ ML 2/26/21

Reviewed By

Date

Materials Testing & Consulting, Inc.

Geotechnical Engineering • Special Inspection • Materials Testing • Environmental Consulting

Client:	Analytical Resources, Inc	**Date:**	May 18, 2021
Address:	4611 S 134th Place, Suite 100	**Project:**	Lower Duwamish (21B0344)
	Tukwila, WA	**Project #:**	21S023-22
Attn:	Shelly Fishel	**Sample #:**	Multiple
		Date Sampled:	Multiple

As requested MTC, Inc. has performed the following test(s) on the sample referenced above. The testing was performed in accordance with current applicable AASHTO or ASTM standards as indicated below. The results obtained in our laboratory were as follows below or on the attached pages:

	Test(s) Performed:	Test Results		Test(s) Performed:	Test Results
X	Porosity	See Attached Report		Sulfate Soundness	
	Proctor			Bulk Density & Voids	
	Sand Equivalent			WSDOT Degradation	
	Fracture Count			CEC	
	Moisture Content			Organic Content	
	Specific Gravity, Coarse				
	Specific Gravity, Fine				
	Hydrometer Analysis				
	Atterberg Limits				
	Asphalt Extraction/Gradation				
	Rice Density				

If you have any questions concerning the test results, the procedures used, or if we can be of any further assistance please call on us at the number below.

Respectfully Submitted,

Beth Goble
Senior Laboratory Technician

Materials Testing & Consulting, Inc.

Geotechnical Engineering • Special Inspection • Materials Testing • Environmental Consulting

Project: Lower Duwamish (21B0344)
Project #: 21S023-22
Client: Analytical Resources, Inc.
Source: See Below
Sample#: See Below

Date Received: March 1, 2021
Date Sampled: Multiple
Sampled By: Others
Date Tested: April 1, 2021
Tested By: B. Goble

Wet/Dry Density, Moisture Content and Porosity

Sample #	Location	Depth (ft)	Wet Density (lbs/ft3)	Moisture Content (%)	Dry Density (lbs/ft3)	Porosity
S21-0455	MW-54:10.5-13:02032021	18	109.6	8.6	101.0	0.389
S21-0456	MW-54:17-19.5:02042021	13.5	119.0	24.0	95.9	0.419
S21-0457	MW-70:12-14.5:02022021	18	112.8	21.6	92.8	0.445
S21-0458	MW-70:16.5-19:02022021	12	117.1	25.3	93.4	0.441

All results apply only to actual locations and materials tested. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

Reviewed by: EGabriel Goble

Corporate ~ 777 Chrysler Drive • Burlington, WA 98233 • Phone (360) 755-1990 • Fax (360) 755-1980

Regional Offices: Olympia ~ 360.534.9777 Bellingham ~ 360.647.6111 Silverdale ~ 360.698.6787 Tukwila ~ 206.241.1974

Visit our website: www.mtc-inc.net

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

TB-11-20212502

21B0344-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/25/2021 09:02

Instrument: NT2 Analyst: PKC — Analyzed: 03/05/2021 12:33

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0344-01 A

Preparation Batch: BJC0144 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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 %*	*107*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.1*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*94.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.4*	*%*	

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.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

TB-11-20212502

21B0344-01 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/25/2021 09:02

Instrument: NT2 Analyst: PKC — Analyzed: 03/05/2021 12:33

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0344-01 A

Preparation Batch: BJC0144 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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 %*	*99.1*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*94.9*	*%*	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-6-20212502

21B0344-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/25/2021 09:50

Instrument: NT2 Analyst: PKC — Analyzed: 03/05/2021 16:37

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0344-02 F

Preparation Batch: BJC0144 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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 %*	*111*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*94.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.0*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-6-20212502

21B0344-02 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/25/2021 09:50

Instrument: NT2 Analyst: PKC — Analyzed: 03/05/2021 16:37

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0344-02 F

Preparation Batch: BJC0144 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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 %*	*94.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-6-20212502

21B0344-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/25/2021 09:50

Instrument: NT16 Analyst: PB — Analyzed: 03/05/2021 15:48

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0344-02 J

Preparation Batch: BJC0148 — Sample Size: 10 mL

Prepared: 03/05/2021 — 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 %*	*84.1*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*94.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*86.6*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-6-20212502

21B0344-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/25/2021 09:50
Instrument: FID4 Analyst: CTO — Analyzed: 03/16/2021 05:16

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0344-02 A 01
Preparation Batch: BJC0055 — Sample Size: 475 mL
Prepared: 03/02/2021 — 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 %*	*112*	*%*	

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Draft for Public Comment

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-6-20212502

21B0344-02 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/25/2021 09:50
Instrument: ECD7 Analyst: JGR — Analyzed: 03/13/2021 22:30

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0344-02 C 01
	Preparation Batch: BJC0059	Sample Size: 445 mL	
	Prepared: 03/03/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0344-02 C 01
	Cleanup Batch: CJC0138	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0344-02 C 01
	Cleanup Batch: CJC0136	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0344-02 C 01
	Cleanup Batch: CJC0137	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.020	0.112	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.020	0.112	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.020	0.112	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.020	0.112	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.020	0.112	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.020	0.112	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.020	0.112	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*71.3*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*70.5*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*79.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*59.8*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-6-20212502

21B0344-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/25/2021 09:50
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 01:02

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-02 E 01
Preparation Batch: BJC0224 — Sample Size: 25 mL
Prepared: 03/09/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	9.37	ug/L	
Copper	7440-50-8	1	0.340	0.500	1.23	ug/L	

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Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-6-20212502

21B0344-03 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/25/2021 09:50
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 04:59

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-03 A 02
Preparation Batch: BJC0290 — Sample Size: 25 mL — Filtration Batch: BJB0782
Prepared: 03/11/2021 — Final Volume: 25 mL — Filtration Date: 02/26/2021 14:20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	2.82	ug/L	
Copper, Dissolved	7440-50-8	1	0.340	0.500	0.383	ug/L	J

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-65-20212502

21B0344-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/25/2021 11:00
Instrument: NT2 Analyst: PKC — Analyzed: 03/05/2021 16:57

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0344-04 M
Preparation Batch: BJC0144 — Sample Size: 10 mL
Prepared: 03/04/2021 — 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	0.22	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	0.07	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 %*	*109*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*92.7*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*97.4*	*%*	

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Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-65-20212502

21B0344-04 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/25/2021 11:00

Instrument: NT2 Analyst: PKC — Analyzed: 03/05/2021 16:57

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0344-04 M

Preparation Batch: BJC0144 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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 %*	*92.7*	*%*	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-65-20212502

21B0344-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/25/2021 11:00

Instrument: NT16 Analyst: PB — Analyzed: 03/05/2021 16:08

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0344-04 L

Preparation Batch: BJC0148 — Sample Size: 10 mL

Prepared: 03/05/2021 — 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 %*	*92.7*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*90.4*	*%*	

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Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-65-20212502

21B0344-04 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/25/2021 11:00
Instrument: NT10 Analyst: VTS — Analyzed: 03/11/2021 18:09

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0344-04 E 01
Preparation Batch: BJC0058 — Sample Size: 1000 mL
Prepared: 03/02/2021 — 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	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 %*	*52.9*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*26.9*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*77.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*63.3*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*80.7*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*72.7*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*106*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*82.2*	*%*	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-65-20212502

21B0344-04 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/25/2021 11:00
Instrument: NT11 Analyst: VTS — Analyzed: 03/16/2021 18:42

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0344-04 C 01
Preparation Batch: BJC0057 — Sample Size: 500 mL
Prepared: 03/03/2021 — Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 21B0344-04 C 01
Cleanup Batch: CJC0112 — Initial Volume: 0.5 mL
Cleaned: 10-Mar-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	0.007	ug/L	J, B
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	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	0.004	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	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 %*	*78.2*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*57.2*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*81.6*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-65-20212502

21B0344-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/25/2021 11:00
Instrument: FID4 Analyst: CTO — Analyzed: 03/16/2021 05:37

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0344-04 A 01
Preparation Batch: BJC0055 — Sample Size: 435 mL
Prepared: 03/02/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.115	ND	mg/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	0.230	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*121*	*%*	

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Draft for Public Comment

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-65-20212502

21B0344-04 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 02/25/2021 11:00
Instrument: ECD7 Analyst: JGR — Analyzed: 03/13/2021 22:51

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 21B0344-04 G 01
	Preparation Batch: BJC0059	Sample Size: 500 mL	
	Prepared: 03/03/2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21B0344-04 G 01
	Cleanup Batch: CJC0138	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21B0344-04 G 01
	Cleanup Batch: CJC0136	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21B0344-04 G 01
	Cleanup Batch: CJC0137	Initial Volume: 1 mL	
	Cleaned: 11-Mar-2021	Final Volume: 1 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1221	11104-28-2	1	0.018	0.100	ND	ug/L	U
Aroclor 1232	11141-16-5	1	0.018	0.100	ND	ug/L	U
Aroclor 1242	53469-21-9	1	0.018	0.100	ND	ug/L	U
Aroclor 1248	12672-29-6	1	0.018	0.100	ND	ug/L	U
Aroclor 1254	11097-69-1	1	0.018	0.100	ND	ug/L	U
Aroclor 1260	11096-82-5	1	0.017	0.100	ND	ug/L	U
Surrogate: Decachlorobiphenyl				*26-120 %*	*73.5*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*74.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*81.2*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*56.1*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-65-20212502

