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

Part 2 of 5
Contents Include:
Appendix E, Part 2
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

04 January 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)
20K0101	N/A

Amanda Volgardsen
Digitally signed by Amanda Volgardsen
Date: 2021.01.04 14:20:45 -08'00'

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

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

Analytical Resources, 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: 20K0101	Turn-around Requested: Standard	Page: 1 of 5	
ARI Client Company: Shannon & Wilson, Inc	Phone: 206-695-6811	Date: 11/2/20	Ice Present?
Client Contact: Shoshana Howard		No. of Coolers:	Cooler Temps:
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: CTC and RBP		

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: Metals*	Analysis Requested: PCB Aroclors	Notes/Comments
HA-2020-007:0-11022020	11/2/20	0915	Soil	1			Hold
HA-2020-007:0.25-11022020		0920		1	X		
HA-2020-007:0.8-11022020		0925		1			Hold
HA-2020-008:0-11022020		0940		1	X		
HA-2020-008:0.5-11022020		0945		1			Hold
HA-2020-006:0-11022020		1025		1			Hold
HA-2020-006:0.3-11022020		1030		1	X		
HA-2020-006:0.8-11022020		1035		1			Hold
HA-2020-004:0-11022020		1055		1			Hold
HA-2020-004:0.2-11022020		1100		2	X	NO ~~X~~	No PCB analysis

* arsenic, barium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, selenium, silver, vanadium, zinc

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: RYAN PETERSON	Printed Name: Samantha Colon	Printed Name:	Printed Name:
	Company: Shannon & Wilson	Company: ARI	Company:	Company:
	Date & Time: 11/3/20 1645	Date & Time: 11/3/2020 1645	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: 20K0101	Turn-around Requested: Standard	Page: 2 of 5	
ARI Client Company: Shannon & Wilson, Inc	Phone: 206-695-6811	Date: 11/4/20	Ice Present?
Client Contact: Shoshana Howard		No. of Coolers:	Cooler Temps:
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RBP+CTC		

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

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Metals*	PCB Aroclors							Notes/Comments
HA-2020-004:0.7-11022020	11/2/20	1110	Soil	1									Hold
HA-2020-008:0-11022020	"	1115	"	1									Hold
HA-2020-003:0.2-11022020	"	1120	"	2	X	X							
HA-2020-003:0.7-11022020	"	1130	"	1									Hold
HA-2020-100:0.2-11022020	"	1125	"	2	X	X							
HA-2020-001:0-11022020	"	1205	"	2	X	X							
HA-2020-001:0.5-11022020	"	1210	"	1									Hold
HA-2020-005:0-11022020	"	1300	"	2	X								
~~HA-~~HA-2020-005:0.5-11022020	"	1305	"	1									Hold
HA-2020-002:0-11022020	"	1330	"	2	X	X							

Comments/Special Instructions

Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)	(Signature) Samantha Colon	(Signature)	(Signature)
Printed Name: RYAN PETERSON	Printed Name: Samantha Colon	Printed Name:	Printed Name:
Company: Shannon & Wilson	Company: ARI	Company:	Company:
Date & Time: 11/3/20 1645	Date & Time: 11/3/2020 1645	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.*

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Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20K0101	Turn-around Requested: Standard	Page: 3 of 5	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6811	Date: 11/2/20 – 11/3/20	Ice Present?
Client Contact: Shoshana Howard		No. of Coolers:	Cooler Temps:
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RBP + CTC		

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Analytical Chemists and Consultants
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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: Metals*	PCB Aroclors	TPH-G	TPH-Dx	PAHs	HVOCs			Notes/Comments
HA-2020-002:0.5-11022020	11/2/20	1335	Soil	1									Hold
SB-2020-029:3.2-11032020	11/3/20	0930	Soil	5	X		X	X	X				
SB-2020-029:7.5-11032020		0945	Soil	5	X			X	X				Hold RBP
SB-2020-045:2.8-11032020		1035	Soil	~~5~~ 10	X	X	X	X	X	X			
TB-1-11032020		1055	Water	1			X			X			
SB-2020-045:7.2-11032020		1055	Soil	10	X	X		X	X				
SB-2020-028:2.3-11032020		1130	Soil	3	X			X	X				
SB-2020-028:6.8-11032020		1135	Soil	3	X			X	X				
SB-2020-001:2.2-11032020		1220	Soil	3	X			X	X				
SB-2020-001:6.8-11032020		1225	Soil	3	X			X	X				

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
	(Signature)	(Signature)	(Signature)	(Signature)
	Printed Name: RYAN PETERSON	Printed Name: Samantha Colon	Printed Name:	Printed Name:
	Company: Shannon & Wilson	Company: ARI	Company:	Company:
	Date & Time: 11/3/20 1645	Date & Time: 11/3/2020 1645	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.*

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Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20K0101	Turn-around Requested: Standard	Page: 4 of 5	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6811	Date: 11/3/20	Ice Present?
Client Contact: Shoshana Howard		No. of Coolers:	Cooler Temps:
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RBP + MRH		

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Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TPH-Dx	Analysis Requested: PCB Aroclors	Notes/Comments
A1-02A:5-110320	11/3/20	1415	Soil	1	X		
A1-100:5-110320		1415		1	X		
A1-02A:10-110320		1430		1	X		
A1-02A:12.8-110320		1440		1	X		
A1-02A:18-110320		1450		1	X		
A1-02A:25-110320		1455		1	X		
TSA-Concrete-001:0.6-110320		1320	Concrete	1		X	
TSA-Concrete-002:0.6-110320		1330	Concrete	1		X	
TSA-2020-001:1.4-110320		~~1300~~ 1040	Soil	1		X	
TSA-2020-001:1.9-110320		~~1305~~ 1235		1			Hold

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
	(Signature)	(Signature)	(Signature)	(Signature)
	Printed Name: RYAN PETERSON	Printed Name: Samantha Colon	Printed Name:	Printed Name:
	Company: Shannon & Wilson	Company: ARI	Company:	Company:
	Date & Time: 11/3/20 1645	Date & Time: 11/3/2020 1645	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.*

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20K0101	Turn-around Requested: Standard	Page: 5 of 5	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6811	Date: 11/3/20	Ice Present?
Client Contact: Shoshana Howard		No. of Coolers:	Cooler Temps:
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: ~~RSP, JAV~~ CK		

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: PCB Aroclors	Notes/Comments
TSA-2020-002:1.5-110320	11/3/20	1300	Soil	1	X	
TSA-2020-002:2-110320	"	1305	"	1		Hold
TSA-2020-003:1.5-110320	"	1250	"	1	X	
TSA-2020-003:2-110320	"	1255	"	1		Hold

No Further

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:
		RYAN PETERSON	Shannon & Wilson	11/3/20 1645		Samantha Colon	ARI	11/3/2020 1645								

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

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

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
HA-2020-007:0-11022020	20K0101-01	Solid	02-Nov-2020 09:15	03-Nov-2020 16:45
HA-2020-007:0.25-11022020	20K0101-02	Solid	02-Nov-2020 09:20	03-Nov-2020 16:45
HA-2020-007:0.8-11022020	20K0101-03	Solid	02-Nov-2020 09:25	03-Nov-2020 16:45
HA-2020-008:0-11022020	20K0101-04	Solid	02-Nov-2020 09:40	03-Nov-2020 16:45
HA-2020-008:0.5-11022020	20K0101-05	Solid	02-Nov-2020 09:45	03-Nov-2020 16:45
HA-2020-006:0-11022020	20K0101-06	Solid	02-Nov-2020 10:25	03-Nov-2020 16:45
HA-2020-006:0.3-11022020	20K0101-07	Solid	02-Nov-2020 10:30	03-Nov-2020 16:45
HA-2020-006:0.8-11022020	20K0101-08	Solid	02-Nov-2020 10:35	03-Nov-2020 16:45
HA-2020-004:0-11022020	20K0101-09	Solid	02-Nov-2020 10:55	03-Nov-2020 16:45
HA-2020-004:0.2-11022020	20K0101-10	Solid	02-Nov-2020 11:00	03-Nov-2020 16:45
HA-2020-004:0.7-11022020	20K0101-11	Solid	02-Nov-2020 11:10	03-Nov-2020 16:45
HA-2020-003:0-11022020	20K0101-12	Solid	02-Nov-2020 11:15	03-Nov-2020 16:45
HA-2020-003:0.2-11022020	20K0101-13	Solid	02-Nov-2020 11:20	03-Nov-2020 16:45
HA-2020-003:0.7-11022020	20K0101-14	Solid	02-Nov-2020 11:30	03-Nov-2020 16:45
HA-2020-100:0.2-11022020	20K0101-15	Solid	02-Nov-2020 11:25	03-Nov-2020 16:45
HA-2020-001:0-11022020	20K0101-16	Solid	02-Nov-2020 12:05	03-Nov-2020 16:45
HA-2020-001:0.5-11022020	20K0101-17	Solid	02-Nov-2020 12:10	03-Nov-2020 16:45
HA-2020-005:0-11022020	20K0101-18	Solid	02-Nov-2020 13:00	03-Nov-2020 16:45
HA-2020-005:0.5-11022020	20K0101-19	Solid	02-Nov-2020 13:05	03-Nov-2020 16:45
HA-2020-002:0-11022020	20K0101-20	Solid	02-Nov-2020 13:30	03-Nov-2020 16:45
HA-2020-002:0.5-11022020	20K0101-21	Solid	02-Nov-2020 13:35	03-Nov-2020 16:45
SB-2020-029:3.2-11032020	20K0101-22	Solid	03-Nov-2020 09:30	03-Nov-2020 16:45
SB-2020-029:7.5-11032020	20K0101-23	Solid	03-Nov-2020 09:45	03-Nov-2020 16:45
SB-2020-045:2.8-11032020	20K0101-24	Solid	03-Nov-2020 10:35	03-Nov-2020 16:45
TB-1-11032020	20K0101-25	Water	03-Nov-2020 14:50	03-Nov-2020 16:45
SB-2020-045:7.2-11032020	20K0101-26	Solid	03-Nov-2020 10:55	03-Nov-2020 16:45
SB-2020-028:2.3-11032020	20K0101-27	Solid	03-Nov-2020 09:45	03-Nov-2020 16:45
SB-2020-028:6.8-11032020	20K0101-28	Solid	03-Nov-2020 11:35	03-Nov-2020 16:45
SB-2020-001:2.2-11032020	20K0101-29	Solid	03-Nov-2020 12:20	03-Nov-2020 16:45
SB-2020-001:6.8-11032020	20K0101-30	Solid	03-Nov-2020 12:25	03-Nov-2020 16:45
A1-02A:5-11032020	20K0101-31	Solid	03-Nov-2020 14:15	03-Nov-2020 16:45
A1-100:5-11032020	20K0101-32	Solid	03-Nov-2020 14:15	03-Nov-2020 16:45
A1-02A:10-11032020	20K0101-33	Solid	03-Nov-2020 14:30	03-Nov-2020 16:45
A1-02A:12.8-11032020	20K0101-34	Solid	03-Nov-2020 14:40	03-Nov-2020 16:45
A1-02A:18-11032020	20K0101-35	Solid	03-Nov-2020 14:50	03-Nov-2020 16:45
A1-02A:25-11032020	20K0101-36	Solid	03-Nov-2020 14:55	03-Nov-2020 16:45
TSA-Concrete-001:0.6-11032020	20K0101-37	Solid	03-Nov-2020 13:20	03-Nov-2020 16:45
TSA-Concrete-002:0.6-11032020	20K0101-38	Solid	03-Nov-2020 13:30	03-Nov-2020 16:45
TSA-2020-001:1.4-11032020	20K0101-39	Solid	03-Nov-2020 10:40	03-Nov-2020 16:45

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	18-Dec-2020 10:58

TSA-2020-001:1.9-11032020	20K0101-40	Solid	03-Nov-2020 12:35	03-Nov-2020 16:45
TSA-2020-002:1.5-11032020	20K0101-41	Solid	03-Nov-2020 13:00	03-Nov-2020 16:45
TSA-2020-002:2-11032020	20K0101-42	Solid	03-Nov-2020 13:05	03-Nov-2020 16:45
TSA-2020-003:1.5-11032020	20K0101-43	Solid	03-Nov-2020 12:50	03-Nov-2020 16:45
TSA-2020-003:2-11032020	20K0101-44	Solid	03-Nov-2020 12:55	03-Nov-2020 16:45

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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	18-Dec-2020 10:58

Work Order Case Narrative

Sample receipt

Samples as listed on the preceding page were received 03-Nov-2020 16:45 under ARI work order 20K0101. For details regarding sample receipt, please refer to the Cooler Receipt Form.

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

The samples were extracted and analyzed within the recommended holding times.

Sample SB-2020-029:6.8-11032020 was reanalyzed at a dilution due to "E" flagged compound concentrations exceeding the upper calibration limits. No further corrective action was taken.

Initial and continuing calibrations were within method requirements, with the exception of SIH0304-SCV1 which is outside of control limits low for Dibenzo(a,h)anthracene. No corrective action was taken.

The initial calibration verifications (ICV's) are outside of control limits low for all LCS "Q" flagged compounds. Associated detected results have also been flagged with "Q" qualifiers. No further corrective action was taken.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limits.

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

A matrix spike and matrix spike duplicate were prepared in conjunction with sample SB-2020-001:6.8-11032020. The matrix spike and matrix spike duplicate have low spike recoveries for several flagged compounds. The results are advisory. No corrective action was taken.

Volatiles - EPA Method SW8260D

The samples were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with the exception of the ICV which is outside of conrol limits low for cis-1,2-Dichloroethene. Associated detected results and QC have been flagged with "Q" qualifiers. No further corrective action was taken.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blanks 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	18-Dec-2020 10:58

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits, with the exception of cis-1,2-Dichloroethene which is outside of control limits low. This is likely a calibration bias. No corrective action was taken.

Gasoline by NWTPH-g (GC/MS)

The samples 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 blanks were clean at the reporting limits.

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

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

The samples 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 was clean at the reporting limits.

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

A matrix spike and matrix spike duplicate were prepared in conjunction with sample SB-2020-003:1.5-11032020. The matrix spike/matrix spike duplicate percent recoveries and RPD were within QC limits.

PCB Aroclors - EPA Method SW8082A

The samples were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with the exception of flagged surrogates and Aroclors. All data was reported from passing columns. No corrective action was taken.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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	18-Dec-2020 10:58

The method blank was clean at the reporting limits.

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

Matrix spikes and matrix spike duplicates were prepared in conjunction with samples HA-2020-100:0.2- 11022020 and SB-2020-045:7.2-11032020. The matrix spike/matrix spike duplicate percent recoveries and RPD were within QC limits.

Total Metals UCT-KED - EPA Method 6020A

The samples were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank was clean at the reporting limits.

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

A matrix spike, matrix spike duplicate and duplicate were prepared in conjunction with sample HA-2020-007:0.25- 11022020. The duplicate and matrix spike duplicate have high RPD for Zinc. The matrix spike and matrix spike duplicate have high spike recoveries, as well as natural concentrations of Copper and Nickel that are so much greater than the concentrations spiked that accurate determination of spike recovery is not possible, as post digest spike was prepared within QC limits. The MS/MSD have been flagged with "HC" qualifiers. The results are advisory. No further corrective action was taken.

Total Metals - EPA Method 6020A

The samples were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blanks were clean at the reporting limits.

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

A matrix spike, matrix spike duplicate and duplicate were prepared in conjunction with sample HA-2020-007:0.25- 11022020. The matrix spike is has high spike recoveries for Barium and Lead and low recovery for Selenium, the matrix spike duplicate has high spike recovery for Lead and low recovery for Selenium, while both have natrual concentrations of Cadmium that are so much greater than the concentrations spiked that accurate determination of spike recovery is not possible. A post digest spike was prepared within QC limits. The MS/MSD has been flagged with "HC" qualifiers. The results are advisory. No further corrective action was taken.

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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: 20K0101
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 1645 — 2.7 3.3 0.9 4.5 ___ ___

If cooler temperature is out of compliance fill out form 00070F — Temp Gun ID#: D005206

Cooler Accepted by: SC Date: 11/3/2020 Time: 1645

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: KD Date: 11/5/2020 Time: 1514 Labels checked by: KD

***** 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:

-Received 1 container for sample "HA-2020-005:0-11022020", COC says 2.
-Received 9 containers for samples: SB-2020-045: 2.8-11032020, and SB-2020-045: 7.2-11032020, COC says 10.

By: KD Date: 11/5/2020

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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	18-Dec-2020 10:58

HA-2020-007:0.25-11022020

20K0101-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 09:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 17:42

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-02 A 02
Preparation Batch: BIK0197 — Sample Size: 1.035 g (wet) — Dry Weight:1.01 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 97.99

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.05	0.49	67.5	mg/kg	
Cobalt	7440-48-4	20	0.03	0.20	31.0	mg/kg	
Lead	7439-92-1	20	0.07	0.10	55.0	mg/kg	
Selenium	7782-49-2	20	0.43	1.97	ND	mg/kg	U
Silver	7440-22-4	20	0.02	0.20	0.32	mg/kg	
Vanadium	7440-62-2	20	0.04	0.20	55.1	mg/kg	

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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	18-Dec-2020 10:58

HA-2020-007:0.25-11022020

20K0101-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 09:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 17:42

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-02 A 02
Preparation Batch: BIK0197 — Sample Size: 1.035 g (wet) — Dry Weight:1.01 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 97.99

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.20	42.0	mg/kg	
Cadmium	7440-43-9	20	0.03	0.10	0.43	mg/kg	
Zinc	7440-66-6	20	0.8	3.9	98.6	mg/kg	

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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	18-Dec-2020 10:58

HA-2020-007:0.25-11022020

20K0101-02 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/02/2020 09:20
Instrument: HYDRA Analyst: BLC — Analyzed: 11/18/2020 13:49

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0101-02 A
Preparation Batch: BIK0376 — Sample Size: 0.25 g (wet) — Dry Weight:0.24 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 97.99

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00429	0.0204	ND	mg/kg	U

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-007:0.25-11022020

20K0101-02RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 09:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 21:20

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-02RE1 A 02
Preparation Batch: BIK0197 — Sample Size: 1.035 g (wet) — Dry Weight:1.01 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 97.99

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	500	3.20	12.3	469	mg/kg	D

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-007:0.25-11022020

20K0101-02RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 09:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 21:20

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-02RE1 A 02
Preparation Batch: BIK0197 — Sample Size: 1.035 g (wet) — Dry Weight:1.01 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 97.99

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Copper	7440-50-8	500	8.38	12.3	716	mg/kg	D
Nickel	7440-02-0	500	1.23	12.3	3090	mg/kg	D

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-008:0-11022020

20K0101-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 09:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 18:34

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-04 A 02
Preparation Batch: BIK0197 — Sample Size: 1.035 g (wet) — Dry Weight:0.90 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 86.91

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.56	113	mg/kg	
Chromium	7440-47-3	20	0.08	0.56	148	mg/kg	
Cobalt	7440-48-4	20	0.03	0.22	13.2	mg/kg	
Lead	7439-92-1	20	0.08	0.11	205	mg/kg	
Selenium	7782-49-2	20	0.49	2.22	0.76	mg/kg	J
Silver	7440-22-4	20	0.02	0.22	1.05	mg/kg	
Vanadium	7440-62-2	20	0.04	0.22	67.7	mg/kg	

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Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-008:0-11022020

20K0101-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 09:40

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 18:34

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-04 A 02

Preparation Batch: BIK0197 — Sample Size: 1.035 g (wet) — Dry Weight:0.90 g

Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 86.91

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.22	18.3	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	1.68	mg/kg	
Copper	7440-50-8	20	0.38	0.56	181	mg/kg	
Zinc	7440-66-6	20	1.0	4.4	180	mg/kg	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-008:0-11022020

20K0101-04 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/02/2020 09:40
Instrument: HYDRA Analyst: BLC — Analyzed: 11/18/2020 13:58

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0101-04 A
Preparation Batch: BIK0376 — Sample Size: 0.209 g (wet) — Dry Weight:0.18 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 86.91

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00578	0.0275	0.0523	mg/kg	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-008:0-11022020

20K0101-04RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 09:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 21:57

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-04RE1 A 02
Preparation Batch: BIK0197 — Sample Size: 1.035 g (wet) — Dry Weight:0.90 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 86.91

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nickel	7440-02-0	50	0.14	1.39	401	mg/kg	D

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-006:0.3-11022020

20K0101-07 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 10:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 18:39

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-07 A 02
Preparation Batch: BIK0197 — Sample Size: 1.066 g (wet) — Dry Weight:1.05 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 98.94

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.05	0.47	5.83	mg/kg	
Cobalt	7440-48-4	20	0.03	0.19	19.6	mg/kg	
Lead	7439-92-1	20	0.06	0.09	8.52	mg/kg	
Selenium	7782-49-2	20	0.42	1.90	ND	mg/kg	U
Silver	7440-22-4	20	0.02	0.19	0.09	mg/kg	J
Vanadium	7440-62-2	4000	7.59	37.9	50.8	mg/kg	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	18-Dec-2020 10:58

HA-2020-006:0.3-11022020

20K0101-07 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 10:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 18:39

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-07 A 02
Preparation Batch: BIK0197 — Sample Size: 1.066 g (wet) — Dry Weight:1.05 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 98.94

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.19	9.00	mg/kg	
Cadmium	7440-43-9	20	0.03	0.09	0.30	mg/kg	
Zinc	7440-66-6	20	0.9	3.8	79.3	mg/kg	

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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	18-Dec-2020 10:58

HA-2020-006:0.3-11022020

20K0101-07 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/02/2020 10:30
Instrument: HYDRA Analyst: BLC — Analyzed: 11/18/2020 14:00

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0101-07 A
Preparation Batch: BIK0376 — Sample Size: 0.212 g (wet) — Dry Weight:0.21 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 98.94

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00501	0.0238	0.00577	mg/kg	J

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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	18-Dec-2020 10:58

HA-2020-006:0.3-11022020

20K0101-07RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 10:30

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 20:52

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-07RE1 A 02

Preparation Batch: BIK0197 — Sample Size: 1.066 g (wet) — Dry Weight:1.05 g

Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 98.94

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	1000	3.32	23.7	6620	mg/kg	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	18-Dec-2020 10:58

HA-2020-006:0.3-11022020

20K0101-07RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 10:30

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 20:52

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-07RE1 A 02

Preparation Batch: BIK0197 — Sample Size: 1.066 g (wet) — Dry Weight:1.05 g

Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 98.94

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Copper	7440-50-8	1000	16.1	23.7	583	mg/kg	D
Nickel	7440-02-0	1000	2.37	23.7	2980	mg/kg	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	18-Dec-2020 10:58

HA-2020-004:0.2-11022020

20K0101-10 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 11:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 18:43

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-10 A 02
Preparation Batch: BIK0197 — Sample Size: 1.088 g (wet) — Dry Weight:1.04 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 95.54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.05	0.48	108	mg/kg	
Cobalt	7440-48-4	20	0.03	0.19	29.0	mg/kg	
Lead	7439-92-1	20	0.07	0.10	87.1	mg/kg	
Selenium	7782-49-2	20	0.42	1.92	0.47	mg/kg	J
Silver	7440-22-4	20	0.02	0.19	1.09	mg/kg	
Vanadium	7440-62-2	20	0.04	0.19	94.5	mg/kg	

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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	18-Dec-2020 10:58

HA-2020-004:0.2-11022020

20K0101-10 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 11:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 18:43

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-10 A 02
Preparation Batch: BIK0197 — Sample Size: 1.088 g (wet) — Dry Weight:1.04 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 95.54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.19	19.1	mg/kg	
Cadmium	7440-43-9	20	0.03	0.10	0.37	mg/kg	
Zinc	7440-66-6	20	0.8	3.8	81.8	mg/kg	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-004:0.2-11022020

20K0101-10 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/02/2020 11:00
Instrument: HYDRA Analyst: BLC — Analyzed: 11/18/2020 14:02

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0101-10 A
Preparation Batch: BIK0376 — Sample Size: 0.233 g (wet) — Dry Weight:0.22 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 95.54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00472	0.0225	0.0127	mg/kg	J

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-004:0.2-11022020

20K0101-10RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 11:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 21:07

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-10RE1 A 02
Preparation Batch: BIK0197 — Sample Size: 1.088 g (wet) — Dry Weight:1.04 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 95.54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	500	3.13	12.0	889	mg/kg	D

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-004:0.2-11022020

20K0101-10RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 11:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 21:07

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-10RE1 A 02
Preparation Batch: BIK0197 — Sample Size: 1.088 g (wet) — Dry Weight:1.04 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 95.54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Copper	7440-50-8	500	8.18	12.0	418	mg/kg	D
Nickel	7440-02-0	500	1.20	12.0	2540	mg/kg	D

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-003:0.2-11022020

20K0101-13 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/02/2020 11:20
Instrument: ECD7 Analyst: JGR — Analyzed: 12/03/2020 03:38

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0101-13 A 01
	Preparation Batch: BIK0468	Sample Size: 15.63 g (wet)	Dry Weight:14.46 g
	Prepared: 11/16/2020	Final Volume: 2.5 mL	% Solids: 92.50
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-13 A 01
	Cleanup Batch: CIL0017	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0101-13 A 01
	Cleanup Batch: CIL0015	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0101-13 A 01
	Cleanup Batch: CIL0016	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.3	3.5	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.3	3.5	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.3	3.5	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.3	3.5	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.3	3.5	18.3	ug/kg	
Aroclor 1254	11097-69-1	1	1.3	3.5	11.7	ug/kg	P1
Aroclor 1260	11096-82-5	1	0.5	3.5	8.4	ug/kg	
Surrogate: Decachlorobiphenyl				*40-126 %*	*47.8*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*60.7*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*61.7*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*60.2*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-003:0.2-11022020

20K0101-13 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 11:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 18:48

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-13 B 01
Preparation Batch: BIK0197 — Sample Size: 1.016 g (wet) — Dry Weight:0.94 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 92.50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.53	181	mg/kg	
Cobalt	7440-48-4	20	0.03	0.21	11.4	mg/kg	
Lead	7439-92-1	20	0.07	0.11	103	mg/kg	
Selenium	7782-49-2	20	0.47	2.13	19.5	mg/kg	
Silver	7440-22-4	20	0.02	0.21	1.41	mg/kg	
Vanadium	7440-62-2	500	1.06	5.32	110	mg/kg	D

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Shannon & Wilson, Inc	Project: Lower Duwamish	
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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-003:0.2-11022020

20K0101-13 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 11:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 18:48

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-13 B 01
Preparation Batch: BIK0197 — Sample Size: 1.016 g (wet) — Dry Weight:0.94 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 92.50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.21	9.20	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	0.64	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-003:0.2-11022020

20K0101-13 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/02/2020 11:20

Instrument: HYDRA Analyst: BLC — Analyzed: 11/18/2020 14:04

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0101-13 B

Preparation Batch: BIK0376 — Sample Size: 0.209 g (wet) — Dry Weight:0.19 g

Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 92.50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00543	0.0259	0.0244	mg/kg	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-003:0.2-11022020

20K0101-13RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 11:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 20:12

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-13RE1 B 01

Preparation Batch: BIK0197 — Sample Size: 1.016 g (wet) — Dry Weight:0.94 g

Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 92.50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	200	1.38	5.32	1800	mg/kg	D

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HA-2020-003:0.2-11022020

20K0101-13RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 11:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 20:12

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-13RE1 B 01

Preparation Batch: BIK0197 — Sample Size: 1.016 g (wet) — Dry Weight:0.94 g

Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 92.50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Copper	7440-50-8	200	3.62	5.32	371	mg/kg	D
Nickel	7440-02-0	200	0.53	5.32	673	mg/kg	D
Zinc	7440-66-6	200	8.7	42.6	347	mg/kg	D

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-100:0.2-11022020

20K0101-15 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/02/2020 11:25
Instrument: ECD7 Analyst: JGR — Analyzed: 12/03/2020 03:59

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0101-15 A 01
	Preparation Batch: BIK0468	Sample Size: 15.64 g (wet)	Dry Weight:14.45 g
	Prepared: 11/16/2020	Final Volume: 2.5 mL	% Solids: 92.42
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-15 A 01
	Cleanup Batch: CIL0017	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0101-15 A 01
	Cleanup Batch: CIL0015	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0101-15 A 01
	Cleanup Batch: CIL0016	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.3	3.5	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.3	3.5	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.3	3.5	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.3	3.5	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.3	3.5	17.0	ug/kg	
Aroclor 1254	11097-69-1	1	1.3	3.5	10.4	ug/kg	P1
Aroclor 1260	11096-82-5	1	0.5	3.5	6.5	ug/kg	P1
Surrogate: Decachlorobiphenyl				*40-126 %*	*48.3*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*60.5*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*62.2*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*60.2*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-100:0.2-11022020

20K0101-15 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 11:25
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 18:53

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-15 B 01
Preparation Batch: BIK0197 — Sample Size: 1.013 g (wet) — Dry Weight:0.94 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 92.42

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.53	111	mg/kg	
Cobalt	7440-48-4	20	0.03	0.21	13.3	mg/kg	
Lead	7439-92-1	20	0.07	0.11	87.8	mg/kg	
Selenium	7782-49-2	20	0.47	2.14	13.9	mg/kg	
Silver	7440-22-4	20	0.02	0.21	1.33	mg/kg	

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HA-2020-100:0.2-11022020

20K0101-15 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 11:25
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 18:53

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-15 B 01
Preparation Batch: BIK0197 — Sample Size: 1.013 g (wet) — Dry Weight:0.94 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 92.42

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.21	10.0	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	0.50	mg/kg	
Zinc	7440-66-6	20	1.0	4.3	221	mg/kg	

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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	18-Dec-2020 10:58

HA-2020-100:0.2-11022020

20K0101-15 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/02/2020 11:25
Instrument: HYDRA Analyst: BLC — Analyzed: 11/18/2020 14:11

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0101-15 B
Preparation Batch: BIK0376 — Sample Size: 0.21 g (wet) — Dry Weight:0.19 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 92.42

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00541	0.0258	0.0214	mg/kg	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-100:0.2-11022020

20K0101-15RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 11:25

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 21:12

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-15RE1 B 01

Preparation Batch: BIK0197 — Sample Size: 1.013 g (wet) — Dry Weight:0.94 g

Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 92.42

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	500	1.87	13.4	2430	mg/kg	D
Vanadium	7440-62-2	500	0.43	5.34	91.9	mg/kg	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	18-Dec-2020 10:58

HA-2020-100:0.2-11022020

20K0101-15RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 11:25
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 21:12

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-15RE1 B 01
Preparation Batch: BIK0197 — Sample Size: 1.013 g (wet) — Dry Weight:0.94 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 92.42

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Copper	7440-50-8	500	9.08	13.4	361	mg/kg	D
Nickel	7440-02-0	500	1.34	13.4	1180	mg/kg	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	18-Dec-2020 10:58

HA-2020-001:0-11022020

20K0101-16 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/02/2020 12:05
Instrument: ECD7 Analyst: JGR — Analyzed: 12/03/2020 05:01

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0101-16 A 01
	Preparation Batch: BIK0468	Sample Size: 15.63 g (wet)	Dry Weight:15.22 g
	Prepared: 11/16/2020	Final Volume: 2.5 mL	% Solids: 97.38
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-16 A 01
	Cleanup Batch: CIL0017	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0101-16 A 01
	Cleanup Batch: CIL0015	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0101-16 A 01
	Cleanup Batch: CIL0016	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	5	6.4	16.4	ND	ug/kg	U
Aroclor 1221	11104-28-2	5	6.4	16.4	ND	ug/kg	U
Aroclor 1232	11141-16-5	5	6.4	16.4	ND	ug/kg	U
Aroclor 1242	53469-21-9	5	6.4	16.4	ND	ug/kg	U
Aroclor 1248	12672-29-6	5	6.4	16.4	ND	ug/kg	U
Aroclor 1254	11097-69-1	5	6.4	16.4	57.5	ug/kg	D
Aroclor 1260	11096-82-5	5	2.4	16.4	39.7	ug/kg	D
Surrogate: Decachlorobiphenyl				*40-126 %*	*58.2*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*62.9*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*51.8*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*47.3*	*%*	

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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	18-Dec-2020 10:58

HA-2020-001:0-11022020

20K0101-16 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 12:05

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 18:58

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-16 B 01

Preparation Batch: BIK0197 — Sample Size: 1.051 g (wet) — Dry Weight:1.02 g

Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 97.38

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.05	0.49	106	mg/kg	
Cobalt	7440-48-4	20	0.03	0.20	12.0	mg/kg	
Selenium	7782-49-2	20	0.43	1.95	4.42	mg/kg	
Silver	7440-22-4	20	0.02	0.20	0.45	mg/kg	

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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	18-Dec-2020 10:58

HA-2020-001:0-11022020

20K0101-16 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 12:05
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 18:58

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-16 B 01
Preparation Batch: BIK0197 — Sample Size: 1.051 g (wet) — Dry Weight:1.02 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 97.38

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.20	14.7	mg/kg	
Cadmium	7440-43-9	20	0.03	0.10	3.41	mg/kg	
Nickel	7440-02-0	20	0.05	0.49	201	mg/kg	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-001:0-11022020

20K0101-16 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/02/2020 12:05
Instrument: HYDRA Analyst: BLC — Analyzed: 11/18/2020 14:13

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0101-16 B
Preparation Batch: BIK0376 — Sample Size: 0.225 g (wet) — Dry Weight:0.22 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 97.38

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00479	0.0228	0.167	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-001:0-11022020

20K0101-16RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 12:05
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 20:16

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-16RE1 B 01
Preparation Batch: BIK0197 — Sample Size: 1.051 g (wet) — Dry Weight:1.02 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 97.38

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	200	1.27	4.89	335	mg/kg	D
Lead	7439-92-1	200	0.66	0.98	410	mg/kg	D
Vanadium	7440-62-2	200	0.39	1.95	35.7	mg/kg	D

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-001:0-11022020

20K0101-16RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 12:05
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 20:16

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-16RE1 B 01
Preparation Batch: BIK0197 — Sample Size: 1.051 g (wet) — Dry Weight:1.02 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 97.38

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Copper	7440-50-8	200	3.32	4.89	983	mg/kg	D
Zinc	7440-66-6	200	9.2	39.1	543	mg/kg	D

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HA-2020-005:0-11022020

20K0101-18 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 13:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 19:02

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-18 A 02
Preparation Batch: BIK0197 — Sample Size: 1.014 g (wet) — Dry Weight:0.83 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 82.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.60	114	mg/kg	
Cobalt	7440-48-4	20	0.03	0.24	59.2	mg/kg	
Selenium	7782-49-2	20	0.53	2.40	5.03	mg/kg	
Silver	7440-22-4	20	0.02	0.24	2.66	mg/kg	
Vanadium	7440-62-2	2000	4.79	24.0	16.8	mg/kg	J, D

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-005:0-11022020

20K0101-18 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 13:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 19:02

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-18 A 02
Preparation Batch: BIK0197 — Sample Size: 1.014 g (wet) — Dry Weight:0.83 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 82.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.24	35.2	mg/kg	
Cadmium	7440-43-9	20	0.05	0.12	3.33	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-005:0-11022020

20K0101-18 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/02/2020 13:00
Instrument: HYDRA Analyst: BLC — Analyzed: 11/18/2020 14:16

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0101-18 A
Preparation Batch: BIK0376 — Sample Size: 0.283 g (wet) — Dry Weight:0.23 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 82.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00451	0.0215	0.184	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-005:0-11022020

20K0101-18RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 13:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 21:16

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-18RE1 A 02
Preparation Batch: BIK0197 — Sample Size: 1.014 g (wet) — Dry Weight:0.83 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 82.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	500	2.10	15.0	5330	mg/kg	D
Lead	7439-92-1	500	2.04	2.99	322	mg/kg	D

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-005:0-11022020

20K0101-18RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 13:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 21:16

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-18RE1 A 02
Preparation Batch: BIK0197 — Sample Size: 1.014 g (wet) — Dry Weight:0.83 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 82.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Copper	7440-50-8	500	10.2	15.0	1190	mg/kg	D
Nickel	7440-02-0	500	1.50	15.0	4460	mg/kg	D
Zinc	7440-66-6	500	24.6	120	954	mg/kg	D

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-002:0-11022020

20K0101-20 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/02/2020 13:30
Instrument: ECD7 Analyst: JGR — Analyzed: 12/03/2020 05:21

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0101-20 A 01
	Preparation Batch: BIK0468	Sample Size: 15.65 g (wet)	Dry Weight:14.23 g
	Prepared: 11/16/2020	Final Volume: 2.5 mL	% Solids: 90.91
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-20 A 01
	Cleanup Batch: CIL0017	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0101-20 A 01
	Cleanup Batch: CIL0015	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0101-20 A 01
	Cleanup Batch: CIL0016	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.4	3.5	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.4	3.5	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.4	3.5	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.4	3.5	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.4	3.5	7.3	ug/kg	P1
Aroclor 1254	11097-69-1	1	1.4	3.5	8.9	ug/kg	
Aroclor 1260	11096-82-5	1	0.5	3.5	14.7	ug/kg	P1
Surrogate: Decachlorobiphenyl				*40-126 %*	*55.1*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*		*NRS*	NRS, P1
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*67.0*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*64.6*	*%*	P1

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-002:0-11022020

20K0101-20 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 13:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 19:07

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-20 B 01
Preparation Batch: BIK0197 — Sample Size: 1.007 g (wet) — Dry Weight:0.92 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 90.91

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.55	139	mg/kg	
Cobalt	7440-48-4	20	0.03	0.22	9.42	mg/kg	
Selenium	7782-49-2	20	0.48	2.18	21.0	mg/kg	
Silver	7440-22-4	20	0.02	0.22	2.16	mg/kg	
Vanadium	7440-62-2	2000	4.37	21.8	21.8	mg/kg	D

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

HA-2020-002:0-11022020

20K0101-20 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 13:30

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 19:07

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-20 B 01

Preparation Batch: BIK0197 — Sample Size: 1.007 g (wet) — Dry Weight:0.92 g

Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 90.91

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.22	5.10	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	1.84	mg/kg	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

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20K0101-20 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/02/2020 13:30
Instrument: HYDRA Analyst: BLC — Analyzed: 11/18/2020 14:18

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0101-20 B
Preparation Batch: BIK0376 — Sample Size: 0.202 g (wet) — Dry Weight:0.18 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 90.91

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00572	0.0272	0.0436	mg/kg	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
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20K0101-20RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 13:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 20:21

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-20RE1 B 01
Preparation Batch: BIK0197 — Sample Size: 1.007 g (wet) — Dry Weight:0.92 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 90.91

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	200	0.76	5.46	2330	mg/kg	D
Lead	7439-92-1	200	0.74	1.09	279	mg/kg	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	18-Dec-2020 10:58

HA-2020-002:0-11022020

20K0101-20RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 13:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 20:21

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-20RE1 B 01
Preparation Batch: BIK0197 — Sample Size: 1.007 g (wet) — Dry Weight:0.92 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 90.91

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Copper	7440-50-8	200	3.71	5.46	1150	mg/kg	D
Nickel	7440-02-0	200	0.55	5.46	542	mg/kg	D
Zinc	7440-66-6	200	10.3	43.7	1550	mg/kg	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	18-Dec-2020 10:58

SB-2020-029:3.2-11032020

20K0101-22 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/03/2020 09:30

Instrument: NT2 Analyst: PKC — Analyzed: 11/10/2020 16:17

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0101-22 E

Preparation Batch: BIK0287 — Sample Size: 4.002 g (wet) — Dry Weight:3.85 g

Prepared: 11/10/2020 — Final Volume: 5 mL — % Solids: 96.19

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	6690	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*97.2*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*95.8*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

SB-2020-029:3.2-11032020

20K0101-22 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/03/2020 09:30

Instrument: NT11 Analyst: VTS — Analyzed: 11/25/2020 14:49

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0101-22 A 02
	Preparation Batch: BIK0517	Sample Size: 13.78 g (wet)	Dry Weight:10.00 g
	Prepared: 11/17/2020	Final Volume: 0.5 mL	% Solids: 72.56
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-22 A 02
	Cleanup Batch: CIK0198	Initial Volume: 0.5 mL	
	Cleaned: 25-Nov-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	31.3	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	59.6	ug/kg	E
2-Methylnaphthalene	91-57-6	1	0.13	0.50	68.0	ug/kg	E
Acenaphthylene	208-96-8	1	0.06	0.50	1.06	ug/kg	
Acenaphthene	83-32-9	1	0.09	0.50	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.13	0.50	18.6	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	1.13	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	42.3	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	0.96	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	9.18	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	44.5	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	9.18	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	14.8	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	6.25	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	2.24	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	2.57	ug/kg	Q
Benzo(a)pyrene	50-32-8	1	0.09	0.50	5.00	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	4.47	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.11	0.50	1.74	ug/kg	Q
Benzo(g,h,i)perylene	191-24-2	1	0.09	0.50	5.70	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*59.2*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*73.1*	*%*	Q
Surrogate: Fluoranthene-d10				*30-160 %*	*41.8*	*%*	

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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	18-Dec-2020 10:58

SB-2020-029:3.2-11032020

20K0101-22 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/03/2020 09:30
Instrument: FID4 Analyst: JGR — Analyzed: 11/18/2020 19:04

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0101-22 A 01
Preparation Batch: BIK0481 — Sample Size: 10.05 g (wet) — Dry Weight:7.29 g
Prepared: 11/16/2020 — Final Volume: 10 mL — % Solids: 72.56

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	68.6	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	137	203	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*85.9*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

SB-2020-029:3.2-11032020

20K0101-22 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/03/2020 09:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 19:14

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-22 C 01
Preparation Batch: BIK0197 — Sample Size: 1.022 g (wet) — Dry Weight:0.98 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 96.19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.51	16.7	mg/kg	
Chromium	7440-47-3	20	0.13	0.51	9.84	mg/kg	
Cobalt	7440-48-4	20	0.03	0.20	3.20	mg/kg	
Lead	7439-92-1	20	0.07	0.10	1.52	mg/kg	
Selenium	7782-49-2	20	0.45	2.03	ND	mg/kg	U
Silver	7440-22-4	20	0.02	0.20	0.03	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.20	28.1	mg/kg	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

SB-2020-029:3.2-11032020

20K0101-22 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/03/2020 09:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 19:14

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-22 C 01
Preparation Batch: BIK0197 — Sample Size: 1.022 g (wet) — Dry Weight:0.98 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 96.19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.20	1.95	mg/kg	
Cadmium	7440-43-9	20	0.03	0.10	ND	mg/kg	U
Copper	7440-50-8	20	0.35	0.51	7.16	mg/kg	
Nickel	7440-02-0	20	0.05	0.51	7.04	mg/kg	
Zinc	7440-66-6	20	0.8	4.1	18.7	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

SB-2020-029:3.2-11032020

20K0101-22 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/03/2020 09:30
Instrument: HYDRA Analyst: BLC — Analyzed: 11/18/2020 14:20

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0101-22 C
Preparation Batch: BIK0376 — Sample Size: 0.284 g (wet) — Dry Weight:0.27 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 96.19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00384	0.0183	0.0266	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

SB-2020-029:3.2-11032020

20K0101-22RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/03/2020 09:30
Instrument: NT11 Analyst: VTS — Analyzed: 11/25/2020 23:29

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0101-22RE1 A 02
	Preparation Batch: BIK0517	Sample Size: 13.78 g (wet)	Dry Weight:10.00 g
	Prepared: 11/17/2020	Final Volume: 0.5 mL	% Solids: 72.56
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-22RE1 A 02
	Cleanup Batch: CIK0198	Initial Volume: 0.5 mL	
	Cleaned: 25-Nov-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	10	4.39	6.00	35.8	ug/kg	D
1-Methylnaphthalene	90-12-0	10	1.06	5.00	64.8	ug/kg	D
2-Methylnaphthalene	91-57-6	10	1.28	5.00	81.9	ug/kg	D
Acenaphthylene	208-96-8	10	0.64	5.00	1.14	ug/kg	J, D
Acenaphthene	83-32-9	10	0.89	5.00	ND	ug/kg	U
Dibenzofuran	132-64-9	10	1.26	5.00	21.0	ug/kg	D
Fluorene	86-73-7	10	0.68	5.00	ND	ug/kg	U
Phenanthrene	85-01-8	10	1.14	5.00	48.2	ug/kg	D
Anthracene	120-12-7	10	0.74	5.00	2.00	ug/kg	J, D
Fluoranthene	206-44-0	10	0.81	5.00	14.3	ug/kg	D
Pyrene	129-00-0	10	0.89	5.00	17.0	ug/kg	D
Benzo(a)anthracene	56-55-3	10	0.72	5.00	8.26	ug/kg	D
Chrysene	218-01-9	10	0.70	5.00	15.3	ug/kg	D
Benzo(b)fluoranthene	205-99-2	10	0.66	5.00	8.40	ug/kg	D
Benzo(k)fluoranthene	207-08-9	10	1.01	5.00	2.68	ug/kg	J, D
Benzo(j)fluoranthene	205-82-3	10	0.97	5.00	1.86	ug/kg	J, D
Benzo(a)pyrene	50-32-8	10	0.87	5.00	5.24	ug/kg	D
Indeno(1,2,3-cd)pyrene	193-39-5	10	0.88	5.00	4.18	ug/kg	J, D
Dibenzo(a,h)anthracene	53-70-3	10	1.05	5.00	1.08	ug/kg	J, D
Benzo(g,h,i)perylene	191-24-2	10	0.85	5.00	5.09	ug/kg	D
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*62.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*69.3*	*%*	Q
Surrogate: Fluoranthene-d10				*30-160 %*	*61.1*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

SB-2020-029:7.5-11032020

20K0101-23 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/03/2020 09:45

Instrument: NT2 Analyst: PKC — Analyzed: 11/10/2020 16:38

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0101-23 D

Preparation Batch: BIK0287 — Sample Size: 5.672 g (wet) — Dry Weight:4.79 g

Prepared: 11/10/2020 — Final Volume: 5 mL — % Solids: 84.53

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	6130	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*97.4*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*107*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

SB-2020-029:7.5-11032020

20K0101-23 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/03/2020 09:45

Instrument: NT11 Analyst: VTS — Analyzed: 11/25/2020 15:22

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0101-23 A 02
	Preparation Batch: BIK0517	Sample Size: 11.03 g (wet)	Dry Weight:10.01 g
	Prepared: 11/17/2020	Final Volume: 0.5 mL	% Solids: 90.73
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-23 A 02
	Cleanup Batch: CIK0198	Initial Volume: 0.5 mL	
	Cleaned: 25-Nov-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	0.11	0.50	0.45	ug/kg	J
2-Methylnaphthalene	91-57-6	1	0.13	0.50	0.48	ug/kg	J
Acenaphthylene	208-96-8	1	0.06	0.50	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.09	0.50	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.13	0.50	0.31	ug/kg	J
Fluorene	86-73-7	1	0.07	0.50	0.07	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.50	1.62	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	0.08	ug/kg	J
Fluoranthene	206-44-0	1	0.08	0.50	0.48	ug/kg	J
Pyrene	129-00-0	1	0.09	0.50	0.59	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	0.26	ug/kg	J
Chrysene	218-01-9	1	0.07	0.50	0.69	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	0.30	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	ND	ug/kg	U
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	0.09	0.50	0.12	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	0.21	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*56.9*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*78.6*	*%*	Q
Surrogate: Fluoranthene-d10				*30-160 %*	*74.1*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

SB-2020-029:7.5-11032020

20K0101-23 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/03/2020 09:45

Instrument: FID4 Analyst: JGR — Analyzed: 11/18/2020 20:05

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0101-23 A 01

Preparation Batch: BIK0481 — Sample Size: 10.05 g (wet) — Dry Weight:9.12 g

Prepared: 11/16/2020 — Final Volume: 10 mL — % Solids: 90.73

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	54.8	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	110	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*94.6*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

SB-2020-029:7.5-11032020

20K0101-23 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/03/2020 09:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 19:49

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-23 C 01
Preparation Batch: BIK0197 — Sample Size: 1.091 g (wet) — Dry Weight:0.92 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 84.53

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.54	23.3	mg/kg	
Chromium	7440-47-3	20	0.14	0.54	10.7	mg/kg	
Cobalt	7440-48-4	20	0.03	0.22	4.41	mg/kg	
Lead	7439-92-1	20	0.07	0.11	1.69	mg/kg	
Selenium	7782-49-2	20	0.48	2.17	0.48	mg/kg	J
Silver	7440-22-4	20	0.02	0.22	0.03	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.22	34.1	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

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20K0101-23 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/03/2020 09:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 19:49

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-23 C 01
Preparation Batch: BIK0197 — Sample Size: 1.091 g (wet) — Dry Weight:0.92 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 84.53

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.22	2.08	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	ND	mg/kg	U
Copper	7440-50-8	20	0.37	0.54	8.18	mg/kg	
Nickel	7440-02-0	20	0.05	0.54	7.69	mg/kg	
Zinc	7440-66-6	20	0.9	4.3	22.0	mg/kg	

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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	18-Dec-2020 10:58

SB-2020-029:7.5-11032020

20K0101-23 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/03/2020 09:45
Instrument: HYDRA Analyst: BLC — Analyzed: 11/18/2020 14:22

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0101-23 C
Preparation Batch: BIK0376 — Sample Size: 0.261 g (wet) — Dry Weight:0.22 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 84.53

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00476	0.0227	ND	mg/kg	U

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

SB-2020-045:2.8-11032020

20K0101-24 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/03/2020 10:35

Instrument: NT5 Analyst: PB — Analyzed: 11/06/2020 17:09

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0101-24 H

Preparation Batch: BIK0187 — Sample Size: 3.7 g (wet) — Dry Weight:3.49 g

Prepared: 11/06/2020 — Final Volume: 5 mL — % Solids: 94.19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.34	1.43	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.48	1.43	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.34	1.43	ND	ug/kg	U
Benzene	71-43-2	1	0.42	1.43	ND	ug/kg	U
Trichloroethene	79-01-6	1	0.30	1.43	ND	ug/kg	U
Toluene	108-88-3	1	0.22	1.43	0.35	ug/kg	J
Tetrachloroethene	127-18-4	1	0.37	1.43	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.29	1.43	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.56	2.87	ND	ug/kg	U
o-Xylene	95-47-6	1	0.32	1.43	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.88	2.87	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*105*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*94.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*104*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*102*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

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20K0101-24 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/03/2020 10:35

Instrument: NT2 Analyst: PKC — Analyzed: 11/10/2020 16:59

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0101-24 E

Preparation Batch: BIK0287 — Sample Size: 4.093 g (wet) — Dry Weight:3.86 g

Prepared: 11/10/2020 — Final Volume: 5 mL — % Solids: 94.19

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	6790	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*97.2*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*95.2*	*%*	

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SB-2020-045:2.8-11032020

20K0101-24 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/03/2020 10:35
Instrument: NT11 Analyst: VTS — Analyzed: 11/25/2020 15:54

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0101-24 A 02
	Preparation Batch: BIK0517	Sample Size: 11.82 g (wet)	Dry Weight:10.06 g
	Prepared: 11/17/2020	Final Volume: 0.5 mL	% Solids: 85.10
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-24 A 02
	Cleanup Batch: CIK0198	Initial Volume: 0.5 mL	
	Cleaned: 25-Nov-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	1.70	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	3.13	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	3.02	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.23	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	0.52	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	1.65	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	0.61	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	6.27	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	0.97	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	3.72	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	5.01	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	1.68	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	2.58	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	1.62	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.53	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.55	ug/kg	Q
Benzo(a)pyrene	50-32-8	1	0.09	0.50	1.06	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	0.65	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.22	ug/kg	J
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	0.99	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*31.3*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*46.0*	*%*	Q
Surrogate: Fluoranthene-d10				*30-160 %*	*42.8*	*%*	

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20K0101-24 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/03/2020 10:35
Instrument: FID4 Analyst: JGR — Analyzed: 11/18/2020 20:25

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0101-24 A 01
Preparation Batch: BIK0481 — Sample Size: 10.05 g (wet) — Dry Weight:8.55 g
Prepared: 11/16/2020 — Final Volume: 10 mL — % Solids: 85.10

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	58.5	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	117	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*77.2*	*%*	

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20K0101-24 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/03/2020 10:35
Instrument: ECD7 Analyst: JGR — Analyzed: 12/02/2020 23:11

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0101-24 A 03
	Preparation Batch: BIK0518	Sample Size: 14.72 g (wet)	Dry Weight:12.53 g
	Prepared: 11/17/2020	Final Volume: 2.5 mL	% Solids: 85.10
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-24 A 03
	Cleanup Batch: CIL0020	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0101-24 A 03
	Cleanup Batch: CIL0018	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0101-24 A 03
	Cleanup Batch: CIL0019	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*55.4*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*67.1*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*71.2*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*64.6*	*%*	

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SB-2020-045:2.8-11032020

20K0101-24 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/03/2020 10:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 19:53

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-24 C 01
Preparation Batch: BIK0197 — Sample Size: 1.017 g (wet) — Dry Weight:0.96 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 94.19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.52	19.7	mg/kg	
Chromium	7440-47-3	20	0.14	0.52	10.0	mg/kg	
Cobalt	7440-48-4	20	0.03	0.21	3.78	mg/kg	
Lead	7439-92-1	20	0.07	0.10	1.79	mg/kg	
Selenium	7782-49-2	20	0.46	2.09	ND	mg/kg	U
Silver	7440-22-4	20	0.02	0.21	0.03	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.21	33.1	mg/kg	

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20K0101-24 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/03/2020 10:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 19:53

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-24 C 01
Preparation Batch: BIK0197 — Sample Size: 1.017 g (wet) — Dry Weight:0.96 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 94.19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.21	2.32	mg/kg	
Cadmium	7440-43-9	20	0.03	0.10	ND	mg/kg	U
Copper	7440-50-8	20	0.35	0.52	8.52	mg/kg	
Nickel	7440-02-0	20	0.05	0.52	7.81	mg/kg	
Zinc	7440-66-6	20	0.9	4.2	21.1	mg/kg	

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SB-2020-045:2.8-11032020

20K0101-24 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/03/2020 10:35
Instrument: HYDRA Analyst: BLC — Analyzed: 11/18/2020 14:24

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0101-24 C
Preparation Batch: BIK0376 — Sample Size: 0.222 g (wet) — Dry Weight:0.21 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 94.19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00502	0.0239	0.00655	mg/kg	J

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TB-1-11032020

20K0101-25 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/03/2020 14:50

Instrument: NT2 Analyst: PKC — Analyzed: 11/10/2020 13:12

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20K0101-25 A

Preparation Batch: BIK0286 — Sample Size: 10 mL

Prepared: 11/10/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.06	0.20	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.05	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.04	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.05	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	0.05	ug/L	J
Tetrachloroethene	127-18-4	1	0.05	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.09	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*97.0*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*92.1*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*105*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

TB-1-11032020

20K0101-25 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/03/2020 14:50

Instrument: NT2 Analyst: PKC — Analyzed: 11/10/2020 13:12

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20K0101-25 A

Preparation Batch: BIK0286 — Sample Size: 10 mL

Prepared: 11/10/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*96.8*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*92.1*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

SB-2020-045:7.2-11032020

20K0101-26 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/03/2020 10:55

Instrument: NT5 Analyst: PB — Analyzed: 11/06/2020 17:33

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0101-26 H

Preparation Batch: BIK0187 — Sample Size: 5.1 g (wet) — Dry Weight:4.30 g

Prepared: 11/06/2020 — Final Volume: 5 mL — % Solids: 84.22

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.27	1.16	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.39	1.16	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.28	1.16	ND	ug/kg	U
Benzene	71-43-2	1	0.34	1.16	ND	ug/kg	U
Trichloroethene	79-01-6	1	0.25	1.16	ND	ug/kg	U
Toluene	108-88-3	1	0.18	1.16	0.26	ug/kg	J
Tetrachloroethene	127-18-4	1	0.30	1.16	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.24	1.16	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.46	2.33	ND	ug/kg	U
o-Xylene	95-47-6	1	0.26	1.16	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.72	2.33	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*107*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*95.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*105*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*102*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

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20K0101-26 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/03/2020 10:55
Instrument: NT2 Analyst: PKC — Analyzed: 11/10/2020 17:20

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0101-26 F
Preparation Batch: BIK0287 — Sample Size: 4.992 g (wet) — Dry Weight:4.20 g
Prepared: 11/10/2020 — Final Volume: 5 mL — % Solids: 84.22

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	6880	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*98.2*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*92.0*	*%*	

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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	18-Dec-2020 10:58

SB-2020-045:7.2-11032020

20K0101-26 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/03/2020 10:55
Instrument: NT11 Analyst: VTS — Analyzed: 11/25/2020 16:26

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0101-26 A 02
	Preparation Batch: BIK0517	Sample Size: 10.84 g (wet)	Dry Weight:10.00 g
	Prepared: 11/17/2020	Final Volume: 0.5 mL	% Solids: 92.25
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-26 A 02
	Cleanup Batch: CIK0198	Initial Volume: 0.5 mL	
	Cleaned: 25-Nov-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	0.11	0.50	0.34	ug/kg	J
2-Methylnaphthalene	91-57-6	1	0.13	0.50	0.31	ug/kg	J
Acenaphthylene	208-96-8	1	0.06	0.50	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.09	0.50	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.13	0.50	0.22	ug/kg	J
Fluorene	86-73-7	1	0.07	0.50	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.11	0.50	1.38	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	ND	ug/kg	U
Fluoranthene	206-44-0	1	0.08	0.50	0.37	ug/kg	J
Pyrene	129-00-0	1	0.09	0.50	0.43	ug/kg	J
Benzo(a)anthracene	56-55-3	1	0.07	0.50	0.23	ug/kg	J
Chrysene	218-01-9	1	0.07	0.50	0.43	ug/kg	J
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	0.25	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	ND	ug/kg	U
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	0.09	0.50	0.14	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	0.09	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	0.11	0.50	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	0.09	0.50	0.13	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*48.9*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*65.1*	*%*	Q
Surrogate: Fluoranthene-d10				*30-160 %*	*68.5*	*%*	

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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	18-Dec-2020 10:58

SB-2020-045:7.2-11032020

20K0101-26 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/03/2020 10:55
Instrument: FID4 Analyst: JGR — Analyzed: 11/18/2020 20:45

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0101-26 A 01
Preparation Batch: BIK0481 — Sample Size: 10.05 g (wet) — Dry Weight:9.27 g
Prepared: 11/16/2020 — Final Volume: 10 mL — % Solids: 92.25

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	53.9	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	108	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*92.4*	*%*	

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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	18-Dec-2020 10:58

SB-2020-045:7.2-11032020

20K0101-26 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/03/2020 10:55
Instrument: ECD7 Analyst: JGR — Analyzed: 12/02/2020 23:32

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0101-26 A 03
	Preparation Batch: BIK0518	Sample Size: 13.58 g (wet)	Dry Weight:12.53 g
	Prepared: 11/17/2020	Final Volume: 2.5 mL	% Solids: 92.25
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-26 A 03
	Cleanup Batch: CIL0020	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0101-26 A 03
	Cleanup Batch: CIL0018	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0101-26 A 03
	Cleanup Batch: CIL0019	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*53.5*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*61.3*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*66.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*62.1*	*%*	

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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	18-Dec-2020 10:58

SB-2020-045:7.2-11032020

20K0101-26 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/03/2020 10:55
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 19:58

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-26 C 01
Preparation Batch: BIK0197 — Sample Size: 1.06 g (wet) — Dry Weight:0.89 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 84.22

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.56	21.0	mg/kg	
Chromium	7440-47-3	20	0.15	0.56	8.50	mg/kg	
Cobalt	7440-48-4	20	0.03	0.22	3.50	mg/kg	
Lead	7439-92-1	20	0.08	0.11	1.33	mg/kg	
Selenium	7782-49-2	20	0.49	2.24	ND	mg/kg	U
Silver	7440-22-4	20	0.02	0.22	0.03	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.22	28.2	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

SB-2020-045:7.2-11032020

20K0101-26 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/03/2020 10:55
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 19:58

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-26 C 01
Preparation Batch: BIK0197 — Sample Size: 1.06 g (wet) — Dry Weight:0.89 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 84.22

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.22	1.76	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	ND	mg/kg	U
Copper	7440-50-8	20	0.38	0.56	7.97	mg/kg	
Nickel	7440-02-0	20	0.06	0.56	6.89	mg/kg	
Zinc	7440-66-6	20	0.9	4.5	19.3	mg/kg	

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SB-2020-045:7.2-11032020

20K0101-26 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/03/2020 10:55
Instrument: HYDRA Analyst: BLC — Analyzed: 11/18/2020 14:27

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0101-26 C
Preparation Batch: BIK0376 — Sample Size: 0.291 g (wet) — Dry Weight:0.25 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 84.22

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00428	0.0204	0.00698	mg/kg	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

SB-2020-028:2.3-11032020

20K0101-27 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/03/2020 09:45

Instrument: NT11 Analyst: VTS — Analyzed: 11/25/2020 16:59

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0101-27 A 02
	Preparation Batch: BIK0517	Sample Size: 11.98 g (wet)	Dry Weight:10.04 g
	Prepared: 11/17/2020	Final Volume: 0.5 mL	% Solids: 83.80
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-27 A 02
	Cleanup Batch: CIK0198	Initial Volume: 0.5 mL	
	Cleaned: 25-Nov-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	15.9	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	27.9	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	26.2	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.79	ug/kg	
Acenaphthene	83-32-9	1	0.09	0.50	2.49	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	13.6	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	2.84	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	35.4	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	4.16	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	11.4	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	13.7	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	5.44	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	10.6	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	7.22	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	2.44	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	2.36	ug/kg	Q
Benzo(a)pyrene	50-32-8	1	0.09	0.50	4.51	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	4.75	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	1.08	ug/kg	Q
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	6.51	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*50.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*79.2*	*%*	Q
Surrogate: Fluoranthene-d10				*30-160 %*	*38.2*	*%*	

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SB-2020-028:2.3-11032020

20K0101-27 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/03/2020 09:45
Instrument: FID4 Analyst: JGR — Analyzed: 11/18/2020 21:06

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0101-27 A 01
Preparation Batch: BIK0481 — Sample Size: 10.05 g (wet) — Dry Weight:8.42 g
Prepared: 11/16/2020 — Final Volume: 10 mL — % Solids: 83.80

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	59.4	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	119	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*79.8*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

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20K0101-27 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/03/2020 09:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 19:38

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-27 C 01
Preparation Batch: BIK0197 — Sample Size: 1.033 g (wet) — Dry Weight:0.68 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 65.74

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.08	0.74	89.9	mg/kg	
Chromium	7440-47-3	20	0.19	0.74	23.0	mg/kg	
Cobalt	7440-48-4	20	0.04	0.29	10.6	mg/kg	
Lead	7439-92-1	20	0.10	0.15	14.9	mg/kg	
Selenium	7782-49-2	20	0.65	2.95	1.48	mg/kg	J
Silver	7440-22-4	20	0.03	0.29	0.20	mg/kg	J
Vanadium	7440-62-2	20	0.06	0.29	61.0	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

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20K0101-27 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/03/2020 09:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 19:38

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-27 C 01
Preparation Batch: BIK0197 — Sample Size: 1.033 g (wet) — Dry Weight:0.68 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 65.74

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.29	10.4	mg/kg	
Cadmium	7440-43-9	20	0.04	0.15	0.29	mg/kg	
Copper	7440-50-8	20	0.50	0.74	43.3	mg/kg	
Nickel	7440-02-0	20	0.07	0.74	22.7	mg/kg	
Zinc	7440-66-6	20	1.2	5.9	69.7	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

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20K0101-27 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/03/2020 09:45
Instrument: HYDRA Analyst: BLC — Analyzed: 11/18/2020 14:29

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0101-27 C
Preparation Batch: BIK0376 — Sample Size: 0.214 g (wet) — Dry Weight:0.14 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 65.74

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00746	0.0355	0.153	mg/kg	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

SB-2020-028:6.8-11032020

20K0101-28 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/03/2020 11:35
Instrument: NT11 Analyst: VTS — Analyzed: 11/25/2020 17:32

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0101-28 A 02
	Preparation Batch: BIK0517	Sample Size: 10.94 g (wet)	Dry Weight:10.00 g
	Prepared: 11/17/2020	Final Volume: 0.5 mL	% Solids: 91.44
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-28 A 02
	Cleanup Batch: CIK0198	Initial Volume: 0.5 mL	
	Cleaned: 25-Nov-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	0.11	0.50	0.63	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	0.50	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.09	0.50	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.13	0.50	0.31	ug/kg	J
Fluorene	86-73-7	1	0.07	0.50	0.11	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.50	1.53	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	0.14	ug/kg	J
Fluoranthene	206-44-0	1	0.08	0.50	0.45	ug/kg	J
Pyrene	129-00-0	1	0.09	0.50	0.64	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	0.25	ug/kg	J
Chrysene	218-01-9	1	0.07	0.50	0.45	ug/kg	J
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	0.25	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	ND	ug/kg	U
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	0.09	0.50	0.12	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	0.37	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*42.1*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*63.8*	*%*	Q
Surrogate: Fluoranthene-d10				*30-160 %*	*60.5*	*%*	

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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	18-Dec-2020 10:58

SB-2020-028:6.8-11032020

20K0101-28 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/03/2020 11:35
Instrument: FID4 Analyst: JGR — Analyzed: 11/18/2020 21:26

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0101-28 A 01
Preparation Batch: BIK0481 — Sample Size: 10.05 g (wet) — Dry Weight:9.19 g
Prepared: 11/16/2020 — Final Volume: 10 mL — % Solids: 91.44

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	54.4	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	109	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*84.6*	*%*	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

SB-2020-028:6.8-11032020

20K0101-28 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/03/2020 11:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 20:02

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-28 C 01
Preparation Batch: BIK0197 — Sample Size: 1.05 g (wet) — Dry Weight:0.97 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 92.29

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.52	21.6	mg/kg	
Chromium	7440-47-3	20	0.13	0.52	8.88	mg/kg	
Cobalt	7440-48-4	20	0.03	0.21	3.34	mg/kg	
Lead	7439-92-1	20	0.07	0.10	1.70	mg/kg	
Selenium	7782-49-2	20	0.45	2.06	0.47	mg/kg	J
Silver	7440-22-4	20	0.02	0.21	0.03	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.21	28.3	mg/kg	

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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	18-Dec-2020 10:58

SB-2020-028:6.8-11032020

20K0101-28 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/03/2020 11:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 20:02

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-28 C 01
Preparation Batch: BIK0197 — Sample Size: 1.05 g (wet) — Dry Weight:0.97 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 92.29

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.21	1.98	mg/kg	
Cadmium	7440-43-9	20	0.03	0.10	ND	mg/kg	U
Copper	7440-50-8	20	0.35	0.52	7.89	mg/kg	
Nickel	7440-02-0	20	0.05	0.52	6.97	mg/kg	
Zinc	7440-66-6	20	0.8	4.1	19.4	mg/kg	

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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	18-Dec-2020 10:58

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20K0101-28 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/03/2020 11:35
Instrument: HYDRA Analyst: BLC — Analyzed: 11/18/2020 14:31

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0101-28 C
Preparation Batch: BIK0376 — Sample Size: 0.223 g (wet) — Dry Weight:0.21 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 92.29

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00510	0.0243	0.00656	mg/kg	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

SB-2020-001:2.2-11032020

20K0101-29 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/03/2020 12:20
Instrument: NT11 Analyst: VTS — Analyzed: 11/25/2020 18:04

Sample Preparation: Preparation Method: EPA 3546 (Microwave) Low Level — Extract ID: 20K0101-29 A 02
Preparation Batch: BIK0517 — Sample Size: 11.55 g (wet) — Dry Weight:10.03 g
Prepared: 11/17/2020 — Final Volume: 0.5 mL — % Solids: 86.82

Sample Cleanup: Cleanup Method: Silica Gel — Extract ID: 20K0101-29 A 02
Cleanup Batch: CIK0198 — Initial Volume: 0.5 mL
Cleaned: 25-Nov-2020 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	25.6	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	4.50	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	5.03	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.29	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	0.24	ug/kg	J
Dibenzofuran	132-64-9	1	0.13	0.50	2.52	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	0.78	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	13.6	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	2.37	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	9.03	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	12.0	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	3.95	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	6.62	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	4.33	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	1.66	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	1.71	ug/kg	Q
Benzo(a)pyrene	50-32-8	1	0.09	0.50	3.44	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	2.47	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.61	ug/kg	Q
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	3.24	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*48.0*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*73.0*	*%*	Q
Surrogate: Fluoranthene-d10				*30-160 %*	*67.2*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

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20K0101-29 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/03/2020 12:20
Instrument: FID4 Analyst: JGR — Analyzed: 11/18/2020 21:46

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0101-29 A 01
Preparation Batch: BIK0481 — Sample Size: 10.05 g (wet) — Dry Weight:8.73 g
Prepared: 11/16/2020 — Final Volume: 10 mL — % Solids: 86.82

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	57.3	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	115	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*86.2*	*%*	

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20K0101-29 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/03/2020 12:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 19:43

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-29 C 01
Preparation Batch: BIK0197 — Sample Size: 1.048 g (wet) — Dry Weight:0.81 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 77.18

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.07	0.62	56.1	mg/kg	
Chromium	7440-47-3	20	0.16	0.62	17.3	mg/kg	
Cobalt	7440-48-4	20	0.04	0.25	6.74	mg/kg	
Lead	7439-92-1	20	0.08	0.12	10.3	mg/kg	
Selenium	7782-49-2	20	0.54	2.47	0.75	mg/kg	J
Silver	7440-22-4	20	0.02	0.25	0.10	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.25	44.6	mg/kg	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

SB-2020-001:2.2-11032020

20K0101-29 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/03/2020 12:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 19:43

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-29 C 01
Preparation Batch: BIK0197 — Sample Size: 1.048 g (wet) — Dry Weight:0.81 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 77.18

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.25	6.74	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.40	mg/kg	
Copper	7440-50-8	20	0.42	0.62	25.1	mg/kg	
Nickel	7440-02-0	20	0.06	0.62	14.8	mg/kg	
Zinc	7440-66-6	20	1.2	4.9	114	mg/kg	

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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	18-Dec-2020 10:58

SB-2020-001:2.2-11032020

20K0101-29 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/03/2020 12:20

Instrument: HYDRA Analyst: BLC — Analyzed: 11/18/2020 14:38

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0101-29 C

Preparation Batch: BIK0376 — Sample Size: 0.22 g (wet) — Dry Weight:0.17 g

Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 77.18

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00618	0.0294	0.0822	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

SB-2020-001:6.8-11032020

20K0101-30 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/03/2020 12:25

Instrument: NT11 Analyst: VTS — Analyzed: 11/25/2020 18:37

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0101-30 A 02
	Preparation Batch: BIK0517	Sample Size: 10.82 g (wet)	Dry Weight:10.02 g
	Prepared: 11/17/2020	Final Volume: 0.5 mL	% Solids: 92.61
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-30 A 02
	Cleanup Batch: CIK0198	Initial Volume: 0.5 mL	
	Cleaned: 25-Nov-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	1.12	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	2.49	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	2.29	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.16	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	0.11	ug/kg	J
Dibenzofuran	132-64-9	1	0.13	0.50	2.23	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	0.38	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.50	9.59	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	0.79	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	35.1	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	26.3	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	4.54	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	4.60	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	0.91	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.31	ug/kg	J
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.22	ug/kg	J
Benzo(a)pyrene	50-32-8	1	0.09	0.50	0.46	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	0.30	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	0.45	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*52.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*74.3*	*%*	Q
Surrogate: Fluoranthene-d10				*30-160 %*	*76.5*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

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20K0101-30 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/03/2020 12:25
Instrument: FID4 Analyst: JGR — Analyzed: 11/18/2020 22:06

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0101-30 A 01
Preparation Batch: BIK0481 — Sample Size: 10.05 g (wet) — Dry Weight:9.31 g
Prepared: 11/16/2020 — Final Volume: 10 mL — % Solids: 92.61

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	53.7	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	107	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*79.5*	*%*	

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20K0101-30 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/03/2020 12:25
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 20:06

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-30 C 01
Preparation Batch: BIK0197 — Sample Size: 1.068 g (wet) — Dry Weight:0.98 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 92.10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.51	22.2	mg/kg	
Chromium	7440-47-3	20	0.13	0.51	9.36	mg/kg	
Cobalt	7440-48-4	20	0.03	0.20	3.53	mg/kg	
Lead	7439-92-1	20	0.07	0.10	1.36	mg/kg	
Selenium	7782-49-2	20	0.45	2.03	ND	mg/kg	U
Silver	7440-22-4	20	0.02	0.20	0.03	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.20	30.3	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

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20K0101-30 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/03/2020 12:25
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/10/2020 20:06

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0101-30 C 01
Preparation Batch: BIK0197 — Sample Size: 1.068 g (wet) — Dry Weight:0.98 g
Prepared: 11/06/2020 — Final Volume: 50 mL — % Solids: 92.10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.20	2.27	mg/kg	
Cadmium	7440-43-9	20	0.03	0.10	ND	mg/kg	U
Copper	7440-50-8	20	0.35	0.51	7.97	mg/kg	
Nickel	7440-02-0	20	0.05	0.51	7.27	mg/kg	
Zinc	7440-66-6	20	0.8	4.1	21.2	mg/kg	

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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	18-Dec-2020 10:58

SB-2020-001:6.8-11032020

20K0101-30 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/03/2020 12:25
Instrument: HYDRA Analyst: BLC — Analyzed: 11/18/2020 14:40

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0101-30 C
Preparation Batch: BIK0376 — Sample Size: 0.237 g (wet) — Dry Weight:0.22 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 92.10

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00481	0.0229	0.00845	mg/kg	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: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

A1-02A:5-11032020

20K0101-31 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/03/2020 14:15
Instrument: FID4 Analyst: JGR — Analyzed: 11/26/2020 23:10

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0101-31 A 01
Preparation Batch: BIK0481 — Sample Size: 10.05 g (wet) — Dry Weight:9.63 g
Prepared: 11/16/2020 — Final Volume: 10 mL — % Solids: 95.82

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	10	519	2260	mg/kg	D
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)	RRO	10	1040	7650	mg/kg	D
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*99.6*	*%*	

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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	18-Dec-2020 10:58

A1-100:5-11032020

20K0101-32 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/03/2020 14:15
Instrument: FID4 Analyst: JGR — Analyzed: 11/18/2020 22:47

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0101-32 A 01
Preparation Batch: BIK0481 — Sample Size: 10.05 g (wet) — Dry Weight:9.72 g
Prepared: 11/16/2020 — Final Volume: 10 mL — % Solids: 96.70

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	51.4	387	mg/kg	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	103	1730	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*95.8*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

A1-02A:10-11032020

20K0101-33 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/03/2020 14:30
Instrument: FID4 Analyst: JGR — Analyzed: 11/26/2020 23:31

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0101-33 A 01
Preparation Batch: BIK0481 — Sample Size: 10.05 g (wet) — Dry Weight:9.53 g
Prepared: 11/16/2020 — Final Volume: 10 mL — % Solids: 94.81

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	10	525	3310	mg/kg	D
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)	RRO	10	1050	12900	mg/kg	D
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*88.9*	*%*	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

A1-02A:12.8-11032020

20K0101-34 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/03/2020 14:40
Instrument: FID4 Analyst: JGR — Analyzed: 11/26/2020 23:51

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0101-34 A 01
Preparation Batch: BIK0481 — Sample Size: 10.05 g (wet) — Dry Weight:9.05 g
Prepared: 11/16/2020 — Final Volume: 10 mL — % Solids: 90.06

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	100	5520	44800	mg/kg	D
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)	RRO	100	11000	155000	mg/kg	D
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*88.9*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

A1-02A:18-11032020

20K0101-35 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/03/2020 14:50
Instrument: FID4 Analyst: JGR — Analyzed: 11/27/2020 00:11

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0101-35 A 01
Preparation Batch: BIK0481 — Sample Size: 10.05 g (wet) — Dry Weight:8.75 g
Prepared: 11/16/2020 — Final Volume: 10 mL — % Solids: 87.11

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	100	5710	20400	mg/kg	D
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)	RRO	100	11400	77600	mg/kg	D
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*		*D1*	D1

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

A1-02A:25-11032020

20K0101-36 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/03/2020 14:55
Instrument: FID4 Analyst: JGR — Analyzed: 11/19/2020 00:48

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0101-36 A 01
Preparation Batch: BIK0481 — Sample Size: 10.05 g (wet) — Dry Weight:7.98 g
Prepared: 11/16/2020 — Final Volume: 10 mL — % Solids: 79.44

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	62.6	99.2	mg/kg	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	125	436	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*93.9*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

TSA-Concrete-001:0.6-11032020

20K0101-37 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/03/2020 13:20
Instrument: ECD7 Analyst: JGR — Analyzed: 12/03/2020 00:33

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0101-37 A 01
	Preparation Batch: BIK0518	Sample Size: 13.5 g (wet)	Dry Weight:12.51 g
	Prepared: 11/17/2020	Final Volume: 2.5 mL	% Solids: 92.65
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-37 A 01
	Cleanup Batch: CIL0020	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0101-37 A 01
	Cleanup Batch: CIL0018	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0101-37 A 01
	Cleanup Batch: CIL0019	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	9.6	ug/kg	
Aroclor 1254	11097-69-1	1	1.6	4.0	29.2	ug/kg	
Aroclor 1260	11096-82-5	1	0.6	4.0	17.8	ug/kg	
Aroclor 1262	37324-23-5	1	0.6	4.0	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*55.8*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*68.0*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*71.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*65.2*	*%*	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

TSA-Concrete-002:0.6-11032020

20K0101-38 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/03/2020 13:30
Instrument: ECD7 Analyst: JGR — Analyzed: 12/03/2020 00:54

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0101-38 A 01
	Preparation Batch: BIK0518	Sample Size: 13.19 g (wet)	Dry Weight:12.56 g
	Prepared: 11/17/2020	Final Volume: 2.5 mL	% Solids: 95.21
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-38 A 01
	Cleanup Batch: CIL0020	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0101-38 A 01
	Cleanup Batch: CIL0018	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0101-38 A 01
	Cleanup Batch: CIL0019	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	10	15.5	39.8	ND	ug/kg	U
Aroclor 1221	11104-28-2	10	15.5	39.8	ND	ug/kg	U
Aroclor 1232	11141-16-5	10	15.5	39.8	ND	ug/kg	U
Aroclor 1242	53469-21-9	10	15.5	39.8	ND	ug/kg	U
Aroclor 1248	12672-29-6	10	15.5	39.8	159	ug/kg	D
Aroclor 1254	11097-69-1	10	15.5	39.8	417	ug/kg	D
Aroclor 1260	11096-82-5	10	5.9	39.8	188	ug/kg	D
Aroclor 1262	37324-23-5	10	5.9	39.8	ND	ug/kg	U
Aroclor 1268	11100-14-4	10	5.9	39.8	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*73.0*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*82.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*67.9*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*66.3*	*%*	

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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	18-Dec-2020 10:58

TSA-2020-001:1.4-11032020

20K0101-39 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/03/2020 10:40
Instrument: ECD7 Analyst: JGR — Analyzed: 12/03/2020 01:14

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0101-39 A 01
	Preparation Batch: BIK0518	Sample Size: 13.14 g (wet)	Dry Weight:12.52 g
	Prepared: 11/17/2020	Final Volume: 2.5 mL	% Solids: 95.26
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-39 A 01
	Cleanup Batch: CIL0020	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0101-39 A 01
	Cleanup Batch: CIL0018	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0101-39 A 01
	Cleanup Batch: CIL0019	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	1.6	ug/kg	J
Aroclor 1260	11096-82-5	1	0.6	4.0	ND	ug/kg	U
Aroclor 1262	37324-23-5	1	0.6	4.0	1.9	ug/kg	J
Aroclor 1268	11100-14-4	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*59.5*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*68.3*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*76.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*67.5*	*%*	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

TSA-2020-002:1.5-11032020

20K0101-41 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/03/2020 13:00
Instrument: ECD7 Analyst: JGR — Analyzed: 12/03/2020 01:35

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0101-41 A 01
	Preparation Batch: BIK0518	Sample Size: 2.7 g (wet)	Dry Weight:2.57 g
	Prepared: 11/17/2020	Final Volume: 2.5 mL	% Solids: 95.02
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-41 A 01
	Cleanup Batch: CIL0020	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0101-41 A 01
	Cleanup Batch: CIL0018	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0101-41 A 01
	Cleanup Batch: CIL0019	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	7.6	19.5	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	7.6	19.5	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	7.6	19.5	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	7.6	19.5	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	7.6	19.5	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	7.6	19.5	1220	ug/kg	E
Aroclor 1260	11096-82-5	1	2.9	19.5	236	ug/kg	
Aroclor 1262	37324-23-5	1	2.9	19.5	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	2.9	19.5	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*53.7*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*61.5*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*70.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*60.3*	*%*	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

TSA-2020-002:1.5-11032020

20K0101-41RE1 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/03/2020 13:00
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 08:32

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0101-41RE1 A 01
	Preparation Batch: BIK0518	Sample Size: 2.7 g (wet)	Dry Weight:2.57 g
	Prepared: 11/17/2020	Final Volume: 2.5 mL	% Solids: 95.02
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-41RE1 A 01
	Cleanup Batch: CIL0020	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0101-41RE1 A 01
	Cleanup Batch: CIL0018	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0101-41RE1 A 01
	Cleanup Batch: CIL0019	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	5	38.0	97.4	ND	ug/kg	U
Aroclor 1221	11104-28-2	5	38.0	97.4	ND	ug/kg	U
Aroclor 1232	11141-16-5	5	38.0	97.4	ND	ug/kg	U
Aroclor 1242	53469-21-9	5	38.0	97.4	ND	ug/kg	U
Aroclor 1248	12672-29-6	5	38.0	97.4	ND	ug/kg	U
Aroclor 1254	11097-69-1	5	38.0	97.4	1240	ug/kg	D
Aroclor 1260	11096-82-5	5	14.3	97.4	245	ug/kg	D
Aroclor 1262	37324-23-5	5	14.3	97.4	ND	ug/kg	U
Aroclor 1268	11100-14-4	5	14.3	97.4	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*79.9*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*62.8*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*72.1*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*62.9*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