21B0344-04 (Water)

Metals and Metallic Compounds

Method: [CALC] Sampled: 02/25/2021 11:00
Instrument: [CALC] Analyst: MCB Analyzed: 03/15/2021 16:32

Sample Preparation: Preparation Method: [CALC] Extract ID: 21B0344-04
Preparation Batch: [CALC]
Prepared: 03/09/2021 Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Hardness		50	10.4	518	mg/L CaCO3	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-65-20212502

21B0344-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/25/2021 11:00

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 04:49

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-04 I 01

Preparation Batch: BJC0224 — Sample Size: 25 mL

Prepared: 03/09/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0530	0.500	20.5	ug/L	
Calcium	7440-70-2	50	95.3	2500	82400	ug/L	D
Chromium	7440-47-3	2	0.260	1.00	ND	ug/L	U
Cobalt	7440-48-4	2	0.0580	0.400	1.64	ug/L	D
Iron	7439-89-6	2	12.5	40.0	15700	ug/L	D
Lead	7439-92-1	2	0.136	0.200	ND	ug/L	U
Magnesium	7439-95-4	50	15.3	1000	75800	ug/L	D
Silver	7440-22-4	1	0.0170	0.200	ND	ug/L	U
Vanadium	7440-62-2	2	0.0800	0.400	ND	ug/L	U

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-65-20212502

21B0344-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/25/2021 11:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/11/2021 21:22

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-04 I 01
Preparation Batch: BJC0224 — Sample Size: 25 mL
Prepared: 03/09/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	2	0.0440	0.400	0.956	ug/L	D
Cadmium	7440-43-9	2	0.0600	0.200	ND	ug/L	U
Copper	7440-50-8	2	0.680	1.00	ND	ug/L	U
Nickel	7440-02-0	2	0.100	1.00	19.8	ug/L	D, B
Selenium	7782-49-2	2	0.880	1.00	ND	ug/L	U
Zinc	7440-66-6	2	1.64	8.00	1.73	ug/L	J, D

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-65-20212502

21B0344-04 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/25/2021 11:00
Instrument: HYDRA Analyst: BLC — Analyzed: 03/11/2021 10:23

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0344-04 I
Preparation Batch: BJC0250 — Sample Size: 20 mL
Prepared: 03/10/2021 — Final Volume: 20 mL

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

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-65-20212502

21B0344-04RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/25/2021 11:00

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/13/2021 00:38

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-04RE1 I 01

Preparation Batch: BJC0224 — Sample Size: 25 mL

Prepared: 03/09/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	50	4.25	25.0	5490	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-65-20212502

21B0344-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/25/2021 11:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/13/2021 00:50

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-05 A 02
Preparation Batch: BJC0290 — Sample Size: 25 mL — Filtration Batch: BJB0782
Prepared: 03/11/2021 — Final Volume: 25 mL — Filtration Date: 02/26/2021 14:20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	17.2	ug/L	
Chromium, Dissolved	7440-47-3	1	0.130	0.500	ND	ug/L	U
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	1.69	ug/L	
Iron, Dissolved	7439-89-6	1	6.27	20.0	7770	ug/L	
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Silver, Dissolved	7440-22-4	1	0.0170	0.200	ND	ug/L	U
Vanadium, Dissolved	7440-62-2	1	0.0400	0.200	ND	ug/L	U

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-65-20212502

21B0344-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/25/2021 11:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 05:03

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-05 A 02
Preparation Batch: BJC0290 — Sample Size: 25 mL — Filtration Batch: BJB0782
Prepared: 03/11/2021 — Final Volume: 25 mL — Filtration Date: 02/26/2021 14:20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	0.345	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	19.7	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	1.56	ug/L	J

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-65-20212502

21B0344-05 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/25/2021 11:00
Instrument: HYDRA Analyst: BLC — Analyzed: 03/11/2021 11:00

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0344-05 A 01
Preparation Batch: BJC0252 — Sample Size: 20 mL — Filtration Batch: BJB0782
Prepared: 03/10/2021 — Final Volume: 20 mL — Filtration Date: 02/26/2021 14:20

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	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-65-20212502

21B0344-05RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/25/2021 11:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/13/2021 00:42

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-05RE1 A 02
Preparation Batch: BJC0290 — Sample Size: 25 mL — Filtration Batch: BJB0782
Prepared: 03/11/2021 — Final Volume: 25 mL — Filtration Date: 02/26/2021 14:20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	50	4.25	25.0	5330	ug/L	D

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-05RE1 A 04
Preparation Batch: BJC0401 — Sample Size: 25 mL — Filtration Batch: BJB0782
Prepared: 03/15/2021 — Final Volume: 25 mL — Filtration Date: 02/26/2021 14:20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony, Dissolved	7440-36-0	1	0.0180	0.200	0.150	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-13R-20212502

21B0344-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/25/2021 12:26

Instrument: NT2 Analyst: PKC — Analyzed: 03/05/2021 17:17

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0344-06 F

Preparation Batch: BJC0144 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*92.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-13R-20212502

21B0344-06 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 02/25/2021 12:26

Instrument: NT2 Analyst: PKC — Analyzed: 03/05/2021 17:17

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0344-06 F

Preparation Batch: BJC0144 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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 %*	*92.2*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-13R-20212502

21B0344-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/25/2021 12:26
Instrument: FID4 Analyst: CTO — Analyzed: 03/16/2021 05:58

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0344-06 A 01
Preparation Batch: BJC0055 — Sample Size: 475 mL
Prepared: 03/02/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.105	4.27	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.211	2.12	mg/L	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*99.6*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-40-20212502

21B0344-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/25/2021 13:33

Instrument: NT2 Analyst: PKC — Analyzed: 03/05/2021 17:37

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0344-07 H

Preparation Batch: BJC0144 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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 %*	*109*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.0*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.5*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-40-20212502

21B0344-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/25/2021 13:33
Instrument: NT16 Analyst: PB — Analyzed: 03/05/2021 16:28

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0344-07 J
Preparation Batch: BJC0148 — Sample Size: 10 mL
Prepared: 03/05/2021 — 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	52.3	ng/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*81.7*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*92.3*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*85.7*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-40-20212502

21B0344-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/25/2021 13:33

Instrument: NT10 Analyst: VTS — Analyzed: 03/11/2021 18:46

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0344-07 E 01

Preparation Batch: BJC0058 — Sample Size: 1000 mL

Prepared: 03/02/2021 — 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	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 %*	*57.3*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*28.3*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*85.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*67.9*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*88.3*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*77.4*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*111*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*92.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-40-20212502

21B0344-07 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/25/2021 13:33
Instrument: NT11 Analyst: VTS — Analyzed: 03/16/2021 19:14

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJC0057; Prepared: 03/03/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21B0344-07 C 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJC0112; Cleaned: 10-Mar-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21B0344-07 C 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.001	0.010	0.005	ug/L	J, B
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	0.074	ug/L	
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	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 %*	*77.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*55.2*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*80.8*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-40-20212502

21B0344-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/25/2021 13:33
Instrument: FID4 Analyst: CTO — Analyzed: 03/16/2021 06:19

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0344-07 A 01
Preparation Batch: BJC0055 — Sample Size: 450 mL
Prepared: 03/02/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.111	0.266	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.222	0.326	mg/L	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*121*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-40-20212502

21B0344-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/25/2021 13:33

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 19:10

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-07 G 01

Preparation Batch: BJC0224 — Sample Size: 25 mL

Prepared: 03/09/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese	7439-96-5	1	0.0850	0.500	164	ug/L	
Silver	7440-22-4	1	0.0170	0.200	ND	ug/L	U

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-40-20212502

21B0344-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/25/2021 13:33
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 01:39

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-07 G 01
Preparation Batch: BJC0224 — Sample Size: 25 mL
Prepared: 03/09/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	6.44	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	0.0350	ug/L	J
Copper	7440-50-8	1	0.340	0.500	4.59	ug/L	
Selenium	7782-49-2	1	0.440	0.500	1.92	ug/L	
Zinc	7440-66-6	1	0.820	4.00	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	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-40-20212502

21B0344-07 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/25/2021 13:33
Instrument: HYDRA Analyst: BLC — Analyzed: 03/11/2021 10:32

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0344-07 G
Preparation Batch: BJC0250 — Sample Size: 20 mL
Prepared: 03/10/2021 — Final Volume: 20 mL

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

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-40-20212502

21B0344-07RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/25/2021 13:33
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/15/2021 19:10

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-07RE1 G 02
Preparation Batch: BJC0342 — Sample Size: 25 mL
Prepared: 03/15/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nickel	7440-02-0	1	0.0500	0.500	4.32	ug/L	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-40-20212502

21B0344-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/25/2021 13:33
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/13/2021 00:02

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-08 A 02
Preparation Batch: BJC0290 — Sample Size: 25 mL — Filtration Batch: BJB0782
Prepared: 03/11/2021 — Final Volume: 25 mL — Filtration Date: 02/26/2021 14:20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Manganese, Dissolved	7439-96-5	1	0.0850	0.500	149	ug/L	
Silver, Dissolved	7440-22-4	1	0.0170	0.200	ND	ug/L	U

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-40-20212502

21B0344-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/25/2021 13:33
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 05:12

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-08 A 02
Preparation Batch: BJC0290 — Sample Size: 25 mL — Filtration Batch: BJB0782
Prepared: 03/11/2021 — Final Volume: 25 mL — Filtration Date: 02/26/2021 14:20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	1.99	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	3.68	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	3.72	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	1.85	ug/L	
Zinc, Dissolved	7440-66-6	1	0.820	4.00	0.865	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-40-20212502

21B0344-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/25/2021 13:33
Instrument: HYDRA Analyst: BLC — Analyzed: 03/11/2021 11:02

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0344-08 A 01
Preparation Batch: BJC0252 — Sample Size: 20 mL — Filtration Batch: BJB0782
Prepared: 03/10/2021 — Final Volume: 20 mL — Filtration Date: 02/26/2021 14:20

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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-41-20212502

21B0344-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 02/25/2021 14:13

Instrument: NT2 Analyst: PKC — Analyzed: 03/05/2021 17:58

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0344-09 F

Preparation Batch: BJC0144 — Sample Size: 10 mL

Prepared: 03/04/2021 — 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	0.50	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	0.12	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 %*	*108*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.8*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.3*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-41-20212502

21B0344-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 02/25/2021 14:13

Instrument: NT16 Analyst: PB — Analyzed: 03/05/2021 16:48

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21B0344-09 G

Preparation Batch: BJC0148 — Sample Size: 10 mL

Prepared: 03/05/2021 — 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	330	ng/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*90.8*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.2*	*%*	
Surrogate: 4-Bromofluorobenzene				*75-125 %*	*87.7*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-41-20212502

21B0344-09 (Water)

Semivolatile Organic Compounds

Method: EPA 8270E — Sampled: 02/25/2021 14:13
Instrument: NT10 Analyst: VTS — Analyzed: 03/11/2021 19:24

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0344-09 C 01
Preparation Batch: BJC0058 — Sample Size: 1000 mL
Prepared: 03/02/2021 — 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	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 %*	*50.5*	*%*	
Surrogate: Phenol-d5				*30-160 %*	*25.7*	*%*	*
Surrogate: 2-Chlorophenol-d4				*30-160 %*	*89.7*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*30-160 %*	*61.9*	*%*	
Surrogate: Nitrobenzene-d5				*30-160 %*	*78.0*	*%*	
Surrogate: 2-Fluorobiphenyl				*30-160 %*	*82.9*	*%*	
Surrogate: 2,4,6-Tribromophenol				*30-160 %*	*107*	*%*	
Surrogate: p-Terphenyl-d14				*30-160 %*	*85.7*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-41-20212502

21B0344-09 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 02/25/2021 14:13
Instrument: NT11 Analyst: VTS — Analyzed: 03/16/2021 19:47

Sample Preparation: Preparation Method: EPA 3510C SepF; Preparation Batch: BJC0057; Prepared: 03/03/2021; Sample Size: 500 mL; Final Volume: 0.5 mL — Extract ID: 21B0344-09 B 01

Sample Cleanup: Cleanup Method: Silica Gel; Cleanup Batch: CJC0112; Cleaned: 10-Mar-2021; Initial Volume: 0.5 mL; Final Volume: 0.5 mL — Extract ID: 21B0344-09 B 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, B
2-Methylnaphthalene	91-57-6	1	0.001	0.010	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.0009	0.010	0.032	ug/L	
Acenaphthylene	208-96-8	1	0.002	0.010	ND	ug/L	U
Acenaphthene	83-32-9	1	0.003	0.010	1.07	ug/L	E
Dibenzofuran	132-64-9	1	0.002	0.010	ND	ug/L	U
Fluorene	86-73-7	1	0.002	0.010	0.212	ug/L	
Phenanthrene	85-01-8	1	0.001	0.010	0.027	ug/L	
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 %*	*88.1*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*29-120 %*	*51.9*	*%*	
Surrogate: Fluoranthene-d10				*57-120 %*	*80.2*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-41-20212502

21B0344-09 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 02/25/2021 14:13
Instrument: FID4 Analyst: CTO — Analyzed: 03/16/2021 06:39

Sample Preparation: Preparation Method: EPA 3510C SepF — Extract ID: 21B0344-09 A 01
Preparation Batch: BJC0055 — Sample Size: 500 mL
Prepared: 03/02/2021 — Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	0.100	0.423	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			*50-150 %*	*135*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-41-20212502

21B0344-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/25/2021 14:13

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 19:17

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-09 D 01

Preparation Batch: BJC0224 — Sample Size: 25 mL

Prepared: 03/09/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead	7439-92-1	1	0.0680	0.100	4.13	ug/L	
Silver	7440-22-4	1	0.0170	0.200	ND	ug/L	U

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-41-20212502

21B0344-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/25/2021 14:13
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 03:19

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-09 D 01
Preparation Batch: BJC0224 — Sample Size: 25 mL
Prepared: 03/09/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	52.2	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper	7440-50-8	1	0.340	0.500	1.21	ug/L	
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	1.62	ug/L	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-41-20212502

21B0344-09 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 02/25/2021 14:13
Instrument: HYDRA Analyst: BLC — Analyzed: 03/11/2021 10:34

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0344-09 D
Preparation Batch: BJC0250 — Sample Size: 20 mL
Prepared: 03/10/2021 — Final Volume: 20 mL

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

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-41-20212502

21B0344-09RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B — Sampled: 02/25/2021 14:13

Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 03:14

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-09RE1 D 01

Preparation Batch: BJC0224 — Sample Size: 25 mL

Prepared: 03/09/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	10	0.850	5.00	692	ug/L	D

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-41-20212502

21B0344-09RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020B UCT-KED — Sampled: 02/25/2021 14:13
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/15/2021 19:17

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-09RE1 D 02
Preparation Batch: BJC0342 — Sample Size: 25 mL
Prepared: 03/15/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nickel	7440-02-0	1	0.0500	0.500	2.13	ug/L	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-41-20212502

21B0344-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/25/2021 14:13
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/13/2021 00:46

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-10 A 02
Preparation Batch: BJC0290 — Sample Size: 25 mL — Filtration Batch: BJB0782
Prepared: 03/11/2021 — Final Volume: 25 mL — Filtration Date: 02/26/2021 14:20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	U
Silver, Dissolved	7440-22-4	1	0.0170	0.200	ND	ug/L	U

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-41-20212502

21B0344-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B UCT-KED — Sampled: 02/25/2021 14:13
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 05:08

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-10 A 02
Preparation Batch: BJC0290 — Sample Size: 25 mL — Filtration Batch: BJB0782
Prepared: 03/11/2021 — Final Volume: 25 mL — Filtration Date: 02/26/2021 14:20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	28.7	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	U
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	U
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	0.560	ug/L	
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc, Dissolved	7440-66-6	1	0.820	4.00	ND	ug/L	U

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Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-41-20212502

21B0344-10 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 02/25/2021 14:13
Instrument: HYDRA Analyst: BLC — Analyzed: 03/11/2021 10:51

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 21B0344-10 A 01
Preparation Batch: BJC0252 — Sample Size: 20 mL — Filtration Batch: BJB0782
Prepared: 03/10/2021 — Final Volume: 20 mL — Filtration Date: 02/26/2021 14:20

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	02-Aug-2021 11:36

MW-41-20212502

21B0344-10RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020B — Sampled: 02/25/2021 14:13
Instrument: ICPMS1 Analyst: MCB — Analyzed: 03/12/2021 22:12

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 21B0344-10RE1 A 02
Preparation Batch: BJC0290 — Sample Size: 25 mL — Filtration Batch: BJB0782
Prepared: 03/11/2021 — Final Volume: 25 mL — Filtration Date: 02/26/2021 14:20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Manganese, Dissolved	7439-96-5	5	0.425	2.50	741	ug/L	D

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MW-54:10.5-13:02032021

21B0344-11 (Solid)

Other Methods

Method: Subcontract Specific Method — Sampled: 02/03/2021 15:55

Instrument: MT&C Analyst: — Analyzed: 04/01/2021 00:00

Analysis by: Materials Testing & Consulting, Inc. (Olympia)

Sample Preparation: Preparation Method: No Prep Geo — Extract ID: 21B0344-11

Preparation Batch: B042121

Prepared: 04/01/2021 Final Volume:

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Porosity	POROSITY	1		0.389	%	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-54:17-19.5:02042021

21B0344-12 (Solid)

Other Methods

Method: Subcontract Specific Method — Sampled: 02/04/2021 08:30
Instrument: MT&C Analyst: — Analyzed: 04/01/2021 00:00

Analysis by: Materials Testing & Consulting, Inc. (Olympia)

Sample Preparation: Preparation Method: No Prep Geo — Extract ID: 21B0344-12
Preparation Batch: B042121
Prepared: 04/01/2021 Final Volume:

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Porosity	POROSITY	1		0.419	%	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-70:12-14.5:02022021

21B0344-13 (Solid)

Other Methods

Method: Subcontract Specific Method — Sampled: 02/04/2021 15:30

Instrument: MT&C Analyst: — Analyzed: 04/01/2021 00:00

Analysis by: Materials Testing & Consulting, Inc. (Olympia)