TSA-2020-003:1.5-11032020

20K0101-43 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/03/2020 12:50
Instrument: ECD7 Analyst: JGR — Analyzed: 12/03/2020 01:56

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0101-43 A 01
	Preparation Batch: BIK0518	Sample Size: 6.75 g (wet)	Dry Weight:6.31 g
	Prepared: 11/17/2020	Final Volume: 2.5 mL	% Solids: 93.46
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-43 A 01
	Cleanup Batch: CIL0020	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0101-43 A 01
	Cleanup Batch: CIL0018	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0101-43 A 01
	Cleanup Batch: CIL0019	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	3.1	7.9	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	3.1	7.9	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	3.1	7.9	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	3.1	7.9	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	3.1	7.9	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	3.1	7.9	488	ug/kg	E
Aroclor 1260	11096-82-5	1	1.2	7.9	147	ug/kg	P1
Aroclor 1262	37324-23-5	1	1.2	7.9	ND	ug/kg	U
Aroclor 1268	11100-14-4	1	1.2	7.9	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*49.5*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*47.8*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*66.8*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*43.7*	*%*	*

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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: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

TSA-2020-003:1.5-11032020

20K0101-43RE1 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/03/2020 12:50
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 08:53

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0101-43RE1 A 01
	Preparation Batch: BIK0518	Sample Size: 6.75 g (wet)	Dry Weight:6.31 g
	Prepared: 11/17/2020	Final Volume: 2.5 mL	% Solids: 93.46
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0101-43RE1 A 01
	Cleanup Batch: CIL0020	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0101-43RE1 A 01
	Cleanup Batch: CIL0018	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0101-43RE1 A 01
	Cleanup Batch: CIL0019	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	5	15.5	39.6	ND	ug/kg	U
Aroclor 1221	11104-28-2	5	15.5	39.6	ND	ug/kg	U
Aroclor 1232	11141-16-5	5	15.5	39.6	ND	ug/kg	U
Aroclor 1242	53469-21-9	5	15.5	39.6	ND	ug/kg	U
Aroclor 1248	12672-29-6	5	15.5	39.6	ND	ug/kg	U
Aroclor 1254	11097-69-1	5	15.5	39.6	509	ug/kg	D
Aroclor 1260	11096-82-5	5	5.8	39.6	133	ug/kg	D
Aroclor 1262	37324-23-5	5	5.8	39.6	ND	ug/kg	U
Aroclor 1268	11100-14-4	5	5.8	39.6	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*78.2*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*52.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*72.1*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*51.1*	*%*	

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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	18-Dec-2020 10:58

Volatile Organic Compounds - Quality Control

Batch BIK0187 - EPA 5035 (Sodium Bisulfate)

Instrument: NT5 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIK0187-BLK1)				Prepared: 06-Nov-2020 Analyzed: 06-Nov-2020 12:11							
Vinyl Chloride	ND	0.24	1.00	ug/kg							U
1,1-Dichloroethene	ND	0.34	1.00	ug/kg							U
cis-1,2-Dichloroethene	ND	0.24	1.00	ug/kg							U
Benzene	ND	0.30	1.00	ug/kg							U
Trichloroethene	ND	0.21	1.00	ug/kg							U
Toluene	ND	0.15	1.00	ug/kg							U
Tetrachloroethene	ND	0.26	1.00	ug/kg							U
Ethylbenzene	ND	0.20	1.00	ug/kg							U
m,p-Xylene	ND	0.39	2.00	ug/kg							U
o-Xylene	ND	0.22	1.00	ug/kg							U
Xylenes, total	ND	0.62	2.00	ug/kg							U
Surrogate: 1,2-Dichloroethane-d4	48.1			ug/kg	*50.0*		*96.2*	*80-149*			
Surrogate: Toluene-d8	47.4			ug/kg	*50.0*		*94.8*	*77-120*			
Surrogate: 4-Bromofluorobenzene	51.1			ug/kg	*50.0*		*102*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	50.5			ug/kg	*50.0*		*101*	*80-120*			
LCS (BIK0187-BS1)				Prepared: 06-Nov-2020 Analyzed: 06-Nov-2020 11:04							
Vinyl Chloride	44.3			ug/kg	50.0		88.7	74-135			
1,1-Dichloroethene	43.9			ug/kg	50.0		87.9	77-134			
cis-1,2-Dichloroethene	38.6			ug/kg	50.0		77.2	80-125			*, Q
Benzene	42.9			ug/kg	50.0		85.8	80-120			
Trichloroethene	44.5			ug/kg	50.0		89.0	80-120			
Toluene	42.4			ug/kg	50.0		84.9	75-120			
Tetrachloroethene	52.8			ug/kg	50.0		106	74-124			
Ethylbenzene	48.9			ug/kg	50.0		97.7	80-125			
m,p-Xylene	98.4			ug/kg	100		98.4	76-121			
o-Xylene	46.8			ug/kg	50.0		93.5	67-132			
Xylenes, total	145			ug/kg	150		96.8	67-132			
Surrogate: 1,2-Dichloroethane-d4	49.6			ug/kg	*50.0*		*99.1*	*80-149*			
Surrogate: Toluene-d8	47.3			ug/kg	*50.0*		*94.6*	*77-120*			
Surrogate: 4-Bromofluorobenzene	50.0			ug/kg	*50.0*		*100*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	49.8			ug/kg	*50.0*		*99.7*	*80-120*			
LCS Dup (BIK0187-BSD1)				Prepared: 06-Nov-2020 Analyzed: 06-Nov-2020 11:48							
Vinyl Chloride	45.4			ug/kg	50.0		90.8	74-135	2.35	30	

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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	18-Dec-2020 10:58

Volatile Organic Compounds - Quality Control

Batch BIK0187 - EPA 5035 (Sodium Bisulfate)

Instrument: NT5 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BIK0187-BSD1)	Prepared: 06-Nov-2020 Analyzed: 06-Nov-2020 11:48										
1,1-Dichloroethene	45.1			ug/kg	50.0		90.2	77-134	2.62	30	
cis-1,2-Dichloroethene	39.4			ug/kg	50.0		78.7	80-125	1.94	30	*, Q
Benzene	44.3			ug/kg	50.0		88.7	80-120	3.31	30	
Trichloroethene	47.1			ug/kg	50.0		94.1	80-120	5.60	30	
Toluene	44.6			ug/kg	50.0		89.2	75-120	5.00	30	
Tetrachloroethene	56.0			ug/kg	50.0		112	74-124	5.86	30	
Ethylbenzene	50.9			ug/kg	50.0		102	80-125	4.04	30	
m,p-Xylene	103			ug/kg	100		103	76-121	4.17	30	
o-Xylene	49.6			ug/kg	50.0		99.3	67-132	5.95	30	
Xylenes, total	152			ug/kg	150		102	67-132	4.75	30	
Surrogate: 1,2-Dichloroethane-d4	49.5			ug/kg	*50.0*		*99.0*	*80-149*			
Surrogate: Toluene-d8	47.8			ug/kg	*50.0*		*95.5*	*77-120*			
Surrogate: 4-Bromofluorobenzene	50.0			ug/kg	*50.0*		*100*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	49.6			ug/kg	*50.0*		*99.2*	*80-120*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

Volatile Organic Compounds - Quality Control

Batch BIK0286 - 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 (BIK0286-BLK1)					Prepared: 10-Nov-2020 Analyzed: 10-Nov-2020 11:48						
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							U
Surrogate: Toluene-d8	4.79			ug/L	*5.00*		*95.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.66			ug/L	*5.00*		*93.2*	*80-120*			
Blank (BIK0286-BLK2)					Prepared: 10-Nov-2020 Analyzed: 10-Nov-2020 11:48						
Vinyl Chloride	ND	0.06	0.20	ug/L							U
1,1-Dichloroethene	ND	0.05	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.04	0.20	ug/L							U
Benzene	ND	0.03	0.20	ug/L							U
Trichloroethene	ND	0.05	0.20	ug/L							U
Toluene	ND	0.04	0.20	ug/L							U
Tetrachloroethene	ND	0.05	0.20	ug/L							U
Ethylbenzene	ND	0.04	0.20	ug/L							U
m,p-Xylene	ND	0.05	0.40	ug/L							U
o-Xylene	ND	0.03	0.20	ug/L							U
Xylenes, total	ND	0.09	0.60	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.63			ug/L	*5.00*		*92.6*	*80-129*			
Surrogate: Toluene-d8	4.79			ug/L	*5.00*		*95.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.66			ug/L	*5.00*		*93.2*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.15			ug/L	*5.00*		*103*	*80-120*			
LCS (BIK0286-BS1)					Prepared: 10-Nov-2020 Analyzed: 10-Nov-2020 09:29						
Gasoline Range Organics (Tol-Nap)	1040		100	ug/L	1000		104	72-128			
Surrogate: Toluene-d8	5.03			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.94			ug/L	*5.00*		*98.9*	*80-120*			
LCS (BIK0286-BS2)					Prepared: 10-Nov-2020 Analyzed: 10-Nov-2020 10:31						
Vinyl Chloride	8.59	0.06	0.20	ug/L	10.0		85.9	66-133			
1,1-Dichloroethene	8.28	0.05	0.20	ug/L	10.0		82.8	69-135			
cis-1,2-Dichloroethene	9.92	0.04	0.20	ug/L	10.0		99.2	80-121			
Benzene	10.3	0.03	0.20	ug/L	10.0		103	80-120			
Trichloroethene	9.68	0.05	0.20	ug/L	10.0		96.8	80-120			
Toluene	9.96	0.04	0.20	ug/L	10.0		99.6	80-120			
Tetrachloroethene	9.66	0.05	0.20	ug/L	10.0		96.6	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	18-Dec-2020 10:58

Volatile Organic Compounds - Quality Control

Batch BIK0286 - 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 (BIK0286-BS2)					Prepared: 10-Nov-2020 Analyzed: 10-Nov-2020 10:31						
Ethylbenzene	10.1	0.04	0.20	ug/L	10.0		101	80-120			
m,p-Xylene	20.9	0.05	0.40	ug/L	20.0		105	80-121			
o-Xylene	9.82	0.03	0.20	ug/L	10.0		98.2	80-121			
Xylenes, total	30.7	0.09	0.60	ug/L	30.0		102	76-127			
Surrogate: 1,2-Dichloroethane-d4	4.32			ug/L	*5.00*		*86.3*	*80-129*			
Surrogate: Toluene-d8	5.02			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.02			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.08			ug/L	*5.00*		*102*	*80-120*			
LCS Dup (BIK0286-BSD1)					Prepared: 10-Nov-2020 Analyzed: 10-Nov-2020 09:50						
Gasoline Range Organics (Tol-Nap)	1060		100	ug/L	1000		106	72-128	1.20	30	
Surrogate: Toluene-d8	5.00			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.93			ug/L	*5.00*		*98.7*	*80-120*			
LCS Dup (BIK0286-BSD2)					Prepared: 10-Nov-2020 Analyzed: 10-Nov-2020 11:07						
Vinyl Chloride	8.76	0.06	0.20	ug/L	10.0		87.6	66-133	1.94	30	
1,1-Dichloroethene	8.31	0.05	0.20	ug/L	10.0		83.1	69-135	0.33	30	
cis-1,2-Dichloroethene	9.80	0.04	0.20	ug/L	10.0		98.0	80-121	1.28	30	
Benzene	10.4	0.03	0.20	ug/L	10.0		104	80-120	1.54	30	
Trichloroethene	9.88	0.05	0.20	ug/L	10.0		98.8	80-120	2.04	30	
Toluene	10.0	0.04	0.20	ug/L	10.0		100	80-120	0.61	30	
Tetrachloroethene	10.1	0.05	0.20	ug/L	10.0		101	80-120	4.92	30	
Ethylbenzene	10.4	0.04	0.20	ug/L	10.0		104	80-120	3.32	30	
m,p-Xylene	21.5	0.05	0.40	ug/L	20.0		107	80-121	2.70	30	
o-Xylene	9.92	0.03	0.20	ug/L	10.0		99.2	80-121	1.10	30	
Xylenes, total	31.4	0.09	0.60	ug/L	30.0		105	76-127	2.19	30	
Surrogate: 1,2-Dichloroethane-d4	4.25			ug/L	*5.00*		*85.0*	*80-129*			
Surrogate: Toluene-d8	5.06			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.00			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.98			ug/L	*5.00*		*99.7*	*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	18-Dec-2020 10:58

Volatile Organic Compounds - Quality Control

Batch BIK0287 - EPA 5035 (Methanol Extraction)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIK0287-BLK1)				Prepared: 10-Nov-2020 Analyzed: 10-Nov-2020 11:48						
Gasoline Range Organics (Tol-Nap)	ND	5000	ug/kg							U
Surrogate: Toluene-d8	4.79		ug/kg	*5.00*		*95.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.66		ug/kg	*5.00*		*93.2*	*78-123*			
LCS (BIK0287-BS1)				Prepared: 10-Nov-2020 Analyzed: 10-Nov-2020 09:29						
Gasoline Range Organics (Tol-Nap)	52200	5000	ug/kg	50000		104	70-121			
Surrogate: Toluene-d8	5.03		ug/kg	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.94		ug/kg	*5.00*		*98.9*	*78-123*			
LCS Dup (BIK0287-BSD1)				Prepared: 10-Nov-2020 Analyzed: 10-Nov-2020 09:50						
Gasoline Range Organics (Tol-Nap)	52800	5000	ug/kg	50000		106	70-121	1.20	30	
Surrogate: Toluene-d8	5.00		ug/kg	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.93		ug/kg	*5.00*		*98.7*	*78-123*			

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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	18-Dec-2020 10:58

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIK0517 - EPA 3546 (Microwave) Low Level

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 (BIK0517-BLK1)				Prepared: 17-Nov-2020 Analyzed: 25-Nov-2020 13:39							
Naphthalene	ND	0.44	0.60	ug/kg							U
1-Methylnaphthalene	0.13	0.11	0.50	ug/kg							J
2-Methylnaphthalene	0.20	0.13	0.50	ug/kg							J
Acenaphthylene	ND	0.06	0.50	ug/kg							U
Acenaphthene	ND	0.09	0.50	ug/kg							U
Dibenzofuran	ND	0.13	0.50	ug/kg							U
Fluorene	0.07	0.07	0.50	ug/kg							J
Phenanthrene	0.23	0.11	0.50	ug/kg							J
Anthracene	ND	0.07	0.50	ug/kg							U
Fluoranthene	0.14	0.08	0.50	ug/kg							J
Pyrene	0.15	0.09	0.50	ug/kg							J
Benzo(a)anthracene	ND	0.07	0.50	ug/kg							U
Chrysene	ND	0.07	0.50	ug/kg							U
Benzo(b)fluoranthene	ND	0.07	0.50	ug/kg							U
Benzo(k)fluoranthene	ND	0.10	0.50	ug/kg							U
Benzo(j)fluoranthene	ND	0.10	0.50	ug/kg							U
Benzo(a)pyrene	ND	0.09	0.50	ug/kg							U
Indeno(1,2,3-cd)pyrene	ND	0.09	0.50	ug/kg							U
Dibenzo(a,h)anthracene	ND	0.11	0.50	ug/kg							U
Benzo(g,h,i)perylene	ND	0.09	0.50	ug/kg							U
Surrogate: 2-Methylnaphthalene-d10	9.01			ug/kg	*15.0*		*60.1*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	7.42			ug/kg	*15.0*		*49.4*	*30-160*			*Q*
Surrogate: Fluoranthene-d10	10.5			ug/kg	*15.0*		*70.1*	*30-160*			
LCS (BIK0517-BS1)				Prepared: 17-Nov-2020 Analyzed: 25-Nov-2020 14:16							
Naphthalene	6.80	0.44	0.60	ug/kg	15.0		45.3	30-160			
1-Methylnaphthalene	7.38	0.11	0.50	ug/kg	15.0		49.2	30-160			
2-Methylnaphthalene	7.48	0.13	0.50	ug/kg	15.0		49.9	30-160			
Acenaphthylene	6.72	0.06	0.50	ug/kg	15.0		44.8	30-160			
Acenaphthene	7.12	0.09	0.50	ug/kg	15.0		47.5	30-160			
Dibenzofuran	7.42	0.13	0.50	ug/kg	15.0		49.5	30-160			
Fluorene	7.86	0.07	0.50	ug/kg	15.0		52.4	30-160			
Phenanthrene	9.07	0.11	0.50	ug/kg	15.0		60.4	30-160			
Anthracene	8.00	0.07	0.50	ug/kg	15.0		53.3	30-160			
Fluoranthene	10.1	0.08	0.50	ug/kg	15.0		67.5	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: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIK0517 - EPA 3546 (Microwave) Low Level

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 (BIK0517-BS1)				Prepared: 17-Nov-2020 Analyzed: 25-Nov-2020 14:16							
Pyrene	10.4	0.09	0.50	ug/kg	15.0		69.1	30-160			
Benzo(a)anthracene	10.8	0.07	0.50	ug/kg	15.0		71.7	30-160			
Chrysene	10.7	0.07	0.50	ug/kg	15.0		71.2	30-160			
Benzo(b)fluoranthene	10.7	0.07	0.50	ug/kg	15.0		71.6	30-160			
Benzo(k)fluoranthene	10.9	0.10	0.50	ug/kg	15.0		72.5	30-160			
Benzo(j)fluoranthene	11.5	0.10	0.50	ug/kg	15.0		76.6	30-160			Q
Benzo(a)pyrene	9.85	0.09	0.50	ug/kg	15.0		65.7	30-160			
Indeno(1,2,3-cd)pyrene	9.17	0.09	0.50	ug/kg	15.0		61.1	30-160			
Dibenzo(a,h)anthracene	8.45	0.11	0.50	ug/kg	15.0		56.3	30-160			Q
Benzo(g,h,i)perylene	9.30	0.09	0.50	ug/kg	15.0		62.0	30-160			
Surrogate: 2-Methylnaphthalene-d10	7.41			ug/kg	*15.0*		*49.4*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	8.37			ug/kg	*15.0*		*55.8*	*30-160*			*Q*
Surrogate: Fluoranthene-d10	10.4			ug/kg	*15.0*		*69.4*	*30-160*			
Matrix Spike (BIK0517-MS1)		**Source: 20K0101-30**		Prepared: 17-Nov-2020 Analyzed: 25-Nov-2020 19:09							
Naphthalene	7.84	0.44	0.60	ug/kg	15.0	1.12	44.8	30-160			
1-Methylnaphthalene	9.19	0.11	0.50	ug/kg	15.0	2.49	44.7	30-160			
2-Methylnaphthalene	9.06	0.13	0.50	ug/kg	15.0	2.29	45.1	30-160			
Acenaphthylene	7.43	0.06	0.50	ug/kg	15.0	0.16	48.5	30-160			
Acenaphthene	7.80	0.09	0.50	ug/kg	15.0	0.11	51.3	30-160			
Dibenzofuran	8.94	0.13	0.50	ug/kg	15.0	2.23	44.7	30-160			
Fluorene	8.85	0.07	0.50	ug/kg	15.0	0.38	56.5	30-160			
Phenanthrene	12.7	0.11	0.50	ug/kg	15.0	9.59	20.6	30-160			*
Anthracene	9.69	0.07	0.50	ug/kg	15.0	0.79	59.4	30-160			
Fluoranthene	18.2	0.08	0.50	ug/kg	15.0	35.1	-112	30-160			*
Pyrene	16.2	0.09	0.50	ug/kg	15.0	26.3	-67.4	30-160			*
Benzo(a)anthracene	12.3	0.07	0.50	ug/kg	15.0	4.54	51.4	30-160			
Chrysene	11.8	0.07	0.50	ug/kg	15.0	4.60	47.7	30-160			
Benzo(b)fluoranthene	12.1	0.07	0.50	ug/kg	15.0	0.91	74.5	30-160			
Benzo(k)fluoranthene	11.3	0.10	0.50	ug/kg	15.0	0.31	73.2	30-160			
Benzo(j)fluoranthene	9.47	0.10	0.50	ug/kg	15.0	0.22	61.7	30-160			Q
Benzo(a)pyrene	11.3	0.09	0.50	ug/kg	15.0	0.46	72.3	30-160			
Indeno(1,2,3-cd)pyrene	10.8	0.09	0.50	ug/kg	15.0	0.30	69.9	30-160			
Dibenzo(a,h)anthracene	10.4	0.10	0.50	ug/kg	15.0	ND	69.4	30-160			Q
Benzo(g,h,i)perylene	10.2	0.08	0.50	ug/kg	15.0	0.45	64.9	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	18-Dec-2020 10:58

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIK0517 - EPA 3546 (Microwave) Low Level

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BIK0517-MS1)	**Source: 20K0101-30**			Prepared: 17-Nov-2020 Analyzed: 25-Nov-2020 19:09							
Surrogate: 2-Methylnaphthalene-d10	7.57			ug/kg	*15.0*	*7.85*	*50.5*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	10.1			ug/kg	*15.0*	*11.1*	*67.4*	*30-160*			*Q*
Surrogate: Fluoranthene-d10	10.7			ug/kg	*15.0*	*11.4*	*71.3*	*30-160*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BIK0517-MSD1)	**Source: 20K0101-30**			Prepared: 17-Nov-2020 Analyzed: 25-Nov-2020 19:42							
Naphthalene	8.57	0.44	0.60	ug/kg	15.0	1.12	49.7	30-160	8.98	30	
1-Methylnaphthalene	10.6	0.11	0.50	ug/kg	15.0	2.49	54.2	30-160	14.50	30	
2-Methylnaphthalene	10.2	0.13	0.50	ug/kg	15.0	2.29	52.7	30-160	11.80	30	
Acenaphthylene	7.87	0.06	0.50	ug/kg	15.0	0.16	51.5	30-160	5.85	30	
Acenaphthene	8.32	0.09	0.50	ug/kg	15.0	0.11	54.7	30-160	6.47	30	
Dibenzofuran	9.86	0.13	0.50	ug/kg	15.0	2.23	50.9	30-160	9.86	30	
Fluorene	9.45	0.07	0.50	ug/kg	15.0	0.38	60.5	30-160	6.51	30	
Phenanthrene	14.9	0.11	0.50	ug/kg	15.0	9.59	35.3	30-160	16.00	30	
Anthracene	10.0	0.07	0.50	ug/kg	15.0	0.79	61.5	30-160	3.31	30	
Fluoranthene	20.4	0.08	0.50	ug/kg	15.0	35.1	-97.9	30-160	11.00	30	*
Pyrene	17.9	0.09	0.50	ug/kg	15.0	26.3	-55.5	30-160	10.40	30	*
Benzo(a)anthracene	12.7	0.07	0.50	ug/kg	15.0	4.54	54.1	30-160	3.29	30	
Chrysene	12.5	0.07	0.50	ug/kg	15.0	4.60	52.5	30-160	5.84	30	
Benzo(b)fluoranthene	13.5	0.07	0.50	ug/kg	15.0	0.91	83.9	30-160	11.00	30	
Benzo(k)fluoranthene	10.1	0.10	0.50	ug/kg	15.0	0.31	65.5	30-160	10.80	30	
Benzo(j)fluoranthene	10.1	0.10	0.50	ug/kg	15.0	0.22	66.1	30-160	6.80	30	Q
Benzo(a)pyrene	11.2	0.09	0.50	ug/kg	15.0	0.46	71.9	30-160	0.41	30	
Indeno(1,2,3-cd)pyrene	10.5	0.09	0.50	ug/kg	15.0	0.30	68.2	30-160	2.32	30	
Dibenzo(a,h)anthracene	10.2	0.10	0.50	ug/kg	15.0	ND	67.9	30-160	2.12	30	Q
Benzo(g,h,i)perylene	10.1	0.08	0.50	ug/kg	15.0	0.45	64.6	30-160	0.50	30	
Surrogate: 2-Methylnaphthalene-d10	8.20			ug/kg	*15.0*	*7.85*	*54.7*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	10.2			ug/kg	*15.0*	*11.1*	*67.8*	*30-160*			*Q*
Surrogate: Fluoranthene-d10	10.9			ug/kg	*15.0*	*11.4*	*72.9*	*30-160*			
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	18-Dec-2020 10:58

Petroleum Hydrocarbons - Quality Control

Batch BIK0481 - EPA 3546 (Microwave)

Instrument: FID4 Analyst: JGR

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIK0481-BLK1)				Prepared: 16-Nov-2020 Analyzed: 18-Nov-2020 18:23						
Diesel Range Organics (C12-C24)	ND	50.0	mg/kg							U
Motor Oil Range Organics (C24-C38)	ND	100	mg/kg							U
Surrogate: o-Terphenyl	48.5		mg/kg	*56.3*		*86.2*	*50-150*			
LCS (BIK0481-BS1)				Prepared: 16-Nov-2020 Analyzed: 18-Nov-2020 18:43						
Diesel Range Organics (C12-C24)	1370	50.0	mg/kg	1500		91.3	63-120			
Surrogate: o-Terphenyl	52.7		mg/kg	*56.3*		*93.7*	*50-150*			
Matrix Spike (BIK0481-MS1)	**Source: 20K0101-22**			Prepared: 16-Nov-2020 Analyzed: 18-Nov-2020 19:24						
Diesel Range Organics (C12-C24)	1820	68.6	mg/kg	2060	ND	85.9	63-120			
Surrogate: o-Terphenyl	63.6		mg/kg	*77.1*	*66.2*	*82.5*	*50-150*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BIK0481-MSD1)	**Source: 20K0101-22**			Prepared: 16-Nov-2020 Analyzed: 18-Nov-2020 19:44						
Diesel Range Organics (C12-C24)	2010	68.6	mg/kg	2060	ND	95.2	63-120	9.99	30	
Surrogate: o-Terphenyl	68.0		mg/kg	*77.1*	*66.2*	*88.2*	*50-150*			
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	18-Dec-2020 10:58

Aroclor PCB - Quality Control

Batch BIK0468 - EPA 3546 (Microwave)

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 (BIK0468-BLK1)				Prepared: 16-Nov-2020 Analyzed: 03-Dec-2020 02:57							
Aroclor 1016	ND	1.6	4.0	ug/kg							U
Aroclor 1221	ND	1.6	4.0	ug/kg							U
Aroclor 1232	ND	1.6	4.0	ug/kg							U
Aroclor 1242	ND	1.6	4.0	ug/kg							U
Aroclor 1248	ND	1.6	4.0	ug/kg							U
Aroclor 1254	ND	1.6	4.0	ug/kg							U
Aroclor 1260	ND	0.6	4.0	ug/kg							U
Aroclor 1262	ND	0.6	4.0	ug/kg							U
Aroclor 1268	ND	0.6	4.0	ug/kg							U
Surrogate: Decachlorobiphenyl	4.16			ug/kg	*8.00*		*52.0*	*40-126*			
Surrogate: Tetrachlorometaxylene	4.62			ug/kg	*8.00*		*57.7*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	5.31			ug/kg	*8.00*		*66.4*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	4.53			ug/kg	*8.00*		*56.7*	*44-120*			
LCS (BIK0468-BS1)				Prepared: 16-Nov-2020 Analyzed: 03-Dec-2020 03:18							
Aroclor 1016 [2C]	64.7	1.6	4.0	ug/kg	101		64.2	56-120			
Aroclor 1260 [2C]	70.0	0.6	4.0	ug/kg	101		69.4	58-120			
Surrogate: Decachlorobiphenyl	4.32			ug/kg	*8.00*		*54.0*	*40-126*			
Surrogate: Tetrachlorometaxylene	4.84			ug/kg	*8.00*		*60.5*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	5.50			ug/kg	*8.00*		*68.8*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	4.71			ug/kg	*8.00*		*58.9*	*44-120*			
Matrix Spike (BIK0468-MS1)		**Source: 20K0101-15**		Prepared: 16-Nov-2020 Analyzed: 03-Dec-2020 04:19							
Aroclor 1016	73.1	1.3	3.5	ug/kg	87.2	ND	83.8	56-120			
Aroclor 1260 [2C]	63.4	0.5	3.5	ug/kg	87.2	6.5	65.2	58-120			
Surrogate: Decachlorobiphenyl	3.37			ug/kg	*6.92*		*48.7*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.02			ug/kg	*6.92*		*72.6*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	4.36			ug/kg	*6.92*		*63.1*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	4.32			ug/kg	*6.92*		*62.5*	*44-120*			

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

Matrix Spike Dup (BIK0468-MSD1)		**Source: 20K0101-15**		Prepared: 16-Nov-2020 Analyzed: 03-Dec-2020 04:40							
Aroclor 1016	64.1	1.3	3.5	ug/kg	87.2	ND	73.6	56-120	13.00	30	
Aroclor 1260 [2C]	61.9	0.5	3.5	ug/kg	87.2	6.5	63.5	58-120	2.34	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	18-Dec-2020 10:58

Aroclor PCB - Quality Control

Batch BIK0468 - EPA 3546 (Microwave)

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BIK0468-MSD1)	**Source: 20K0101-15**			Prepared: 16-Nov-2020	Analyzed: 03-Dec-2020 04:40						
Surrogate: Decachlorobiphenyl	3.46			ug/kg	*6.92*		*50.0*	*40-126*			
Surrogate: Tetrachlorometaxylene	4.30			ug/kg	*6.92*		*62.2*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	4.41			ug/kg	*6.92*		*63.7*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	4.30			ug/kg	*6.92*		*62.2*	*44-120*			

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	18-Dec-2020 10:58

Aroclor PCB - Quality Control

Batch BIK0518 - EPA 3546 (Microwave)

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 (BIK0518-BLK1)				Prepared: 17-Nov-2020 Analyzed: 02-Dec-2020 22:30							
Aroclor 1016	ND	1.6	4.0	ug/kg							U
Aroclor 1221	ND	1.6	4.0	ug/kg							U
Aroclor 1232	ND	1.6	4.0	ug/kg							U
Aroclor 1242	ND	1.6	4.0	ug/kg							U
Aroclor 1248	ND	1.6	4.0	ug/kg							U
Aroclor 1254	ND	1.6	4.0	ug/kg							U
Aroclor 1260	ND	0.6	4.0	ug/kg							U
Aroclor 1262	ND	0.6	4.0	ug/kg							U
Aroclor 1268	ND	0.6	4.0	ug/kg							U
Surrogate: Decachlorobiphenyl	4.36			ug/kg	*8.00*		*54.5*	*40-126*			
Surrogate: Tetrachlorometaxylene	4.98			ug/kg	*8.00*		*62.2*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	5.45			ug/kg	*8.00*		*68.2*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	4.96			ug/kg	*8.00*		*62.0*	*44-120*			
LCS (BIK0518-BS1)				Prepared: 17-Nov-2020 Analyzed: 02-Dec-2020 22:50							
Aroclor 1016 [2C]	69.3	1.6	4.0	ug/kg	101		68.7	56-120			
Aroclor 1260 [2C]	75.8	0.6	4.0	ug/kg	101		75.2	58-120			
Surrogate: Decachlorobiphenyl	4.32			ug/kg	*8.00*		*54.0*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.02			ug/kg	*8.00*		*62.7*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	5.51			ug/kg	*8.00*		*68.9*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	4.96			ug/kg	*8.00*		*62.0*	*44-120*			
Matrix Spike (BIK0518-MS1)		**Source: 20K0101-26**		Prepared: 17-Nov-2020 Analyzed: 02-Dec-2020 23:52							
Aroclor 1016	71.8	1.6	4.0	ug/kg	101	ND	71.3	56-120			
Aroclor 1260	67.7	0.6	4.0	ug/kg	101	ND	67.3	58-120			
Surrogate: Decachlorobiphenyl	4.62			ug/kg	*7.98*		*57.9*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.65			ug/kg	*7.98*		*70.7*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	5.89			ug/kg	*7.98*		*73.8*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	5.61			ug/kg	*7.98*		*70.2*	*44-120*			
Matrix Spike Dup (BIK0518-MSD1)		**Source: 20K0101-26**		Prepared: 17-Nov-2020 Analyzed: 03-Dec-2020 00:13							
Aroclor 1016	75.5	1.6	4.0	ug/kg	101	ND	75.1	56-120	5.07	30	
Aroclor 1260	71.3	0.6	4.0	ug/kg	101	ND	70.9	58-120	5.16	30	

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	18-Dec-2020 10:58

Aroclor PCB - Quality Control

Batch BIK0518 - EPA 3546 (Microwave)

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BIK0518-MSD1)	**Source: 20K0101-26**			Prepared: 17-Nov-2020	Analyzed: 03-Dec-2020 00:13						
Surrogate: Decachlorobiphenyl	4.97			ug/kg	*7.98*		*62.3*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.93			ug/kg	*7.98*		*74.3*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	6.32			ug/kg	*7.98*		*79.2*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	5.86			ug/kg	*7.98*		*73.5*	*44-120*			

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

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

Metals and Metallic Compounds - Quality Control

Batch BIK0197 - SWN EPA 3050B

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 (BIK0197-BLK1)					Prepared: 06-Nov-2020 Analyzed: 09-Nov-2020 19:48							
Barium	135	ND	0.06	0.50	mg/kg							U
Barium	137	ND	0.05	0.50	mg/kg							U
Chromium	52	ND	0.13	0.50	mg/kg							U
Chromium	53	ND	0.07	0.50	mg/kg							U
Lead	208	ND	0.07	0.10	mg/kg							U
Silver	107	ND	0.02	0.20	mg/kg							U
Arsenic	75a	ND	0.02	0.20	mg/kg							U
Cadmium	111	ND	0.03	0.10	mg/kg							U
Cadmium	114	ND	0.04	0.10	mg/kg							U
Blank (BIK0197-BLK2)					Prepared: 06-Nov-2020 Analyzed: 10-Nov-2020 13:44							
Cobalt	59	ND	0.03	0.20	mg/kg							U
Vanadium	51a	ND	0.04	0.20	mg/kg							U
Vanadium	51b	ND	0.02	0.20	mg/kg							U
LCS (BIK0197-BS1)					Prepared: 06-Nov-2020 Analyzed: 09-Nov-2020 19:52							
Barium	135	23.3	0.06	0.50	mg/kg	25.0		93.4	80-120			
Barium	137	23.6	0.05	0.50	mg/kg	25.0		94.6	80-120			
Chromium	52	24.1	0.13	0.50	mg/kg	25.0		96.4	80-120			
Chromium	53	25.4	0.07	0.50	mg/kg	25.0		102	80-120			
Lead	208	24.2	0.07	0.10	mg/kg	25.0		96.9	80-120			
Silver	107	22.9	0.02	0.20	mg/kg	25.0		91.7	80-120			
Arsenic	75a	22.7	0.02	0.20	mg/kg	25.0		90.9	80-120			
Cadmium	111	23.4	0.03	0.10	mg/kg	25.0		93.7	80-120			
Cadmium	114	22.9	0.04	0.10	mg/kg	25.0		91.8	80-120			
LCS (BIK0197-BS2)					Prepared: 06-Nov-2020 Analyzed: 10-Nov-2020 13:49							
Cobalt	59	24.1	0.03	0.20	mg/kg	25.0		96.4	80-120			
Vanadium	51a	22.2	0.04	0.20	mg/kg	25.0		88.9	80-120			
Vanadium	51b	22.2	0.02	0.20	mg/kg	25.0		88.9	80-120			
Duplicate (BIK0197-DUP1)			**Source: 20K0101-02**		Prepared: 06-Nov-2020 Analyzed: 10-Nov-2020 17:49							
Barium	137	63.3	0.05	0.49	mg/kg		67.5			6.39	20	
Cobalt	59	27.7	0.03	0.20	mg/kg		31.0			11.20	20	
Lead	208	46.3	0.07	0.10	mg/kg		55.0			17.10	20	
Selenium	78	ND	0.44	1.98	mg/kg		ND					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	18-Dec-2020 10:58

Metals and Metallic Compounds - Quality Control

Batch BIK0197 - SWN EPA 3050B

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 (BIK0197-DUP1)			**Source: 20K0101-02**		Prepared: 06-Nov-2020		Analyzed: 10-Nov-2020 17:49					
Silver	107	0.29	0.02	0.20	mg/kg		0.32			9.97	20	
Vanadium	51a	57.9	0.04	0.20	mg/kg		55.1			5.01	20	
Arsenic	75a	47.2	0.02	0.20	mg/kg		42.0			11.70	20	
Cadmium	111	0.40	0.03	0.10	mg/kg		0.43			7.54	20	
Zinc	66	62.1	0.8	4.0	mg/kg		98.6			45.40	20	*
Duplicate (BIK0197-DUP2)			**Source: 20K0101-02RE1**		Prepared: 06-Nov-2020		Analyzed: 10-Nov-2020 21:25					
Chromium	52	462	3.22	12.4	mg/kg		469			1.52	20	D
Copper	63	720	8.41	12.4	mg/kg		716			0.52	20	D
Nickel	60	2750	1.24	12.4	mg/kg		3090			11.40	20	D
Matrix Spike (BIK0197-MS1)			**Source: 20K0101-02**		Prepared: 06-Nov-2020		Analyzed: 10-Nov-2020 17:56					
Barium	137	99.1	0.05	0.49	mg/kg	24.6	67.5	128	75-125			*
Cobalt	59	53.1	0.03	0.20	mg/kg	24.6	31.0	89.7	75-125			
Lead	208	91.0	0.07	0.10	mg/kg	24.6	55.0	146	75-125			*
Selenium	78	58.9	0.43	1.97	mg/kg	78.8	ND	74.7	75-125			*
Silver	107	23.3	0.02	0.20	mg/kg	24.6	0.32	93.3	75-125			
Vanadium	51a	82.6	0.04	0.20	mg/kg	24.6	55.1	112	75-125			
Arsenic	75a	65.7	0.02	0.20	mg/kg	24.6	42.0	96.1	75-125			
Cadmium	111	22.2	0.03	0.10	mg/kg	24.6	0.43	88.4	75-125			
Zinc	66	146	0.8	3.9	mg/kg	78.8	98.6	60.4	75-125			*

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

Matrix Spike (BIK0197-MS2)			**Source: 20K0101-02RE1**		Prepared: 06-Nov-2020		Analyzed: 10-Nov-2020 21:30					
Chromium	52	481	3.20	12.3	mg/kg	24.6	469	49.4	75-125			HC, D
Copper	63	779	8.37	12.3	mg/kg	24.6	716	257	75-125			HC, D
Nickel	60	3310	1.23	12.3	mg/kg	24.6	3090	905	75-125			HC, D

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

Matrix Spike Dup (BIK0197-MSD1)			**Source: 20K0101-02**		Prepared: 06-Nov-2020		Analyzed: 10-Nov-2020 18:04					
Barium	137	87.6	0.05	0.49	mg/kg	24.7	67.5	81.3	75-125	12.30	20	
Cobalt	59	53.8	0.03	0.20	mg/kg	24.7	31.0	92.2	75-125	1.34	20	
Lead	208	93.1	0.07	0.10	mg/kg	24.7	55.0	154	75-125	2.37	20	*
Selenium	78	58.2	0.44	1.98	mg/kg	79.1	ND	73.6	75-125	1.14	20	*
Silver	107	23.5	0.02	0.20	mg/kg	24.7	0.32	93.9	75-125	0.94	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	18-Dec-2020 10:58

Metals and Metallic Compounds - Quality Control

Batch BIK0197 - SWN EPA 3050B

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 (BIK0197-MSD1)			**Source: 20K0101-02**		Prepared: 06-Nov-2020 Analyzed: 10-Nov-2020 18:04							
Vanadium	51a	82.4	0.04	0.20	mg/kg	24.7	55.1	110	75-125	0.26	20	
Arsenic	75a	65.7	0.02	0.20	mg/kg	24.7	42.0	96.0	75-125	0.11	20	
Cadmium	111	23.0	0.03	0.10	mg/kg	24.7	0.43	91.3	75-125	3.52	20	
Zinc	66	223	0.8	4.0	mg/kg	79.1	98.6	157	75-125	41.70	20	*
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BIK0197-MSD2)			**Source: 20K0101-02RE1**		Prepared: 06-Nov-2020 Analyzed: 10-Nov-2020 21:37							
Chromium	52	531	3.21	12.4	mg/kg	24.7	469	249	75-125	9.74	20	HC, D
Copper	63	878	8.41	12.4	mg/kg	24.7	716	657	75-125	11.90	20	HC, D
Nickel	60	3030	1.24	12.4	mg/kg	24.7	3090	-213	75-125	8.69	20	HC, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Post Spike (BIK0197-PS1)			**Source: 20K0101-02**		Prepared: 06-Nov-2020 Analyzed: 11-Nov-2020 17:28							
Barium	137	1800			mg/kg	500	67.5	85.2	80-120			
Lead	208	1650			mg/kg	500	55.0	107	80-120			
Zinc	66	3480			mg/kg	1600	98.6	92.2	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	18-Dec-2020 10:58

Metals and Metallic Compounds - Quality Control

Batch BIK0376 - SMM EPA 7471B

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 (BIK0376-BLK1)				Prepared: 12-Nov-2020 Analyzed: 18-Nov-2020 13:44							
Mercury	ND	0.00525	0.0250	mg/kg							U
LCS (BIK0376-BS1)				Prepared: 12-Nov-2020 Analyzed: 18-Nov-2020 13:47							
Mercury	0.445	0.00525	0.0250	mg/kg	0.500		89.0	80-120			
Duplicate (BIK0376-DUP1)		**Source: 20K0101-02**		Prepared: 12-Nov-2020 Analyzed: 18-Nov-2020 13:51							
Mercury	ND	0.00430	0.0205	mg/kg		ND					U
Matrix Spike (BIK0376-MS1)		**Source: 20K0101-02**		Prepared: 12-Nov-2020 Analyzed: 18-Nov-2020 13:53							
Mercury	0.223	0.00424	0.0202	mg/kg	0.202	ND	111	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BIK0376-MSD1)		**Source: 20K0101-02**		Prepared: 12-Nov-2020 Analyzed: 18-Nov-2020 13:55							
Mercury	0.226	0.00432	0.0206	mg/kg	0.206	ND	110	75-125	1.18	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: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020A in Solid	
Silver-107	NELAP,DoD-ELAP,WADOE
Silver-107	DoD-ELAP,WADOE
Silver-107	NELAP,DoD-ELAP
Silver-107	NELAP,DoD-ELAP,WADOE
Barium-135	NELAP,DoD-ELAP,WADOE,ADEC
Barium-135	NELAP,DoD-ELAP,WADOE,ADEC
Barium-135	NELAP,DoD-ELAP,ADEC
Barium-135	DoD-ELAP,WADOE,ADEC
Barium-137	NELAP,DoD-ELAP,WADOE,ADEC
Barium-137	DoD-ELAP,WADOE,ADEC
Barium-137	NELAP,DoD-ELAP,ADEC
Barium-137	NELAP,DoD-ELAP,WADOE,ADEC
Cobalt-59	NELAP,DoD-ELAP,WADOE
Cobalt-59	NELAP,DoD-ELAP,WADOE
Cobalt-59	DoD-ELAP,WADOE
Cobalt-59	NELAP,DoD-ELAP
Chromium-52	DoD-ELAP,WADOE,ADEC
Chromium-52	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-52	NELAP,DoD-ELAP,ADEC
Chromium-52	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-53	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-53	NELAP,DoD-ELAP,ADEC
Chromium-53	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-53	DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,ADEC
Selenium-82	NELAP,DoD-ELAP,WADOE
Selenium-82	DoD-ELAP,WADOE
Selenium-82	NELAP,DoD-ELAP
Selenium-82	NELAP,DoD-ELAP,WADOE
Selenium-78	NELAP,DoD-ELAP,WADOE
Selenium-78	NELAP,DoD-ELAP
Selenium-78	NELAP,DoD-ELAP,WADOE

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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	18-Dec-2020 10:58

Selenium-78	DoD-ELAP,WADOE
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51a	NELAP,DoD-ELAP,ADEC
Vanadium-51a	DoD-ELAP,WADOE,ADEC
Vanadium-51b	DoD-ELAP,WADOE,ADEC
Vanadium-51b	DoD-ELAP,WADOE,ADEC
Vanadium-51b	DoD-ELAP,WADOE,ADEC
Vanadium-51b	DoD-ELAP,ADEC

EPA 6020A UCT-KED in Solid

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

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Shannon & Wilson, Inc	Project: Lower Duwamish	
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Zinc-66	NELAP,DoD-ELAP,WADOE
Zinc-66	DoD-ELAP,WADOE
Zinc-66	NELAP,DoD-ELAP
Zinc-67	NELAP,DoD-ELAP,WADOE
Zinc-67	NELAP,DoD-ELAP
Zinc-67	NELAP,DoD-ELAP,WADOE
Zinc-67	DoD-ELAP,WADOE

EPA 7471B in Solid

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

EPA 8082A in Solid

Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1016 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1221	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1221 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1242	DoD-ELAP,NELAP,CALAP,ADEC

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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	18-Dec-2020 10:58

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

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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	18-Dec-2020 10:58

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

EPA 8260D in Solid

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

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	18-Dec-2020 10:58

Acetone	DoD-ELAP,NELAP,CALAP
1,1-Dichloroethene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,1-Dichloroethene	WADOE,DoD-ELAP,NELAP,ADEC
1,1-Dichloroethene	WADOE,DoD-ELAP,CALAP,ADEC
1,1-Dichloroethene	DoD-ELAP,NELAP,CALAP,ADEC
Iodomethane	WADOE,DoD-ELAP,NELAP,ADEC
Iodomethane	WADOE,DoD-ELAP,CALAP,ADEC
Iodomethane	DoD-ELAP,NELAP,CALAP,ADEC
Iodomethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Methylene Chloride	DoD-ELAP,NELAP,CALAP,ADEC
Methylene Chloride	WADOE,DoD-ELAP,CALAP,ADEC
Methylene Chloride	WADOE,DoD-ELAP,NELAP,ADEC
Methylene Chloride	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Acrylonitrile	DoD-ELAP,NELAP,CALAP
Acrylonitrile	WADOE,DoD-ELAP,NELAP
Acrylonitrile	WADOE,DoD-ELAP,NELAP,CALAP
Acrylonitrile	WADOE,DoD-ELAP,CALAP
Carbon Disulfide	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,ADEC
Carbon Disulfide	WADOE,DoD-ELAP,CALAP,ADEC
Carbon Disulfide	WADOE,DoD-ELAP,NELAP,ADEC
trans-1,2-Dichloroethene	WADOE,DoD-ELAP,NELAP,ADEC
trans-1,2-Dichloroethene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
trans-1,2-Dichloroethene	DoD-ELAP,NELAP,CALAP,ADEC
trans-1,2-Dichloroethene	WADOE,DoD-ELAP,CALAP,ADEC
Vinyl Acetate	WADOE,DoD-ELAP,NELAP,CALAP
Vinyl Acetate	DoD-ELAP,NELAP,CALAP
Vinyl Acetate	WADOE,DoD-ELAP,CALAP
Vinyl Acetate	WADOE,DoD-ELAP,NELAP
1,1-Dichloroethane	DoD-ELAP,NELAP,CALAP,ADEC
1,1-Dichloroethane	WADOE,DoD-ELAP,CALAP,ADEC
1,1-Dichloroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,1-Dichloroethane	WADOE,DoD-ELAP,NELAP,ADEC
2-Butanone	WADOE,DoD-ELAP,NELAP,CALAP
2-Butanone	DoD-ELAP,NELAP,CALAP
2-Butanone	WADOE,DoD-ELAP,CALAP
2-Butanone	WADOE,DoD-ELAP,NELAP
2,2-Dichloropropane	WADOE,DoD-ELAP,NELAP,CALAP
2,2-Dichloropropane	WADOE,DoD-ELAP,NELAP

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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	18-Dec-2020 10:58

2,2-Dichloropropane	WADOE,DoD-ELAP,CALAP
2,2-Dichloropropane	DoD-ELAP,NELAP,CALAP
cis-1,2-Dichloroethene	DoD-ELAP,NELAP,CALAP,ADEC
cis-1,2-Dichloroethene	WADOE,DoD-ELAP,NELAP,ADEC
cis-1,2-Dichloroethene	WADOE,DoD-ELAP,CALAP,ADEC
cis-1,2-Dichloroethene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Chloroform	WADOE,DoD-ELAP,NELAP,ADEC
Chloroform	DoD-ELAP,NELAP,CALAP,ADEC
Chloroform	WADOE,DoD-ELAP,CALAP,ADEC
Chloroform	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Bromochloromethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Bromochloromethane	WADOE,DoD-ELAP,CALAP,ADEC
Bromochloromethane	DoD-ELAP,NELAP,CALAP,ADEC
Bromochloromethane	WADOE,DoD-ELAP,NELAP,ADEC
1,1,1-Trichloroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,1,1-Trichloroethane	DoD-ELAP,NELAP,CALAP,ADEC
1,1,1-Trichloroethane	WADOE,DoD-ELAP,CALAP,ADEC
1,1,1-Trichloroethane	WADOE,DoD-ELAP,NELAP,ADEC
1,1-Dichloropropene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,1-Dichloropropene	WADOE,DoD-ELAP,NELAP,ADEC
1,1-Dichloropropene	WADOE,DoD-ELAP,CALAP,ADEC
1,1-Dichloropropene	DoD-ELAP,NELAP,CALAP,ADEC
Carbon tetrachloride	WADOE,DoD-ELAP,CALAP,ADEC
Carbon tetrachloride	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Carbon tetrachloride	DoD-ELAP,NELAP,CALAP,ADEC
Carbon tetrachloride	WADOE,DoD-ELAP,NELAP,ADEC
1,2-Dichloroethane	WADOE,DoD-ELAP,CALAP,ADEC
1,2-Dichloroethane	DoD-ELAP,NELAP,CALAP,ADEC
1,2-Dichloroethane	WADOE,DoD-ELAP,NELAP,ADEC
1,2-Dichloroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Benzene	DoD-ELAP,NELAP,CALAP,ADEC
Benzene	WADOE,DoD-ELAP,CALAP,ADEC
Benzene	WADOE,DoD-ELAP,NELAP,ADEC
Benzene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Trichloroethene	WADOE,DoD-ELAP,NELAP,ADEC
Trichloroethene	WADOE,DoD-ELAP,CALAP,ADEC
Trichloroethene	DoD-ELAP,NELAP,CALAP,ADEC
Trichloroethene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,2-Dichloropropane	WADOE,DoD-ELAP,CALAP,ADEC

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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	18-Dec-2020 10:58

1,2-Dichloropropane	WADOE,DoD-ELAP,NELAP,ADEC
1,2-Dichloropropane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,2-Dichloropropane	DoD-ELAP,NELAP,CALAP,ADEC
Bromodichloromethane	DoD-ELAP,NELAP,CALAP,ADEC
Bromodichloromethane	WADOE,DoD-ELAP,CALAP,ADEC
Bromodichloromethane	WADOE,DoD-ELAP,NELAP,ADEC
Bromodichloromethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Dibromomethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Dibromomethane	DoD-ELAP,NELAP,CALAP,ADEC
Dibromomethane	WADOE,DoD-ELAP,NELAP,ADEC
Dibromomethane	WADOE,DoD-ELAP,CALAP,ADEC
2-Chloroethyl vinyl ether	WADOE,DoD-ELAP
2-Chloroethyl vinyl ether	WADOE,DoD-ELAP,NELAP
2-Chloroethyl vinyl ether	DoD-ELAP,NELAP
2-Chloroethyl vinyl ether	WADOE,DoD-ELAP,NELAP
4-Methyl-2-Pentanone	WADOE,DoD-ELAP,NELAP
4-Methyl-2-Pentanone	WADOE,DoD-ELAP,CALAP
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP
4-Methyl-2-Pentanone	WADOE,DoD-ELAP,NELAP,CALAP
cis-1,3-Dichloropropene	DoD-ELAP,NELAP,CALAP,ADEC
cis-1,3-Dichloropropene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
cis-1,3-Dichloropropene	WADOE,DoD-ELAP,CALAP,ADEC
cis-1,3-Dichloropropene	WADOE,DoD-ELAP,NELAP,ADEC
Toluene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Toluene	DoD-ELAP,NELAP,CALAP,ADEC
Toluene	WADOE,DoD-ELAP,CALAP,ADEC
Toluene	WADOE,DoD-ELAP,NELAP,ADEC
trans-1,3-Dichloropropene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
trans-1,3-Dichloropropene	WADOE,DoD-ELAP,NELAP,ADEC
trans-1,3-Dichloropropene	WADOE,DoD-ELAP,CALAP,ADEC
trans-1,3-Dichloropropene	DoD-ELAP,NELAP,CALAP,ADEC
2-Hexanone	WADOE,DoD-ELAP,NELAP,CALAP
2-Hexanone	DoD-ELAP,NELAP,CALAP
2-Hexanone	WADOE,DoD-ELAP,NELAP
2-Hexanone	WADOE,DoD-ELAP,CALAP
1,1,2-Trichloroethane	WADOE,DoD-ELAP,NELAP,ADEC
1,1,2-Trichloroethane	WADOE,DoD-ELAP,CALAP,ADEC
1,1,2-Trichloroethane	DoD-ELAP,NELAP,CALAP,ADEC
1,1,2-Trichloroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC

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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	18-Dec-2020 10:58

1,3-Dichloropropane	WADOE,DoD-ELAP,NELAP,ADEC
1,3-Dichloropropane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,3-Dichloropropane	DoD-ELAP,NELAP,CALAP,ADEC
1,3-Dichloropropane	WADOE,DoD-ELAP,CALAP,ADEC
Tetrachloroethene	WADOE,DoD-ELAP,NELAP,ADEC
Tetrachloroethene	DoD-ELAP,NELAP,CALAP,ADEC
Tetrachloroethene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Tetrachloroethene	WADOE,DoD-ELAP,CALAP,ADEC
Dibromochloromethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Dibromochloromethane	DoD-ELAP,NELAP,CALAP,ADEC
Dibromochloromethane	WADOE,DoD-ELAP,CALAP,ADEC
Dibromochloromethane	WADOE,DoD-ELAP,NELAP,ADEC
1,2-Dibromoethane	WADOE,DoD-ELAP,CALAP,ADEC
1,2-Dibromoethane	WADOE,DoD-ELAP,NELAP,ADEC
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,ADEC
1,2-Dibromoethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Chlorobenzene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Chlorobenzene	DoD-ELAP,NELAP,CALAP,ADEC
Chlorobenzene	WADOE,DoD-ELAP,CALAP,ADEC
Chlorobenzene	WADOE,DoD-ELAP,NELAP,ADEC
Ethylbenzene	WADOE,DoD-ELAP,CALAP,ADEC
Ethylbenzene	DoD-ELAP,NELAP,CALAP,ADEC
Ethylbenzene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Ethylbenzene	WADOE,DoD-ELAP,NELAP,ADEC
1,1,1,2-Tetrachloroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,1,1,2-Tetrachloroethane	WADOE,DoD-ELAP,NELAP,ADEC
1,1,1,2-Tetrachloroethane	WADOE,DoD-ELAP,CALAP,ADEC
1,1,1,2-Tetrachloroethane	DoD-ELAP,NELAP,CALAP,ADEC
m,p-Xylene	WADOE,DoD-ELAP,CALAP,ADEC
m,p-Xylene	DoD-ELAP,NELAP,CALAP,ADEC
m,p-Xylene	WADOE,DoD-ELAP,NELAP,ADEC
m,p-Xylene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
o-Xylene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
o-Xylene	WADOE,DoD-ELAP,CALAP,ADEC
o-Xylene	WADOE,DoD-ELAP,NELAP,ADEC
o-Xylene	DoD-ELAP,NELAP,CALAP,ADEC
Xylenes, total	WADOE
Xylenes, total	WADOE
Xylenes, total	

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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	18-Dec-2020 10:58

Xylenes, total	WADOE
Styrene	WADOE,DoD-ELAP,NELAP,ADEC
Styrene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Styrene	WADOE,DoD-ELAP,CALAP,ADEC
Styrene	DoD-ELAP,NELAP,CALAP,ADEC
Bromoform	DoD-ELAP,NELAP,CALAP,ADEC
Bromoform	WADOE,DoD-ELAP,CALAP,ADEC
Bromoform	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Bromoform	WADOE,DoD-ELAP,NELAP,ADEC
1,1,2,2-Tetrachloroethane	WADOE,DoD-ELAP,CALAP,ADEC
1,1,2,2-Tetrachloroethane	WADOE,DoD-ELAP,NELAP,ADEC
1,1,2,2-Tetrachloroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,1,2,2-Tetrachloroethane	DoD-ELAP,NELAP,CALAP,ADEC
1,2,3-Trichloropropane	WADOE,DoD-ELAP,CALAP,ADEC
1,2,3-Trichloropropane	WADOE,DoD-ELAP,NELAP,ADEC
1,2,3-Trichloropropane	DoD-ELAP,NELAP,CALAP,ADEC
1,2,3-Trichloropropane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
trans-1,4-Dichloro 2-Butene	WADOE,DoD-ELAP,NELAP
trans-1,4-Dichloro 2-Butene	WADOE,DoD-ELAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,NELAP
trans-1,4-Dichloro 2-Butene	WADOE,DoD-ELAP,NELAP
n-Propylbenzene	WADOE,DoD-ELAP,NELAP
n-Propylbenzene	WADOE,DoD-ELAP,CALAP
n-Propylbenzene	WADOE,DoD-ELAP,NELAP,CALAP
n-Propylbenzene	DoD-ELAP,NELAP,CALAP
Bromobenzene	WADOE,DoD-ELAP,CALAP,ADEC
Bromobenzene	DoD-ELAP,NELAP,CALAP,ADEC
Bromobenzene	WADOE,DoD-ELAP,NELAP,ADEC
Bromobenzene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Isopropyl Benzene	WADOE,DoD-ELAP,NELAP,ADEC
Isopropyl Benzene	WADOE,DoD-ELAP,CALAP,ADEC
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,ADEC
Isopropyl Benzene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
2-Chlorotoluene	WADOE,DoD-ELAP,NELAP
2-Chlorotoluene	WADOE,DoD-ELAP,CALAP
2-Chlorotoluene	DoD-ELAP,NELAP,CALAP
2-Chlorotoluene	WADOE,DoD-ELAP,NELAP,CALAP
4-Chlorotoluene	DoD-ELAP,NELAP,CALAP
4-Chlorotoluene	WADOE,DoD-ELAP,CALAP

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
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4-Chlorotoluene	WADOE,DoD-ELAP,NELAP
4-Chlorotoluene	WADOE,DoD-ELAP,NELAP,CALAP
t-Butylbenzene	DoD-ELAP,NELAP,CALAP
t-Butylbenzene	WADOE,DoD-ELAP,CALAP
t-Butylbenzene	WADOE,DoD-ELAP,NELAP
t-Butylbenzene	WADOE,DoD-ELAP,NELAP,CALAP
1,3,5-Trimethylbenzene	WADOE,DoD-ELAP,NELAP
1,3,5-Trimethylbenzene	WADOE,DoD-ELAP,CALAP
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,3,5-Trimethylbenzene	WADOE,DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	WADOE,DoD-ELAP,NELAP
1,2,4-Trimethylbenzene	WADOE,DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	WADOE,DoD-ELAP,CALAP
s-Butylbenzene	WADOE,DoD-ELAP,CALAP
s-Butylbenzene	DoD-ELAP,NELAP,CALAP
s-Butylbenzene	WADOE,DoD-ELAP,NELAP,CALAP
s-Butylbenzene	WADOE,DoD-ELAP,NELAP
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP
4-Isopropyl Toluene	WADOE,DoD-ELAP,CALAP
4-Isopropyl Toluene	WADOE,DoD-ELAP,NELAP,CALAP
4-Isopropyl Toluene	WADOE,DoD-ELAP,NELAP
1,3-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
1,3-Dichlorobenzene	WADOE,DoD-ELAP,CALAP
1,3-Dichlorobenzene	DoD-ELAP,NELAP,CALAP
1,3-Dichlorobenzene	WADOE,DoD-ELAP,NELAP,CALAP
1,4-Dichlorobenzene	WADOE,DoD-ELAP,CALAP
1,4-Dichlorobenzene	WADOE,DoD-ELAP,NELAP,CALAP
1,4-Dichlorobenzene	DoD-ELAP,NELAP,CALAP
1,4-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
n-Butylbenzene	WADOE,DoD-ELAP,NELAP,CALAP
n-Butylbenzene	DoD-ELAP,NELAP,CALAP
n-Butylbenzene	WADOE,DoD-ELAP,CALAP
n-Butylbenzene	WADOE,DoD-ELAP,NELAP
1,2-Dichlorobenzene	WADOE,DoD-ELAP,NELAP,CALAP
1,2-Dichlorobenzene	DoD-ELAP,NELAP,CALAP
1,2-Dichlorobenzene	WADOE,DoD-ELAP,CALAP
1,2-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,NELAP,CALAP,ADEC

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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	18-Dec-2020 10:58

1,2-Dibromo-3-chloropropane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,2-Dibromo-3-chloropropane	WADOE,DoD-ELAP,CALAP,ADEC
1,2-Dibromo-3-chloropropane	WADOE,DoD-ELAP,NELAP,ADEC
1,2,4-Trichlorobenzene	WADOE,DoD-ELAP,NELAP,ADEC
1,2,4-Trichlorobenzene	WADOE,DoD-ELAP,CALAP,ADEC
1,2,4-Trichlorobenzene	DoD-ELAP,NELAP,CALAP,ADEC
1,2,4-Trichlorobenzene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Hexachloro-1,3-Butadiene	WADOE,DoD-ELAP,NELAP,ADEC
Hexachloro-1,3-Butadiene	WADOE,DoD-ELAP,CALAP,ADEC
Hexachloro-1,3-Butadiene	DoD-ELAP,NELAP,CALAP,ADEC
Hexachloro-1,3-Butadiene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Naphthalene	WADOE,DoD-ELAP,NELAP
Naphthalene	WADOE,DoD-ELAP,NELAP,CALAP
Naphthalene	WADOE,DoD-ELAP,CALAP
Naphthalene	DoD-ELAP,NELAP,CALAP
1,2,3-Trichlorobenzene	WADOE,DoD-ELAP,NELAP,ADEC
1,2,3-Trichlorobenzene	WADOE,DoD-ELAP,CALAP,ADEC
1,2,3-Trichlorobenzene	DoD-ELAP,NELAP,CALAP,ADEC
1,2,3-Trichlorobenzene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Dichlorodifluoromethane	WADOE,DoD-ELAP,NELAP,ADEC
Dichlorodifluoromethane	WADOE,DoD-ELAP,CALAP,ADEC
Dichlorodifluoromethane	DoD-ELAP,NELAP,CALAP,ADEC
Dichlorodifluoromethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Methyl tert-butyl Ether	WADOE,DoD-ELAP,NELAP
Methyl tert-butyl Ether	WADOE,DoD-ELAP,CALAP
Methyl tert-butyl Ether	DoD-ELAP,NELAP,CALAP
Methyl tert-butyl Ether	WADOE,DoD-ELAP,NELAP,CALAP
n-Hexane	WADOE
n-Hexane	
n-Hexane	WADOE
n-Hexane	WADOE
2-Pentanone	WADOE
2-Pentanone	WADOE
2-Pentanone	
2-Pentanone	WADOE
Dibromofluoromethane	WADOE
Dibromofluoromethane	WADOE
Dibromofluoromethane	
Dibromofluoromethane	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: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

4-Bromofluorobenzene	WADOE
4-Bromofluorobenzene	
4-Bromofluorobenzene	WADOE
4-Bromofluorobenzene	WADOE

EPA 8260D in Water

Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromomethane	DoD-ELAP,ADEC,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP
Trichlorofluoromethane	DoD-ELAP,ADEC,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,CALAP,WADOE
Acrolein	DoD-ELAP,NELAP,CALAP
Acrolein	DoD-ELAP,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,CALAP
Acetone	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,CALAP,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: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Iodomethane	DoD-ELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP
Methylene Chloride	DoD-ELAP,ADEC,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP
Acrylonitrile	DoD-ELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP
Carbon Disulfide	DoD-ELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP
2-Butanone	DoD-ELAP,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
2,2-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE

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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	18-Dec-2020 10:58

cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP
Chloroform	DoD-ELAP,ADEC,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromochloromethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,1-Trichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP
Carbon tetrachloride	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Trichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dichloropropane	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: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

Bromodichloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP
Toluene	DoD-ELAP,ADEC,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP
2-Hexanone	DoD-ELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2-Trichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE

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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	18-Dec-2020 10:58

1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Tetrachloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
Chlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP
Styrene	DoD-ELAP,NELAP,WADOE
Styrene	DoD-ELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,CALAP,WADOE

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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	18-Dec-2020 10:58

Bromoform	DoD-ELAP,NELAP,CALAP
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2,3-Trichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP
n-Propylbenzene	DoD-ELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP
Isopropyl Benzene	DoD-ELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP
4-Chlorotoluene	DoD-ELAP,ADEC,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP
t-Butylbenzene	DoD-ELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE

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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	18-Dec-2020 10:58

1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,3,5-Trimethylbenzene	DoD-ELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	DoD-ELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP
4-Isopropyl Toluene	DoD-ELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP
n-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE

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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	18-Dec-2020 10:58

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

NWTPH-Dx in Solid

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C24)	DoD-ELAP,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,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP
Diesel Range Organics (C10-C25)	DoD-ELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE

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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	18-Dec-2020 10:58

Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP
Diesel Range Organics (Tol-C18)	DoD-ELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP
Diesel Range Organics (C10-C28)	DoD-ELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
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-C22)	DoD-ELAP
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Diesel Range Organics (C12-C25)	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 (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C38)	DoD-ELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP
Motor Oil Range Organics (C25-C36)	DoD-ELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Residual Range Organics (C23-C32)	DoD-ELAP
Residual Range Organics (C23-C32)	DoD-ELAP
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,WADOE
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE

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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	18-Dec-2020 10:58

Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,WADOE
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,WADOE
JP5 Range Organics (C10-C16)	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,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,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP
Stoddard Range Organics (C8-C12)	DoD-ELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
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
Bunker C Range Organics (C10-C38)	DoD-ELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,WADOE
Transformer Oil Range Organics (C12-C28)	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: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	18-Dec-2020 10:58

NWTPHg in Solid

Gasoline Range Organics (Tol-Nap)	DoD-ELAP
Gasoline Range Organics (Tol-Nap)	DoD-ELAP
Gasoline Range Organics (Tol-Nap)	DoD-ELAP
Gasoline Range Organics (Tol-Nap)	DoD-ELAP
Gasoline Range Organics (2MP-TMB)	DoD-ELAP
Gasoline Range Organics (2MP-TMB)	DoD-ELAP
Gasoline Range Organics (2MP-TMB)	DoD-ELAP
Gasoline Range Organics (2MP-TMB)	DoD-ELAP
Gasoline Range Organics (Tol-C12)	DoD-ELAP
Gasoline Range Organics (Tol-C12)	DoD-ELAP
Gasoline Range Organics (Tol-C12)	DoD-ELAP
Gasoline Range Organics (Tol-C12)	DoD-ELAP
Gasoline Range Organics (C6-C10)	DoD-ELAP
Gasoline Range Organics (C6-C10)	DoD-ELAP
Gasoline Range Organics (C6-C10)	DoD-ELAP
Gasoline Range Organics (C6-C10)	DoD-ELAP
Gasoline Range Organics (C5-C12)	DoD-ELAP
Gasoline Range Organics (C5-C12)	DoD-ELAP
Gasoline Range Organics (C5-C12)	DoD-ELAP
Gasoline Range Organics (C5-C12)	DoD-ELAP
4-Bromofluorobenzene (field spiked)	DoD-ELAP
4-Bromofluorobenzene (field spiked)	DoD-ELAP
4-Bromofluorobenzene (field spiked)	DoD-ELAP
4-Bromofluorobenzene (field spiked)	DoD-ELAP

NWTPHg in Water

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

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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	18-Dec-2020 10:58

Gasoline Range Organics (C6-C10)	WADOE,ADEC,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
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021

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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	18-Dec-2020 10:58

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)
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.
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).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

04 January 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)
20K0117	N/A

Amanda Volgardsen

Digitally signed by Amanda Volgardsen
Date: 2021.01.04 15:18:55 -08'00'

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

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

Analytical Resources, Inc.

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ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

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~~ARI Job #: 20K0117~~ SC

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20K0117	Turn-around Requested: Standard	Page: 1 of 4	
ARI Client Company: Shannon & Wilson, Inc	Phone: 206-695-6673	Date: 11/4/20	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 6	Cooler Temps: See CRF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RBP+MRH		

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Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TPH-Dx	PAHs	PCB Aroclors	Metals*	GX	BTEX	HVOCs		Notes/Comments
SB-2020-007:1.2-2.8-11042020	11/4/20	0945	Soil	2	X	X	X	X					
SB-2020-007:6-7-11042020		0950		2	X	X	X	X					
SB-2020-007:10-10.9-11042020		1000		2	X	X	X	X					
SB-2020-007:20-21.4-11042020		1050		2									Hold
SB-2020-007:23-24.6-11042020		1100		2									Hold
TB-2-11042020		1235	Water	1					X	X	X		
SB-2020-005:1-11042020		1235	Soil	6	X	X		X	~~X~~ NOV	X	X		
SB-2020-005:6-11042020		1250		6	X	X		X		X	X		
SB-2020-005:12-11042020		1305		6	X	X		X		X	X		
SB-2020-005:20-11042020		1310		6									Hold

*= arsenic, barium, cadmium, chromium, cobalt, copper, ~~iron~~ lead, mercury, nickel, selenium, silver, vanadium, ~~zinc~~

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	RYAN PETERSON			
	Printed Name:	Printed Name: Jacob Haltz	Printed Name:	Printed Name:
	Company: S&W	Company: ARI	Company:	Company:
	Date & Time: 11/5/2020 1515	Date & Time: 11/05/2020 1515	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

~~ARI Job #: 20K0117~~ SC

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20K0117	Turn-around Requested: Standard	Page: 2 of 4	
ARI Client Company: Shannon & Wilson, Inc	Phone: 206-695-6673	Date: 11/4/20	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 6	Cooler Temps: See CRF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: NBP + MLH		

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206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: GX	DX	BTEX	HVOCs	PAHs	PCB Aroclors	Metals SX		Notes/Comments
SB-2020-005:24-11042020	11/4/20	1315	Soil	6									Hold
SB-2020-016:2-11042020		1350		8	X	X	X	X	X	X	X		
SB-2020-016:7-11042020		1400		8	X	X	X	X	X	X	X		
SB-2020-016:12-11042020		1415		8	X	X	X	X	X	X	X		
SB-2020-016:20-11042020		1425		8									Hold
SB-2020-016:25-11042020		1435		8									Hold
SB-2020-015:1-11042020		1500		8	X	X	X	X	X	X	X		
SB-2020-015:7-11042020		1520		8	X	X	X	X	X	X	X		
SB-2020-015:13-11042020		1535		8	X	X	X	X	X	X	X		
SB-2020-015:20.5-11042020		1540		8		X					X		

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: RYAN PETERSON	Printed Name: Jacob Walter	Printed Name:	Printed Name:
	Company: SSW	Company: ARI	Company:	Company:
	Date & Time: 11/5/20 1515	Date & Time: 11/05/2020 1515	Date & Time:	Date & Time:

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

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

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20K0117	Turn-around Requested: Standard	Page: 3 of 4	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6811	Date:	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 6	Cooler Temps: See CRF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RBP, MRH, CTC		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
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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: Gx	Dx	BTEX	HVOCs	PAHs	PCB Aroclors	Metals*		Notes/Comments
SB-2020-015:23-11042020	11/4/20	1545	Soil	8									Hold
A2-07A:12-11052020	11/5/20	0935	Soil	3	X	X							**
A2-07A:13.5-11052020	11/5/20	0945	Soil	3	X	X							**
A2-07A:18-11052020	11/5/20	0950	Soil	3	X	X							**
A2-07A:20-11052020	11/5/20	1000	Soil	3									Hold
A2-07A:25-11052020	11/5/20	1025	Soil	3	X	X							
~~TB-3~~ TB-3-11052020	11/5/20	1025	Water	1	X								
A2-07A:30-11052020	11/5/20	1030	Soil	3									Hold
SB-2020-014:1.5-11052020	11/5/20	1125	Soil	8	X	X	X	X	X	X	X		
SB-2020-014:7-11052020	11/5/20	1135	Soil	8	X	X	X	X	X	X	X		

* See note Page 1

** Strong VOC odor, possible NAPL

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: RYAN PETERSON	Printed Name: Jacob Haltv	Printed Name:	Printed Name:
	Company: S&W	Company: ARI	Company:	Company:
	Date & Time: 11/5/20 1515	Date & Time: 11/05/2020 1515	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: 20K0117	Turn-around Requested: Standard
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6811
Client Contact: Shoshana Howard	
Client Project Name: LDW	
Client Project #: 21-1-12596	Samplers: RBP, MRH, CTC

Page: 4 of 4

Date: 11/5/20 Ice Present? Yes

No. of Coolers: 6 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	Gx	Dx	BTEX	HVOCs	PAHs	PCBs (Aroclors)	Metals*		Notes/Comments
					Analysis Requested								
SB-2020-014:11-11052020	11/5/20	1145	soil	8	X	X	X	X	X	X	X		*See Note on Page 1
SB-2020-100:11-11052020	11/5/20	1155	Soil	8	X	X	X	X	X	X	X		
SB-2020-014:18-11052020	11/5/20	1210	Soil	8									Hold
SB-2020-014:23-11052020	11/5/20	1225	Soil	8									Hold
SB-2020-008:2-11052020	11/5/20	1335	Soil	6		X	X	X	X	X	X		
SB-2020-008:5.5-11052020	11/5/20	1340	Soil	6		X	X	X	X	X	X		
SB-2020-008:11.5-11052020	11/5/20	1345	Soil	6		X	X	X	X	X	X		
SB-2020-008:20-11052020	11/5/20	1350	Soil	6									Hold
SB-2020-008:23-11052020	11/5/20	1400	Soil	6									Hold
NO FURTHER													

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: RYAN PETERSON	Printed Name: Jacob Latter	Printed Name:	Printed Name:
	Company: S&W	Company: ARI	Company:	Company:
	Date & Time: 11/5/2020 1515	Date & Time: 11/05/2020 1515	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

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-2020-007:1.2-2.8-11042020	20K0117-01	Solid	04-Nov-2020 09:45	05-Nov-2020 15:15
SB-2020-007:6-7-11042020	20K0117-02	Solid	04-Nov-2020 09:50	05-Nov-2020 15:15
SB-2020-007:10-10.9-11042020	20K0117-03	Solid	04-Nov-2020 10:00	05-Nov-2020 15:15
TB-2-11042020	20K0117-06	Water	05-Nov-2020 14:00	05-Nov-2020 15:15
SB-2020-005:1-11042020	20K0117-07	Solid	04-Nov-2020 12:35	05-Nov-2020 15:15
SB-2020-005:6-11042020	20K0117-08	Solid	04-Nov-2020 12:50	05-Nov-2020 15:15
SB-2020-005:12-11042020	20K0117-09	Solid	04-Nov-2020 13:05	05-Nov-2020 15:15
SB-2020-016:7-11042020	20K0117-12	Solid	04-Nov-2020 14:00	05-Nov-2020 15:15
SB-2020-016:12-11042020	20K0117-13	Solid	04-Nov-2020 14:15	05-Nov-2020 15:15
SB-2020-015:1-11042020	20K0117-16	Solid	04-Nov-2020 15:00	05-Nov-2020 15:15
SB-2020-015:7-11042020	20K0117-17	Solid	04-Nov-2020 15:20	05-Nov-2020 15:15
SB-2020-015:13-11042020	20K0117-18	Solid	04-Nov-2020 15:35	05-Nov-2020 15:15
SB-2020-015:20.5-11042020	20K0117-19	Solid	04-Nov-2020 15:40	05-Nov-2020 15:15
A2-07A:12-11052020	20K0117-21	Solid	05-Nov-2020 09:35	05-Nov-2020 15:15
A2-07A:13.5-11052020	20K0117-22	Solid	05-Nov-2020 09:45	05-Nov-2020 15:15
A2-07A:18-11052020	20K0117-23	Solid	05-Nov-2020 09:50	05-Nov-2020 15:15
A2-07A:25-11052020	20K0117-25	Solid	05-Nov-2020 10:25	05-Nov-2020 15:15
TB-3-11052020	20K0117-26	Water	05-Nov-2020 14:00	05-Nov-2020 15:15
SB-2020-014:1.5-11052020	20K0117-28	Solid	05-Nov-2020 11:25	05-Nov-2020 15:15
SB-2020-014:7-11052020	20K0117-29	Solid	05-Nov-2020 11:35	05-Nov-2020 15:15
SB-2020-014:11-11052020	20K0117-30	Solid	05-Nov-2020 11:45	05-Nov-2020 15:15
SB-2020-100:11-11052020	20K0117-31	Solid	05-Nov-2020 11:55	05-Nov-2020 15:15
SB-2020-008:2-11052020	20K0117-34	Solid	05-Nov-2020 13:35	05-Nov-2020 15:15
SB-2020-008:5.5-11052020	20K0117-35	Solid	05-Nov-2020 13:40	05-Nov-2020 15:15
SB-2020-008:11.5-11052020	20K0117-36	Solid	05-Nov-2020 13:45	05-Nov-2020 15:15
SB-2020-016:2-11042020	20K0117-39	Solid	04-Nov-2020 13:50	05-Nov-2020 15:15

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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	28-Dec-2020 14:07

Work Order Case Narrative

Sample receipt

Samples as listed on the preceding page were received 05-Nov-2020 15:15 under ARI work order 20K0117. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles - EPA Method SW8260D

The samples were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with the exception of the ICV which is outside of control limits low for cis-1,2-Dichloroethene. Associated detected results and QC have been flagged with "Q" qualifiers. No further corrective action was taken.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blanks were clean at the reporting limits.

The LCS and LCSD have low spike recoveries for cis-1,2-Dichloroethene which is likely due to calibration bias. The LCSD also has high percent recovery for Tetrachloroethene. No corrective action was taken.

Gasoline by NWTPH-g (GC/MS)

The samples 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 blanks 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 samples were extracted and analyzed within the recommended holding times.

Several samples were reanalyzed at dilutions due to "E" flagged compound concentrations exceeding the upper calibration limits. No further corrective action was taken.

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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	28-Dec-2020 14:07

Initial and continuing calibrations were within method requirements, with the exception of SIH0304-SCV1 which is outside of control limits low for Dibenzo(a,h)anthracene. No corrective action was taken.

Internal standard areas were within limits, with the exception of the flagged low internal standards. Samples were non-detect for the associated compounds. No corrective action was taken.

The surrogate percent recoveries were within control limits.

Method blank BIK0557-BLK1 has a detected of Pyrene above the reporting limit. Associated detected results with concentrations 10x the contamination have been flagged with "B" qualifiers, samples with less than 10x the contamination were reanalyzed on a new batch. No further corrective action was taken.

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

A matrix spike and matrix spike duplicate were prepared in conjunction with sample SB-2020-016:7-11042020. The matrix spike/matrix spike duplicate percent recoveries and RPD were within QC limits.

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

The samples 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 blanks were clean at the reporting limits.

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

A matrix spike and matrix spike duplicate were prepared in conjunction with sample SB-2020-016:2-11042020. The matrix spike duplicate has low spike recovery. The results are advisory. No corrective action as taken.

PCB Aroclors - EPA Method SW8082A

The samples were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with exception of SIL0088-SCV1/SCV3/SVC5 which are outside of control limits high for the second column surrogate Decachlorobiphenyl. Data was reported from passing columns. No corrective action was taken.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blanks were clean at the reporting limits.

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

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

A matrix spike and matrix spike duplicate were prepared in conjunction with samples SB-2020-015:7-11042020 and SB-2020-014:7-1105020. The matrix spike/matrix spike duplicate percent recoveries and RPD were within QC limits.

Total Metals - EPA Method 6020A

The samples were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank was clean at the reporting limits.

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

A matrix spike, matrix spike duplicate and duplicate were prepared in conjunction with sample SB-2020-007:1.2-2.8-11042020. The matrix spike, matrix spike duplicate and duplicate percent recoveries and/or RPD were within QC limits.

Total Metals UCT-KED - EPA Method 6020A

The samples were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank was clean at the reporting limits.

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

A matrix spike, matrix spike duplicate and duplicate were prepared in conjunction with sample SB-2020-007:1.2-2.8-11042020. The matrix spike, matrix spike duplicate and duplicate percent recoveries and/or RPD were within QC limits.

Total Hg - EPA Method 7471B

The samples 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.

A matrix spike, matrix spike duplicate and duplicate were prepared in conjunction with sample

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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	28-Dec-2020 14:07

SB-2020-007:1.2-2.8-11042020. The matrix spike, matrix spike duplicate and duplicate percent recoveries and/or RPD were within QC limits.

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Cooler Receipt Form

ARI Client: Shannon & Wilson Project Name: Lower Duwamish Waterway

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

Assigned ARI Job No: 20K0117 Tracking No: _____ (NA)

Preliminary Examination Phase:

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

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry): 4.1 2.4 3.2 1.3 2.8 4.4

Time 1515

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D00 (D06)

Cooler Accepted by: JB Date: 11/05/2020 Time: 1515

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) SC	(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) SC	(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	10/23/2020	

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

Samples Logged by: SC Date: 11/6/2020 Time: 1220 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
SB-2020-008:15.5-1105 2020	SB-2020-008:11.5-1105 2020		

Additional Notes, Discrepancies, & Resolutions:

Sample A2-07A:18-1105 2020 had smeared labels on vials. Determined to be this sample by process of elimination. Sample SB-2020-008:11.5-1105 2020 was determined labeled wrong based on sample time + CoC container numbers.