Sample Preparation: Preparation Method: No Prep Geo — Extract ID: 21B0344-13

Preparation Batch: B042121

Prepared: 04/01/2021 Final Volume:

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Porosity	POROSITY	1		0.445	%	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

MW-70:16.5-19:02022021

21B0344-14 (Solid)

Other Methods

Method: Subcontract Specific Method — Sampled: 02/04/2021 15:50

Instrument: MT&C Analyst: — Analyzed: 04/01/2021 00:00

Analysis by: Materials Testing & Consulting, Inc. (Olympia)

Sample Preparation: Preparation Method: No Prep Geo — Extract ID: 21B0344-14

Preparation Batch: B042121

Prepared: 04/01/2021 Final Volume:

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Porosity	POROSITY	1		0.441	%	

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Volatile Organic Compounds - Quality Control

Batch BJC0144 - 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 (BJC0144-BLK1)				Prepared: 05-Mar-2021 Analyzed: 05-Mar-2021 12:12							
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							U
Surrogate: Toluene-d8	4.93			ug/L	*5.00*		*98.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.75			ug/L	*5.00*		*94.9*	*80-120*			
Blank (BJC0144-BLK2)				Prepared: 05-Mar-2021 Analyzed: 05-Mar-2021 12:12							
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	5.21			ug/L	*5.00*		*104*	*80-129*			
Surrogate: Toluene-d8	4.93			ug/L	*5.00*		*98.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.75			ug/L	*5.00*		*94.9*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.02			ug/L	*5.00*		*100*	*80-120*			
LCS (BJC0144-BS1)				Prepared: 05-Mar-2021 Analyzed: 05-Mar-2021 10:28							
Gasoline Range Organics (Tol-Nap)	994		100	ug/L	1000		99.4	72-128			
Surrogate: Toluene-d8	5.08			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.93			ug/L	*5.00*		*98.6*	*80-120*			
LCS (BJC0144-BS2)				Prepared: 05-Mar-2021 Analyzed: 05-Mar-2021 11:09							
Vinyl Chloride	10.2	0.08	0.20	ug/L	10.0		102	66-133			
1,1-Dichloroethene	11.7	0.08	0.20	ug/L	10.0		117	69-135			
trans-1,2-Dichloroethene	11.0	0.07	0.20	ug/L	10.0		110	78-128			
cis-1,2-Dichloroethene	10.1	0.08	0.20	ug/L	10.0		101	80-121			
Benzene	10.3	0.05	0.20	ug/L	10.0		103	80-120			
Trichloroethene	9.80	0.07	0.20	ug/L	10.0		98.0	80-120			

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Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Volatile Organic Compounds - Quality Control

Batch BJC0144 - 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 (BJC0144-BS2)					Prepared: 05-Mar-2021 Analyzed: 05-Mar-2021 11:09						
Toluene	9.78	0.05	0.20	ug/L	10.0		97.8	80-120			
Tetrachloroethene	9.85	0.09	0.20	ug/L	10.0		98.5	80-120			
Ethylbenzene	9.70	0.05	0.20	ug/L	10.0		97.0	80-120			
m,p-Xylene	20.0	0.14	0.40	ug/L	20.0		100	80-121			
o-Xylene	9.76	0.08	0.20	ug/L	10.0		97.6	80-121			
Xylenes, total	29.8	0.22	0.60	ug/L	30.0		99.2	76-127			
Surrogate: 1,2-Dichloroethane-d4	5.11			ug/L	*5.00*		*102*	*80-129*			
Surrogate: Toluene-d8	5.01			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.98			ug/L	*5.00*		*99.5*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.82			ug/L	*5.00*		*96.4*	*80-120*			
LCS Dup (BJC0144-BSD1)					Prepared: 05-Mar-2021 Analyzed: 05-Mar-2021 10:48						
Gasoline Range Organics (Tol-Nap)	998		100	ug/L	1000		99.8	72-128	0.42	30	
Surrogate: Toluene-d8	5.12			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.96			ug/L	*5.00*		*99.2*	*80-120*			
LCS Dup (BJC0144-BSD2)					Prepared: 05-Mar-2021 Analyzed: 05-Mar-2021 11:29						
Vinyl Chloride	10.4	0.08	0.20	ug/L	10.0		104	66-133	1.56	30	
1,1-Dichloroethene	11.4	0.08	0.20	ug/L	10.0		114	69-135	2.28	30	
trans-1,2-Dichloroethene	10.5	0.07	0.20	ug/L	10.0		105	78-128	5.04	30	
cis-1,2-Dichloroethene	9.86	0.08	0.20	ug/L	10.0		98.6	80-121	2.45	30	
Benzene	9.98	0.05	0.20	ug/L	10.0		99.8	80-120	3.44	30	
Trichloroethene	9.68	0.07	0.20	ug/L	10.0		96.8	80-120	1.16	30	
Toluene	9.42	0.05	0.20	ug/L	10.0		94.2	80-120	3.66	30	
Tetrachloroethene	9.58	0.09	0.20	ug/L	10.0		95.8	80-120	2.68	30	
Ethylbenzene	9.39	0.05	0.20	ug/L	10.0		93.9	80-120	3.23	30	
m,p-Xylene	19.7	0.14	0.40	ug/L	20.0		98.3	80-121	1.66	30	
o-Xylene	9.67	0.08	0.20	ug/L	10.0		96.7	80-121	1.00	30	
Xylenes, total	29.3	0.22	0.60	ug/L	30.0		97.8	76-127	1.44	30	
Surrogate: 1,2-Dichloroethane-d4	5.24			ug/L	*5.00*		*105*	*80-129*			
Surrogate: Toluene-d8	5.02			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.92			ug/L	*5.00*		*98.5*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.95			ug/L	*5.00*		*99.0*	*80-120*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Volatile Organic Compounds - SIM - Quality Control

Batch BJC0148 - 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 (BJC0148-BLK1)				Prepared: 05-Mar-2021 Analyzed: 05-Mar-2021 12:02							
Vinyl chloride	ND	5.01	20.0	ng/L							U
Surrogate: 1,2-Dichloroethane-d4	4490			ng/L	*5000*		*89.8*	*80-129*			
Surrogate: Toluene-d8	4710			ng/L	*5000*		*94.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4820			ng/L	*5000*		*96.4*	*75-125*			
LCS (BJC0148-BS1)				Prepared: 05-Mar-2021 Analyzed: 05-Mar-2021 10:32							
Vinyl chloride	1780	5.01	20.0	ng/L	2000		89.2	62-141			
Surrogate: 1,2-Dichloroethane-d4	4560			ng/L	*5000*		*91.3*	*80-129*			
Surrogate: Toluene-d8	4690			ng/L	*5000*		*93.7*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4870			ng/L	*5000*		*97.5*	*75-125*			
LCS Dup (BJC0148-BSD1)				Prepared: 05-Mar-2021 Analyzed: 05-Mar-2021 11:42							
Vinyl chloride	1960	5.01	20.0	ng/L	2000		97.8	62-141	9.13	30	
Surrogate: 1,2-Dichloroethane-d4	5100			ng/L	*5000*		*102*	*80-129*			
Surrogate: Toluene-d8	4750			ng/L	*5000*		*94.9*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5350			ng/L	*5000*		*107*	*75-125*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Semivolatile Organic Compounds - Quality Control

Batch BJC0058 - 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 (BJC0058-BLK1)				Prepared: 02-Mar-2021 Analyzed: 11-Mar-2021 14:24							
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	3.93			ug/L	*7.50*		*52.4*	*30-160*			
Surrogate: Phenol-d5	1.92			ug/L	*7.50*		*25.5*	*30-160*			*
Surrogate: 2-Chlorophenol-d4	5.92			ug/L	*7.50*		*78.9*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.27			ug/L	*5.00*		*65.5*	*30-160*			
Surrogate: Nitrobenzene-d5	3.91			ug/L	*5.00*		*78.1*	*30-160*			
Surrogate: 2-Fluorobiphenyl	3.52			ug/L	*5.00*		*70.4*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	6.73			ug/L	*7.50*		*89.7*	*30-160*			
Surrogate: p-Terphenyl-d14	3.89			ug/L	*5.00*		*77.9*	*30-160*			
LCS (BJC0058-BS1)				Prepared: 02-Mar-2021 Analyzed: 11-Mar-2021 15:01							
1,4-Dichlorobenzene	3.8	0.03	0.2	ug/L	5.00		76.2	30-160			
1,2-Dichlorobenzene	3.8	0.03	0.2	ug/L	5.00		75.9	30-160			
2,4-Dimethylphenol	8.8	0.3	1.0	ug/L	13.0		67.4	30-160			
Benzoic acid	8.8	0.1	2.0	ug/L	23.0		38.4	30-160			
N-Nitrosodiphenylamine	4.4	0.03	0.2	ug/L	5.00		88.5	30-160			
Pentachlorophenol	9.9	0.1	1.0	ug/L	13.0		75.8	30-160			Q
Di-n-Butylphthalate	5.4	0.05	0.2	ug/L	5.00		108	30-160			
Butylbenzylphthalate	4.8	0.07	0.2	ug/L	5.00		95.8	30-160			
bis(2-Ethylhexyl)phthalate	4.8	0.2	0.2	ug/L	5.00		95.1	30-160			
Surrogate: 2-Fluorophenol	4.99			ug/L	*7.50*		*66.5*	*30-160*			
Surrogate: Phenol-d5	3.25			ug/L	*7.50*		*43.4*	*30-160*			
Surrogate: 2-Chlorophenol-d4	7.97			ug/L	*7.50*		*106*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.61			ug/L	*5.00*		*72.1*	*30-160*			
Surrogate: Nitrobenzene-d5	4.15			ug/L	*5.00*		*83.0*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.59			ug/L	*5.00*		*91.9*	*30-160*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Semivolatile Organic Compounds - Quality Control