By: SC Date: 11/6/2020

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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	28-Dec-2020 14:07

SB-2020-007:1.2-2.8-11042020

20K0117-01 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/04/2020 09:45

Instrument: NT11 Analyst: VTS — Analyzed: 12/05/2020 13:55

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-01 A 02
	Preparation Batch: BIK0557	Sample Size: 12.4 g (wet)	Dry Weight:10.04 g
	Prepared: 11/18/2020	Final Volume: 0.5 mL	% Solids: 80.99
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-01 A 02
	Cleanup Batch: CIL0056	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-01 A 02
	Cleanup Batch: CIL0055	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	3.40	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	8.76	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	7.37	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.27	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.13	0.50	3.37	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.11	0.50	15.9	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	1.39	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	3.47	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	4.72	ug/kg	B
Benzo(a)anthracene	56-55-3	1	0.07	0.50	2.52	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	4.27	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	1.85	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.61	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.64	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	1.17	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	0.61	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.18	ug/kg	J
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	0.96	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*48.1*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*79.0*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*78.8*	*%*	

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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	28-Dec-2020 14:07

SB-2020-007:1.2-2.8-11042020

20K0117-01 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/04/2020 09:45
Instrument: FID4 Analyst: JGR — Analyzed: 11/22/2020 13:52

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-01 A 03
Preparation Batch: BIK0558 — Sample Size: 10.02 g (wet) — Dry Weight:8.12 g
Prepared: 11/18/2020 — Final Volume: 10 mL — % Solids: 80.99

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	61.6	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	123	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*81.2*	*%*	

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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	28-Dec-2020 14:07

SB-2020-007:1.2-2.8-11042020

20K0117-01 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/04/2020 09:45
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 09:54

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0117-01 A 01
	Preparation Batch: BIK0553	Sample Size: 15.52 g (wet)	Dry Weight:12.57 g
	Prepared: 11/18/2020	Final Volume: 2.5 mL	% Solids: 80.99
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-01 A 01
	Cleanup Batch: CIL0030	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0117-01 A 01
	Cleanup Batch: CIL0028	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-01 A 01
	Cleanup Batch: CIL0029	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	2.4	ug/kg	J
Surrogate: Decachlorobiphenyl				*40-126 %*	*79.2*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*79.5*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*90.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*77.2*	*%*	

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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	28-Dec-2020 14:07

SB-2020-007:1.2-2.8-11042020

20K0117-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/04/2020 09:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 17:35

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-01 B 01
Preparation Batch: BIK0332 — Sample Size: 1.05 g (wet) — Dry Weight:0.85 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 81.08

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.07	0.59	32.6	mg/kg	
Chromium	7440-47-3	20	0.15	0.59	10.2	mg/kg	
Cobalt	7440-48-4	20	0.03	0.23	3.74	mg/kg	
Lead	7439-92-1	20	0.08	0.12	2.98	mg/kg	
Selenium	7782-49-2	20	0.52	2.35	0.52	mg/kg	J
Silver	7440-22-4	20	0.02	0.23	0.05	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.23	27.7	mg/kg	

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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	28-Dec-2020 14:07

SB-2020-007:1.2-2.8-11042020

20K0117-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/04/2020 09:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 17:35

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-01 B 01
Preparation Batch: BIK0332 — Sample Size: 1.05 g (wet) — Dry Weight:0.85 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 81.08

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.23	3.25	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	ND	mg/kg	U
Copper	7440-50-8	20	0.40	0.59	15.4	mg/kg	
Nickel	7440-02-0	20	0.06	0.59	8.12	mg/kg	
Zinc	7440-66-6	20	1.0	4.7	22.3	mg/kg	

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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	28-Dec-2020 14:07

SB-2020-007:1.2-2.8-11042020

20K0117-01 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/04/2020 09:45
Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 13:21

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-01 B
Preparation Batch: BIK0333 — Sample Size: 0.217 g (wet) — Dry Weight:0.18 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 81.08

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00597	0.0284	0.0294	mg/kg	

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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	28-Dec-2020 14:07

SB-2020-007:6-7-11042020

20K0117-02 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/04/2020 09:50
Instrument: NT11 Analyst: VTS — Analyzed: 12/05/2020 14:27

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-02 A 02
	Preparation Batch: BIK0557	Sample Size: 13.88 g (wet)	Dry Weight:10.02 g
	Prepared: 11/18/2020	Final Volume: 0.5 mL	% Solids: 72.22
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-02 A 02
	Cleanup Batch: CIL0056	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-02 A 02
	Cleanup Batch: CIL0055	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	6.34	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	7.21	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	6.94	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	1.86	ug/kg	
Acenaphthene	83-32-9	1	0.09	0.50	3.82	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	5.20	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	5.20	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	21.5	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	3.36	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	9.48	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	17.1	ug/kg	B
Benzo(a)anthracene	56-55-3	1	0.07	0.50	5.48	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	8.40	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	6.79	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	2.67	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	2.81	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	5.38	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	4.55	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	1.03	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	6.34	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*51.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*81.5*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*32.7*	*%*	

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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	28-Dec-2020 14:07

SB-2020-007:6-7-11042020

20K0117-02 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/04/2020 09:50
Instrument: FID4 Analyst: JGR — Analyzed: 11/22/2020 14:12

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-02 A 03
Preparation Batch: BIK0558 — Sample Size: 10.05 g (wet) — Dry Weight:7.26 g
Prepared: 11/18/2020 — Final Volume: 10 mL — % Solids: 72.22

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	68.9	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	138	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*91.6*	*%*	

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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	28-Dec-2020 14:07

SB-2020-007:6-7-11042020

20K0117-02 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/04/2020 09:50
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 10:15

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0117-02 A 01
	Preparation Batch: BIK0553	Sample Size: 17.34 g (wet)	Dry Weight:12.52 g
	Prepared: 11/18/2020	Final Volume: 2.5 mL	% Solids: 72.22
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-02 A 01
	Cleanup Batch: CIL0030	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0117-02 A 01
	Cleanup Batch: CIL0028	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-02 A 01
	Cleanup Batch: CIL0029	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	6.3	ug/kg	
Surrogate: Decachlorobiphenyl				*40-126 %*	*73.6*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*75.1*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*82.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*76.6*	*%*	

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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	28-Dec-2020 14:07

SB-2020-007:6-7-11042020

20K0117-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/04/2020 09:50

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 17:14

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-02 B 01

Preparation Batch: BIK0332 — Sample Size: 1.08 g (wet) — Dry Weight:0.78 g

Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 71.92

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.07	0.64	43.5	mg/kg	
Chromium	7440-47-3	20	0.17	0.64	14.1	mg/kg	
Cobalt	7440-48-4	20	0.04	0.26	6.96	mg/kg	
Lead	7439-92-1	20	0.09	0.13	7.26	mg/kg	
Selenium	7782-49-2	20	0.57	2.57	0.87	mg/kg	J
Silver	7440-22-4	20	0.02	0.26	0.11	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.26	35.6	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-007:6-7-11042020

20K0117-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/04/2020 09:50
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 17:14

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-02 B 01
Preparation Batch: BIK0332 — Sample Size: 1.08 g (wet) — Dry Weight:0.78 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 71.92

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.26	5.93	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.23	mg/kg	
Copper	7440-50-8	20	0.44	0.64	24.9	mg/kg	
Nickel	7440-02-0	20	0.06	0.64	13.8	mg/kg	
Zinc	7440-66-6	20	1.1	5.1	41.8	mg/kg	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-007:6-7-11042020

20K0117-02 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/04/2020 09:50

Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 13:30

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-02 B

Preparation Batch: BIK0333 — Sample Size: 0.248 g (wet) — Dry Weight:0.18 g

Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 71.92

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00589	0.0280	0.0801	mg/kg	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-007:10-10.9-11042020

20K0117-03 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/04/2020 10:00
Instrument: NT11 Analyst: VTS — Analyzed: 12/05/2020 15:00

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-03 A 02
	Preparation Batch: BIK0557	Sample Size: 14.65 g (wet)	Dry Weight:10.09 g
	Prepared: 11/18/2020	Final Volume: 0.5 mL	% Solids: 68.90
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-03 A 02
	Cleanup Batch: CIL0056	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-03 A 02
	Cleanup Batch: CIL0055	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.43	0.59	9.17	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	7.41	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	7.83	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	2.20	ug/kg	
Acenaphthene	83-32-9	1	0.09	0.50	5.15	ug/kg	
Dibenzofuran	132-64-9	1	0.12	0.50	6.07	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	7.11	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	22.3	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	8.47	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	30.7	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	28.4	ug/kg	B
Benzo(a)anthracene	56-55-3	1	0.07	0.50	7.43	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	12.2	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	10.2	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	4.09	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	4.12	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	8.55	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	7.79	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	1.72	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	10.7	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*57.1*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*91.5*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*76.9*	*%*	

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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	28-Dec-2020 14:07

SB-2020-007:10-10.9-11042020

20K0117-03 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/04/2020 10:00
Instrument: FID4 Analyst: JGR — Analyzed: 11/22/2020 14:33

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-03 A 03
Preparation Batch: BIK0558 — Sample Size: 10.02 g (wet) — Dry Weight:6.90 g
Prepared: 11/18/2020 — Final Volume: 10 mL — % Solids: 68.90

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	72.4	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	145	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*89.2*	*%*	

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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	28-Dec-2020 14:07

SB-2020-007:10-10.9-11042020

20K0117-03 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/04/2020 10:00
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 10:35

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0117-03 A 01
	Preparation Batch: BIK0553	Sample Size: 18.17 g (wet)	Dry Weight:12.52 g
	Prepared: 11/18/2020	Final Volume: 2.5 mL	% Solids: 68.90
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-03 A 01
	Cleanup Batch: CIL0030	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0117-03 A 01
	Cleanup Batch: CIL0028	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-03 A 01
	Cleanup Batch: CIL0029	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	1.8	ug/kg	J
Aroclor 1260	11096-82-5	1	0.6	4.0	9.6	ug/kg	
Surrogate: Decachlorobiphenyl				*40-126 %*	*73.0*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*75.1*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*81.9*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*74.2*	*%*	

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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	28-Dec-2020 14:07

SB-2020-007:10-10.9-11042020

20K0117-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/04/2020 10:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 17:18

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-03 B 01
Preparation Batch: BIK0332 — Sample Size: 1.044 g (wet) — Dry Weight:0.70 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 67.42

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.08	0.71	47.1	mg/kg	
Chromium	7440-47-3	20	0.18	0.71	17.6	mg/kg	
Cobalt	7440-48-4	20	0.04	0.28	6.79	mg/kg	
Lead	7439-92-1	20	0.10	0.14	9.56	mg/kg	
Selenium	7782-49-2	20	0.63	2.84	0.78	mg/kg	J
Silver	7440-22-4	20	0.02	0.28	0.13	mg/kg	J
Vanadium	7440-62-2	20	0.06	0.28	41.8	mg/kg	

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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	28-Dec-2020 14:07

SB-2020-007:10-10.9-11042020

20K0117-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/04/2020 10:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 17:18

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-03 B 01
Preparation Batch: BIK0332 — Sample Size: 1.044 g (wet) — Dry Weight:0.70 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 67.42

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.28	7.54	mg/kg	
Cadmium	7440-43-9	20	0.04	0.14	0.23	mg/kg	
Copper	7440-50-8	20	0.48	0.71	28.9	mg/kg	
Nickel	7440-02-0	20	0.07	0.71	14.7	mg/kg	
Zinc	7440-66-6	20	1.2	5.7	64.7	mg/kg	

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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	28-Dec-2020 14:07

SB-2020-007:10-10.9-11042020

20K0117-03 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/04/2020 10:00
Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 13:32

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-03 B
Preparation Batch: BIK0333 — Sample Size: 0.213 g (wet) — Dry Weight:0.14 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 67.42

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00731	0.0348	0.0810	mg/kg	

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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	28-Dec-2020 14:07

TB-2-11042020

20K0117-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/05/2020 14:00

Instrument: NT2 Analyst: LH — Analyzed: 11/11/2020 10:49

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20K0117-06 A

Preparation Batch: BIK0322 — Sample Size: 10 mL

Prepared: 11/11/2020 — 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	0.06	ug/L	J
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*95.3*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*89.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*104*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

TB-2-11042020

20K0117-06 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/05/2020 14:00

Instrument: NT2 Analyst: LH — Analyzed: 11/11/2020 10:49

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20K0117-06 A

Preparation Batch: BIK0322 — Sample Size: 10 mL

Prepared: 11/11/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*95.3*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*89.9*	*%*	

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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	28-Dec-2020 14:07

SB-2020-005:1-11042020

20K0117-07 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/04/2020 12:35

Instrument: NT5 Analyst: PB — Analyzed: 11/09/2020 14:30

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0117-07 D

Preparation Batch: BIK0249 — Sample Size: 5.05 g (wet) — Dry Weight:3.22 g

Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 63.74

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.37	1.55	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.52	1.55	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.37	1.55	ND	ug/kg	U
Benzene	71-43-2	1	0.46	1.55	0.58	ug/kg	J
Trichloroethene	79-01-6	1	0.33	1.55	ND	ug/kg	U
Toluene	108-88-3	1	0.23	1.55	0.30	ug/kg	J
Tetrachloroethene	127-18-4	1	0.40	1.55	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.31	1.55	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.61	3.11	ND	ug/kg	U
o-Xylene	95-47-6	1	0.35	1.55	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.96	3.11	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*85.5*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*91.1*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*101*	*%*	
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: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-005:1-11042020

20K0117-07 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/04/2020 12:35
Instrument: NT11 Analyst: VTS — Analyzed: 12/05/2020 15:32

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-07 A 02
	Preparation Batch: BIK0557	Sample Size: 12.6 g (wet)	Dry Weight:10.05 g
	Prepared: 11/18/2020	Final Volume: 0.5 mL	% Solids: 79.78
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-07 A 02
	Cleanup Batch: CIL0056	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-07 A 02
	Cleanup Batch: CIL0055	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	1.23	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	2.46	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	2.21	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.10	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.13	0.50	1.09	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.11	0.50	12.2	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	0.64	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	2.72	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	4.14	ug/kg	B
Benzo(a)anthracene	56-55-3	1	0.07	0.50	2.03	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	3.39	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	1.67	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.51	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.48	ug/kg	J
Benzo(a)pyrene	50-32-8	1	0.09	0.50	1.02	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	0.64	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.28	ug/kg	J
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	1.31	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*43.9*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*65.5*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*60.0*	*%*	

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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	28-Dec-2020 14:07

SB-2020-005:1-11042020

20K0117-07 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/04/2020 12:35
Instrument: FID4 Analyst: JGR — Analyzed: 11/22/2020 14:53

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-07 A 03
Preparation Batch: BIK0558 — Sample Size: 10.07 g (wet) — Dry Weight:8.03 g
Prepared: 11/18/2020 — Final Volume: 10 mL — % Solids: 79.78

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	62.2	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	124	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*86.0*	*%*	

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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	28-Dec-2020 14:07

SB-2020-005:1-11042020

20K0117-07 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/04/2020 12:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 17:22

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-07 B 01
Preparation Batch: BIK0332 — Sample Size: 1.013 g (wet) — Dry Weight:0.65 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 63.74

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.09	0.77	30.1	mg/kg	
Chromium	7440-47-3	20	0.20	0.77	10.8	mg/kg	
Cobalt	7440-48-4	20	0.04	0.31	4.33	mg/kg	
Lead	7439-92-1	20	0.11	0.15	3.55	mg/kg	
Selenium	7782-49-2	20	0.68	3.10	ND	mg/kg	U
Silver	7440-22-4	20	0.03	0.31	0.04	mg/kg	J
Vanadium	7440-62-2	20	0.06	0.31	31.6	mg/kg	

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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	28-Dec-2020 14:07

SB-2020-005:1-11042020

20K0117-07 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/04/2020 12:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 17:22

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-07 B 01
Preparation Batch: BIK0332 — Sample Size: 1.013 g (wet) — Dry Weight:0.65 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 63.74

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.31	4.36	mg/kg	
Cadmium	7440-43-9	20	0.05	0.15	0.05	mg/kg	J
Copper	7440-50-8	20	0.53	0.77	14.9	mg/kg	
Nickel	7440-02-0	20	0.08	0.77	12.2	mg/kg	
Zinc	7440-66-6	20	1.3	6.2	29.1	mg/kg	

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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	28-Dec-2020 14:07

SB-2020-005:1-11042020

20K0117-07 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/04/2020 12:35
Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 13:34

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-07 B
Preparation Batch: BIK0333 — Sample Size: 0.215 g (wet) — Dry Weight:0.14 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 63.74

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00766	0.0365	0.0290	mg/kg	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	28-Dec-2020 14:07

SB-2020-005:6-11042020

20K0117-08 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/04/2020 12:50

Instrument: NT5 Analyst: PB — Analyzed: 11/09/2020 14:55

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0117-08 D

Preparation Batch: BIK0249 — Sample Size: 4.6 g (wet) — Dry Weight:2.92 g

Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 63.51

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.40	1.71	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.58	1.71	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.41	1.71	ND	ug/kg	U
Benzene	71-43-2	1	0.51	1.71	0.63	ug/kg	J
Trichloroethene	79-01-6	1	0.36	1.71	ND	ug/kg	U
Toluene	108-88-3	1	0.26	1.71	0.33	ug/kg	J
Tetrachloroethene	127-18-4	1	0.44	1.71	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.35	1.71	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.67	3.42	ND	ug/kg	U
o-Xylene	95-47-6	1	0.38	1.71	ND	ug/kg	U
Xylenes, total	1330-20-7	1	1.05	3.42	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*94.0*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*89.1*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*96.4*	*%*	
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: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-005:6-11042020

20K0117-08 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/04/2020 12:50

Instrument: NT11 Analyst: VTS — Analyzed: 12/05/2020 16:04

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-08 A 02
	Preparation Batch: BIK0557	Sample Size: 15.29 g (wet)	Dry Weight:10.01 g
	Prepared: 11/18/2020	Final Volume: 0.5 mL	% Solids: 65.46
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-08 A 02
	Cleanup Batch: CIL0056	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-08 A 02
	Cleanup Batch: CIL0055	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	10.9	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	15.9	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	14.7	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	2.22	ug/kg	
Acenaphthene	83-32-9	1	0.09	0.50	5.81	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	10.6	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	8.80	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	36.1	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	10.1	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	31.9	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	28.6	ug/kg	B
Benzo(a)anthracene	56-55-3	1	0.07	0.50	8.66	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	14.7	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	10.6	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	4.12	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	4.25	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	9.72	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	7.35	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	1.60	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	9.89	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*51.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*81.6*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*68.5*	*%*	

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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	28-Dec-2020 14:07

SB-2020-005:6-11042020

20K0117-08 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/04/2020 12:50
Instrument: FID4 Analyst: JGR — Analyzed: 11/22/2020 15:13

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-08 A 03
Preparation Batch: BIK0558 — Sample Size: 10.05 g (wet) — Dry Weight:6.58 g
Prepared: 11/18/2020 — Final Volume: 10 mL — % Solids: 65.46

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	76.0	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	152	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*88.5*	*%*	

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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	28-Dec-2020 14:07

SB-2020-005:6-11042020

20K0117-08 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/04/2020 12:50

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 17:27

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-08 B 01

Preparation Batch: BIK0332 — Sample Size: 1.017 g (wet) — Dry Weight:0.65 g

Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 63.51

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.09	0.77	56.8	mg/kg	
Chromium	7440-47-3	20	0.20	0.77	19.5	mg/kg	
Cobalt	7440-48-4	20	0.04	0.31	8.43	mg/kg	
Lead	7439-92-1	20	0.11	0.15	11.0	mg/kg	
Selenium	7782-49-2	20	0.68	3.10	1.16	mg/kg	J
Silver	7440-22-4	20	0.03	0.31	0.16	mg/kg	J
Vanadium	7440-62-2	20	0.06	0.31	50.0	mg/kg	

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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	28-Dec-2020 14:07

SB-2020-005:6-11042020

20K0117-08 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/04/2020 12:50

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 17:27

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-08 B 01

Preparation Batch: BIK0332 — Sample Size: 1.017 g (wet) — Dry Weight:0.65 g

Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 63.51

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.31	8.77	mg/kg	
Cadmium	7440-43-9	20	0.05	0.15	0.25	mg/kg	
Copper	7440-50-8	20	0.53	0.77	38.0	mg/kg	
Nickel	7440-02-0	20	0.08	0.77	18.7	mg/kg	
Zinc	7440-66-6	20	1.3	6.2	55.4	mg/kg	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-005:6-11042020

20K0117-08 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/04/2020 12:50

Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 13:41

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-08 B

Preparation Batch: BIK0333 — Sample Size: 0.285 g (wet) — Dry Weight:0.18 g

Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 63.51

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00580	0.0276	0.143	mg/kg	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-005:12-11042020

20K0117-09 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/04/2020 13:05

Instrument: NT5 Analyst: PB — Analyzed: 11/09/2020 15:19

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0117-09 D

Preparation Batch: BIK0249 — Sample Size: 4.92 g (wet) — Dry Weight:3.44 g

Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 69.95

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.34	1.45	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.49	1.45	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.35	1.45	ND	ug/kg	U
Benzene	71-43-2	1	0.43	1.45	0.84	ug/kg	J
Trichloroethene	79-01-6	1	0.31	1.45	ND	ug/kg	U
Toluene	108-88-3	1	0.22	1.45	0.34	ug/kg	J
Tetrachloroethene	127-18-4	1	0.37	1.45	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.29	1.45	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.57	2.91	ND	ug/kg	U
o-Xylene	95-47-6	1	0.33	1.45	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.89	2.91	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*98.8*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*93.2*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*101*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.1*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-005:12-11042020

20K0117-09 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/04/2020 13:05
Instrument: NT11 Analyst: VTS — Analyzed: 12/05/2020 16:36

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-09 A 02
	Preparation Batch: BIK0557	Sample Size: 14.19 g (wet)	Dry Weight:10.06 g
	Prepared: 11/18/2020	Final Volume: 0.5 mL	% Solids: 70.92
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-09 A 02
	Cleanup Batch: CIL0056	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-09 A 02
	Cleanup Batch: CIL0055	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	0.11	0.50	0.61	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	0.50	ug/kg	J
Acenaphthylene	208-96-8	1	0.06	0.50	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.09	0.50	0.15	ug/kg	J
Dibenzofuran	132-64-9	1	0.13	0.50	0.19	ug/kg	J
Fluorene	86-73-7	1	0.07	0.50	0.18	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.50	2.02	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	0.17	ug/kg	J
Fluoranthene	206-44-0	1	0.08	0.50	1.39	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	1.57	ug/kg	B
Benzo(a)anthracene	56-55-3	1	0.07	0.50	0.70	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	1.27	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	0.95	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.37	ug/kg	J
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.34	ug/kg	J
Benzo(a)pyrene	50-32-8	1	0.09	0.50	0.75	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	0.55	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.18	ug/kg	J
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	0.91	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*51.1*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*73.7*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*70.4*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-005:12-11042020

20K0117-09 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/04/2020 13:05
Instrument: FID4 Analyst: JGR — Analyzed: 11/22/2020 15:33

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-09 A 03
Preparation Batch: BIK0558 — Sample Size: 10.06 g (wet) — Dry Weight:7.13 g
Prepared: 11/18/2020 — Final Volume: 10 mL — % Solids: 70.92

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	70.1	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	140	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*79.5*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

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20K0117-09 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/04/2020 13:05

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 17:31

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-09 B 01

Preparation Batch: BIK0332 — Sample Size: 1.04 g (wet) — Dry Weight:0.73 g

Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 69.95

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.08	0.69	82.5	mg/kg	
Chromium	7440-47-3	20	0.18	0.69	18.9	mg/kg	
Cobalt	7440-48-4	20	0.04	0.27	6.40	mg/kg	
Lead	7439-92-1	20	0.09	0.14	6.75	mg/kg	
Selenium	7782-49-2	20	0.60	2.75	1.06	mg/kg	J
Silver	7440-22-4	20	0.02	0.27	0.07	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.27	47.8	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-005:12-11042020

20K0117-09 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/04/2020 13:05
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 17:31

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-09 B 01
Preparation Batch: BIK0332 — Sample Size: 1.04 g (wet) — Dry Weight:0.73 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 69.95

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.27	5.58	mg/kg	
Cadmium	7440-43-9	20	0.04	0.14	ND	mg/kg	U
Copper	7440-50-8	20	0.47	0.69	27.3	mg/kg	
Nickel	7440-02-0	20	0.30	0.69	22.5	mg/kg	
Zinc	7440-66-6	20	1.1	5.5	38.5	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-005:12-11042020

20K0117-09 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/04/2020 13:05
Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 13:43

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-09 B
Preparation Batch: BIK0333 — Sample Size: 0.225 g (wet) — Dry Weight:0.16 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 69.95

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00667	0.0318	0.0427	mg/kg	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-016:7-11042020

20K0117-12 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/04/2020 14:00

Instrument: NT5 Analyst: PB — Analyzed: 11/09/2020 15:43

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0117-12 D

Preparation Batch: BIK0249 — Sample Size: 4.21 g (wet) — Dry Weight:3.87 g

Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 92.02

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.30	1.29	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.43	1.29	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.31	1.29	0.37	ug/kg	J
Benzene	71-43-2	1	0.38	1.29	ND	ug/kg	U
Trichloroethene	79-01-6	1	0.27	1.29	12.2	ug/kg	
Toluene	108-88-3	1	0.19	1.29	0.33	ug/kg	J
Tetrachloroethene	127-18-4	1	0.33	1.29	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.26	1.29	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.51	2.58	ND	ug/kg	U
o-Xylene	95-47-6	1	0.29	1.29	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.80	2.58	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*99.9*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*92.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*103*	*%*	
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	28-Dec-2020 14:07

SB-2020-016:7-11042020

20K0117-12 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/04/2020 14:00

Instrument: NT2 Analyst: PKC — Analyzed: 11/13/2020 12:07

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0117-12 G

Preparation Batch: BIK0407 — Sample Size: 4.142 g (wet) — Dry Weight:3.81 g

Prepared: 11/13/2020 — Final Volume: 5 mL — % Solids: 92.02

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	6990	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*97.7*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*90.1*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-016:7-11042020

20K0117-12 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/04/2020 14:00
Instrument: NT11 Analyst: VTS — Analyzed: 12/05/2020 17:09

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-12 A 02
	Preparation Batch: BIK0557	Sample Size: 10.88 g (wet)	Dry Weight:10.14 g
	Prepared: 11/18/2020	Final Volume: 0.5 mL	% Solids: 93.20
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-12 A 02
	Cleanup Batch: CIL0056	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-12 A 02
	Cleanup Batch: CIL0055	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.43	0.59	0.63	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.10	0.49	1.65	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.49	0.80	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.49	0.09	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.49	0.19	ug/kg	J
Dibenzofuran	132-64-9	1	0.12	0.49	0.61	ug/kg	
Fluorene	86-73-7	1	0.07	0.49	0.36	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.49	3.87	ug/kg	
Anthracene	120-12-7	1	0.07	0.49	0.68	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.49	3.73	ug/kg	
Pyrene	129-00-0	1	0.09	0.49	4.63	ug/kg	B
Benzo(a)anthracene	56-55-3	1	0.07	0.49	1.54	ug/kg	
Chrysene	218-01-9	1	0.07	0.49	2.51	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.49	2.23	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.49	0.88	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.49	0.93	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.49	1.59	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.49	1.71	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.49	0.58	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.49	2.20	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*46.4*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*81.3*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*77.1*	*%*	

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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	28-Dec-2020 14:07

SB-2020-016:7-11042020

20K0117-12 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/04/2020 14:00
Instrument: FID4 Analyst: JGR — Analyzed: 11/22/2020 15:53

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-12 A 03
Preparation Batch: BIK0558 — Sample Size: 10.04 g (wet) — Dry Weight:9.36 g
Prepared: 11/18/2020 — Final Volume: 10 mL — % Solids: 93.20

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	53.4	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	107	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*88.5*	*%*	

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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	28-Dec-2020 14:07

SB-2020-016:7-11042020

20K0117-12 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/04/2020 14:00
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 10:56

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0117-12 A 01
	Preparation Batch: BIK0553	Sample Size: 13.42 g (wet)	Dry Weight:12.51 g
	Prepared: 11/18/2020	Final Volume: 2.5 mL	% Solids: 93.20
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-12 A 01
	Cleanup Batch: CIL0030	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0117-12 A 01
	Cleanup Batch: CIL0028	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-12 A 01
	Cleanup Batch: CIL0029	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	5.9	ug/kg	
Surrogate: Decachlorobiphenyl				*40-126 %*	*84.2*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*83.5*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*97.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*87.3*	*%*	

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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	28-Dec-2020 14:07

SB-2020-016:7-11042020

20K0117-12 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/04/2020 14:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:12

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-12 B 01
Preparation Batch: BIK0332 — Sample Size: 1.047 g (wet) — Dry Weight:0.96 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 92.02

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.52	35.5	mg/kg	
Chromium	7440-47-3	20	0.13	0.52	19.3	mg/kg	
Cobalt	7440-48-4	20	0.03	0.21	3.93	mg/kg	
Lead	7439-92-1	20	0.07	0.10	3.69	mg/kg	
Selenium	7782-49-2	20	0.46	2.08	ND	mg/kg	U
Silver	7440-22-4	20	0.02	0.21	0.05	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.21	28.6	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-016:7-11042020

20K0117-12 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/04/2020 14:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:12

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-12 B 01
Preparation Batch: BIK0332 — Sample Size: 1.047 g (wet) — Dry Weight:0.96 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 92.02

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.21	2.77	mg/kg	
Cadmium	7440-43-9	20	0.03	0.10	0.14	mg/kg	
Copper	7440-50-8	20	0.35	0.52	9.53	mg/kg	
Nickel	7440-02-0	20	0.05	0.52	12.9	mg/kg	
Zinc	7440-66-6	20	0.9	4.2	23.3	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-016:7-11042020

20K0117-12 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/04/2020 14:00

Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 13:45

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-12 B

Preparation Batch: BIK0333 — Sample Size: 0.239 g (wet) — Dry Weight:0.22 g

Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 92.02

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00477	0.0227	0.0125	mg/kg	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	28-Dec-2020 14:07

SB-2020-016:12-11042020

20K0117-13 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/04/2020 14:15

Instrument: NT5 Analyst: PB — Analyzed: 11/09/2020 16:07

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0117-13 D

Preparation Batch: BIK0249 — Sample Size: 4.12 g (wet) — Dry Weight:2.95 g

Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 71.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.40	1.70	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.57	1.70	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.41	1.70	0.61	ug/kg	J
Benzene	71-43-2	1	0.50	1.70	0.78	ug/kg	J
Trichloroethene	79-01-6	1	0.36	1.70	ND	ug/kg	U
Toluene	108-88-3	1	0.26	1.70	0.42	ug/kg	J
Tetrachloroethene	127-18-4	1	0.44	1.70	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.34	1.70	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.66	3.39	ND	ug/kg	U
o-Xylene	95-47-6	1	0.38	1.70	ND	ug/kg	U
Xylenes, total	1330-20-7	1	1.04	3.39	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*93.9*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*91.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*98.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.8*	*%*	

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SB-2020-016:12-11042020

20K0117-13 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/04/2020 14:15

Instrument: NT2 Analyst: PKC — Analyzed: 11/13/2020 12:28

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0117-13 F

Preparation Batch: BIK0407 — Sample Size: 3.976 g (wet) — Dry Weight:2.85 g

Prepared: 11/13/2020 — Final Volume: 5 mL — % Solids: 71.57

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	10800	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*97.1*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*108*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-016:12-11042020

20K0117-13 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/04/2020 14:15
Instrument: NT11 Analyst: VTS — Analyzed: 12/05/2020 18:45

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-13 A 02
	Preparation Batch: BIK0557	Sample Size: 14.15 g (wet)	Dry Weight:10.09 g
	Prepared: 11/18/2020	Final Volume: 0.5 mL	% Solids: 71.30
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-13 A 02
	Cleanup Batch: CIL0056	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-13 A 02
	Cleanup Batch: CIL0055	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.59	0.50	ug/kg	J
1-Methylnaphthalene	90-12-0	1	0.11	0.50	0.80	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	0.73	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.09	0.50	0.22	ug/kg	J
Dibenzofuran	132-64-9	1	0.12	0.50	0.28	ug/kg	J
Fluorene	86-73-7	1	0.07	0.50	0.30	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.50	1.87	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	0.11	ug/kg	J
Fluoranthene	206-44-0	1	0.08	0.50	0.44	ug/kg	J
Pyrene	129-00-0	1	0.09	0.50	0.61	ug/kg	B
Benzo(a)anthracene	56-55-3	1	0.07	0.50	0.20	ug/kg	J
Chrysene	218-01-9	1	0.07	0.50	0.75	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	0.46	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	ND	ug/kg	U
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.10	ug/kg	J
Benzo(a)pyrene	50-32-8	1	0.09	0.50	0.12	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	0.12	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	2.48	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*48.7*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*74.8*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*67.8*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-016:12-11042020

20K0117-13 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/04/2020 14:15
Instrument: FID4 Analyst: JGR — Analyzed: 11/22/2020 16:54

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-13 A 03
Preparation Batch: BIK0558 — Sample Size: 10.03 g (wet) — Dry Weight:7.15 g
Prepared: 11/18/2020 — Final Volume: 10 mL — % Solids: 71.30

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	69.9	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	140	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*91.6*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-016:12-11042020

20K0117-13 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/04/2020 14:15
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 11:17

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0117-13 A 01
	Preparation Batch: BIK0553	Sample Size: 17.57 g (wet)	Dry Weight:12.53 g
	Prepared: 11/18/2020	Final Volume: 2.5 mL	% Solids: 71.30
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-13 A 01
	Cleanup Batch: CIL0030	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0117-13 A 01
	Cleanup Batch: CIL0028	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-13 A 01
	Cleanup Batch: CIL0029	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*79.0*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*76.8*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*90.1*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*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	28-Dec-2020 14:07

SB-2020-016:12-11042020

20K0117-13 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/04/2020 14:15
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:16

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-13 B 01
Preparation Batch: BIK0332 — Sample Size: 1.078 g (wet) — Dry Weight:0.77 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 71.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.07	0.65	78.9	mg/kg	
Chromium	7440-47-3	20	0.17	0.65	19.3	mg/kg	
Cobalt	7440-48-4	20	0.04	0.26	6.66	mg/kg	
Lead	7439-92-1	20	0.09	0.13	4.40	mg/kg	
Selenium	7782-49-2	20	0.57	2.59	0.75	mg/kg	J
Silver	7440-22-4	20	0.02	0.26	0.06	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.26	43.9	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-016:12-11042020

20K0117-13 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/04/2020 14:15
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:16

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-13 B 01
Preparation Batch: BIK0332 — Sample Size: 1.078 g (wet) — Dry Weight:0.77 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 71.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.26	3.95	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	ND	mg/kg	U
Copper	7440-50-8	20	0.44	0.65	25.8	mg/kg	
Nickel	7440-02-0	20	0.29	0.65	28.9	mg/kg	
Zinc	7440-66-6	20	1.1	5.2	31.4	mg/kg	

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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	28-Dec-2020 14:07

SB-2020-016:12-11042020

20K0117-13 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/04/2020 14:15
Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 13:48

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-13 B
Preparation Batch: BIK0333 — Sample Size: 0.28 g (wet) — Dry Weight:0.20 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 71.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00524	0.0250	0.0452	mg/kg	

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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	28-Dec-2020 14:07

SB-2020-015:1-11042020

20K0117-16 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/04/2020 15:00

Instrument: NT5 Analyst: PB — Analyzed: 11/09/2020 16:31

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0117-16 D

Preparation Batch: BIK0249 — Sample Size: 4.01 g (wet) — Dry Weight:3.74 g

Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 93.27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.31	1.34	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.45	1.34	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.32	1.34	ND	ug/kg	U
Benzene	71-43-2	1	0.40	1.34	ND	ug/kg	U
Trichloroethene	79-01-6	1	0.28	1.34	15.7	ug/kg	
Toluene	108-88-3	1	0.20	1.34	ND	ug/kg	U
Tetrachloroethene	127-18-4	1	0.34	1.34	0.56	ug/kg	J
Ethylbenzene	100-41-4	1	0.27	1.34	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.52	2.67	ND	ug/kg	U
o-Xylene	95-47-6	1	0.30	1.34	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.82	2.67	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*103*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*93.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*102*	*%*	
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: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-015:1-11042020

20K0117-16 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/04/2020 15:00

Instrument: NT2 Analyst: PKC — Analyzed: 11/13/2020 12:49

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0117-16 F

Preparation Batch: BIK0407 — Sample Size: 4.314 g (wet) — Dry Weight:4.02 g

Prepared: 11/13/2020 — Final Volume: 5 mL — % Solids: 93.27

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	6570	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*95.7*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*94.4*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-015:1-11042020

20K0117-16 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/04/2020 15:00
Instrument: NT11 Analyst: VTS — Analyzed: 12/05/2020 19:18

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-16 A 02
	Preparation Batch: BIK0557	Sample Size: 11.23 g (wet)	Dry Weight:10.19 g
	Prepared: 11/18/2020	Final Volume: 0.5 mL	% Solids: 90.71
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-16 A 02
	Cleanup Batch: CIL0056	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-16 A 02
	Cleanup Batch: CIL0055	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.43	0.59	35.6	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.10	0.49	52.7	ug/kg	E
2-Methylnaphthalene	91-57-6	1	0.13	0.49	59.9	ug/kg	E
Acenaphthylene	208-96-8	1	0.06	0.49	0.63	ug/kg	
Acenaphthene	83-32-9	1	0.09	0.49	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.12	0.49	17.0	ug/kg	
Fluorene	86-73-7	1	0.07	0.49	0.58	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.49	24.9	ug/kg	
Anthracene	120-12-7	1	0.07	0.49	2.91	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.49	12.6	ug/kg	
Pyrene	129-00-0	1	0.09	0.49	15.5	ug/kg	B
Benzo(a)anthracene	56-55-3	1	0.07	0.49	9.28	ug/kg	
Chrysene	218-01-9	1	0.07	0.49	12.5	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.06	0.49	12.4	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.49	4.26	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.49	3.52	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.49	8.59	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.49	7.67	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.49	2.65	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.49	12.3	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*57.0*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*82.4*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*71.1*	*%*	

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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	28-Dec-2020 14:07

SB-2020-015:1-11042020

20K0117-16 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/04/2020 15:00
Instrument: FID4 Analyst: JGR — Analyzed: 11/22/2020 17:14

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-16 A 03
Preparation Batch: BIK0558 — Sample Size: 10.07 g (wet) — Dry Weight:9.13 g
Prepared: 11/18/2020 — Final Volume: 10 mL — % Solids: 90.71

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	54.7	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	109	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*90.3*	*%*	

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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	28-Dec-2020 14:07

SB-2020-015:1-11042020

20K0117-16 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/04/2020 15:00
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 11:37

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0117-16 A 01
	Preparation Batch: BIK0553	Sample Size: 13.81 g (wet)	Dry Weight:12.53 g
	Prepared: 11/18/2020	Final Volume: 2.5 mL	% Solids: 90.71
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-16 A 01
	Cleanup Batch: CIL0030	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0117-16 A 01
	Cleanup Batch: CIL0028	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-16 A 01
	Cleanup Batch: CIL0029	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	162	ug/kg	
Aroclor 1260	11096-82-5	1	0.6	4.0	121	ug/kg	
Surrogate: Decachlorobiphenyl				*40-126 %*	*80.7*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*73.7*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*88.0*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*76.1*	*%*	

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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	28-Dec-2020 14:07

SB-2020-015:1-11042020

20K0117-16 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/04/2020 15:00
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:20

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-16 B 01
Preparation Batch: BIK0332 — Sample Size: 1 g (wet) — Dry Weight:0.93 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 93.27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.54	58.5	mg/kg	
Chromium	7440-47-3	20	0.14	0.54	26.0	mg/kg	
Cobalt	7440-48-4	20	0.03	0.21	4.38	mg/kg	
Lead	7439-92-1	20	0.07	0.11	4.54	mg/kg	
Selenium	7782-49-2	20	0.47	2.14	0.49	mg/kg	J
Silver	7440-22-4	20	0.02	0.21	0.12	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.21	25.8	mg/kg	

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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	28-Dec-2020 14:07

SB-2020-015:1-11042020

20K0117-16 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/04/2020 15:00

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:20

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-16 B 01

Preparation Batch: BIK0332 — Sample Size: 1 g (wet) — Dry Weight:0.93 g

Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 93.27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.21	3.13	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	0.80	mg/kg	
Copper	7440-50-8	20	0.36	0.54	15.1	mg/kg	
Nickel	7440-02-0	20	0.24	0.54	59.8	mg/kg	
Zinc	7440-66-6	20	0.9	4.3	38.0	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-015:1-11042020

20K0117-16 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/04/2020 15:00

Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 13:50

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-16 B

Preparation Batch: BIK0333 — Sample Size: 0.203 g (wet) — Dry Weight:0.19 g

Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 93.27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00555	0.0264	0.0204	mg/kg	J

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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	28-Dec-2020 14:07

SB-2020-015:1-11042020

20K0117-16RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/04/2020 15:00

Instrument: NT11 Analyst: VTS — Analyzed: 12/09/2020 20:39

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-16RE1 A 02
	Preparation Batch: BIK0557	Sample Size: 11.23 g (wet)	Dry Weight:10.19 g
	Prepared: 11/18/2020	Final Volume: 0.5 mL	% Solids: 90.71
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-16RE1 A 02
	Cleanup Batch: CIL0056	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-16RE1 A 02
	Cleanup Batch: CIL0055	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	2	0.86	1.18	36.4	ug/kg	D
1-Methylnaphthalene	90-12-0	2	0.21	0.98	54.7	ug/kg	D
2-Methylnaphthalene	91-57-6	2	0.25	0.98	64.1	ug/kg	D
Acenaphthylene	208-96-8	2	0.13	0.98	0.76	ug/kg	J, D
Acenaphthene	83-32-9	2	0.17	0.98	ND	ug/kg	U
Dibenzofuran	132-64-9	2	0.25	0.98	16.4	ug/kg	D
Fluorene	86-73-7	2	0.13	0.98	0.55	ug/kg	J, D
Phenanthrene	85-01-8	2	0.22	0.98	26.7	ug/kg	D
Anthracene	120-12-7	2	0.15	0.98	5.26	ug/kg	D
Fluoranthene	206-44-0	2	0.16	0.98	12.8	ug/kg	D
Pyrene	129-00-0	2	0.17	0.98	16.0	ug/kg	D, B
Benzo(a)anthracene	56-55-3	2	0.14	0.98	9.18	ug/kg	D
Chrysene	218-01-9	2	0.14	0.98	11.4	ug/kg	D
Benzo(b)fluoranthene	205-99-2	2	0.13	0.98	12.1	ug/kg	D
Benzo(k)fluoranthene	207-08-9	2	0.20	0.98	4.45	ug/kg	D
Benzo(j)fluoranthene	205-82-3	2	0.19	0.98	3.53	ug/kg	D
Benzo(a)pyrene	50-32-8	2	0.17	0.98	8.52	ug/kg	D
Indeno(1,2,3-cd)pyrene	193-39-5	2	0.17	0.98	6.60	ug/kg	D
Dibenzo(a,h)anthracene	53-70-3	2	0.21	0.98	2.32	ug/kg	D
Benzo(g,h,i)perylene	191-24-2	2	0.17	0.98	10.3	ug/kg	D
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*55.3*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*68.2*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*70.7*	*%*	

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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	28-Dec-2020 14:07

SB-2020-015:7-11042020

20K0117-17 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/04/2020 15:20

Instrument: NT5 Analyst: PB — Analyzed: 11/09/2020 16:55

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0117-17 D

Preparation Batch: BIK0249 — Sample Size: 4.15 g (wet) — Dry Weight:3.96 g

Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 95.47

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.30	1.26	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.42	1.26	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.30	1.26	ND	ug/kg	U
Benzene	71-43-2	1	0.37	1.26	ND	ug/kg	U
Trichloroethene	79-01-6	1	0.27	1.26	4.37	ug/kg	
Toluene	108-88-3	1	0.19	1.26	ND	ug/kg	U
Tetrachloroethene	127-18-4	1	0.32	1.26	0.43	ug/kg	J
Ethylbenzene	100-41-4	1	0.25	1.26	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.49	2.52	ND	ug/kg	U
o-Xylene	95-47-6	1	0.28	1.26	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.78	2.52	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*95.2*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*92.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*102*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*100*	*%*	

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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	28-Dec-2020 14:07

SB-2020-015:7-11042020

20K0117-17 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/04/2020 15:20

Instrument: NT2 Analyst: PKC — Analyzed: 11/13/2020 13:09

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0117-17 F

Preparation Batch: BIK0407 — Sample Size: 4.308 g (wet) — Dry Weight:4.11 g

Prepared: 11/13/2020 — Final Volume: 5 mL — % Solids: 95.47

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	6320	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*96.6*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*91.7*	*%*	

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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	28-Dec-2020 14:07

SB-2020-015:7-11042020

20K0117-17 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/04/2020 15:20
Instrument: NT11 Analyst: VTS — Analyzed: 12/05/2020 19:50

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-17 A 02
	Preparation Batch: BIK0557	Sample Size: 10.8 g (wet)	Dry Weight:10.25 g
	Prepared: 11/18/2020	Final Volume: 0.5 mL	% Solids: 94.88
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-17 A 02
	Cleanup Batch: CIL0056	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-17 A 02
	Cleanup Batch: CIL0055	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.43	0.59	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	0.10	0.49	0.20	ug/kg	J
2-Methylnaphthalene	91-57-6	1	0.12	0.49	0.25	ug/kg	J
Acenaphthylene	208-96-8	1	0.06	0.49	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.09	0.49	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.12	0.49	ND	ug/kg	U
Fluorene	86-73-7	1	0.07	0.49	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.11	0.49	0.51	ug/kg	
Anthracene	120-12-7	1	0.07	0.49	ND	ug/kg	U
Fluoranthene	206-44-0	1	0.08	0.49	0.29	ug/kg	J
Pyrene	129-00-0	1	0.09	0.49	0.41	ug/kg	J, B
Benzo(a)anthracene	56-55-3	1	0.07	0.49	0.21	ug/kg	J
Chrysene	218-01-9	1	0.07	0.49	0.36	ug/kg	J
Benzo(b)fluoranthene	205-99-2	1	0.06	0.49	0.32	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.10	0.49	0.12	ug/kg	J
Benzo(j)fluoranthene	205-82-3	1	0.09	0.49	0.11	ug/kg	J
Benzo(a)pyrene	50-32-8	1	0.08	0.49	0.17	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.49	0.18	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.49	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.49	0.28	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*58.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*78.8*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*73.1*	*%*	

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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	28-Dec-2020 14:07

SB-2020-015:7-11042020

20K0117-17 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/04/2020 15:20
Instrument: FID4 Analyst: JGR — Analyzed: 11/22/2020 17:34

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-17 A 03
Preparation Batch: BIK0558 — Sample Size: 10.03 g (wet) — Dry Weight:9.52 g
Prepared: 11/18/2020 — Final Volume: 10 mL — % Solids: 94.88

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	52.5	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	105	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*89.2*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-015:7-11042020

20K0117-17 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/04/2020 15:20
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 11:58

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0117-17 A 01
	Preparation Batch: BIK0553	Sample Size: 13.27 g (wet)	Dry Weight:12.59 g
	Prepared: 11/18/2020	Final Volume: 2.5 mL	% Solids: 94.88
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-17 A 01
	Cleanup Batch: CIL0030	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0117-17 A 01
	Cleanup Batch: CIL0028	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-17 A 01
	Cleanup Batch: CIL0029	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.5	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.5	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.5	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.5	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.5	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.5	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*77.4*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*73.0*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*89.4*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*76.7*	*%*	

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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	28-Dec-2020 14:07

SB-2020-015:7-11042020

20K0117-17 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/04/2020 15:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:24

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-17 B 01

Preparation Batch: BIK0332 — Sample Size: 1.021 g (wet) — Dry Weight:0.97 g

Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 95.47

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.51	19.5	mg/kg	
Chromium	7440-47-3	20	0.13	0.51	8.89	mg/kg	
Cobalt	7440-48-4	20	0.03	0.21	3.22	mg/kg	
Lead	7439-92-1	20	0.07	0.10	0.99	mg/kg	
Selenium	7782-49-2	20	0.45	2.05	0.51	mg/kg	J
Silver	7440-22-4	20	0.02	0.21	0.02	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.21	28.1	mg/kg	

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SB-2020-015:7-11042020

20K0117-17 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/04/2020 15:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:24

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-17 B 01

Preparation Batch: BIK0332 — Sample Size: 1.021 g (wet) — Dry Weight:0.97 g

Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 95.47

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.21	1.14	mg/kg	
Cadmium	7440-43-9	20	0.03	0.10	0.43	mg/kg	
Copper	7440-50-8	20	0.35	0.51	7.36	mg/kg	
Nickel	7440-02-0	20	0.05	0.51	16.4	mg/kg	
Zinc	7440-66-6	20	0.8	4.1	19.7	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

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20K0117-17 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/04/2020 15:20

Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 13:52

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-17 B

Preparation Batch: BIK0333 — Sample Size: 0.249 g (wet) — Dry Weight:0.24 g

Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 95.47

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00442	0.0210	0.00480	mg/kg	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-015:13-11042020

20K0117-18 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/04/2020 15:35

Instrument: NT5 Analyst: PB — Analyzed: 11/09/2020 17:20

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0117-18 D

Preparation Batch: BIK0249 — Sample Size: 4.81 g (wet) — Dry Weight:3.42 g

Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 71.03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.34	1.46	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.49	1.46	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.35	1.46	1.25	ug/kg	J
Benzene	71-43-2	1	0.43	1.46	1.09	ug/kg	J
Trichloroethene	79-01-6	1	0.31	1.46	ND	ug/kg	U
Toluene	108-88-3	1	0.22	1.46	0.58	ug/kg	J
Tetrachloroethene	127-18-4	1	0.38	1.46	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.30	1.46	1.53	ug/kg	
m,p-Xylene	179601-23-1	1	0.57	2.93	4.39	ug/kg	
o-Xylene	95-47-6	1	0.33	1.46	1.08	ug/kg	J
Xylenes, total	1330-20-7	1	0.90	2.93	5.47	ug/kg	
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*97.5*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*95.1*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*101*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*103*	*%*	

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SB-2020-015:13-11042020

20K0117-18 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/04/2020 15:35

Instrument: NT2 Analyst: PKC — Analyzed: 11/13/2020 13:30

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0117-18 F

Preparation Batch: BIK0407 — Sample Size: 4.919 g (wet) — Dry Weight:3.49 g

Prepared: 11/13/2020 — Final Volume: 5 mL — % Solids: 71.03

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	9190	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*99.8*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*102*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-015:13-11042020

20K0117-18 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/04/2020 15:35
Instrument: NT11 Analyst: VTS — Analyzed: 12/05/2020 20:22

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-18 A 02
	Preparation Batch: BIK0557	Sample Size: 14.11 g (wet)	Dry Weight:10.17 g
	Prepared: 11/18/2020	Final Volume: 0.5 mL	% Solids: 72.10
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-18 A 02
	Cleanup Batch: CIL0056	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-18 A 02
	Cleanup Batch: CIL0055	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.43	0.59	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	0.10	0.49	0.53	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.49	0.57	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.49	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.09	0.49	0.12	ug/kg	J
Dibenzofuran	132-64-9	1	0.12	0.49	0.23	ug/kg	J
Fluorene	86-73-7	1	0.07	0.49	0.30	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.49	1.75	ug/kg	
Anthracene	120-12-7	1	0.07	0.49	0.11	ug/kg	J
Fluoranthene	206-44-0	1	0.08	0.49	0.43	ug/kg	J
Pyrene	129-00-0	1	0.09	0.49	0.76	ug/kg	B
Benzo(a)anthracene	56-55-3	1	0.07	0.49	0.26	ug/kg	J
Chrysene	218-01-9	1	0.07	0.49	0.69	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.06	0.49	0.39	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.10	0.49	ND	ug/kg	U
Benzo(j)fluoranthene	205-82-3	1	0.10	0.49	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	0.09	0.49	0.16	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.49	0.12	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.49	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.49	0.32	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*45.2*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*74.7*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*68.7*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-015:13-11042020

20K0117-18 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/04/2020 15:35
Instrument: FID4 Analyst: JGR — Analyzed: 11/22/2020 17:55

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-18 A 03
Preparation Batch: BIK0558 — Sample Size: 10.07 g (wet) — Dry Weight:7.26 g
Prepared: 11/18/2020 — Final Volume: 10 mL — % Solids: 72.10

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	68.9	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	138	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*80.9*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-015:13-11042020

20K0117-18 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/04/2020 15:35
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 13:41

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0117-18 A 01
	Preparation Batch: BIK0553	Sample Size: 17.35 g (wet)	Dry Weight:12.51 g
	Prepared: 11/18/2020	Final Volume: 2.5 mL	% Solids: 72.10
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-18 A 01
	Cleanup Batch: CIL0030	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0117-18 A 01
	Cleanup Batch: CIL0028	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-18 A 01
	Cleanup Batch: CIL0029	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*76.0*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*76.2*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*87.8*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*77.6*	*%*	

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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	28-Dec-2020 14:07

SB-2020-015:13-11042020

20K0117-18 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/04/2020 15:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:29

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-18 C 01
Preparation Batch: BIK0332 — Sample Size: 1.035 g (wet) — Dry Weight:0.74 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 71.03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.08	0.68	97.6	mg/kg	
Chromium	7440-47-3	20	0.18	0.68	19.7	mg/kg	
Cobalt	7440-48-4	20	0.04	0.27	10.0	mg/kg	
Lead	7439-92-1	20	0.09	0.14	4.78	mg/kg	
Selenium	7782-49-2	20	0.60	2.72	1.13	mg/kg	J
Silver	7440-22-4	20	0.02	0.27	0.10	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.27	56.6	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-015:13-11042020

20K0117-18 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/04/2020 15:35

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:29

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-18 C 01

Preparation Batch: BIK0332 — Sample Size: 1.035 g (wet) — Dry Weight:0.74 g

Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 71.03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.27	6.69	mg/kg	
Cadmium	7440-43-9	20	0.04	0.14	0.04	mg/kg	J
Copper	7440-50-8	20	0.46	0.68	37.1	mg/kg	
Nickel	7440-02-0	20	0.07	0.68	19.1	mg/kg	
Zinc	7440-66-6	20	1.1	5.4	34.5	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-015:13-11042020

20K0117-18 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/04/2020 15:35
Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 13:54

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-18 C
Preparation Batch: BIK0333 — Sample Size: 0.218 g (wet) — Dry Weight:0.15 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 71.03

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00678	0.0323	0.0594	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-015:20.5-11042020

20K0117-19 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/04/2020 15:40
Instrument: FID4 Analyst: JGR — Analyzed: 11/22/2020 18:15

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-19 A 03
Preparation Batch: BIK0558 — Sample Size: 10.03 g (wet) — Dry Weight:8.36 g
Prepared: 11/18/2020 — Final Volume: 10 mL — % Solids: 83.32

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	59.8	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	120	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*87.3*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-015:20.5-11042020

20K0117-19 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/04/2020 15:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:33

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-19 B 01
Preparation Batch: BIK0332 — Sample Size: 1.09 g (wet) — Dry Weight:0.84 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 77.02

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.07	0.60	37.5	mg/kg	
Chromium	7440-47-3	20	0.15	0.60	44.4	mg/kg	
Cobalt	7440-48-4	20	0.03	0.24	4.51	mg/kg	
Lead	7439-92-1	20	0.08	0.12	2.19	mg/kg	
Selenium	7782-49-2	20	0.52	2.38	0.85	mg/kg	J
Silver	7440-22-4	20	0.02	0.24	0.08	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.24	40.6	mg/kg	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-015:20.5-11042020

20K0117-19 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/04/2020 15:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:33

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-19 B 01
Preparation Batch: BIK0332 — Sample Size: 1.09 g (wet) — Dry Weight:0.84 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 77.02

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.24	4.89	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.06	mg/kg	J
Copper	7440-50-8	20	0.40	0.60	39.1	mg/kg	
Nickel	7440-02-0	20	0.06	0.60	140	mg/kg	
Zinc	7440-66-6	20	1.0	4.8	25.2	mg/kg	

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SB-2020-015:20.5-11042020

20K0117-19 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/04/2020 15:40
Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 13:57

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-19 B
Preparation Batch: BIK0333 — Sample Size: 0.211 g (wet) — Dry Weight:0.16 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 77.02

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00646	0.0308	0.0382	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

A2-07A:12-11052020

20K0117-21 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/05/2020 09:35

Instrument: NT2 Analyst: PKC — Analyzed: 11/13/2020 18:20

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0117-21 B

Preparation Batch: BIK0407 — Sample Size: 4.343 g (wet) — Dry Weight:3.31 g

Prepared: 11/13/2020 — Final Volume: 5 mL — % Solids: 76.14

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	500	91300	876000	ug/kg	D
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*98.0*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*99.0*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

A2-07A:12-11052020

20K0117-21 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/05/2020 09:35
Instrument: FID4 Analyst: JGR — Analyzed: 11/30/2020 09:33

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-21 A 01
Preparation Batch: BIK0585 — Sample Size: 10.05 g (wet) — Dry Weight:7.65 g
Prepared: 11/19/2020 — Final Volume: 10 mL — % Solids: 76.14

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	10	653	10700	mg/kg	D
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)	RRO	10	1310	4030	mg/kg	D
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*90.7*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

A2-07A:13.5-11052020

20K0117-22 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/05/2020 09:45

Instrument: NT2 Analyst: PKC — Analyzed: 11/13/2020 14:11

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0117-22 C

Preparation Batch: BIK0407 — Sample Size: 5.955 g (wet) — Dry Weight:4.47 g

Prepared: 11/13/2020 — Final Volume: 5 mL — % Solids: 74.98

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	7270	68300	ug/kg	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*105*	*%*	

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A2-07A:13.5-11052020

20K0117-22 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/05/2020 09:45
Instrument: FID4 Analyst: JGR — Analyzed: 11/21/2020 15:37

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-22 A 01
Preparation Batch: BIK0585 — Sample Size: 10.05 g (wet) — Dry Weight:7.54 g
Prepared: 11/19/2020 — Final Volume: 10 mL — % Solids: 74.98

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	66.4	796	mg/kg	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)	RRO	1	133	335	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*77.5*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

A2-07A:18-11052020

20K0117-23 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/05/2020 09:50

Instrument: NT2 Analyst: PKC — Analyzed: 11/13/2020 14:32

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0117-23 B

Preparation Batch: BIK0407 — Sample Size: 5.792 g (wet) — Dry Weight:4.42 g

Prepared: 11/13/2020 — Final Volume: 5 mL — % Solids: 76.26

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	7220	61700	ug/kg	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*105*	*%*	

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A2-07A:18-11052020

20K0117-23 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/05/2020 09:50
Instrument: FID4 Analyst: JGR — Analyzed: 11/21/2020 15:58

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-23 A 01
Preparation Batch: BIK0585 — Sample Size: 10.05 g (wet) — Dry Weight:7.66 g
Prepared: 11/19/2020 — Final Volume: 10 mL — % Solids: 76.26

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	65.2	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	130	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*83.9*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

A2-07A:25-11052020

20K0117-25 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/05/2020 10:25

Instrument: NT2 Analyst: PKC — Analyzed: 11/13/2020 14:53

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0117-25 B

Preparation Batch: BIK0407 — Sample Size: 5.479 g (wet) — Dry Weight:4.55 g

Prepared: 11/13/2020 — Final Volume: 5 mL — % Solids: 83.12

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	6500	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*99.4*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*100*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

A2-07A:25-11052020

20K0117-25 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/05/2020 10:25
Instrument: FID4 Analyst: JGR — Analyzed: 11/21/2020 16:18

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-25 A 01
Preparation Batch: BIK0585 — Sample Size: 10.05 g (wet) — Dry Weight:8.35 g
Prepared: 11/19/2020 — Final Volume: 10 mL — % Solids: 83.12

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	59.9	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	120	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*83.9*	*%*	

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TB-3-11052020

20K0117-26 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/05/2020 14:00

Instrument: NT2 Analyst: LH — Analyzed: 11/11/2020 11:30

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20K0117-26 A

Preparation Batch: BIK0322 — Sample Size: 10 mL

Prepared: 11/11/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*94.7*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*87.0*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-014:1.5-11052020

20K0117-28 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/05/2020 11:25

Instrument: NT5 Analyst: PB — Analyzed: 11/09/2020 17:44

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0117-28 D

Preparation Batch: BIK0249 — Sample Size: 4.42 g (wet) — Dry Weight:3.47 g

Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 78.61

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.34	1.44	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.48	1.44	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.35	1.44	3.89	ug/kg	Q
Benzene	71-43-2	1	0.43	1.44	ND	ug/kg	U
Trichloroethene	79-01-6	1	0.31	1.44	0.77	ug/kg	J
Toluene	108-88-3	1	0.22	1.44	ND	ug/kg	U
Tetrachloroethene	127-18-4	1	0.37	1.44	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.29	1.44	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.56	2.88	ND	ug/kg	U
o-Xylene	95-47-6	1	0.32	1.44	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.89	2.88	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*97.7*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*91.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*99.7*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*100*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

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20K0117-28 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/05/2020 11:25

Instrument: NT2 Analyst: PKC — Analyzed: 11/13/2020 15:13

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0117-28 F

Preparation Batch: BIK0407 — Sample Size: 4.629 g (wet) — Dry Weight:3.64 g

Prepared: 11/13/2020 — Final Volume: 5 mL — % Solids: 78.61

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	8230	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*97.9*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*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	28-Dec-2020 14:07

SB-2020-014:1.5-11052020

20K0117-28 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/05/2020 11:25
Instrument: FID4 Analyst: JGR — Analyzed: 11/21/2020 16:38

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-28 A 01
Preparation Batch: BIK0585 — Sample Size: 10.05 g (wet) — Dry Weight:7.97 g
Prepared: 11/19/2020 — Final Volume: 10 mL — % Solids: 79.26

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	62.8	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	126	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*77.7*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-014:1.5-11052020

20K0117-28 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/05/2020 11:25
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 22:55

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0117-28 A 02
	Preparation Batch: BIK0588	Sample Size: 15.79 g (wet)	Dry Weight:12.52 g
	Prepared: 11/19/2020	Final Volume: 2.5 mL	% Solids: 79.26
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-28 A 02
	Cleanup Batch: CIL0047	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0117-28 A 02
	Cleanup Batch: CIL0045	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-28 A 02
	Cleanup Batch: CIL0046	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	2.9	ug/kg	J
Surrogate: Decachlorobiphenyl				*40-126 %*	*54.3*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*58.1*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*62.0*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*57.5*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-014:1.5-11052020

20K0117-28 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/05/2020 11:25
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:37

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-28 B 01
Preparation Batch: BIK0332 — Sample Size: 1.016 g (wet) — Dry Weight:0.80 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 78.61

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.07	0.63	38.6	mg/kg	
Chromium	7440-47-3	20	0.16	0.63	13.4	mg/kg	
Cobalt	7440-48-4	20	0.04	0.25	8.89	mg/kg	
Lead	7439-92-1	20	0.09	0.13	5.27	mg/kg	
Selenium	7782-49-2	20	0.55	2.50	0.87	mg/kg	J
Silver	7440-22-4	20	0.02	0.25	0.08	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.25	35.4	mg/kg	

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SB-2020-014:1.5-11052020

20K0117-28 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/05/2020 11:25
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:37

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-28 B 01
Preparation Batch: BIK0332 — Sample Size: 1.016 g (wet) — Dry Weight:0.80 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 78.61

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.25	5.03	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.29	mg/kg	
Copper	7440-50-8	20	0.43	0.63	22.5	mg/kg	
Nickel	7440-02-0	20	0.06	0.63	17.8	mg/kg	
Zinc	7440-66-6	20	1.0	5.0	42.5	mg/kg	

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20K0117-28 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/05/2020 11:25
Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 13:59

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-28 B
Preparation Batch: BIK0333 — Sample Size: 0.209 g (wet) — Dry Weight:0.16 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 78.61

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00639	0.0304	0.0675	mg/kg	

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20K0117-28RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/05/2020 11:25
Instrument: NT11 Analyst: VTS — Analyzed: 12/18/2020 11:42

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-28RE1 A 04
	Preparation Batch: BIL0296	Sample Size: 12.64 g (wet)	Dry Weight:10.02 g
	Prepared: 12/11/2020	Final Volume: 0.5 mL	% Solids: 79.26
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-28RE1 A 04
	Cleanup Batch: CIL0171	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-28RE1 A 04
	Cleanup Batch: CIL0170	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	2.38	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	4.07	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	3.87	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.33	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	0.87	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	2.22	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	0.84	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	10.0	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	2.11	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	7.81	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	7.72	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	3.59	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	6.39	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	5.03	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	2.06	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	1.89	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	3.03	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	3.02	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.93	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	4.83	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*51.3*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*84.0*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*70.5*	*%*	

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SB-2020-014:7-11052020

20K0117-29 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/05/2020 11:35

Instrument: NT5 Analyst: PB — Analyzed: 11/09/2020 18:08

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0117-29 D

Preparation Batch: BIK0249 — Sample Size: 4.78 g (wet) — Dry Weight:4.51 g

Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 94.45

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.26	1.11	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.37	1.11	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.27	1.11	2.70	ug/kg	Q
Benzene	71-43-2	1	0.33	1.11	0.80	ug/kg	J
Trichloroethene	79-01-6	1	0.23	1.11	78.3	ug/kg	
Toluene	108-88-3	1	0.17	1.11	5.27	ug/kg	
Tetrachloroethene	127-18-4	1	0.28	1.11	2.99	ug/kg	
Ethylbenzene	100-41-4	1	0.22	1.11	0.24	ug/kg	J
m,p-Xylene	179601-23-1	1	0.43	2.21	5.89	ug/kg	
o-Xylene	95-47-6	1	0.25	1.11	1.44	ug/kg	
Xylenes, total	1330-20-7	1	0.68	2.21	7.33	ug/kg	
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*101*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*94.3*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*99.7*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*102*	*%*	

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SB-2020-014:7-11052020

20K0117-29 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/05/2020 11:35

Instrument: NT2 Analyst: PKC — Analyzed: 11/13/2020 15:34

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0117-29 F

Preparation Batch: BIK0407 — Sample Size: 4.421 g (wet) — Dry Weight:4.18 g

Prepared: 11/13/2020 — Final Volume: 5 mL — % Solids: 94.45

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	6280	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*97.5*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*97.6*	*%*	

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20K0117-29 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/05/2020 11:35
Instrument: FID4 Analyst: JGR — Analyzed: 11/21/2020 16:58

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-29 A 01
Preparation Batch: BIK0585 — Sample Size: 10.05 g (wet) — Dry Weight:9.31 g
Prepared: 11/19/2020 — Final Volume: 10 mL — % Solids: 92.60

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	53.7	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	107	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*89.1*	*%*	

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20K0117-29 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/05/2020 11:35
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 23:15

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0117-29 A 02
	Preparation Batch: BIK0588	Sample Size: 13.55 g (wet)	Dry Weight:12.55 g
	Prepared: 11/19/2020	Final Volume: 2.5 mL	% Solids: 92.60
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-29 A 02
	Cleanup Batch: CIL0047	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0117-29 A 02
	Cleanup Batch: CIL0045	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-29 A 02
	Cleanup Batch: CIL0046	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	3.5	ug/kg	J
Surrogate: Decachlorobiphenyl				*40-126 %*	*64.9*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*67.2*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*77.8*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*70.3*	*%*	

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20K0117-29 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/05/2020 11:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:42

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-29 B 01
Preparation Batch: BIK0332 — Sample Size: 1.054 g (wet) — Dry Weight:1.00 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 94.45

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.50	31.0	mg/kg	
Chromium	7440-47-3	20	0.13	0.50	10.1	mg/kg	
Cobalt	7440-48-4	20	0.03	0.20	3.54	mg/kg	
Lead	7439-92-1	20	0.07	0.10	2.37	mg/kg	
Selenium	7782-49-2	20	0.44	2.01	0.48	mg/kg	J
Silver	7440-22-4	20	0.02	0.20	0.02	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.20	27.7	mg/kg	

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20K0117-29 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/05/2020 11:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:42

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-29 B 01
Preparation Batch: BIK0332 — Sample Size: 1.054 g (wet) — Dry Weight:1.00 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 94.45

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.20	2.47	mg/kg	
Cadmium	7440-43-9	20	0.03	0.10	ND	mg/kg	U
Copper	7440-50-8	20	0.34	0.50	26.1	mg/kg	
Nickel	7440-02-0	20	0.05	0.50	30.9	mg/kg	
Zinc	7440-66-6	20	0.8	4.0	52.7	mg/kg	

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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	28-Dec-2020 14:07

SB-2020-014:7-11052020

20K0117-29 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/05/2020 11:35

Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 14:01

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-29 B

Preparation Batch: BIK0333 — Sample Size: 0.238 g (wet) — Dry Weight:0.22 g

Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 94.45

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00467	0.0222	0.00914	mg/kg	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	28-Dec-2020 14:07

SB-2020-014:7-11052020

20K0117-29RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/05/2020 11:35
Instrument: NT11 Analyst: VTS — Analyzed: 12/18/2020 12:15

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-29RE1 A 04
	Preparation Batch: BIL0296	Sample Size: 10.84 g (wet)	Dry Weight:10.04 g
	Prepared: 12/11/2020	Final Volume: 0.5 mL	% Solids: 92.60
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-29RE1 A 04
	Cleanup Batch: CIL0171	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-29RE1 A 04
	Cleanup Batch: CIL0170	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	1.00	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	0.24	ug/kg	J
2-Methylnaphthalene	91-57-6	1	0.13	0.50	0.42	ug/kg	J
Acenaphthylene	208-96-8	1	0.06	0.50	0.08	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.13	0.50	0.20	ug/kg	J
Fluorene	86-73-7	1	0.07	0.50	0.08	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.50	1.45	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	ND	ug/kg	U
Fluoranthene	206-44-0	1	0.08	0.50	2.01	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	1.34	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	0.45	ug/kg	J
Chrysene	218-01-9	1	0.07	0.50	1.59	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	1.69	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.53	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.53	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	0.52	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	1.37	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.18	ug/kg	J
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	1.99	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*52.0*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*80.0*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*73.1*	*%*	

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SB-2020-014:11-11052020

20K0117-30 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/05/2020 11:45

Instrument: NT5 Analyst: PB — Analyzed: 11/09/2020 18:32

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0117-30 D

Preparation Batch: BIK0249 — Sample Size: 5.2 g (wet) — Dry Weight:3.78 g

Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 72.61

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.31	1.32	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.44	1.32	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.32	1.32	4.99	ug/kg	Q
Benzene	71-43-2	1	0.39	1.32	1.66	ug/kg	
Trichloroethene	79-01-6	1	0.28	1.32	12.8	ug/kg	
Toluene	108-88-3	1	0.20	1.32	3.30	ug/kg	
Tetrachloroethene	127-18-4	1	0.34	1.32	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.27	1.32	3.86	ug/kg	
m,p-Xylene	179601-23-1	1	0.52	2.65	20.3	ug/kg	
o-Xylene	95-47-6	1	0.30	1.32	1.65	ug/kg	
Xylenes, total	1330-20-7	1	0.82	2.65	21.9	ug/kg	
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*92.7*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*103*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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SB-2020-014:11-11052020

20K0117-30 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/05/2020 11:45

Instrument: NT2 Analyst: PKC — Analyzed: 11/13/2020 15:55

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0117-30 F

Preparation Batch: BIK0407 — Sample Size: 5.284 g (wet) — Dry Weight:3.84 g

Prepared: 11/13/2020 — Final Volume: 5 mL — % Solids: 72.61

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	8400	118000	ug/kg	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*102*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*106*	*%*	

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20K0117-30 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/05/2020 11:45
Instrument: FID4 Analyst: JGR — Analyzed: 11/21/2020 17:18

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-30 A 01
Preparation Batch: BIK0585 — Sample Size: 10.05 g (wet) — Dry Weight:6.73 g
Prepared: 11/19/2020 — Final Volume: 10 mL — % Solids: 66.97

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	74.3	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	149	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*82.0*	*%*	

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20K0117-30 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/05/2020 11:45
Instrument: ECD7 Analyst: JGR — Analyzed: 12/05/2020 00:17

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0117-30 A 02
	Preparation Batch: BIK0588	Sample Size: 18.67 g (wet)	Dry Weight:12.50 g
	Prepared: 11/19/2020	Final Volume: 2.5 mL	% Solids: 66.97
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-30 A 02
	Cleanup Batch: CIL0047	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0117-30 A 02
	Cleanup Batch: CIL0045	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-30 A 02
	Cleanup Batch: CIL0046	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	17.5	ug/kg	
Aroclor 1260	11096-82-5	1	0.6	4.0	9.7	ug/kg	
Surrogate: Decachlorobiphenyl				*40-126 %*	*54.8*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*76.3*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*62.5*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*61.7*	*%*	

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SB-2020-014:11-11052020

20K0117-30 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/05/2020 11:45

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:46

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-30 B 01

Preparation Batch: BIK0332 — Sample Size: 1.01 g (wet) — Dry Weight:0.73 g

Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 72.61

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.08	0.68	39.0	mg/kg	
Chromium	7440-47-3	20	0.18	0.68	11.6	mg/kg	
Cobalt	7440-48-4	20	0.04	0.27	3.90	mg/kg	
Lead	7439-92-1	20	0.09	0.14	1.99	mg/kg	
Selenium	7782-49-2	20	0.60	2.73	ND	mg/kg	U
Silver	7440-22-4	20	0.02	0.27	0.04	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.27	37.3	mg/kg	

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20K0117-30 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/05/2020 11:45

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:46

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-30 B 01

Preparation Batch: BIK0332 — Sample Size: 1.01 g (wet) — Dry Weight:0.73 g

Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 72.61

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.27	2.77	mg/kg	
Cadmium	7440-43-9	20	0.04	0.14	ND	mg/kg	U
Copper	7440-50-8	20	0.46	0.68	18.7	mg/kg	
Nickel	7440-02-0	20	0.07	0.68	9.44	mg/kg	
Zinc	7440-66-6	20	1.1	5.5	23.0	mg/kg	

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20K0117-30 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/05/2020 11:45
Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 14:08

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-30 B
Preparation Batch: BIK0333 — Sample Size: 0.268 g (wet) — Dry Weight:0.19 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 72.61

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00540	0.0257	0.0289	mg/kg	

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20K0117-30RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/05/2020 11:45

Instrument: NT11 Analyst: VTS — Analyzed: 12/18/2020 12:47

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-30RE1 A 04
	Preparation Batch: BIL0296	Sample Size: 14.99 g (wet)	Dry Weight:10.04 g
	Prepared: 12/11/2020	Final Volume: 0.5 mL	% Solids: 66.97
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-30RE1 A 04
	Cleanup Batch: CIL0171	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-30RE1 A 04
	Cleanup Batch: CIL0170	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	78.5	ug/kg	E
1-Methylnaphthalene	90-12-0	1	0.11	0.50	9.41	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	13.3	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.19	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	1.12	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	2.26	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	5.49	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	25.4	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	0.26	ug/kg	J
Fluoranthene	206-44-0	1	0.08	0.50	1.76	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	1.68	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	2.12	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	13.2	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	1.30	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.46	ug/kg	J
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.25	ug/kg	J
Benzo(a)pyrene	50-32-8	1	0.09	0.50	0.23	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	0.46	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.29	ug/kg	J
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	0.82	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*62.9*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*99.0*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*64.1*	*%*	

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SB-2020-014:11-11052020

20K0117-30RE2 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/05/2020 11:45

Instrument: NT11 Analyst: VTS — Analyzed: 12/19/2020 13:50

Sample Preparation: Preparation Method: EPA 3546 (Microwave) Low Level — Extract ID: 20K0117-30RE2 A 04

Preparation Batch: BIL0296 — Sample Size: 14.99 g (wet) — Dry Weight:10.04 g

Prepared: 12/11/2020 — Final Volume: 0.5 mL — % Solids: 66.97

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	3	1.31	1.79	92.0	ug/kg	D
1-Methylnaphthalene	90-12-0	3	0.32	1.49	8.88	ug/kg	D
2-Methylnaphthalene	91-57-6	3	0.38	1.49	13.5	ug/kg	D
Acenaphthylene	208-96-8	3	0.19	1.49	ND	ug/kg	U
Acenaphthene	83-32-9	3	0.27	1.49	0.85	ug/kg	J, D
Dibenzofuran	132-64-9	3	0.38	1.49	1.90	ug/kg	D
Fluorene	86-73-7	3	0.20	1.49	5.00	ug/kg	D
Phenanthrene	85-01-8	3	0.34	1.49	26.0	ug/kg	D
Anthracene	120-12-7	3	0.22	1.49	0.76	ug/kg	J, D
Fluoranthene	206-44-0	3	0.24	1.49	3.40	ug/kg	D
Pyrene	129-00-0	3	0.27	1.49	4.20	ug/kg	D
Benzo(a)anthracene	56-55-3	3	0.22	1.49	2.03	ug/kg	D
Chrysene	218-01-9	3	0.21	1.49	14.0	ug/kg	D
Benzo(b)fluoranthene	205-99-2	3	0.20	1.49	2.37	ug/kg	D
Benzo(k)fluoranthene	207-08-9	3	0.30	1.49	ND	ug/kg	U
Benzo(j)fluoranthene	205-82-3	3	0.29	1.49	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	3	0.26	1.49	0.39	ug/kg	J, D
Indeno(1,2,3-cd)pyrene	193-39-5	3	0.26	1.49	0.75	ug/kg	J, D
Dibenzo(a,h)anthracene	53-70-3	3	0.31	1.49	0.67	ug/kg	J, D
Benzo(g,h,i)perylene	191-24-2	3	0.25	1.49	1.10	ug/kg	J, D
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*63.0*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*101*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*82.1*	*%*	

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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	28-Dec-2020 14:07

SB-2020-100:11-11052020

20K0117-31 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/05/2020 11:55

Instrument: NT5 Analyst: PB — Analyzed: 11/10/2020 20:30

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0117-31 D

Preparation Batch: BIK0314 — Sample Size: 6.76 g (wet) — Dry Weight:5.26 g

Prepared: 11/10/2020 — Final Volume: 5 mL — % Solids: 77.81

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.22	0.95	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.32	0.95	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.23	0.95	4.49	ug/kg	
Benzene	71-43-2	1	0.28	0.95	1.07	ug/kg	
Trichloroethene	79-01-6	1	0.20	0.95	7.76	ug/kg	
Toluene	108-88-3	1	0.14	0.95	1.94	ug/kg	
Tetrachloroethene	127-18-4	1	0.24	0.95	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.19	0.95	1.40	ug/kg	
m,p-Xylene	179601-23-1	1	0.37	1.90	8.92	ug/kg	
o-Xylene	95-47-6	1	0.21	0.95	0.67	ug/kg	J
Xylenes, total	1330-20-7	1	0.59	1.90	9.58	ug/kg	
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*107*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*108*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*108*	*%*	
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	28-Dec-2020 14:07

SB-2020-100:11-11052020

20K0117-31 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/05/2020 11:55

Instrument: NT2 Analyst: PKC — Analyzed: 11/16/2020 11:39

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0117-31 G

Preparation Batch: BIK0430 — Sample Size: 5.739 g (wet) — Dry Weight:4.47 g

Prepared: 11/14/2020 — Final Volume: 5 mL — % Solids: 77.81

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	500	70200	713000	ug/kg	D
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*99.8*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*102*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-100:11-11052020

20K0117-31 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/05/2020 11:55
Instrument: FID4 Analyst: JGR — Analyzed: 11/21/2020 17:39

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-31 A 01
Preparation Batch: BIK0585 — Sample Size: 10.05 g (wet) — Dry Weight:7.60 g
Prepared: 11/19/2020 — Final Volume: 10 mL — % Solids: 75.63

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	65.8	190	mg/kg	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	132	600	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*84.1*	*%*	

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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	28-Dec-2020 14:07

SB-2020-100:11-11052020

20K0117-31 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/05/2020 11:55
Instrument: ECD7 Analyst: JGR — Analyzed: 12/05/2020 00:38

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0117-31 A 02
	Preparation Batch: BIK0588	Sample Size: 16.61 g (wet)	Dry Weight:12.56 g
	Prepared: 11/19/2020	Final Volume: 2.5 mL	% Solids: 75.63
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-31 A 02
	Cleanup Batch: CIL0047	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0117-31 A 02
	Cleanup Batch: CIL0045	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-31 A 02
	Cleanup Batch: CIL0046	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	44.5	ug/kg	
Aroclor 1260	11096-82-5	1	0.6	4.0	24.3	ug/kg	
Surrogate: Decachlorobiphenyl				*40-126 %*	*54.5*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*79.0*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*62.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*62.8*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-100:11-11052020

20K0117-31 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/05/2020 11:55
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:51

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-31 B 01
Preparation Batch: BIK0332 — Sample Size: 1.016 g (wet) — Dry Weight:0.79 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 77.81

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.07	0.63	32.7	mg/kg	
Chromium	7440-47-3	20	0.16	0.63	10.6	mg/kg	
Cobalt	7440-48-4	20	0.04	0.25	3.57	mg/kg	
Lead	7439-92-1	20	0.09	0.13	1.69	mg/kg	
Selenium	7782-49-2	20	0.56	2.53	ND	mg/kg	U
Silver	7440-22-4	20	0.02	0.25	0.03	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.25	37.6	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

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20K0117-31 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/05/2020 11:55
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 18:51

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-31 B 01
Preparation Batch: BIK0332 — Sample Size: 1.016 g (wet) — Dry Weight:0.79 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 77.81

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.25	2.59	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	ND	mg/kg	U
Copper	7440-50-8	20	0.43	0.63	13.8	mg/kg	
Nickel	7440-02-0	20	0.06	0.63	10.8	mg/kg	
Zinc	7440-66-6	20	1.0	5.1	20.1	mg/kg	

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20K0117-31 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/05/2020 11:55
Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 14:10

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-31 B
Preparation Batch: BIK0333 — Sample Size: 0.23 g (wet) — Dry Weight:0.18 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 77.81

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00587	0.0279	0.0222	mg/kg	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

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20K0117-31RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/05/2020 11:55
Instrument: NT11 Analyst: VTS — Analyzed: 12/18/2020 13:20

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-31RE1 A 04
	Preparation Batch: BIL0296	Sample Size: 13.27 g (wet)	Dry Weight:10.04 g
	Prepared: 12/11/2020	Final Volume: 0.5 mL	% Solids: 75.63
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-31RE1 A 04
	Cleanup Batch: CIL0171	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-31RE1 A 04
	Cleanup Batch: CIL0170	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	74.8	ug/kg	E
1-Methylnaphthalene	90-12-0	1	0.11	0.50	8.57	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	13.8	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.24	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	1.29	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	2.68	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	6.22	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	36.8	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	0.80	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	2.64	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	1.96	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	2.99	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	18.8	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	1.88	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.49	ug/kg	J
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.32	ug/kg	J
Benzo(a)pyrene	50-32-8	1	0.09	0.50	0.36	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	0.54	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.36	ug/kg	J
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	0.83	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*54.3*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*97.0*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*58.3*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