Batch BJC0058 - 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 (BJC0058-BS1)					Prepared: 02-Mar-2021		Analyzed: 11-Mar-2021 15:01				
Surrogate: 2,4,6-Tribromophenol	7.91			ug/L	*7.50*		*106*	*30-160*			
Surrogate: p-Terphenyl-d14	4.79			ug/L	*5.00*		*95.8*	*30-160*			
LCS Dup (BJC0058-BSD1)					Prepared: 02-Mar-2021		Analyzed: 11-Mar-2021 15:39				
1,4-Dichlorobenzene	4.2	0.03	0.2	ug/L	5.00		83.1	30-160	8.67	30	
1,2-Dichlorobenzene	4.1	0.03	0.2	ug/L	5.00		81.6	30-160	7.33	30	
2,4-Dimethylphenol	10.4	0.3	1.0	ug/L	13.0		80.0	30-160	17.10	30	
Benzoic acid	10.8	0.1	2.0	ug/L	23.0		47.1	30-160	20.30	30	
N-Nitrosodiphenylamine	4.6	0.03	0.2	ug/L	5.00		92.6	30-160	4.54	30	
Pentachlorophenol	10.8	0.1	1.0	ug/L	13.0		83.4	30-160	9.47	30	Q
Di-n-Butylphthalate	5.6	0.05	0.2	ug/L	5.00		112	30-160	4.08	30	
Butylbenzylphthalate	5.0	0.07	0.2	ug/L	5.00		99.4	30-160	3.70	30	
bis(2-Ethylhexyl)phthalate	5.0	0.2	0.2	ug/L	5.00		99.4	30-160	4.43	30	
Surrogate: 2-Fluorophenol	5.08			ug/L	*7.50*		*67.7*	*30-160*			
Surrogate: Phenol-d5	3.24			ug/L	*7.50*		*43.2*	*30-160*			
Surrogate: 2-Chlorophenol-d4	7.47			ug/L	*7.50*		*99.6*	*30-160*			
Surrogate: 1,2-Dichlorobenzene-d4	3.75			ug/L	*5.00*		*75.0*	*30-160*			
Surrogate: Nitrobenzene-d5	4.62			ug/L	*5.00*		*92.5*	*30-160*			
Surrogate: 2-Fluorobiphenyl	4.68			ug/L	*5.00*		*93.7*	*30-160*			
Surrogate: 2,4,6-Tribromophenol	7.77			ug/L	*7.50*		*104*	*30-160*			
Surrogate: p-Terphenyl-d14	4.85			ug/L	*5.00*		*96.9*	*30-160*			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJC0057 - 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 (BJC0057-BLK1)				Prepared: 03-Mar-2021 Analyzed: 16-Mar-2021 15:59							
Naphthalene	0.017	0.001	0.010	ug/L							
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*		*73.1*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.242			ug/L	*0.300*		*80.5*	*29-120*			
Surrogate: Fluoranthene-d10	0.235			ug/L	*0.300*		*78.2*	*57-120*			
LCS (BJC0057-BS1)				Prepared: 03-Mar-2021 Analyzed: 16-Mar-2021 16:32							
Naphthalene	0.220	0.001	0.010	ug/L	0.300		73.3	37-120			B
2-Methylnaphthalene	0.218	0.001	0.010	ug/L	0.300		72.6	37-120			
1-Methylnaphthalene	0.226	0.0009	0.010	ug/L	0.300		75.2	29-120			
Acenaphthylene	0.194	0.002	0.010	ug/L	0.300		64.5	41-120			
Acenaphthene	0.195	0.003	0.010	ug/L	0.300		65.0	41-120			
Dibenzofuran	0.191	0.002	0.010	ug/L	0.300		63.8	38-120			Q
Fluorene	0.207	0.002	0.010	ug/L	0.300		68.9	43-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJC0057 - 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 (BJC0057-BS1)					Prepared: 03-Mar-2021 Analyzed: 16-Mar-2021 16:32						
Phenanthrene	0.226	0.001	0.010	ug/L	0.300		75.2	41-120			
Anthracene	0.215	0.001	0.010	ug/L	0.300		71.7	40-120			
Carbazole	0.237	0.001	0.010	ug/L	0.300		79.0	30-160			
Fluoranthene	0.239	0.002	0.010	ug/L	0.300		79.6	45-120			
Pyrene	0.243	0.001	0.010	ug/L	0.300		80.9	41-120			
Benzo(a)anthracene	0.228	0.0008	0.010	ug/L	0.300		76.1	42-120			
Chrysene	0.223	0.0009	0.010	ug/L	0.300		74.4	44-120			
Benzo(b)fluoranthene	0.249	0.0005	0.010	ug/L	0.300		83.1	44-120			
Benzo(k)fluoranthene	0.224	0.003	0.010	ug/L	0.300		74.7	50-120			
Benzo(j)fluoranthene	0.248	0.002	0.010	ug/L	0.300		82.5	39-160			
Benzofluoranthenes, Total	0.721	0.004	0.010	ug/L	0.900		80.1	46-120			
Benzo(a)pyrene	0.222	0.002	0.010	ug/L	0.300		74.0	35-120			
Perylene	0.193	0.006	0.010	ug/L	0.300		64.5	30-160			
Indeno(1,2,3-cd)pyrene	0.256	0.001	0.010	ug/L	0.300		85.3	37-120			
Dibenzo(a,h)anthracene	0.247	0.001	0.010	ug/L	0.300		82.3	34-120			
Benzo(g,h,i)perylene	0.237	0.001	0.010	ug/L	0.300		79.0	38-120			
Surrogate: 2-Methylnaphthalene-d10	0.245			ug/L	*0.300*		*81.7*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.262			ug/L	*0.300*		*87.3*	*29-120*			
Surrogate: Fluoranthene-d10	0.254			ug/L	*0.300*		*84.7*	*57-120*			
LCS Dup (BJC0057-BSD1)					Prepared: 03-Mar-2021 Analyzed: 16-Mar-2021 17:04						
Naphthalene	0.228	0.001	0.010	ug/L	0.300		76.1	37-120	3.66	30	B
2-Methylnaphthalene	0.233	0.001	0.010	ug/L	0.300		77.6	37-120	6.71	30	
1-Methylnaphthalene	0.240	0.0009	0.010	ug/L	0.300		79.9	29-120	6.05	30	
Acenaphthylene	0.203	0.002	0.010	ug/L	0.300		67.6	41-120	4.72	30	
Acenaphthene	0.207	0.003	0.010	ug/L	0.300		68.9	41-120	5.70	30	
Dibenzofuran	0.201	0.002	0.010	ug/L	0.300		67.2	38-120	5.14	30	Q
Fluorene	0.218	0.002	0.010	ug/L	0.300		72.7	43-120	5.29	30	
Phenanthrene	0.234	0.001	0.010	ug/L	0.300		78.0	41-120	3.62	30	
Anthracene	0.220	0.001	0.010	ug/L	0.300		73.5	40-120	2.52	30	
Carbazole	0.245	0.001	0.010	ug/L	0.300		81.6	30-160	3.19	30	
Fluoranthene	0.252	0.002	0.010	ug/L	0.300		84.0	45-120	5.33	30	
Pyrene	0.252	0.001	0.010	ug/L	0.300		84.0	41-120	3.80	30	
Benzo(a)anthracene	0.235	0.0008	0.010	ug/L	0.300		78.2	42-120	2.79	30	
Chrysene	0.236	0.0009	0.010	ug/L	0.300		78.7	44-120	5.54	30	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJC0057 - 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 (BJC0057-BSD1)					Prepared: 03-Mar-2021 Analyzed: 16-Mar-2021 17:04						
Benzo(b)fluoranthene	0.239	0.0005	0.010	ug/L	0.300		79.8	44-120	4.00	30	
Benzo(k)fluoranthene	0.233	0.003	0.010	ug/L	0.300		77.8	50-120	4.08	30	
Benzo(j)fluoranthene	0.283	0.002	0.010	ug/L	0.300		94.4	39-160	13.40	30	
Benzofluoranthenes, Total	0.756	0.004	0.010	ug/L	0.900		84.0	46-120	4.77	30	
Benzo(a)pyrene	0.228	0.002	0.010	ug/L	0.300		76.0	35-120	2.68	30	
Perylene	0.198	0.006	0.010	ug/L	0.300		66.1	30-160	2.43	30	
Indeno(1,2,3-cd)pyrene	0.258	0.001	0.010	ug/L	0.300		86.1	37-120	0.92	30	
Dibenzo(a,h)anthracene	0.247	0.001	0.010	ug/L	0.300		82.2	34-120	0.16	30	
Benzo(g,h,i)perylene	0.246	0.001	0.010	ug/L	0.300		82.0	38-120	3.83	30	
Surrogate: 2-Methylnaphthalene-d10	0.244			ug/L	*0.300*		*81.5*	*42-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	0.250			ug/L	*0.300*		*83.3*	*29-120*			
Surrogate: Fluoranthene-d10	0.253			ug/L	*0.300*		*84.2*	*57-120*			

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Petroleum Hydrocarbons - Quality Control

Batch BJC0055 - 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 (BJC0055-BLK1)				Prepared: 02-Mar-2021	Analyzed: 16-Mar-2021 02:09					
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	0.242		mg/L	*0.225*		*108*	*50-150*			
LCS (BJC0055-BS1)				Prepared: 02-Mar-2021	Analyzed: 16-Mar-2021 02:30					
Diesel Range Organics (C12-C24)	3.26	0.100	mg/L	3.00		109	56-120			
Surrogate: o-Terphenyl	0.270		mg/L	*0.225*		*120*	*50-150*			
LCS Dup (BJC0055-BSD1)				Prepared: 02-Mar-2021	Analyzed: 16-Mar-2021 02:51					
Diesel Range Organics (C12-C24)	3.03	0.100	mg/L	3.00		101	56-120	7.14	30	
Surrogate: o-Terphenyl	0.245		mg/L	*0.225*		*109*	*50-150*			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Aroclor PCB - Quality Control

Batch BJC0059 - 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 (BJC0059-BLK1)				Prepared: 03-Mar-2021 Analyzed: 13-Mar-2021 21:29							
Aroclor 1016	ND	0.018	0.100	ug/L							U
Aroclor 1221	ND	0.018	0.100	ug/L							U
Aroclor 1232	ND	0.018	0.100	ug/L							U
Aroclor 1242	ND	0.018	0.100	ug/L							U
Aroclor 1248	ND	0.018	0.100	ug/L							U
Aroclor 1254	ND	0.018	0.100	ug/L							U
Aroclor 1260	ND	0.017	0.100	ug/L							U
Surrogate: Decachlorobiphenyl	0.0532			ug/L	*0.0800*		*66.5*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0542			ug/L	*0.0800*		*67.8*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0567			ug/L	*0.0800*		*70.9*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0468			ug/L	*0.0800*		*58.5*	*39-120*			
LCS (BJC0059-BS1)				Prepared: 03-Mar-2021 Analyzed: 13-Mar-2021 21:49							
Aroclor 1016 [2C]	0.773	0.018	0.100	ug/L	1.00		77.3	51-120			
Aroclor 1260 [2C]	0.831	0.017	0.100	ug/L	1.00		83.1	56-120			
Surrogate: Decachlorobiphenyl	0.0547			ug/L	*0.0800*		*68.4*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0606			ug/L	*0.0800*		*75.8*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0583			ug/L	*0.0800*		*72.9*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0481			ug/L	*0.0800*		*60.1*	*39-120*			
LCS Dup (BJC0059-BSD1)				Prepared: 03-Mar-2021 Analyzed: 13-Mar-2021 22:10							
Aroclor 1016 [2C]	0.744	0.018	0.100	ug/L	1.00		74.4	51-120	3.88	30	
Aroclor 1260 [2C]	0.798	0.017	0.100	ug/L	1.00		79.8	56-120	4.10	30	
Surrogate: Decachlorobiphenyl	0.0534			ug/L	*0.0800*		*66.7*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0533			ug/L	*0.0800*		*66.6*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0570			ug/L	*0.0800*		*71.3*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0438			ug/L	*0.0800*		*54.8*	*39-120*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Metals and Metallic Compounds - Quality Control

Batch BJC0224 - 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 (BJC0224-BLK1)					Prepared: 09-Mar-2021 Analyzed: 10-Mar-2021 15:07							
Barium	135	ND	0.0560	0.500	ug/L							U
Barium	137	ND	0.0530	0.500	ug/L							U
Chromium	52	0.149	0.130	0.500	ug/L							J
Chromium	53	0.0770	0.0700	0.500	ug/L							J
Manganese	55	ND	0.0850	0.500	ug/L							U
Silver	107	ND	0.0170	0.200	ug/L							U
Vanadium	51a	ND	0.0400	0.200	ug/L							U
Vanadium	51b	ND	0.0160	0.200	ug/L							U
Blank (BJC0224-BLK2)					Prepared: 09-Mar-2021 Analyzed: 11-Mar-2021 14:40							
Calcium	44	ND	1.91	50.0	ug/L							U
Iron	54	ND	6.27	20.0	ug/L							U
Iron	57	ND	1.40	20.0	ug/L							U
Lead	208	ND	0.0680	0.100	ug/L							U
Magnesium	24	1.35	0.307	20.0	ug/L							J
Arsenic	75a	ND	0.0220	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	0.340	0.500	ug/L							U
Copper	65	ND	0.350	0.500	ug/L							U
Nickel	60	0.597	0.0500	0.500	ug/L							
Nickel	62	0.601	0.220	0.500	ug/L							
Selenium	78	ND	0.440	0.500	ug/L							U
Zinc	66	ND	0.820	4.00	ug/L							U
Zinc	67	ND	0.940	4.00	ug/L							U
Blank (BJC0224-BLK3)					Prepared: 09-Mar-2021 Analyzed: 12-Mar-2021 18:36							
Cobalt	59	ND	0.0290	0.200	ug/L							U
LCS (BJC0224-BS1)					Prepared: 09-Mar-2021 Analyzed: 10-Mar-2021 15:11							
Barium	135	25.1	0.0560	0.500	ug/L	25.0		101	80-120			
Barium	137	24.8	0.0530	0.500	ug/L	25.0		99.2	80-120			
Chromium	52	25.3	0.130	0.500	ug/L	25.0		101	80-120			
Chromium	53	25.0	0.0700	0.500	ug/L	25.0		99.9	80-120			
Manganese	55	26.2	0.0850	0.500	ug/L	25.0		105	80-120			
Silver	107	24.8	0.0170	0.200	ug/L	25.0		99.0	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Metals and Metallic Compounds - Quality Control

Batch BJC0224 - 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 (BJC0224-BS1)					Prepared: 09-Mar-2021 Analyzed: 10-Mar-2021 15:11							
Vanadium	51a	25.5	0.0400	0.200	ug/L	25.0		102	80-120			
Vanadium	51b	25.4	0.0160	0.200	ug/L	25.0		102	80-120			
LCS (BJC0224-BS2)					Prepared: 09-Mar-2021 Analyzed: 11-Mar-2021 14:45							
Calcium	44	4940	1.91	50.0	ug/L	5000		98.8	80-120			
Iron	54	4910	6.27	20.0	ug/L	5000		98.2	80-120			
Iron	57	4850	1.40	20.0	ug/L	5000		96.9	80-120			
Lead	208	27.2	0.0680	0.100	ug/L	25.0		109	80-120			
Magnesium	24	4990	0.307	20.0	ug/L	5000		99.7	80-120			
Arsenic	75a	25.3	0.0220	0.200	ug/L	25.0		101	80-120			
Cadmium	111	25.5	0.0300	0.100	ug/L	25.0		102	80-120			
Cadmium	114	25.6	0.0400	0.100	ug/L	25.0		102	80-120			
Copper	63	26.2	0.340	0.500	ug/L	25.0		105	80-120			
Copper	65	25.9	0.350	0.500	ug/L	25.0		104	80-120			
Nickel	60	26.1	0.0500	0.500	ug/L	25.0		104	80-120			B
Nickel	62	26.0	0.220	0.500	ug/L	25.0		104	80-120			B
Selenium	78	80.1	0.440	0.500	ug/L	80.0		100	80-120			
Zinc	66	84.2	0.820	4.00	ug/L	80.0		105	80-120			
Zinc	67	80.7	0.940	4.00	ug/L	80.0		101	80-120			
LCS (BJC0224-BS3)					Prepared: 09-Mar-2021 Analyzed: 12-Mar-2021 18:40							
Cobalt	59	26.4	0.0290	0.200	ug/L	25.0		106	80-120			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Metals and Metallic Compounds - Quality Control

Batch BJC0250 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0250-BLK1)				Prepared: 10-Mar-2021 Analyzed: 11-Mar-2021 10:18							
Mercury	ND	0.000013	0.000100	mg/L							U
LCS (BJC0250-BS1)				Prepared: 10-Mar-2021 Analyzed: 11-Mar-2021 10:20							
Mercury	0.00197	0.000013	0.000100	mg/L	0.00200		98.5	80-120			
Duplicate (BJC0250-DUP1)		**Source: 21B0344-04**		Prepared: 10-Mar-2021 Analyzed: 11-Mar-2021 10:25							
Mercury	ND	0.000013	0.000100	mg/L		ND					U
Matrix Spike (BJC0250-MS1)		**Source: 21B0344-04**		Prepared: 10-Mar-2021 Analyzed: 11-Mar-2021 10:27							
Mercury	0.00103	0.000013	0.000100	mg/L	0.00100	ND	103	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJC0250-MSD1)		**Source: 21B0344-04**		Prepared: 10-Mar-2021 Analyzed: 11-Mar-2021 10:30							
Mercury	0.00102	0.000013	0.000100	mg/L	0.00100	ND	102	75-125	0.61	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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Metals and Metallic Compounds - Quality Control