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20K0117-31RE2 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/05/2020 11:55

Instrument: NT11 Analyst: VTS — Analyzed: 12/19/2020 14:23

Sample Preparation: Preparation Method: EPA 3546 (Microwave) Low Level — Extract ID: 20K0117-31RE2 A 04

Preparation Batch: BIL0296 — Sample Size: 13.27 g (wet) — Dry Weight:10.04 g

Prepared: 12/11/2020 — Final Volume: 0.5 mL — % Solids: 75.63

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	3	1.31	1.79	94.7	ug/kg	D
1-Methylnaphthalene	90-12-0	3	0.32	1.49	9.31	ug/kg	D
2-Methylnaphthalene	91-57-6	3	0.38	1.49	15.0	ug/kg	D
Acenaphthylene	208-96-8	3	0.19	1.49	0.73	ug/kg	J, D
Acenaphthene	83-32-9	3	0.27	1.49	1.74	ug/kg	D
Dibenzofuran	132-64-9	3	0.38	1.49	2.30	ug/kg	D
Fluorene	86-73-7	3	0.20	1.49	5.75	ug/kg	D
Phenanthrene	85-01-8	3	0.34	1.49	41.7	ug/kg	D
Anthracene	120-12-7	3	0.22	1.49	1.44	ug/kg	J, D
Fluoranthene	206-44-0	3	0.24	1.49	5.47	ug/kg	D
Pyrene	129-00-0	3	0.27	1.49	5.37	ug/kg	D
Benzo(a)anthracene	56-55-3	3	0.22	1.49	3.01	ug/kg	D
Chrysene	218-01-9	3	0.21	1.49	19.9	ug/kg	D
Benzo(b)fluoranthene	205-99-2	3	0.20	1.49	2.27	ug/kg	D
Benzo(k)fluoranthene	207-08-9	3	0.30	1.49	0.64	ug/kg	J, D
Benzo(j)fluoranthene	205-82-3	3	0.29	1.49	0.45	ug/kg	J, D
Benzo(a)pyrene	50-32-8	3	0.26	1.49	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	3	0.26	1.49	0.76	ug/kg	J, D
Dibenzo(a,h)anthracene	53-70-3	3	0.31	1.49	0.56	ug/kg	J, D
Benzo(g,h,i)perylene	191-24-2	3	0.25	1.49	1.10	ug/kg	J, D
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*60.2*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*97.9*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*85.6*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

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20K0117-34 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/05/2020 13:35

Instrument: NT5 Analyst: PB — Analyzed: 11/09/2020 19:20

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0117-34 D

Preparation Batch: BIK0249 — Sample Size: 5.41 g (wet) — Dry Weight:4.83 g

Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 89.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.24	1.03	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.35	1.03	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.25	1.03	ND	ug/kg	U
Benzene	71-43-2	1	0.31	1.03	1.03	ug/kg	J
Trichloroethene	79-01-6	1	0.22	1.03	ND	ug/kg	U
Toluene	108-88-3	1	0.16	1.03	0.30	ug/kg	J
Tetrachloroethene	127-18-4	1	0.27	1.03	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.21	1.03	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.41	2.07	ND	ug/kg	U
o-Xylene	95-47-6	1	0.23	1.03	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.64	2.07	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*94.9*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*93.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*100*	*%*	
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	28-Dec-2020 14:07

SB-2020-008:2-11052020

20K0117-34 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/05/2020 13:35
Instrument: FID4 Analyst: JGR — Analyzed: 11/21/2020 17:59

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-34 A 01
Preparation Batch: BIK0585 — Sample Size: 10.05 g (wet) — Dry Weight:8.84 g
Prepared: 11/19/2020 — Final Volume: 10 mL — % Solids: 88.00

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	56.5	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	113	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*81.1*	*%*	

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20K0117-34 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/05/2020 13:35
Instrument: ECD7 Analyst: JGR — Analyzed: 12/05/2020 00:58

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0117-34 A 02
	Preparation Batch: BIK0588	Sample Size: 14.24 g (wet)	Dry Weight:12.53 g
	Prepared: 11/19/2020	Final Volume: 2.5 mL	% Solids: 88.00
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-34 A 02
	Cleanup Batch: CIL0047	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0117-34 A 02
	Cleanup Batch: CIL0045	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-34 A 02
	Cleanup Batch: CIL0046	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*64.7*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*67.5*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*75.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*69.7*	*%*	

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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	28-Dec-2020 14:07

SB-2020-008:2-11052020

20K0117-34 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/05/2020 13:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 19:10

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-34 B 01
Preparation Batch: BIK0332 — Sample Size: 1.037 g (wet) — Dry Weight:0.93 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 89.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.54	29.2	mg/kg	
Chromium	7440-47-3	20	0.14	0.54	10.0	mg/kg	
Cobalt	7440-48-4	20	0.03	0.22	4.32	mg/kg	
Lead	7439-92-1	20	0.07	0.11	2.34	mg/kg	
Selenium	7782-49-2	20	0.47	2.16	0.52	mg/kg	J
Silver	7440-22-4	20	0.02	0.22	0.04	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.22	31.7	mg/kg	

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-008:2-11052020

20K0117-34 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/05/2020 13:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 19:10

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-34 B 01
Preparation Batch: BIK0332 — Sample Size: 1.037 g (wet) — Dry Weight:0.93 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 89.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.22	2.44	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	0.04	mg/kg	J
Copper	7440-50-8	20	0.37	0.54	10.4	mg/kg	
Nickel	7440-02-0	20	0.05	0.54	8.59	mg/kg	
Zinc	7440-66-6	20	0.9	4.3	23.7	mg/kg	

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SB-2020-008:2-11052020

20K0117-34 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/05/2020 13:35
Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 14:12

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-34 B
Preparation Batch: BIK0333 — Sample Size: 0.233 g (wet) — Dry Weight:0.21 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 89.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00504	0.0240	0.0592	mg/kg	

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SB-2020-008:2-11052020

20K0117-34RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/05/2020 13:35
Instrument: NT11 Analyst: VTS — Analyzed: 12/18/2020 13:52

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-34RE1 A 04
	Preparation Batch: BIL0296	Sample Size: 11.41 g (wet)	Dry Weight:10.04 g
	Prepared: 12/11/2020	Final Volume: 0.5 mL	% Solids: 88.00
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-34RE1 A 04
	Cleanup Batch: CIL0171	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-34RE1 A 04
	Cleanup Batch: CIL0170	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	1.77	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	2.22	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	2.18	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.13	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	0.28	ug/kg	J
Dibenzofuran	132-64-9	1	0.13	0.50	0.91	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	0.16	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.50	4.05	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	0.40	ug/kg	J
Fluoranthene	206-44-0	1	0.08	0.50	2.54	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	2.46	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	1.13	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	2.16	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	2.06	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.66	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.57	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	1.15	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	1.20	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.35	ug/kg	J
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	1.71	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*54.1*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*83.5*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*73.4*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-008:5.5-11052020

20K0117-35 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/05/2020 13:40

Instrument: NT5 Analyst: PB — Analyzed: 11/09/2020 19:44

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0117-35 D

Preparation Batch: BIK0249 — Sample Size: 5.61 g (wet) — Dry Weight:4.72 g

Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 84.16

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.25	1.06	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.36	1.06	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.25	1.06	ND	ug/kg	U
Benzene	71-43-2	1	0.31	1.06	0.69	ug/kg	J
Trichloroethene	79-01-6	1	0.22	1.06	ND	ug/kg	U
Toluene	108-88-3	1	0.16	1.06	0.44	ug/kg	J
Tetrachloroethene	127-18-4	1	0.27	1.06	0.28	ug/kg	J
Ethylbenzene	100-41-4	1	0.21	1.06	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.42	2.12	ND	ug/kg	U
o-Xylene	95-47-6	1	0.24	1.06	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.65	2.12	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*89.9*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*91.2*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*101*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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20K0117-35 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/05/2020 13:40
Instrument: FID4 Analyst: JGR — Analyzed: 11/22/2020 12:11

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-35 A 01
Preparation Batch: BIK0585 — Sample Size: 10.05 g (wet) — Dry Weight:8.25 g
Prepared: 11/19/2020 — Final Volume: 10 mL — % Solids: 82.12

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	60.6	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	121	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*81.8*	*%*	

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SB-2020-008:5.5-11052020

20K0117-35 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/05/2020 13:40
Instrument: ECD7 Analyst: JGR — Analyzed: 12/05/2020 01:19

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0117-35 A 02
	Preparation Batch: BIK0588	Sample Size: 15.25 g (wet)	Dry Weight:12.52 g
	Prepared: 11/19/2020	Final Volume: 2.5 mL	% Solids: 82.12
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-35 A 02
	Cleanup Batch: CIL0047	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0117-35 A 02
	Cleanup Batch: CIL0045	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-35 A 02
	Cleanup Batch: CIL0046	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	2.2	ug/kg	J
Surrogate: Decachlorobiphenyl				*40-126 %*	*60.0*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*61.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*69.1*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*64.2*	*%*	

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SB-2020-008:5.5-11052020

20K0117-35 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/05/2020 13:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 19:14

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-35 B 01
Preparation Batch: BIK0332 — Sample Size: 1.062 g (wet) — Dry Weight:0.89 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 84.16

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.56	38.2	mg/kg	
Chromium	7440-47-3	20	0.15	0.56	10.9	mg/kg	
Cobalt	7440-48-4	20	0.03	0.22	4.43	mg/kg	
Lead	7439-92-1	20	0.08	0.11	4.08	mg/kg	
Selenium	7782-49-2	20	0.49	2.24	0.64	mg/kg	J
Silver	7440-22-4	20	0.02	0.22	0.04	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.22	31.6	mg/kg	

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SB-2020-008:5.5-11052020

20K0117-35 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/05/2020 13:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 19:14

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-35 B 01
Preparation Batch: BIK0332 — Sample Size: 1.062 g (wet) — Dry Weight:0.89 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 84.16

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.22	10.9	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	0.06	mg/kg	J
Copper	7440-50-8	20	0.38	0.56	21.1	mg/kg	
Nickel	7440-02-0	20	0.06	0.56	9.25	mg/kg	
Zinc	7440-66-6	20	0.9	4.5	33.3	mg/kg	

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SB-2020-008:5.5-11052020

20K0117-35 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/05/2020 13:40
Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 14:14

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-35 B
Preparation Batch: BIK0333 — Sample Size: 0.234 g (wet) — Dry Weight:0.20 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 84.16

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00533	0.0254	0.0317	mg/kg	

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20K0117-35RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/05/2020 13:40
Instrument: NT11 Analyst: VTS — Analyzed: 12/18/2020 14:24

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-35RE1 A 04
	Preparation Batch: BIL0296	Sample Size: 12.26 g (wet)	Dry Weight:10.07 g
	Prepared: 12/11/2020	Final Volume: 0.5 mL	% Solids: 82.12
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-35RE1 A 04
	Cleanup Batch: CIL0171	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-35RE1 A 04
	Cleanup Batch: CIL0170	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	1.69	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	2.30	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	2.02	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.22	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	0.39	ug/kg	J
Dibenzofuran	132-64-9	1	0.13	0.50	1.37	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	0.24	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.50	7.26	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	1.17	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	5.76	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	6.00	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	2.73	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	5.14	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	4.59	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	1.50	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	1.43	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	2.91	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	2.90	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.89	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	3.78	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*46.7*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*80.4*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*73.1*	*%*	

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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	28-Dec-2020 14:07

SB-2020-008:11.5-11052020

20K0117-36 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/05/2020 13:45

Instrument: NT5 Analyst: PB — Analyzed: 11/09/2020 20:09

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0117-36 D

Preparation Batch: BIK0249 — Sample Size: 4.71 g (wet) — Dry Weight:3.83 g

Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 81.35

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.31	1.30	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.44	1.30	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.31	1.30	ND	ug/kg	U
Benzene	71-43-2	1	0.39	1.30	ND	ug/kg	U
Trichloroethene	79-01-6	1	0.28	1.30	ND	ug/kg	U
Toluene	108-88-3	1	0.20	1.30	ND	ug/kg	U
Tetrachloroethene	127-18-4	1	0.34	1.30	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.26	1.30	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.51	2.61	ND	ug/kg	U
o-Xylene	95-47-6	1	0.29	1.30	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.80	2.61	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*98.8*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*93.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*96.3*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.6*	*%*	

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SB-2020-008:11.5-11052020

20K0117-36 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/05/2020 13:45
Instrument: FID4 Analyst: JGR — Analyzed: 11/22/2020 12:31

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-36 A 01
Preparation Batch: BIK0585 — Sample Size: 10.05 g (wet) — Dry Weight:8.15 g
Prepared: 11/19/2020 — Final Volume: 10 mL — % Solids: 81.06

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	61.4	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	123	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*85.2*	*%*	

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SB-2020-008:11.5-11052020

20K0117-36 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/05/2020 13:45
Instrument: ECD7 Analyst: JGR — Analyzed: 12/05/2020 01:39

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0117-36 A 02
	Preparation Batch: BIK0588	Sample Size: 15.45 g (wet)	Dry Weight:12.52 g
	Prepared: 11/19/2020	Final Volume: 2.5 mL	% Solids: 81.06
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-36 A 02
	Cleanup Batch: CIL0047	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0117-36 A 02
	Cleanup Batch: CIL0045	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-36 A 02
	Cleanup Batch: CIL0046	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*57.9*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*62.0*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*66.9*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*61.5*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-008:11.5-11052020

20K0117-36 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/05/2020 13:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 19:18

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-36 B 01
Preparation Batch: BIK0332 — Sample Size: 1.072 g (wet) — Dry Weight:0.87 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 81.35

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.57	31.9	mg/kg	
Chromium	7440-47-3	20	0.15	0.57	11.0	mg/kg	
Cobalt	7440-48-4	20	0.03	0.23	4.42	mg/kg	
Lead	7439-92-1	20	0.08	0.11	2.74	mg/kg	
Selenium	7782-49-2	20	0.50	2.29	0.56	mg/kg	J
Silver	7440-22-4	20	0.02	0.23	0.04	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.23	30.0	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-008:11.5-11052020

20K0117-36 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/05/2020 13:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 19:18

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-36 B 01
Preparation Batch: BIK0332 — Sample Size: 1.072 g (wet) — Dry Weight:0.87 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 81.35

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.23	3.05	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	0.05	mg/kg	J
Copper	7440-50-8	20	0.39	0.57	11.8	mg/kg	
Nickel	7440-02-0	20	0.06	0.57	9.10	mg/kg	
Zinc	7440-66-6	20	0.9	4.6	25.2	mg/kg	

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SB-2020-008:11.5-11052020

20K0117-36 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/05/2020 13:45
Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 14:17

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-36 B
Preparation Batch: BIK0333 — Sample Size: 0.248 g (wet) — Dry Weight:0.20 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 81.35

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00520	0.0248	0.0241	mg/kg	J

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SB-2020-008:11.5-11052020

20K0117-36RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/05/2020 13:45

Instrument: NT11 Analyst: VTS — Analyzed: 12/18/2020 14:56

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-36RE1 A 04
	Preparation Batch: BIL0296	Sample Size: 12.41 g (wet)	Dry Weight:10.06 g
	Prepared: 12/11/2020	Final Volume: 0.5 mL	% Solids: 81.06
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-36RE1 A 04
	Cleanup Batch: CIL0171	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-36RE1 A 04
	Cleanup Batch: CIL0170	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	5.31	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	6.22	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	6.42	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.49	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	1.02	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	3.16	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	0.82	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	15.4	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	1.87	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	6.50	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	6.55	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	2.13	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	3.54	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	2.33	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.77	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.70	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	1.59	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	1.35	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.42	ug/kg	J
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	2.23	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*49.2*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*81.1*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*73.9*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-016:2-11042020

20K0117-39 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/04/2020 13:50

Instrument: NT5 Analyst: PB — Analyzed: 11/09/2020 20:33

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0117-39 D

Preparation Batch: BIK0249 — Sample Size: 4.43 g (wet) — Dry Weight:4.13 g

Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 93.27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.28	1.21	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.41	1.21	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.29	1.21	ND	ug/kg	U
Benzene	71-43-2	1	0.36	1.21	ND	ug/kg	U
Trichloroethene	79-01-6	1	0.26	1.21	1.56	ug/kg	
Toluene	108-88-3	1	0.18	1.21	ND	ug/kg	U
Tetrachloroethene	127-18-4	1	0.31	1.21	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.24	1.21	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.47	2.42	ND	ug/kg	U
o-Xylene	95-47-6	1	0.27	1.21	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.75	2.42	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*98.8*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*93.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*100*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*102*	*%*	

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SB-2020-016:2-11042020

20K0117-39 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/04/2020 13:50

Instrument: NT2 Analyst: PKC — Analyzed: 11/16/2020 12:00

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0117-39 G

Preparation Batch: BIK0430 — Sample Size: 4.526 g (wet) — Dry Weight:4.22 g

Prepared: 11/14/2020 — Final Volume: 5 mL — % Solids: 93.27

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	6280	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*97.2*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*111*	*%*	

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SB-2020-016:2-11042020

20K0117-39 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/04/2020 13:50

Instrument: NT11 Analyst: VTS — Analyzed: 12/05/2020 20:54

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0117-39 A 02
	Preparation Batch: BIK0557	Sample Size: 11.05 g (wet)	Dry Weight:10.04 g
	Prepared: 11/18/2020	Final Volume: 0.5 mL	% Solids: 90.84
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-39 A 02
	Cleanup Batch: CIL0056	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-39 A 02
	Cleanup Batch: CIL0055	Initial Volume: 0.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	0.11	0.50	0.39	ug/kg	J
2-Methylnaphthalene	91-57-6	1	0.13	0.50	0.41	ug/kg	J
Acenaphthylene	208-96-8	1	0.06	0.50	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.09	0.50	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.13	0.50	0.25	ug/kg	J
Fluorene	86-73-7	1	0.07	0.50	0.07	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.50	2.21	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	0.11	ug/kg	J
Fluoranthene	206-44-0	1	0.08	0.50	0.73	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	0.96	ug/kg	B
Benzo(a)anthracene	56-55-3	1	0.07	0.50	0.41	ug/kg	J
Chrysene	218-01-9	1	0.07	0.50	0.79	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	0.48	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.21	ug/kg	J
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.17	ug/kg	J
Benzo(a)pyrene	50-32-8	1	0.09	0.50	0.29	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	0.26	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	0.44	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*51.1*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*78.0*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*77.0*	*%*	

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Draft for Public Comment

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

SB-2020-016:2-11042020

20K0117-39 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/04/2020 13:50
Instrument: FID4 Analyst: JGR — Analyzed: 11/22/2020 18:35

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0117-39 A 03
Preparation Batch: BIK0558 — Sample Size: 10.03 g (wet) — Dry Weight:9.11 g
Prepared: 11/18/2020 — Final Volume: 10 mL — % Solids: 90.84

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	54.9	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	110	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*87.6*	*%*	

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20K0117-39 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/04/2020 13:50
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 14:01

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0117-39 A 01
	Preparation Batch: BIK0553	Sample Size: 13.77 g (wet)	Dry Weight:12.51 g
	Prepared: 11/18/2020	Final Volume: 2.5 mL	% Solids: 90.84
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0117-39 A 01
	Cleanup Batch: CIL0030	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0117-39 A 01
	Cleanup Batch: CIL0028	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0117-39 A 01
	Cleanup Batch: CIL0029	Initial Volume: 2.5 mL	
	Cleaned: 02-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	1.5	ug/kg	J
Surrogate: Decachlorobiphenyl				*40-126 %*	*73.0*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*69.7*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*84.4*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*71.7*	*%*	

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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	28-Dec-2020 14:07

SB-2020-016:2-11042020

20K0117-39 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/04/2020 13:50

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 19:23

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-39 B 01

Preparation Batch: BIK0332 — Sample Size: 1.028 g (wet) — Dry Weight:0.96 g

Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 93.27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.52	19.7	mg/kg	
Chromium	7440-47-3	20	0.14	0.52	8.64	mg/kg	
Cobalt	7440-48-4	20	0.03	0.21	3.16	mg/kg	
Lead	7439-92-1	20	0.07	0.10	1.12	mg/kg	
Selenium	7782-49-2	20	0.46	2.09	0.49	mg/kg	J
Silver	7440-22-4	20	0.02	0.21	0.02	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.21	24.3	mg/kg	

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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	28-Dec-2020 14:07

SB-2020-016:2-11042020

20K0117-39 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/04/2020 13:50
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/13/2020 19:23

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0117-39 B 01
Preparation Batch: BIK0332 — Sample Size: 1.028 g (wet) — Dry Weight:0.96 g
Prepared: 11/12/2020 — Final Volume: 50 mL — % Solids: 93.27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.21	1.71	mg/kg	
Cadmium	7440-43-9	20	0.03	0.10	0.05	mg/kg	J
Copper	7440-50-8	20	0.35	0.52	7.52	mg/kg	
Nickel	7440-02-0	20	0.05	0.52	7.19	mg/kg	
Zinc	7440-66-6	20	0.9	4.2	18.0	mg/kg	

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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	28-Dec-2020 14:07

SB-2020-016:2-11042020

20K0117-39 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/04/2020 13:50

Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 14:19

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0117-39 B

Preparation Batch: BIK0333 — Sample Size: 0.252 g (wet) — Dry Weight:0.24 g

Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 93.27

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00447	0.0213	0.00815	mg/kg	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	28-Dec-2020 14:07

Volatile Organic Compounds - Quality Control

Batch BIK0249 - EPA 5035 (Sodium Bisulfate)

Instrument: NT5 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIK0249-BLK1)				Prepared: 09-Nov-2020 Analyzed: 09-Nov-2020 12:53							
Vinyl Chloride	ND	0.24	1.00	ug/kg							U
1,1-Dichloroethene	ND	0.34	1.00	ug/kg							U
cis-1,2-Dichloroethene	ND	0.24	1.00	ug/kg							U
Benzene	ND	0.30	1.00	ug/kg							U
Trichloroethene	ND	0.21	1.00	ug/kg							U
Toluene	ND	0.15	1.00	ug/kg							U
Tetrachloroethene	ND	0.26	1.00	ug/kg							U
Ethylbenzene	ND	0.20	1.00	ug/kg							U
m,p-Xylene	ND	0.39	2.00	ug/kg							U
o-Xylene	ND	0.22	1.00	ug/kg							U
Xylenes, total	ND	0.62	2.00	ug/kg							U
Surrogate: 1,2-Dichloroethane-d4	44.6			ug/kg	*50.0*		*89.3*	*80-149*			
Surrogate: Toluene-d8	46.1			ug/kg	*50.0*		*92.1*	*77-120*			
Surrogate: 4-Bromofluorobenzene	49.4			ug/kg	*50.0*		*98.8*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	50.5			ug/kg	*50.0*		*101*	*80-120*			
LCS (BIK0249-BS1)				Prepared: 09-Nov-2020 Analyzed: 09-Nov-2020 11:30							
Vinyl Chloride	45.0			ug/kg	50.0		89.9	74-135			
1,1-Dichloroethene	44.3			ug/kg	50.0		88.6	77-134			
cis-1,2-Dichloroethene	38.9			ug/kg	50.0		77.7	80-125			*, Q
Benzene	47.1			ug/kg	50.0		94.1	80-120			
Trichloroethene	48.7			ug/kg	50.0		97.4	80-120			
Toluene	46.7			ug/kg	50.0		93.5	75-120			
Tetrachloroethene	57.7			ug/kg	50.0		115	74-124			
Ethylbenzene	53.9			ug/kg	50.0		108	80-125			
m,p-Xylene	108			ug/kg	100		108	76-121			
o-Xylene	51.6			ug/kg	50.0		103	67-132			
Xylenes, total	160			ug/kg	150		106	67-132			
Surrogate: 1,2-Dichloroethane-d4	44.3			ug/kg	*50.0*		*88.7*	*80-149*			
Surrogate: Toluene-d8	47.0			ug/kg	*50.0*		*94.1*	*77-120*			
Surrogate: 4-Bromofluorobenzene	49.4			ug/kg	*50.0*		*98.7*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	49.3			ug/kg	*50.0*		*98.5*	*80-120*			
LCS Dup (BIK0249-BSD1)				Prepared: 09-Nov-2020 Analyzed: 09-Nov-2020 13:42							
Vinyl Chloride	46.6			ug/kg	50.0		93.3	74-135	3.62	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	28-Dec-2020 14:07

Volatile Organic Compounds - Quality Control

Batch BIK0249 - EPA 5035 (Sodium Bisulfate)

Instrument: NT5 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BIK0249-BSD1)	Prepared: 09-Nov-2020 Analyzed: 09-Nov-2020 13:42										
1,1-Dichloroethene	46.1			ug/kg	50.0		92.3	77-134	4.04	30	
cis-1,2-Dichloroethene	39.7			ug/kg	50.0		79.4	80-125	2.11	30	*, Q
Benzene	50.3			ug/kg	50.0		101	80-120	6.57	30	
Trichloroethene	52.1			ug/kg	50.0		104	80-120	6.78	30	
Toluene	49.8			ug/kg	50.0		99.6	75-120	6.30	30	
Tetrachloroethene	63.2			ug/kg	50.0		126	74-124	9.04	30	
Ethylbenzene	57.8			ug/kg	50.0		116	80-125	6.99	30	
m,p-Xylene	118			ug/kg	100		118	76-121	9.20	30	
o-Xylene	56.8			ug/kg	50.0		114	67-132	9.63	30	
Xylenes, total	175			ug/kg	150		117	67-132	9.34	30	
Surrogate: 1,2-Dichloroethane-d4	43.6			ug/kg	*50.0*		*87.2*	*80-149*			
Surrogate: Toluene-d8	46.0			ug/kg	*50.0*		*91.9*	*77-120*			
Surrogate: 4-Bromofluorobenzene	49.3			ug/kg	*50.0*		*98.5*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	49.5			ug/kg	*50.0*		*98.9*	*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	28-Dec-2020 14:07

Volatile Organic Compounds - Quality Control

Batch BIK0314 - EPA 5035 (Sodium Bisulfate)

Instrument: NT5 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIK0314-BLK1)				Prepared: 10-Nov-2020 Analyzed: 10-Nov-2020 17:43							
Vinyl Chloride	ND	0.24	1.00	ug/kg							U
1,1-Dichloroethene	ND	0.34	1.00	ug/kg							U
cis-1,2-Dichloroethene	ND	0.24	1.00	ug/kg							U
Benzene	ND	0.30	1.00	ug/kg							U
Trichloroethene	ND	0.21	1.00	ug/kg							U
Toluene	ND	0.15	1.00	ug/kg							U
Tetrachloroethene	ND	0.26	1.00	ug/kg							U
Ethylbenzene	ND	0.20	1.00	ug/kg							U
m,p-Xylene	ND	0.39	2.00	ug/kg							U
o-Xylene	ND	0.22	1.00	ug/kg							U
Xylenes, total	ND	0.62	2.00	ug/kg							U
Surrogate: 1,2-Dichloroethane-d4	48.5			ug/kg	*50.0*		*97.0*	*80-149*			
Surrogate: Toluene-d8	49.1			ug/kg	*50.0*		*98.3*	*77-120*			
Surrogate: 4-Bromofluorobenzene	50.4			ug/kg	*50.0*		*101*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	50.6			ug/kg	*50.0*		*101*	*80-120*			
LCS (BIK0314-BS1)				Prepared: 10-Nov-2020 Analyzed: 10-Nov-2020 16:17							
Vinyl Chloride	54.5			ug/kg	50.0		109	74-135			
1,1-Dichloroethene	49.3			ug/kg	50.0		98.6	77-134			
cis-1,2-Dichloroethene	47.8			ug/kg	50.0		95.5	80-125			
Benzene	50.0			ug/kg	50.0		100	80-120			
Trichloroethene	50.0			ug/kg	50.0		100	80-120			
Toluene	50.2			ug/kg	50.0		100	75-120			
Tetrachloroethene	52.6			ug/kg	50.0		105	74-124			
Ethylbenzene	51.9			ug/kg	50.0		104	80-125			
m,p-Xylene	102			ug/kg	100		102	76-121			
o-Xylene	52.5			ug/kg	50.0		105	67-132			
Xylenes, total	154			ug/kg	150		103	67-132			
Surrogate: 1,2-Dichloroethane-d4	47.4			ug/kg	*50.0*		*94.7*	*80-149*			
Surrogate: Toluene-d8	49.4			ug/kg	*50.0*		*98.8*	*77-120*			
Surrogate: 4-Bromofluorobenzene	49.1			ug/kg	*50.0*		*98.3*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	48.7			ug/kg	*50.0*		*97.3*	*80-120*			
LCS Dup (BIK0314-BSD1)				Prepared: 10-Nov-2020 Analyzed: 10-Nov-2020 16:40							
Vinyl Chloride	53.0			ug/kg	50.0		106	74-135	2.76	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	28-Dec-2020 14:07

Volatile Organic Compounds - Quality Control

Batch BIK0314 - EPA 5035 (Sodium Bisulfate)

Instrument: NT5 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BIK0314-BSD1)	Prepared: 10-Nov-2020 Analyzed: 10-Nov-2020 16:40										
1,1-Dichloroethene	47.8			ug/kg	50.0		95.6	77-134	3.10	30	
cis-1,2-Dichloroethene	48.5			ug/kg	50.0		96.9	80-125	1.48	30	
Benzene	50.0			ug/kg	50.0		100	80-120	0.05	30	
Trichloroethene	49.6			ug/kg	50.0		99.3	80-120	0.75	30	
Toluene	49.9			ug/kg	50.0		99.8	75-120	0.50	30	
Tetrachloroethene	52.9			ug/kg	50.0		106	74-124	0.51	30	
Ethylbenzene	52.2			ug/kg	50.0		104	80-125	0.52	30	
m,p-Xylene	104			ug/kg	100		104	76-121	2.09	30	
o-Xylene	52.8			ug/kg	50.0		106	67-132	0.51	30	
Xylenes, total	157			ug/kg	150		105	67-132	1.56	30	
Surrogate: 1,2-Dichloroethane-d4	48.4			ug/kg	*50.0*		*96.8*	*80-149*			
Surrogate: Toluene-d8	49.7			ug/kg	*50.0*		*99.4*	*77-120*			
Surrogate: 4-Bromofluorobenzene	50.3			ug/kg	*50.0*		*101*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	50.2			ug/kg	*50.0*		*100*	*80-120*			

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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	28-Dec-2020 14:07

Volatile Organic Compounds - Quality Control

Batch BIK0322 - 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 (BIK0322-BLK1)					Prepared: 11-Nov-2020 Analyzed: 11-Nov-2020 09:05						
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							U
Surrogate: Toluene-d8	4.81			ug/L	*5.00*		*96.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.53			ug/L	*5.00*		*90.7*	*80-120*			
Blank (BIK0322-BLK2)					Prepared: 11-Nov-2020 Analyzed: 11-Nov-2020 09:05						
Vinyl Chloride	ND	0.08	0.20	ug/L							U
1,1-Dichloroethene	ND	0.08	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	5.02			ug/L	*5.00*		*100*	*80-129*			
Surrogate: Toluene-d8	4.81			ug/L	*5.00*		*96.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.53			ug/L	*5.00*		*90.7*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.18			ug/L	*5.00*		*104*	*80-120*			
LCS (BIK0322-BS1)					Prepared: 11-Nov-2020 Analyzed: 11-Nov-2020 07:21						
Gasoline Range Organics (Tol-Nap)	914		100	ug/L	1000		91.4	72-128			
Surrogate: Toluene-d8	5.05			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.74			ug/L	*5.00*		*94.9*	*80-120*			
LCS (BIK0322-BS2)					Prepared: 11-Nov-2020 Analyzed: 11-Nov-2020 07:42						
Vinyl Chloride	9.48	0.08	0.20	ug/L	10.0		94.8	66-133			
1,1-Dichloroethene	9.14	0.08	0.20	ug/L	10.0		91.4	69-135			
cis-1,2-Dichloroethene	10.8	0.08	0.20	ug/L	10.0		108	80-121			
Benzene	11.3	0.05	0.20	ug/L	10.0		113	80-120			
Trichloroethene	10.5	0.07	0.20	ug/L	10.0		105	80-120			
Toluene	10.8	0.05	0.20	ug/L	10.0		108	80-120			
Tetrachloroethene	10.4	0.09	0.20	ug/L	10.0		104	80-120			

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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	28-Dec-2020 14:07

Volatile Organic Compounds - Quality Control

Batch BIK0322 - 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 (BIK0322-BS2)				Prepared: 11-Nov-2020 Analyzed: 11-Nov-2020 07:42							
Ethylbenzene	10.8	0.05	0.20	ug/L	10.0		108	80-120			
m,p-Xylene	22.7	0.14	0.40	ug/L	20.0		114	80-121			
o-Xylene	10.5	0.08	0.20	ug/L	10.0		105	80-121			
Xylenes, total	33.3	0.22	0.60	ug/L	30.0		111	76-127			
Surrogate: 1,2-Dichloroethane-d4	4.49			ug/L	*5.00*		*89.9*	*80-129*			
Surrogate: Toluene-d8	5.08			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.90			ug/L	*5.00*		*98.0*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.95			ug/L	*5.00*		*99.1*	*80-120*			
LCS Dup (BIK0322-BSD1)				Prepared: 11-Nov-2020 Analyzed: 11-Nov-2020 08:03							
Gasoline Range Organics (Tol-Nap)	947		100	ug/L	1000		94.7	72-128	3.56	30	
Surrogate: Toluene-d8	5.09			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.85			ug/L	*5.00*		*96.9*	*80-120*			
LCS Dup (BIK0322-BSD2)				Prepared: 11-Nov-2020 Analyzed: 11-Nov-2020 08:23							
Vinyl Chloride	9.16	0.08	0.20	ug/L	10.0		91.6	66-133	3.34	30	
1,1-Dichloroethene	8.71	0.08	0.20	ug/L	10.0		87.1	69-135	4.84	30	
cis-1,2-Dichloroethene	10.3	0.08	0.20	ug/L	10.0		103	80-121	4.71	30	
Benzene	10.7	0.05	0.20	ug/L	10.0		107	80-120	5.94	30	
Trichloroethene	9.86	0.07	0.20	ug/L	10.0		98.6	80-120	6.06	30	
Toluene	10.2	0.05	0.20	ug/L	10.0		102	80-120	6.37	30	
Tetrachloroethene	9.46	0.09	0.20	ug/L	10.0		94.6	80-120	9.94	30	
Ethylbenzene	10.1	0.05	0.20	ug/L	10.0		101	80-120	7.12	30	
m,p-Xylene	20.9	0.14	0.40	ug/L	20.0		105	80-121	8.33	30	
o-Xylene	9.64	0.08	0.20	ug/L	10.0		96.4	80-121	8.74	30	
Xylenes, total	30.6	0.22	0.60	ug/L	30.0		102	76-127	8.46	30	
Surrogate: 1,2-Dichloroethane-d4	4.51			ug/L	*5.00*		*90.1*	*80-129*			
Surrogate: Toluene-d8	5.07			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.96			ug/L	*5.00*		*99.1*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.00			ug/L	*5.00*		*100*	*80-120*			

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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	28-Dec-2020 14:07

Volatile Organic Compounds - Quality Control

Batch BIK0407 - EPA 5035 (Methanol Extraction)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIK0407-BLK1)				Prepared: 13-Nov-2020 Analyzed: 13-Nov-2020 11:38						
Gasoline Range Organics (Tol-Nap)	ND	5000	ug/kg							U
Surrogate: Toluene-d8	4.77		ug/kg	*5.00*		*95.4*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.42		ug/kg	*5.00*		*88.3*	*78-123*			
LCS (BIK0407-BS1)				Prepared: 13-Nov-2020 Analyzed: 13-Nov-2020 09:48						
Gasoline Range Organics (Tol-Nap)	46600	5000	ug/kg	50000		93.2	70-121			
Surrogate: Toluene-d8	5.04		ug/kg	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.76		ug/kg	*5.00*		*95.2*	*78-123*			
LCS Dup (BIK0407-BSD1)				Prepared: 13-Nov-2020 Analyzed: 13-Nov-2020 10:08						
Gasoline Range Organics (Tol-Nap)	47900	5000	ug/kg	50000		95.7	70-121	2.65	30	
Surrogate: Toluene-d8	5.01		ug/kg	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.93		ug/kg	*5.00*		*98.6*	*78-123*			

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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	28-Dec-2020 14:07

Volatile Organic Compounds - Quality Control

Batch BIK0430 - EPA 5035 (Methanol Extraction)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIK0430-BLK1)				Prepared: 14-Nov-2020 Analyzed: 16-Nov-2020 11:16						
Gasoline Range Organics (Tol-Nap)	ND	5000	ug/kg							U
Surrogate: Toluene-d8	4.65		ug/kg	*5.00*		*92.9*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.58		ug/kg	*5.00*		*91.5*	*78-123*			
LCS (BIK0430-BS1)				Prepared: 14-Nov-2020 Analyzed: 16-Nov-2020 09:31						
Gasoline Range Organics (Tol-Nap)	48400	5000	ug/kg	50000		96.9	70-121			
Surrogate: Toluene-d8	4.97		ug/kg	*5.00*		*99.4*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.98		ug/kg	*5.00*		*99.7*	*78-123*			
LCS Dup (BIK0430-BSD1)				Prepared: 14-Nov-2020 Analyzed: 16-Nov-2020 09:51						
Gasoline Range Organics (Tol-Nap)	48900	5000	ug/kg	50000		97.7	70-121	0.90	30	
Surrogate: Toluene-d8	5.04		ug/kg	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.92		ug/kg	*5.00*		*98.4*	*78-123*			

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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	28-Dec-2020 14:07

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIK0557 - EPA 3546 (Microwave) Low Level

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 (BIK0557-BLK1)				Prepared: 18-Nov-2020 Analyzed: 05-Dec-2020 12:50							
Naphthalene	ND	0.44	0.60	ug/kg							U
1-Methylnaphthalene	ND	0.11	0.50	ug/kg							U
2-Methylnaphthalene	ND	0.13	0.50	ug/kg							U
Acenaphthylene	ND	0.06	0.50	ug/kg							U
Acenaphthene	ND	0.09	0.50	ug/kg							U
Dibenzofuran	ND	0.13	0.50	ug/kg							U
Fluorene	ND	0.07	0.50	ug/kg							U
Phenanthrene	0.13	0.11	0.50	ug/kg							J
Anthracene	ND	0.07	0.50	ug/kg							U
Fluoranthene	0.36	0.08	0.50	ug/kg							J
Pyrene	0.51	0.09	0.50	ug/kg							
Benzo(a)anthracene	0.32	0.07	0.50	ug/kg							J
Chrysene	0.47	0.07	0.50	ug/kg							J
Benzo(b)fluoranthene	0.24	0.07	0.50	ug/kg							J
Benzo(k)fluoranthene	0.19	0.10	0.50	ug/kg							J
Benzo(j)fluoranthene	0.20	0.10	0.50	ug/kg							J
Benzo(a)pyrene	0.31	0.09	0.50	ug/kg							J
Indeno(1,2,3-cd)pyrene	0.26	0.09	0.50	ug/kg							J
Dibenzo(a,h)anthracene	ND	0.11	0.50	ug/kg							U
Benzo(g,h,i)perylene	0.42	0.09	0.50	ug/kg							J
Surrogate: 2-Methylnaphthalene-d10	8.45			ug/kg	*15.0*		*56.4*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	10.7			ug/kg	*15.0*		*71.5*	*30-160*			
Surrogate: Fluoranthene-d10	11.6			ug/kg	*15.0*		*77.0*	*30-160*			
LCS (BIK0557-BS1)				Prepared: 18-Nov-2020 Analyzed: 05-Dec-2020 13:23							
Naphthalene	8.65	0.44	0.60	ug/kg	15.0		57.7	30-160			
1-Methylnaphthalene	9.36	0.11	0.50	ug/kg	15.0		62.4	30-160			
2-Methylnaphthalene	9.37	0.13	0.50	ug/kg	15.0		62.4	30-160			
Acenaphthylene	8.61	0.06	0.50	ug/kg	15.0		57.4	30-160			
Acenaphthene	9.20	0.09	0.50	ug/kg	15.0		61.4	30-160			
Dibenzofuran	9.69	0.13	0.50	ug/kg	15.0		64.6	30-160			
Fluorene	10.4	0.07	0.50	ug/kg	15.0		69.1	30-160			
Phenanthrene	10.9	0.11	0.50	ug/kg	15.0		72.6	30-160			
Anthracene	9.44	0.07	0.50	ug/kg	15.0		62.9	30-160			
Fluoranthene	12.6	0.08	0.50	ug/kg	15.0		84.3	30-160			

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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	28-Dec-2020 14:07

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIK0557 - EPA 3546 (Microwave) Low Level

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 (BIK0557-BS1)				Prepared: 18-Nov-2020 Analyzed: 05-Dec-2020 13:23							
Pyrene	12.9	0.09	0.50	ug/kg	15.0		86.1	30-160			B
Benzo(a)anthracene	13.0	0.07	0.50	ug/kg	15.0		86.9	30-160			
Chrysene	13.1	0.07	0.50	ug/kg	15.0		87.0	30-160			
Benzo(b)fluoranthene	13.2	0.07	0.50	ug/kg	15.0		88.3	30-160			
Benzo(k)fluoranthene	12.7	0.10	0.50	ug/kg	15.0		84.4	30-160			
Benzo(j)fluoranthene	12.6	0.10	0.50	ug/kg	15.0		84.3	30-160			
Benzo(a)pyrene	12.3	0.09	0.50	ug/kg	15.0		82.1	30-160			
Indeno(1,2,3-cd)pyrene	13.0	0.09	0.50	ug/kg	15.0		86.5	30-160			
Dibenzo(a,h)anthracene	12.0	0.11	0.50	ug/kg	15.0		79.9	30-160			
Benzo(g,h,i)perylene	13.1	0.09	0.50	ug/kg	15.0		87.7	30-160			
Surrogate: 2-Methylnaphthalene-d10	9.31			ug/kg	*15.0*		*62.1*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	11.7			ug/kg	*15.0*		*78.1*	*30-160*			
Surrogate: Fluoranthene-d10	12.3			ug/kg	*15.0*		*82.2*	*30-160*			
Matrix Spike (BIK0557-MS1)		**Source: 20K0117-12**		Prepared: 18-Nov-2020 Analyzed: 05-Dec-2020 17:41							
Naphthalene	8.89	0.44	0.60	ug/kg	14.9	0.63	55.4	30-160			
1-Methylnaphthalene	10.1	0.11	0.50	ug/kg	14.9	1.65	56.9	30-160			
2-Methylnaphthalene	9.74	0.13	0.50	ug/kg	14.9	0.80	59.9	30-160			
Acenaphthylene	8.28	0.06	0.50	ug/kg	14.9	0.09	54.9	30-160			
Acenaphthene	8.99	0.09	0.50	ug/kg	14.9	0.19	59.0	30-160			
Dibenzofuran	9.49	0.13	0.50	ug/kg	14.9	0.61	59.6	30-160			
Fluorene	9.86	0.07	0.50	ug/kg	14.9	0.36	63.7	30-160			
Phenanthrene	12.7	0.11	0.50	ug/kg	14.9	3.87	59.2	30-160			
Anthracene	10.0	0.07	0.50	ug/kg	14.9	0.68	62.6	30-160			
Fluoranthene	14.0	0.08	0.50	ug/kg	14.9	3.73	68.8	30-160			
Pyrene	14.5	0.09	0.50	ug/kg	14.9	4.63	66.5	30-160			B
Benzo(a)anthracene	12.6	0.07	0.50	ug/kg	14.9	1.54	74.1	30-160			
Chrysene	12.8	0.07	0.50	ug/kg	14.9	2.51	69.2	30-160			
Benzo(b)fluoranthene	14.5	0.07	0.50	ug/kg	14.9	2.23	82.5	30-160			
Benzo(k)fluoranthene	11.8	0.10	0.50	ug/kg	14.9	0.88	73.0	30-160			
Benzo(j)fluoranthene	10.1	0.10	0.50	ug/kg	14.9	0.93	61.6	30-160			
Benzo(a)pyrene	13.0	0.09	0.50	ug/kg	14.9	1.59	76.4	30-160			
Indeno(1,2,3-cd)pyrene	14.7	0.09	0.50	ug/kg	14.9	1.71	87.0	30-160			
Dibenzo(a,h)anthracene	13.2	0.10	0.50	ug/kg	14.9	0.58	84.8	30-160			
Benzo(g,h,i)perylene	13.6	0.08	0.50	ug/kg	14.9	2.20	76.3	30-160			

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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	28-Dec-2020 14:07

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIK0557 - EPA 3546 (Microwave) Low Level

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BIK0557-MS1)	**Source: 20K0117-12**			Prepared: 18-Nov-2020 Analyzed: 05-Dec-2020 17:41							
Surrogate: 2-Methylnaphthalene-d10	8.61			ug/kg	*14.9*	*6.86*	*57.7*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	12.5			ug/kg	*14.9*	*12.0*	*84.0*	*30-160*			
Surrogate: Fluoranthene-d10	11.6			ug/kg	*14.9*	*11.4*	*77.5*	*30-160*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BIK0557-MSD1)	**Source: 20K0117-12**			Prepared: 18-Nov-2020 Analyzed: 05-Dec-2020 18:13							
Naphthalene	8.46	0.43	0.59	ug/kg	14.8	0.63	52.8	30-160	4.92	30	
1-Methylnaphthalene	9.45	0.10	0.49	ug/kg	14.8	1.65	52.5	30-160	7.05	30	
2-Methylnaphthalene	9.49	0.13	0.49	ug/kg	14.8	0.80	58.6	30-160	2.50	30	
Acenaphthylene	7.74	0.06	0.49	ug/kg	14.8	0.09	51.5	30-160	6.84	30	
Acenaphthene	8.34	0.09	0.49	ug/kg	14.8	0.19	55.0	30-160	7.43	30	
Dibenzofuran	8.92	0.12	0.49	ug/kg	14.8	0.61	56.1	30-160	6.16	30	
Fluorene	9.28	0.07	0.49	ug/kg	14.8	0.36	60.2	30-160	6.05	30	
Phenanthrene	11.3	0.11	0.49	ug/kg	14.8	3.87	50.0	30-160	11.90	30	
Anthracene	9.87	0.07	0.49	ug/kg	14.8	0.68	61.9	30-160	1.56	30	
Fluoranthene	12.7	0.08	0.49	ug/kg	14.8	3.73	60.4	30-160	9.83	30	
Pyrene	13.0	0.09	0.49	ug/kg	14.8	4.63	56.7	30-160	11.00	30	B
Benzo(a)anthracene	12.1	0.07	0.49	ug/kg	14.8	1.54	71.5	30-160	3.62	30	
Chrysene	12.1	0.07	0.49	ug/kg	14.8	2.51	64.3	30-160	6.28	30	
Benzo(b)fluoranthene	14.0	0.07	0.49	ug/kg	14.8	2.23	79.5	30-160	3.69	30	
Benzo(k)fluoranthene	10.9	0.10	0.49	ug/kg	14.8	0.88	67.4	30-160	7.96	30	
Benzo(j)fluoranthene	10.2	0.10	0.49	ug/kg	14.8	0.93	62.4	30-160	0.67	30	
Benzo(a)pyrene	12.1	0.09	0.49	ug/kg	14.8	1.59	70.9	30-160	6.95	30	
Indeno(1,2,3-cd)pyrene	13.3	0.09	0.49	ug/kg	14.8	1.71	78.3	30-160	9.66	30	
Dibenzo(a,h)anthracene	12.4	0.10	0.49	ug/kg	14.8	0.58	79.9	30-160	6.13	30	
Benzo(g,h,i)perylene	12.7	0.08	0.49	ug/kg	14.8	2.20	70.7	30-160	6.83	30	
Surrogate: 2-Methylnaphthalene-d10	7.95			ug/kg	*14.8*	*6.86*	*53.6*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	11.9			ug/kg	*14.8*	*12.0*	*79.9*	*30-160*			
Surrogate: Fluoranthene-d10	11.4			ug/kg	*14.8*	*11.4*	*76.6*	*30-160*			
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	28-Dec-2020 14:07

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIL0296 - EPA 3546 (Microwave) Low Level

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 (BIL0296-BLK1)				Prepared: 11-Dec-2020 Analyzed: 18-Dec-2020 10:38							
Naphthalene	ND	0.44	0.60	ug/kg							U
1-Methylnaphthalene	ND	0.11	0.50	ug/kg							U
2-Methylnaphthalene	ND	0.13	0.50	ug/kg							U
Acenaphthylene	ND	0.06	0.50	ug/kg							U
Acenaphthene	ND	0.09	0.50	ug/kg							U
Dibenzofuran	ND	0.13	0.50	ug/kg							U
Fluorene	ND	0.07	0.50	ug/kg							U
Phenanthrene	0.14	0.11	0.50	ug/kg							J
Anthracene	ND	0.07	0.50	ug/kg							U
Fluoranthene	0.12	0.08	0.50	ug/kg							J
Pyrene	0.12	0.09	0.50	ug/kg							J
Benzo(a)anthracene	ND	0.07	0.50	ug/kg							U
Chrysene	ND	0.07	0.50	ug/kg							U
Benzo(b)fluoranthene	ND	0.07	0.50	ug/kg							U
Benzo(k)fluoranthene	ND	0.10	0.50	ug/kg							U
Benzo(j)fluoranthene	ND	0.10	0.50	ug/kg							U
Benzo(a)pyrene	ND	0.09	0.50	ug/kg							U
Indeno(1,2,3-cd)pyrene	ND	0.09	0.50	ug/kg							U
Dibenzo(a,h)anthracene	ND	0.11	0.50	ug/kg							U
Benzo(g,h,i)perylene	0.09	0.09	0.50	ug/kg							J
Surrogate: 2-Methylnaphthalene-d10	7.53			ug/kg	*15.0*		*50.2*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	11.3			ug/kg	*15.0*		*75.3*	*30-160*			
Surrogate: Fluoranthene-d10	10.8			ug/kg	*15.0*		*72.1*	*30-160*			
LCS (BIL0296-BS1)				Prepared: 11-Dec-2020 Analyzed: 18-Dec-2020 11:10							
Naphthalene	7.23	0.44	0.60	ug/kg	15.0		48.2	30-160			
1-Methylnaphthalene	7.73	0.11	0.50	ug/kg	15.0		51.5	30-160			
2-Methylnaphthalene	7.70	0.13	0.50	ug/kg	15.0		51.3	30-160			
Acenaphthylene	6.27	0.06	0.50	ug/kg	15.0		41.8	30-160			
Acenaphthene	7.51	0.09	0.50	ug/kg	15.0		50.1	30-160			
Dibenzofuran	7.99	0.13	0.50	ug/kg	15.0		53.3	30-160			
Fluorene	8.56	0.07	0.50	ug/kg	15.0		57.1	30-160			
Phenanthrene	9.40	0.11	0.50	ug/kg	15.0		62.7	30-160			
Anthracene	8.87	0.07	0.50	ug/kg	15.0		59.1	30-160			
Fluoranthene	11.2	0.08	0.50	ug/kg	15.0		74.9	30-160			

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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	28-Dec-2020 14:07

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIL0296 - EPA 3546 (Microwave) Low Level

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 (BIL0296-BS1)				Prepared: 11-Dec-2020 Analyzed: 18-Dec-2020 11:10							
Pyrene	11.2	0.09	0.50	ug/kg	15.0		74.6	30-160			
Benzo(a)anthracene	11.3	0.07	0.50	ug/kg	15.0		75.1	30-160			
Chrysene	11.0	0.07	0.50	ug/kg	15.0		73.2	30-160			
Benzo(b)fluoranthene	11.2	0.07	0.50	ug/kg	15.0		74.9	30-160			
Benzo(k)fluoranthene	11.1	0.10	0.50	ug/kg	15.0		73.9	30-160			
Benzo(j)fluoranthene	10.5	0.10	0.50	ug/kg	15.0		70.1	30-160			
Benzo(a)pyrene	9.67	0.09	0.50	ug/kg	15.0		64.4	30-160			
Indeno(1,2,3-cd)pyrene	12.7	0.09	0.50	ug/kg	15.0		84.4	30-160			
Dibenzo(a,h)anthracene	12.5	0.11	0.50	ug/kg	15.0		83.2	30-160			
Benzo(g,h,i)perylene	12.4	0.09	0.50	ug/kg	15.0		82.4	30-160			
Surrogate: 2-Methylnaphthalene-d10	7.76			ug/kg	*15.0*		*51.7*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	12.4			ug/kg	*15.0*		*82.3*	*30-160*			
Surrogate: Fluoranthene-d10	11.5			ug/kg	*15.0*		*76.8*	*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: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

Petroleum Hydrocarbons - Quality Control

Batch BIK0558 - EPA 3546 (Microwave)

Instrument: FID4 Analyst: JGR

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIK0558-BLK1)				Prepared: 18-Nov-2020 Analyzed: 22-Nov-2020 13:12						
Diesel Range Organics (C12-C24)	ND	50.0	mg/kg							U
Motor Oil Range Organics (C24-C38)	ND	100	mg/kg							U
Surrogate: o-Terphenyl	48.9		mg/kg	*56.3*		*86.9*	*50-150*			
LCS (BIK0558-BS1)				Prepared: 18-Nov-2020 Analyzed: 22-Nov-2020 13:32						
Diesel Range Organics (C12-C24)	1350	50.0	mg/kg	1500		89.8	63-120			
Surrogate: o-Terphenyl	49.8		mg/kg	*56.3*		*88.5*	*50-150*			
Matrix Spike (BIK0558-MS1)	**Source: 20K0117-39**			Prepared: 18-Nov-2020 Analyzed: 22-Nov-2020 18:55						
Diesel Range Organics (C12-C24)	1430	55.0	mg/kg	1650	ND	86.6	63-120			
Surrogate: o-Terphenyl	52.5		mg/kg	*61.9*	*54.1*	*84.8*	*50-150*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BIK0558-MSD1)	**Source: 20K0117-39**			Prepared: 18-Nov-2020 Analyzed: 22-Nov-2020 19:15						
Diesel Range Organics (C12-C24)	1630	55.0	mg/kg	1650	ND	98.5	63-120	12.90	30	
Surrogate: o-Terphenyl	59.7		mg/kg	*61.9*	*54.1*	*96.4*	*50-150*			
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	28-Dec-2020 14:07

Petroleum Hydrocarbons - Quality Control

Batch BIK0585 - EPA 3546 (Microwave)

Instrument: FID4 Analyst: JGR

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIK0585-BLK1)				Prepared: 19-Nov-2020 Analyzed: 21-Nov-2020 13:56						
Diesel Range Organics (C12-C24)	ND	50.0	mg/kg							U
Motor Oil Range Organics (C24-C38)	ND	100	mg/kg							U
Surrogate: o-Terphenyl	48.7		mg/kg	*56.3*		*86.6*	*50-150*			
LCS (BIK0585-BS1)				Prepared: 19-Nov-2020 Analyzed: 21-Nov-2020 14:16						
Diesel Range Organics (C12-C24)	1430	50.0	mg/kg	1500		95.3	63-120			
Surrogate: o-Terphenyl	53.7		mg/kg	*56.3*		*95.5*	*50-150*			
Matrix Spike (BIK0585-MS1)	**Source: 20K0117-21**			Prepared: 19-Nov-2020 Analyzed: 21-Nov-2020 14:57						
Diesel Range Organics (C12-C24)	11800	65.3	mg/kg	1960	10700	58.1	63-120			*, E
Surrogate: o-Terphenyl	65.7		mg/kg	*73.5*	*66.6*	*89.4*	*50-150*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BIK0585-MSD1)	**Source: 20K0117-21**			Prepared: 19-Nov-2020 Analyzed: 21-Nov-2020 15:17						
Diesel Range Organics (C12-C24)	12600	65.3	mg/kg	1960	10700	101	63-120	6.92	30	E
Surrogate: o-Terphenyl	60.1		mg/kg	*73.5*	*66.6*	*81.8*	*50-150*			
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	28-Dec-2020 14:07

Aroclor PCB - Quality Control

Batch BIK0553 - EPA 3546 (Microwave)

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 (BIK0553-BLK1)				Prepared: 18-Nov-2020 Analyzed: 04-Dec-2020 09:13							
Aroclor 1016	ND	1.6	4.0	ug/kg							U
Aroclor 1221	ND	1.6	4.0	ug/kg							U
Aroclor 1232	ND	1.6	4.0	ug/kg							U
Aroclor 1242	ND	1.6	4.0	ug/kg							U
Aroclor 1248	ND	1.6	4.0	ug/kg							U
Aroclor 1254	ND	1.6	4.0	ug/kg							U
Aroclor 1260	ND	0.6	4.0	ug/kg							U
Surrogate: Decachlorobiphenyl	6.50			ug/kg	*8.00*		*81.2*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.87			ug/kg	*8.00*		*73.3*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	7.34			ug/kg	*8.00*		*91.7*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	5.95			ug/kg	*8.00*		*74.4*	*44-120*			
LCS (BIK0553-BS1)				Prepared: 18-Nov-2020 Analyzed: 04-Dec-2020 09:34							
Aroclor 1016 [2C]	87.6	1.6	4.0	ug/kg	101		86.9	56-120			
Aroclor 1260 [2C]	96.9	0.6	4.0	ug/kg	101		96.2	58-120			
Surrogate: Decachlorobiphenyl	6.92			ug/kg	*8.00*		*86.4*	*40-126*			
Surrogate: Tetrachlorometaxylene	6.52			ug/kg	*8.00*		*81.5*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	7.94			ug/kg	*8.00*		*99.2*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	6.67			ug/kg	*8.00*		*83.3*	*44-120*			
Matrix Spike (BIK0553-MS1)		**Source: 20K0117-17**		Prepared: 18-Nov-2020 Analyzed: 04-Dec-2020 12:18							
Aroclor 1016	72.8	1.5	4.0	ug/kg	100	ND	72.7	56-120			
Aroclor 1260	84.0	0.6	4.0	ug/kg	100	ND	84.0	58-120			
Surrogate: Decachlorobiphenyl	6.28			ug/kg	*7.94*		*79.1*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.82			ug/kg	*7.94*		*73.3*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	7.25			ug/kg	*7.94*		*91.3*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	6.08			ug/kg	*7.94*		*76.5*	*44-120*			

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

Matrix Spike Dup (BIK0553-MSD1)		**Source: 20K0117-17**		Prepared: 18-Nov-2020 Analyzed: 04-Dec-2020 12:39							
Aroclor 1016	70.2	1.5	4.0	ug/kg	100	ND	70.1	56-120	3.61	30	
Aroclor 1260	82.6	0.6	4.0	ug/kg	100	ND	82.5	58-120	1.79	30	
Surrogate: Decachlorobiphenyl	6.24			ug/kg	*7.94*		*78.6*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.73			ug/kg	*7.94*		*72.2*	*44-120*			

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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	28-Dec-2020 14:07

Aroclor PCB - Quality Control

Batch BIK0553 - EPA 3546 (Microwave)

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BIK0553-MSD1)	**Source: 20K0117-17**			Prepared: 18-Nov-2020		Analyzed: 04-Dec-2020 12:39					
Surrogate: Decachlorobiphenyl [2C]	7.34			ug/kg	*7.94*		*92.4*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	5.91			ug/kg	*7.94*		*74.4*	*44-120*			

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	28-Dec-2020 14:07

Aroclor PCB - Quality Control

Batch BIK0588 - EPA 3546 (Microwave)

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 (BIK0588-BLK1)				Prepared: 19-Nov-2020 Analyzed: 04-Dec-2020 22:14							
Aroclor 1016	ND	1.6	4.0	ug/kg							U
Aroclor 1221	ND	1.6	4.0	ug/kg							U
Aroclor 1232	ND	1.6	4.0	ug/kg							U
Aroclor 1242	ND	1.6	4.0	ug/kg							U
Aroclor 1248	ND	1.6	4.0	ug/kg							U
Aroclor 1254	ND	1.6	4.0	ug/kg							U
Aroclor 1260	ND	0.6	4.0	ug/kg							U
Surrogate: Decachlorobiphenyl	5.32			ug/kg	*8.00*		*66.6*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.41			ug/kg	*8.00*		*67.7*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	6.25			ug/kg	*8.00*		*78.2*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	5.60			ug/kg	*8.00*		*69.9*	*44-120*			
LCS (BIK0588-BS1)				Prepared: 19-Nov-2020 Analyzed: 04-Dec-2020 22:34							
Aroclor 1016 [2C]	73.4	1.6	4.0	ug/kg	101		72.8	56-120			
Aroclor 1260 [2C]	81.9	0.6	4.0	ug/kg	101		81.2	58-120			
Surrogate: Decachlorobiphenyl	5.41			ug/kg	*8.00*		*67.6*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.39			ug/kg	*8.00*		*67.4*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	6.40			ug/kg	*8.00*		*80.1*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	5.48			ug/kg	*8.00*		*68.4*	*44-120*			
Matrix Spike (BIK0588-MS1)		**Source: 20K0117-29**		Prepared: 19-Nov-2020 Analyzed: 04-Dec-2020 23:36							
Aroclor 1016	61.3	1.6	4.0	ug/kg	100	ND	61.1	56-120			
Aroclor 1260	73.1	0.6	4.0	ug/kg	100	3.5	69.3	58-120			
Surrogate: Decachlorobiphenyl	5.01			ug/kg	*7.97*		*62.9*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.18			ug/kg	*7.97*		*65.0*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	6.07			ug/kg	*7.97*		*76.2*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	5.28			ug/kg	*7.97*		*66.2*	*44-120*			

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

Matrix Spike Dup (BIK0588-MSD1)		**Source: 20K0117-29**		Prepared: 19-Nov-2020 Analyzed: 04-Dec-2020 23:56							
Aroclor 1016	68.8	1.6	4.0	ug/kg	100	ND	68.5	56-120	11.50	30	
Aroclor 1260	80.9	0.6	4.0	ug/kg	100	3.5	77.1	58-120	10.10	30	
Surrogate: Decachlorobiphenyl	5.76			ug/kg	*7.97*		*72.2*	*40-126*			
Surrogate: Tetrachlorometaxylene	6.03			ug/kg	*7.97*		*75.7*	*44-120*			

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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	28-Dec-2020 14:07

Aroclor PCB - Quality Control

Batch BIK0588 - EPA 3546 (Microwave)

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BIK0588-MSD1)	**Source: 20K0117-29**			Prepared: 19-Nov-2020		Analyzed: 04-Dec-2020 23:56					
Surrogate: Decachlorobiphenyl [2C]	6.81			ug/kg	*7.97*		*85.5*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	6.18			ug/kg	*7.97*		*77.5*	*44-120*			

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	28-Dec-2020 14:07

Metals and Metallic Compounds - Quality Control

Batch BIK0332 - SWN EPA 3050B

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 (BIK0332-BLK1)					Prepared: 12-Nov-2020 Analyzed: 13-Nov-2020 16:02							
Barium	135	ND	0.06	0.50	mg/kg							U
Barium	137	ND	0.05	0.50	mg/kg							U
Chromium	52	ND	0.13	0.50	mg/kg							U
Chromium	53	ND	0.07	0.50	mg/kg							U
Cobalt	59	ND	0.03	0.20	mg/kg							U
Lead	208	ND	0.07	0.10	mg/kg							U
Selenium	78	ND	0.44	2.00	mg/kg							U
Silver	107	ND	0.02	0.20	mg/kg							U
Vanadium	51a	ND	0.04	0.20	mg/kg							U
Vanadium	51b	ND	0.02	0.20	mg/kg							U
Arsenic	75a	ND	0.02	0.20	mg/kg							U
Cadmium	111	ND	0.03	0.10	mg/kg							U
Cadmium	114	ND	0.04	0.10	mg/kg							U
Copper	63	ND	0.34	0.50	mg/kg							U
Copper	65	ND	0.35	0.50	mg/kg							U
Nickel	60	ND	0.05	0.50	mg/kg							U
Nickel	62	ND	0.22	0.50	mg/kg							U
Zinc	66	ND	0.8	4.0	mg/kg							U
Zinc	67	ND	0.9	4.0	mg/kg							U
LCS (BIK0332-BS1)					Prepared: 12-Nov-2020 Analyzed: 13-Nov-2020 16:06							
Barium	135	23.9	0.06	0.50	mg/kg	25.0		95.4	80-120			
Barium	137	24.0	0.05	0.50	mg/kg	25.0		96.0	80-120			
Chromium	52	22.7	0.13	0.50	mg/kg	25.0		90.9	80-120			
Chromium	53	24.3	0.07	0.50	mg/kg	25.0		97.2	80-120			
Cobalt	59	22.9	0.03	0.20	mg/kg	25.0		91.6	80-120			
Lead	208	22.9	0.07	0.10	mg/kg	25.0		91.7	80-120			
Selenium	78	71.8	0.44	2.00	mg/kg	80.0		89.7	80-120			
Silver	107	24.6	0.02	0.20	mg/kg	25.0		98.3	80-120			
Vanadium	51a	22.2	0.04	0.20	mg/kg	25.0		88.9	80-120			
Vanadium	51b	22.7	0.02	0.20	mg/kg	25.0		90.6	80-120			
Arsenic	75a	22.4	0.02	0.20	mg/kg	25.0		89.7	80-120			
Cadmium	111	23.2	0.03	0.10	mg/kg	25.0		92.6	80-120			
Cadmium	114	22.8	0.04	0.10	mg/kg	25.0		91.1	80-120			
Copper	63	23.8	0.34	0.50	mg/kg	25.0		95.2	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	28-Dec-2020 14:07

Metals and Metallic Compounds - Quality Control

Batch BIK0332 - SWN EPA 3050B

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 (BIK0332-BS1)					Prepared: 12-Nov-2020 Analyzed: 13-Nov-2020 16:06							
Copper	65	23.7	0.35	0.50	mg/kg	25.0		95.0	80-120			
Nickel	60	23.2	0.05	0.50	mg/kg	25.0		93.0	80-120			
Nickel	62	22.8	0.22	0.50	mg/kg	25.0		91.1	80-120			
Zinc	66	73.4	0.8	4.0	mg/kg	80.0		91.8	80-120			
Zinc	67	70.2	0.9	4.0	mg/kg	80.0		87.8	80-120			
Duplicate (BIK0332-DUP1)			**Source: 20K0117-01**		Prepared: 12-Nov-2020 Analyzed: 13-Nov-2020 17:40							
Barium	135	31.9	0.07	0.59	mg/kg		32.6			2.18	20	
Chromium	52	10.2	0.15	0.59	mg/kg		10.2			0.44	20	
Cobalt	59	3.60	0.03	0.23	mg/kg		3.74			3.83	20	
Lead	208	2.86	0.08	0.12	mg/kg		2.98			4.12	20	
Selenium	78	0.57	0.52	2.35	mg/kg		0.52			8.28	20	J
Silver	107	0.04	0.02	0.23	mg/kg		0.05			5.22	20	J
Vanadium	51a	27.3	0.05	0.23	mg/kg		27.7			1.45	20	
Arsenic	75a	3.30	0.03	0.23	mg/kg		3.25			1.73	20	
Cadmium	111	0.04	0.04	0.12	mg/kg		ND					J
Copper	63	14.9	0.40	0.59	mg/kg		15.4			3.19	20	
Nickel	60	8.30	0.06	0.59	mg/kg		8.12			2.11	20	
Zinc	66	21.8	1.0	4.7	mg/kg		22.3			2.13	20	
Matrix Spike (BIK0332-MS1)			**Source: 20K0117-01**		Prepared: 12-Nov-2020 Analyzed: 13-Nov-2020 17:45							
Barium	135	62.1	0.07	0.59	mg/kg	29.4	32.6	100	75-125			
Chromium	52	37.8	0.15	0.59	mg/kg	29.4	10.2	94.0	75-125			
Cobalt	59	32.1	0.03	0.23	mg/kg	29.4	3.74	96.6	75-125			
Lead	208	31.2	0.08	0.12	mg/kg	29.4	2.98	95.9	75-125			
Selenium	78	84.8	0.52	2.35	mg/kg	94.0	0.52	89.6	75-125			
Silver	107	28.1	0.02	0.23	mg/kg	29.4	0.05	95.5	75-125			
Vanadium	51a	54.4	0.05	0.23	mg/kg	29.4	27.7	91.0	75-125			
Arsenic	75a	30.3	0.03	0.23	mg/kg	29.4	3.25	92.1	75-125			
Cadmium	111	29.0	0.04	0.12	mg/kg	29.4	ND	98.9	75-125			
Copper	63	44.7	0.40	0.59	mg/kg	29.4	15.4	99.7	75-125			
Nickel	60	37.4	0.06	0.59	mg/kg	29.4	8.12	99.8	75-125			
Zinc	66	114	1.0	4.7	mg/kg	94.0	22.3	97.2	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: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

Metals and Metallic Compounds - Quality Control

Batch BIK0332 - SWN EPA 3050B

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 (BIK0332-MSD1)			**Source: 20K0117-01**			Prepared: 12-Nov-2020 Analyzed: 13-Nov-2020 17:52						
Barium	135	64.3	0.07	0.59	mg/kg	29.4	32.6	108	75-125	3.54	20	
Chromium	52	36.1	0.15	0.59	mg/kg	29.4	10.2	88.2	75-125	4.60	20	
Cobalt	59	31.7	0.03	0.23	mg/kg	29.4	3.74	95.2	75-125	1.32	20	
Lead	208	30.1	0.08	0.12	mg/kg	29.4	2.98	92.4	75-125	3.41	20	
Selenium	78	84.5	0.52	2.35	mg/kg	94.0	0.52	89.3	75-125	0.33	20	
Silver	107	28.3	0.02	0.23	mg/kg	29.4	0.05	96.1	75-125	0.68	20	
Vanadium	51a	53.8	0.05	0.23	mg/kg	29.4	27.7	88.9	75-125	1.11	20	
Arsenic	75a	29.1	0.03	0.23	mg/kg	29.4	3.25	88.2	75-125	3.85	20	
Cadmium	111	27.8	0.04	0.12	mg/kg	29.4	ND	94.6	75-125	4.41	20	
Copper	63	43.2	0.40	0.59	mg/kg	29.4	15.4	94.7	75-125	3.38	20	
Nickel	60	36.0	0.06	0.59	mg/kg	29.4	8.12	95.0	75-125	3.80	20	
Zinc	66	110	1.0	4.7	mg/kg	94.0	22.3	93.6	75-125	3.01	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	28-Dec-2020 14:07

Metals and Metallic Compounds - Quality Control

Batch BIK0333 - SMM EPA 7471B

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 (BIK0333-BLK1)				Prepared: 11-Nov-2020 Analyzed: 13-Nov-2020 13:16							
Mercury	ND	0.00525	0.0250	mg/kg							U
LCS (BIK0333-BS1)				Prepared: 11-Nov-2020 Analyzed: 13-Nov-2020 13:19							
Mercury	0.425	0.00525	0.0250	mg/kg	0.500		85.0	80-120			
Duplicate (BIK0333-DUP1)		**Source: 20K0117-01**		Prepared: 11-Nov-2020 Analyzed: 13-Nov-2020 13:23							
Mercury	0.0323	0.00602	0.0287	mg/kg		0.0294			9.26	20	
Matrix Spike (BIK0333-MS1)		**Source: 20K0117-01**		Prepared: 11-Nov-2020 Analyzed: 13-Nov-2020 13:25							
Mercury	0.172	0.00602	0.0287	mg/kg	0.143	0.0294	99.1	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BIK0333-MSD1)		**Source: 20K0117-01**		Prepared: 11-Nov-2020 Analyzed: 13-Nov-2020 13:28							
Mercury	0.174	0.00602	0.0287	mg/kg	0.143	0.0294	101	75-125	1.53	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Post Spike (BIK0333-PS1)		**Source: 20K0117-01**		Prepared: 11-Nov-2020 Analyzed: 13-Nov-2020 14:21							
Mercury	0.00107			mg/kg	0.00100	0.0294	96.9	0-200			

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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	28-Dec-2020 14:07

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020A in Solid	
Silver-107	NELAP,DoD-ELAP,WADOE
Silver-107	DoD-ELAP,WADOE
Silver-107	NELAP,DoD-ELAP
Silver-107	NELAP,DoD-ELAP,WADOE
Barium-135	NELAP,DoD-ELAP,WADOE,ADEC
Barium-135	NELAP,DoD-ELAP,WADOE,ADEC
Barium-135	NELAP,DoD-ELAP,ADEC
Barium-135	DoD-ELAP,WADOE,ADEC
Barium-137	NELAP,DoD-ELAP,WADOE,ADEC
Barium-137	DoD-ELAP,WADOE,ADEC
Barium-137	NELAP,DoD-ELAP,ADEC
Barium-137	NELAP,DoD-ELAP,WADOE,ADEC
Cobalt-59	NELAP,DoD-ELAP,WADOE
Cobalt-59	NELAP,DoD-ELAP,WADOE
Cobalt-59	DoD-ELAP,WADOE
Cobalt-59	NELAP,DoD-ELAP
Chromium-52	DoD-ELAP,WADOE,ADEC
Chromium-52	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-52	NELAP,DoD-ELAP,ADEC
Chromium-52	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-53	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-53	NELAP,DoD-ELAP,ADEC
Chromium-53	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-53	DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,ADEC
Selenium-82	NELAP,DoD-ELAP,WADOE
Selenium-82	DoD-ELAP,WADOE
Selenium-82	NELAP,DoD-ELAP
Selenium-82	NELAP,DoD-ELAP,WADOE
Selenium-78	NELAP,DoD-ELAP,WADOE
Selenium-78	NELAP,DoD-ELAP
Selenium-78	NELAP,DoD-ELAP,WADOE

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

Selenium-78	DoD-ELAP,WADOE
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51a	NELAP,DoD-ELAP,ADEC
Vanadium-51a	DoD-ELAP,WADOE,ADEC
Vanadium-51b	DoD-ELAP,WADOE,ADEC
Vanadium-51b	DoD-ELAP,WADOE,ADEC
Vanadium-51b	DoD-ELAP,WADOE,ADEC
Vanadium-51b	DoD-ELAP,ADEC

EPA 6020A UCT-KED in Solid

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

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Shannon & Wilson, Inc	Project: Lower Duwamish	
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Zinc-66	NELAP,DoD-ELAP,WADOE
Zinc-66	DoD-ELAP,WADOE
Zinc-66	NELAP,DoD-ELAP
Zinc-67	NELAP,DoD-ELAP,WADOE
Zinc-67	NELAP,DoD-ELAP
Zinc-67	NELAP,DoD-ELAP,WADOE
Zinc-67	DoD-ELAP,WADOE
EPA 7471B in Solid	
Mercury	WADOE,NELAP,DoD-ELAP,CALAP
Mercury	WADOE,NELAP,DoD-ELAP
Mercury	WADOE,DoD-ELAP,CALAP
Mercury	NELAP,DoD-ELAP,CALAP
EPA 8082A in Solid	
Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1016 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1221	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1221 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1242	DoD-ELAP,NELAP,CALAP,ADEC

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
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Aroclor 1242	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1254 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1260	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1262	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1262 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268	DoD-ELAP,NELAP,CALAP,ADEC

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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	28-Dec-2020 14:07

Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
EPA 8260D in Solid	
Chloromethane	DoD-ELAP,NELAP,CALAP,ADEC
Chloromethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Chloromethane	WADOE,DoD-ELAP,NELAP,ADEC
Chloromethane	WADOE,DoD-ELAP,CALAP,ADEC
Vinyl Chloride	DoD-ELAP,NELAP,CALAP,ADEC
Vinyl Chloride	WADOE,DoD-ELAP,CALAP,ADEC
Vinyl Chloride	WADOE,DoD-ELAP,NELAP,ADEC
Vinyl Chloride	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Bromomethane	DoD-ELAP,NELAP,CALAP,ADEC
Bromomethane	WADOE,DoD-ELAP,CALAP,ADEC
Bromomethane	WADOE,DoD-ELAP,NELAP,ADEC
Bromomethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Chloroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Chloroethane	DoD-ELAP,NELAP,CALAP,ADEC
Chloroethane	WADOE,DoD-ELAP,CALAP,ADEC
Chloroethane	WADOE,DoD-ELAP,NELAP,ADEC
Trichlorofluoromethane	WADOE,DoD-ELAP,CALAP,ADEC
Trichlorofluoromethane	WADOE,DoD-ELAP,NELAP,ADEC
Trichlorofluoromethane	DoD-ELAP,NELAP,CALAP,ADEC
Trichlorofluoromethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Acrolein	WADOE,DoD-ELAP,NELAP,CALAP
Acrolein	DoD-ELAP,NELAP,CALAP
Acrolein	WADOE,DoD-ELAP,CALAP
Acrolein	WADOE,DoD-ELAP,NELAP
1,1,2-Trichloro-1,2,2-Trifluoroethane	WADOE,DoD-ELAP,NELAP,ADEC
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,NELAP,CALAP,ADEC
1,1,2-Trichloro-1,2,2-Trifluoroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,1,2-Trichloro-1,2,2-Trifluoroethane	WADOE,DoD-ELAP,CALAP,ADEC
Acetone	WADOE,DoD-ELAP,NELAP,CALAP
Acetone	WADOE,DoD-ELAP,CALAP
Acetone	WADOE,DoD-ELAP,NELAP

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Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

Acetone	DoD-ELAP,NELAP,CALAP
1,1-Dichloroethene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,1-Dichloroethene	WADOE,DoD-ELAP,NELAP,ADEC
1,1-Dichloroethene	WADOE,DoD-ELAP,CALAP,ADEC
1,1-Dichloroethene	DoD-ELAP,NELAP,CALAP,ADEC
Iodomethane	WADOE,DoD-ELAP,NELAP,ADEC
Iodomethane	WADOE,DoD-ELAP,CALAP,ADEC
Iodomethane	DoD-ELAP,NELAP,CALAP,ADEC
Iodomethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Methylene Chloride	DoD-ELAP,NELAP,CALAP,ADEC
Methylene Chloride	WADOE,DoD-ELAP,CALAP,ADEC
Methylene Chloride	WADOE,DoD-ELAP,NELAP,ADEC
Methylene Chloride	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Acrylonitrile	DoD-ELAP,NELAP,CALAP
Acrylonitrile	WADOE,DoD-ELAP,NELAP
Acrylonitrile	WADOE,DoD-ELAP,NELAP,CALAP
Acrylonitrile	WADOE,DoD-ELAP,CALAP
Carbon Disulfide	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,ADEC
Carbon Disulfide	WADOE,DoD-ELAP,CALAP,ADEC
Carbon Disulfide	WADOE,DoD-ELAP,NELAP,ADEC
trans-1,2-Dichloroethene	WADOE,DoD-ELAP,NELAP,ADEC
trans-1,2-Dichloroethene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
trans-1,2-Dichloroethene	DoD-ELAP,NELAP,CALAP,ADEC
trans-1,2-Dichloroethene	WADOE,DoD-ELAP,CALAP,ADEC
Vinyl Acetate	WADOE,DoD-ELAP,NELAP,CALAP
Vinyl Acetate	DoD-ELAP,NELAP,CALAP
Vinyl Acetate	WADOE,DoD-ELAP,CALAP
Vinyl Acetate	WADOE,DoD-ELAP,NELAP
1,1-Dichloroethane	DoD-ELAP,NELAP,CALAP,ADEC
1,1-Dichloroethane	WADOE,DoD-ELAP,CALAP,ADEC
1,1-Dichloroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,1-Dichloroethane	WADOE,DoD-ELAP,NELAP,ADEC
2-Butanone	WADOE,DoD-ELAP,NELAP,CALAP
2-Butanone	DoD-ELAP,NELAP,CALAP
2-Butanone	WADOE,DoD-ELAP,CALAP
2-Butanone	WADOE,DoD-ELAP,NELAP
2,2-Dichloropropane	WADOE,DoD-ELAP,NELAP,CALAP
2,2-Dichloropropane	WADOE,DoD-ELAP,NELAP

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	28-Dec-2020 14:07

2,2-Dichloropropane	WADOE,DoD-ELAP,CALAP
2,2-Dichloropropane	DoD-ELAP,NELAP,CALAP
cis-1,2-Dichloroethene	DoD-ELAP,NELAP,CALAP,ADEC
cis-1,2-Dichloroethene	WADOE,DoD-ELAP,NELAP,ADEC
cis-1,2-Dichloroethene	WADOE,DoD-ELAP,CALAP,ADEC
cis-1,2-Dichloroethene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Chloroform	WADOE,DoD-ELAP,NELAP,ADEC
Chloroform	DoD-ELAP,NELAP,CALAP,ADEC
Chloroform	WADOE,DoD-ELAP,CALAP,ADEC
Chloroform	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Bromochloromethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Bromochloromethane	WADOE,DoD-ELAP,CALAP,ADEC
Bromochloromethane	DoD-ELAP,NELAP,CALAP,ADEC
Bromochloromethane	WADOE,DoD-ELAP,NELAP,ADEC
1,1,1-Trichloroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,1,1-Trichloroethane	DoD-ELAP,NELAP,CALAP,ADEC
1,1,1-Trichloroethane	WADOE,DoD-ELAP,CALAP,ADEC
1,1,1-Trichloroethane	WADOE,DoD-ELAP,NELAP,ADEC
1,1-Dichloropropene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,1-Dichloropropene	WADOE,DoD-ELAP,NELAP,ADEC
1,1-Dichloropropene	WADOE,DoD-ELAP,CALAP,ADEC
1,1-Dichloropropene	DoD-ELAP,NELAP,CALAP,ADEC
Carbon tetrachloride	WADOE,DoD-ELAP,CALAP,ADEC
Carbon tetrachloride	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Carbon tetrachloride	DoD-ELAP,NELAP,CALAP,ADEC
Carbon tetrachloride	WADOE,DoD-ELAP,NELAP,ADEC
1,2-Dichloroethane	WADOE,DoD-ELAP,CALAP,ADEC
1,2-Dichloroethane	DoD-ELAP,NELAP,CALAP,ADEC
1,2-Dichloroethane	WADOE,DoD-ELAP,NELAP,ADEC
1,2-Dichloroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Benzene	DoD-ELAP,NELAP,CALAP,ADEC
Benzene	WADOE,DoD-ELAP,CALAP,ADEC
Benzene	WADOE,DoD-ELAP,NELAP,ADEC
Benzene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Trichloroethene	WADOE,DoD-ELAP,NELAP,ADEC
Trichloroethene	WADOE,DoD-ELAP,CALAP,ADEC
Trichloroethene	DoD-ELAP,NELAP,CALAP,ADEC
Trichloroethene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,2-Dichloropropane	WADOE,DoD-ELAP,CALAP,ADEC