Batch BJC0342 - 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 (BJC0342-BLK1)					Prepared: 15-Mar-2021 Analyzed: 15-Mar-2021 17:41							
Nickel	60	ND	0.0500	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
LCS (BJC0342-BS1)					Prepared: 15-Mar-2021 Analyzed: 15-Mar-2021 17:45							
Nickel	60	25.7	0.0500	0.500	ug/L	25.0		103	80-120			
Nickel	62	26.0	0.220	0.500	ug/L	25.0		104	80-120			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0252 - TWM EPA 7470A

Instrument: HYDRA Analyst: BLC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJC0252-BLK1)					Prepared: 10-Mar-2021	Analyzed: 11-Mar-2021 10:46					
Mercury, Dissolved	ND	0.000013	0.000100	mg/L							U
LCS (BJC0252-BS1)					Prepared: 10-Mar-2021	Analyzed: 11-Mar-2021 10:48					
Mercury, Dissolved	0.00211	0.000013	0.000100	mg/L	0.00200		105	80-120			
Duplicate (BJC0252-DUP1)		**Source: 21B0344-10**			Prepared: 10-Mar-2021	Analyzed: 11-Mar-2021 10:53					
Mercury, Dissolved	ND	0.000013	0.000100	mg/L		ND					U
Matrix Spike (BJC0252-MS1)		**Source: 21B0344-10**			Prepared: 10-Mar-2021	Analyzed: 11-Mar-2021 10:55					
Mercury, Dissolved	0.000997	0.000013	0.000100	mg/L	0.00100	ND	99.7	75-125			

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

Matrix Spike Dup (BJC0252-MSD1)		**Source: 21B0344-10**			Prepared: 10-Mar-2021	Analyzed: 11-Mar-2021 10:57					
Mercury, Dissolved	0.000984	0.000013	0.000100	mg/L	0.00100	ND	98.4	75-125	1.24	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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0290 - 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 (BJC0290-BLK1)					Prepared: 11-Mar-2021 Analyzed: 12-Mar-2021 02:38							
Chromium, Dissolved	52	ND	0.130	0.500	ug/L							U
Chromium, Dissolved	53	ND	0.0700	0.500	ug/L							U
Manganese, Dissolved	55	ND	0.0850	0.500	ug/L							U
Arsenic, Dissolved	75a	ND	0.0220	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	0.340	0.500	ug/L							U
Copper, Dissolved	65	ND	0.350	0.500	ug/L							U
Nickel, Dissolved	60	ND	0.0500	0.500	ug/L							U
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							U
Selenium, Dissolved	78	ND	0.440	0.500	ug/L							U
Zinc, Dissolved	66	ND	0.820	4.00	ug/L							U
Zinc, Dissolved	67	ND	0.940	4.00	ug/L							U
Blank (BJC0290-BLK2)					Prepared: 11-Mar-2021 Analyzed: 12-Mar-2021 19:42							
Barium, Dissolved	135	ND	0.0560	0.500	ug/L							U
Barium, Dissolved	137	ND	0.0530	0.500	ug/L							U
Cobalt, Dissolved	59	ND	0.0290	0.200	ug/L							U
Iron, Dissolved	54	7.42	6.27	20.0	ug/L							J
Iron, Dissolved	57	6.01	1.40	20.0	ug/L							J
Lead, Dissolved	208	ND	0.0680	0.100	ug/L							U
Silver, Dissolved	107	ND	0.0170	0.200	ug/L							U
Vanadium, Dissolved	51a	ND	0.0400	0.200	ug/L							U
Vanadium, Dissolved	51b	ND	0.0160	0.200	ug/L							U
LCS (BJC0290-BS1)					Prepared: 11-Mar-2021 Analyzed: 12-Mar-2021 02:42							
Chromium, Dissolved	52	23.5	0.130	0.500	ug/L	25.0		94.0	80-120			
Chromium, Dissolved	53	23.7	0.0700	0.500	ug/L	25.0		94.7	80-120			
Manganese, Dissolved	55	24.5	0.0850	0.500	ug/L	25.0		98.1	80-120			
Arsenic, Dissolved	75a	24.1	0.0220	0.200	ug/L	25.0		96.2	80-120			
Cadmium, Dissolved	111	25.7	0.0300	0.100	ug/L	25.0		103	80-120			
Cadmium, Dissolved	114	25.8	0.0400	0.100	ug/L	25.0		103	80-120			
Copper, Dissolved	63	26.8	0.340	0.500	ug/L	25.0		107	80-120			
Copper, Dissolved	65	27.1	0.350	0.500	ug/L	25.0		108	80-120			
Nickel, Dissolved	60	27.0	0.0500	0.500	ug/L	25.0		108	80-120			

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0290 - 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 (BJC0290-BS1)						Prepared: 11-Mar-2021		Analyzed: 12-Mar-2021 02:42				
Nickel, Dissolved	62	26.3	0.220	0.500	ug/L	25.0		105	80-120			
Selenium, Dissolved	78	73.6	0.440	0.500	ug/L	80.0		92.0	80-120			
Zinc, Dissolved	66	81.4	0.820	4.00	ug/L	80.0		102	80-120			
Zinc, Dissolved	67	79.3	0.940	4.00	ug/L	80.0		99.2	80-120			
LCS (BJC0290-BS2)						Prepared: 11-Mar-2021		Analyzed: 12-Mar-2021 19:46				
Barium, Dissolved	135	25.9	0.0560	0.500	ug/L	25.0		104	80-120			
Barium, Dissolved	137	26.2	0.0530	0.500	ug/L	25.0		105	80-120			
Cobalt, Dissolved	59	27.0	0.0290	0.200	ug/L	25.0		108	80-120			
Iron, Dissolved	54	4970	6.27	20.0	ug/L	5000		99.4	80-120			
Iron, Dissolved	57	5050	1.40	20.0	ug/L	5000		101	80-120			
Lead, Dissolved	208	27.3	0.0680	0.100	ug/L	25.0		109	80-120			
Silver, Dissolved	107	26.5	0.0170	0.200	ug/L	25.0		106	80-120			
Vanadium, Dissolved	51a	26.1	0.0400	0.200	ug/L	25.0		104	80-120			
Vanadium, Dissolved	51b	26.1	0.0160	0.200	ug/L	25.0		105	80-120			
Duplicate (BJC0290-DUP1)			**Source: 21B0344-08**			Prepared: 11-Mar-2021		Analyzed: 12-Mar-2021 05:17				
Chromium, Dissolved	52	0.353	0.130	0.500	ug/L							J
Manganese, Dissolved	55	153	0.0850	0.500	ug/L		149			3.07	20	
Arsenic, Dissolved	75a	2.02	0.0220	0.200	ug/L		1.99			1.80	20	
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L		ND					U
Copper, Dissolved	63	3.64	0.340	0.500	ug/L		3.68			1.15	20	
Nickel, Dissolved	60	3.78	0.0500	0.500	ug/L		3.72			1.63	20	
Selenium, Dissolved	78	1.75	0.440	0.500	ug/L		1.85			5.33	20	
Zinc, Dissolved	66	ND	0.820	4.00	ug/L		0.865					U
Duplicate (BJC0290-DUP2)			**Source: 21B0344-08**			Prepared: 11-Mar-2021		Analyzed: 13-Mar-2021 00:06				
Barium, Dissolved	135	4.68	0.0560	0.500	ug/L		4.58			2.18	20	
Cobalt, Dissolved	59	0.250	0.0290	0.200	ug/L		0.258			3.15	20	
Iron, Dissolved	54	90.9	6.27	20.0	ug/L		86.6			4.86	20	
Lead, Dissolved	208	ND	0.0680	0.100	ug/L		ND					U
Silver, Dissolved	107	ND	0.0170	0.200	ug/L		ND					U
Vanadium, Dissolved	51a	2.06	0.0400	0.200	ug/L		2.06			0.24	20	
Matrix Spike (BJC0290-MS1)			**Source: 21B0344-08**			Prepared: 11-Mar-2021		Analyzed: 12-Mar-2021 05:22				
Chromium, Dissolved	52	20.6	0.130	0.500	ug/L	25.0		82.6	75-125			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0290 - 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 (BJC0290-MS1)			**Source: 21B0344-08**			Prepared: 11-Mar-2021		Analyzed: 12-Mar-2021 05:22				
Manganese, Dissolved	55	165	0.0850	0.500	ug/L	25.0	149	64.8	75-125			HC
Arsenic, Dissolved	75a	26.1	0.0220	0.200	ug/L	25.0	1.99	96.6	75-125			
Cadmium, Dissolved	111	24.8	0.0300	0.100	ug/L	25.0	ND	99.3	75-125			
Copper, Dissolved	63	29.6	0.340	0.500	ug/L	25.0	3.68	104	75-125			
Nickel, Dissolved	60	30.1	0.0500	0.500	ug/L	25.0	3.72	106	75-125			
Selenium, Dissolved	78	73.0	0.440	0.500	ug/L	80.0	1.85	88.9	75-125			
Zinc, Dissolved	66	78.0	0.820	4.00	ug/L	80.0	0.865	96.4	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BJC0290-MS2)			**Source: 21B0344-08**			Prepared: 11-Mar-2021		Analyzed: 13-Mar-2021 00:10				
Barium, Dissolved	135	29.1	0.0560	0.500	ug/L	25.0	4.58	98.0	75-125			
Cobalt, Dissolved	59	26.6	0.0290	0.200	ug/L	25.0	0.258	105	75-125			
Iron, Dissolved	54	4430	6.27	20.0	ug/L	5000	86.6	86.8	75-125			
Lead, Dissolved	208	26.7	0.0680	0.100	ug/L	25.0	ND	107	75-125			
Silver, Dissolved	107	26.1	0.0170	0.200	ug/L	25.0	ND	105	75-125			
Vanadium, Dissolved	51a	25.2	0.0400	0.200	ug/L	25.0	2.06	92.5	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0290-MSD1)			**Source: 21B0344-08**			Prepared: 11-Mar-2021		Analyzed: 12-Mar-2021 05:28				
Chromium, Dissolved	52	21.0	0.130	0.500	ug/L	25.0		83.9	75-125	1.53	20	
Manganese, Dissolved	55	170	0.0850	0.500	ug/L	25.0	149	85.1	75-125	3.04	20	HC
Arsenic, Dissolved	75a	26.5	0.0220	0.200	ug/L	25.0	1.99	98.2	75-125	1.52	20	
Cadmium, Dissolved	111	23.9	0.0300	0.100	ug/L	25.0	ND	95.5	75-125	3.87	20	
Copper, Dissolved	63	29.8	0.340	0.500	ug/L	25.0	3.68	104	75-125	0.73	20	
Nickel, Dissolved	60	30.5	0.0500	0.500	ug/L	25.0	3.72	107	75-125	1.21	20	
Selenium, Dissolved	78	71.7	0.440	0.500	ug/L	80.0	1.85	87.3	75-125	1.77	20	
Zinc, Dissolved	66	77.7	0.820	4.00	ug/L	80.0	0.865	96.0	75-125	0.35	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJC0290-MSD2)			**Source: 21B0344-08**			Prepared: 11-Mar-2021		Analyzed: 13-Mar-2021 00:15				
Barium, Dissolved	135	28.7	0.0560	0.500	ug/L	25.0	4.58	96.6	75-125	1.19	20	
Cobalt, Dissolved	59	27.0	0.0290	0.200	ug/L	25.0	0.258	107	75-125	1.53	20	
Iron, Dissolved	54	4460	6.27	20.0	ug/L	5000	86.6	87.5	75-125	0.82	20	
Lead, Dissolved	208	27.0	0.0680	0.100	ug/L	25.0	ND	108	75-125	1.14	20	
Silver, Dissolved	107	26.3	0.0170	0.200	ug/L	25.0	ND	105	75-125	0.52	20	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0290 - 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 (BJC0290-MSD2)			**Source: 21B0344-08**			Prepared: 11-Mar-2021	Analyzed: 13-Mar-2021 00:15					
Vanadium, Dissolved	51a	25.7	0.0400	0.200	ug/L	25.0	2.06	94.4	75-125	1.91	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	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJC0401 - 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 (BJC0401-BLK1)						Prepared: 15-Mar-2021 Analyzed: 15-Mar-2021 18:58						
Antimony, Dissolved	121	ND	0.0180	0.200	ug/L							U
Antimony, Dissolved	123	ND	0.0280	0.200	ug/L							U
LCS (BJC0401-BS1)						Prepared: 15-Mar-2021 Analyzed: 15-Mar-2021 19:03						
Antimony, Dissolved	121	26.1	0.0180	0.200	ug/L	25.0		104	80-120			
Antimony, Dissolved	123	26.0	0.0280	0.200	ug/L	25.0		104	80-120			
Duplicate (BJC0401-DUP1)			**Source: 21B0344-05RE1**			Prepared: 15-Mar-2021 Analyzed: 15-Mar-2021 19:38						
Antimony, Dissolved	121	0.156	0.0180	0.200	ug/L		0.150			3.92	20	J
Matrix Spike (BJC0401-MS1)			**Source: 21B0344-05RE1**			Prepared: 15-Mar-2021 Analyzed: 15-Mar-2021 19:43						
Antimony, Dissolved	121	26.5	0.0180	0.200	ug/L	25.0	0.150	105	75-125			

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

Matrix Spike Dup (BJC0401-MSD1)			**Source: 21B0344-05RE1**			Prepared: 15-Mar-2021 Analyzed: 15-Mar-2021 19:51						
Antimony, Dissolved	121	26.0	0.0180	0.200	ug/L	25.0	0.150	104	75-125	1.82	20	

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

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

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
Calcium-44	NELAP,DoD-ELAP,WADOE
Cobalt-59	DoD-ELAP,NELAP,WADOE
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
Magnesium-24	NELAP,DoD-ELAP,WADOE
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
Cobalt-59	NELAP,DoD-ELAP,WADOE
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
Antimony-121	NELAP,WADOE,DoD-ELAP
Antimony-123	NELAP,WADOE,DoD-ELAP
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
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC

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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
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	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1016 (1)	ADEC
Aroclor-1016 (2)	ADEC
Aroclor-1016 (3)	ADEC
Aroclor-1016 (4)	ADEC
Aroclor 1016 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1016 (1) [2C]	ADEC
Aroclor-1016 (2) [2C]	ADEC
Aroclor-1016 (3) [2C]	ADEC
Aroclor-1016 (4) [2C]	ADEC
Aroclor 1221	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1221 (1)	ADEC
Aroclor-1221 (2)	ADEC
Aroclor-1221 (3)	ADEC
Aroclor 1221 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1221 (1) [2C]	ADEC
Aroclor-1221 (2) [2C]	ADEC
Aroclor-1221 (3) [2C]	ADEC
Aroclor-1221 (4) [2C]	ADEC
Aroclor 1232	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1232 (1)	ADEC

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Aroclor-1232 (2)	ADEC
Aroclor-1232 (3)	ADEC
Aroclor-1232 (4)	ADEC
Aroclor 1232 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1232 (1) [2C]	ADEC
Aroclor-1232 (2) [2C]	ADEC
Aroclor-1232 (3) [2C]	ADEC
Aroclor-1232 (4) [2C]	ADEC
Aroclor 1242	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1242 (1)	ADEC
Aroclor-1242 (2)	ADEC
Aroclor-1242 (3)	ADEC
Aroclor-1242 (4)	ADEC
Aroclor 1242 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1242 (1) [2C]	ADEC
Aroclor-1242 (2) [2C]	ADEC
Aroclor-1242 (3) [2C]	ADEC
Aroclor-1242 (4) [2C]	ADEC
Aroclor 1248	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1248 (1)	ADEC
Aroclor-1248 (2)	ADEC
Aroclor-1248 (3)	ADEC
Aroclor-1248 (4)	ADEC
Aroclor 1248 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1248 (1) [2C]	ADEC
Aroclor-1248 (2) [2C]	ADEC
Aroclor-1248 (3) [2C]	ADEC
Aroclor-1248 (4) [2C]	ADEC
Aroclor 1254	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1254 (1)	ADEC
Aroclor-1254 (2)	ADEC
Aroclor-1254 (3)	ADEC
Aroclor-1254 (4)	ADEC
Aroclor-1254 (5)	ADEC
Aroclor 1254 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1254 (1) [2C]	ADEC
Aroclor-1254 (2) [2C]	ADEC
Aroclor-1254 (3) [2C]	ADEC
Aroclor-1254 (4) [2C]	ADEC

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Aroclor-1254 (5) [2C]	ADEC
Aroclor 1260	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1260 (1)	ADEC
Aroclor-1260 (2)	ADEC
Aroclor-1260 (3)	ADEC
Aroclor-1260 (4)	ADEC
Aroclor-1260 (5)	ADEC
Aroclor 1260 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1260 (1) [2C]	ADEC
Aroclor-1260 (2) [2C]	ADEC
Aroclor-1260 (3) [2C]	ADEC
Aroclor-1260 (4) [2C]	ADEC
Aroclor 1262	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1262 (1)	ADEC
Aroclor-1262 (2)	ADEC
Aroclor-1262 (3)	ADEC
Aroclor-1262 (4)	ADEC
Aroclor-1262 (5)	ADEC
Aroclor 1262 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1262 (1) [2C]	ADEC
Aroclor-1262 (2) [2C]	ADEC
Aroclor-1262 (3) [2C]	ADEC
Aroclor-1262 (4) [2C]	ADEC
Aroclor-1262 (5) [2C]	ADEC
Aroclor 1268	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1268 (1)	ADEC
Aroclor-1268 (2)	ADEC
Aroclor-1268 (3)	ADEC
Aroclor-1268 (4)	ADEC
Aroclor 1268 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1268 (1) [2C]	ADEC
Aroclor-1268 (2) [2C]	ADEC
Aroclor-1268 (3) [2C]	ADEC
Aroclor-1268 (4) [2C]	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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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	02-Aug-2021 11:36

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

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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
Acenaphthylene	NELAP,DoD-ELAP
Dimethylphthalate	NELAP,DoD-ELAP
2,6-Dinitrotoluene	NELAP,DoD-ELAP
Acenaphthene	NELAP,DoD-ELAP
3-Nitroaniline	NELAP,DoD-ELAP

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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

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

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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
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

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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

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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
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.
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.
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.