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

1,2-Dichloropropane	WADOE,DoD-ELAP,NELAP,ADEC
1,2-Dichloropropane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,2-Dichloropropane	DoD-ELAP,NELAP,CALAP,ADEC
Bromodichloromethane	DoD-ELAP,NELAP,CALAP,ADEC
Bromodichloromethane	WADOE,DoD-ELAP,CALAP,ADEC
Bromodichloromethane	WADOE,DoD-ELAP,NELAP,ADEC
Bromodichloromethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Dibromomethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Dibromomethane	DoD-ELAP,NELAP,CALAP,ADEC
Dibromomethane	WADOE,DoD-ELAP,NELAP,ADEC
Dibromomethane	WADOE,DoD-ELAP,CALAP,ADEC
2-Chloroethyl vinyl ether	WADOE,DoD-ELAP
2-Chloroethyl vinyl ether	WADOE,DoD-ELAP,NELAP
2-Chloroethyl vinyl ether	DoD-ELAP,NELAP
2-Chloroethyl vinyl ether	WADOE,DoD-ELAP,NELAP
4-Methyl-2-Pentanone	WADOE,DoD-ELAP,NELAP
4-Methyl-2-Pentanone	WADOE,DoD-ELAP,CALAP
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP
4-Methyl-2-Pentanone	WADOE,DoD-ELAP,NELAP,CALAP
cis-1,3-Dichloropropene	DoD-ELAP,NELAP,CALAP,ADEC
cis-1,3-Dichloropropene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
cis-1,3-Dichloropropene	WADOE,DoD-ELAP,CALAP,ADEC
cis-1,3-Dichloropropene	WADOE,DoD-ELAP,NELAP,ADEC
Toluene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Toluene	DoD-ELAP,NELAP,CALAP,ADEC
Toluene	WADOE,DoD-ELAP,CALAP,ADEC
Toluene	WADOE,DoD-ELAP,NELAP,ADEC
trans-1,3-Dichloropropene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
trans-1,3-Dichloropropene	WADOE,DoD-ELAP,NELAP,ADEC
trans-1,3-Dichloropropene	WADOE,DoD-ELAP,CALAP,ADEC
trans-1,3-Dichloropropene	DoD-ELAP,NELAP,CALAP,ADEC
2-Hexanone	WADOE,DoD-ELAP,NELAP,CALAP
2-Hexanone	DoD-ELAP,NELAP,CALAP
2-Hexanone	WADOE,DoD-ELAP,NELAP
2-Hexanone	WADOE,DoD-ELAP,CALAP
1,1,2-Trichloroethane	WADOE,DoD-ELAP,NELAP,ADEC
1,1,2-Trichloroethane	WADOE,DoD-ELAP,CALAP,ADEC
1,1,2-Trichloroethane	DoD-ELAP,NELAP,CALAP,ADEC
1,1,2-Trichloroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

1,3-Dichloropropane	WADOE,DoD-ELAP,NELAP,ADEC
1,3-Dichloropropane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,3-Dichloropropane	DoD-ELAP,NELAP,CALAP,ADEC
1,3-Dichloropropane	WADOE,DoD-ELAP,CALAP,ADEC
Tetrachloroethene	WADOE,DoD-ELAP,NELAP,ADEC
Tetrachloroethene	DoD-ELAP,NELAP,CALAP,ADEC
Tetrachloroethene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Tetrachloroethene	WADOE,DoD-ELAP,CALAP,ADEC
Dibromochloromethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Dibromochloromethane	DoD-ELAP,NELAP,CALAP,ADEC
Dibromochloromethane	WADOE,DoD-ELAP,CALAP,ADEC
Dibromochloromethane	WADOE,DoD-ELAP,NELAP,ADEC
1,2-Dibromoethane	WADOE,DoD-ELAP,CALAP,ADEC
1,2-Dibromoethane	WADOE,DoD-ELAP,NELAP,ADEC
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,ADEC
1,2-Dibromoethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Chlorobenzene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Chlorobenzene	DoD-ELAP,NELAP,CALAP,ADEC
Chlorobenzene	WADOE,DoD-ELAP,CALAP,ADEC
Chlorobenzene	WADOE,DoD-ELAP,NELAP,ADEC
Ethylbenzene	WADOE,DoD-ELAP,CALAP,ADEC
Ethylbenzene	DoD-ELAP,NELAP,CALAP,ADEC
Ethylbenzene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Ethylbenzene	WADOE,DoD-ELAP,NELAP,ADEC
1,1,1,2-Tetrachloroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,1,1,2-Tetrachloroethane	WADOE,DoD-ELAP,NELAP,ADEC
1,1,1,2-Tetrachloroethane	WADOE,DoD-ELAP,CALAP,ADEC
1,1,1,2-Tetrachloroethane	DoD-ELAP,NELAP,CALAP,ADEC
m,p-Xylene	WADOE,DoD-ELAP,CALAP,ADEC
m,p-Xylene	DoD-ELAP,NELAP,CALAP,ADEC
m,p-Xylene	WADOE,DoD-ELAP,NELAP,ADEC
m,p-Xylene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
o-Xylene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
o-Xylene	WADOE,DoD-ELAP,CALAP,ADEC
o-Xylene	WADOE,DoD-ELAP,NELAP,ADEC
o-Xylene	DoD-ELAP,NELAP,CALAP,ADEC
Xylenes, total	WADOE
Xylenes, total	WADOE
Xylenes, total	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

Xylenes, total	WADOE
Styrene	WADOE,DoD-ELAP,NELAP,ADEC
Styrene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Styrene	WADOE,DoD-ELAP,CALAP,ADEC
Styrene	DoD-ELAP,NELAP,CALAP,ADEC
Bromoform	DoD-ELAP,NELAP,CALAP,ADEC
Bromoform	WADOE,DoD-ELAP,CALAP,ADEC
Bromoform	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Bromoform	WADOE,DoD-ELAP,NELAP,ADEC
1,1,2,2-Tetrachloroethane	WADOE,DoD-ELAP,CALAP,ADEC
1,1,2,2-Tetrachloroethane	WADOE,DoD-ELAP,NELAP,ADEC
1,1,2,2-Tetrachloroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,1,2,2-Tetrachloroethane	DoD-ELAP,NELAP,CALAP,ADEC
1,2,3-Trichloropropane	WADOE,DoD-ELAP,CALAP,ADEC
1,2,3-Trichloropropane	WADOE,DoD-ELAP,NELAP,ADEC
1,2,3-Trichloropropane	DoD-ELAP,NELAP,CALAP,ADEC
1,2,3-Trichloropropane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
trans-1,4-Dichloro 2-Butene	WADOE,DoD-ELAP,NELAP
trans-1,4-Dichloro 2-Butene	WADOE,DoD-ELAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,NELAP
trans-1,4-Dichloro 2-Butene	WADOE,DoD-ELAP,NELAP
n-Propylbenzene	WADOE,DoD-ELAP,NELAP
n-Propylbenzene	WADOE,DoD-ELAP,CALAP
n-Propylbenzene	WADOE,DoD-ELAP,NELAP,CALAP
n-Propylbenzene	DoD-ELAP,NELAP,CALAP
Bromobenzene	WADOE,DoD-ELAP,CALAP,ADEC
Bromobenzene	DoD-ELAP,NELAP,CALAP,ADEC
Bromobenzene	WADOE,DoD-ELAP,NELAP,ADEC
Bromobenzene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Isopropyl Benzene	WADOE,DoD-ELAP,NELAP,ADEC
Isopropyl Benzene	WADOE,DoD-ELAP,CALAP,ADEC
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,ADEC
Isopropyl Benzene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
2-Chlorotoluene	WADOE,DoD-ELAP,NELAP
2-Chlorotoluene	WADOE,DoD-ELAP,CALAP
2-Chlorotoluene	DoD-ELAP,NELAP,CALAP
2-Chlorotoluene	WADOE,DoD-ELAP,NELAP,CALAP
4-Chlorotoluene	DoD-ELAP,NELAP,CALAP
4-Chlorotoluene	WADOE,DoD-ELAP,CALAP

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4-Chlorotoluene	WADOE,DoD-ELAP,NELAP
4-Chlorotoluene	WADOE,DoD-ELAP,NELAP,CALAP
t-Butylbenzene	DoD-ELAP,NELAP,CALAP
t-Butylbenzene	WADOE,DoD-ELAP,CALAP
t-Butylbenzene	WADOE,DoD-ELAP,NELAP
t-Butylbenzene	WADOE,DoD-ELAP,NELAP,CALAP
1,3,5-Trimethylbenzene	WADOE,DoD-ELAP,NELAP
1,3,5-Trimethylbenzene	WADOE,DoD-ELAP,CALAP
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,3,5-Trimethylbenzene	WADOE,DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	WADOE,DoD-ELAP,NELAP
1,2,4-Trimethylbenzene	WADOE,DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	WADOE,DoD-ELAP,CALAP
s-Butylbenzene	WADOE,DoD-ELAP,CALAP
s-Butylbenzene	DoD-ELAP,NELAP,CALAP
s-Butylbenzene	WADOE,DoD-ELAP,NELAP,CALAP
s-Butylbenzene	WADOE,DoD-ELAP,NELAP
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP
4-Isopropyl Toluene	WADOE,DoD-ELAP,CALAP
4-Isopropyl Toluene	WADOE,DoD-ELAP,NELAP,CALAP
4-Isopropyl Toluene	WADOE,DoD-ELAP,NELAP
1,3-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
1,3-Dichlorobenzene	WADOE,DoD-ELAP,CALAP
1,3-Dichlorobenzene	DoD-ELAP,NELAP,CALAP
1,3-Dichlorobenzene	WADOE,DoD-ELAP,NELAP,CALAP
1,4-Dichlorobenzene	WADOE,DoD-ELAP,CALAP
1,4-Dichlorobenzene	WADOE,DoD-ELAP,NELAP,CALAP
1,4-Dichlorobenzene	DoD-ELAP,NELAP,CALAP
1,4-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
n-Butylbenzene	WADOE,DoD-ELAP,NELAP,CALAP
n-Butylbenzene	DoD-ELAP,NELAP,CALAP
n-Butylbenzene	WADOE,DoD-ELAP,CALAP
n-Butylbenzene	WADOE,DoD-ELAP,NELAP
1,2-Dichlorobenzene	WADOE,DoD-ELAP,NELAP,CALAP
1,2-Dichlorobenzene	DoD-ELAP,NELAP,CALAP
1,2-Dichlorobenzene	WADOE,DoD-ELAP,CALAP
1,2-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,NELAP,CALAP,ADEC

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

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400 N 34th St., Suite 100	Project Number: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

4-Bromofluorobenzene	WADOE
4-Bromofluorobenzene	
4-Bromofluorobenzene	WADOE
4-Bromofluorobenzene	WADOE

EPA 8260D in Water

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

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Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Iodomethane	DoD-ELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP
Methylene Chloride	DoD-ELAP,ADEC,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP
Acrylonitrile	DoD-ELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP
Carbon Disulfide	DoD-ELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP
2-Butanone	DoD-ELAP,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
2,2-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,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:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP
Chloroform	DoD-ELAP,ADEC,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromochloromethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,1-Trichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP
Carbon tetrachloride	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Trichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE

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Bromodichloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP
Toluene	DoD-ELAP,ADEC,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP
2-Hexanone	DoD-ELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2-Trichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE

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Shannon & Wilson, Inc	Project: Lower Duwamish	
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1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Tetrachloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
Chlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP
Styrene	DoD-ELAP,NELAP,WADOE
Styrene	DoD-ELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,CALAP,WADOE

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Bromoform	DoD-ELAP,NELAP,CALAP
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2,3-Trichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP
n-Propylbenzene	DoD-ELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP
Isopropyl Benzene	DoD-ELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP
4-Chlorotoluene	DoD-ELAP,ADEC,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP
t-Butylbenzene	DoD-ELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE

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1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,3,5-Trimethylbenzene	DoD-ELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	DoD-ELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP
4-Isopropyl Toluene	DoD-ELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,4-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP
n-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE

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

NWTPH-Dx in Solid

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C24)	DoD-ELAP,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,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP
Diesel Range Organics (C10-C25)	DoD-ELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE

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Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP
Diesel Range Organics (Tol-C18)	DoD-ELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP
Diesel Range Organics (C10-C28)	DoD-ELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
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-C22)	DoD-ELAP
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Diesel Range Organics (C12-C25)	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 (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C38)	DoD-ELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP
Motor Oil Range Organics (C25-C36)	DoD-ELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Residual Range Organics (C23-C32)	DoD-ELAP
Residual Range Organics (C23-C32)	DoD-ELAP
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,WADOE
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE

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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	28-Dec-2020 14:07

Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,WADOE
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,WADOE
JP5 Range Organics (C10-C16)	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,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,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP
Stoddard Range Organics (C8-C12)	DoD-ELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
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
Bunker C Range Organics (C10-C38)	DoD-ELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

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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	28-Dec-2020 14:07

NWTPHg in Solid

Gasoline Range Organics (Tol-Nap)	DoD-ELAP
Gasoline Range Organics (Tol-Nap)	DoD-ELAP
Gasoline Range Organics (Tol-Nap)	DoD-ELAP
Gasoline Range Organics (Tol-Nap)	DoD-ELAP
Gasoline Range Organics (2MP-TMB)	DoD-ELAP
Gasoline Range Organics (2MP-TMB)	DoD-ELAP
Gasoline Range Organics (2MP-TMB)	DoD-ELAP
Gasoline Range Organics (2MP-TMB)	DoD-ELAP
Gasoline Range Organics (Tol-C12)	DoD-ELAP
Gasoline Range Organics (Tol-C12)	DoD-ELAP
Gasoline Range Organics (Tol-C12)	DoD-ELAP
Gasoline Range Organics (Tol-C12)	DoD-ELAP
Gasoline Range Organics (C6-C10)	DoD-ELAP
Gasoline Range Organics (C6-C10)	DoD-ELAP
Gasoline Range Organics (C6-C10)	DoD-ELAP
Gasoline Range Organics (C6-C10)	DoD-ELAP
Gasoline Range Organics (C5-C12)	DoD-ELAP
Gasoline Range Organics (C5-C12)	DoD-ELAP
Gasoline Range Organics (C5-C12)	DoD-ELAP
Gasoline Range Organics (C5-C12)	DoD-ELAP
4-Bromofluorobenzene (field spiked)	DoD-ELAP
4-Bromofluorobenzene (field spiked)	DoD-ELAP
4-Bromofluorobenzene (field spiked)	DoD-ELAP
4-Bromofluorobenzene (field spiked)	DoD-ELAP

NWTPHg in Water

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
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)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,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: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	28-Dec-2020 14:07

Gasoline Range Organics (C6-C10)	WADOE,ADEC,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
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021

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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	28-Dec-2020 14:07

Notes and Definitions

*	Flagged value is not within established control limits.
B	This analyte was detected in the method blank.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
J	Estimated concentration value detected below the reporting limit.
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

23 February 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)
20K0152	N/A

Amanda Volgardsen
Digitally signed by Amanda Volgardsen
Date: 2021.02.23 16:12:09 -08'00'

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

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

Analytical Resources, 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: 20K0152	Turn-around Requested: Standard	Page: 1 of 3	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206 695-6811	Date: 11/5/20	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: CTC + RBP		

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Analytical Chemists and Consultants
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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: 6x	Dx	BTEX	HVOCs	PAHs	PCB Aroclors	Metals *	Total Organic Carbon, Grain Size	Notes/Comments
SB-2020-013:1.5-11052020	11/5/20	1515	Soil	3		X			X	X	X	XX	* = See note on table 1 ** = waters have different metals list than soil. Total and dissolved
SB-2020-013:6-11052020	11/5/20	1520	Soil	3		X			X	X	X	XX	
SB-2020-013:11.5-11052020	11/5/20	1525	Soil	3		X			X	X	X	XX	
SB-2020-013:20.5-11052020	11/5/20	1530	Soil	3									Hold
SB-2020-013:23-11052020	11/5/20	1535	Soil	3									Hold
TB-4-11052020	11/5/20	1600	Water	~~1~~	X		X	X					
EB-1-11052020	11/5/20	1610	Water	9			X	X	X	X	X**		
SB-2020-004:2.5-11062020	11/6/20	0905	soil	7		X	X	X	X	X	X	X X	
SB-2020-004:8-11062020	11/6/20	0910	Soil	7		X	X	X	X	X	X	X X	
SB-2020-004:13-11062020	11/6/20	0915	Soil	7		X	X	X	X	X	X	X X	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Lab to filter for dissolved metals.	Printed Name: Christian Canfield	Printed Name: Jacob Leith	Printed Name:	Printed Name:
	Company: Shannon & Wilson, Inc.	Company: ARI	Company:	Company:
	Date & Time: 11/6/2020 ~~1500~~ 1531	Date & Time: 11/06/2020 1531	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: 20K0152	Turn-around Requested: Standard
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6811
Client Contact: Shoshana Howard	
Client Project Name: LDW	
Client Project #: 21-1-12596	Samplers: CTC + RBP

Page: 2 of 3	
Date: 11/5-6/20	Ice Present? Yes
No. of Coolers: 3	Cooler Temps: See CRF

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

Sample ID	Date	Time	Matrix	No. Containers	Gx	Dx	BTEX	HVOCs	PAHs	PCBs (Aroclors)	* Metals	Total Org. Carbon	Grain Size	Notes/Comments
					Analysis Requested									*=See note on Table 1 **=waters have different metals list than soil. Total & Dissolved
MS/MSD-SB-004:13-11062020	11/6/20	0920	Soil	7		X	X	X	X	X	X	X	X	
SB-2020-004:17-11062020	11/6/20	0925	Soil	8		X	X	X	X	X	X	X	X	
SB-2020-101:17-11062020	11/6/20	0930	Soil	7		X	X	X	X	X	X	X	X	
SB-2020-004:21-11062020	11/6/20	0935	Soil	7		X	X	X	X	X	X	X	X	
SB-2020-004:27-11062020	11/6/20	0945	Soil	7		X	X	X	X	X	X	X	X	
A2-16A:9.5-11062020	11/6/20	1155	Soil	3	X	X								
A2-16A:12.5-11062020	11/6/20	1200	Soil	3	X	X								
A2-16A:18-11062020	11/6/20	1205	Soil	3	X	X								
A2-16A:20-11062020	11/6/20	1210	Soil	3										Hold
EB-2-11062020	11/6/20	1330	Water	ctr ~~11~~ 9			X	X	X	X	X**			

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Christian Canfield	Printed Name: Jacob Haltc	Printed Name:	Printed Name:
	Company: Shannon & Wilson, Inc.	Company: ARI	Company:	Company:
	Date & Time: 11/6/2020 ~~1400~~ 1531	Date & Time: 11/06/2020 1531	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.*

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Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20K0152	Turn-around Requested: Standard
ARI Client Company: Shannon & Wilson, Inc. Phone: 206-695-6811	
Client Contact: Shoshana Howard	
Client Project Name: LDW	
Client Project #: 21-1-12596	Samplers: CTC + RBP

Page: 3 of 3	
Date: 11/5-6/20	Ice Present? Yes
No. of Coolers: 3	Cooler Temps: See CRF

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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: Gx	Dx	BTEX	HVOCs	PAHs	PCBs (Aroclors)	Metals *	Total Org. Carbon / Grain Size	Notes/Comments
EB-3-1106202	11/6/20	1340	Water	CTC 9			X	X	X	X	X**		* = See note on Table 1 ** = Waters have different metals list than soil. Total & Dissolved.

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Christian Canfield	Printed Name: Jacob Haltr	Printed Name:	Printed Name:
	Company: Shannon & Wilson, Inc.	Company: ARI	Company:	Company:
	Date & Time: 11/6/2020 CTC ~~1100~~ 1531	Date & Time: 11/06/2020 1531	Date & Time:	Date & Time:

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

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

Draft for Public Comment

Analytical Resources, Incorporated
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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-2020-013:1.5-11052020	20K0152-01	Solid	05-Nov-2020 15:15	06-Nov-2020 15:31
SB-2020-013:6-11052020	20K0152-02	Solid	05-Nov-2020 15:20	06-Nov-2020 15:31
SB-2020-013:11.5-11052020	20K0152-03	Solid	05-Nov-2020 15:25	06-Nov-2020 15:31
SB-2020-013:20.5-11052020	20K0152-04	Solid	05-Nov-2020 15:30	06-Nov-2020 15:31
SB-2020-013:23-11052020	20K0152-05	Solid	05-Nov-2020 15:35	06-Nov-2020 15:31
TB-4-11052020	20K0152-06	Water	06-Nov-2020 13:40	06-Nov-2020 15:31
EB-1-11052020	20K0152-07	Water	05-Nov-2020 16:10	06-Nov-2020 15:31
EB-1-11052020	20K0152-08	Water	05-Nov-2020 16:10	06-Nov-2020 15:31
SB-2020-004:2.5-11062020	20K0152-09	Solid	06-Nov-2020 09:05	06-Nov-2020 15:31
SB-2020-004:8-11062020	20K0152-10	Solid	06-Nov-2020 09:10	06-Nov-2020 15:31
SB-2020-004:13-11062020	20K0152-11	Solid	06-Nov-2020 09:15	06-Nov-2020 15:31
MS/MSD-SB-2020-004:13-11062020	20K0152-12	Solid	06-Nov-2020 09:20	06-Nov-2020 15:31
SB-2020-004:17-11062020	20K0152-13	Solid	06-Nov-2020 09:25	06-Nov-2020 15:31
SB-2020-101:17-11062020	20K0152-14	Solid	06-Nov-2020 09:30	06-Nov-2020 15:31
SB-2020-004:21-11062020	20K0152-15	Solid	06-Nov-2020 09:35	06-Nov-2020 15:31
SB-2020-004:27-11062020	20K0152-16	Solid	06-Nov-2020 09:45	06-Nov-2020 15:31
A2-16A:9.5-11062020	20K0152-17	Solid	06-Nov-2020 11:55	06-Nov-2020 15:31
A2-16A:12.5-11062020	20K0152-18	Solid	06-Nov-2020 12:00	06-Nov-2020 15:31
A2-16A:18-11062020	20K0152-19	Solid	06-Nov-2020 12:05	06-Nov-2020 15:31
A2-16A:20-11062020	20K0152-20	Solid	06-Nov-2020 12:10	06-Nov-2020 15:31
EB-2-11062020	20K0152-21	Water	06-Nov-2020 13:30	06-Nov-2020 15:31
EB-2-11062020	20K0152-22	Water	06-Nov-2020 13:30	06-Nov-2020 15:31
EB-3-11062020	20K0152-23	Water	06-Nov-2020 13:40	06-Nov-2020 15:31
EB-3-11062020	20K0152-24	Water	06-Nov-2020 13:40	06-Nov-2020 15:31

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Work Order Case Narrative

Sample receipt

Samples as listed on the preceding page were received 06-Nov-2020 15:31 under ARI work order 20K0152. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles - EPA Method SW8260D

The samples were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with the exception of the ICV which is outside of control limits low for cis-1,2-Dichloroethene. Associated detected results and QC have been flagged with "Q" qualifiers. No further corrective action was taken.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blanks were clean at the reporting limits.

The LCS and LCSD have low spike recoveries for cis-1,2-Dichloroethene which is likely due to calibration bias. The LCSD also has high percent recovery for Tetrachloroethene. No corrective action was taken.

Gasoline by NWTPH-g (GC/MS)

The samples 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 blanks 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 samples were extracted and analyzed within the recommended holding times.

Sample SB-2020-004:21-11062020 was reanalyzed at a dilution due to "E" flagged compound concentrations exceeding the upper calibration limits. No further corrective action was taken.

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blanks were clean at the reporting limits.

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

A matrix spike and matrix spike duplicate were prepared in conjunction with sample EB-1-11052020. The matrix spike duplicate has high spike recoveries for Benzo(b)fluoranthene and Total Benzofluoranthenes. The results are advisory. No corrective action was taken.

A matrix spike and matrix spike duplicate were prepared in conjunction with sample SB-2020-013:1.5-11052020. The matrix spike/matrix spike duplicate percent recoveries and RPD were within QC limits.

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

The samples 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 was clean at the reporting limits.

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

A matrix spikes and matrix spike duplicates were prepared in conjunction with samples SB-2020-013:11.5-11052020 and SB-2020-004:2.5-11062020. The matrix spike duplicate has low spike recovery. The results are advisory. No corrective action as taken.

PCB Aroclors - EPA Method SW8082A

The samples were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with exception of SIL0088-SCV1/SCV3/SVC5 which are outside of control limits high for the surrogate Decachlorobiphenyl. The calibrations were reanalyzed until there was a passing column. Data was reported from passing columns. No corrective action was taken.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

The method blanks were clean at the reporting limits.

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

A matrix spikes and matrix spike duplicates were prepared in conjuntion with sample EB-1-11052020 and SB-2020-004:8-11062020. The matrix spike/matrix spike duplicate percent recoveries and RPD were within QC limits.

Total Metals - EPA Method 6020A

The samples were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blanks were clean at the reporting limits.

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

A matrix spike, matrix spike duplicate and duplicates were prepared in conjunction with sample SB-2020-013:1.5- 11052020. The duplicate has high RPD for Chromium, Barium and Selenium and a canoncetration of Silver <=5 times the reporting limits and the replicate control limit defaults to +/- the reporting limit instead of 20% of the RPD. The duplicate has been flagged with an "L" qualifier. The matrix spike has high spike recovery for Chromium and Barium, and the matrix spike duplicate has high spike recovery for lead and Barium. Post digest spikes were prepared within QC limits. The results are advisory. No further corrective action was taken.

Total Metals UCT-KED - EPA Method 6020A

The samples were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blanks were clean at the reporting limits.

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

A matrix spikes, matrix spike duplicates and duplicates were prepared in conjunction with sample SB-2020-013:1.5-11052020 and EB-1-11052020. The duplicate has high RPD for Arsenic. The matrix spike and matrix spike duplicate have high spike recoveries and RPD for Nickle. A post spike digest was prepared within QC limits. The results are advisory. No further corrective action was taken.

Total Hg - EPA Method 7471B

The samples were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

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

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

A matrix spike, matrix spike duplicate and duplicate were prepared in conjunction with sample SB-2020-013:1.5- 11052020.
The matrix spike, matrix spike duplicate and duplicate percent recoveries and/or RPD were within QC 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.

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Shannon & Wilson Project Name: Lower Duwamish Waterway

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

Assigned ARI Job No: 20K0152 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 1531 0.5 0.8 4.9 ____ ____ ____

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: DOO ~~SD06~~

Cooler Accepted by: JG Date: 11/06/2020 Time: 1531

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	10/26/20	

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

Samples Logged by: SC Date: 11/9/2020 Time: ~~0900~~ 1332 SC 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:

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 11/9/2020 2:57:17PM

WORK ORDER

20K0152

Client: Shannon & Wilson, Inc
Project Manager: Amanda Volgardsen Johnson
Project: Lower Duwamish
Project Number: Lower Duwamish

Preservation Confirmation

Container ID	Container Type	pH	
20K0152-01 A	HDPE WM, 16 oz		
20K0152-01 B	Glass WM, Clear, 8 oz		
20K0152-01 C	Glass WM, Clear, 4 oz		
20K0152-02 A	HDPE WM, 16 oz		
20K0152-02 B	Glass WM, Clear, 8 oz		
20K0152-02 C	Glass WM, Clear, 4 oz		
20K0152-03 A	HDPE WM, 16 oz		
20K0152-03 B	Glass WM, Clear, 8 oz		
20K0152-03 C	Glass WM, Clear, 4 oz		
20K0152-04 A	HDPE WM, 16 oz		
20K0152-04 B	Glass WM, Clear, 8 oz		
20K0152-04 C	Glass WM, Clear, 4 oz		
20K0152-05 A	HDPE WM, 16 oz		
20K0152-05 B	Glass WM, Clear, 8 oz		
20K0152-05 C	Glass WM, Clear, 4 oz		
20K0152-06 A	VOA Vial, Clear, 40 mL, HCL		
20K0152-07 A	Glass NM, Amber, 1000 mL		
20K0152-07 B	Glass NM, Amber, 1000 mL		
20K0152-07 C	Glass NM, Amber, 1000 mL		
20K0152-07 D	Glass NM, Amber, 1000 mL		
20K0152-07 E	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
20K0152-07 F	VOA Vial, Clear, 40 mL, HCL		
20K0152-07 G	VOA Vial, Clear, 40 mL, HCL		
20K0152-07 H	VOA Vial, Clear, 40 mL, HCL		
20K0152-07 I	VOA Vial, Clear, 40 mL, HCL		
20K0152-07 J	VOA Vial, Clear, 40 mL, HCL		
20K0152-08 A	HDPE NM, 500 mL		
20K0152-09 A	HDPE WM, 16 oz		
20K0152-09 B	Glass WM, Clear, 8 oz		
20K0152-09 C	Glass WM, Clear, 4 oz		
20K0152-09 D	Glass WM, Clear, 2 oz		
20K0152-09 E	VOA Vial, Clear, 40 mL, NaHSO4		
20K0152-09 F	VOA Vial, Clear, 40 mL, NaHSO4		
20K0152-09 G	VOA Vial, Clear, 40 mL, MeOH		
20K0152-10 A	HDPE WM, 16 oz		

Reviewed By

Date

Draft for Public Comment

WORK ORDER

20K0152

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

20K0152-10 B	Glass WM, Clear, 8 oz
20K0152-10 C	Glass WM, Clear, 4 oz
20K0152-10 D	Glass WM, Clear, 2 oz
20K0152-10 E	VOA Vial, Clear, 40 mL, NaHSO4
20K0152-10 F	VOA Vial, Clear, 40 mL, NaHSO4
20K0152-10 G	VOA Vial, Clear, 40 mL, MeOH
20K0152-11 A	HDPE WM, 16 oz
20K0152-11 B	Glass WM, Clear, 8 oz
20K0152-11 C	Glass WM, Clear, 4 oz
20K0152-11 D	Glass WM, Clear, 2 oz
20K0152-11 E	VOA Vial, Clear, 40 mL, NaHSO4
20K0152-11 F	VOA Vial, Clear, 40 mL, NaHSO4
20K0152-11 G	VOA Vial, Clear, 40 mL, MeOH
20K0152-12 A	HDPE WM, 16 oz
20K0152-12 B	Glass WM, Clear, 8 oz
20K0152-12 C	Glass WM, Clear, 4 oz
20K0152-12 D	Glass WM, Clear, 2 oz
20K0152-12 E	VOA Vial, Clear, 40 mL, NaHSO4
20K0152-12 F	VOA Vial, Clear, 40 mL, NaHSO4
20K0152-12 G	VOA Vial, Clear, 40 mL, MeOH
20K0152-13 A	HDPE WM, 16 oz
20K0152-13 B	Glass WM, Clear, 8 oz
20K0152-13 C	Glass WM, Clear, 8 oz
20K0152-13 D	Glass WM, Clear, 4 oz
20K0152-13 E	Glass WM, Clear, 2 oz
20K0152-13 F	VOA Vial, Clear, 40 mL, NaHSO4
20K0152-13 G	VOA Vial, Clear, 40 mL, NaHSO4
20K0152-13 H	VOA Vial, Clear, 40 mL, MeOH
20K0152-14 A	HDPE WM, 16 oz
20K0152-14 B	Glass WM, Clear, 8 oz
20K0152-14 C	Glass WM, Clear, 4 oz
20K0152-14 D	Glass WM, Clear, 2 oz
20K0152-14 E	VOA Vial, Clear, 40 mL, NaHSO4
20K0152-14 F	VOA Vial, Clear, 40 mL, NaHSO4
20K0152-14 G	VOA Vial, Clear, 40 mL, MeOH
20K0152-15 A	HDPE WM, 16 oz
20K0152-15 B	Glass WM, Clear, 8 oz

Reviewed By

Date

Draft for Public Comment

WORK ORDER

20K0152

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

20K0152-15 C	Glass WM, Clear, 4 oz		
20K0152-15 D	Glass WM, Clear, 2 oz		
20K0152-15 E	VOA Vial, Clear, 40 mL, NaHSO4		
20K0152-15 F	VOA Vial, Clear, 40 mL, NaHSO4		
20K0152-15 G	VOA Vial, Clear, 40 mL, MeOH		
20K0152-16 A	HDPE WM, 16 oz		
20K0152-16 B	Glass WM, Clear, 8 oz		
20K0152-16 C	Glass WM, Clear, 4 oz		
20K0152-16 D	Glass WM, Clear, 2 oz		
20K0152-16 E	VOA Vial, Clear, 40 mL, NaHSO4		
20K0152-16 F	VOA Vial, Clear, 40 mL, NaHSO4		
20K0152-16 G	VOA Vial, Clear, 40 mL, MeOH		
20K0152-17 A	Glass WM, Clear, 8 oz		
20K0152-17 B	VOA Vial, Clear, 40 mL, MeOH		
20K0152-17 C	VOA Vial, Clear, 40 mL, MeOH		
20K0152-18 A	Glass WM, Clear, 8 oz		
20K0152-18 B	VOA Vial, Clear, 40 mL, MeOH		
20K0152-18 C	VOA Vial, Clear, 40 mL, MeOH		
20K0152-19 A	Glass WM, Clear, 8 oz		
20K0152-19 B	VOA Vial, Clear, 40 mL, MeOH		
20K0152-19 C	VOA Vial, Clear, 40 mL, MeOH		
20K0152-20 A	Glass WM, Clear, 8 oz		
20K0152-20 B	VOA Vial, Clear, 40 mL, MeOH		
20K0152-20 C	VOA Vial, Clear, 40 mL, MeOH		
20K0152-21 A	Glass NM, Amber, 1000 mL		
20K0152-21 B	Glass NM, Amber, 1000 mL		
20K0152-21 C	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
20K0152-21 D	VOA Vial, Clear, 40 mL, HCL		
20K0152-21 E	VOA Vial, Clear, 40 mL, HCL		
20K0152-21 F	VOA Vial, Clear, 40 mL, HCL		
20K0152-21 G	VOA Vial, Clear, 40 mL, HCL		
20K0152-21 H	VOA Vial, Clear, 40 mL, HCL		
20K0152-22 A	HDPE NM, 500 mL		
20K0152-23 A	Glass NM, Amber, 1000 mL		
20K0152-23 B	Glass NM, Amber, 1000 mL		
20K0152-23 C	HDPE NM, 500 mL, 1:1 HNO3	<2	Pass
20K0152-23 D	VOA Vial, Clear, 40 mL, HCL		

Reviewed By

Date

Draft for Public Comment

WORK ORDER

20K0152

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

20K0152-23 E	VOA Vial, Clear, 40 mL, HCL
20K0152-23 F	VOA Vial, Clear, 40 mL, HCL
20K0152-23 G	VOA Vial, Clear, 40 mL, HCL
20K0152-23 H	VOA Vial, Clear, 40 mL, HCL
20K0152-24 A	HDPE NM, 500 mL

SC
Preservation Confirmed By

11/9/2020
Date

Reviewed By

Date

Materials Testing & Consulting, Inc.
Geotechnical Engineering • Special Inspection • Materials Testing • Environmental Consulting

Project:	20K0152	**Date Received:**	November 11, 2020
Project #:	20S038-23	**Sampled By:**	Others
Client :	Analytical Resources, Inc.	**Date Reported:**	February 19, 2021
Source:	Multiple	**Tested By:**	B. Goble
MTC Sample#:	Multiple		

CASE NARRATIVE

1. Eleven samples were submitted for grain size analysis according to Puget Sound Estuary Protocol (PSEP) methodology.
2. The samples were run in a single batch and one sample from this job was chosen for triplicate analysis. The triplicate data is reported on the QA summary.
3. Three samples did not contain the required amount of fines for the pipette portion of the analysis. The samples could not be split to reach the required amount of fines while staying within the capacity of the balance. The samples have been qualified on the QA summary.
4. The data is provided in summary tables and plots.
5. There were no other noted anomalies in this project.

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

Draft for Public Comment

Materials Testing & Consulting, Inc.

Geotechnical Engineering • Special Inspection • Materials Testing • Environmental Consulting

Project: 20K0152
Project #: 20S038-23
Date Received: November 11, 2020
Date Tested: January 15, 2021

Client: Analytical Resources, Inc.
Sampled by: Others
Tested by: B. Goble

Apparent Grain Size Distribution Summary

Percent Finer Than Indicated Size

Sample No.	Gravel			Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt				Clay	
Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
Sieve Size (microns)	3/8"	#4 (4750)	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (63)	31.0	15.6	7.8	3.9	2.0	1.0
20K0152-02	100.0	99.7	97.7	94.2	82.4	55.5	20.9	7.6	5.7	4.9	3.6	3.2	2.1	0.9
	100.0	99.5	97.6	94.5	82.5	54.4	19.2	6.1	5.6	4.8	3.4	3.1	2.0	0.9
	100.0	99.4	97.2	93.5	81.4	54.4	19.5	6.3	5.6	4.9	3.5	3.3	2.1	1.0
20K0152-01	100.0	57.8	44.6	35.1	24.1	14.5	9.8	7.3	5.3	4.4	3.2	2.7	2.0	1.1
20K0152-03	100.0	97.4	95.0	88.9	70.5	42.2	19.5	9.7	6.8	5.3	3.9	3.1	2.3	1.1
20K0152-09	100.0	100.0	98.9	97.4	91.4	72.6	44.8	23.4	17.2	14.7	12.4	10.1	7.0	4.6
20K0152-10	100.0	99.1	92.3	83.5	60.0	22.1	6.5	3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4
20K0152-11	100.0	100.0	100.0	99.9	99.4	97.8	92.2	76.0	64.9	57.8	52.1	46.5	39.9	36.2
20K0152-12	100.0	100.0	99.9	99.7	99.4	97.9	94.9	81.1	69.5	59.7	54.7	48.8	42.5	37.4
20K0152-13	100.0	99.6	98.5	94.5	73.0	19.8	5.7	2.9	<2.9	<2.9	<2.9	<2.9	<2.9	<2.9
20K0152-14	100.0	100.0	99.4	96.7	63.8	14.4	5.1	2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6
20K0152-15	100.0	100.0	99.1	95.2	65.2	22.3	9.7	5.9	5.5	4.3	3.7	2.8	1.8	0.9
20K0152-16	100.0	100.0	99.0	95.8	69.9	29.0	13.9	8.3	6.8	5.6	4.2	2.7	1.7	0.6

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: E Gabe Goble

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Regional Offices: Olympia ~ 360.534.9777 Bellingham ~ 360.647.6061 Silverdale ~ 360.698.6787 Tukwila ~ 206.241.1974
Visit our website: www.mtc-inc.net

Draft for Public Comment

Materials Testing & Consulting, Inc.

Geotechnical Engineering • Special Inspection • Materials Testing • Environmental Consulting

Project: 20K0152
Project #: 20S038-23
Date Received: November 11, 2020
Date Tested: January 15, 2021

Client: Analytical Resources, Inc.
Sampled by: Others
Tested by: B. Goble

Apparent Grain Size Distribution Summary
Percent Retained in Each Size Fraction

Sample No.	Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Coarse Silt	Medium Silt	Fine Silt	Very Fine Silt	Clay			Total Fines
Phi Size	< -1	-1 to 0	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	> 10	> 4
Sieve Size (microns)	> #10 (2000)	10-18 (2000-1000)	18-35 (1000-500)	35-60 (500-250)	60-120 (250-125)	120-230 (125-62)	62.5-31.0	31.0-15.6	15.6-7.8	7.8-3.9	3.9-2.0	2.0-1.0	<1.0	<230 (<62)
20K0152-02	2.3	3.5	11.8	26.9	34.6	13.3	1.9	0.8	1.3	0.4	1.1	1.3	0.9	7.6
	2.4	3.1	12.1	28.0	35.2	13.1	0.6	0.8	1.4	0.3	1.1	1.1	0.9	6.1
	2.8	3.6	12.1	27.0	34.9	13.2	0.6	0.7	1.4	0.2	1.2	1.1	1.0	6.3
20K0152-01	55.4	9.5	10.9	9.6	4.7	2.5	2.0	1.0	1.2	0.5	0.6	1.0	1.1	7.3
20K0152-03	5.0	6.1	18.5	28.3	22.7	9.8	2.9	1.5	1.4	0.8	0.7	1.2	1.1	9.7
20K0152-09	1.1	1.5	6.0	18.8	27.8	21.4	6.1	2.5	2.3	2.4	3.0	2.4	4.6	23.4
20K0152-10	7.7	8.8	23.5	37.9	15.6	3.1	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	3.4
20K0152-11	0.0	0.1	0.4	1.6	5.7	16.1	11.1	7.1	5.7	5.7	6.6	3.6	36.2	76.0
20K0152-12	0.1	0.2	0.3	1.5	2.9	13.9	11.5	9.9	4.9	6.0	6.2	5.1	37.4	81.1
20K0152-13	1.5	3.9	21.5	53.2	14.2	2.7	<2.9	<2.9	<2.9	<2.9	<2.9	<2.9	<2.9	2.9
20K0152-14	0.6	2.6	32.9	49.4	9.3	2.5	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	<2.6	2.6
20K0152-15	0.9	3.8	30.0	42.9	12.6	3.8	0.4	1.2	0.6	0.8	1.1	0.8	0.9	5.9
20K0152-16	1.0	3.1	25.9	40.9	15.1	5.6	1.5	1.2	1.4	1.4	1.0	1.1	0.6	8.3

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

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Draft for Public Comment

Materials Testing & Consulting, Inc.

Geotechnical Engineering • Special Inspection • Materials Testing • Environmental Consulting

Project: 20K0152
Project #: 20S038-23
Date Received: November 11, 2020
Date Tested: January 15, 2021

Client: Analytical Resources, Inc.
Sampled by: Others
Tested by: B. Goble

Relative Standard Deviation, By Phi Size

Sample ID	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
20K0152-02	100.0	99.7	97.7	94.2	82.4	55.5	20.9	7.6	5.7	4.9	3.6	3.2	2.1	0.9
	100.0	99.5	97.6	94.5	82.5	54.4	19.2	6.1	5.6	4.8	3.4	3.1	2.0	0.9
	100.0	99.4	97.2	93.5	81.4	54.4	19.5	6.3	5.6	4.9	3.5	3.3	2.1	1.0
AVE	100.0	99.5	97.5	94.1	82.1	54.8	19.9	6.7	5.6	4.9	3.5	3.2	2.1	0.9
STDEV	0.0	0.1	0.2	0.4	0.5	0.5	0.7	0.7	0.1	0.1	0.1	0.1	0.1	0.1
%RSD	0.0	0.1	0.2	0.4	0.6	1.0	3.7	9.9	0.9	1.3	2.5	2.5	3.7	5.8

The Triplicate Applies To The Following Samples

Client ID	Date Sampled	Date Extracted	Date Complete	QA Ratio (95-105)	Data Qualifiers	Pipette Portion (5.0-25.0g)
20K0152-02	11/5/2020	1/11/2021	1/15/2021	100.5		10.5
	11/5/2020	1/11/2021	1/15/2021	99.1		8.5
	11/5/2020	1/11/2021	1/15/2021	99.2		8.6
20K0152-01	11/5/2020	1/11/2021	1/15/2021	100.7		11.3
20K0152-03	11/5/2020	1/11/2021	1/15/2021	101.7		11.8
20K0152-09	11/6/2020	1/11/2021	1/15/2021	103.8		15.0
20K0152-10	11/6/2020	1/11/2021	1/15/2021	99.8	SS	4.9
20K0152-11	11/6/2020	1/11/2021	1/15/2021	102.1		18.9
20K0152-12	11/6/2020	1/11/2021	1/15/2021	100.9		22.4
20K0152-13	11/6/2020	1/11/2021	1/15/2021	99.1	SS	3.3
20K0152-14	11/6/2020	1/11/2021	1/15/2021	99.3	SS	3.2
20K0152-15	11/6/2020	1/11/2021	1/15/2021	98.8		7.2
20K0152-16	11/6/2020	1/11/2021	1/15/2021	100.4		10.3

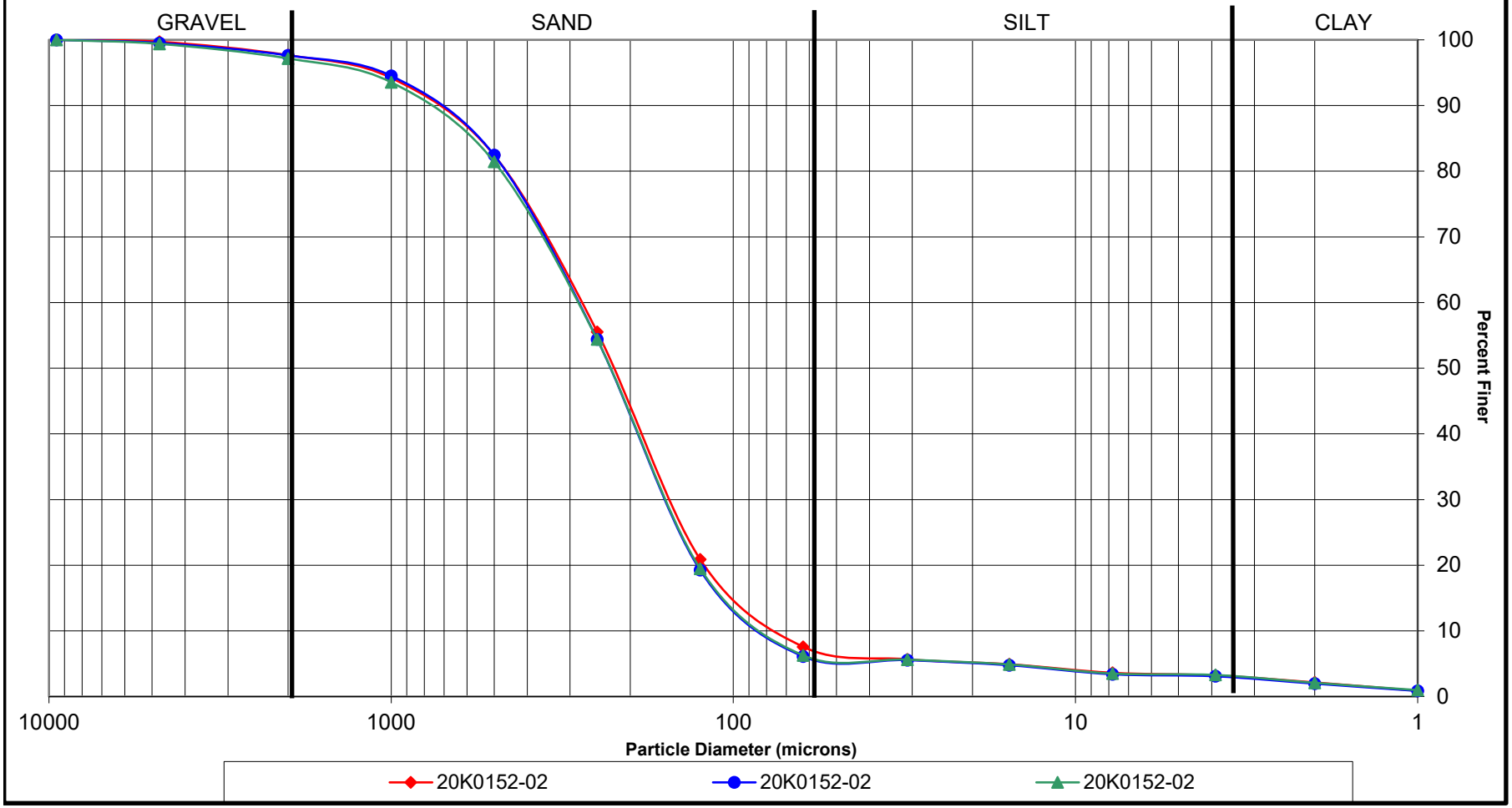
All results apply only to actual locations and materials tested. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

Reviewed by: EGabi Goble

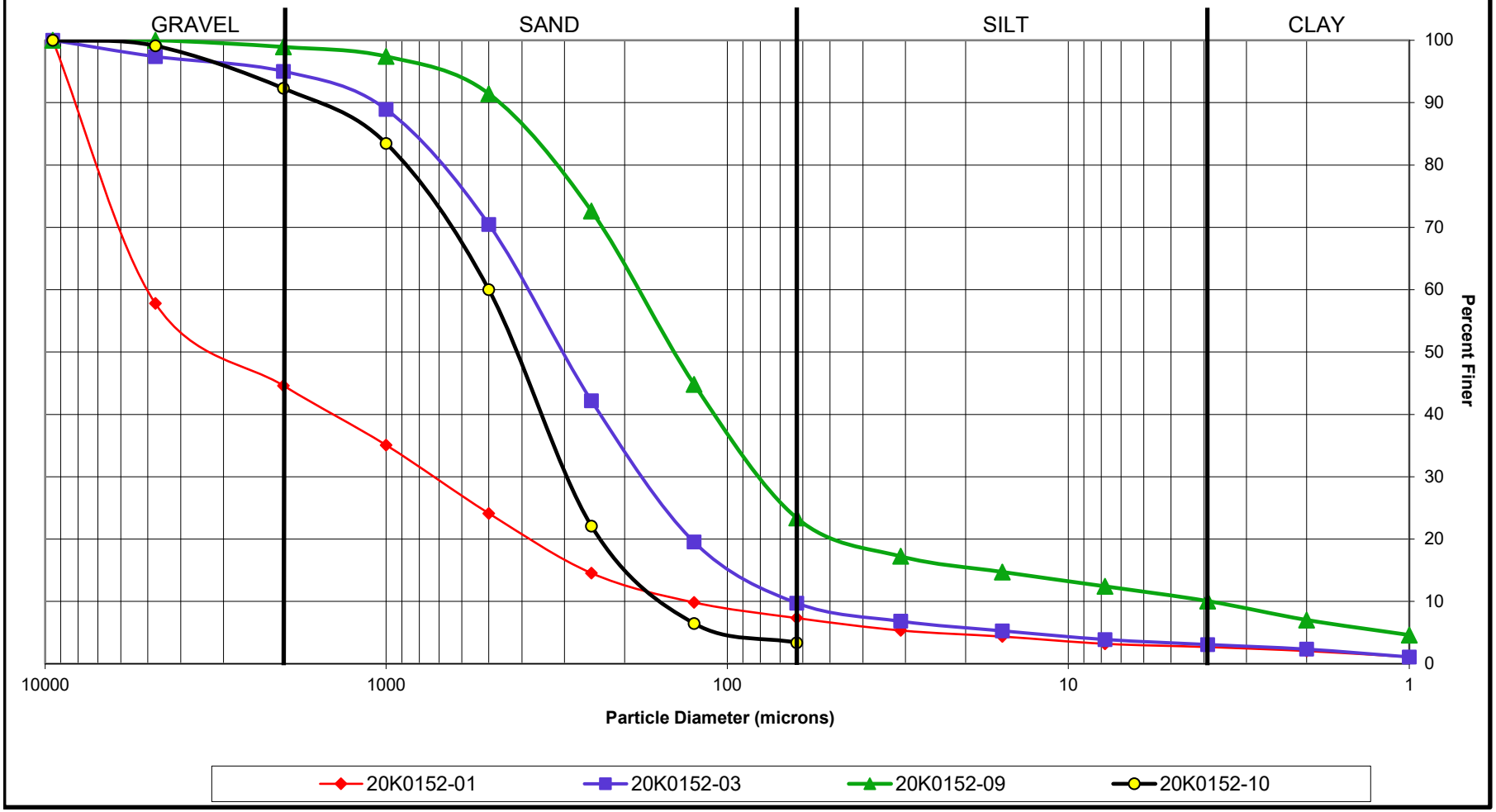
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PSEP Grain Size Distribution

Triplicate Sample Plot

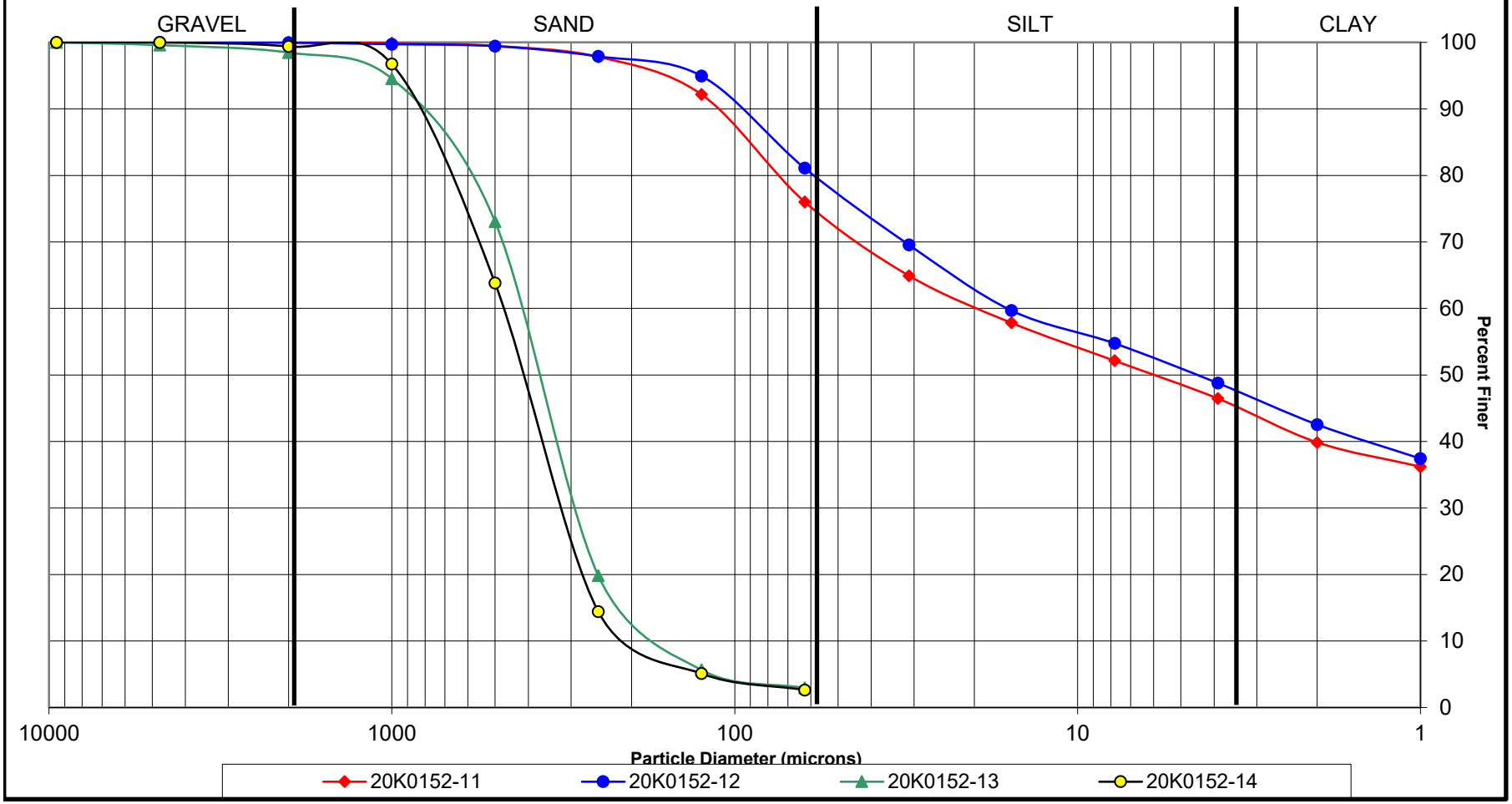


PSEP Grain Size Distribution



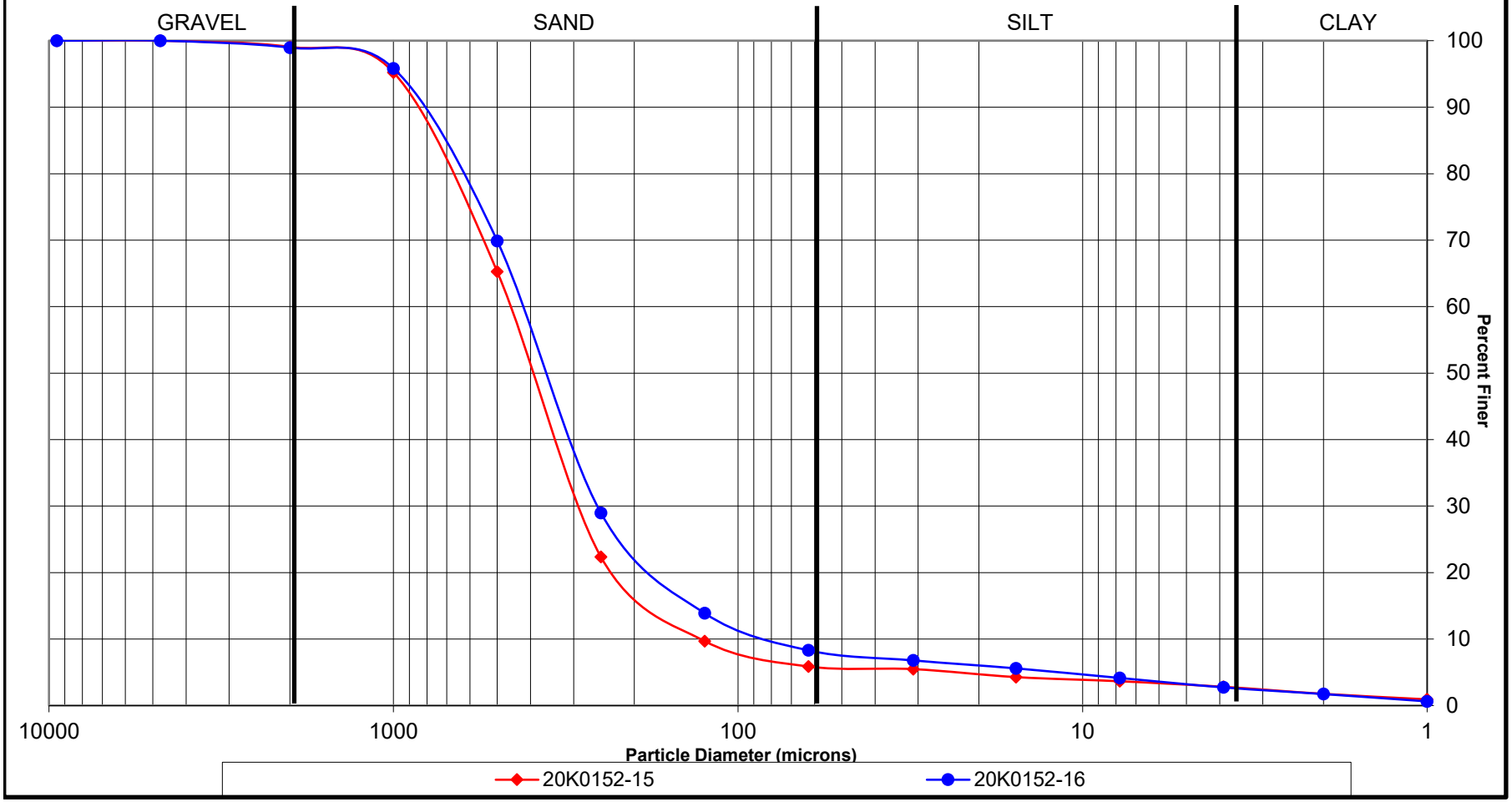
Draft for Public Comment

PSEP Grain Size Distribution



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PSEP Grain Size Distribution



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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-013:1.5-11052020

20K0152-01 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/05/2020 15:15
Instrument: FID4 Analyst: JGR/CTO/VT — Analyzed: 12/03/2020 00:10

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0152-01 B 01
Preparation Batch: BIK0587 — Sample Size: 10.07 g (wet) — Dry Weight:9.52 g
Prepared: 11/19/2020 — Final Volume: 1 mL — % Solids: 94.51

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	5.25	ND	mg/kg	Ua
Motor Oil Range Organics (C24-C38)	RRO	1	10.5	14.0	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*94.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-013:1.5-11052020

20K0152-01 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/05/2020 15:15
Instrument: ECD7 Analyst: JGR — Analyzed: 12/05/2020 02:00

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0152-01 B 02
	Preparation Batch: BIK0588	Sample Size: 13.31 g (wet)	Dry Weight:12.58 g
	Prepared: 11/19/2020	Final Volume: 2.5 mL	% Solids: 94.51
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-01 B 02
	Cleanup Batch: CIL0047	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0152-01 B 02
	Cleanup Batch: CIL0045	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-01 B 02
	Cleanup Batch: CIL0046	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	5	7.8	19.9	ND	ug/kg	Ua
Aroclor 1221	11104-28-2	5	7.8	19.9	ND	ug/kg	Ua
Aroclor 1232	11141-16-5	5	7.8	19.9	ND	ug/kg	Ua
Aroclor 1242	53469-21-9	5	7.8	19.9	ND	ug/kg	Ua
Aroclor 1248	12672-29-6	5	7.8	19.9	ND	ug/kg	Ua
Aroclor 1254	11097-69-1	5	7.8	19.9	146	ug/kg	D
Aroclor 1260	11096-82-5	5	2.9	19.9	23.3	ug/kg	D
Surrogate: Decachlorobiphenyl				*40-126 %*	*77.7*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*71.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*71.9*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*72.3*	*%*	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-013:1.5-11052020

20K0152-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/05/2020 15:15
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/20/2020 17:09

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-01 C 01
Preparation Batch: BIK0569 — Sample Size: 1.025 g (wet) — Dry Weight:0.97 g
Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 94.62

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.52	63.4	mg/kg	
Chromium	7440-47-3	20	0.13	0.52	30.8	mg/kg	
Cobalt	7440-48-4	20	0.03	0.21	6.55	mg/kg	
Lead	7439-92-1	20	0.07	0.10	23.1	mg/kg	
Selenium	7782-49-2	20	0.45	2.06	1.87	mg/kg	J
Silver	7440-22-4	20	0.02	0.21	0.09	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.21	35.3	mg/kg	

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SB-2020-013:1.5-11052020

20K0152-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/05/2020 15:15
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/19/2020 17:25

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-01 C 01
Preparation Batch: BIK0569 — Sample Size: 1.025 g (wet) — Dry Weight:0.97 g
Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 94.62

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.21	7.26	mg/kg	
Cadmium	7440-43-9	20	0.03	0.10	0.06	mg/kg	J
Copper	7440-50-8	20	0.35	0.52	27.3	mg/kg	
Nickel	7440-02-0	20	0.05	0.52	25.6	mg/kg	
Zinc	7440-66-6	20	0.8	4.1	40.7	mg/kg	

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SB-2020-013:1.5-11052020

20K0152-01 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/05/2020 15:15
Instrument: HYDRA Analyst: BLC — Analyzed: 11/12/2020 16:46

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0152-01 C
Preparation Batch: BIK0276 — Sample Size: 0.244 g (wet) — Dry Weight:0.23 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 96.12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00448	0.0213	0.0163	mg/kg	J

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20K0152-01 (Solid)

Wet Chemistry

Method: EPA 9060A m — Sampled: 11/05/2020 15:15

Instrument: TOC Cube Analyst: BF — Analyzed: 11/19/2020 23:07

Sample Preparation: Preparation Method: PSEP 1986 (modified) — Extract ID: 20K0152-01 C

Preparation Batch: BIK0572 — Sample Size: 0.5752 g (wet) — Dry Weight:0.55 g

Prepared: 11/18/2020 — Final Volume: 0.5752 mL — % Solids: 96.12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.07	%	

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20K0152-01 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 11/05/2020 15:15

Instrument: BAL2 Analyst: KLE — Analyzed: 11/11/2020 23:04

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 20K0152-01

Preparation Batch: BIK0364 — Sample Size: 10 g (wet) — Dry Weight:9.61 g

Prepared: 11/11/2020 — Final Volume: 10 g — % Solids: 96.12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	96.12	%	

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SB-2020-013:1.5-11052020

20K0152-01 (Solid)

Geotechnical Methods

Method: PSEP-PS — Sampled: 11/05/2020 15:15

Instrument: MT&C Analyst: — Analyzed: 01/15/2021 00:00

Analysis by: Materials Testing & Consulting, Inc. (Olympia)

Sample Preparation: Preparation Method: No Prep Geo — Extract ID: 20K0152-01

Preparation Batch: B011521

Prepared: 01/15/2021 Final Volume:

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size <-1	GS_GRAVEL	1	0.1	55.4	%	
Phi Size -1 to 0	GS_VCS	1	0.1	9.5	%	
Phi Size 0 to 1	GS_CS	1	0.1	10.9	%	
Phi Size 1 to 2	GS_MS	1	0.1	9.6	%	
Phi Size 2 to 3	GS_FS	1	0.1	4.7	%	
Phi Size 3 to 4	GS_VFS	1	0.1	2.5	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	2.0	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	1.0	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	1.2	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	0.5	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	0.6	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	1.0	%	
Phi Size >10	GS_FCLAY	1	0.1	1.1	%	
Total Fines	GS_TOTFINES	1	0.1	7.3	%	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-013:1.5-11052020

20K0152-01RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/05/2020 15:15
Instrument: NT11 Analyst: VTS — Analyzed: 12/18/2020 15:29

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0152-01RE1 B 04
	Preparation Batch: BIL0296	Sample Size: 10.63 g (wet)	Dry Weight:10.05 g
	Prepared: 12/11/2020	Final Volume: 0.5 mL	% Solids: 94.51
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-01RE1 B 04
	Cleanup Batch: CIL0171	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-01RE1 B 04
	Cleanup Batch: CIL0170	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	ND	ug/kg	Ua
1-Methylnaphthalene	90-12-0	1	0.11	0.50	0.24	ug/kg	J
2-Methylnaphthalene	91-57-6	1	0.13	0.50	0.34	ug/kg	J
Acenaphthylene	208-96-8	1	0.06	0.50	0.24	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	0.15	ug/kg	J
Dibenzofuran	132-64-9	1	0.13	0.50	0.15	ug/kg	J
Fluorene	86-73-7	1	0.07	0.50	0.18	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.50	1.82	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	0.62	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	4.94	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	6.01	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	11.8	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	9.53	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	15.7	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	6.99	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	5.76	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	11.9	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	7.24	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	2.10	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	7.24	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*48.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*77.0*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*69.5*	*%*	

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SB-2020-013:6-11052020

20K0152-02 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/05/2020 15:20

Instrument: FID4 Analyst: JGR/CTO/VT — Analyzed: 12/03/2020 00:31

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0152-02 B 01

Preparation Batch: BIK0587 — Sample Size: 10.04 g (wet) — Dry Weight:8.89 g

Prepared: 11/19/2020 — Final Volume: 1 mL — % Solids: 88.52

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	5.63	ND	mg/kg	Ua
Motor Oil Range Organics (C24-C38)	RRO	1	11.3	14.4	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*91.6*	*%*	

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SB-2020-013:6-11052020

20K0152-02 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/05/2020 15:20
Instrument: ECD7 Analyst: JGR — Analyzed: 12/05/2020 02:20

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0152-02 B 02
	Preparation Batch: BIK0588	Sample Size: 14.13 g (wet)	Dry Weight:12.51 g
	Prepared: 11/19/2020	Final Volume: 2.5 mL	% Solids: 88.52
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-02 B 02
	Cleanup Batch: CIL0047	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0152-02 B 02
	Cleanup Batch: CIL0045	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-02 B 02
	Cleanup Batch: CIL0046	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	Ua
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	Ua
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	Ua
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	Ua
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	Ua
Aroclor 1254	11097-69-1	1	1.6	4.0	83.7	ug/kg	
Aroclor 1260	11096-82-5	1	0.6	4.0	9.3	ug/kg	
Surrogate: Decachlorobiphenyl				*40-126 %*	*67.2*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*70.4*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*76.9*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*69.5*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-013:6-11052020

20K0152-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/05/2020 15:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/20/2020 17:35

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-02 C 01

Preparation Batch: BIK0569 — Sample Size: 1.038 g (wet) — Dry Weight:0.97 g

Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 93.50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.52	22.4	mg/kg	
Chromium	7440-47-3	20	0.13	0.52	13.4	mg/kg	
Cobalt	7440-48-4	20	0.03	0.21	3.57	mg/kg	
Lead	7439-92-1	20	0.07	0.10	11.5	mg/kg	
Selenium	7782-49-2	20	0.45	2.06	0.65	mg/kg	J
Silver	7440-22-4	20	0.02	0.21	0.05	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.21	24.3	mg/kg	

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-013:6-11052020

20K0152-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/05/2020 15:20

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/19/2020 20:48

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-02 C 01

Preparation Batch: BIK0569 — Sample Size: 1.038 g (wet) — Dry Weight:0.97 g

Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 93.50

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.21	2.03	mg/kg	
Cadmium	7440-43-9	20	0.03	0.10	0.04	mg/kg	J
Copper	7440-50-8	20	0.35	0.52	9.42	mg/kg	
Nickel	7440-02-0	20	0.05	0.52	9.24	mg/kg	
Zinc	7440-66-6	20	0.8	4.1	21.3	mg/kg	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-013:6-11052020

20K0152-02 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/05/2020 15:20
Instrument: HYDRA Analyst: BLC — Analyzed: 11/12/2020 17:07

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0152-02 C
Preparation Batch: BIK0276 — Sample Size: 0.213 g (wet) — Dry Weight:0.20 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 92.84

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00531	0.0253	0.0151	mg/kg	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-013:6-11052020

20K0152-02 (Solid)

Wet Chemistry

Method: EPA 9060A m — Sampled: 11/05/2020 15:20

Instrument: TOC Cube Analyst: BF — Analyzed: 11/19/2020 23:38

Sample Preparation: Preparation Method: PSEP 1986 (modified) — Extract ID: 20K0152-02 C

Preparation Batch: BIK0572 — Sample Size: 0.5115 g (wet) — Dry Weight:0.47 g

Prepared: 11/18/2020 — Final Volume: 0.5115 mL — % Solids: 92.84

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.39	%	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-013:6-11052020

20K0152-02 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 11/05/2020 15:20

Instrument: BAL2 Analyst: KLE — Analyzed: 11/11/2020 23:04

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 20K0152-02

Preparation Batch: BIK0364 — Sample Size: 10 g (wet) — Dry Weight:9.28 g

Prepared: 11/11/2020 — Final Volume: 10 g — % Solids: 92.84

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	92.84	%	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-013:6-11052020

20K0152-02 (Solid)

Geotechnical Methods

Method: PSEP-PS — Sampled: 11/05/2020 15:20

Instrument: MT&C Analyst: — Analyzed: 01/15/2021 00:00

Analysis by: Materials Testing & Consulting, Inc. (Olympia)

Sample Preparation: Preparation Method: No Prep Geo — Extract ID: 20K0152-02

Preparation Batch: B011521

Prepared: 01/15/2021 Final Volume:

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size <-1	GS_GRAVEL	1	0.1	2.3	%	
Phi Size -1 to 0	GS_VCS	1	0.1	3.5	%	
Phi Size 0 to 1	GS_CS	1	0.1	11.8	%	
Phi Size 1 to 2	GS_MS	1	0.1	26.9	%	
Phi Size 2 to 3	GS_FS	1	0.1	34.6	%	
Phi Size 3 to 4	GS_VFS	1	0.1	13.3	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	1.9	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	0.8	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	1.3	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	0.4	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	1.1	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	1.3	%	
Phi Size >10	GS_FCLAY	1	0.1	0.9	%	
Total Fines	GS_TOTFINES	1	0.1	7.6	%	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-013:6-11052020

20K0152-02RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/05/2020 15:20
Instrument: NT11 Analyst: VTS — Analyzed: 12/18/2020 17:06

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0152-02RE1 B 04
	Preparation Batch: BIL0296	Sample Size: 11.33 g (wet)	Dry Weight:10.03 g
	Prepared: 12/11/2020	Final Volume: 0.5 mL	% Solids: 88.52
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-02RE1 B 04
	Cleanup Batch: CIL0171	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-02RE1 B 04
	Cleanup Batch: CIL0170	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	3.36	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	3.08	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	4.10	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.17	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	0.25	ug/kg	J
Dibenzofuran	132-64-9	1	0.13	0.50	1.31	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	0.15	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.50	4.76	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	0.40	ug/kg	J
Fluoranthene	206-44-0	1	0.08	0.50	3.01	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	3.48	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	1.96	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	2.72	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	3.17	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	1.34	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	1.20	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	2.38	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	1.96	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.59	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	2.25	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*52.0*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*81.0*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*76.5*	*%*	

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Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-013:11.5-11052020

20K0152-03 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/05/2020 15:25
Instrument: FID4 Analyst: JGR/CTO/VT — Analyzed: 12/03/2020 00:51

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0152-03 B 01
Preparation Batch: BIK0587 — Sample Size: 10 g (wet) — Dry Weight:8.37 g
Prepared: 11/19/2020 — Final Volume: 1 mL — % Solids: 83.71

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	5.97	9.93	mg/kg	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	11.9	24.1	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*86.8*	*%*	

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SB-2020-013:11.5-11052020

20K0152-03 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/05/2020 15:25
Instrument: ECD7 Analyst: JGR — Analyzed: 12/05/2020 02:41

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0152-03 B 02
	Preparation Batch: BIK0588	Sample Size: 14.99 g (wet)	Dry Weight:12.55 g
	Prepared: 11/19/2020	Final Volume: 2.5 mL	% Solids: 83.71
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-03 B 02
	Cleanup Batch: CIL0047	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0152-03 B 02
	Cleanup Batch: CIL0045	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-03 B 02
	Cleanup Batch: CIL0046	Initial Volume: 2.5 mL	
	Cleaned: 04-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	Ua
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	Ua
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	Ua
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	Ua
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	Ua
Aroclor 1254	11097-69-1	1	1.6	4.0	1.6	ug/kg	J
Aroclor 1260	11096-82-5	1	0.6	4.0	2.2	ug/kg	J
Surrogate: Decachlorobiphenyl				*40-126 %*	*61.7*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*67.2*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*68.8*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*68.5*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-013:11.5-11052020

20K0152-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/05/2020 15:25
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/20/2020 17:56

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-03 C 01
Preparation Batch: BIK0569 — Sample Size: 1.093 g (wet) — Dry Weight:0.87 g
Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 79.54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.58	23.9	mg/kg	
Chromium	7440-47-3	20	0.15	0.58	7.57	mg/kg	
Cobalt	7440-48-4	20	0.03	0.23	3.48	mg/kg	
Lead	7439-92-1	20	0.08	0.12	2.24	mg/kg	
Selenium	7782-49-2	20	0.51	2.30	0.76	mg/kg	J
Silver	7440-22-4	20	0.02	0.23	0.05	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.23	25.8	mg/kg	

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SB-2020-013:11.5-11052020

20K0152-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/05/2020 15:25
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/19/2020 20:53

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-03 C 01
Preparation Batch: BIK0569 — Sample Size: 1.093 g (wet) — Dry Weight:0.87 g
Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 79.54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.23	2.58	mg/kg	
Cadmium	7440-43-9	20	0.03	0.12	0.04	mg/kg	J
Copper	7440-50-8	20	0.39	0.58	10.3	mg/kg	
Nickel	7440-02-0	20	0.06	0.58	7.15	mg/kg	
Zinc	7440-66-6	20	0.9	4.6	20.4	mg/kg	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-013:11.5-11052020

20K0152-03 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/05/2020 15:25
Instrument: HYDRA Analyst: BLC — Analyzed: 11/12/2020 17:13

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0152-03 C
Preparation Batch: BIK0276 — Sample Size: 0.263 g (wet) — Dry Weight:0.21 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 81.28

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00491	0.0234	0.0281	mg/kg	

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20K0152-03 (Solid)

Wet Chemistry

Method: EPA 9060A m — Sampled: 11/05/2020 15:25

Instrument: TOC Cube Analyst: BF — Analyzed: 11/20/2020 00:09

Sample Preparation: Preparation Method: PSEP 1986 (modified) — Extract ID: 20K0152-03 C

Preparation Batch: BIK0572 — Sample Size: 0.5576 g (wet) — Dry Weight:0.45 g

Prepared: 11/18/2020 — Final Volume: 0.5576 mL — % Solids: 81.28

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.36	%	

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SB-2020-013:11.5-11052020

20K0152-03 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 11/05/2020 15:25

Instrument: BAL2 Analyst: KLE — Analyzed: 11/11/2020 23:04

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 20K0152-03

Preparation Batch: BIK0364 — Sample Size: 10 g (wet) — Dry Weight:8.13 g

Prepared: 11/11/2020 — Final Volume: 10 g — % Solids: 81.28

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	81.28	%	

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SB-2020-013:11.5-11052020

20K0152-03 (Solid)

Geotechnical Methods

Method: PSEP-PS — Sampled: 11/05/2020 15:25

Instrument: MT&C Analyst: — Analyzed: 01/15/2021 00:00

Analysis by: Materials Testing & Consulting, Inc. (Olympia)

Sample Preparation: Preparation Method: No Prep Geo — Extract ID: 20K0152-03

Preparation Batch: B011521

Prepared: 01/15/2021 Final Volume:

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size <-1	GS_GRAVEL	1	0.1	5.0	%	
Phi Size -1 to 0	GS_VCS	1	0.1	6.1	%	
Phi Size 0 to 1	GS_CS	1	0.1	18.5	%	
Phi Size 1 to 2	GS_MS	1	0.1	28.3	%	
Phi Size 2 to 3	GS_FS	1	0.1	22.7	%	
Phi Size 3 to 4	GS_VFS	1	0.1	9.8	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	2.9	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	1.5	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	1.4	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	0.8	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	0.7	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	1.2	%	
Phi Size >10	GS_FCLAY	1	0.1	1.1	%	
Total Fines	GS_TOTFINES	1	0.1	9.7	%	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-013:11.5-11052020

20K0152-03RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/05/2020 15:25
Instrument: NT11 Analyst: VTS — Analyzed: 12/18/2020 17:39

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0152-03RE1 B 04
	Preparation Batch: BIL0296	Sample Size: 11.98 g (wet)	Dry Weight:10.03 g
	Prepared: 12/11/2020	Final Volume: 0.5 mL	% Solids: 83.71
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-03RE1 B 04
	Cleanup Batch: CIL0171	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-03RE1 B 04
	Cleanup Batch: CIL0170	Initial Volume: 0.5 mL	
	Cleaned: 17-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	1.82	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	2.38	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	2.58	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.35	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	0.82	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	2.14	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	1.41	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	6.60	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	1.91	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	12.7	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	9.81	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	2.99	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	3.15	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	3.30	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	1.45	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	1.14	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	2.21	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	1.78	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.52	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	2.20	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*56.2*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*84.3*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*79.5*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

TB-4-11052020

20K0152-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/06/2020 13:40

Instrument: NT2 Analyst: PKC — Analyzed: 11/12/2020 12:09

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20K0152-06 A

Preparation Batch: BIK0380 — Sample Size: 10 mL

Prepared: 11/12/2020 — 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	Ua
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	Ua
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	Ua
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	Ua
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	Ua
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	Ua
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	Ua
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	Ua
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	Ua
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	Ua
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	Ua
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.4*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*86.3*	*%*	
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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

TB-4-11052020

20K0152-06 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/06/2020 13:40

Instrument: NT2 Analyst: PKC — Analyzed: 11/12/2020 12:09

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20K0152-06 A

Preparation Batch: BIK0380 — Sample Size: 10 mL

Prepared: 11/12/2020 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	Ua
Surrogate: Toluene-d8			*80-120 %*	*96.4*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*86.3*	*%*	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-1-11052020

20K0152-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/05/2020 16:10
Instrument: NT2 Analyst: LH — Analyzed: 11/11/2020 14:38

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20K0152-07 H
Preparation Batch: BIK0322 — Sample Size: 10 mL
Prepared: 11/11/2020 — 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	Ua
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	Ua
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	Ua
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	Ua
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	Ua
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	Ua
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	Ua
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	Ua
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	Ua
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	Ua
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	Ua
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*109*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*85.4*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*104*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-1-11052020

20K0152-07 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/05/2020 16:10

Instrument: NT8 Analyst: JZ — Analyzed: 12/09/2020 18:06

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) — Extract ID: 20K0152-07 B 01

Preparation Batch: BIK0354 — Sample Size: 500 mL

Prepared: 11/12/2020 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.02	0.10	0.02	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.03	0.10	ND	ug/L	Ua
1-Methylnaphthalene	90-12-0	1	0.02	0.10	ND	ug/L	Ua
Acenaphthylene	208-96-8	1	0.02	0.10	ND	ug/L	Ua
Acenaphthene	83-32-9	1	0.02	0.10	ND	ug/L	Ua
Dibenzofuran	132-64-9	1	0.02	0.10	ND	ug/L	Ua
Fluorene	86-73-7	1	0.02	0.10	ND	ug/L	Ua
Phenanthrene	85-01-8	1	0.02	0.10	ND	ug/L	Ua
Anthracene	120-12-7	1	0.02	0.10	ND	ug/L	Ua
Fluoranthene	206-44-0	1	0.02	0.10	ND	ug/L	Ua
Pyrene	129-00-0	1	0.03	0.10	ND	ug/L	Ua
Benzo(a)anthracene	56-55-3	1	0.05	0.10	ND	ug/L	Ua
Chrysene	218-01-9	1	0.06	0.10	ND	ug/L	Ua
Benzo(b)fluoranthene	205-99-2	1	0.09	0.10	ND	ug/L	Ua
Benzo(k)fluoranthene	207-08-9	1	0.09	0.10	ND	ug/L	Ua
Benzo(j)fluoranthene	205-82-3	1	0.03	0.10	ND	ug/L	Ua
Benzofluoranthenes, Total		1	0.19	0.20	ND	ug/L	Ua
Benzo(a)pyrene	50-32-8	1	0.06	0.10	ND	ug/L	Ua
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.08	0.10	ND	ug/L	Ua
Dibenzo(a,h)anthracene	53-70-3	1	0.09	0.10	ND	ug/L	Ua
Benzo(g,h,i)perylene	191-24-2	1	0.07	0.10	ND	ug/L	Ua
Surrogate: 2-Methylnaphthalene-d10				*31-120 %*	*59.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*10-125 %*	*98.0*	*%*	
Surrogate: Fluoranthene-d10				*46-121 %*	*60.4*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-1-11052020

20K0152-07 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/05/2020 16:10
Instrument: ECD7 Analyst: JGR — Analyzed: 12/06/2020 23:56

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 20K0152-07 A 01
	Preparation Batch: BIK0353	Sample Size: 500 mL	
	Prepared: 11/11/2020	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0152-07 A 01
	Cleanup Batch: CIL0082	Initial Volume: 1 mL	
	Cleaned: 05-Dec-2020	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-07 A 01
	Cleanup Batch: CIL0081	Initial Volume: 1 mL	
	Cleaned: 05-Dec-2020	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	Ua
Aroclor 1221	11104-28-2	1	0.018	0.100	ND	ug/L	Ua
Aroclor 1232	11141-16-5	1	0.018	0.100	ND	ug/L	Ua
Aroclor 1242	53469-21-9	1	0.018	0.100	ND	ug/L	Ua
Aroclor 1248	12672-29-6	1	0.018	0.100	ND	ug/L	Ua
Aroclor 1254	11097-69-1	1	0.018	0.100	ND	ug/L	Ua
Aroclor 1260	11096-82-5	1	0.017	0.100	ND	ug/L	Ua
Aroclor 1262	37324-23-5	1	0.017	0.100	ND	ug/L	Ua
Aroclor 1268	11100-14-4	1	0.017	0.100	ND	ug/L	Ua
Surrogate: Decachlorobiphenyl				*26-120 %*	*78.4*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*86.1*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*91.2*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*81.6*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-1-11052020

20K0152-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/05/2020 16:10
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/17/2020 17:48

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-07 E 01
Preparation Batch: BIK0509 — Sample Size: 25 mL
Prepared: 11/17/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	3.09	ug/L	
Chromium	7440-47-3	1	0.130	0.500	0.536	ug/L	
Cobalt	7440-48-4	1	0.0290	0.200	ND	ug/L	Ua
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	Ua
Manganese	7439-96-5	1	0.0850	0.500	1.30	ug/L	
Selenium	7782-49-2	1	0.440	2.00	ND	ug/L	Ua
Silver	7440-22-4	1	0.0170	0.200	ND	ug/L	Ua

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-07 E 02
Preparation Batch: BJB0514 — Sample Size: 25 mL
Prepared: 02/17/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	6.27	20.0	21.8	ug/L	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-1-11052020

20K0152-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/05/2020 16:10

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/17/2020 17:48

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-07 E 01

Preparation Batch: BIK0509 — Sample Size: 25 mL

Prepared: 11/17/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	1.19	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	Ua
Copper	7440-50-8	1	0.340	0.500	1.06	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	0.0880	ug/L	J
Zinc	7440-66-6	5	4.70	20.0	798	ug/L	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-1-11052020

20K0152-07 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 11/05/2020 16:10

Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 10:26

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 20K0152-07 E

Preparation Batch: BIK0295 — Sample Size: 20 mL

Prepared: 11/11/2020 — 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	Ua

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-1-11052020

20K0152-07RE1 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/05/2020 16:10
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/18/2020 18:48

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-07RE1 E 01
Preparation Batch: BIK0509 — Sample Size: 25 mL
Prepared: 11/17/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vanadium	7440-62-2	1	0.0400	0.200	2.67	ug/L	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-1-11052020

20K0152-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020A — Sampled: 11/05/2020 16:10
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/19/2020 20:13

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-08 A 02
Preparation Batch: BIK0591 — Sample Size: 25 mL — Filtration Batch: BIK0261
Prepared: 11/19/2020 — Final Volume: 25 mL — Filtration Date: 11/10/2020 06:49

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony, Dissolved	7440-36-0	1	0.0180	0.200	0.0310	ug/L	J
Chromium, Dissolved	7440-47-3	1	0.130	0.500	0.550	ug/L	
Iron, Dissolved	7439-89-6	1	6.27	20.0	ND	ug/L	Ua
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	Ua
Magnesium, Dissolved	7439-95-4	1	0.307	20.0	8060	ug/L	
Silver, Dissolved	7440-22-4	1	0.0170	0.200	ND	ug/L	Ua

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/19/2021 01:07

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-08 A 03
Preparation Batch: BJB0533 — Sample Size: 25 mL — Filtration Batch: BIK0261
Prepared: 02/18/2021 — Final Volume: 25 mL — Filtration Date: 11/10/2020 06:49

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	2.84	ug/L	
Manganese, Dissolved	7439-96-5	2	0.170	1.00	1.31	ug/L	D
Vanadium, Dissolved	7440-62-2	2	0.0800	0.400	2.78	ug/L	D

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-1-11052020

20K0152-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020A UCT-KED — Sampled: 11/05/2020 16:10

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/19/2020 20:13

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-08 A 02

Preparation Batch: BIK0591 — Sample Size: 25 mL — Filtration Batch: BIK0261

Prepared: 11/19/2020 — Final Volume: 25 mL — Filtration Date: 11/10/2020 06:49

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	1.09	ug/L	
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	Ua
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	ND	ug/L	Ua
Copper, Dissolved	7440-50-8	1	0.340	0.500	0.642	ug/L	
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	0.100	ug/L	J
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	Ua

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-1-11052020

20K0152-08 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 11/05/2020 16:10
Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 10:55

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 20K0152-08 A 01
Preparation Batch: BIK0296 — Sample Size: 20 mL — Filtration Batch: BIK0261
Prepared: 11/11/2020 — Final Volume: 20 mL — Filtration Date: 11/10/2020 06:49

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

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-1-11052020

20K0152-08RE1 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020A UCT-KED — Sampled: 11/05/2020 16:10
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/20/2020 19:27

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-08RE1 A 01
Preparation Batch: BIK0591 — Sample Size: 25 mL — Filtration Batch: BIK0261
Prepared: 11/19/2020 — Final Volume: 25 mL — Filtration Date: 11/10/2020 06:49

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Zinc, Dissolved	7440-66-6	5	4.70	20.0	756	ug/L	D

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:2.5-11062020

20K0152-09 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/06/2020 09:05

Instrument: NT5 Analyst: PB — Analyzed: 11/09/2020 20:57

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0152-09 E

Preparation Batch: BIK0249 — Sample Size: 4.03 g (wet) — Dry Weight:3.12 g

Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 77.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.38	1.60	ND	ug/kg	Ua
1,1-Dichloroethene	75-35-4	1	0.54	1.60	ND	ug/kg	Ua
cis-1,2-Dichloroethene	156-59-2	1	0.39	1.60	ND	ug/kg	Ua
Benzene	71-43-2	1	0.47	1.60	0.51	ug/kg	J
Trichloroethene	79-01-6	1	0.34	1.60	ND	ug/kg	Ua
Toluene	108-88-3	1	0.24	1.60	0.62	ug/kg	J
Tetrachloroethene	127-18-4	1	0.41	1.60	ND	ug/kg	Ua
Ethylbenzene	100-41-4	1	0.32	1.60	ND	ug/kg	Ua
m,p-Xylene	179601-23-1	1	0.63	3.21	ND	ug/kg	Ua
o-Xylene	95-47-6	1	0.36	1.60	ND	ug/kg	Ua
Xylenes, total	1330-20-7	1	0.99	3.21	ND	ug/kg	Ua
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*97.3*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*93.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*100*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

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20K0152-09 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/06/2020 09:05
Instrument: NT11 Analyst: VTS — Analyzed: 12/11/2020 10:46

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0152-09 B 03
	Preparation Batch: BIK0636	Sample Size: 14.47 g (wet)	Dry Weight:11.19 g
	Prepared: 11/20/2020	Final Volume: 0.5 mL	% Solids: 77.33
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-09 B 03
	Cleanup Batch: CIL0114	Initial Volume: 0.5 mL	
	Cleaned: 09-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-09 B 03
	Cleanup Batch: CIL0113	Initial Volume: 0.5 mL	
	Cleaned: 08-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.39	0.54	7.76	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.09	0.45	13.5	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.11	0.45	11.7	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.45	0.52	ug/kg	
Acenaphthene	83-32-9	1	0.08	0.45	ND	ug/kg	Ua
Dibenzofuran	132-64-9	1	0.11	0.45	6.34	ug/kg	
Fluorene	86-73-7	1	0.06	0.45	4.43	ug/kg	
Phenanthrene	85-01-8	1	0.10	0.45	28.8	ug/kg	
Anthracene	120-12-7	1	0.07	0.45	2.46	ug/kg	
Fluoranthene	206-44-0	1	0.07	0.45	22.6	ug/kg	
Pyrene	129-00-0	1	0.08	0.45	19.8	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.06	0.45	5.40	ug/kg	
Chrysene	218-01-9	1	0.06	0.45	13.4	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.06	0.45	7.23	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.09	0.45	2.31	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.09	0.45	2.50	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.08	0.45	4.21	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.08	0.45	4.25	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.09	0.45	1.39	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.45	6.53	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*43.1*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*82.6*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*68.3*	*%*	

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20K0152-09 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/06/2020 09:05
Instrument: FID4 Analyst: JGR — Analyzed: 11/29/2020 03:29

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0152-09 B 01
Preparation Batch: BIK0629 — Sample Size: 10.15 g (wet) — Dry Weight:7.47 g
Prepared: 11/20/2020 — Final Volume: 1 mL — % Solids: 73.58

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	6.69	15.0	mg/kg	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)	RRO	1	13.4	44.4	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*97.8*	*%*	

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20K0152-09 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/06/2020 09:05
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 15:03

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0152-09 B 02
	Preparation Batch: BIK0633	Sample Size: 17.92 g (wet)	Dry Weight:13.86 g
	Prepared: 11/20/2020	Final Volume: 2.5 mL	% Solids: 77.33
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-09 B 02
	Cleanup Batch: CIL0044	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0152-09 B 02
	Cleanup Batch: CIL0042	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-09 B 02
	Cleanup Batch: CIL0043	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.4	3.6	ND	ug/kg	Ua
Aroclor 1221	11104-28-2	1	1.4	3.6	ND	ug/kg	Ua
Aroclor 1232	11141-16-5	1	1.4	3.6	ND	ug/kg	Ua
Aroclor 1242	53469-21-9	1	1.4	3.6	ND	ug/kg	Ua
Aroclor 1248	12672-29-6	1	1.4	3.6	ND	ug/kg	Ua
Aroclor 1254	11097-69-1	1	1.4	3.6	ND	ug/kg	Ua
Aroclor 1260	11096-82-5	1	0.5	3.6	ND	ug/kg	Ua
Surrogate: Decachlorobiphenyl				*40-126 %*	*67.1*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*67.1*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*74.2*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*59.5*	*%*	

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20K0152-09 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/06/2020 09:05
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/20/2020 18:01

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-09 C 01
Preparation Batch: BIK0569 — Sample Size: 1.008 g (wet) — Dry Weight:0.82 g
Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 81.69

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.07	0.61	35.0	mg/kg	
Chromium	7440-47-3	20	0.16	0.61	11.5	mg/kg	
Cobalt	7440-48-4	20	0.04	0.24	4.53	mg/kg	
Lead	7439-92-1	20	0.08	0.12	2.23	mg/kg	
Selenium	7782-49-2	20	0.53	2.43	0.65	mg/kg	J
Silver	7440-22-4	20	0.02	0.24	0.05	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.24	34.9	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

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20K0152-09 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/06/2020 09:05

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/19/2020 20:57

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-09 C 01

Preparation Batch: BIK0569 — Sample Size: 1.008 g (wet) — Dry Weight:0.82 g

Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 81.69

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.24	2.75	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	ND	mg/kg	Ua
Copper	7440-50-8	20	0.41	0.61	10.8	mg/kg	
Nickel	7440-02-0	20	0.06	0.61	8.91	mg/kg	
Zinc	7440-66-6	20	1.0	4.9	24.9	mg/kg	

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20K0152-09 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/06/2020 09:05

Instrument: HYDRA Analyst: BLC — Analyzed: 11/12/2020 17:16

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0152-09 C

Preparation Batch: BIK0276 — Sample Size: 0.224 g (wet) — Dry Weight:0.17 g

Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 77.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00606	0.0289	0.0250	mg/kg	J

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20K0152-09 (Solid)

Wet Chemistry

Method: EPA 9060A m — Sampled: 11/06/2020 09:05

Instrument: TOC Cube Analyst: BF — Analyzed: 11/20/2020 00:41

Sample Preparation: Preparation Method: PSEP 1986 (modified) — Extract ID: 20K0152-09 C

Preparation Batch: BIK0572 — Sample Size: 0.5098 g (wet) — Dry Weight:0.39 g

Prepared: 11/18/2020 — Final Volume: 0.5098 mL — % Solids: 77.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.67	%	

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20K0152-09 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 11/06/2020 09:05

Instrument: BAL2 Analyst: KLE — Analyzed: 11/11/2020 23:04

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 20K0152-09

Preparation Batch: BIK0364 — Sample Size: 10 g (wet) — Dry Weight:7.73 g

Prepared: 11/11/2020 — Final Volume: 10 g — % Solids: 77.33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	77.33	%	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

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20K0152-09 (Solid)

Geotechnical Methods

Method: PSEP-PS — Sampled: 11/06/2020 09:05

Instrument: MT&C Analyst: — Analyzed: 01/15/2021 00:00

Analysis by: Materials Testing & Consulting, Inc. (Olympia)

Sample Preparation: Preparation Method: No Prep Geo — Extract ID: 20K0152-09

Preparation Batch: B011521

Prepared: 01/15/2021 Final Volume:

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size <-1	GS_GRAVEL	1	0.1	1.1	%	
Phi Size -1 to 0	GS_VCS	1	0.1	1.5	%	
Phi Size 0 to 1	GS_CS	1	0.1	6.0	%	
Phi Size 1 to 2	GS_MS	1	0.1	18.8	%	
Phi Size 2 to 3	GS_FS	1	0.1	27.8	%	
Phi Size 3 to 4	GS_VFS	1	0.1	21.4	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	6.1	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	2.5	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	2.3	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	2.4	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	3.0	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	2.4	%	
Phi Size >10	GS_FCLAY	1	0.1	4.6	%	
Total Fines	GS_TOTFINES	1	0.1	23.4	%	

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20K0152-10 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/06/2020 09:10

Instrument: NT5 Analyst: PB — Analyzed: 11/09/2020 21:21

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0152-10 E

Preparation Batch: BIK0249 — Sample Size: 4.3 g (wet) — Dry Weight:3.86 g

Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 89.69

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.30	1.30	ND	ug/kg	Ua
1,1-Dichloroethene	75-35-4	1	0.44	1.30	ND	ug/kg	Ua
cis-1,2-Dichloroethene	156-59-2	1	0.31	1.30	0.70	ug/kg	J
Benzene	71-43-2	1	0.38	1.30	ND	ug/kg	Ua
Trichloroethene	79-01-6	1	0.27	1.30	ND	ug/kg	Ua
Toluene	108-88-3	1	0.20	1.30	0.61	ug/kg	J
Tetrachloroethene	127-18-4	1	0.33	1.30	ND	ug/kg	Ua
Ethylbenzene	100-41-4	1	0.26	1.30	ND	ug/kg	Ua
m,p-Xylene	179601-23-1	1	0.51	2.59	ND	ug/kg	Ua
o-Xylene	95-47-6	1	0.29	1.30	ND	ug/kg	Ua
Xylenes, total	1330-20-7	1	0.80	2.59	ND	ug/kg	Ua
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*93.2*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*85.2*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*73.8*	*%*	*
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*90.4*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:8-11062020

20K0152-10 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/06/2020 09:10
Instrument: NT11 Analyst: VTS — Analyzed: 12/11/2020 11:18

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0152-10 B 03
	Preparation Batch: BIK0636	Sample Size: 14.35 g (wet)	Dry Weight:12.87 g
	Prepared: 11/20/2020	Final Volume: 0.5 mL	% Solids: 89.69
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-10 B 03
	Cleanup Batch: CIL0114	Initial Volume: 0.5 mL	
	Cleaned: 09-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-10 B 03
	Cleanup Batch: CIL0113	Initial Volume: 0.5 mL	
	Cleaned: 08-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	5	1.71	2.33	57.8	ug/kg	D
1-Methylnaphthalene	90-12-0	5	0.41	1.94	38.7	ug/kg	D
2-Methylnaphthalene	91-57-6	5	0.50	1.94	34.3	ug/kg	D
Acenaphthylene	208-96-8	5	0.25	1.94	2.49	ug/kg	D
Acenaphthene	83-32-9	5	0.35	1.94	20.2	ug/kg	D
Dibenzofuran	132-64-9	5	0.49	1.94	21.9	ug/kg	D
Fluorene	86-73-7	5	0.26	1.94	20.6	ug/kg	D
Phenanthrene	85-01-8	5	0.44	1.94	60.1	ug/kg	D
Anthracene	120-12-7	5	0.29	1.94	9.39	ug/kg	D
Fluoranthene	206-44-0	5	0.31	1.94	23.1	ug/kg	D
Pyrene	129-00-0	5	0.35	1.94	40.5	ug/kg	D
Benzo(a)anthracene	56-55-3	5	0.28	1.94	10.8	ug/kg	D
Chrysene	218-01-9	5	0.27	1.94	24.5	ug/kg	D
Benzo(b)fluoranthene	205-99-2	5	0.26	1.94	5.09	ug/kg	D
Benzo(k)fluoranthene	207-08-9	5	0.39	1.94	1.50	ug/kg	J, D
Benzo(j)fluoranthene	205-82-3	5	0.38	1.94	1.64	ug/kg	J, D
Benzo(a)pyrene	50-32-8	5	0.34	1.94	6.77	ug/kg	D
Indeno(1,2,3-cd)pyrene	193-39-5	5	0.34	1.94	3.03	ug/kg	D
Dibenzo(a,h)anthracene	53-70-3	5	0.41	1.94	ND	ug/kg	Ua
Benzo(g,h,i)perylene	191-24-2	5	0.33	1.94	6.17	ug/kg	D
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*62.3*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*71.9*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*91.0*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:8-11062020

20K0152-10 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/06/2020 09:10
Instrument: FID4 Analyst: JGR — Analyzed: 11/29/2020 20:25

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0152-10 B 01
Preparation Batch: BIK0629 — Sample Size: 10.06 g (wet) — Dry Weight:7.54 g
Prepared: 11/20/2020 — Final Volume: 1 mL — % Solids: 74.97

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	50	331	4260	mg/kg	D
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	50	663	5210	mg/kg	D
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*84.4*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:8-11062020

20K0152-10 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/06/2020 09:10
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 15:24

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0152-10 B 02
	Preparation Batch: BIK0633	Sample Size: 17.89 g (wet)	Dry Weight:16.05 g
	Prepared: 11/20/2020	Final Volume: 2.5 mL	% Solids: 89.69
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-10 B 02
	Cleanup Batch: CIL0044	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0152-10 B 02
	Cleanup Batch: CIL0042	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-10 B 02
	Cleanup Batch: CIL0043	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	5	6.1	15.6	ND	ug/kg	Ua
Aroclor 1221	11104-28-2	5	6.1	15.6	ND	ug/kg	Ua
Aroclor 1232	11141-16-5	5	6.1	15.6	ND	ug/kg	Ua
Aroclor 1242	53469-21-9	5	6.1	15.6	ND	ug/kg	Ua
Aroclor 1248	12672-29-6	5	6.1	15.6	ND	ug/kg	Ua
Aroclor 1254	11097-69-1	5	6.1	15.6	34.1	ug/kg	D
Aroclor 1260	11096-82-5	5	2.3	15.6	29.0	ug/kg	D
Surrogate: Decachlorobiphenyl				*40-126 %*	*73.7*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*63.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*68.8*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*64.1*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:8-11062020

20K0152-10 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/06/2020 09:10

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/20/2020 18:05

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-10 C 01

Preparation Batch: BIK0569 — Sample Size: 1.023 g (wet) — Dry Weight:0.93 g

Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 90.70

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.54	20.1	mg/kg	
Chromium	7440-47-3	20	0.14	0.54	7.53	mg/kg	
Cobalt	7440-48-4	20	0.03	0.22	3.52	mg/kg	
Lead	7439-92-1	20	0.07	0.11	1.41	mg/kg	
Selenium	7782-49-2	20	0.47	2.16	0.65	mg/kg	J
Silver	7440-22-4	20	0.02	0.22	0.03	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.22	27.3	mg/kg	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

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20K0152-10 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/06/2020 09:10

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/19/2020 21:02

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-10 C 01

Preparation Batch: BIK0569 — Sample Size: 1.023 g (wet) — Dry Weight:0.93 g

Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 90.70

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.22	2.11	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	ND	mg/kg	Ua
Copper	7440-50-8	20	0.37	0.54	7.25	mg/kg	
Nickel	7440-02-0	20	0.05	0.54	6.37	mg/kg	
Zinc	7440-66-6	20	0.9	4.3	20.0	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

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20K0152-10 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/06/2020 09:10

Instrument: HYDRA Analyst: BLC — Analyzed: 11/12/2020 17:18

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0152-10 C

Preparation Batch: BIK0276 — Sample Size: 0.261 g (wet) — Dry Weight:0.23 g

Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 89.69

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00449	0.0214	0.0106	mg/kg	J

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20K0152-10 (Solid)

Wet Chemistry

Method: EPA 9060A m — Sampled: 11/06/2020 09:10

Instrument: TOC Cube Analyst: BF — Analyzed: 11/20/2020 01:12

Sample Preparation: Preparation Method: PSEP 1986 (modified) — Extract ID: 20K0152-10 C

Preparation Batch: BIK0572 — Sample Size: 0.5426 g (wet) — Dry Weight:0.49 g

Prepared: 11/18/2020 — Final Volume: 0.5426 mL — % Solids: 89.69

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.04	%	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:8-11062020

20K0152-10 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 11/06/2020 09:10

Instrument: BAL2 Analyst: KLE — Analyzed: 11/11/2020 23:04

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 20K0152-10

Preparation Batch: BIK0364 — Sample Size: 10 g (wet) — Dry Weight:8.97 g

Prepared: 11/11/2020 — Final Volume: 10 g — % Solids: 89.69

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	89.69	%	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

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20K0152-10 (Solid)

Geotechnical Methods

Method: PSEP-PS — Sampled: 11/06/2020 09:10

Instrument: MT&C Analyst: — Analyzed: 01/15/2021 00:00

Analysis by: Materials Testing & Consulting, Inc. (Olympia)

Sample Preparation: Preparation Method: No Prep Geo — Extract ID: 20K0152-10

Preparation Batch: B011521

Prepared: 01/15/2021 Final Volume:

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size <-1	GS_GRAVEL	1	0.1	7.7	%	
Phi Size -1 to 0	GS_VCS	1	0.1	8.8	%	
Phi Size 0 to 1	GS_CS	1	0.1	23.5	%	
Phi Size 1 to 2	GS_MS	1	0.1	37.9	%	
Phi Size 2 to 3	GS_FS	1	0.1	15.6	%	
Phi Size 3 to 4	GS_VFS	1	0.1	3.1	%	
Phi Size 4 to 5	GS_CSILT	1	3.4	ND	%	U
Phi Size 5 to 6	GS_MSILT	1	3.4	ND	%	U
Phi Size 6 to 7	GS_FSILT	1	3.4	ND	%	U
Phi Size 7 to 8	GS_VFSILT	1	3.4	ND	%	U
Phi Size 8 to 9	GS_CCLAY	1	3.4	ND	%	U
Phi Size 9 to 10	GS_MCLAY	1	3.4	ND	%	U
Phi Size >10	GS_FCLAY	1	3.4	ND	%	U
Total Fines	GS_TOTFINES	1	0.1	3.4	%	

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SB-2020-004:8-11062020

20K0152-10RE1 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/06/2020 09:10

Instrument: NT5 Analyst: PB — Analyzed: 11/10/2020 20:53

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0152-10RE1 E

Preparation Batch: BIK0314 — Sample Size: 3.53 g (wet) — Dry Weight:3.17 g

Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 89.69

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.37	1.58	ND	ug/kg	Ua
1,1-Dichloroethene	75-35-4	1	0.53	1.58	ND	ug/kg	Ua
cis-1,2-Dichloroethene	156-59-2	1	0.38	1.58	ND	ug/kg	Ua
Benzene	71-43-2	1	0.47	1.58	ND	ug/kg	Ua
Trichloroethene	79-01-6	1	0.33	1.58	ND	ug/kg	Ua
Toluene	108-88-3	1	0.24	1.58	0.36	ug/kg	J
Tetrachloroethene	127-18-4	1	0.41	1.58	ND	ug/kg	Ua
Ethylbenzene	100-41-4	1	0.32	1.58	ND	ug/kg	Ua
m,p-Xylene	179601-23-1	1	0.62	3.16	ND	ug/kg	Ua
o-Xylene	95-47-6	1	0.35	1.58	ND	ug/kg	Ua
Xylenes, total	1330-20-7	1	0.97	3.16	ND	ug/kg	Ua
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*105*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*98.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.5*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*98.8*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:13-11062020

20K0152-11 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/06/2020 09:15

Instrument: NT5 Analyst: PB — Analyzed: 11/09/2020 21:46

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0152-11 F

Preparation Batch: BIK0249 — Sample Size: 4.38 g (wet) — Dry Weight:3.19 g

Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 72.89

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.37	1.57	ND	ug/kg	Ua
1,1-Dichloroethene	75-35-4	1	0.53	1.57	ND	ug/kg	Ua
cis-1,2-Dichloroethene	156-59-2	1	0.38	1.57	ND	ug/kg	Ua
Benzene	71-43-2	1	0.46	1.57	0.73	ug/kg	J
Trichloroethene	79-01-6	1	0.33	1.57	ND	ug/kg	Ua
Toluene	108-88-3	1	0.24	1.57	0.91	ug/kg	J
Tetrachloroethene	127-18-4	1	0.40	1.57	ND	ug/kg	Ua
Ethylbenzene	100-41-4	1	0.32	1.57	ND	ug/kg	Ua
m,p-Xylene	179601-23-1	1	0.61	3.13	ND	ug/kg	Ua
o-Xylene	95-47-6	1	0.35	1.57	ND	ug/kg	Ua
Xylenes, total	1330-20-7	1	0.96	3.13	ND	ug/kg	Ua
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*94.8*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*93.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*101*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*100*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:13-11062020

20K0152-11 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/06/2020 09:15
Instrument: NT11 Analyst: VTS — Analyzed: 12/11/2020 12:56

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0152-11 B 03
	Preparation Batch: BIK0636	Sample Size: 14.35 g (wet)	Dry Weight:10.46 g
	Prepared: 11/20/2020	Final Volume: 0.5 mL	% Solids: 72.89
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-11 B 03
	Cleanup Batch: CIL0114	Initial Volume: 0.5 mL	
	Cleaned: 09-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-11 B 03
	Cleanup Batch: CIL0113	Initial Volume: 0.5 mL	
	Cleaned: 08-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.42	0.57	0.57	ug/kg	J
1-Methylnaphthalene	90-12-0	1	0.10	0.48	0.56	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.12	0.48	0.47	ug/kg	J
Acenaphthylene	208-96-8	1	0.06	0.48	ND	ug/kg	Ua
Acenaphthene	83-32-9	1	0.09	0.48	0.30	ug/kg	J
Dibenzofuran	132-64-9	1	0.12	0.48	0.22	ug/kg	J
Fluorene	86-73-7	1	0.07	0.48	0.19	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.48	2.03	ug/kg	
Anthracene	120-12-7	1	0.07	0.48	ND	ug/kg	Ua
Fluoranthene	206-44-0	1	0.08	0.48	0.45	ug/kg	J
Pyrene	129-00-0	1	0.09	0.48	0.68	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.48	0.23	ug/kg	J
Chrysene	218-01-9	1	0.07	0.48	0.55	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.06	0.48	0.32	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.10	0.48	ND	ug/kg	Ua
Benzo(j)fluoranthene	205-82-3	1	0.09	0.48	ND	ug/kg	Ua
Benzo(a)pyrene	50-32-8	1	0.08	0.48	ND	ug/kg	Ua
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.08	0.48	ND	ug/kg	Ua
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.48	ND	ug/kg	Ua
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.48	0.16	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*50.7*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*71.9*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*73.5*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:13-11062020

20K0152-11 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/06/2020 09:15
Instrument: FID4 Analyst: JGR — Analyzed: 11/29/2020 05:29

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0152-11 B 01
Preparation Batch: BIK0629 — Sample Size: 10.07 g (wet) — Dry Weight:7.52 g
Prepared: 11/20/2020 — Final Volume: 1 mL — % Solids: 74.72

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	6.65	ND	mg/kg	Ua
Motor Oil Range Organics (C24-C38)	RRO	1	13.3	ND	mg/kg	Ua
Surrogate: o-Terphenyl			*50-150 %*	*91.0*	*%*	

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Draft for Public Comment

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:13-11062020

20K0152-11 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/06/2020 09:15
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 16:25

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0152-11 B 02
	Preparation Batch: BIK0633	Sample Size: 17.97 g (wet)	Dry Weight:13.10 g
	Prepared: 11/20/2020	Final Volume: 2.5 mL	% Solids: 72.89
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-11 B 02
	Cleanup Batch: CIL0044	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0152-11 B 02
	Cleanup Batch: CIL0042	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-11 B 02
	Cleanup Batch: CIL0043	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.5	3.8	ND	ug/kg	Ua
Aroclor 1221	11104-28-2	1	1.5	3.8	ND	ug/kg	Ua
Aroclor 1232	11141-16-5	1	1.5	3.8	ND	ug/kg	Ua
Aroclor 1242	53469-21-9	1	1.5	3.8	ND	ug/kg	Ua
Aroclor 1248	12672-29-6	1	1.5	3.8	ND	ug/kg	Ua
Aroclor 1254	11097-69-1	1	1.5	3.8	ND	ug/kg	Ua
Aroclor 1260	11096-82-5	1	0.6	3.8	ND	ug/kg	Ua
Surrogate: Decachlorobiphenyl				*40-126 %*	*57.4*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*54.3*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*62.9*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*56.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:13-11062020

20K0152-11 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/06/2020 09:15

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/20/2020 18:09

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-11 C 01

Preparation Batch: BIK0569 — Sample Size: 1.049 g (wet) — Dry Weight:0.77 g

Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 73.30

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.07	0.65	65.3	mg/kg	
Chromium	7440-47-3	20	0.17	0.65	13.9	mg/kg	
Cobalt	7440-48-4	20	0.04	0.26	5.04	mg/kg	
Lead	7439-92-1	20	0.09	0.13	3.05	mg/kg	
Selenium	7782-49-2	20	0.57	2.60	1.05	mg/kg	J
Silver	7440-22-4	20	0.02	0.26	0.08	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.26	46.9	mg/kg	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:13-11062020

20K0152-11 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/06/2020 09:15

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/19/2020 21:06

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-11 C 01

Preparation Batch: BIK0569 — Sample Size: 1.049 g (wet) — Dry Weight:0.77 g

Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 73.30

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.26	4.13	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	ND	mg/kg	Ua
Copper	7440-50-8	20	0.44	0.65	22.6	mg/kg	
Nickel	7440-02-0	20	0.07	0.65	10.7	mg/kg	
Zinc	7440-66-6	20	1.1	5.2	24.6	mg/kg	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:13-11062020

20K0152-11 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/06/2020 09:15
Instrument: HYDRA Analyst: BLC — Analyzed: 11/12/2020 17:20

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0152-11 C
Preparation Batch: BIK0276 — Sample Size: 0.279 g (wet) — Dry Weight:0.20 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 72.89

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00516	0.0246	0.0460	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

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20K0152-11 (Solid)

Wet Chemistry

Method: EPA 9060A m — Sampled: 11/06/2020 09:15

Instrument: TOC Cube Analyst: BF — Analyzed: 11/20/2020 02:45

Sample Preparation: Preparation Method: PSEP 1986 (modified) — Extract ID: 20K0152-11 C

Preparation Batch: BIK0572 — Sample Size: 0.5127 g (wet) — Dry Weight:0.37 g

Prepared: 11/18/2020 — Final Volume: 0.5127 mL — % Solids: 72.89

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.24	%	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

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20K0152-11 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 11/06/2020 09:15

Instrument: BAL2 Analyst: KLE — Analyzed: 11/11/2020 23:04

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 20K0152-11

Preparation Batch: BIK0364 — Sample Size: 10 g (wet) — Dry Weight:7.29 g

Prepared: 11/11/2020 — Final Volume: 10 g — % Solids: 72.89

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	72.89	%	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:13-11062020

20K0152-11 (Solid)

Geotechnical Methods

Method: PSEP-PS — Sampled: 11/06/2020 09:15

Instrument: MT&C Analyst: — Analyzed: 01/15/2021 00:00

Analysis by: Materials Testing & Consulting, Inc. (Olympia)

Sample Preparation: Preparation Method: No Prep Geo — Extract ID: 20K0152-11

Preparation Batch: B011521

Prepared: 01/15/2021 Final Volume:

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size <-1	GS_GRAVEL	1	0.1	ND	%	
Phi Size -1 to 0	GS_VCS	1	0.1	0.1	%	
Phi Size 0 to 1	GS_CS	1	0.1	0.4	%	
Phi Size 1 to 2	GS_MS	1	0.1	1.6	%	
Phi Size 2 to 3	GS_FS	1	0.1	5.7	%	
Phi Size 3 to 4	GS_VFS	1	0.1	16.1	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	11.1	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	7.1	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	5.7	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	5.7	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	6.6	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	3.6	%	
Phi Size >10	GS_FCLAY	1	0.1	36.2	%	
Total Fines	GS_TOTFINES	1	0.1	76.0	%	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

MS/MSD-SB-2020-004:13-11062020

20K0152-12 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/06/2020 09:20
Instrument: NT5 Analyst: PB — Analyzed: 11/09/2020 22:10

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0152-12 E
Preparation Batch: BIK0249 — Sample Size: 4.03 g (wet) — Dry Weight:2.95 g
Prepared: 11/09/2020 — Final Volume: 5 mL — % Solids: 73.18

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.40	1.70	ND	ug/kg	Ua
1,1-Dichloroethene	75-35-4	1	0.57	1.70	ND	ug/kg	Ua
cis-1,2-Dichloroethene	156-59-2	1	0.41	1.70	ND	ug/kg	Ua
Benzene	71-43-2	1	0.50	1.70	0.93	ug/kg	J
Trichloroethene	79-01-6	1	0.36	1.70	ND	ug/kg	Ua
Toluene	108-88-3	1	0.26	1.70	0.85	ug/kg	J
Tetrachloroethene	127-18-4	1	0.44	1.70	ND	ug/kg	Ua
Ethylbenzene	100-41-4	1	0.34	1.70	ND	ug/kg	Ua
m,p-Xylene	179601-23-1	1	0.66	3.39	ND	ug/kg	Ua
o-Xylene	95-47-6	1	0.38	1.70	ND	ug/kg	Ua
Xylenes, total	1330-20-7	1	1.04	3.39	ND	ug/kg	Ua
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*95.1*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*93.4*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*102*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Analytical Report

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MS/MSD-SB-2020-004:13-11062020

20K0152-12 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/06/2020 09:20
Instrument: NT11 Analyst: VTS — Analyzed: 12/11/2020 13:28

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0152-12 B 03
	Preparation Batch: BIK0636	Sample Size: 14.37 g (wet)	Dry Weight:10.52 g
	Prepared: 11/20/2020	Final Volume: 0.5 mL	% Solids: 73.18
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-12 B 03
	Cleanup Batch: CIL0114	Initial Volume: 0.5 mL	
	Cleaned: 09-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-12 B 03
	Cleanup Batch: CIL0113	Initial Volume: 0.5 mL	
	Cleaned: 08-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.42	0.57	0.75	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.10	0.48	0.78	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.12	0.48	0.85	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.48	ND	ug/kg	Ua
Acenaphthene	83-32-9	1	0.08	0.48	1.05	ug/kg	
Dibenzofuran	132-64-9	1	0.12	0.48	0.30	ug/kg	J
Fluorene	86-73-7	1	0.06	0.48	0.27	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.48	2.69	ug/kg	
Anthracene	120-12-7	1	0.07	0.48	0.17	ug/kg	J
Fluoranthene	206-44-0	1	0.08	0.48	0.47	ug/kg	J
Pyrene	129-00-0	1	0.08	0.48	0.91	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.48	0.28	ug/kg	J
Chrysene	218-01-9	1	0.07	0.48	0.68	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.06	0.48	0.34	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.10	0.48	ND	ug/kg	Ua
Benzo(j)fluoranthene	205-82-3	1	0.09	0.48	ND	ug/kg	Ua
Benzo(a)pyrene	50-32-8	1	0.08	0.48	0.11	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.08	0.48	ND	ug/kg	Ua
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.48	ND	ug/kg	Ua
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.48	0.25	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*47.7*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*68.1*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*69.1*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

MS/MSD-SB-2020-004:13-11062020

20K0152-12 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/06/2020 09:20
Instrument: FID4 Analyst: JGR — Analyzed: 11/29/2020 05:49

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0152-12 B 01
Preparation Batch: BIK0629 — Sample Size: 10.23 g (wet) — Dry Weight:7.64 g
Prepared: 11/20/2020 — Final Volume: 1 mL — % Solids: 74.65

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	6.55	ND	mg/kg	Ua
Motor Oil Range Organics (C24-C38)	RRO	1	13.1	ND	mg/kg	Ua
Surrogate: o-Terphenyl			*50-150 %*	*88.5*	*%*	

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MS/MSD-SB-2020-004:13-11062020

20K0152-12 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/06/2020 09:20
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 16:46

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0152-12 B 02
	Preparation Batch: BIK0633	Sample Size: 17.88 g (wet)	Dry Weight:13.08 g
	Prepared: 11/20/2020	Final Volume: 2.5 mL	% Solids: 73.18
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-12 B 02
	Cleanup Batch: CIL0044	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0152-12 B 02
	Cleanup Batch: CIL0042	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-12 B 02
	Cleanup Batch: CIL0043	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.5	3.8	ND	ug/kg	Ua
Aroclor 1221	11104-28-2	1	1.5	3.8	ND	ug/kg	Ua
Aroclor 1232	11141-16-5	1	1.5	3.8	ND	ug/kg	Ua
Aroclor 1242	53469-21-9	1	1.5	3.8	ND	ug/kg	Ua
Aroclor 1248	12672-29-6	1	1.5	3.8	ND	ug/kg	Ua
Aroclor 1254	11097-69-1	1	1.5	3.8	ND	ug/kg	Ua
Aroclor 1260	11096-82-5	1	0.6	3.8	ND	ug/kg	Ua
Surrogate: Decachlorobiphenyl				*40-126 %*	*60.4*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*55.9*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*68.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*59.2*	*%*	

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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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

MS/MSD-SB-2020-004:13-11062020

20K0152-12 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/06/2020 09:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/20/2020 18:13

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-12 C 01
Preparation Batch: BIK0569 — Sample Size: 1.075 g (wet) — Dry Weight:0.82 g
Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 75.83

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.07	0.61	55.0	mg/kg	
Chromium	7440-47-3	20	0.16	0.61	12.9	mg/kg	
Cobalt	7440-48-4	20	0.04	0.25	6.07	mg/kg	
Lead	7439-92-1	20	0.08	0.12	2.60	mg/kg	
Selenium	7782-49-2	20	0.54	2.45	1.23	mg/kg	J
Silver	7440-22-4	20	0.02	0.25	0.07	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.25	42.3	mg/kg	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

MS/MSD-SB-2020-004:13-11062020

20K0152-12 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/06/2020 09:20
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/19/2020 21:11

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-12 C 01
Preparation Batch: BIK0569 — Sample Size: 1.075 g (wet) — Dry Weight:0.82 g
Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 75.83

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.25	4.51	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.06	mg/kg	J
Copper	7440-50-8	20	0.42	0.61	19.1	mg/kg	
Nickel	7440-02-0	20	0.06	0.61	10.8	mg/kg	
Zinc	7440-66-6	20	1.0	4.9	26.2	mg/kg	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

MS/MSD-SB-2020-004:13-11062020

20K0152-12 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/06/2020 09:20
Instrument: HYDRA Analyst: BLC — Analyzed: 11/12/2020 17:22

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0152-12 C
Preparation Batch: BIK0276 — Sample Size: 0.202 g (wet) — Dry Weight:0.15 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 73.18

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00710	0.0338	0.0426	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

MS/MSD-SB-2020-004:13-11062020

20K0152-12 (Solid)

Wet Chemistry

Method: EPA 9060A m — Sampled: 11/06/2020 09:20

Instrument: TOC Cube Analyst: BF — Analyzed: 11/20/2020 03:16

Sample Preparation: Preparation Method: PSEP 1986 (modified) — Extract ID: 20K0152-12 C

Preparation Batch: BIK0572 — Sample Size: 0.4589 g (wet) — Dry Weight:0.34 g

Prepared: 11/18/2020 — Final Volume: 0.4589 mL — % Solids: 73.18

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.16	%	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

MS/MSD-SB-2020-004:13-11062020

20K0152-12 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 11/06/2020 09:20

Instrument: BAL2 Analyst: KLE — Analyzed: 11/11/2020 23:04

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 20K0152-12

Preparation Batch: BIK0364 — Sample Size: 10 g (wet) — Dry Weight:7.32 g

Prepared: 11/11/2020 — Final Volume: 10 g — % Solids: 73.18

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	73.18	%	

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Draft for Public Comment

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

MS/MSD-SB-2020-004:13-11062020

20K0152-12 (Solid)

Geotechnical Methods

Method: PSEP-PS — Sampled: 11/06/2020 09:20

Instrument: MT&C Analyst: — Analyzed: 01/15/2021 00:00

Analysis by: Materials Testing & Consulting, Inc. (Olympia)

Sample Preparation: Preparation Method: No Prep Geo — Extract ID: 20K0152-12

Preparation Batch: B011521

Prepared: 01/15/2021 Final Volume:

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size <-1	GS_GRAVEL	1	0.1	0.1	%	
Phi Size -1 to 0	GS_VCS	1	0.1	0.2	%	
Phi Size 0 to 1	GS_CS	1	0.1	0.3	%	
Phi Size 1 to 2	GS_MS	1	0.1	1.5	%	
Phi Size 2 to 3	GS_FS	1	0.1	2.9	%	
Phi Size 3 to 4	GS_VFS	1	0.1	13.9	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	11.5	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	9.9	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	4.9	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	6.0	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	6.2	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	5.1	%	
Phi Size >10	GS_FCLAY	1	0.1	37.4	%	
Total Fines	GS_TOTFINES	1	0.1	81.1	%	

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SB-2020-004:17-11062020

20K0152-13 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/06/2020 09:25

Instrument: NT5 Analyst: PB — Analyzed: 11/10/2020 21:17

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0152-13 F

Preparation Batch: BIK0314 — Sample Size: 5.09 g (wet) — Dry Weight:4.09 g

Prepared: 11/10/2020 — Final Volume: 5 mL — % Solids: 80.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.29	1.22	ND	ug/kg	Ua
1,1-Dichloroethene	75-35-4	1	0.41	1.22	ND	ug/kg	Ua
cis-1,2-Dichloroethene	156-59-2	1	0.29	1.22	ND	ug/kg	Ua
Benzene	71-43-2	1	0.36	1.22	ND	ug/kg	Ua
Trichloroethene	79-01-6	1	0.26	1.22	ND	ug/kg	Ua
Toluene	108-88-3	1	0.18	1.22	0.25	ug/kg	J
Tetrachloroethene	127-18-4	1	0.31	1.22	ND	ug/kg	Ua
Ethylbenzene	100-41-4	1	0.25	1.22	ND	ug/kg	Ua
m,p-Xylene	179601-23-1	1	0.48	2.44	ND	ug/kg	Ua
o-Xylene	95-47-6	1	0.27	1.22	ND	ug/kg	Ua
Xylenes, total	1330-20-7	1	0.75	2.44	ND	ug/kg	Ua
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*107*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*98.4*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*102*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:17-11062020

20K0152-13 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/06/2020 09:25
Instrument: NT11 Analyst: VTS — Analyzed: 12/11/2020 14:00

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0152-13 B 03
	Preparation Batch: BIK0636	Sample Size: 14.32 g (wet)	Dry Weight:11.51 g
	Prepared: 11/20/2020	Final Volume: 0.5 mL	% Solids: 80.36
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-13 B 03
	Cleanup Batch: CIL0114	Initial Volume: 0.5 mL	
	Cleaned: 09-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-13 B 03
	Cleanup Batch: CIL0113	Initial Volume: 0.5 mL	
	Cleaned: 08-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.38	0.52	4.98	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.09	0.43	0.36	ug/kg	J
2-Methylnaphthalene	91-57-6	1	0.11	0.43	0.30	ug/kg	J
Acenaphthylene	208-96-8	1	0.06	0.43	0.06	ug/kg	J
Acenaphthene	83-32-9	1	0.08	0.43	12.4	ug/kg	
Dibenzofuran	132-64-9	1	0.11	0.43	0.28	ug/kg	J
Fluorene	86-73-7	1	0.06	0.43	1.40	ug/kg	
Phenanthrene	85-01-8	1	0.10	0.43	11.3	ug/kg	
Anthracene	120-12-7	1	0.06	0.43	0.80	ug/kg	
Fluoranthene	206-44-0	1	0.07	0.43	0.39	ug/kg	J
Pyrene	129-00-0	1	0.08	0.43	0.43	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.06	0.43	0.11	ug/kg	J
Chrysene	218-01-9	1	0.06	0.43	0.23	ug/kg	J
Benzo(b)fluoranthene	205-99-2	1	0.06	0.43	0.16	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.09	0.43	ND	ug/kg	Ua
Benzo(j)fluoranthene	205-82-3	1	0.08	0.43	ND	ug/kg	Ua
Benzo(a)pyrene	50-32-8	1	0.08	0.43	ND	ug/kg	Ua
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.08	0.43	ND	ug/kg	Ua
Dibenzo(a,h)anthracene	53-70-3	1	0.09	0.43	ND	ug/kg	Ua
Benzo(g,h,i)perylene	191-24-2	1	0.07	0.43	0.11	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*45.6*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*67.5*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*71.4*	*%*	

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SB-2020-004:17-11062020

20K0152-13 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/06/2020 09:25
Instrument: FID4 Analyst: JGR — Analyzed: 11/29/2020 06:09

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0152-13 B 01
Preparation Batch: BIK0629 — Sample Size: 10.17 g (wet) — Dry Weight:8.22 g
Prepared: 11/20/2020 — Final Volume: 1 mL — % Solids: 80.82

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	6.08	ND	mg/kg	Ua
Motor Oil Range Organics (C24-C38)	RRO	1	12.2	ND	mg/kg	Ua
Surrogate: o-Terphenyl			*50-150 %*	*91.0*	*%*	

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SB-2020-004:17-11062020

20K0152-13 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/06/2020 09:25
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 17:06

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0152-13 B 02
	Preparation Batch: BIK0633	Sample Size: 17.91 g (wet)	Dry Weight:14.39 g
	Prepared: 11/20/2020	Final Volume: 2.5 mL	% Solids: 80.36
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-13 B 02
	Cleanup Batch: CIL0044	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0152-13 B 02
	Cleanup Batch: CIL0042	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-13 B 02
	Cleanup Batch: CIL0043	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.4	3.5	ND	ug/kg	Ua
Aroclor 1221	11104-28-2	1	1.4	3.5	ND	ug/kg	Ua
Aroclor 1232	11141-16-5	1	1.4	3.5	ND	ug/kg	Ua
Aroclor 1242	53469-21-9	1	1.4	3.5	ND	ug/kg	Ua
Aroclor 1248	12672-29-6	1	1.4	3.5	ND	ug/kg	Ua
Aroclor 1254	11097-69-1	1	1.4	3.5	ND	ug/kg	Ua
Aroclor 1260	11096-82-5	1	0.5	3.5	ND	ug/kg	Ua
Surrogate: Decachlorobiphenyl				*40-126 %*	*69.7*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*52.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*78.7*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*55.9*	*%*	

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SB-2020-004:17-11062020

20K0152-13 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/06/2020 09:25

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/20/2020 18:18

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-13 D 01

Preparation Batch: BIK0569 — Sample Size: 1.074 g (wet) — Dry Weight:0.87 g

Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 81.17

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.57	21.2	mg/kg	
Chromium	7440-47-3	20	0.15	0.57	7.47	mg/kg	
Cobalt	7440-48-4	20	0.03	0.23	4.27	mg/kg	
Lead	7439-92-1	20	0.08	0.11	1.05	mg/kg	
Selenium	7782-49-2	20	0.50	2.29	0.59	mg/kg	J
Silver	7440-22-4	20	0.02	0.23	0.03	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.23	27.3	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:17-11062020

20K0152-13 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/06/2020 09:25
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/19/2020 21:15

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-13 D 01
Preparation Batch: BIK0569 — Sample Size: 1.074 g (wet) — Dry Weight:0.87 g
Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 81.17

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.23	1.84	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	ND	mg/kg	Ua
Copper	7440-50-8	20	0.39	0.57	8.42	mg/kg	
Nickel	7440-02-0	20	0.06	0.57	6.34	mg/kg	
Zinc	7440-66-6	20	0.9	4.6	16.7	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:17-11062020

20K0152-13 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/06/2020 09:25
Instrument: HYDRA Analyst: BLC — Analyzed: 11/12/2020 17:24

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0152-13 D
Preparation Batch: BIK0276 — Sample Size: 0.25 g (wet) — Dry Weight:0.20 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 80.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00523	0.0249	0.0127	mg/kg	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:17-11062020

20K0152-13 (Solid)

Wet Chemistry

Method: EPA 9060A m — Sampled: 11/06/2020 09:25

Instrument: TOC Cube Analyst: BF — Analyzed: 11/20/2020 03:47

Sample Preparation: Preparation Method: PSEP 1986 (modified) — Extract ID: 20K0152-13 C

Preparation Batch: BIK0572 — Sample Size: 0.5017 g (wet) — Dry Weight:0.40 g

Prepared: 11/18/2020 — Final Volume: 0.5017 mL — % Solids: 80.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.04	%	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:17-11062020

20K0152-13 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 11/06/2020 09:25

Instrument: BAL2 Analyst: KLE — Analyzed: 11/11/2020 23:04

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 20K0152-13

Preparation Batch: BIK0364 — Sample Size: 10 g (wet) — Dry Weight:8.04 g

Prepared: 11/11/2020 — Final Volume: 10 g — % Solids: 80.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	80.36	%	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:17-11062020

20K0152-13 (Solid)

Geotechnical Methods

Method: PSEP-PS — Sampled: 11/06/2020 09:25

Instrument: MT&C Analyst: — Analyzed: 01/15/2021 00:00

Analysis by: Materials Testing & Consulting, Inc. (Olympia)

Sample Preparation: Preparation Method: No Prep Geo — Extract ID: 20K0152-13

Preparation Batch: B011521

Prepared: 01/15/2021 Final Volume:

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size <-1	GS_GRAVEL	1	0.1	1.5	%	
Phi Size -1 to 0	GS_VCS	1	0.1	3.9	%	
Phi Size 0 to 1	GS_CS	1	0.1	21.5	%	
Phi Size 1 to 2	GS_MS	1	0.1	53.2	%	
Phi Size 2 to 3	GS_FS	1	0.1	14.2	%	
Phi Size 3 to 4	GS_VFS	1	0.1	2.7	%	
Phi Size 4 to 5	GS_CSILT	1	2.9	ND	%	U
Phi Size 5 to 6	GS_MSILT	1	2.9	ND	%	U
Phi Size 6 to 7	GS_FSILT	1	2.9	ND	%	U
Phi Size 7 to 8	GS_VFSILT	1	2.9	ND	%	U
Phi Size 8 to 9	GS_CCLAY	1	2.9	ND	%	U
Phi Size 9 to 10	GS_MCLAY	1	2.9	ND	%	U
Phi Size >10	GS_FCLAY	1	2.9	ND	%	U
Total Fines	GS_TOTFINES	1	0.1	2.9	%	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-101:17-11062020

20K0152-14 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/06/2020 09:30
Instrument: NT5 Analyst: PB — Analyzed: 11/10/2020 21:42

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0152-14 E
Preparation Batch: BIK0314 — Sample Size: 5.17 g (wet) — Dry Weight:4.03 g
Prepared: 11/10/2020 — Final Volume: 5 mL — % Solids: 77.91

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.29	1.24	ND	ug/kg	Ua
1,1-Dichloroethene	75-35-4	1	0.42	1.24	ND	ug/kg	Ua
cis-1,2-Dichloroethene	156-59-2	1	0.30	1.24	ND	ug/kg	Ua
Benzene	71-43-2	1	0.37	1.24	ND	ug/kg	Ua
Trichloroethene	79-01-6	1	0.26	1.24	ND	ug/kg	Ua
Toluene	108-88-3	1	0.19	1.24	0.24	ug/kg	J
Tetrachloroethene	127-18-4	1	0.32	1.24	ND	ug/kg	Ua
Ethylbenzene	100-41-4	1	0.25	1.24	ND	ug/kg	Ua
m,p-Xylene	179601-23-1	1	0.49	2.48	ND	ug/kg	Ua
o-Xylene	95-47-6	1	0.28	1.24	ND	ug/kg	Ua
Xylenes, total	1330-20-7	1	0.76	2.48	ND	ug/kg	Ua
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*107*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*102*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*104*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*103*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-101:17-11062020

20K0152-14 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/06/2020 09:30
Instrument: NT11 Analyst: VTS — Analyzed: 12/11/2020 14:33

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0152-14 B 03
	Preparation Batch: BIK0636	Sample Size: 14.38 g (wet)	Dry Weight:11.20 g
	Prepared: 11/20/2020	Final Volume: 0.5 mL	% Solids: 77.91
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-14 B 03
	Cleanup Batch: CIL0114	Initial Volume: 0.5 mL	
	Cleaned: 09-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-14 B 03
	Cleanup Batch: CIL0113	Initial Volume: 0.5 mL	
	Cleaned: 08-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.39	0.54	5.96	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.09	0.45	0.88	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.11	0.45	0.57	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.45	0.10	ug/kg	J
Acenaphthene	83-32-9	1	0.08	0.45	31.9	ug/kg	
Dibenzofuran	132-64-9	1	0.11	0.45	0.96	ug/kg	
Fluorene	86-73-7	1	0.06	0.45	4.84	ug/kg	
Phenanthrene	85-01-8	1	0.10	0.45	25.0	ug/kg	
Anthracene	120-12-7	1	0.07	0.45	2.84	ug/kg	
Fluoranthene	206-44-0	1	0.07	0.45	2.55	ug/kg	
Pyrene	129-00-0	1	0.08	0.45	1.79	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.06	0.45	0.26	ug/kg	J
Chrysene	218-01-9	1	0.06	0.45	0.52	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.06	0.45	0.25	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.09	0.45	ND	ug/kg	Ua
Benzo(j)fluoranthene	205-82-3	1	0.09	0.45	ND	ug/kg	Ua
Benzo(a)pyrene	50-32-8	1	0.08	0.45	0.13	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.08	0.45	0.08	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	0.09	0.45	ND	ug/kg	Ua
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.45	0.22	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*44.3*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*64.8*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*68.2*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-101:17-11062020

20K0152-14 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/06/2020 09:30
Instrument: FID4 Analyst: JGR — Analyzed: 11/29/2020 06:29

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0152-14 B 01
Preparation Batch: BIK0629 — Sample Size: 10.12 g (wet) — Dry Weight:8.20 g
Prepared: 11/20/2020 — Final Volume: 1 mL — % Solids: 81.03

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	6.10	ND	mg/kg	Ua
Motor Oil Range Organics (C24-C38)	RRO	1	12.2	ND	mg/kg	Ua
Surrogate: o-Terphenyl			*50-150 %*	*88.7*	*%*	

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20K0152-14 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/06/2020 09:30
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 17:27

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0152-14 B 02
	Preparation Batch: BIK0633	Sample Size: 17.99 g (wet)	Dry Weight:14.02 g
	Prepared: 11/20/2020	Final Volume: 2.5 mL	% Solids: 77.91
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-14 B 02
	Cleanup Batch: CIL0044	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0152-14 B 02
	Cleanup Batch: CIL0042	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-14 B 02
	Cleanup Batch: CIL0043	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.4	3.6	ND	ug/kg	Ua
Aroclor 1221	11104-28-2	1	1.4	3.6	ND	ug/kg	Ua
Aroclor 1232	11141-16-5	1	1.4	3.6	ND	ug/kg	Ua
Aroclor 1242	53469-21-9	1	1.4	3.6	ND	ug/kg	Ua
Aroclor 1248	12672-29-6	1	1.4	3.6	ND	ug/kg	Ua
Aroclor 1254	11097-69-1	1	1.4	3.6	ND	ug/kg	Ua
Aroclor 1260	11096-82-5	1	0.5	3.6	ND	ug/kg	Ua
Surrogate: Decachlorobiphenyl				*40-126 %*	*67.4*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*64.0*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*80.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*66.3*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-101:17-11062020

20K0152-14 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/06/2020 09:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/20/2020 18:22

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-14 C 01
Preparation Batch: BIK0569 — Sample Size: 1.051 g (wet) — Dry Weight:0.83 g
Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 79.42

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.07	0.60	30.7	mg/kg	
Chromium	7440-47-3	20	0.16	0.60	7.59	mg/kg	
Cobalt	7440-48-4	20	0.03	0.24	4.47	mg/kg	
Lead	7439-92-1	20	0.08	0.12	1.26	mg/kg	
Selenium	7782-49-2	20	0.53	2.40	0.86	mg/kg	J
Silver	7440-22-4	20	0.02	0.24	0.04	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.24	31.2	mg/kg	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

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20K0152-14 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/06/2020 09:30

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/19/2020 21:20

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-14 C 01

Preparation Batch: BIK0569 — Sample Size: 1.051 g (wet) — Dry Weight:0.83 g

Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 79.42

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.24	2.55	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	ND	mg/kg	Ua
Copper	7440-50-8	20	0.41	0.60	9.73	mg/kg	
Nickel	7440-02-0	20	0.06	0.60	7.65	mg/kg	
Zinc	7440-66-6	20	1.0	4.8	19.7	mg/kg	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-101:17-11062020

20K0152-14 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/06/2020 09:30
Instrument: HYDRA Analyst: BLC — Analyzed: 11/12/2020 17:27

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0152-14 C
Preparation Batch: BIK0276 — Sample Size: 0.256 g (wet) — Dry Weight:0.20 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 77.91

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00526	0.0251	0.0165	mg/kg	J

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

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20K0152-14 (Solid)

Wet Chemistry

Method: EPA 9060A m — Sampled: 11/06/2020 09:30

Instrument: TOC Cube Analyst: BF — Analyzed: 11/20/2020 04:17

Sample Preparation: Preparation Method: PSEP 1986 (modified) — Extract ID: 20K0152-14 C

Preparation Batch: BIK0572 — Sample Size: 0.5312 g (wet) — Dry Weight:0.41 g

Prepared: 11/18/2020 — Final Volume: 0.5312 mL — % Solids: 77.91

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.33	%	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

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20K0152-14 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 11/06/2020 09:30

Instrument: BAL2 Analyst: KLE — Analyzed: 11/11/2020 23:04

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 20K0152-14

Preparation Batch: BIK0364 — Sample Size: 10 g (wet) — Dry Weight:7.79 g

Prepared: 11/11/2020 — Final Volume: 10 g — % Solids: 77.91

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	77.91	%	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-101:17-11062020

20K0152-14 (Solid)

Geotechnical Methods

Method: PSEP-PS — Sampled: 11/06/2020 09:30

Instrument: MT&C Analyst: — Analyzed: 01/15/2021 00:00

Analysis by: Materials Testing & Consulting, Inc. (Olympia)

Sample Preparation: Preparation Method: No Prep Geo — Extract ID: 20K0152-14

Preparation Batch: B011521

Prepared: 01/15/2021 Final Volume:

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size <-1	GS_GRAVEL	1	0.1	0.6	%	
Phi Size -1 to 0	GS_VCS	1	0.1	2.6	%	
Phi Size 0 to 1	GS_CS	1	0.1	32.9	%	
Phi Size 1 to 2	GS_MS	1	0.1	49.4	%	
Phi Size 2 to 3	GS_FS	1	0.1	9.3	%	
Phi Size 3 to 4	GS_VFS	1	0.1	2.5	%	
Phi Size 4 to 5	GS_CSILT	1	2.6	ND	%	U
Phi Size 5 to 6	GS_MSILT	1	2.6	ND	%	U
Phi Size 6 to 7	GS_FSILT	1	2.6	ND	%	U
Phi Size 7 to 8	GS_VFSILT	1	2.6	ND	%	U
Phi Size 8 to 9	GS_CCLAY	1	2.6	ND	%	U
Phi Size 9 to 10	GS_MCLAY	1	2.6	ND	%	U
Phi Size >10	GS_FCLAY	1	2.6	ND	%	U
Total Fines	GS_TOTFINES	1	0.1	2.6	%	

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Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

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20K0152-15 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/06/2020 09:35

Instrument: NT5 Analyst: PB — Analyzed: 11/10/2020 22:06

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0152-15 E

Preparation Batch: BIK0314 — Sample Size: 3.3 g (wet) — Dry Weight:2.65 g

Prepared: 11/10/2020 — Final Volume: 5 mL — % Solids: 80.18

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.44	1.89	ND	ug/kg	Ua
1,1-Dichloroethene	75-35-4	1	0.63	1.89	ND	ug/kg	Ua
cis-1,2-Dichloroethene	156-59-2	1	0.45	1.89	ND	ug/kg	Ua
Benzene	71-43-2	1	0.56	1.89	ND	ug/kg	Ua
Trichloroethene	79-01-6	1	0.40	1.89	ND	ug/kg	Ua
Toluene	108-88-3	1	0.29	1.89	0.37	ug/kg	J
Tetrachloroethene	127-18-4	1	0.49	1.89	ND	ug/kg	Ua
Ethylbenzene	100-41-4	1	0.38	1.89	ND	ug/kg	Ua
m,p-Xylene	179601-23-1	1	0.74	3.78	ND	ug/kg	Ua
o-Xylene	95-47-6	1	0.42	1.89	ND	ug/kg	Ua
Xylenes, total	1330-20-7	1	1.16	3.78	ND	ug/kg	Ua
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*109*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*104*	*%*	
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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:21-11062020

20K0152-15 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/06/2020 09:35
Instrument: NT11 Analyst: VTS — Analyzed: 12/11/2020 15:05

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0152-15 B 03
	Preparation Batch: BIK0636	Sample Size: 14.34 g (wet)	Dry Weight:11.50 g
	Prepared: 11/20/2020	Final Volume: 0.5 mL	% Solids: 80.18
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-15 B 03
	Cleanup Batch: CIL0114	Initial Volume: 0.5 mL	
	Cleaned: 09-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-15 B 03
	Cleanup Batch: CIL0113	Initial Volume: 0.5 mL	
	Cleaned: 08-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.38	0.52	5.51	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.09	0.43	1.74	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.11	0.43	1.39	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.43	0.33	ug/kg	J
Acenaphthene	83-32-9	1	0.08	0.43	86.6	ug/kg	E
Dibenzofuran	132-64-9	1	0.11	0.43	1.18	ug/kg	
Fluorene	86-73-7	1	0.06	0.43	10.2	ug/kg	
Phenanthrene	85-01-8	1	0.10	0.43	73.6	ug/kg	E
Anthracene	120-12-7	1	0.06	0.43	12.7	ug/kg	
Fluoranthene	206-44-0	1	0.07	0.43	13.1	ug/kg	
Pyrene	129-00-0	1	0.08	0.43	7.71	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.06	0.43	0.67	ug/kg	
Chrysene	218-01-9	1	0.06	0.43	1.15	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.06	0.43	0.98	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.09	0.43	0.18	ug/kg	J
Benzo(j)fluoranthene	205-82-3	1	0.08	0.43	0.20	ug/kg	J
Benzo(a)pyrene	50-32-8	1	0.08	0.43	0.48	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.08	0.43	0.19	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	0.09	0.43	ND	ug/kg	Ua
Benzo(g,h,i)perylene	191-24-2	1	0.07	0.43	0.41	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*41.9*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*68.3*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*69.6*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:21-11062020

20K0152-15 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/06/2020 09:35
Instrument: FID4 Analyst: JGR — Analyzed: 11/29/2020 06:49

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0152-15 B 01
Preparation Batch: BIK0629 — Sample Size: 10.21 g (wet) — Dry Weight:8.48 g
Prepared: 11/20/2020 — Final Volume: 1 mL — % Solids: 83.09

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	5.89	7.56	mg/kg	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	11.8	11.8	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*90.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:21-11062020

20K0152-15 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/06/2020 09:35
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 17:48

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0152-15 B 02
	Preparation Batch: BIK0633	Sample Size: 17.88 g (wet)	Dry Weight:14.34 g
	Prepared: 11/20/2020	Final Volume: 2.5 mL	% Solids: 80.18
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-15 B 02
	Cleanup Batch: CIL0044	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0152-15 B 02
	Cleanup Batch: CIL0042	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-15 B 02
	Cleanup Batch: CIL0043	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.4	3.5	ND	ug/kg	Ua
Aroclor 1221	11104-28-2	1	1.4	3.5	ND	ug/kg	Ua
Aroclor 1232	11141-16-5	1	1.4	3.5	ND	ug/kg	Ua
Aroclor 1242	53469-21-9	1	1.4	3.5	ND	ug/kg	Ua
Aroclor 1248	12672-29-6	1	1.4	3.5	ND	ug/kg	Ua
Aroclor 1254	11097-69-1	1	1.4	3.5	ND	ug/kg	Ua
Aroclor 1260	11096-82-5	1	0.5	3.5	ND	ug/kg	Ua
Surrogate: Decachlorobiphenyl				*40-126 %*	*77.5*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*74.0*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*91.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*75.4*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:21-11062020

20K0152-15 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/06/2020 09:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/20/2020 18:26

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-15 C 01
Preparation Batch: BIK0569 — Sample Size: 1.077 g (wet) — Dry Weight:0.88 g
Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 81.31

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.57	35.3	mg/kg	
Chromium	7440-47-3	20	0.15	0.57	7.98	mg/kg	
Cobalt	7440-48-4	20	0.03	0.23	4.56	mg/kg	
Lead	7439-92-1	20	0.08	0.11	1.23	mg/kg	
Selenium	7782-49-2	20	0.50	2.28	0.68	mg/kg	J
Silver	7440-22-4	20	0.02	0.23	0.03	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.23	30.3	mg/kg	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:21-11062020

20K0152-15 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/06/2020 09:35

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/19/2020 21:25

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-15 C 01

Preparation Batch: BIK0569 — Sample Size: 1.077 g (wet) — Dry Weight:0.88 g

Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 81.31

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.23	2.12	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	ND	mg/kg	Ua
Copper	7440-50-8	20	0.39	0.57	9.57	mg/kg	
Nickel	7440-02-0	20	0.06	0.57	7.63	mg/kg	
Zinc	7440-66-6	20	0.9	4.6	19.9	mg/kg	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

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20K0152-15 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/06/2020 09:35
Instrument: HYDRA Analyst: BLC — Analyzed: 11/12/2020 17:29

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0152-15 C
Preparation Batch: BIK0276 — Sample Size: 0.226 g (wet) — Dry Weight:0.18 g
Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 80.18

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00579	0.0276	0.0125	mg/kg	J

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:21-11062020

20K0152-15 (Solid)

Wet Chemistry

Method: EPA 9060A m — Sampled: 11/06/2020 09:35

Instrument: TOC Cube Analyst: BF — Analyzed: 11/20/2020 04:49

Sample Preparation: Preparation Method: PSEP 1986 (modified) — Extract ID: 20K0152-15 C

Preparation Batch: BIK0572 — Sample Size: 0.5177 g (wet) — Dry Weight:0.42 g

Prepared: 11/18/2020 — Final Volume: 0.5177 mL — % Solids: 80.18

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.15	%	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
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SB-2020-004:21-11062020

20K0152-15 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 11/06/2020 09:35

Instrument: BAL2 Analyst: KLE — Analyzed: 11/11/2020 23:04

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 20K0152-15

Preparation Batch: BIK0364 — Sample Size: 10 g (wet) — Dry Weight:8.02 g

Prepared: 11/11/2020 — Final Volume: 10 g — % Solids: 80.18

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	80.18	%	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:21-11062020

20K0152-15 (Solid)

Geotechnical Methods

Method: PSEP-PS — Sampled: 11/06/2020 09:35

Instrument: MT&C Analyst: — Analyzed: 01/15/2021 00:00

Analysis by: Materials Testing & Consulting, Inc. (Olympia)

Sample Preparation: Preparation Method: No Prep Geo — Extract ID: 20K0152-15

Preparation Batch: B011521

Prepared: 01/15/2021 Final Volume:

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size <-1	GS_GRAVEL	1	0.1	0.9	%	
Phi Size -1 to 0	GS_VCS	1	0.1	3.8	%	
Phi Size 0 to 1	GS_CS	1	0.1	30.0	%	
Phi Size 1 to 2	GS_MS	1	0.1	42.9	%	
Phi Size 2 to 3	GS_FS	1	0.1	12.6	%	
Phi Size 3 to 4	GS_VFS	1	0.1	3.8	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	0.4	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	1.2	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	0.6	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	0.8	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	1.1	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	0.8	%	
Phi Size >10	GS_FCLAY	1	0.1	0.9	%	
Total Fines	GS_TOTFINES	1	0.1	5.9	%	

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:21-11062020

20K0152-15RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/06/2020 09:35
Instrument: NT11 Analyst: VTS — Analyzed: 12/12/2020 14:34

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0152-15RE1 B 03
	Preparation Batch: BIK0636	Sample Size: 14.34 g (wet)	Dry Weight:11.50 g
	Prepared: 11/20/2020	Final Volume: 0.5 mL	% Solids: 80.18
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-15RE1 B 03
	Cleanup Batch: CIL0114	Initial Volume: 0.5 mL	
	Cleaned: 09-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-15RE1 B 03
	Cleanup Batch: CIL0113	Initial Volume: 0.5 mL	
	Cleaned: 08-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	3	1.15	1.57	5.40	ug/kg	D
1-Methylnaphthalene	90-12-0	3	0.28	1.30	1.66	ug/kg	D
2-Methylnaphthalene	91-57-6	3	0.33	1.30	1.34	ug/kg	D
Acenaphthylene	208-96-8	3	0.17	1.30	0.27	ug/kg	J, D
Acenaphthene	83-32-9	3	0.23	1.30	115	ug/kg	D
Dibenzofuran	132-64-9	3	0.33	1.30	1.16	ug/kg	J, D
Fluorene	86-73-7	3	0.18	1.30	9.61	ug/kg	D
Phenanthrene	85-01-8	3	0.30	1.30	105	ug/kg	D
Anthracene	120-12-7	3	0.19	1.30	13.3	ug/kg	D
Fluoranthene	206-44-0	3	0.21	1.30	13.1	ug/kg	D
Pyrene	129-00-0	3	0.23	1.30	7.56	ug/kg	D
Benzo(a)anthracene	56-55-3	3	0.19	1.30	0.86	ug/kg	J, D
Chrysene	218-01-9	3	0.18	1.30	1.26	ug/kg	J, D
Benzo(b)fluoranthene	205-99-2	3	0.17	1.30	0.68	ug/kg	J, D
Benzo(k)fluoranthene	207-08-9	3	0.26	1.30	ND	ug/kg	Ua
Benzo(j)fluoranthene	205-82-3	3	0.25	1.30	0.31	ug/kg	J, D
Benzo(a)pyrene	50-32-8	3	0.23	1.30	0.31	ug/kg	J, D
Indeno(1,2,3-cd)pyrene	193-39-5	3	0.23	1.30	0.24	ug/kg	J, D
Dibenzo(a,h)anthracene	53-70-3	3	0.27	1.30	ND	ug/kg	Ua
Benzo(g,h,i)perylene	191-24-2	3	0.22	1.30	0.53	ug/kg	J, D
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*40.6*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*64.5*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*69.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:27-11062020

20K0152-16 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/06/2020 09:45

Instrument: NT5 Analyst: PB — Analyzed: 11/10/2020 22:30

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 20K0152-16 E

Preparation Batch: BIK0314 — Sample Size: 4.15 g (wet) — Dry Weight:3.33 g

Prepared: 11/10/2020 — Final Volume: 5 mL — % Solids: 80.26

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.35	1.50	ND	ug/kg	Ua
1,1-Dichloroethene	75-35-4	1	0.50	1.50	ND	ug/kg	Ua
cis-1,2-Dichloroethene	156-59-2	1	0.36	1.50	ND	ug/kg	Ua
Benzene	71-43-2	1	0.44	1.50	ND	ug/kg	Ua
Trichloroethene	79-01-6	1	0.32	1.50	ND	ug/kg	Ua
Toluene	108-88-3	1	0.23	1.50	ND	ug/kg	Ua
Tetrachloroethene	127-18-4	1	0.39	1.50	ND	ug/kg	Ua
Ethylbenzene	100-41-4	1	0.30	1.50	ND	ug/kg	Ua
m,p-Xylene	179601-23-1	1	0.59	3.00	ND	ug/kg	Ua
o-Xylene	95-47-6	1	0.34	1.50	ND	ug/kg	Ua
Xylenes, total	1330-20-7	1	0.92	3.00	ND	ug/kg	Ua
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*109*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*103*	*%*	
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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:27-11062020

20K0152-16 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/06/2020 09:45
Instrument: NT11 Analyst: VTS — Analyzed: 12/11/2020 15:37

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0152-16 B 03
	Preparation Batch: BIK0636	Sample Size: 14.29 g (wet)	Dry Weight:11.47 g
	Prepared: 11/20/2020	Final Volume: 0.5 mL	% Solids: 80.26
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-16 B 03
	Cleanup Batch: CIL0114	Initial Volume: 0.5 mL	
	Cleaned: 09-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-16 B 03
	Cleanup Batch: CIL0113	Initial Volume: 0.5 mL	
	Cleaned: 08-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.38	0.52	11.6	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.09	0.44	1.68	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.11	0.44	2.53	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.44	0.31	ug/kg	J
Acenaphthene	83-32-9	1	0.08	0.44	83.1	ug/kg	E
Dibenzofuran	132-64-9	1	0.11	0.44	2.64	ug/kg	
Fluorene	86-73-7	1	0.06	0.44	8.62	ug/kg	
Phenanthrene	85-01-8	1	0.10	0.44	59.5	ug/kg	E
Anthracene	120-12-7	1	0.06	0.44	7.26	ug/kg	
Fluoranthene	206-44-0	1	0.07	0.44	24.6	ug/kg	
Pyrene	129-00-0	1	0.08	0.44	15.9	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.06	0.44	0.32	ug/kg	J
Chrysene	218-01-9	1	0.06	0.44	0.54	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.06	0.44	0.22	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.09	0.44	ND	ug/kg	Ua
Benzo(j)fluoranthene	205-82-3	1	0.08	0.44	ND	ug/kg	Ua
Benzo(a)pyrene	50-32-8	1	0.08	0.44	0.10	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.08	0.44	ND	ug/kg	Ua
Dibenzo(a,h)anthracene	53-70-3	1	0.09	0.44	ND	ug/kg	Ua
Benzo(g,h,i)perylene	191-24-2	1	0.07	0.44	0.19	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*44.4*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*69.1*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*71.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:27-11062020

20K0152-16 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/06/2020 09:45
Instrument: FID4 Analyst: JGR — Analyzed: 11/29/2020 07:09

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0152-16 B 01
Preparation Batch: BIK0629 — Sample Size: 10.1 g (wet) — Dry Weight:8.32 g
Prepared: 11/20/2020 — Final Volume: 1 mL — % Solids: 82.37

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	6.01	ND	mg/kg	Ua
Motor Oil Range Organics (C24-C38)	RRO	1	12.0	ND	mg/kg	Ua
Surrogate: o-Terphenyl			*50-150 %*	*90.4*	*%*	

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Draft for Public Comment

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:27-11062020

20K0152-16 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/06/2020 09:45
Instrument: ECD7 Analyst: JGR — Analyzed: 12/04/2020 18:08

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20K0152-16 B 02
	Preparation Batch: BIK0633	Sample Size: 17.9 g (wet)	Dry Weight:14.37 g
	Prepared: 11/20/2020	Final Volume: 2.5 mL	% Solids: 80.26
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-16 B 02
	Cleanup Batch: CIL0044	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0152-16 B 02
	Cleanup Batch: CIL0042	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-16 B 02
	Cleanup Batch: CIL0043	Initial Volume: 2.5 mL	
	Cleaned: 03-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.4	3.5	ND	ug/kg	Ua
Aroclor 1221	11104-28-2	1	1.4	3.5	ND	ug/kg	Ua
Aroclor 1232	11141-16-5	1	1.4	3.5	ND	ug/kg	Ua
Aroclor 1242	53469-21-9	1	1.4	3.5	ND	ug/kg	Ua
Aroclor 1248	12672-29-6	1	1.4	3.5	ND	ug/kg	Ua
Aroclor 1254	11097-69-1	1	1.4	3.5	ND	ug/kg	Ua
Aroclor 1260	11096-82-5	1	0.5	3.5	ND	ug/kg	Ua
Surrogate: Decachlorobiphenyl				*40-126 %*	*74.9*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*65.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*86.9*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*66.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:27-11062020

20K0152-16 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/06/2020 09:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/20/2020 18:30

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-16 C 01
Preparation Batch: BIK0569 — Sample Size: 1.068 g (wet) — Dry Weight:0.86 g
Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 80.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.58	28.3	mg/kg	
Chromium	7440-47-3	20	0.15	0.58	8.78	mg/kg	
Cobalt	7440-48-4	20	0.03	0.23	3.95	mg/kg	
Lead	7439-92-1	20	0.08	0.12	1.22	mg/kg	
Selenium	7782-49-2	20	0.51	2.32	0.62	mg/kg	J
Silver	7440-22-4	20	0.02	0.23	0.03	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.23	28.3	mg/kg	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:27-11062020

20K0152-16 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/06/2020 09:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/19/2020 21:30

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20K0152-16 C 01
Preparation Batch: BIK0569 — Sample Size: 1.068 g (wet) — Dry Weight:0.86 g
Prepared: 11/18/2020 — Final Volume: 50 mL — % Solids: 80.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.23	1.77	mg/kg	
Cadmium	7440-43-9	20	0.03	0.12	ND	mg/kg	Ua
Copper	7440-50-8	20	0.39	0.58	8.20	mg/kg	
Nickel	7440-02-0	20	0.06	0.58	7.21	mg/kg	
Zinc	7440-66-6	20	1.0	4.6	18.4	mg/kg	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:27-11062020

20K0152-16 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/06/2020 09:45

Instrument: HYDRA Analyst: BLC — Analyzed: 11/12/2020 17:31

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20K0152-16 C

Preparation Batch: BIK0276 — Sample Size: 0.23 g (wet) — Dry Weight:0.18 g

Prepared: 11/11/2020 — Final Volume: 50 mL — % Solids: 80.26

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00569	0.0271	0.00929	mg/kg	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:27-11062020

20K0152-16 (Solid)

Wet Chemistry

Method: EPA 9060A m — Sampled: 11/06/2020 09:45

Instrument: TOC Cube Analyst: BF — Analyzed: 11/20/2020 05:19

Sample Preparation: Preparation Method: PSEP 1986 (modified) — Extract ID: 20K0152-16 C

Preparation Batch: BIK0572 — Sample Size: 0.5194 g (wet) — Dry Weight:0.42 g

Prepared: 11/18/2020 — Final Volume: 0.5194 mL — % Solids: 80.26

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.04	%	

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20K0152-16 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 11/06/2020 09:45

Instrument: BAL2 Analyst: KLE — Analyzed: 11/11/2020 23:04

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 20K0152-16

Preparation Batch: BIK0364 — Sample Size: 10 g (wet) — Dry Weight:8.03 g

Prepared: 11/11/2020 — Final Volume: 10 g — % Solids: 80.26

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	80.26	%	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:27-11062020

20K0152-16 (Solid)

Geotechnical Methods

Method: PSEP-PS — Sampled: 11/06/2020 09:45

Instrument: MT&C Analyst: — Analyzed: 01/15/2021 00:00

Analysis by: Materials Testing & Consulting, Inc. (Olympia)

Sample Preparation: Preparation Method: No Prep Geo — Extract ID: 20K0152-16

Preparation Batch: B011521

Prepared: 01/15/2021 Final Volume:

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Phi Size <-1	GS_GRAVEL	1	0.1	1.0	%	
Phi Size -1 to 0	GS_VCS	1	0.1	3.1	%	
Phi Size 0 to 1	GS_CS	1	0.1	25.9	%	
Phi Size 1 to 2	GS_MS	1	0.1	40.9	%	
Phi Size 2 to 3	GS_FS	1	0.1	15.1	%	
Phi Size 3 to 4	GS_VFS	1	0.1	5.6	%	
Phi Size 4 to 5	GS_CSILT	1	0.1	1.5	%	
Phi Size 5 to 6	GS_MSILT	1	0.1	1.2	%	
Phi Size 6 to 7	GS_FSILT	1	0.1	1.4	%	
Phi Size 7 to 8	GS_VFSILT	1	0.1	1.4	%	
Phi Size 8 to 9	GS_CCLAY	1	0.1	1.0	%	
Phi Size 9 to 10	GS_MCLAY	1	0.1	1.1	%	
Phi Size >10	GS_FCLAY	1	0.1	0.6	%	
Total Fines	GS_TOTFINES	1	0.1	8.3	%	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

SB-2020-004:27-11062020

20K0152-16RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/06/2020 09:45
Instrument: NT11 Analyst: VTS — Analyzed: 12/12/2020 15:06

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20K0152-16RE1 B 03
	Preparation Batch: BIK0636	Sample Size: 14.29 g (wet)	Dry Weight:11.47 g
	Prepared: 11/20/2020	Final Volume: 0.5 mL	% Solids: 80.26
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20K0152-16RE1 B 03
	Cleanup Batch: CIL0114	Initial Volume: 0.5 mL	
	Cleaned: 09-Dec-2020	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-16RE1 B 03
	Cleanup Batch: CIL0113	Initial Volume: 0.5 mL	
	Cleaned: 08-Dec-2020	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	3	1.15	1.57	11.8	ug/kg	D
1-Methylnaphthalene	90-12-0	3	0.28	1.31	1.65	ug/kg	D
2-Methylnaphthalene	91-57-6	3	0.33	1.31	2.46	ug/kg	D
Acenaphthylene	208-96-8	3	0.17	1.31	0.29	ug/kg	J, D
Acenaphthene	83-32-9	3	0.23	1.31	107	ug/kg	D
Dibenzofuran	132-64-9	3	0.33	1.31	2.51	ug/kg	D
Fluorene	86-73-7	3	0.18	1.31	8.16	ug/kg	D
Phenanthrene	85-01-8	3	0.30	1.31	72.1	ug/kg	D
Anthracene	120-12-7	3	0.19	1.31	7.41	ug/kg	D
Fluoranthene	206-44-0	3	0.21	1.31	25.7	ug/kg	D
Pyrene	129-00-0	3	0.23	1.31	16.4	ug/kg	D
Benzo(a)anthracene	56-55-3	3	0.19	1.31	0.39	ug/kg	J, D
Chrysene	218-01-9	3	0.18	1.31	0.57	ug/kg	J, D
Benzo(b)fluoranthene	205-99-2	3	0.17	1.31	0.19	ug/kg	J, D
Benzo(k)fluoranthene	207-08-9	3	0.26	1.31	ND	ug/kg	Ua
Benzo(j)fluoranthene	205-82-3	3	0.25	1.31	ND	ug/kg	Ua
Benzo(a)pyrene	50-32-8	3	0.23	1.31	ND	ug/kg	Ua
Indeno(1,2,3-cd)pyrene	193-39-5	3	0.23	1.31	ND	ug/kg	Ua
Dibenzo(a,h)anthracene	53-70-3	3	0.27	1.31	ND	ug/kg	Ua
Benzo(g,h,i)perylene	191-24-2	3	0.22	1.31	0.25	ug/kg	J, D
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*43.4*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*64.3*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*69.9*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

A2-16A:9.5-11062020

20K0152-17 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/06/2020 11:55

Instrument: NT2 Analyst: PKC — Analyzed: 11/16/2020 14:04

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0152-17 C

Preparation Batch: BIK0430 — Sample Size: 3.327 g (wet) — Dry Weight:2.52 g

Prepared: 11/14/2020 — Final Volume: 5 mL — % Solids: 75.66

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	11500	71000	ug/kg	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*103*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*105*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

A2-16A:9.5-11062020

20K0152-17 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/06/2020 11:55
Instrument: FID4 Analyst: JGR — Analyzed: 11/29/2020 20:45

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0152-17 A 01
Preparation Batch: BIK0629 — Sample Size: 10.15 g (wet) — Dry Weight:7.79 g
Prepared: 11/20/2020 — Final Volume: 1 mL — % Solids: 76.71

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	25	161	3400	mg/kg	D
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	25	321	7430	mg/kg	D
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*71.1*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

A2-16A:12.5-11062020

20K0152-18 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/06/2020 12:00
Instrument: NT2 Analyst: PKC — Analyzed: 11/16/2020 14:25

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0152-18 B
Preparation Batch: BIK0430 — Sample Size: 4.812 g (wet) — Dry Weight:3.48 g
Prepared: 11/14/2020 — Final Volume: 5 mL — % Solids: 72.34

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	9090	39900	ug/kg	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*98.3*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*106*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

A2-16A:12.5-11062020

20K0152-18 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/06/2020 12:00
Instrument: FID4 Analyst: JGR — Analyzed: 11/29/2020 21:05

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0152-18 A 01
Preparation Batch: BIK0629 — Sample Size: 10.1 g (wet) — Dry Weight:7.63 g
Prepared: 11/20/2020 — Final Volume: 1 mL — % Solids: 75.58

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	50	328	3230	mg/kg	D
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	50	655	10800	mg/kg	D
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*88.9*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

A2-16A:18-11062020

20K0152-19 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 11/06/2020 12:05

Instrument: NT2 Analyst: PKC — Analyzed: 11/16/2020 14:45

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 20K0152-19 B

Preparation Batch: BIK0430 — Sample Size: 5.2 g (wet) — Dry Weight:4.05 g

Prepared: 11/14/2020 — Final Volume: 5 mL — % Solids: 77.96

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	7580	ND	ug/kg	Ua
Surrogate: Toluene-d8			*80-120 %*	*98.8*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*104*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

A2-16A:18-11062020

20K0152-19 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 11/06/2020 12:05
Instrument: FID4 Analyst: JGR — Analyzed: 11/29/2020 08:09

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 20K0152-19 A 01
Preparation Batch: BIK0629 — Sample Size: 10.13 g (wet) — Dry Weight:7.73 g
Prepared: 11/20/2020 — Final Volume: 1 mL — % Solids: 76.30

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	6.47	11.5	mg/kg	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	12.9	29.6	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*92.1*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-2-11062020

20K0152-21 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/06/2020 13:30

Instrument: NT2 Analyst: PKC — Analyzed: 11/12/2020 12:30

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20K0152-21 D

Preparation Batch: BIK0380 — Sample Size: 10 mL

Prepared: 11/12/2020 — 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	Ua
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	Ua
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	Ua
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	Ua
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	Ua
Toluene	108-88-3	1	0.05	0.20	0.05	ug/L	J
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	Ua
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	Ua
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	Ua
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	Ua
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	Ua
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*97.6*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*86.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*103*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-2-11062020

20K0152-21 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/06/2020 13:30
Instrument: NT8 Analyst: JZ — Analyzed: 12/09/2020 19:24

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) — Extract ID: 20K0152-21 B 01
Preparation Batch: BIK0354 — Sample Size: 500 mL
Prepared: 11/12/2020 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.02	0.10	ND	ug/L	Ua
2-Methylnaphthalene	91-57-6	1	0.03	0.10	ND	ug/L	Ua
1-Methylnaphthalene	90-12-0	1	0.02	0.10	ND	ug/L	Ua
Acenaphthylene	208-96-8	1	0.02	0.10	ND	ug/L	Ua
Acenaphthene	83-32-9	1	0.02	0.10	ND	ug/L	Ua
Dibenzofuran	132-64-9	1	0.02	0.10	ND	ug/L	Ua
Fluorene	86-73-7	1	0.02	0.10	ND	ug/L	Ua
Phenanthrene	85-01-8	1	0.02	0.10	ND	ug/L	Ua
Anthracene	120-12-7	1	0.02	0.10	ND	ug/L	Ua
Fluoranthene	206-44-0	1	0.02	0.10	ND	ug/L	Ua
Pyrene	129-00-0	1	0.03	0.10	ND	ug/L	Ua
Benzo(a)anthracene	56-55-3	1	0.05	0.10	ND	ug/L	Ua
Chrysene	218-01-9	1	0.06	0.10	ND	ug/L	Ua
Benzo(b)fluoranthene	205-99-2	1	0.09	0.10	ND	ug/L	Ua
Benzo(k)fluoranthene	207-08-9	1	0.09	0.10	ND	ug/L	Ua
Benzo(j)fluoranthene	205-82-3	1	0.03	0.10	ND	ug/L	Ua
Benzofluoranthenes, Total		1	0.19	0.20	ND	ug/L	Ua
Benzo(a)pyrene	50-32-8	1	0.06	0.10	ND	ug/L	Ua
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.08	0.10	ND	ug/L	Ua
Dibenzo(a,h)anthracene	53-70-3	1	0.09	0.10	ND	ug/L	Ua
Benzo(g,h,i)perylene	191-24-2	1	0.07	0.10	ND	ug/L	Ua
Surrogate: 2-Methylnaphthalene-d10				*31-120 %*	*47.7*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*10-125 %*	*79.9*	*%*	
Surrogate: Fluoranthene-d10				*46-121 %*	*52.6*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-2-11062020

20K0152-21 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/06/2020 13:30
Instrument: ECD7 Analyst: JGR — Analyzed: 12/07/2020 00:58

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 20K0152-21 A 01
	Preparation Batch: BIK0353	Sample Size: 500 mL	
	Prepared: 11/11/2020	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0152-21 A 01
	Cleanup Batch: CIL0082	Initial Volume: 1 mL	
	Cleaned: 05-Dec-2020	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-21 A 01
	Cleanup Batch: CIL0081	Initial Volume: 1 mL	
	Cleaned: 05-Dec-2020	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	Ua
Aroclor 1221	11104-28-2	1	0.018	0.100	ND	ug/L	Ua
Aroclor 1232	11141-16-5	1	0.018	0.100	ND	ug/L	Ua
Aroclor 1242	53469-21-9	1	0.018	0.100	ND	ug/L	Ua
Aroclor 1248	12672-29-6	1	0.018	0.100	ND	ug/L	Ua
Aroclor 1254	11097-69-1	1	0.018	0.100	ND	ug/L	Ua
Aroclor 1260	11096-82-5	1	0.017	0.100	ND	ug/L	Ua
Aroclor 1262	37324-23-5	1	0.017	0.100	ND	ug/L	Ua
Aroclor 1268	11100-14-4	1	0.017	0.100	ND	ug/L	Ua
Surrogate: Decachlorobiphenyl				*26-120 %*	*69.3*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*83.3*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*80.4*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*78.2*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-2-11062020

20K0152-21 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/06/2020 13:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/17/2020 17:53

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-21 C 01
Preparation Batch: BIK0509 — Sample Size: 25 mL
Prepared: 11/17/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	ND	ug/L	Ua
Chromium	7440-47-3	1	0.130	0.500	ND	ug/L	Ua
Cobalt	7440-48-4	1	0.0290	0.200	ND	ug/L	Ua
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	Ua
Manganese	7439-96-5	1	0.0850	0.500	0.103	ug/L	J
Selenium	7782-49-2	1	0.440	2.00	ND	ug/L	Ua
Silver	7440-22-4	1	0.0170	0.200	ND	ug/L	Ua
Vanadium	7440-62-2	1	0.0400	0.200	ND	ug/L	Ua

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-21 C 02
Preparation Batch: BJB0514 — Sample Size: 25 mL
Prepared: 02/17/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	6.27	20.0	ND	ug/L	Ua

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-2-11062020

20K0152-21 (Water)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/06/2020 13:30

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/17/2020 17:53

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-21 C 01

Preparation Batch: BIK0509 — Sample Size: 25 mL

Prepared: 11/17/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	ND	ug/L	Ua
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	Ua
Copper	7440-50-8	1	0.340	0.500	ND	ug/L	Ua
Nickel	7440-02-0	1	0.0500	0.500	ND	ug/L	Ua
Zinc	7440-66-6	1	0.820	4.00	1.53	ug/L	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-2-11062020

20K0152-21 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 11/06/2020 13:30

Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 10:37

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 20K0152-21 C

Preparation Batch: BIK0295 — Sample Size: 20 mL

Prepared: 11/11/2020 — 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	Ua

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-2-11062020

20K0152-22 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020A — Sampled: 11/06/2020 13:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/19/2020 20:04

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-22 A 02
Preparation Batch: BIK0591 — Sample Size: 25 mL — Filtration Batch: BIK0261
Prepared: 11/19/2020 — Final Volume: 25 mL — Filtration Date: 11/10/2020 06:49

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony, Dissolved	7440-36-0	1	0.0180	0.200	ND	ug/L	Ua
Chromium, Dissolved	7440-47-3	1	0.130	0.500	ND	ug/L	Ua
Iron, Dissolved	7439-89-6	1	6.27	20.0	ND	ug/L	Ua
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	Ua
Magnesium, Dissolved	7439-95-4	1	0.307	20.0	0.406	ug/L	J
Silver, Dissolved	7440-22-4	1	0.0170	0.200	ND	ug/L	Ua

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/19/2021 01:17

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-22 A 03
Preparation Batch: BJB0533 — Sample Size: 25 mL — Filtration Batch: BIK0261
Prepared: 02/18/2021 — Final Volume: 25 mL — Filtration Date: 11/10/2020 06:49

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	ND	ug/L	Ua
Manganese, Dissolved	7439-96-5	1	0.0850	0.500	ND	ug/L	Ua
Vanadium, Dissolved	7440-62-2	1	0.0400	0.200	ND	ug/L	Ua

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-2-11062020

20K0152-22 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020A UCT-KED — Sampled: 11/06/2020 13:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/19/2020 20:04

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-22 A 02
Preparation Batch: BIK0591 — Sample Size: 25 mL — Filtration Batch: BIK0261
Prepared: 11/19/2020 — Final Volume: 25 mL — Filtration Date: 11/10/2020 06:49

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	ND	ug/L	Ua
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	Ua
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	ND	ug/L	Ua
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	Ua
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	ND	ug/L	Ua
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	Ua
Zinc, Dissolved	7440-66-6	1	0.820	4.00	0.897	ug/L	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-2-11062020

20K0152-22 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 11/06/2020 13:30
Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 11:04

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 20K0152-22 A 01
Preparation Batch: BIK0296 — Sample Size: 20 mL — Filtration Batch: BIK0261
Prepared: 11/11/2020 — Final Volume: 20 mL — Filtration Date: 11/10/2020 06:49

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

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-3-11062020

20K0152-23 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 11/06/2020 13:40

Instrument: NT2 Analyst: PKC — Analyzed: 11/12/2020 12:50

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 20K0152-23 D

Preparation Batch: BIK0380 — Sample Size: 10 mL

Prepared: 11/12/2020 — 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	Ua
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	Ua
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	Ua
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	Ua
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	Ua
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	Ua
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	Ua
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	Ua
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	Ua
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	Ua
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	Ua
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*104*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.2*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*86.4*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*102*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-3-11062020

20K0152-23 (Water)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/06/2020 13:40
Instrument: NT8 Analyst: JZ — Analyzed: 12/09/2020 19:50

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) — Extract ID: 20K0152-23 B 01
Preparation Batch: BIK0354 — Sample Size: 500 mL
Prepared: 11/12/2020 — Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.02	0.10	ND	ug/L	Ua
2-Methylnaphthalene	91-57-6	1	0.03	0.10	ND	ug/L	Ua
1-Methylnaphthalene	90-12-0	1	0.02	0.10	ND	ug/L	Ua
Acenaphthylene	208-96-8	1	0.02	0.10	ND	ug/L	Ua
Acenaphthene	83-32-9	1	0.02	0.10	ND	ug/L	Ua
Dibenzofuran	132-64-9	1	0.02	0.10	ND	ug/L	Ua
Fluorene	86-73-7	1	0.02	0.10	ND	ug/L	Ua
Phenanthrene	85-01-8	1	0.02	0.10	ND	ug/L	Ua
Anthracene	120-12-7	1	0.02	0.10	ND	ug/L	Ua
Fluoranthene	206-44-0	1	0.02	0.10	ND	ug/L	Ua
Pyrene	129-00-0	1	0.03	0.10	ND	ug/L	Ua
Benzo(a)anthracene	56-55-3	1	0.05	0.10	ND	ug/L	Ua
Chrysene	218-01-9	1	0.06	0.10	ND	ug/L	Ua
Benzo(b)fluoranthene	205-99-2	1	0.09	0.10	ND	ug/L	Ua
Benzo(k)fluoranthene	207-08-9	1	0.09	0.10	ND	ug/L	Ua
Benzo(j)fluoranthene	205-82-3	1	0.03	0.10	ND	ug/L	Ua
Benzofluoranthenes, Total		1	0.19	0.20	ND	ug/L	Ua
Benzo(a)pyrene	50-32-8	1	0.06	0.10	ND	ug/L	Ua
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.08	0.10	ND	ug/L	Ua
Dibenzo(a,h)anthracene	53-70-3	1	0.09	0.10	ND	ug/L	Ua
Benzo(g,h,i)perylene	191-24-2	1	0.07	0.10	ND	ug/L	Ua
Surrogate: 2-Methylnaphthalene-d10				*31-120 %*	*46.2*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*10-125 %*	*80.7*	*%*	
Surrogate: Fluoranthene-d10				*46-121 %*	*57.2*	*%*	

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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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-3-11062020

20K0152-23 (Water)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/06/2020 13:40
Instrument: ECD7 Analyst: JGR — Analyzed: 12/07/2020 01:19

Sample Preparation:	Preparation Method: EPA 3510C SepF		Extract ID: 20K0152-23 A 01
	Preparation Batch: BIK0353	Sample Size: 500 mL	
	Prepared: 11/11/2020	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20K0152-23 A 01
	Cleanup Batch: CIL0082	Initial Volume: 1 mL	
	Cleaned: 05-Dec-2020	Final Volume: 1 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20K0152-23 A 01
	Cleanup Batch: CIL0081	Initial Volume: 1 mL	
	Cleaned: 05-Dec-2020	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	Ua
Aroclor 1221	11104-28-2	1	0.018	0.100	ND	ug/L	Ua
Aroclor 1232	11141-16-5	1	0.018	0.100	ND	ug/L	Ua
Aroclor 1242	53469-21-9	1	0.018	0.100	ND	ug/L	Ua
Aroclor 1248	12672-29-6	1	0.018	0.100	ND	ug/L	Ua
Aroclor 1254	11097-69-1	1	0.018	0.100	ND	ug/L	Ua
Aroclor 1260	11096-82-5	1	0.017	0.100	ND	ug/L	Ua
Aroclor 1262	37324-23-5	1	0.017	0.100	ND	ug/L	Ua
Aroclor 1268	11100-14-4	1	0.017	0.100	ND	ug/L	Ua
Surrogate: Decachlorobiphenyl				*26-120 %*	*68.4*	*%*	
Surrogate: Tetrachlorometaxylene				*39-120 %*	*85.0*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*26-120 %*	*80.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*39-120 %*	*78.5*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-3-11062020

20K0152-23 (Water)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/06/2020 13:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/17/2020 17:57

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-23 C 01
Preparation Batch: BIK0509 — Sample Size: 25 mL
Prepared: 11/17/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	1	0.0560	0.500	ND	ug/L	Ua
Chromium	7440-47-3	1	0.130	0.500	ND	ug/L	Ua
Cobalt	7440-48-4	1	0.0290	0.200	ND	ug/L	Ua
Lead	7439-92-1	1	0.0680	0.100	ND	ug/L	Ua
Manganese	7439-96-5	1	0.0850	0.500	ND	ug/L	Ua
Selenium	7782-49-2	1	0.440	2.00	ND	ug/L	Ua
Silver	7440-22-4	1	0.0170	0.200	ND	ug/L	Ua
Vanadium	7440-62-2	1	0.0400	0.200	ND	ug/L	Ua

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-23 C 02
Preparation Batch: BJB0514 — Sample Size: 25 mL
Prepared: 02/17/2021 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	1	6.27	20.0	8.12	ug/L	J

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-3-11062020

20K0152-23 (Water)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/06/2020 13:40

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/17/2020 17:57

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-23 C 01

Preparation Batch: BIK0509 — Sample Size: 25 mL

Prepared: 11/17/2020 — Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	ND	ug/L	Ua
Cadmium	7440-43-9	1	0.0300	0.100	ND	ug/L	Ua
Copper	7440-50-8	1	0.340	0.500	ND	ug/L	Ua
Nickel	7440-02-0	1	0.0500	0.500	ND	ug/L	Ua
Zinc	7440-66-6	1	0.820	4.00	0.893	ug/L	J

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-3-11062020

20K0152-23 (Water)

Metals and Metallic Compounds

Method: EPA 7470A — Sampled: 11/06/2020 13:40

Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 10:39

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 20K0152-23 C

Preparation Batch: BIK0295 — Sample Size: 20 mL

Prepared: 11/11/2020 — Final Volume: 20 mL

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

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-3-11062020

20K0152-24 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020A — Sampled: 11/06/2020 13:40
Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/19/2020 20:09

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-24 A 02
Preparation Batch: BIK0591 — Sample Size: 25 mL — Filtration Batch: BIK0261
Prepared: 11/19/2020 — Final Volume: 25 mL — Filtration Date: 11/10/2020 06:49

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony, Dissolved	7440-36-0	1	0.0180	0.200	ND	ug/L	Ua
Chromium, Dissolved	7440-47-3	1	0.130	0.500	ND	ug/L	Ua
Iron, Dissolved	7439-89-6	1	6.27	20.0	ND	ug/L	Ua
Lead, Dissolved	7439-92-1	1	0.0680	0.100	ND	ug/L	Ua
Magnesium, Dissolved	7439-95-4	1	0.307	20.0	0.734	ug/L	J
Silver, Dissolved	7440-22-4	1	0.0170	0.200	ND	ug/L	Ua

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/19/2021 01:12

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-24 A 03
Preparation Batch: BJB0533 — Sample Size: 25 mL — Filtration Batch: BIK0261
Prepared: 02/18/2021 — Final Volume: 25 mL — Filtration Date: 11/10/2020 06:49

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium, Dissolved	7440-39-3	1	0.0560	0.500	ND	ug/L	Ua
Manganese, Dissolved	7439-96-5	1	0.0850	0.500	ND	ug/L	Ua
Vanadium, Dissolved	7440-62-2	1	0.0400	0.200	ND	ug/L	Ua

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-3-11062020

20K0152-24 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 6020A UCT-KED — Sampled: 11/06/2020 13:40

Instrument: ICPMS1 Analyst: MCB — Analyzed: 11/19/2020 20:09

Sample Preparation: Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix — Extract ID: 20K0152-24 A 02

Preparation Batch: BIK0591 — Sample Size: 25 mL — Filtration Batch: BIK0261

Prepared: 11/19/2020 — Final Volume: 25 mL — Filtration Date: 11/10/2020 06:49

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic, Dissolved	7440-38-2	1	0.0220	0.200	ND	ug/L	Ua
Cadmium, Dissolved	7440-43-9	1	0.0300	0.100	ND	ug/L	Ua
Cobalt, Dissolved	7440-48-4	1	0.0290	0.200	ND	ug/L	Ua
Copper, Dissolved	7440-50-8	1	0.340	0.500	ND	ug/L	Ua
Nickel, Dissolved	7440-02-0	1	0.0500	0.500	ND	ug/L	Ua
Selenium, Dissolved	7782-49-2	1	0.440	0.500	ND	ug/L	Ua
Zinc, Dissolved	7440-66-6	1	0.820	4.00	ND	ug/L	Ua

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EB-3-11062020

20K0152-24 (Water)

Metals and Metallic Compounds (dissolved)

Method: EPA 7470A — Sampled: 11/06/2020 13:40
Instrument: HYDRA Analyst: BLC — Analyzed: 11/13/2020 11:06

Sample Preparation: Preparation Method: TWM EPA 7470A — Extract ID: 20K0152-24 A 01
Preparation Batch: BIK0296 — Sample Size: 20 mL — Filtration Batch: BIK0261
Prepared: 11/11/2020 — Final Volume: 20 mL — Filtration Date: 11/10/2020 06:49

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

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Volatile Organic Compounds - Quality Control

Batch BIK0249 - EPA 5035 (Sodium Bisulfate)

Instrument: NT5 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIK0249-BLK1)				Prepared: 09-Nov-2020 Analyzed: 09-Nov-2020 12:53							
Vinyl Chloride	ND	0.24	1.00	ug/kg							Ua
1,1-Dichloroethene	ND	0.34	1.00	ug/kg							Ua
cis-1,2-Dichloroethene	ND	0.24	1.00	ug/kg							Ua
Benzene	ND	0.30	1.00	ug/kg							Ua
Trichloroethene	ND	0.21	1.00	ug/kg							Ua
Toluene	ND	0.15	1.00	ug/kg							Ua
Tetrachloroethene	ND	0.26	1.00	ug/kg							Ua
Ethylbenzene	ND	0.20	1.00	ug/kg							Ua
m,p-Xylene	ND	0.39	2.00	ug/kg							Ua
o-Xylene	ND	0.22	1.00	ug/kg							Ua
Xylenes, total	ND	0.62	2.00	ug/kg							Ua
Surrogate: 1,2-Dichloroethane-d4	44.6			ug/kg	*50.0*		*89.3*	*80-149*			
Surrogate: Toluene-d8	46.1			ug/kg	*50.0*		*92.1*	*77-120*			
Surrogate: 4-Bromofluorobenzene	49.4			ug/kg	*50.0*		*98.8*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	50.5			ug/kg	*50.0*		*101*	*80-120*			
LCS (BIK0249-BS1)				Prepared: 09-Nov-2020 Analyzed: 09-Nov-2020 11:30							
Vinyl Chloride	45.0			ug/kg	50.0		89.9	74-135			
1,1-Dichloroethene	44.3			ug/kg	50.0		88.6	77-134			
cis-1,2-Dichloroethene	38.9			ug/kg	50.0		77.7	80-125			*, Q
Benzene	47.1			ug/kg	50.0		94.1	80-120			
Trichloroethene	48.7			ug/kg	50.0		97.4	80-120			
Toluene	46.7			ug/kg	50.0		93.5	75-120			
Tetrachloroethene	57.7			ug/kg	50.0		115	74-124			
Ethylbenzene	53.9			ug/kg	50.0		108	80-125			
m,p-Xylene	108			ug/kg	100		108	76-121			
o-Xylene	51.6			ug/kg	50.0		103	67-132			
Xylenes, total	160			ug/kg	150		106	67-132			
Surrogate: 1,2-Dichloroethane-d4	44.3			ug/kg	*50.0*		*88.7*	*80-149*			
Surrogate: Toluene-d8	47.0			ug/kg	*50.0*		*94.1*	*77-120*			
Surrogate: 4-Bromofluorobenzene	49.4			ug/kg	*50.0*		*98.7*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	49.3			ug/kg	*50.0*		*98.5*	*80-120*			
LCS Dup (BIK0249-BSD1)				Prepared: 09-Nov-2020 Analyzed: 09-Nov-2020 13:42							
Vinyl Chloride	46.6			ug/kg	50.0		93.3	74-135	3.62	30	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Volatile Organic Compounds - Quality Control

Batch BIK0249 - EPA 5035 (Sodium Bisulfate)

Instrument: NT5 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BIK0249-BSD1)	Prepared: 09-Nov-2020 Analyzed: 09-Nov-2020 13:42										
1,1-Dichloroethene	46.1			ug/kg	50.0		92.3	77-134	4.04	30	
cis-1,2-Dichloroethene	39.7			ug/kg	50.0		79.4	80-125	2.11	30	*, Q
Benzene	50.3			ug/kg	50.0		101	80-120	6.57	30	
Trichloroethene	52.1			ug/kg	50.0		104	80-120	6.78	30	
Toluene	49.8			ug/kg	50.0		99.6	75-120	6.30	30	
Tetrachloroethene	63.2			ug/kg	50.0		126	74-124	9.04	30	
Ethylbenzene	57.8			ug/kg	50.0		116	80-125	6.99	30	
m,p-Xylene	118			ug/kg	100		118	76-121	9.20	30	
o-Xylene	56.8			ug/kg	50.0		114	67-132	9.63	30	
Xylenes, total	175			ug/kg	150		117	67-132	9.34	30	
Surrogate: 1,2-Dichloroethane-d4	43.6			ug/kg	*50.0*		*87.2*	*80-149*			
Surrogate: Toluene-d8	46.0			ug/kg	*50.0*		*91.9*	*77-120*			
Surrogate: 4-Bromofluorobenzene	49.3			ug/kg	*50.0*		*98.5*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	49.5			ug/kg	*50.0*		*98.9*	*80-120*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Volatile Organic Compounds - Quality Control

Batch BIK0314 - EPA 5035 (Sodium Bisulfate)

Instrument: NT5 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIK0314-BLK1)				Prepared: 10-Nov-2020 Analyzed: 10-Nov-2020 17:43							
Vinyl Chloride	ND	0.24	1.00	ug/kg							Ua
1,1-Dichloroethene	ND	0.34	1.00	ug/kg							Ua
cis-1,2-Dichloroethene	ND	0.24	1.00	ug/kg							Ua
Benzene	ND	0.30	1.00	ug/kg							Ua
Trichloroethene	ND	0.21	1.00	ug/kg							Ua
Toluene	ND	0.15	1.00	ug/kg							Ua
Tetrachloroethene	ND	0.26	1.00	ug/kg							Ua
Ethylbenzene	ND	0.20	1.00	ug/kg							Ua
m,p-Xylene	ND	0.39	2.00	ug/kg							Ua
o-Xylene	ND	0.22	1.00	ug/kg							Ua
Xylenes, total	ND	0.62	2.00	ug/kg							Ua
Surrogate: 1,2-Dichloroethane-d4	48.5			ug/kg	*50.0*		*97.0*	*80-149*			
Surrogate: Toluene-d8	49.1			ug/kg	*50.0*		*98.3*	*77-120*			
Surrogate: 4-Bromofluorobenzene	50.4			ug/kg	*50.0*		*101*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	50.6			ug/kg	*50.0*		*101*	*80-120*			
LCS (BIK0314-BS1)				Prepared: 10-Nov-2020 Analyzed: 10-Nov-2020 16:17							
Vinyl Chloride	54.5			ug/kg	50.0		109	74-135			
1,1-Dichloroethene	49.3			ug/kg	50.0		98.6	77-134			
cis-1,2-Dichloroethene	47.8			ug/kg	50.0		95.5	80-125			
Benzene	50.0			ug/kg	50.0		100	80-120			
Trichloroethene	50.0			ug/kg	50.0		100	80-120			
Toluene	50.2			ug/kg	50.0		100	75-120			
Tetrachloroethene	52.6			ug/kg	50.0		105	74-124			
Ethylbenzene	51.9			ug/kg	50.0		104	80-125			
m,p-Xylene	102			ug/kg	100		102	76-121			
o-Xylene	52.5			ug/kg	50.0		105	67-132			
Xylenes, total	154			ug/kg	150		103	67-132			
Surrogate: 1,2-Dichloroethane-d4	47.4			ug/kg	*50.0*		*94.7*	*80-149*			
Surrogate: Toluene-d8	49.4			ug/kg	*50.0*		*98.8*	*77-120*			
Surrogate: 4-Bromofluorobenzene	49.1			ug/kg	*50.0*		*98.3*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	48.7			ug/kg	*50.0*		*97.3*	*80-120*			
LCS Dup (BIK0314-BSD1)				Prepared: 10-Nov-2020 Analyzed: 10-Nov-2020 16:40							
Vinyl Chloride	53.0			ug/kg	50.0		106	74-135	2.76	30	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Volatile Organic Compounds - Quality Control

Batch BIK0314 - EPA 5035 (Sodium Bisulfate)

Instrument: NT5 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BIK0314-BSD1)	Prepared: 10-Nov-2020 Analyzed: 10-Nov-2020 16:40										
1,1-Dichloroethene	47.8			ug/kg	50.0		95.6	77-134	3.10	30	
cis-1,2-Dichloroethene	48.5			ug/kg	50.0		96.9	80-125	1.48	30	
Benzene	50.0			ug/kg	50.0		100	80-120	0.05	30	
Trichloroethene	49.6			ug/kg	50.0		99.3	80-120	0.75	30	
Toluene	49.9			ug/kg	50.0		99.8	75-120	0.50	30	
Tetrachloroethene	52.9			ug/kg	50.0		106	74-124	0.51	30	
Ethylbenzene	52.2			ug/kg	50.0		104	80-125	0.52	30	
m,p-Xylene	104			ug/kg	100		104	76-121	2.09	30	
o-Xylene	52.8			ug/kg	50.0		106	67-132	0.51	30	
Xylenes, total	157			ug/kg	150		105	67-132	1.56	30	
Surrogate: 1,2-Dichloroethane-d4	48.4			ug/kg	*50.0*		*96.8*	*80-149*			
Surrogate: Toluene-d8	49.7			ug/kg	*50.0*		*99.4*	*77-120*			
Surrogate: 4-Bromofluorobenzene	50.3			ug/kg	*50.0*		*101*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	50.2			ug/kg	*50.0*		*100*	*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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Volatile Organic Compounds - Quality Control

Batch BIK0322 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIK0322-BLK2)				Prepared: 11-Nov-2020 Analyzed: 11-Nov-2020 09:05							
Vinyl Chloride	ND	0.08	0.20	ug/L							Ua
1,1-Dichloroethene	ND	0.08	0.20	ug/L							Ua
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							Ua
Benzene	ND	0.05	0.20	ug/L							Ua
Trichloroethene	ND	0.07	0.20	ug/L							Ua
Toluene	ND	0.05	0.20	ug/L							Ua
Tetrachloroethene	ND	0.09	0.20	ug/L							Ua
Ethylbenzene	ND	0.05	0.20	ug/L							Ua
m,p-Xylene	ND	0.14	0.40	ug/L							Ua
o-Xylene	ND	0.08	0.20	ug/L							Ua
Xylenes, total	ND	0.22	0.60	ug/L							Ua
Surrogate: 1,2-Dichloroethane-d4	5.02			ug/L	*5.00*		*100*	*80-129*			
Surrogate: Toluene-d8	4.81			ug/L	*5.00*		*96.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.53			ug/L	*5.00*		*90.7*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.18			ug/L	*5.00*		*104*	*80-120*			
LCS (BIK0322-BS2)				Prepared: 11-Nov-2020 Analyzed: 11-Nov-2020 07:42							
Vinyl Chloride	9.48	0.08	0.20	ug/L	10.0		94.8	66-133			
1,1-Dichloroethene	9.14	0.08	0.20	ug/L	10.0		91.4	69-135			
cis-1,2-Dichloroethene	10.8	0.08	0.20	ug/L	10.0		108	80-121			
Benzene	11.3	0.05	0.20	ug/L	10.0		113	80-120			
Trichloroethene	10.5	0.07	0.20	ug/L	10.0		105	80-120			
Toluene	10.8	0.05	0.20	ug/L	10.0		108	80-120			
Tetrachloroethene	10.4	0.09	0.20	ug/L	10.0		104	80-120			
Ethylbenzene	10.8	0.05	0.20	ug/L	10.0		108	80-120			
m,p-Xylene	22.7	0.14	0.40	ug/L	20.0		114	80-121			
o-Xylene	10.5	0.08	0.20	ug/L	10.0		105	80-121			
Xylenes, total	33.3	0.22	0.60	ug/L	30.0		111	76-127			
Surrogate: 1,2-Dichloroethane-d4	4.49			ug/L	*5.00*		*89.9*	*80-129*			
Surrogate: Toluene-d8	5.08			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.90			ug/L	*5.00*		*98.0*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.95			ug/L	*5.00*		*99.1*	*80-120*			
LCS Dup (BIK0322-BSD2)				Prepared: 11-Nov-2020 Analyzed: 11-Nov-2020 08:23							
Vinyl Chloride	9.16	0.08	0.20	ug/L	10.0		91.6	66-133	3.34	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Volatile Organic Compounds - Quality Control

Batch BIK0322 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BIK0322-BSD2)				Prepared: 11-Nov-2020 Analyzed: 11-Nov-2020 08:23							
1,1-Dichloroethene	8.71	0.08	0.20	ug/L	10.0		87.1	69-135	4.84	30	
cis-1,2-Dichloroethene	10.3	0.08	0.20	ug/L	10.0		103	80-121	4.71	30	
Benzene	10.7	0.05	0.20	ug/L	10.0		107	80-120	5.94	30	
Trichloroethene	9.86	0.07	0.20	ug/L	10.0		98.6	80-120	6.06	30	
Toluene	10.2	0.05	0.20	ug/L	10.0		102	80-120	6.37	30	
Tetrachloroethene	9.46	0.09	0.20	ug/L	10.0		94.6	80-120	9.94	30	
Ethylbenzene	10.1	0.05	0.20	ug/L	10.0		101	80-120	7.12	30	
m,p-Xylene	20.9	0.14	0.40	ug/L	20.0		105	80-121	8.33	30	
o-Xylene	9.64	0.08	0.20	ug/L	10.0		96.4	80-121	8.74	30	
Xylenes, total	30.6	0.22	0.60	ug/L	30.0		102	76-127	8.46	30	
Surrogate: 1,2-Dichloroethane-d4	4.51			ug/L	*5.00*		*90.1*	*80-129*			
Surrogate: Toluene-d8	5.07			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.96			ug/L	*5.00*		*99.1*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.00			ug/L	*5.00*		*100*	*80-120*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Volatile Organic Compounds - Quality Control

Batch BIK0380 - 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 (BIK0380-BLK1)				Prepared: 12-Nov-2020 Analyzed: 12-Nov-2020 11:48							
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							Ua
Surrogate: Toluene-d8	4.75			ug/L	*5.00*		*95.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.35			ug/L	*5.00*		*87.0*	*80-120*			
Blank (BIK0380-BLK2)				Prepared: 12-Nov-2020 Analyzed: 12-Nov-2020 11:48							
Vinyl Chloride	ND	0.08	0.20	ug/L							Ua
1,1-Dichloroethene	ND	0.08	0.20	ug/L							Ua
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							Ua
Benzene	ND	0.05	0.20	ug/L							Ua
Trichloroethene	ND	0.07	0.20	ug/L							Ua
Toluene	ND	0.05	0.20	ug/L							Ua
Tetrachloroethene	ND	0.09	0.20	ug/L							Ua
Ethylbenzene	ND	0.05	0.20	ug/L							Ua
m,p-Xylene	ND	0.14	0.40	ug/L							Ua
o-Xylene	ND	0.08	0.20	ug/L							Ua
Xylenes, total	ND	0.22	0.60	ug/L							Ua
Surrogate: 1,2-Dichloroethane-d4	4.89			ug/L	*5.00*		*97.8*	*80-129*			
Surrogate: Toluene-d8	4.75			ug/L	*5.00*		*95.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.35			ug/L	*5.00*		*87.0*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.13			ug/L	*5.00*		*103*	*80-120*			
LCS (BIK0380-BS1)				Prepared: 12-Nov-2020 Analyzed: 12-Nov-2020 09:56							
Gasoline Range Organics (Tol-Nap)	1020		100	ug/L	1000		102	72-128			
Surrogate: Toluene-d8	4.97			ug/L	*5.00*		*99.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.87			ug/L	*5.00*		*97.4*	*80-120*			
LCS (BIK0380-BS2)				Prepared: 12-Nov-2020 Analyzed: 12-Nov-2020 10:38							
Vinyl Chloride	9.29	0.08	0.20	ug/L	10.0		92.9	66-133			
1,1-Dichloroethene	8.85	0.08	0.20	ug/L	10.0		88.5	69-135			
cis-1,2-Dichloroethene	10.4	0.08	0.20	ug/L	10.0		104	80-121			
Benzene	10.7	0.05	0.20	ug/L	10.0		107	80-120			
Trichloroethene	9.99	0.07	0.20	ug/L	10.0		99.9	80-120			
Toluene	10.3	0.05	0.20	ug/L	10.0		103	80-120			
Tetrachloroethene	9.83	0.09	0.20	ug/L	10.0		98.3	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Volatile Organic Compounds - Quality Control

Batch BIK0380 - 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 (BIK0380-BS2)					Prepared: 12-Nov-2020 Analyzed: 12-Nov-2020 10:38						
Ethylbenzene	10.3	0.05	0.20	ug/L	10.0		103	80-120			
m,p-Xylene	21.7	0.14	0.40	ug/L	20.0		109	80-121			
o-Xylene	10.2	0.08	0.20	ug/L	10.0		102	80-121			
Xylenes, total	31.9	0.22	0.60	ug/L	30.0		106	76-127			
Surrogate: 1,2-Dichloroethane-d4	4.51			ug/L	*5.00*		*90.2*	*80-129*			
Surrogate: Toluene-d8	5.01			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.87			ug/L	*5.00*		*97.4*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.98			ug/L	*5.00*		*99.5*	*80-120*			
LCS Dup (BIK0380-BSD1)					Prepared: 12-Nov-2020 Analyzed: 12-Nov-2020 10:17						
Gasoline Range Organics (Tol-Nap)	961		100	ug/L	1000		96.1	72-128	6.40	30	
Surrogate: Toluene-d8	4.99			ug/L	*5.00*		*99.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.87			ug/L	*5.00*		*97.3*	*80-120*			
LCS Dup (BIK0380-BSD2)					Prepared: 12-Nov-2020 Analyzed: 12-Nov-2020 10:58						
Vinyl Chloride	8.71	0.08	0.20	ug/L	10.0		87.1	66-133	6.41	30	
1,1-Dichloroethene	8.53	0.08	0.20	ug/L	10.0		85.3	69-135	3.72	30	
cis-1,2-Dichloroethene	10.1	0.08	0.20	ug/L	10.0		101	80-121	2.53	30	
Benzene	10.4	0.05	0.20	ug/L	10.0		104	80-120	2.76	30	
Trichloroethene	9.71	0.07	0.20	ug/L	10.0		97.1	80-120	2.85	30	
Toluene	9.98	0.05	0.20	ug/L	10.0		99.8	80-120	3.23	30	
Tetrachloroethene	9.82	0.09	0.20	ug/L	10.0		98.2	80-120	0.10	30	
Ethylbenzene	10.1	0.05	0.20	ug/L	10.0		101	80-120	1.57	30	
m,p-Xylene	21.5	0.14	0.40	ug/L	20.0		107	80-121	1.23	30	
o-Xylene	9.77	0.08	0.20	ug/L	10.0		97.7	80-121	4.03	30	
Xylenes, total	31.2	0.22	0.60	ug/L	30.0		104	76-127	2.12	30	
Surrogate: 1,2-Dichloroethane-d4	4.58			ug/L	*5.00*		*91.7*	*80-129*			
Surrogate: Toluene-d8	5.03			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.95			ug/L	*5.00*		*99.0*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.98			ug/L	*5.00*		*99.7*	*80-120*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Volatile Organic Compounds - Quality Control

Batch BIK0430 - EPA 5035 (Methanol Extraction)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIK0430-BLK1)				Prepared: 14-Nov-2020 Analyzed: 16-Nov-2020 11:16						
Gasoline Range Organics (Tol-Nap)	ND	5000	ug/kg							Ua
Surrogate: Toluene-d8	4.65		ug/kg	*5.00*		*92.9*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.58		ug/kg	*5.00*		*91.5*	*78-123*			
LCS (BIK0430-BS1)				Prepared: 14-Nov-2020 Analyzed: 16-Nov-2020 09:31						
Gasoline Range Organics (Tol-Nap)	48400	5000	ug/kg	50000		96.9	70-121			
Surrogate: Toluene-d8	4.97		ug/kg	*5.00*		*99.4*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.98		ug/kg	*5.00*		*99.7*	*78-123*			
LCS Dup (BIK0430-BSD1)				Prepared: 14-Nov-2020 Analyzed: 16-Nov-2020 09:51						
Gasoline Range Organics (Tol-Nap)	48900	5000	ug/kg	50000		97.7	70-121	0.90	30	
Surrogate: Toluene-d8	5.04		ug/kg	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.92		ug/kg	*5.00*		*98.4*	*78-123*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIK0354 - EPA 3520C (Liq Liq)

Instrument: NT8 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIK0354-BLK1)				Prepared: 12-Nov-2020 Analyzed: 09-Dec-2020 17:13							
Naphthalene	ND	0.02	0.10	ug/L							Ua
2-Methylnaphthalene	ND	0.03	0.10	ug/L							Ua
1-Methylnaphthalene	ND	0.02	0.10	ug/L							Ua
Acenaphthylene	ND	0.02	0.10	ug/L							Ua
Acenaphthene	ND	0.02	0.10	ug/L							Ua
Dibenzofuran	ND	0.02	0.10	ug/L							Ua
Fluorene	0.02	0.02	0.10	ug/L							J
Phenanthrene	ND	0.02	0.10	ug/L							Ua
Anthracene	ND	0.02	0.10	ug/L							Ua
Fluoranthene	ND	0.02	0.10	ug/L							Ua
Pyrene	ND	0.03	0.10	ug/L							Ua
Benzo(a)anthracene	ND	0.05	0.10	ug/L							Ua
Chrysene	ND	0.06	0.10	ug/L							Ua
Benzo(b)fluoranthene	ND	0.09	0.10	ug/L							Ua
Benzo(k)fluoranthene	ND	0.09	0.10	ug/L							Ua
Benzo(j)fluoranthene	ND	0.03	0.10	ug/L							Ua
Benzofluoranthenes, Total	ND	0.19	0.20	ug/L							Ua
Benzo(a)pyrene	ND	0.06	0.10	ug/L							Ua
Indeno(1,2,3-cd)pyrene	ND	0.08	0.10	ug/L							Ua
Dibenzo(a,h)anthracene	ND	0.09	0.10	ug/L							Ua
Benzo(g,h,i)perylene	ND	0.07	0.10	ug/L							Ua
Surrogate: 2-Methylnaphthalene-d10	1.63			ug/L	*3.00*		*54.3*	*31-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	1.93			ug/L	*3.00*		*64.2*	*10-125*			
Surrogate: Fluoranthene-d10	2.13			ug/L	*3.00*		*70.8*	*46-121*			
LCS (BIK0354-BS1)				Prepared: 12-Nov-2020 Analyzed: 09-Dec-2020 17:40							
Naphthalene	1.36	0.02	0.10	ug/L	3.00		45.2	33-120			
2-Methylnaphthalene	1.47	0.03	0.10	ug/L	3.00		49.0	29-120			
1-Methylnaphthalene	1.42	0.02	0.10	ug/L	3.00		47.3	37-120			
Acenaphthylene	1.02	0.02	0.10	ug/L	3.00		33.9	32-120			
Acenaphthene	1.51	0.02	0.10	ug/L	3.00		50.2	38-120			
Dibenzofuran	1.68	0.02	0.10	ug/L	3.00		55.9	38-120			
Fluorene	1.62	0.02	0.10	ug/L	3.00		53.9	41-120			
Phenanthrene	1.62	0.02	0.10	ug/L	3.00		53.9	49-120			
Anthracene	1.18	0.02	0.10	ug/L	3.00		39.3	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIK0354 - EPA 3520C (Liq Liq)

Instrument: NT8 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BIK0354-BS1)					Prepared: 12-Nov-2020 Analyzed: 09-Dec-2020 17:40						
Fluoranthene	1.69	0.02	0.10	ug/L	3.00		56.3	48-120			
Pyrene	1.60	0.03	0.10	ug/L	3.00		53.4	48-120			
Benzo(a)anthracene	1.51	0.05	0.10	ug/L	3.00		50.5	37-120			
Chrysene	1.92	0.06	0.10	ug/L	3.00		64.1	48-120			
Benzo(b)fluoranthene	3.57	0.09	0.10	ug/L	3.00		119	38-128			
Benzo(k)fluoranthene	3.34	0.09	0.10	ug/L	3.00		111	36-130			
Benzo(j)fluoranthene	3.08	0.03	0.10	ug/L	3.00		103	49-120			
Benzofluoranthenes, Total	10.0	0.19	0.20	ug/L	9.00		111	46-120			
Benzo(a)pyrene	1.59	0.06	0.10	ug/L	3.00		53.0	25-120			
Indeno(1,2,3-cd)pyrene	2.14	0.08	0.10	ug/L	3.00		71.3	32-120			
Dibenzo(a,h)anthracene	2.73	0.09	0.10	ug/L	3.00		90.9	21-120			
Benzo(g,h,i)perylene	2.45	0.07	0.10	ug/L	3.00		81.7	28-120			
Surrogate: 2-Methylnaphthalene-d10	1.64			ug/L	*3.00*		*54.7*	*31-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	3.00			ug/L	*3.00*		*100*	*10-125*			
Surrogate: Fluoranthene-d10	1.86			ug/L	*3.00*		*62.0*	*46-121*			
Matrix Spike (BIK0354-MS1)		**Source: 20K0152-07**			Prepared: 12-Nov-2020 Analyzed: 09-Dec-2020 18:32						
Naphthalene	1.55	0.02	0.10	ug/L	3.00	0.02	51.0	33-120			
2-Methylnaphthalene	1.65	0.03	0.10	ug/L	3.00	ND	55.2	29-120			
1-Methylnaphthalene	1.64	0.02	0.10	ug/L	3.00	ND	54.6	37-120			
Acenaphthylene	1.16	0.02	0.10	ug/L	3.00	ND	38.7	32-120			
Acenaphthene	1.67	0.02	0.10	ug/L	3.00	ND	55.5	38-120			
Dibenzofuran	1.81	0.02	0.10	ug/L	3.00	ND	60.3	38-120			
Fluorene	1.69	0.02	0.10	ug/L	3.00	ND	56.3	41-120			
Phenanthrene	1.68	0.02	0.10	ug/L	3.00	ND	56.0	49-120			
Anthracene	1.21	0.02	0.10	ug/L	3.00	ND	40.5	39-120			
Fluoranthene	1.80	0.02	0.10	ug/L	3.00	ND	60.0	48-120			
Pyrene	1.67	0.03	0.10	ug/L	3.00	ND	55.5	48-120			
Benzo(a)anthracene	1.63	0.05	0.10	ug/L	3.00	ND	54.5	37-120			
Chrysene	2.04	0.06	0.10	ug/L	3.00	ND	68.0	48-120			
Benzo(b)fluoranthene	3.65	0.09	0.10	ug/L	3.00	ND	122	38-128			
Benzo(k)fluoranthene	3.31	0.09	0.10	ug/L	3.00	ND	110	36-130			
Benzo(j)fluoranthene	3.23	0.03	0.10	ug/L	3.00	ND	108	49-120			
Benzofluoranthenes, Total	10.2	0.19	0.20	ug/L	9.00	ND	113	46-120			
Benzo(a)pyrene	1.82	0.06	0.10	ug/L	3.00	ND	60.8	25-120			

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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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIK0354 - EPA 3520C (Liq Liq)

Instrument: NT8 Analyst: JZ

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BIK0354-MS1)	**Source: 20K0152-07**			Prepared: 12-Nov-2020 Analyzed: 09-Dec-2020 18:32							
Indeno(1,2,3-cd)pyrene	2.23	0.08	0.10	ug/L	3.00	ND	74.4	32-120			
Dibenzo(a,h)anthracene	2.61	0.09	0.10	ug/L	3.00	ND	87.1	21-120			
Benzo(g,h,i)perylene	2.58	0.07	0.10	ug/L	3.00	ND	86.1	28-120			
Surrogate: 2-Methylnaphthalene-d10	1.85			ug/L	*3.00*	*1.78*	*61.7*	*31-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	2.97			ug/L	*3.00*	*2.94*	*99.0*	*10-125*			
Surrogate: Fluoranthene-d10	1.97			ug/L	*3.00*	*1.81*	*65.6*	*46-121*			

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

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BIK0354-MSD1)	**Source: 20K0152-07**			Prepared: 12-Nov-2020 Analyzed: 09-Dec-2020 18:58							
Naphthalene	1.54	0.02	0.10	ug/L	3.00	0.02	50.5	33-120	1.09	30	
2-Methylnaphthalene	1.62	0.03	0.10	ug/L	3.00	ND	53.9	29-120	2.22	30	
1-Methylnaphthalene	1.62	0.02	0.10	ug/L	3.00	ND	53.9	37-120	1.30	30	
Acenaphthylene	1.10	0.02	0.10	ug/L	3.00	ND	36.6	32-120	5.45	30	
Acenaphthene	1.75	0.02	0.10	ug/L	3.00	ND	58.4	38-120	5.06	30	
Dibenzofuran	1.82	0.02	0.10	ug/L	3.00	ND	60.7	38-120	0.65	30	
Fluorene	1.68	0.02	0.10	ug/L	3.00	ND	55.9	41-120	0.66	30	
Phenanthrene	1.70	0.02	0.10	ug/L	3.00	ND	56.8	49-120	1.27	30	
Anthracene	1.18	0.02	0.10	ug/L	3.00	ND	39.2	39-120	3.12	30	
Fluoranthene	1.82	0.02	0.10	ug/L	3.00	ND	60.8	48-120	1.40	30	
Pyrene	1.69	0.03	0.10	ug/L	3.00	ND	56.4	48-120	1.57	30	
Benzo(a)anthracene	1.69	0.05	0.10	ug/L	3.00	ND	56.3	37-120	3.18	30	
Chrysene	2.13	0.06	0.10	ug/L	3.00	ND	71.1	48-120	4.48	30	
Benzo(b)fluoranthene	3.89	0.09	0.10	ug/L	3.00	ND	130	38-128	6.56	30	*
Benzo(k)fluoranthene	3.61	0.09	0.10	ug/L	3.00	ND	120	36-130	8.48	30	
Benzo(j)fluoranthene	3.56	0.03	0.10	ug/L	3.00	ND	119	49-120	9.79	30	
Benzofluoranthenes, Total	11.2	0.19	0.20	ug/L	9.00	ND	125	46-120	9.97	30	*
Benzo(a)pyrene	1.89	0.06	0.10	ug/L	3.00	ND	62.9	25-120	3.52	30	
Indeno(1,2,3-cd)pyrene	2.49	0.08	0.10	ug/L	3.00	ND	83.1	32-120	11.20	30	
Dibenzo(a,h)anthracene	2.84	0.09	0.10	ug/L	3.00	ND	94.5	21-120	8.21	30	
Benzo(g,h,i)perylene	2.81	0.07	0.10	ug/L	3.00	ND	93.6	28-120	8.43	30	
Surrogate: 2-Methylnaphthalene-d10	1.71			ug/L	*3.00*	*1.78*	*56.8*	*31-120*			
Surrogate: Dibenzo[a,h]anthracene-d14	3.06			ug/L	*3.00*	*2.94*	*102*	*10-125*			
Surrogate: Fluoranthene-d10	1.91			ug/L	*3.00*	*1.81*	*63.6*	*46-121*			

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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIK0636 - EPA 3546 (Microwave) Low Level

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 (BIK0636-BLK1)				Prepared: 20-Nov-2020 Analyzed: 11-Dec-2020 09:40							
Naphthalene	ND	0.44	0.60	ug/kg							Ua
1-Methylnaphthalene	ND	0.11	0.50	ug/kg							Ua
2-Methylnaphthalene	ND	0.13	0.50	ug/kg							Ua
Acenaphthylene	ND	0.06	0.50	ug/kg							Ua
Acenaphthene	0.12	0.09	0.50	ug/kg							J
Dibenzofuran	ND	0.13	0.50	ug/kg							Ua
Fluorene	ND	0.07	0.50	ug/kg							Ua
Phenanthrene	ND	0.11	0.50	ug/kg							Ua
Anthracene	0.09	0.07	0.50	ug/kg							J
Fluoranthene	ND	0.08	0.50	ug/kg							Ua
Pyrene	ND	0.09	0.50	ug/kg							Ua
Benzo(a)anthracene	ND	0.07	0.50	ug/kg							Ua
Chrysene	ND	0.07	0.50	ug/kg							Ua
Benzo(b)fluoranthene	ND	0.07	0.50	ug/kg							Ua
Benzo(k)fluoranthene	ND	0.10	0.50	ug/kg							Ua
Benzo(j)fluoranthene	ND	0.10	0.50	ug/kg							Ua
Benzo(a)pyrene	ND	0.09	0.50	ug/kg							Ua
Indeno(1,2,3-cd)pyrene	ND	0.09	0.50	ug/kg							Ua
Dibenzo(a,h)anthracene	ND	0.11	0.50	ug/kg							Ua
Benzo(g,h,i)perylene	ND	0.09	0.50	ug/kg							Ua
Surrogate: 2-Methylnaphthalene-d10	7.03			ug/kg	*15.0*		*46.8*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	11.3			ug/kg	*15.0*		*75.6*	*30-160*			
Surrogate: Fluoranthene-d10	10.8			ug/kg	*15.0*		*72.3*	*30-160*			
LCS (BIK0636-BS1)				Prepared: 20-Nov-2020 Analyzed: 11-Dec-2020 10:13							
Naphthalene	7.18	0.44	0.60	ug/kg	15.0		47.9	30-160			
1-Methylnaphthalene	7.57	0.11	0.50	ug/kg	15.0		50.5	30-160			
2-Methylnaphthalene	7.51	0.13	0.50	ug/kg	15.0		50.1	30-160			
Acenaphthylene	6.73	0.06	0.50	ug/kg	15.0		44.9	30-160			
Acenaphthene	7.39	0.09	0.50	ug/kg	15.0		49.3	30-160			
Dibenzofuran	7.89	0.13	0.50	ug/kg	15.0		52.6	30-160			
Fluorene	8.52	0.07	0.50	ug/kg	15.0		56.8	30-160			
Phenanthrene	9.14	0.11	0.50	ug/kg	15.0		61.0	30-160			
Anthracene	8.09	0.07	0.50	ug/kg	15.0		54.0	30-160			
Fluoranthene	10.7	0.08	0.50	ug/kg	15.0		71.2	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIK0636 - EPA 3546 (Microwave) Low Level

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 (BIK0636-BS1)				Prepared: 20-Nov-2020 Analyzed: 11-Dec-2020 10:13							
Pyrene	10.8	0.09	0.50	ug/kg	15.0		72.3	30-160			
Benzo(a)anthracene	10.7	0.07	0.50	ug/kg	15.0		71.6	30-160			
Chrysene	10.4	0.07	0.50	ug/kg	15.0		69.2	30-160			
Benzo(b)fluoranthene	11.4	0.07	0.50	ug/kg	15.0		75.8	30-160			
Benzo(k)fluoranthene	9.82	0.10	0.50	ug/kg	15.0		65.5	30-160			
Benzo(j)fluoranthene	10.5	0.10	0.50	ug/kg	15.0		69.8	30-160			
Benzo(a)pyrene	10.0	0.09	0.50	ug/kg	15.0		66.9	30-160			
Indeno(1,2,3-cd)pyrene	11.4	0.09	0.50	ug/kg	15.0		76.3	30-160			
Dibenzo(a,h)anthracene	11.3	0.11	0.50	ug/kg	15.0		75.1	30-160			
Benzo(g,h,i)perylene	11.2	0.09	0.50	ug/kg	15.0		74.5	30-160			
Surrogate: 2-Methylnaphthalene-d10	7.57			ug/kg	*15.0*		*50.5*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	11.3			ug/kg	*15.0*		*75.2*	*30-160*			
Surrogate: Fluoranthene-d10	11.1			ug/kg	*15.0*		*73.9*	*30-160*			
Matrix Spike (BIK0636-MS1)		**Source: 20K0152-10**		Prepared: 20-Nov-2020 Analyzed: 11-Dec-2020 11:51							
Naphthalene	107	1.71	2.33	ug/kg	11.7	57.8	424	30-160			*, D
1-Methylnaphthalene	61.4	0.41	1.94	ug/kg	11.7	38.7	194	30-160			*, D
2-Methylnaphthalene	65.5	0.50	1.94	ug/kg	11.7	34.3	268	30-160			*, D
Acenaphthylene	10.4	0.25	1.94	ug/kg	11.7	2.49	67.9	30-160			D
Acenaphthene	45.3	0.35	1.94	ug/kg	11.7	20.2	215	30-160			*, D
Dibenzofuran	34.5	0.49	1.94	ug/kg	11.7	21.9	109	30-160			D
Fluorene	36.4	0.26	1.94	ug/kg	11.7	20.6	135	30-160			D
Phenanthrene	81.7	0.44	1.94	ug/kg	11.7	60.1	185	30-160			*, D
Anthracene	14.4	0.29	1.94	ug/kg	11.7	9.39	42.7	30-160			D
Fluoranthene	28.8	0.31	1.94	ug/kg	11.7	23.1	49.3	30-160			D
Pyrene	45.9	0.35	1.94	ug/kg	11.7	40.5	46.9	30-160			D
Benzo(a)anthracene	16.4	0.28	1.94	ug/kg	11.7	10.8	47.8	30-160			D
Chrysene	30.1	0.27	1.94	ug/kg	11.7	24.5	48.4	30-160			D
Benzo(b)fluoranthene	14.4	0.26	1.94	ug/kg	11.7	5.09	79.8	30-160			D
Benzo(k)fluoranthene	8.00	0.39	1.94	ug/kg	11.7	1.50	55.8	30-160			D
Benzo(j)fluoranthene	7.77	0.38	1.94	ug/kg	11.7	1.64	52.7	30-160			D
Benzo(a)pyrene	13.1	0.34	1.94	ug/kg	11.7	6.77	54.5	30-160			D
Indeno(1,2,3-cd)pyrene	9.32	0.34	1.94	ug/kg	11.7	3.03	54.0	30-160			D
Dibenzo(a,h)anthracene	6.94	0.41	1.94	ug/kg	11.7	ND	59.6	30-160			D
Benzo(g,h,i)perylene	11.4	0.33	1.94	ug/kg	11.7	6.17	45.2	30-160			D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIK0636 - EPA 3546 (Microwave) Low Level

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BIK0636-MS1)	**Source: 20K0152-10**			Prepared: 20-Nov-2020 Analyzed: 11-Dec-2020 11:51							
Surrogate: 2-Methylnaphthalene-d10	7.29			ug/kg	*11.7*	*7.26*	*62.5*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	7.32			ug/kg	*11.7*	*8.38*	*62.8*	*30-160*			
Surrogate: Fluoranthene-d10	10.2			ug/kg	*11.7*	*10.6*	*87.8*	*30-160*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BIK0636-MSD1)	**Source: 20K0152-10**			Prepared: 20-Nov-2020 Analyzed: 11-Dec-2020 12:23							
Naphthalene	88.1	1.71	2.34	ug/kg	11.7	57.8	258	30-160	19.60	30	*, D
1-Methylnaphthalene	58.5	0.41	1.95	ug/kg	11.7	38.7	169	30-160	4.88	30	*, D
2-Methylnaphthalene	52.4	0.50	1.95	ug/kg	11.7	34.3	154	30-160	22.30	30	D
Acenaphthylene	10.1	0.25	1.95	ug/kg	11.7	2.49	64.9	30-160	3.25	30	D
Acenaphthene	28.0	0.35	1.95	ug/kg	11.7	20.2	66.7	30-160	47.20	30	*, D
Dibenzofuran	32.3	0.49	1.95	ug/kg	11.7	21.9	88.9	30-160	6.84	30	D
Fluorene	29.9	0.26	1.95	ug/kg	11.7	20.6	79.6	30-160	19.40	30	D
Phenanthrene	60.5	0.44	1.95	ug/kg	11.7	60.1	3.06	30-160	29.80	30	*, D
Anthracene	15.4	0.29	1.95	ug/kg	11.7	9.39	51.1	30-160	6.72	30	D
Fluoranthene	24.5	0.32	1.95	ug/kg	11.7	23.1	12.0	30-160	16.30	30	*, D
Pyrene	42.9	0.35	1.95	ug/kg	11.7	40.5	21.1	30-160	6.76	30	*, D
Benzo(a)anthracene	16.9	0.28	1.95	ug/kg	11.7	10.8	51.9	30-160	2.99	30	D
Chrysene	29.2	0.27	1.95	ug/kg	11.7	24.5	40.6	30-160	3.03	30	D
Benzo(b)fluoranthene	15.5	0.26	1.95	ug/kg	11.7	5.09	89.4	30-160	7.72	30	D
Benzo(k)fluoranthene	8.44	0.39	1.95	ug/kg	11.7	1.50	59.3	30-160	5.27	30	D
Benzo(j)fluoranthene	8.42	0.38	1.95	ug/kg	11.7	1.64	58.1	30-160	8.04	30	D
Benzo(a)pyrene	13.2	0.34	1.95	ug/kg	11.7	6.77	54.9	30-160	0.50	30	D
Indeno(1,2,3-cd)pyrene	9.16	0.34	1.95	ug/kg	11.7	3.03	52.5	30-160	1.78	30	D
Dibenzo(a,h)anthracene	6.86	0.41	1.95	ug/kg	11.7	ND	58.7	30-160	1.23	30	D
Benzo(g,h,i)perylene	10.4	0.33	1.95	ug/kg	11.7	6.17	36.1	30-160	9.65	30	D
Surrogate: 2-Methylnaphthalene-d10	6.68			ug/kg	*11.7*	*7.26*	*57.1*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	8.08			ug/kg	*11.7*	*8.38*	*69.1*	*30-160*			
Surrogate: Fluoranthene-d10	9.86			ug/kg	*11.7*	*10.6*	*84.4*	*30-160*			
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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIL0296 - EPA 3546 (Microwave) Low Level

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 (BIL0296-BLK1)				Prepared: 11-Dec-2020 Analyzed: 18-Dec-2020 10:38							
Naphthalene	ND	0.44	0.60	ug/kg							Ua
1-Methylnaphthalene	ND	0.11	0.50	ug/kg							Ua
2-Methylnaphthalene	ND	0.13	0.50	ug/kg							Ua
Acenaphthylene	ND	0.06	0.50	ug/kg							Ua
Acenaphthene	ND	0.09	0.50	ug/kg							Ua
Dibenzofuran	ND	0.13	0.50	ug/kg							Ua
Fluorene	ND	0.07	0.50	ug/kg							Ua
Phenanthrene	0.14	0.11	0.50	ug/kg							J
Anthracene	ND	0.07	0.50	ug/kg							Ua
Fluoranthene	0.12	0.08	0.50	ug/kg							J
Pyrene	0.12	0.09	0.50	ug/kg							J
Benzo(a)anthracene	ND	0.07	0.50	ug/kg							Ua
Chrysene	ND	0.07	0.50	ug/kg							Ua
Benzo(b)fluoranthene	ND	0.07	0.50	ug/kg							Ua
Benzo(k)fluoranthene	ND	0.10	0.50	ug/kg							Ua
Benzo(j)fluoranthene	ND	0.10	0.50	ug/kg							Ua
Benzo(a)pyrene	ND	0.09	0.50	ug/kg							Ua
Indeno(1,2,3-cd)pyrene	ND	0.09	0.50	ug/kg							Ua
Dibenzo(a,h)anthracene	ND	0.11	0.50	ug/kg							Ua
Benzo(g,h,i)perylene	0.09	0.09	0.50	ug/kg							J
Surrogate: 2-Methylnaphthalene-d10	7.53			ug/kg	*15.0*		*50.2*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	11.3			ug/kg	*15.0*		*75.3*	*30-160*			
Surrogate: Fluoranthene-d10	10.8			ug/kg	*15.0*		*72.1*	*30-160*			
LCS (BIL0296-BS1)				Prepared: 11-Dec-2020 Analyzed: 18-Dec-2020 11:10							
Naphthalene	7.23	0.44	0.60	ug/kg	15.0		48.2	30-160			
1-Methylnaphthalene	7.73	0.11	0.50	ug/kg	15.0		51.5	30-160			
2-Methylnaphthalene	7.70	0.13	0.50	ug/kg	15.0		51.3	30-160			
Acenaphthylene	6.27	0.06	0.50	ug/kg	15.0		41.8	30-160			
Acenaphthene	7.51	0.09	0.50	ug/kg	15.0		50.1	30-160			
Dibenzofuran	7.99	0.13	0.50	ug/kg	15.0		53.3	30-160			
Fluorene	8.56	0.07	0.50	ug/kg	15.0		57.1	30-160			
Phenanthrene	9.40	0.11	0.50	ug/kg	15.0		62.7	30-160			
Anthracene	8.87	0.07	0.50	ug/kg	15.0		59.1	30-160			
Fluoranthene	11.2	0.08	0.50	ug/kg	15.0		74.9	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIL0296 - EPA 3546 (Microwave) Low Level

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 (BIL0296-BS1)				Prepared: 11-Dec-2020 Analyzed: 18-Dec-2020 11:10							
Pyrene	11.2	0.09	0.50	ug/kg	15.0		74.6	30-160			
Benzo(a)anthracene	11.3	0.07	0.50	ug/kg	15.0		75.1	30-160			
Chrysene	11.0	0.07	0.50	ug/kg	15.0		73.2	30-160			
Benzo(b)fluoranthene	11.2	0.07	0.50	ug/kg	15.0		74.9	30-160			
Benzo(k)fluoranthene	11.1	0.10	0.50	ug/kg	15.0		73.9	30-160			
Benzo(j)fluoranthene	10.5	0.10	0.50	ug/kg	15.0		70.1	30-160			
Benzo(a)pyrene	9.67	0.09	0.50	ug/kg	15.0		64.4	30-160			
Indeno(1,2,3-cd)pyrene	12.7	0.09	0.50	ug/kg	15.0		84.4	30-160			
Dibenzo(a,h)anthracene	12.5	0.11	0.50	ug/kg	15.0		83.2	30-160			
Benzo(g,h,i)perylene	12.4	0.09	0.50	ug/kg	15.0		82.4	30-160			
Surrogate: 2-Methylnaphthalene-d10	7.76			ug/kg	*15.0*		*51.7*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	12.4			ug/kg	*15.0*		*82.3*	*30-160*			
Surrogate: Fluoranthene-d10	11.5			ug/kg	*15.0*		*76.8*	*30-160*			
Matrix Spike (BIL0296-MS1)		**Source: 20K0152-01RE1**		Prepared: 11-Dec-2020 Analyzed: 18-Dec-2020 16:01							
Naphthalene	7.43	0.44	0.60	ug/kg	14.9	ND	49.7	30-160			
1-Methylnaphthalene	7.95	0.11	0.50	ug/kg	14.9	0.24	51.7	30-160			
2-Methylnaphthalene	8.00	0.13	0.50	ug/kg	14.9	0.34	51.3	30-160			
Acenaphthylene	6.64	0.06	0.50	ug/kg	14.9	0.24	42.8	30-160			
Acenaphthene	7.69	0.09	0.50	ug/kg	14.9	0.15	50.5	30-160			
Dibenzofuran	7.89	0.13	0.50	ug/kg	14.9	0.15	51.8	30-160			
Fluorene	8.64	0.07	0.50	ug/kg	14.9	0.18	56.7	30-160			
Phenanthrene	11.0	0.11	0.50	ug/kg	14.9	1.82	61.5	30-160			
Anthracene	9.42	0.07	0.50	ug/kg	14.9	0.62	59.0	30-160			
Fluoranthene	15.2	0.08	0.50	ug/kg	14.9	4.94	68.8	30-160			
Pyrene	16.0	0.09	0.50	ug/kg	14.9	6.01	66.8	30-160			
Benzo(a)anthracene	18.4	0.07	0.50	ug/kg	14.9	11.8	44.2	30-160			
Chrysene	16.4	0.07	0.50	ug/kg	14.9	9.53	45.9	30-160			
Benzo(b)fluoranthene	23.4	0.07	0.50	ug/kg	14.9	15.7	51.7	30-160			
Benzo(k)fluoranthene	14.6	0.10	0.50	ug/kg	14.9	6.99	51.0	30-160			
Benzo(j)fluoranthene	12.8	0.10	0.50	ug/kg	14.9	5.76	47.4	30-160			
Benzo(a)pyrene	19.0	0.09	0.50	ug/kg	14.9	11.9	47.6	30-160			
Indeno(1,2,3-cd)pyrene	17.4	0.09	0.50	ug/kg	14.9	7.24	68.4	30-160			
Dibenzo(a,h)anthracene	13.5	0.10	0.50	ug/kg	14.9	2.10	76.3	30-160			
Benzo(g,h,i)perylene	16.4	0.08	0.50	ug/kg	14.9	7.24	61.4	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIL0296 - EPA 3546 (Microwave) Low Level

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BIL0296-MS1)	**Source: 20K0152-01RE1**			Prepared: 11-Dec-2020	Analyzed: 18-Dec-2020 16:01						
Surrogate: 2-Methylnaphthalene-d10	7.43			ug/kg	*14.9*	*7.25*	*49.8*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	11.6			ug/kg	*14.9*	*11.5*	*77.6*	*30-160*			
Surrogate: Fluoranthene-d10	10.7			ug/kg	*14.9*	*10.4*	*71.5*	*30-160*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BIL0296-MSD1)	**Source: 20K0152-01RE1**			Prepared: 11-Dec-2020	Analyzed: 18-Dec-2020 16:34						
Naphthalene	8.82	0.44	0.60	ug/kg	14.9	ND	59.1	30-160	17.10	30	
1-Methylnaphthalene	9.72	0.11	0.50	ug/kg	14.9	0.24	63.5	30-160	20.10	30	
2-Methylnaphthalene	10.3	0.13	0.50	ug/kg	14.9	0.34	66.5	30-160	24.90	30	
Acenaphthylene	7.51	0.06	0.50	ug/kg	14.9	0.24	48.7	30-160	12.30	30	
Acenaphthene	8.79	0.09	0.50	ug/kg	14.9	0.15	57.9	30-160	13.50	30	
Dibenzofuran	9.16	0.13	0.50	ug/kg	14.9	0.15	60.4	30-160	15.00	30	
Fluorene	9.89	0.07	0.50	ug/kg	14.9	0.18	65.1	30-160	13.50	30	
Phenanthrene	12.8	0.11	0.50	ug/kg	14.9	1.82	73.8	30-160	15.40	30	
Anthracene	10.8	0.07	0.50	ug/kg	14.9	0.62	68.2	30-160	13.60	30	
Fluoranthene	17.0	0.08	0.50	ug/kg	14.9	4.94	80.8	30-160	11.10	30	
Pyrene	17.8	0.09	0.50	ug/kg	14.9	6.01	79.1	30-160	10.90	30	
Benzo(a)anthracene	20.5	0.07	0.50	ug/kg	14.9	11.8	58.2	30-160	10.70	30	
Chrysene	17.9	0.07	0.50	ug/kg	14.9	9.53	56.3	30-160	9.03	30	
Benzo(b)fluoranthene	25.4	0.07	0.50	ug/kg	14.9	15.7	64.8	30-160	8.00	30	
Benzo(k)fluoranthene	16.8	0.10	0.50	ug/kg	14.9	6.99	65.4	30-160	13.70	30	
Benzo(j)fluoranthene	13.8	0.10	0.50	ug/kg	14.9	5.76	53.7	30-160	7.07	30	
Benzo(a)pyrene	21.1	0.09	0.50	ug/kg	14.9	11.9	61.4	30-160	10.30	30	
Indeno(1,2,3-cd)pyrene	18.9	0.09	0.50	ug/kg	14.9	7.24	78.4	30-160	8.22	30	
Dibenzo(a,h)anthracene	14.6	0.10	0.50	ug/kg	14.9	2.10	83.8	30-160	7.89	30	
Benzo(g,h,i)perylene	17.9	0.08	0.50	ug/kg	14.9	7.24	71.1	30-160	8.47	30	
Surrogate: 2-Methylnaphthalene-d10	8.53			ug/kg	*14.9*	*7.25*	*57.1*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	12.7			ug/kg	*14.9*	*11.5*	*84.9*	*30-160*			
Surrogate: Fluoranthene-d10	12.0			ug/kg	*14.9*	*10.4*	*80.5*	*30-160*			
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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Petroleum Hydrocarbons - Quality Control

Batch BIK0587 - EPA 3546 (Microwave)

Instrument: FID4 Analyst: JGR/CTO/VT

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIK0587-BLK1)				Prepared: 19-Nov-2020 Analyzed: 02-Dec-2020 23:30						
Diesel Range Organics (C12-C24)	ND	5.00	mg/kg							Ua
Motor Oil Range Organics (C24-C38)	ND	10.0	mg/kg							Ua
Surrogate: o-Terphenyl	9.37		mg/kg	*11.3*		*83.3*	*50-150*			
LCS (BIK0587-BS1)				Prepared: 19-Nov-2020 Analyzed: 02-Dec-2020 23:50						
Diesel Range Organics (C12-C24)	139	5.00	mg/kg	150		92.5	63-120			
Surrogate: o-Terphenyl	10.2		mg/kg	*11.3*		*90.7*	*50-150*			
Matrix Spike (BIK0587-MS1)	**Source: 20K0152-03**			Prepared: 19-Nov-2020 Analyzed: 03-Dec-2020 01:11						
Diesel Range Organics (C12-C24)	183	5.97	mg/kg	179	9.93	96.4	63-120			
Surrogate: o-Terphenyl	12.3		mg/kg	*13.4*	*11.7*	*91.2*	*50-150*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BIK0587-MSD1)	**Source: 20K0152-03**			Prepared: 19-Nov-2020 Analyzed: 03-Dec-2020 01:31						
Diesel Range Organics (C12-C24)	172	5.97	mg/kg	179	9.93	90.5	63-120	6.01	30	
Surrogate: o-Terphenyl	12.3		mg/kg	*13.4*	*11.7*	*91.6*	*50-150*			
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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Petroleum Hydrocarbons - Quality Control

Batch BIK0629 - EPA 3546 (Microwave)

Instrument: FID4 Analyst: JGR

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIK0629-BLK1)				Prepared: 20-Nov-2020 Analyzed: 28-Nov-2020 23:49						
Diesel Range Organics (C12-C24)	ND	5.00	mg/kg							Ua
Motor Oil Range Organics (C24-C38)	ND	10.0	mg/kg							Ua
Surrogate: o-Terphenyl	8.94		mg/kg	*11.3*		*79.5*	*50-150*			
LCS (BIK0629-BS1)				Prepared: 20-Nov-2020 Analyzed: 29-Nov-2020 00:09						
Diesel Range Organics (C12-C24)	137	5.00	mg/kg	150		91.6	63-120			
Surrogate: o-Terphenyl	10.7		mg/kg	*11.3*		*94.8*	*50-150*			
LCS Dup (BIK0629-BSD1)				Prepared: 20-Nov-2020 Analyzed: 29-Nov-2020 00:29						
Diesel Range Organics (C12-C24)	151	5.00	mg/kg	150		100	63-120	9.24	30	
Surrogate: o-Terphenyl	10.9		mg/kg	*11.3*		*97.1*	*50-150*			
Matrix Spike (BIK0629-MS1)	**Source: 20K0152-09**			Prepared: 20-Nov-2020 Analyzed: 29-Nov-2020 03:49						
Diesel Range Organics (C12-C24)	185	6.75	mg/kg	203	15.0	83.8	63-120			
Surrogate: o-Terphenyl	12.3		mg/kg	*15.2*	*14.7*	*81.1*	*50-150*			

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

Matrix Spike Dup (BIK0629-MSD1)	**Source: 20K0152-09**			Prepared: 20-Nov-2020 Analyzed: 29-Nov-2020 04:09						
Diesel Range Organics (C12-C24)	207	6.76	mg/kg	203	15.0	94.8	63-120	11.50	30	
Surrogate: o-Terphenyl	14.6		mg/kg	*15.2*	*14.7*	*95.8*	*50-150*			

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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Aroclor PCB - Quality Control

Batch BIK0353 - 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 (BIK0353-BLK1)				Prepared: 11-Nov-2020 Analyzed: 06-Dec-2020 23:15							
Aroclor 1016	ND	0.018	0.100	ug/L							Ua
Aroclor 1221	ND	0.018	0.100	ug/L							Ua
Aroclor 1232	ND	0.018	0.100	ug/L							Ua
Aroclor 1242	ND	0.018	0.100	ug/L							Ua
Aroclor 1248	ND	0.018	0.100	ug/L							Ua
Aroclor 1254	ND	0.018	0.100	ug/L							Ua
Aroclor 1260	ND	0.017	0.100	ug/L							Ua
Aroclor 1262	ND	0.017	0.100	ug/L							Ua
Aroclor 1268	ND	0.017	0.100	ug/L							Ua
Surrogate: Decachlorobiphenyl	0.0545			ug/L	*0.0800*		*68.2*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0606			ug/L	*0.0800*		*75.8*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0627			ug/L	*0.0800*		*78.4*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0561			ug/L	*0.0800*		*70.1*	*39-120*			
LCS (BIK0353-BS1)				Prepared: 11-Nov-2020 Analyzed: 06-Dec-2020 23:36							
Aroclor 1016	0.805	0.018	0.100	ug/L	1.00		80.5	51-120			
Aroclor 1260 [2C]	0.792	0.017	0.100	ug/L	1.00		79.2	56-120			
Surrogate: Decachlorobiphenyl	0.0572			ug/L	*0.0800*		*71.5*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0650			ug/L	*0.0800*		*81.3*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0664			ug/L	*0.0800*		*83.0*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0610			ug/L	*0.0800*		*76.3*	*39-120*			
Matrix Spike (BIK0353-MS1)		**Source: 20K0152-07**		Prepared: 11-Nov-2020 Analyzed: 07-Dec-2020 00:17							
Aroclor 1016	0.869	0.018	0.100	ug/L	1.00	ND	86.9	51-120			
Aroclor 1260	0.771	0.017	0.100	ug/L	1.00	ND	77.1	56-120			
Surrogate: Decachlorobiphenyl	0.0618			ug/L	*0.0800*		*77.3*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0683			ug/L	*0.0800*		*85.3*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0710			ug/L	*0.0800*		*88.8*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0644			ug/L	*0.0800*		*80.5*	*39-120*			
Matrix Spike Dup (BIK0353-MSD1)		**Source: 20K0152-07**		Prepared: 11-Nov-2020 Analyzed: 07-Dec-2020 00:37							
Aroclor 1016	0.831	0.018	0.100	ug/L	1.00	ND	83.1	51-120	4.42	30	
Aroclor 1260	0.754	0.017	0.100	ug/L	1.00	ND	75.4	56-120	2.23	30	

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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Aroclor PCB - Quality Control

Batch BIK0353 - 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
Matrix Spike Dup (BIK0353-MSD1)	**Source: 20K0152-07**			Prepared: 11-Nov-2020	Analyzed: 07-Dec-2020 00:37						
Surrogate: Decachlorobiphenyl	0.0608			ug/L	*0.0800*		*76.0*	*26-120*			
Surrogate: Tetrachlorometaxylene	0.0641			ug/L	*0.0800*		*80.2*	*39-120*			
Surrogate: Decachlorobiphenyl [2C]	0.0706			ug/L	*0.0800*		*88.2*	*26-120*			
Surrogate: Tetrachlorometaxylene [2C]	0.0588			ug/L	*0.0800*		*73.6*	*39-120*			

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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Aroclor PCB - Quality Control

Batch BIK0588 - EPA 3546 (Microwave)

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 (BIK0588-BLK1)				Prepared: 19-Nov-2020 Analyzed: 04-Dec-2020 22:14							
Aroclor 1016	ND	1.6	4.0	ug/kg							Ua
Aroclor 1221	ND	1.6	4.0	ug/kg							Ua
Aroclor 1232	ND	1.6	4.0	ug/kg							Ua
Aroclor 1242	ND	1.6	4.0	ug/kg							Ua
Aroclor 1248	ND	1.6	4.0	ug/kg							Ua
Aroclor 1254	ND	1.6	4.0	ug/kg							Ua
Aroclor 1260	ND	0.6	4.0	ug/kg							Ua
Surrogate: Decachlorobiphenyl	5.32			ug/kg	*8.00*		*66.6*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.41			ug/kg	*8.00*		*67.7*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	6.25			ug/kg	*8.00*		*78.2*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	5.60			ug/kg	*8.00*		*69.9*	*44-120*			
LCS (BIK0588-BS1)				Prepared: 19-Nov-2020 Analyzed: 04-Dec-2020 22:34							
Aroclor 1016 [2C]	73.4	1.6	4.0	ug/kg	101		72.8	56-120			
Aroclor 1260 [2C]	81.9	0.6	4.0	ug/kg	101		81.2	58-120			
Surrogate: Decachlorobiphenyl	5.41			ug/kg	*8.00*		*67.6*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.39			ug/kg	*8.00*		*67.4*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	6.40			ug/kg	*8.00*		*80.1*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	5.48			ug/kg	*8.00*		*68.4*	*44-120*			

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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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Aroclor PCB - Quality Control

Batch BIK0633 - EPA 3546 (Microwave)

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 (BIK0633-BLK1)				Prepared: 20-Nov-2020 Analyzed: 04-Dec-2020 14:22							
Aroclor 1016	ND	1.6	4.0	ug/kg							Ua
Aroclor 1221	ND	1.6	4.0	ug/kg							Ua
Aroclor 1232	ND	1.6	4.0	ug/kg							Ua
Aroclor 1242	ND	1.6	4.0	ug/kg							Ua
Aroclor 1248	ND	1.6	4.0	ug/kg							Ua
Aroclor 1254	ND	1.6	4.0	ug/kg							Ua
Aroclor 1260	ND	0.6	4.0	ug/kg							Ua
Surrogate: Decachlorobiphenyl	6.22			ug/kg	*8.00*		*77.7*	*40-126*			
Surrogate: Tetrachlorometaxylene	6.13			ug/kg	*8.00*		*76.7*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	6.99			ug/kg	*8.00*		*87.4*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	6.33			ug/kg	*8.00*		*79.1*	*44-120*			
LCS (BIK0633-BS1)				Prepared: 20-Nov-2020 Analyzed: 04-Dec-2020 14:42							
Aroclor 1016 [2C]	88.2	1.6	4.0	ug/kg	101		87.5	56-120			
Aroclor 1260 [2C]	93.5	0.6	4.0	ug/kg	101		92.7	58-120			
Surrogate: Decachlorobiphenyl	6.56			ug/kg	*8.00*		*81.9*	*40-126*			
Surrogate: Tetrachlorometaxylene	6.17			ug/kg	*8.00*		*77.1*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	7.37			ug/kg	*8.00*		*92.1*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	6.49			ug/kg	*8.00*		*81.2*	*44-120*			
Matrix Spike (BIK0633-MS1)		**Source: 20K0152-10**		Prepared: 20-Nov-2020 Analyzed: 04-Dec-2020 15:44							
Aroclor 1016	38.4	6.1	15.6	ug/kg	78.6	ND	48.8	56-120			*, D
Aroclor 1260 [2C]	72.8	2.3	15.6	ug/kg	78.6	29.0	55.7	58-120			*, D
Surrogate: Decachlorobiphenyl	4.24			ug/kg	*6.24*		*67.9*	*40-126*			
Surrogate: Tetrachlorometaxylene	3.54			ug/kg	*6.24*		*56.7*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	3.95			ug/kg	*6.24*		*63.4*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	3.71			ug/kg	*6.24*		*59.5*	*44-120*			

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

Matrix Spike Dup (BIK0633-MSD1)		**Source: 20K0152-10**		Prepared: 20-Nov-2020 Analyzed: 04-Dec-2020 16:05							
Aroclor 1016	44.5	6.1	15.6	ug/kg	78.4	ND	56.7	56-120	14.70	30	D
Aroclor 1260 [2C]	81.4	2.3	15.6	ug/kg	78.4	29.0	66.8	58-120	11.20	30	D
Surrogate: Decachlorobiphenyl	4.72			ug/kg	*6.23*		*75.8*	*40-126*			
Surrogate: Tetrachlorometaxylene	4.00			ug/kg	*6.23*		*64.3*	*44-120*			

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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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Aroclor PCB - Quality Control

Batch BIK0633 - EPA 3546 (Microwave)

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BIK0633-MSD1)	**Source: 20K0152-10**			Prepared: 20-Nov-2020		Analyzed: 04-Dec-2020 16:05					
Surrogate: Decachlorobiphenyl [2C]	4.42			ug/kg	*6.23*		*71.0*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	4.12			ug/kg	*6.23*		*66.2*	*44-120*			

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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Metals and Metallic Compounds - Quality Control

Batch BIK0276 - SMM EPA 7471B

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 (BIK0276-BLK1)				Prepared: 11-Nov-2020 Analyzed: 12-Nov-2020 16:37							
Mercury	ND	0.00525	0.0250	mg/kg							Ua
LCS (BIK0276-BS1)				Prepared: 11-Nov-2020 Analyzed: 12-Nov-2020 16:40							
Mercury	0.475	0.00525	0.0250	mg/kg	0.500		95.0	80-120			
Duplicate (BIK0276-DUP1)		**Source: 20K0152-01**		Prepared: 11-Nov-2020 Analyzed: 12-Nov-2020 16:49							
Mercury	0.0153	0.00450	0.0214	mg/kg		0.0163			6.62	20	J
Matrix Spike (BIK0276-MS1)		**Source: 20K0152-01**		Prepared: 11-Nov-2020 Analyzed: 12-Nov-2020 16:51							
Mercury	0.238	0.00451	0.0215	mg/kg	0.215	0.0163	103	75-125			

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

Matrix Spike Dup (BIK0276-MSD1)		**Source: 20K0152-01**		Prepared: 11-Nov-2020 Analyzed: 12-Nov-2020 16:53							
Mercury	0.237	0.00453	0.0216	mg/kg	0.216	0.0163	102	75-125	0.35	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Metals and Metallic Compounds - Quality Control

Batch BIK0295 - 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 (BIK0295-BLK1)				Prepared: 11-Nov-2020 Analyzed: 13-Nov-2020 10:21							
Mercury	0.000014	0.000013	0.000100	mg/L							J
LCS (BIK0295-BS1)				Prepared: 11-Nov-2020 Analyzed: 13-Nov-2020 10:23							
Mercury	0.00207	0.000013	0.000100	mg/L	0.00200		104	80-120			
Duplicate (BIK0295-DUP1)		**Source: 20K0152-07**		Prepared: 11-Nov-2020 Analyzed: 13-Nov-2020 10:28							
Mercury	0.000014	0.000013	0.000100	mg/L		ND					J
Matrix Spike (BIK0295-MS1)		**Source: 20K0152-07**		Prepared: 11-Nov-2020 Analyzed: 13-Nov-2020 10:30							
Mercury	0.000882	0.000013	0.000100	mg/L	0.00100	ND	88.2	75-125			

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

Matrix Spike Dup (BIK0295-MSD1)		**Source: 20K0152-07**		Prepared: 11-Nov-2020 Analyzed: 13-Nov-2020 10:32							
Mercury	0.00103	0.000013	0.000100	mg/L	0.00100	ND	103	75-125	15.10	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Metals and Metallic Compounds - Quality Control

Batch BIK0509 - 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 (BIK0509-BLK1)				Prepared: 17-Nov-2020 Analyzed: 17-Nov-2020 14:11								
Barium	135	ND	0.0560	0.500	ug/L							Ua
Barium	137	ND	0.0530	0.500	ug/L							Ua
Chromium	52	ND	0.130	0.500	ug/L							Ua
Chromium	53	ND	0.0700	0.500	ug/L							Ua
Cobalt	59	ND	0.0290	0.200	ug/L							Ua
Lead	208	ND	0.0680	0.100	ug/L							Ua
Manganese	55	ND	0.0850	0.500	ug/L							Ua
Selenium	78	ND	0.440	2.00	ug/L							Ua
Silver	107	ND	0.0170	0.200	ug/L							Ua
Arsenic	75a	ND	0.0220	0.200	ug/L							Ua
Cadmium	111	ND	0.0300	0.100	ug/L							Ua
Cadmium	114	ND	0.0400	0.100	ug/L							Ua
Copper	63	ND	0.340	0.500	ug/L							Ua
Copper	65	ND	0.350	0.500	ug/L							Ua
Nickel	60	ND	0.0500	0.500	ug/L							Ua
Nickel	62	ND	0.220	0.500	ug/L							Ua
Zinc	66	ND	0.820	4.00	ug/L							Ua
Zinc	67	ND	0.940	4.00	ug/L							Ua
Blank (BIK0509-BLK2)				Prepared: 17-Nov-2020 Analyzed: 18-Nov-2020 18:30								
Vanadium	51a	ND	0.0400	0.200	ug/L							Ua
Vanadium	51b	ND	0.0160	0.200	ug/L							Ua
LCS (BIK0509-BS1)				Prepared: 17-Nov-2020 Analyzed: 17-Nov-2020 14:16								
Barium	135	25.3	0.0560	0.500	ug/L	25.0		101	80-120			
Barium	137	24.7	0.0530	0.500	ug/L	25.0		98.7	80-120			
Chromium	52	24.3	0.130	0.500	ug/L	25.0		97.1	80-120			
Chromium	53	26.3	0.0700	0.500	ug/L	25.0		105	80-120			
Cobalt	59	26.0	0.0290	0.200	ug/L	25.0		104	80-120			
Lead	208	25.0	0.0680	0.100	ug/L	25.0		100	80-120			
Manganese	55	25.3	0.0850	0.500	ug/L	25.0		101	80-120			
Selenium	78	85.9	0.440	2.00	ug/L	80.0		107	80-120			
Silver	107	25.8	0.0170	0.200	ug/L	25.0		103	80-120			
Arsenic	75a	25.4	0.0220	0.200	ug/L	25.0		102	80-120			
Cadmium	111	26.4	0.0300	0.100	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Metals and Metallic Compounds - Quality Control

Batch BIK0509 - 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 (BIK0509-BS1)						Prepared: 17-Nov-2020 Analyzed: 17-Nov-2020 14:16						
Cadmium	114	26.4	0.0400	0.100	ug/L	25.0		106	80-120			
Copper	63	27.1	0.340	0.500	ug/L	25.0		108	80-120			
Copper	65	26.9	0.350	0.500	ug/L	25.0		108	80-120			
Nickel	60	26.3	0.0500	0.500	ug/L	25.0		105	80-120			
Nickel	62	26.2	0.220	0.500	ug/L	25.0		105	80-120			
Zinc	66	85.8	0.820	4.00	ug/L	80.0		107	80-120			
Zinc	67	81.2	0.940	4.00	ug/L	80.0		102	80-120			
LCS (BIK0509-BS2)						Prepared: 17-Nov-2020 Analyzed: 18-Nov-2020 18:35						
Vanadium	51a	24.2	0.0400	0.200	ug/L	25.0		96.9	80-120			
Vanadium	51b	24.2	0.0160	0.200	ug/L	25.0		96.9	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Metals and Metallic Compounds - Quality Control

Batch BIK0569 - SWN EPA 3050B

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 (BIK0569-BLK1)					Prepared: 18-Nov-2020 Analyzed: 19-Nov-2020 15:09							
Chromium	52	ND	0.13	0.50	mg/kg							Ua
Chromium	53	ND	0.07	0.50	mg/kg							Ua
Cobalt	59	ND	0.03	0.20	mg/kg							Ua
Lead	208	ND	0.07	0.10	mg/kg							Ua
Selenium	78	ND	0.44	2.00	mg/kg							Ua
Silver	107	ND	0.02	0.20	mg/kg							Ua
Vanadium	51a	ND	0.04	0.20	mg/kg							Ua
Vanadium	51b	ND	0.02	0.20	mg/kg							Ua
Arsenic	75a	ND	0.02	0.20	mg/kg							Ua
Cadmium	111	ND	0.03	0.10	mg/kg							Ua
Cadmium	114	ND	0.04	0.10	mg/kg							Ua
Copper	63	ND	0.34	0.50	mg/kg							Ua
Copper	65	ND	0.35	0.50	mg/kg							Ua
Nickel	60	ND	0.05	0.50	mg/kg							Ua
Nickel	62	ND	0.22	0.50	mg/kg							Ua
Zinc	66	ND	0.8	4.0	mg/kg							Ua
Zinc	67	ND	0.9	4.0	mg/kg							Ua
Blank (BIK0569-BLK2)					Prepared: 18-Nov-2020 Analyzed: 20-Nov-2020 14:45							
Barium	135	ND	0.06	0.50	mg/kg							Ua
Barium	137	ND	0.05	0.50	mg/kg							Ua
LCS (BIK0569-BS1)					Prepared: 18-Nov-2020 Analyzed: 19-Nov-2020 15:13							
Chromium	52	22.6	0.13	0.50	mg/kg	25.0		90.3	80-120			
Chromium	53	23.0	0.07	0.50	mg/kg	25.0		92.1	80-120			
Cobalt	59	23.2	0.03	0.20	mg/kg	25.0		92.8	80-120			
Lead	208	24.9	0.07	0.10	mg/kg	25.0		99.6	80-120			
Selenium	78	71.0	0.44	2.00	mg/kg	80.0		88.8	80-120			
Silver	107	24.4	0.02	0.20	mg/kg	25.0		97.6	80-120			
Vanadium	51a	22.4	0.04	0.20	mg/kg	25.0		89.4	80-120			
Vanadium	51b	22.5	0.02	0.20	mg/kg	25.0		90.0	80-120			
Arsenic	75a	22.4	0.02	0.20	mg/kg	25.0		89.5	80-120			
Cadmium	111	23.3	0.03	0.10	mg/kg	25.0		93.3	80-120			
Cadmium	114	22.9	0.04	0.10	mg/kg	25.0		91.6	80-120			
Copper	63	23.6	0.34	0.50	mg/kg	25.0		94.5	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Metals and Metallic Compounds - Quality Control

Batch BIK0569 - SWN EPA 3050B

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 (BIK0569-BS1)					Prepared: 18-Nov-2020 Analyzed: 19-Nov-2020 15:13							
Copper	65	23.4	0.35	0.50	mg/kg	25.0		93.8	80-120			
Nickel	60	23.2	0.05	0.50	mg/kg	25.0		92.7	80-120			
Nickel	62	23.2	0.22	0.50	mg/kg	25.0		93.0	80-120			
Zinc	66	71.9	0.8	4.0	mg/kg	80.0		89.9	80-120			
Zinc	67	68.0	0.9	4.0	mg/kg	80.0		85.0	80-120			
LCS (BIK0569-BS2)					Prepared: 18-Nov-2020 Analyzed: 20-Nov-2020 14:49							
Barium	135	23.0	0.06	0.50	mg/kg	25.0		92.1	80-120			
Barium	137	23.5	0.05	0.50	mg/kg	25.0		94.0	80-120			
Duplicate (BIK0569-DUP1)			**Source: 20K0152-01**		Prepared: 18-Nov-2020 Analyzed: 19-Nov-2020 17:31							
Chromium	52	24.3	0.13	0.51	mg/kg		30.8			23.70	20	*
Cobalt	59	7.08	0.03	0.21	mg/kg		6.55			7.77	20	
Lead	208	27.2	0.07	0.10	mg/kg		23.1			16.30	20	
Selenium	78	1.10	0.45	2.06	mg/kg		1.87			52.00	20	*, J
Silver	107	0.06	0.02	0.21	mg/kg		0.09			30.40	20	L, J
Vanadium	51a	37.1	0.04	0.21	mg/kg		35.3			5.03	20	
Arsenic	75a	4.31	0.02	0.21	mg/kg		7.26			50.90	20	*
Copper	63	26.6	0.35	0.51	mg/kg		27.3			2.65	20	
Nickel	60	26.6	0.05	0.51	mg/kg		25.6			3.82	20	
Zinc	66	42.2	0.8	4.1	mg/kg		40.7			3.39	20	
Duplicate (BIK0569-DUP2)			**Source: 20K0152-01**		Prepared: 18-Nov-2020 Analyzed: 20-Nov-2020 17:13							
Barium	135	37.5	0.06	0.51	mg/kg		63.4			51.40	20	*
Cadmium	111	0.07	0.03	0.10	mg/kg		0.06			8.94	20	J
Matrix Spike (BIK0569-MS1)			**Source: 20K0152-01**		Prepared: 18-Nov-2020 Analyzed: 19-Nov-2020 17:36							
Chromium	52	65.3	0.13	0.51	mg/kg	25.7	30.8	134	75-125			*
Cobalt	59	31.1	0.03	0.21	mg/kg	25.7	6.55	95.5	75-125			
Lead	208	50.8	0.07	0.10	mg/kg	25.7	23.1	108	75-125			
Selenium	78	72.1	0.45	2.06	mg/kg	82.2	1.87	85.4	75-125			
Silver	107	25.5	0.02	0.21	mg/kg	25.7	0.09	98.8	75-125			
Vanadium	51a	59.0	0.04	0.21	mg/kg	25.7	35.3	92.4	75-125			
Arsenic	75a	27.5	0.02	0.21	mg/kg	25.7	7.26	78.9	75-125			
Copper	63	50.1	0.35	0.51	mg/kg	25.7	27.3	88.8	75-125			
Nickel	60	50.6	0.05	0.51	mg/kg	25.7	25.6	97.3	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Metals and Metallic Compounds - Quality Control

Batch BIK0569 - SWN EPA 3050B

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 (BIK0569-MS1)			**Source: 20K0152-01**		Prepared: 18-Nov-2020 Analyzed: 19-Nov-2020 17:36							
Zinc	66	116	0.8	4.1	mg/kg	82.2	40.7	91.5	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BIK0569-MS2)			**Source: 20K0152-01**		Prepared: 18-Nov-2020 Analyzed: 20-Nov-2020 17:17							
Barium	135	67.9	0.06	0.51	mg/kg	25.7	63.4	17.6	75-125			*
Cadmium	111	24.5	0.03	0.10	mg/kg	25.7	0.06	95.1	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BIK0569-MSD1)			**Source: 20K0152-01**		Prepared: 18-Nov-2020 Analyzed: 19-Nov-2020 17:41							
Chromium	52	56.7	0.13	0.51	mg/kg	25.7	30.8	101	75-125	14.10	20	
Cobalt	59	32.0	0.03	0.21	mg/kg	25.7	6.55	99.2	75-125	2.95	20	
Lead	208	55.6	0.07	0.10	mg/kg	25.7	23.1	126	75-125	9.03	20	*
Selenium	78	72.9	0.45	2.05	mg/kg	82.2	1.87	86.5	75-125	1.18	20	
Silver	107	24.5	0.02	0.21	mg/kg	25.7	0.09	95.2	75-125	3.85	20	
Vanadium	51a	58.9	0.04	0.21	mg/kg	25.7	35.3	92.1	75-125	0.17	20	
Arsenic	75a	31.3	0.02	0.21	mg/kg	25.7	7.26	93.5	75-125	12.70	20	
Copper	63	56.0	0.35	0.51	mg/kg	25.7	27.3	112	75-125	11.00	20	
Nickel	60	62.6	0.05	0.51	mg/kg	25.7	25.6	144	75-125	21.20	20	*
Zinc	66	135	0.8	4.1	mg/kg	82.2	40.7	115	75-125	15.30	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BIK0569-MSD2)			**Source: 20K0152-01**		Prepared: 18-Nov-2020 Analyzed: 20-Nov-2020 17:22							
Barium	135	71.4	0.06	0.51	mg/kg	25.7	63.4	31.2	75-125	5.00	20	*
Cadmium	111	24.6	0.03	0.10	mg/kg	25.7	0.06	95.5	75-125	0.36	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Post Spike (BIK0569-PS1)			**Source: 20K0152-01**		Prepared: 18-Nov-2020 Analyzed: 19-Nov-2020 17:46							
Chromium	52	1020			mg/kg	500	30.8	84.4	80-120			
Lead	208	900			mg/kg	500	23.1	90.4	80-120			
Nickel	60	940			mg/kg	500	25.6	88.8	80-120			
Post Spike (BIK0569-PS2)			**Source: 20K0152-01**		Prepared: 18-Nov-2020 Analyzed: 20-Nov-2020 17:28							
Barium	135	1660			mg/kg	500	63.4	86.0	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Metals and Metallic Compounds - Quality Control

Batch BJB0514 - 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 (BJB0514-BLK2)						Prepared: 17-Feb-2021	Analyzed: 19-Feb-2021 17:23					
Iron	54	ND	6.27	20.0	ug/L							Ua
Iron	57	13.3	1.40	20.0	ug/L							J
LCS (BJB0514-BS2)						Prepared: 17-Feb-2021	Analyzed: 19-Feb-2021 17:26					
Iron	54	4820	6.27	20.0	ug/L	5000		96.4	80-120			
Iron	57	4970	1.40	20.0	ug/L	5000		99.3	80-120			
Duplicate (BJB0514-DUP4)			**Source: 20K0152-07**			Prepared: 17-Feb-2021	Analyzed: 19-Feb-2021 18:50					
Iron	54	34.4	6.27	20.0	ug/L		21.8			44.90	20	L
Matrix Spike (BJB0514-MS4)			**Source: 20K0152-07**			Prepared: 17-Feb-2021	Analyzed: 19-Feb-2021 18:53					
Iron	54	4080	6.27	20.0	ug/L	5000	21.8	81.1	75-125			

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

Matrix Spike Dup (BJB0514-MSD4)			**Source: 20K0152-07**			Prepared: 17-Feb-2021	Analyzed: 19-Feb-2021 18:57					
Iron	54	4130	6.27	20.0	ug/L	5000	21.8	82.3	75-125	1.44	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BIK0296 - 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 (BIK0296-BLK1)				Prepared: 11-Nov-2020 Analyzed: 13-Nov-2020 10:50							
Mercury, Dissolved	ND	0.000013	0.000100	mg/L							Ua
LCS (BIK0296-BS1)				Prepared: 11-Nov-2020 Analyzed: 13-Nov-2020 10:53							
Mercury, Dissolved	0.00178	0.000013	0.000100	mg/L	0.00200		88.8	80-120			
Duplicate (BIK0296-DUP1)		**Source: 20K0152-08**		Prepared: 11-Nov-2020 Analyzed: 13-Nov-2020 10:57							
Mercury, Dissolved	ND	0.000013	0.000100	mg/L		ND					Ua
Matrix Spike (BIK0296-MS1)		**Source: 20K0152-08**		Prepared: 11-Nov-2020 Analyzed: 13-Nov-2020 10:59							
Mercury, Dissolved	0.000961	0.000013	0.000100	mg/L	0.00100	ND	96.1	75-125			

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

Matrix Spike Dup (BIK0296-MSD1)		**Source: 20K0152-08**		Prepared: 11-Nov-2020 Analyzed: 13-Nov-2020 11:01							
Mercury, Dissolved	0.000893	0.000013	0.000100	mg/L	0.00100	ND	89.3	75-125	7.41	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BIK0591 - 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 (BIK0591-BLK1)					Prepared: 19-Nov-2020 Analyzed: 19-Nov-2020 19:45							
Antimony, Dissolved	121	ND	0.0180	0.200	ug/L							Ua
Antimony, Dissolved	123	ND	0.0280	0.200	ug/L							Ua
Chromium, Dissolved	52	ND	0.130	0.500	ug/L							Ua
Chromium, Dissolved	53	0.128	0.0700	0.500	ug/L							J
Lead, Dissolved	208	ND	0.0680	0.100	ug/L							Ua
Silver, Dissolved	107	ND	0.0170	0.200	ug/L							Ua
Arsenic, Dissolved	75a	ND	0.0220	0.200	ug/L							Ua
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L							Ua
Cadmium, Dissolved	114	ND	0.0400	0.100	ug/L							Ua
Cobalt, Dissolved	59	ND	0.0290	0.200	ug/L							Ua
Copper, Dissolved	63	ND	0.340	0.500	ug/L							Ua
Copper, Dissolved	65	ND	0.350	0.500	ug/L							Ua
Nickel, Dissolved	60	ND	0.0500	0.500	ug/L							Ua
Nickel, Dissolved	62	ND	0.220	0.500	ug/L							Ua
Selenium, Dissolved	78	ND	0.440	0.500	ug/L							Ua
Zinc, Dissolved	66	ND	0.820	4.00	ug/L							Ua
Zinc, Dissolved	67	ND	0.940	4.00	ug/L							Ua
Blank (BIK0591-BLK2)					Prepared: 19-Nov-2020 Analyzed: 20-Nov-2020 15:27							
Silver, Dissolved	107	ND	0.0170	0.200	ug/L							Ua
Blank (BIK0591-BLK3)					Prepared: 19-Nov-2020 Analyzed: 23-Nov-2020 15:08							
Iron, Dissolved	54	ND	6.27	20.0	ug/L							Ua
Iron, Dissolved	57	5.51	1.40	20.0	ug/L							J
Magnesium, Dissolved	24	0.378	0.307	20.0	ug/L							J
LCS (BIK0591-BS1)					Prepared: 19-Nov-2020 Analyzed: 19-Nov-2020 19:49							
Antimony, Dissolved	121	26.0	0.0180	0.200	ug/L	25.0		104	80-120			
Antimony, Dissolved	123	25.7	0.0280	0.200	ug/L	25.0		103	80-120			
Chromium, Dissolved	52	24.3	0.130	0.500	ug/L	25.0		97.4	80-120			
Chromium, Dissolved	53	24.3	0.0700	0.500	ug/L	25.0		97.2	80-120			
Lead, Dissolved	208	26.7	0.0680	0.100	ug/L	25.0		107	80-120			
Silver, Dissolved	107	26.5	0.0170	0.200	ug/L	25.0		106	80-120			
Arsenic, Dissolved	75a	25.1	0.0220	0.200	ug/L	25.0		100	80-120			
Cadmium, Dissolved	111	26.4	0.0300	0.100	ug/L	25.0		106	80-120			
Cadmium, Dissolved	114	26.5	0.0400	0.100	ug/L	25.0		106	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BIK0591 - 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 (BIK0591-BS1)						Prepared: 19-Nov-2020 Analyzed: 19-Nov-2020 19:49						
Cobalt, Dissolved	59	26.1	0.0290	0.200	ug/L	25.0		105	80-120			
Copper, Dissolved	63	26.3	0.340	0.500	ug/L	25.0		105	80-120			
Copper, Dissolved	65	26.4	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	26.4	0.220	0.500	ug/L	25.0		106	80-120			
Selenium, Dissolved	78	76.7	0.440	0.500	ug/L	80.0		95.8	80-120			
Zinc, Dissolved	66	82.4	0.820	4.00	ug/L	80.0		103	80-120			
Zinc, Dissolved	67	78.6	0.940	4.00	ug/L	80.0		98.3	80-120			
LCS (BIK0591-BS2)						Prepared: 19-Nov-2020 Analyzed: 20-Nov-2020 15:31						
Silver, Dissolved	107	25.3	0.0170	0.200	ug/L	25.0		101	80-120			
LCS (BIK0591-BS3)						Prepared: 19-Nov-2020 Analyzed: 23-Nov-2020 15:04						
Iron, Dissolved	54	4820	6.27	20.0	ug/L	5000		96.4	80-120			
Iron, Dissolved	57	4890	1.40	20.0	ug/L	5000		97.9	80-120			
Magnesium, Dissolved	24	4910	0.307	20.0	ug/L	5000		98.2	80-120			
Duplicate (BIK0591-DUP1)			**Source: 20K0152-08**			Prepared: 19-Nov-2020 Analyzed: 19-Nov-2020 20:18						
Antimony, Dissolved	121	0.0350	0.0180	0.200	ug/L		0.0310			12.10	20	J
Chromium, Dissolved	52	0.484	0.130	0.500	ug/L		0.550			12.80	20	J
Lead, Dissolved	208	ND	0.0680	0.100	ug/L		ND					Ua
Arsenic, Dissolved	75a	1.11	0.0220	0.200	ug/L		1.09			1.73	20	
Cadmium, Dissolved	111	ND	0.0300	0.100	ug/L		ND					Ua
Cobalt, Dissolved	59	ND	0.0290	0.200	ug/L		ND					Ua
Copper, Dissolved	63	0.631	0.340	0.500	ug/L		0.642			1.73	20	
Nickel, Dissolved	60	0.0920	0.0500	0.500	ug/L		0.100			8.33	20	J
Selenium, Dissolved	78	ND	0.440	0.500	ug/L		ND					Ua
Duplicate (BIK0591-DUP2)			**Source: 20K0152-08**			Prepared: 19-Nov-2020 Analyzed: 20-Nov-2020 19:07						
Silver, Dissolved	107	ND	0.0170	0.200	ug/L		ND					Ua
Duplicate (BIK0591-DUP3)			**Source: 20K0152-08RE1**			Prepared: 19-Nov-2020 Analyzed: 20-Nov-2020 19:31						
Zinc, Dissolved	67	807	4.70	20.0	ug/L		756			6.51	20	D
Duplicate (BIK0591-DUP4)			**Source: 20K0152-08**			Prepared: 19-Nov-2020 Analyzed: 23-Nov-2020 15:34						
Iron, Dissolved	54	ND	6.27	20.0	ug/L		ND					Ua

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BIK0591 - 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 (BIK0591-DUP4)			**Source: 20K0152-08**		Prepared: 19-Nov-2020		Analyzed: 23-Nov-2020 15:34					
Magnesium, Dissolved	24	8220	0.307	20.0	ug/L		8060			1.94	20	
Matrix Spike (BIK0591-MS1)			**Source: 20K0152-08**		Prepared: 19-Nov-2020		Analyzed: 19-Nov-2020 20:23					
Antimony, Dissolved	121	25.3	0.0180	0.200	ug/L	25.0	0.0310	101	75-125			
Chromium, Dissolved	52	21.4	0.130	0.500	ug/L	25.0	0.550	83.3	75-125			
Lead, Dissolved	208	25.5	0.0680	0.100	ug/L	25.0	ND	102	75-125			
Arsenic, Dissolved	75a	25.9	0.0220	0.200	ug/L	25.0	1.09	99.1	75-125			
Cadmium, Dissolved	111	25.3	0.0300	0.100	ug/L	25.0	ND	101	75-125			
Cobalt, Dissolved	59	24.9	0.0290	0.200	ug/L	25.0	ND	99.5	75-125			
Copper, Dissolved	63	29.7	0.340	0.500	ug/L	25.0	0.642	116	75-125			
Nickel, Dissolved	60	24.5	0.0500	0.500	ug/L	25.0	0.100	97.5	75-125			
Selenium, Dissolved	78	75.5	0.440	0.500	ug/L	80.0	ND	94.4	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BIK0591-MS2)			**Source: 20K0152-08**		Prepared: 19-Nov-2020		Analyzed: 20-Nov-2020 19:11					
Silver, Dissolved	107	23.7	0.0170	0.200	ug/L	25.0	ND	94.9	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BIK0591-MS3)			**Source: 20K0152-08RE1**		Prepared: 19-Nov-2020		Analyzed: 20-Nov-2020 19:36					
Zinc, Dissolved	67	846	4.70	20.0	ug/L	80.0	756	112	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BIK0591-MS4)			**Source: 20K0152-08**		Prepared: 19-Nov-2020		Analyzed: 23-Nov-2020 15:39					
Iron, Dissolved	54	4210	6.27	20.0	ug/L	5000	ND	84.2	75-125			
Magnesium, Dissolved	24	12400	0.307	20.0	ug/L	5000	8060	86.6	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BIK0591-MSD1)			**Source: 20K0152-08**		Prepared: 19-Nov-2020		Analyzed: 19-Nov-2020 20:29					
Antimony, Dissolved	121	25.0	0.0180	0.200	ug/L	25.0	0.0310	100	75-125	1.00	20	
Chromium, Dissolved	52	22.7	0.130	0.500	ug/L	25.0	0.550	88.7	75-125	6.08	20	
Lead, Dissolved	208	26.3	0.0680	0.100	ug/L	25.0	ND	105	75-125	3.26	20	
Arsenic, Dissolved	75a	26.8	0.0220	0.200	ug/L	25.0	1.09	103	75-125	3.66	20	
Cadmium, Dissolved	111	25.7	0.0300	0.100	ug/L	25.0	ND	103	75-125	1.73	20	
Cobalt, Dissolved	59	25.7	0.0290	0.200	ug/L	25.0	ND	103	75-125	3.41	20	
Copper, Dissolved	63	26.3	0.340	0.500	ug/L	25.0	0.642	103	75-125	12.30	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BIK0591 - 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 (BIK0591-MSD1)			**Source: 20K0152-08**			Prepared: 19-Nov-2020		Analyzed: 19-Nov-2020 20:29				
Nickel, Dissolved	60	25.4	0.0500	0.500	ug/L	25.0	0.100	101	75-125	3.76	20	
Selenium, Dissolved	78	80.1	0.440	0.500	ug/L	80.0	ND	100	75-125	5.92	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BIK0591-MSD2)			**Source: 20K0152-08**			Prepared: 19-Nov-2020		Analyzed: 20-Nov-2020 19:18				
Silver, Dissolved	107	24.0	0.0170	0.200	ug/L	25.0	ND	96.0	75-125	1.12	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BIK0591-MSD3)			**Source: 20K0152-08RE1**			Prepared: 19-Nov-2020		Analyzed: 20-Nov-2020 19:41				
Zinc, Dissolved	67	850	4.70	20.0	ug/L	80.0	756	117	75-125	0.46	20	D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BIK0591-MSD4)			**Source: 20K0152-08**			Prepared: 19-Nov-2020		Analyzed: 23-Nov-2020 15:46				
Iron, Dissolved	54	4190	6.27	20.0	ug/L	5000	ND	83.7	75-125	0.52	20	
Magnesium, Dissolved	24	12200	0.307	20.0	ug/L	5000	8060	83.3	75-125	1.34	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Metals and Metallic Compounds (dissolved) - Quality Control

Batch BJB0533 - 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
Blank (BJB0533-BLK1)					Prepared: 18-Feb-2021 Analyzed: 19-Feb-2021 00:57							
Barium, Dissolved	135	ND	0.0560	0.500	ug/L							Ua
Barium, Dissolved	137	ND	0.0530	0.500	ug/L							Ua
Manganese, Dissolved	55	ND	0.0850	0.500	ug/L							Ua
Vanadium, Dissolved	51a	ND	0.0400	0.200	ug/L							Ua
Vanadium, Dissolved	51b	ND	0.0160	0.200	ug/L							Ua
LCS (BJB0533-BS1)					Prepared: 18-Feb-2021 Analyzed: 19-Feb-2021 01:02							
Barium, Dissolved	135	25.1	0.0560	0.500	ug/L	25.0		100	80-120			
Barium, Dissolved	137	25.2	0.0530	0.500	ug/L	25.0		101	80-120			
Manganese, Dissolved	55	26.4	0.0850	0.500	ug/L	25.0		106	80-120			
Vanadium, Dissolved	51a	27.3	0.0400	0.200	ug/L	25.0		109	80-120			
Vanadium, Dissolved	51b	27.0	0.0160	0.200	ug/L	25.0		108	80-120			
Duplicate (BJB0533-DUP1)			**Source: 20K0152-22**		Prepared: 18-Feb-2021 Analyzed: 19-Feb-2021 01:22							
Barium, Dissolved	135	ND	0.0560	0.500	ug/L		ND					Ua
Manganese, Dissolved	55	ND	0.0850	0.500	ug/L		ND					Ua
Vanadium, Dissolved	51a	ND	0.0400	0.200	ug/L		ND					Ua
Matrix Spike (BJB0533-MS1)			**Source: 20K0152-22**		Prepared: 18-Feb-2021 Analyzed: 19-Feb-2021 01:27							
Barium, Dissolved	135	24.9	0.0560	0.500	ug/L	25.0	ND	99.4	75-125			
Manganese, Dissolved	55	26.6	0.0850	0.500	ug/L	25.0	ND	106	75-125			
Vanadium, Dissolved	51a	26.6	0.0400	0.200	ug/L	25.0	ND	106	75-125			

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

Matrix Spike Dup (BJB0533-MSD1)			**Source: 20K0152-22**		Prepared: 18-Feb-2021 Analyzed: 19-Feb-2021 01:34							
Barium, Dissolved	135	25.3	0.0560	0.500	ug/L	25.0	ND	101	75-125	1.60	20	
Manganese, Dissolved	55	26.1	0.0850	0.500	ug/L	25.0	ND	104	75-125	1.82	20	
Vanadium, Dissolved	51a	26.7	0.0400	0.200	ug/L	25.0	ND	107	75-125	0.20	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Wet Chemistry - Quality Control

Batch BIK0364 - No Prep Wet Chem

Instrument: BAL2 Analyst: KLE

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIK0364-BLK1)				Prepared: 11-Nov-2020 Analyzed: 11-Nov-2020 23:04							
Total Solids	ND	0.04	0.04	%							Ua
Duplicate (BIK0364-DUP1)		**Source: 20K0152-01**		Prepared: 11-Nov-2020 Analyzed: 11-Nov-2020 23:04							
Total Solids	95.33	0.04	0.04	%		96.12			0.82	20	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Wet Chemistry - Quality Control

Batch BIK0572 - PSEP 1986 (modified)

Instrument: TOC Cube Analyst: BF

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIK0572-BLK1)				Prepared: 18-Nov-2020 Analyzed: 19-Nov-2020 20:33							
Total Organic Carbon	ND	0.02	0.02	%							Ua
LCS (BIK0572-BS1)				Prepared: 18-Nov-2020 Analyzed: 19-Nov-2020 21:03							
Total Organic Carbon	44.8	0.02	0.02	%	44.4		101	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Analysis by: Materials Testing & Consulting, Inc. (Olympia)

Geotechnical Methods - Quality Control

Batch B011521 - No Prep Geo

Instrument: MT&C Analyst:

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Duplicate (B011521-DUP1)	**Source: 20K0152-02**		Prepared: 15-Jan-2021 Analyzed: 15-Jan-2021 00:00							
Phi Size <-1	2.4	0.1	%		2.3		0-0	4.30		
Phi Size -1 to 0	3.1	0.1	%		3.5		0-0	12.10		
Phi Size 0 to 1	12.1	0.1	%		11.8		0-0	2.50		
Phi Size 1 to 2	28.0	0.1	%		26.9		0-0	4.00		
Phi Size 2 to 3	35.2	0.1	%		34.6		0-0	1.70		
Phi Size 3 to 4	13.1	0.1	%		13.3		0-0	1.50		
Phi Size 4 to 5	0.6	0.1	%		1.9		0-0	104.00		
Phi Size 5 to 6	0.8	0.1	%		0.8		0-0	0.00		
Phi Size 6 to 7	1.4	0.1	%		1.3		0-0	7.40		
Phi Size 7 to 8	0.3	0.1	%		0.4		0-0	28.60		
Phi Size 8 to 9	1.1	0.1	%		1.1		0-0	0.00		
Phi Size 9 to 10	1.1	0.1	%		1.3		0-0	16.70		
Phi Size >10	0.9	0.1	%		0.9		0-0	0.00		
Total Fines	6.1	0.1	%		7.6		0-0	21.90		
Triplicate (B011521-DUP2)	**Source: 20K0152-02**		Prepared: 15-Jan-2021 Analyzed: 15-Jan-2021 00:00							
Phi Size <-1	2.8	0.1	%		2.3		0-0	19.60		
Phi Size -1 to 0	3.6	0.1	%		3.5		0-0	2.80		
Phi Size 0 to 1	12.1	0.1	%		11.8		0-0	2.50		
Phi Size 1 to 2	27.0	0.1	%		26.9		0-0	0.40		
Phi Size 2 to 3	34.9	0.1	%		34.6		0-0	0.90		
Phi Size 3 to 4	13.2	0.1	%		13.3		0-0	0.80		
Phi Size 4 to 5	0.6	0.1	%		1.9		0-0	104.00		
Phi Size 5 to 6	0.7	0.1	%		0.8		0-0	13.30		
Phi Size 6 to 7	1.4	0.1	%		1.3		0-0	7.40		
Phi Size 7 to 8	0.2	0.1	%		0.4		0-0	66.70		
Phi Size 8 to 9	1.2	0.1	%		1.1		0-0	8.70		
Phi Size 9 to 10	1.1	0.1	%		1.3		0-0	16.70		
Phi Size >10	1.0	0.1	%		0.9		0-0	10.50		
Total Fines	6.3	0.1	%		7.6		0-0	18.70		

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Certified Analyses included in this Report

Analyte	Certifications
EPA 6020A in Solid	
Silver-107	NELAP,DoD-ELAP,WADOE
Silver-107	NELAP,DoD-ELAP,WADOE
Silver-107	DoD-ELAP,WADOE
Silver-107	NELAP,DoD-ELAP
Barium-135	NELAP,DoD-ELAP,ADEC
Barium-135	DoD-ELAP,WADOE,ADEC
Barium-135	NELAP,DoD-ELAP,WADOE,ADEC
Barium-135	NELAP,DoD-ELAP,WADOE,ADEC
Barium-137	NELAP,DoD-ELAP,WADOE,ADEC
Barium-137	NELAP,DoD-ELAP,WADOE,ADEC
Barium-137	NELAP,DoD-ELAP,ADEC
Barium-137	DoD-ELAP,WADOE,ADEC
Cobalt-59	NELAP,DoD-ELAP
Cobalt-59	NELAP,DoD-ELAP,WADOE
Cobalt-59	NELAP,DoD-ELAP,WADOE
Cobalt-59	DoD-ELAP,WADOE
Chromium-52	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-52	DoD-ELAP,WADOE,ADEC
Chromium-52	NELAP,DoD-ELAP,ADEC
Chromium-52	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-53	DoD-ELAP,WADOE,ADEC
Chromium-53	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-53	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-53	NELAP,DoD-ELAP,ADEC
Lead-208	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,ADEC
Selenium-82	NELAP,DoD-ELAP,WADOE
Selenium-82	NELAP,DoD-ELAP
Selenium-82	DoD-ELAP,WADOE
Selenium-82	NELAP,DoD-ELAP,WADOE
Selenium-78	DoD-ELAP,WADOE
Selenium-78	NELAP,DoD-ELAP,WADOE
Selenium-78	NELAP,DoD-ELAP,WADOE

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
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Selenium-78	NELAP,DoD-ELAP
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51a	DoD-ELAP,WADOE,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51a	NELAP,DoD-ELAP,ADEC
Vanadium-51b	DoD-ELAP,WADOE,ADEC
Vanadium-51b	DoD-ELAP,ADEC
Vanadium-51b	DoD-ELAP,WADOE,ADEC
Vanadium-51b	DoD-ELAP,WADOE,ADEC

EPA 6020A in Water

Silver-107	WA-DW,DoD-ELAP,NELAP
Silver-107	WADOE,DoD-ELAP,NELAP
Silver-107	WADOE,WA-DW,DoD-ELAP,NELAP
Silver-107	WADOE,WA-DW,DoD-ELAP
Barium-135	WADOE,DoD-ELAP,ADEC
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-135	NELAP,DoD-ELAP,ADEC
Barium-137	WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,DoD-ELAP,ADEC
Cobalt-59	DoD-ELAP,NELAP,WADOE
Cobalt-59	DoD-ELAP,NELAP
Cobalt-59	DoD-ELAP,NELAP,WADOE
Cobalt-59	DoD-ELAP,WADOE
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,DoD-ELAP,ADEC
Chromium-52	WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-54	NELAP,DoD-ELAP
Iron-54	WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP

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Iron-57	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,DoD-ELAP
Iron-57	WADOE,DoD-ELAP
Manganese-55	NELAP,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Manganese-55	WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
Lead-208	NELAP,DoD-ELAP,ADEC
Lead-208	WADOE,DoD-ELAP,ADEC
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Selenium-82	NELAP,WADOE,DoD-ELAP
Selenium-82	WADOE,DoD-ELAP
Selenium-82	NELAP,DoD-ELAP
Selenium-82	NELAP,WADOE,DoD-ELAP
Selenium-78	NELAP,DoD-ELAP
Selenium-78	NELAP,WADOE,DoD-ELAP
Selenium-78	NELAP,WADOE,DoD-ELAP
Selenium-78	WADOE,DoD-ELAP
Vanadium-51a	DoD-ELAP,WADOE,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51a	NELAP,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,ADEC
Vanadium-51b	DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Silver-107	DoD-ELAP,NELAP
Silver-107	WA-DW,DoD-ELAP,NELAP
Silver-107	WA-DW,DoD-ELAP
Silver-107	WA-DW,DoD-ELAP,NELAP
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-135	WADOE,DoD-ELAP,ADEC
Barium-135	NELAP,WADOE,DoD-ELAP,ADEC
Barium-135	NELAP,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,WADOE,DoD-ELAP,ADEC
Barium-137	WADOE,DoD-ELAP,ADEC
Barium-137	NELAP,DoD-ELAP,ADEC

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Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-52	WADOE,DoD-ELAP,ADEC
Chromium-52	NELAP,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	NELAP,DoD-ELAP,ADEC
Chromium-53	NELAP,WADOE,DoD-ELAP,ADEC
Chromium-53	WADOE,DoD-ELAP,ADEC
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-54	WADOE,DoD-ELAP
Iron-54	NELAP,DoD-ELAP
Iron-57	NELAP,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Iron-57	WADOE,DoD-ELAP
Magnesium-24	NELAP,DoD-ELAP,WADOE
Magnesium-24	NELAP,DoD-ELAP
Magnesium-24	DoD-ELAP,WADOE
Magnesium-24	NELAP,DoD-ELAP,WADOE
Manganese-55	WADOE,DoD-ELAP
Manganese-55	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
Lead-208	NELAP,WADOE,DoD-ELAP,ADEC
Lead-208	WADOE,DoD-ELAP,ADEC
Antimony-121	NELAP,DoD-ELAP
Antimony-121	WADOE,DoD-ELAP
Antimony-121	NELAP,WADOE,DoD-ELAP
Antimony-121	NELAP,WADOE,DoD-ELAP
Antimony-123	WADOE,DoD-ELAP
Antimony-123	NELAP,WADOE,DoD-ELAP
Antimony-123	NELAP,WADOE,DoD-ELAP
Antimony-123	NELAP,DoD-ELAP
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51a	NELAP,DoD-ELAP,ADEC
Vanadium-51a	DoD-ELAP,WADOE,ADEC

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Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	DoD-ELAP,WADOE,ADEC
Vanadium-51b	NELAP,DoD-ELAP,ADEC

EPA 6020A UCT-KED in Solid

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

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Analytical Report

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Zinc-67	DoD-ELAP,WADOE
Zinc-67	NELAP,DoD-ELAP,WADOE
Zinc-67	NELAP,DoD-ELAP,WADOE

EPA 6020A UCT-KED in Water

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

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
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Zinc-67	WA-DW,DoD-ELAP
Arsenic-75a	NELAP,DoD-ELAP,ADEC
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
Arsenic-75a	NELAP,WADOE,DoD-ELAP,ADEC
Arsenic-75a	WADOE,DoD-ELAP,ADEC
Cadmium-111	NELAP,DoD-ELAP,ADEC
Cadmium-111	WADOE,DoD-ELAP,ADEC
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-111	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cadmium-114	WADOE,DoD-ELAP,ADEC
Cadmium-114	NELAP,DoD-ELAP,ADEC
Cadmium-114	NELAP,WADOE,DoD-ELAP,ADEC
Cobalt-59	DoD-ELAP,NELAP
Cobalt-59	DoD-ELAP,WADOE
Cobalt-59	DoD-ELAP,NELAP,WADOE
Cobalt-59	DoD-ELAP,NELAP,WADOE
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-63	NELAP,DoD-ELAP
Copper-63	NELAP,WADOE,DoD-ELAP
Copper-63	WADOE,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Copper-65	NELAP,DoD-ELAP
Copper-65	NELAP,WADOE,DoD-ELAP
Copper-65	WADOE,DoD-ELAP
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-60	WADOE,DoD-ELAP,ADEC
Nickel-60	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-60	NELAP,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,WADOE,DoD-ELAP,ADEC
Nickel-62	WADOE,DoD-ELAP,ADEC
Nickel-62	NELAP,DoD-ELAP,ADEC
Selenium-78	WADOE,DoD-ELAP
Selenium-78	NELAP,WADOE,DoD-ELAP
Selenium-78	NELAP,WADOE,DoD-ELAP
Selenium-78	NELAP,DoD-ELAP
Zinc-66	NELAP,WADOE,DoD-ELAP
Zinc-66	NELAP,WADOE,DoD-ELAP

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
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Zinc-66	WADOE,DoD-ELAP
Zinc-66	NELAP,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
Zinc-67	NELAP,DoD-ELAP
Zinc-67	WADOE,DoD-ELAP
Zinc-67	NELAP,WADOE,DoD-ELAP
EPA 7470A in Water	
Mercury	NELAP,DoD-ELAP,CALAP
Mercury	WADOE,NELAP,DoD-ELAP
Mercury	WADOE,NELAP,DoD-ELAP,CALAP
Mercury	WADOE,DoD-ELAP,CALAP
Mercury	WADOE,NELAP,DoD-ELAP,CALAP
Mercury	WADOE,NELAP,DoD-ELAP
Mercury	WADOE,DoD-ELAP,CALAP
Mercury	NELAP,DoD-ELAP,CALAP
EPA 7471B in Solid	
Mercury	WADOE,NELAP,DoD-ELAP,CALAP
Mercury	WADOE,NELAP,DoD-ELAP
Mercury	WADOE,DoD-ELAP,CALAP
Mercury	NELAP,DoD-ELAP,CALAP
EPA 8082A in Solid	
Aroclor 1016	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1016	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1016 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,CALAP,ADEC

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Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1232	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1242 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1248	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1254 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,CALAP,ADEC

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

EPA 8082A in Water

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

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

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

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

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

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
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Aroclor 1248 [2C]	ADEC,CALAP,DoD-ELAP,WADOE
Aroclor 1248 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor-1248 (1) [2C]	ADEC,CALAP
Aroclor-1248 (1) [2C]	ADEC
Aroclor-1248 (1) [2C]	ADEC,CALAP
Aroclor-1248 (1) [2C]	ADEC,CALAP
Aroclor-1248 (2) [2C]	ADEC
Aroclor-1248 (2) [2C]	ADEC,CALAP
Aroclor-1248 (2) [2C]	ADEC,CALAP
Aroclor-1248 (2) [2C]	ADEC,CALAP
Aroclor-1248 (3) [2C]	ADEC,CALAP
Aroclor-1248 (3) [2C]	ADEC,CALAP
Aroclor-1248 (3) [2C]	ADEC
Aroclor-1248 (3) [2C]	ADEC,CALAP
Aroclor-1248 (4) [2C]	ADEC,CALAP
Aroclor-1248 (4) [2C]	ADEC
Aroclor-1248 (4) [2C]	ADEC,CALAP
Aroclor-1248 (4) [2C]	ADEC,CALAP
Aroclor 1254	ADEC,CALAP,DoD-ELAP,NELAP,WADOE
Aroclor 1254	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1254	ADEC,CALAP,DoD-ELAP,WADOE
Aroclor 1254	ADEC,CALAP,DoD-ELAP,NELAP
Aroclor-1254 (1)	ADEC,CALAP
Aroclor-1254 (1)	ADEC
Aroclor-1254 (1)	ADEC,CALAP
Aroclor-1254 (1)	ADEC,CALAP
Aroclor-1254 (2)	ADEC,CALAP
Aroclor-1254 (2)	ADEC
Aroclor-1254 (2)	ADEC,CALAP
Aroclor-1254 (2)	ADEC,CALAP
Aroclor-1254 (3)	ADEC,CALAP
Aroclor-1254 (3)	ADEC
Aroclor-1254 (3)	ADEC,CALAP
Aroclor-1254 (3)	ADEC,CALAP
Aroclor-1254 (4)	ADEC,CALAP
Aroclor-1254 (4)	ADEC,CALAP
Aroclor-1254 (4)	ADEC
Aroclor-1254 (4)	ADEC,CALAP
Aroclor-1254 (5)	ADEC,CALAP

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Shannon & Wilson, Inc	Project: Lower Duwamish	
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Aroclor-1254 (5)	ADEC,CALAP
Aroclor-1254 (5)	ADEC,CALAP
Aroclor-1254 (5)	ADEC
Aroclor 1254 [2C]	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1254 [2C]	ADEC,CALAP,DoD-ELAP,NELAP,WADOE
Aroclor 1254 [2C]	ADEC,CALAP,DoD-ELAP,NELAP
Aroclor 1254 [2C]	ADEC,CALAP,DoD-ELAP,WADOE
Aroclor-1254 (1) [2C]	ADEC,CALAP
Aroclor-1254 (1) [2C]	ADEC
Aroclor-1254 (1) [2C]	ADEC,CALAP
Aroclor-1254 (1) [2C]	ADEC,CALAP
Aroclor-1254 (2) [2C]	ADEC,CALAP
Aroclor-1254 (2) [2C]	ADEC,CALAP
Aroclor-1254 (2) [2C]	ADEC,CALAP
Aroclor-1254 (2) [2C]	ADEC
Aroclor-1254 (3) [2C]	ADEC
Aroclor-1254 (3) [2C]	ADEC,CALAP
Aroclor-1254 (3) [2C]	ADEC,CALAP
Aroclor-1254 (3) [2C]	ADEC,CALAP
Aroclor-1254 (4) [2C]	ADEC
Aroclor-1254 (4) [2C]	ADEC,CALAP
Aroclor-1254 (4) [2C]	ADEC,CALAP
Aroclor-1254 (4) [2C]	ADEC,CALAP
Aroclor-1254 (5) [2C]	ADEC,CALAP
Aroclor-1254 (5) [2C]	ADEC,CALAP
Aroclor-1254 (5) [2C]	ADEC
Aroclor-1254 (5) [2C]	ADEC,CALAP
Aroclor 1260	ADEC,CALAP,DoD-ELAP,WADOE
Aroclor 1260	ADEC,DoD-ELAP,NELAP,WADOE
Aroclor 1260	ADEC,CALAP,DoD-ELAP,NELAP,WADOE
Aroclor 1260	ADEC,CALAP,DoD-ELAP,NELAP
Aroclor-1260 (1)	ADEC,CALAP
Aroclor-1260 (1)	ADEC
Aroclor-1260 (1)	ADEC,CALAP
Aroclor-1260 (1)	ADEC,CALAP
Aroclor-1260 (2)	ADEC
Aroclor-1260 (2)	ADEC,CALAP
Aroclor-1260 (2)	ADEC,CALAP
Aroclor-1260 (2)	ADEC,CALAP

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

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

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

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Aroclor-1268 (4) [2C]	ADEC
Aroclor-1268 (4) [2C]	ADEC,CALAP
Aroclor-1268 (4) [2C]	ADEC,CALAP

EPA 8260D in Solid

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

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1,1-Dichloroethene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Iodomethane	WADOE,DoD-ELAP,NELAP,ADEC
Iodomethane	WADOE,DoD-ELAP,CALAP,ADEC
Iodomethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Iodomethane	DoD-ELAP,NELAP,CALAP,ADEC
Methylene Chloride	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Methylene Chloride	DoD-ELAP,NELAP,CALAP,ADEC
Methylene Chloride	WADOE,DoD-ELAP,CALAP,ADEC
Methylene Chloride	WADOE,DoD-ELAP,NELAP,ADEC
Acrylonitrile	WADOE,DoD-ELAP,NELAP
Acrylonitrile	DoD-ELAP,NELAP,CALAP
Acrylonitrile	WADOE,DoD-ELAP,CALAP
Acrylonitrile	WADOE,DoD-ELAP,NELAP,CALAP
Carbon Disulfide	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Carbon Disulfide	WADOE,DoD-ELAP,NELAP,ADEC
Carbon Disulfide	WADOE,DoD-ELAP,CALAP,ADEC
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,ADEC
trans-1,2-Dichloroethene	DoD-ELAP,NELAP,CALAP,ADEC
trans-1,2-Dichloroethene	WADOE,DoD-ELAP,CALAP,ADEC
trans-1,2-Dichloroethene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
trans-1,2-Dichloroethene	WADOE,DoD-ELAP,NELAP,ADEC
Vinyl Acetate	WADOE,DoD-ELAP,NELAP,CALAP
Vinyl Acetate	WADOE,DoD-ELAP,NELAP
Vinyl Acetate	DoD-ELAP,NELAP,CALAP
Vinyl Acetate	WADOE,DoD-ELAP,CALAP
1,1-Dichloroethane	DoD-ELAP,NELAP,CALAP,ADEC
1,1-Dichloroethane	WADOE,DoD-ELAP,CALAP,ADEC
1,1-Dichloroethane	WADOE,DoD-ELAP,NELAP,ADEC
1,1-Dichloroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
2-Butanone	WADOE,DoD-ELAP,NELAP
2-Butanone	WADOE,DoD-ELAP,NELAP,CALAP
2-Butanone	WADOE,DoD-ELAP,CALAP
2-Butanone	DoD-ELAP,NELAP,CALAP
2,2-Dichloropropane	WADOE,DoD-ELAP,NELAP
2,2-Dichloropropane	WADOE,DoD-ELAP,CALAP
2,2-Dichloropropane	DoD-ELAP,NELAP,CALAP
2,2-Dichloropropane	WADOE,DoD-ELAP,NELAP,CALAP
cis-1,2-Dichloroethene	DoD-ELAP,NELAP,CALAP,ADEC
cis-1,2-Dichloroethene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC

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cis-1,2-Dichloroethene	WADOE,DoD-ELAP,NELAP,ADEC
cis-1,2-Dichloroethene	WADOE,DoD-ELAP,CALAP,ADEC
Chloroform	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Chloroform	WADOE,DoD-ELAP,NELAP,ADEC
Chloroform	WADOE,DoD-ELAP,CALAP,ADEC
Chloroform	DoD-ELAP,NELAP,CALAP,ADEC
Bromochloromethane	WADOE,DoD-ELAP,NELAP,ADEC
Bromochloromethane	WADOE,DoD-ELAP,CALAP,ADEC
Bromochloromethane	DoD-ELAP,NELAP,CALAP,ADEC
Bromochloromethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,1,1-Trichloroethane	WADOE,DoD-ELAP,NELAP,ADEC
1,1,1-Trichloroethane	WADOE,DoD-ELAP,CALAP,ADEC
1,1,1-Trichloroethane	DoD-ELAP,NELAP,CALAP,ADEC
1,1,1-Trichloroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,1-Dichloropropene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,1-Dichloropropene	WADOE,DoD-ELAP,NELAP,ADEC
1,1-Dichloropropene	WADOE,DoD-ELAP,CALAP,ADEC
1,1-Dichloropropene	DoD-ELAP,NELAP,CALAP,ADEC
Carbon tetrachloride	WADOE,DoD-ELAP,CALAP,ADEC
Carbon tetrachloride	DoD-ELAP,NELAP,CALAP,ADEC
Carbon tetrachloride	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Carbon tetrachloride	WADOE,DoD-ELAP,NELAP,ADEC
1,2-Dichloroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,2-Dichloroethane	WADOE,DoD-ELAP,NELAP,ADEC
1,2-Dichloroethane	WADOE,DoD-ELAP,CALAP,ADEC
1,2-Dichloroethane	DoD-ELAP,NELAP,CALAP,ADEC
Benzene	WADOE,DoD-ELAP,NELAP,ADEC
Benzene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Benzene	WADOE,DoD-ELAP,CALAP,ADEC
Benzene	DoD-ELAP,NELAP,CALAP,ADEC
Trichloroethene	DoD-ELAP,NELAP,CALAP,ADEC
Trichloroethene	WADOE,DoD-ELAP,CALAP,ADEC
Trichloroethene	WADOE,DoD-ELAP,NELAP,ADEC
Trichloroethene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,2-Dichloropropane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,2-Dichloropropane	DoD-ELAP,NELAP,CALAP,ADEC
1,2-Dichloropropane	WADOE,DoD-ELAP,NELAP,ADEC
1,2-Dichloropropane	WADOE,DoD-ELAP,CALAP,ADEC
Bromodichloromethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Bromodichloromethane	WADOE,DoD-ELAP,NELAP,ADEC
Bromodichloromethane	WADOE,DoD-ELAP,CALAP,ADEC
Bromodichloromethane	DoD-ELAP,NELAP,CALAP,ADEC
Dibromomethane	WADOE,DoD-ELAP,CALAP,ADEC
Dibromomethane	WADOE,DoD-ELAP,NELAP,ADEC
Dibromomethane	DoD-ELAP,NELAP,CALAP,ADEC
Dibromomethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
2-Chloroethyl vinyl ether	WADOE,DoD-ELAP,NELAP
2-Chloroethyl vinyl ether	WADOE,DoD-ELAP
2-Chloroethyl vinyl ether	WADOE,DoD-ELAP,NELAP
2-Chloroethyl vinyl ether	DoD-ELAP,NELAP
4-Methyl-2-Pentanone	WADOE,DoD-ELAP,NELAP,CALAP
4-Methyl-2-Pentanone	WADOE,DoD-ELAP,NELAP
4-Methyl-2-Pentanone	WADOE,DoD-ELAP,CALAP
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP
cis-1,3-Dichloropropene	DoD-ELAP,NELAP,CALAP,ADEC
cis-1,3-Dichloropropene	WADOE,DoD-ELAP,CALAP,ADEC
cis-1,3-Dichloropropene	WADOE,DoD-ELAP,NELAP,ADEC
cis-1,3-Dichloropropene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Toluene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Toluene	DoD-ELAP,NELAP,CALAP,ADEC
Toluene	WADOE,DoD-ELAP,CALAP,ADEC
Toluene	WADOE,DoD-ELAP,NELAP,ADEC
trans-1,3-Dichloropropene	WADOE,DoD-ELAP,CALAP,ADEC
trans-1,3-Dichloropropene	DoD-ELAP,NELAP,CALAP,ADEC
trans-1,3-Dichloropropene	WADOE,DoD-ELAP,NELAP,ADEC
trans-1,3-Dichloropropene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
2-Hexanone	WADOE,DoD-ELAP,NELAP,CALAP
2-Hexanone	WADOE,DoD-ELAP,CALAP
2-Hexanone	DoD-ELAP,NELAP,CALAP
2-Hexanone	WADOE,DoD-ELAP,NELAP
1,1,2-Trichloroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,1,2-Trichloroethane	WADOE,DoD-ELAP,NELAP,ADEC
1,1,2-Trichloroethane	WADOE,DoD-ELAP,CALAP,ADEC
1,1,2-Trichloroethane	DoD-ELAP,NELAP,CALAP,ADEC
1,3-Dichloropropane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,3-Dichloropropane	WADOE,DoD-ELAP,NELAP,ADEC
1,3-Dichloropropane	WADOE,DoD-ELAP,CALAP,ADEC
1,3-Dichloropropane	DoD-ELAP,NELAP,CALAP,ADEC

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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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Tetrachloroethene	DoD-ELAP,NELAP,CALAP,ADEC
Tetrachloroethene	WADOE,DoD-ELAP,CALAP,ADEC
Tetrachloroethene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Tetrachloroethene	WADOE,DoD-ELAP,NELAP,ADEC
Dibromochloromethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Dibromochloromethane	WADOE,DoD-ELAP,NELAP,ADEC
Dibromochloromethane	WADOE,DoD-ELAP,CALAP,ADEC
Dibromochloromethane	DoD-ELAP,NELAP,CALAP,ADEC
1,2-Dibromoethane	WADOE,DoD-ELAP,NELAP,ADEC
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,ADEC
1,2-Dibromoethane	WADOE,DoD-ELAP,CALAP,ADEC
1,2-Dibromoethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Chlorobenzene	DoD-ELAP,NELAP,CALAP,ADEC
Chlorobenzene	WADOE,DoD-ELAP,CALAP,ADEC
Chlorobenzene	WADOE,DoD-ELAP,NELAP,ADEC
Chlorobenzene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Ethylbenzene	WADOE,DoD-ELAP,NELAP,ADEC
Ethylbenzene	WADOE,DoD-ELAP,CALAP,ADEC
Ethylbenzene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Ethylbenzene	DoD-ELAP,NELAP,CALAP,ADEC
1,1,1,2-Tetrachloroethane	WADOE,DoD-ELAP,NELAP,ADEC
1,1,1,2-Tetrachloroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,1,1,2-Tetrachloroethane	WADOE,DoD-ELAP,CALAP,ADEC
1,1,1,2-Tetrachloroethane	DoD-ELAP,NELAP,CALAP,ADEC
m,p-Xylene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
m,p-Xylene	DoD-ELAP,NELAP,CALAP,ADEC
m,p-Xylene	WADOE,DoD-ELAP,CALAP,ADEC
m,p-Xylene	WADOE,DoD-ELAP,NELAP,ADEC
o-Xylene	DoD-ELAP,NELAP,CALAP,ADEC
o-Xylene	WADOE,DoD-ELAP,NELAP,ADEC
o-Xylene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
o-Xylene	WADOE,DoD-ELAP,CALAP,ADEC
Xylenes, total	
Xylenes, total	WADOE
Xylenes, total	WADOE
Xylenes, total	WADOE
Styrene	WADOE,DoD-ELAP,NELAP,ADEC
Styrene	WADOE,DoD-ELAP,CALAP,ADEC
Styrene	DoD-ELAP,NELAP,CALAP,ADEC

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Styrene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Bromoform	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Bromoform	DoD-ELAP,NELAP,CALAP,ADEC
Bromoform	WADOE,DoD-ELAP,NELAP,ADEC
Bromoform	WADOE,DoD-ELAP,CALAP,ADEC
1,1,2,2-Tetrachloroethane	WADOE,DoD-ELAP,NELAP,ADEC
1,1,2,2-Tetrachloroethane	WADOE,DoD-ELAP,CALAP,ADEC
1,1,2,2-Tetrachloroethane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,1,2,2-Tetrachloroethane	DoD-ELAP,NELAP,CALAP,ADEC
1,2,3-Trichloropropane	DoD-ELAP,NELAP,CALAP,ADEC
1,2,3-Trichloropropane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,2,3-Trichloropropane	WADOE,DoD-ELAP,NELAP,ADEC
1,2,3-Trichloropropane	WADOE,DoD-ELAP,CALAP,ADEC
trans-1,4-Dichloro 2-Butene	WADOE,DoD-ELAP,NELAP
trans-1,4-Dichloro 2-Butene	WADOE,DoD-ELAP,NELAP
trans-1,4-Dichloro 2-Butene	WADOE,DoD-ELAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,NELAP
n-Propylbenzene	WADOE,DoD-ELAP,NELAP,CALAP
n-Propylbenzene	WADOE,DoD-ELAP,NELAP
n-Propylbenzene	DoD-ELAP,NELAP,CALAP
n-Propylbenzene	WADOE,DoD-ELAP,CALAP
Bromobenzene	WADOE,DoD-ELAP,NELAP,ADEC
Bromobenzene	WADOE,DoD-ELAP,CALAP,ADEC
Bromobenzene	DoD-ELAP,NELAP,CALAP,ADEC
Bromobenzene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Isopropyl Benzene	WADOE,DoD-ELAP,NELAP,ADEC
Isopropyl Benzene	WADOE,DoD-ELAP,CALAP,ADEC
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,ADEC
Isopropyl Benzene	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
2-Chlorotoluene	WADOE,DoD-ELAP,NELAP
2-Chlorotoluene	WADOE,DoD-ELAP,CALAP
2-Chlorotoluene	DoD-ELAP,NELAP,CALAP
2-Chlorotoluene	WADOE,DoD-ELAP,NELAP,CALAP
4-Chlorotoluene	WADOE,DoD-ELAP,NELAP
4-Chlorotoluene	DoD-ELAP,NELAP,CALAP
4-Chlorotoluene	WADOE,DoD-ELAP,CALAP
4-Chlorotoluene	WADOE,DoD-ELAP,NELAP,CALAP
t-Butylbenzene	WADOE,DoD-ELAP,NELAP
t-Butylbenzene	WADOE,DoD-ELAP,CALAP

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t-Butylbenzene	DoD-ELAP,NELAP,CALAP
t-Butylbenzene	WADOE,DoD-ELAP,NELAP,CALAP
1,3,5-Trimethylbenzene	WADOE,DoD-ELAP,NELAP
1,3,5-Trimethylbenzene	WADOE,DoD-ELAP,NELAP,CALAP
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,3,5-Trimethylbenzene	WADOE,DoD-ELAP,CALAP
1,2,4-Trimethylbenzene	WADOE,DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	WADOE,DoD-ELAP,CALAP
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	WADOE,DoD-ELAP,NELAP
s-Butylbenzene	WADOE,DoD-ELAP,NELAP
s-Butylbenzene	WADOE,DoD-ELAP,NELAP,CALAP
s-Butylbenzene	DoD-ELAP,NELAP,CALAP
s-Butylbenzene	WADOE,DoD-ELAP,CALAP
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP
4-Isopropyl Toluene	WADOE,DoD-ELAP,NELAP,CALAP
4-Isopropyl Toluene	WADOE,DoD-ELAP,NELAP
4-Isopropyl Toluene	WADOE,DoD-ELAP,CALAP
1,3-Dichlorobenzene	DoD-ELAP,NELAP,CALAP
1,3-Dichlorobenzene	WADOE,DoD-ELAP,CALAP
1,3-Dichlorobenzene	WADOE,DoD-ELAP,NELAP,CALAP
1,3-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
1,4-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
1,4-Dichlorobenzene	WADOE,DoD-ELAP,CALAP
1,4-Dichlorobenzene	DoD-ELAP,NELAP,CALAP
1,4-Dichlorobenzene	WADOE,DoD-ELAP,NELAP,CALAP
n-Butylbenzene	WADOE,DoD-ELAP,NELAP
n-Butylbenzene	WADOE,DoD-ELAP,NELAP,CALAP
n-Butylbenzene	WADOE,DoD-ELAP,CALAP
n-Butylbenzene	DoD-ELAP,NELAP,CALAP
1,2-Dichlorobenzene	WADOE,DoD-ELAP,NELAP,CALAP
1,2-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
1,2-Dichlorobenzene	WADOE,DoD-ELAP,CALAP
1,2-Dichlorobenzene	DoD-ELAP,NELAP,CALAP
1,2-Dibromo-3-chloropropane	WADOE,DoD-ELAP,NELAP,ADEC
1,2-Dibromo-3-chloropropane	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
1,2-Dibromo-3-chloropropane	WADOE,DoD-ELAP,CALAP,ADEC
1,2-Dibromo-3-chloropropane	DoD-ELAP,NELAP,CALAP,ADEC
1,2,4-Trichlorobenzene	WADOE,DoD-ELAP,CALAP,ADEC

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

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

EPA 8260D in Water

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

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Iodomethane	DoD-ELAP,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP
Acrylonitrile	DoD-ELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP
2-Butanone	DoD-ELAP,NELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP

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Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromochloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
1,1-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP
Carbon tetrachloride	DoD-ELAP,ADEC,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP
Benzene	DoD-ELAP,ADEC,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Trichloroethene	DoD-ELAP,ADEC,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Bromodichloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Bromodichloromethane	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP
4-Methyl-2-Pentanone	DoD-ELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP
Toluene	DoD-ELAP,ADEC,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,CALAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP
2-Hexanone	DoD-ELAP,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,CALAP,WADOE

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP
Dibromochloromethane	DoD-ELAP,ADEC,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP
m,p-Xylene	DoD-ELAP,ADEC,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP
o-Xylene	DoD-ELAP,ADEC,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP
Styrene	DoD-ELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP
Bromoform	DoD-ELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP
1,2,3-Trichloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP
n-Propylbenzene	DoD-ELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP
t-Butylbenzene	DoD-ELAP,NELAP,CALAP
t-Butylbenzene	DoD-ELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE

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Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP
1,2,4-Trimethylbenzene	DoD-ELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,3-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
n-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP
1,2-Dichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,CALAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
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Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP
Dichlorodifluoromethane	DoD-ELAP,ADEC,CALAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Hexane	WADOE
n-Hexane	WADOE
n-Hexane	WADOE
n-Hexane	
2-Pentanone	
2-Pentanone	WADOE
2-Pentanone	WADOE
2-Pentanone	WADOE

EPA 8270E-SIM in Water

Naphthalene	DoD-ELAP
Naphthalene	DoD-ELAP
Naphthalene	DoD-ELAP
Naphthalene	DoD-ELAP
2-Methylnaphthalene	DoD-ELAP
2-Methylnaphthalene	DoD-ELAP
2-Methylnaphthalene	DoD-ELAP
2-Methylnaphthalene	DoD-ELAP
1-Methylnaphthalene	DoD-ELAP
1-Methylnaphthalene	DoD-ELAP
1-Methylnaphthalene	DoD-ELAP
1-Methylnaphthalene	DoD-ELAP
2-Chloronaphthalene	DoD-ELAP
2-Chloronaphthalene	DoD-ELAP

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
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2-Chloronaphthalene	DoD-ELAP
2-Chloronaphthalene	DoD-ELAP
Biphenyl	DoD-ELAP
Biphenyl	DoD-ELAP
Biphenyl	DoD-ELAP
Biphenyl	DoD-ELAP
2,6-Dimethylnaphthalene	DoD-ELAP
2,6-Dimethylnaphthalene	DoD-ELAP
2,6-Dimethylnaphthalene	DoD-ELAP
2,6-Dimethylnaphthalene	DoD-ELAP
Acenaphthylene	DoD-ELAP
Acenaphthylene	DoD-ELAP
Acenaphthylene	DoD-ELAP
Acenaphthylene	DoD-ELAP
Acenaphthene	DoD-ELAP
Acenaphthene	DoD-ELAP
Acenaphthene	DoD-ELAP
Acenaphthene	DoD-ELAP
Dibenzofuran	DoD-ELAP
Dibenzofuran	DoD-ELAP
Dibenzofuran	DoD-ELAP
Dibenzofuran	DoD-ELAP
2,3,5-Trimethylnaphthalene	DoD-ELAP
2,3,5-Trimethylnaphthalene	DoD-ELAP
2,3,5-Trimethylnaphthalene	DoD-ELAP
2,3,5-Trimethylnaphthalene	DoD-ELAP
Fluorene	DoD-ELAP
Fluorene	DoD-ELAP
Fluorene	DoD-ELAP
Fluorene	DoD-ELAP
Dibenzothiophene	DoD-ELAP
Dibenzothiophene	DoD-ELAP
Dibenzothiophene	DoD-ELAP
Dibenzothiophene	DoD-ELAP
Phenanthrene	DoD-ELAP
Phenanthrene	DoD-ELAP
Phenanthrene	DoD-ELAP
Phenanthrene	DoD-ELAP
Anthracene	DoD-ELAP

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
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Anthracene	DoD-ELAP
Anthracene	DoD-ELAP
Anthracene	DoD-ELAP
Carbazole	DoD-ELAP
Carbazole	DoD-ELAP
Carbazole	DoD-ELAP
Carbazole	DoD-ELAP
1-Methylphenanthrene	DoD-ELAP
1-Methylphenanthrene	DoD-ELAP
1-Methylphenanthrene	DoD-ELAP
1-Methylphenanthrene	DoD-ELAP
Fluoranthene	DoD-ELAP
Fluoranthene	DoD-ELAP
Fluoranthene	DoD-ELAP
Fluoranthene	DoD-ELAP
Pyrene	DoD-ELAP
Pyrene	DoD-ELAP
Pyrene	DoD-ELAP
Pyrene	DoD-ELAP
Benzo(a)anthracene	DoD-ELAP
Benzo(a)anthracene	DoD-ELAP
Benzo(a)anthracene	DoD-ELAP
Benzo(a)anthracene	DoD-ELAP
Chrysene	DoD-ELAP
Chrysene	DoD-ELAP
Chrysene	DoD-ELAP
Chrysene	DoD-ELAP
Benzo(b)fluoranthene	DoD-ELAP
Benzo(b)fluoranthene	DoD-ELAP
Benzo(b)fluoranthene	DoD-ELAP
Benzo(b)fluoranthene	DoD-ELAP
Benzo(k)fluoranthene	DoD-ELAP
Benzo(k)fluoranthene	DoD-ELAP
Benzo(k)fluoranthene	DoD-ELAP
Benzo(k)fluoranthene	DoD-ELAP
Benzo(j)fluoranthene	DoD-ELAP
Benzo(j)fluoranthene	DoD-ELAP
Benzo(j)fluoranthene	DoD-ELAP
Benzo(j)fluoranthene	DoD-ELAP

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
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Benzofluoranthenes, Total	DoD-ELAP
Benzofluoranthenes, Total	DoD-ELAP
Benzofluoranthenes, Total	DoD-ELAP
Benzofluoranthenes, Total	DoD-ELAP
Benzo(e)pyrene	DoD-ELAP
Benzo(e)pyrene	DoD-ELAP
Benzo(e)pyrene	DoD-ELAP
Benzo(e)pyrene	DoD-ELAP
Benzo(a)pyrene	DoD-ELAP
Benzo(a)pyrene	DoD-ELAP
Benzo(a)pyrene	DoD-ELAP
Benzo(a)pyrene	DoD-ELAP
Perylene	DoD-ELAP
Perylene	DoD-ELAP
Perylene	DoD-ELAP
Perylene	DoD-ELAP
Indeno(1,2,3-cd)pyrene	DoD-ELAP
Indeno(1,2,3-cd)pyrene	DoD-ELAP
Indeno(1,2,3-cd)pyrene	DoD-ELAP
Indeno(1,2,3-cd)pyrene	DoD-ELAP
Dibenzo(a,h)anthracene	DoD-ELAP
Dibenzo(a,h)anthracene	DoD-ELAP
Dibenzo(a,h)anthracene	DoD-ELAP
Dibenzo(a,h)anthracene	DoD-ELAP
Benzo(g,h,i)perylene	DoD-ELAP
Benzo(g,h,i)perylene	DoD-ELAP
Benzo(g,h,i)perylene	DoD-ELAP
Benzo(g,h,i)perylene	DoD-ELAP
Benzo(b)thiophene	DoD-ELAP
Benzo(b)thiophene	DoD-ELAP
Benzo(b)thiophene	DoD-ELAP
Benzo(b)thiophene	DoD-ELAP
EPA 9060A m in Solid	
Total Organic Carbon	WADOE
Total Organic Carbon	WADOE
Total Organic Carbon	
Total Organic Carbon	WADOE
NWTPH-Dx in Solid	
Diesel Range Organics (C12-C24)	DoD-ELAP,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.

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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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
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,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,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 (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP
Diesel Range Organics (C10-C28)	DoD-ELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C22)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP
Motor Oil Range Organics (C25-C36)	DoD-ELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Residual Range Organics (C23-C32)	DoD-ELAP
Residual Range Organics (C23-C32)	DoD-ELAP
Residual Range Organics (C23-C32)	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,WADOE
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP
Kerosene Range Organics (Tol-C18)	DoD-ELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP
Creosote Range Organics (C12-C22)	DoD-ELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Bunker C Range Organics (C10-C38)	DoD-ELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP

NWTPHg in Solid

Gasoline Range Organics (Tol-Nap)	DoD-ELAP
Gasoline Range Organics (Tol-Nap)	DoD-ELAP
Gasoline Range Organics (Tol-Nap)	DoD-ELAP
Gasoline Range Organics (Tol-Nap)	DoD-ELAP
Gasoline Range Organics (2MP-TMB)	DoD-ELAP
Gasoline Range Organics (2MP-TMB)	DoD-ELAP
Gasoline Range Organics (2MP-TMB)	DoD-ELAP
Gasoline Range Organics (2MP-TMB)	DoD-ELAP
Gasoline Range Organics (Tol-C12)	DoD-ELAP
Gasoline Range Organics (Tol-C12)	DoD-ELAP
Gasoline Range Organics (Tol-C12)	DoD-ELAP
Gasoline Range Organics (Tol-C12)	DoD-ELAP
Gasoline Range Organics (C6-C10)	DoD-ELAP
Gasoline Range Organics (C6-C10)	DoD-ELAP
Gasoline Range Organics (C6-C10)	DoD-ELAP
Gasoline Range Organics (C6-C10)	DoD-ELAP
Gasoline Range Organics (C5-C12)	DoD-ELAP
Gasoline Range Organics (C5-C12)	DoD-ELAP
Gasoline Range Organics (C5-C12)	DoD-ELAP
Gasoline Range Organics (C5-C12)	DoD-ELAP
4-Bromofluorobenzene (field spiked)	DoD-ELAP
4-Bromofluorobenzene (field spiked)	DoD-ELAP
4-Bromofluorobenzene (field spiked)	DoD-ELAP
4-Bromofluorobenzene (field spiked)	DoD-ELAP

NWTPHg in Water

Gasoline Range Organics (Tol-Nap)	DoD-ELAP
Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

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

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	23-Feb-2021 15:41

Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
J	Estimated concentration value detected below the reporting limit.
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 applicable reporting or detection limit.
Ua	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

04 January 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)
20L0098	N/A

Amanda Volgardsen

Digitally signed by Amanda Volgardsen
Date: 2021.01.04 16:14:06 -08'00'

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

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

Analytical Resources, Inc.

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ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

~~ARI Job #: 20L0117~~ SC

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: ~~20L0117~~ 20L0098	Turn-around Requested: Standard	Page: 1 of 4	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6673	Date: 11/4/20	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 6	Cooler Temps: See CRF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RBP+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	TPH-Dx	PAHs	PCB Aroclors	Metals*	GX	BTEX	HVOCs		Notes/Comments
SB-2020-007:1.2-2.8-11042020	11/4/20	0945	Soil	2	X	X	X	X					*= arsenic, barium, cadmium, chromium, cobalt, copper, ~~iron~~, lead, mercury, nickel, selenium, silver, vanadium, zinc
SB-2020-007:6-7-11042020		0950		2	X	X	X	X					
SB-2020-007:10-10.9-11042020		1000		2	X	X	X	X					
SB-2020-007:20-21.4-11042020		1050		2									Hold
SB-2020-007:23-24.6-11042020		1100		2									Hold
TB-2-11042020		1235	Water	1					X	X	X		
SB-2020-005:1-11042020		1235	Soil	6	X	X		X	~~X~~ NO2	X	X		
SB-2020-005:6-11042020		1250		6	X	X		X		X	X		
SB-2020-005:12-11042020		1305		6	X	X		X		X	X		
SB-2020-005:20-11042020		1310		6									Hold

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: RYAN PETERSON	Printed Name: Jacob Haltz	Printed Name:	Printed Name:
	Company: S&W	Company: ARI	Company:	Company:
	Date & Time: 11/5/2020 1515	Date & Time: 11/05/2020 1515	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

~~ARI Job #: 20L0117~~ SC

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: ~~20L0117~~ 20L0098	Turn-around Requested: Standard	Page: 2 of 4	
ARI Client Company: Shannon & Wilson, Inc	Phone: 206-695-6673	Date: 11/4/20	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 6	Cooler Temps: See COC
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RSP + MLH		

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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: GX	DX	BTEX	HVOCs	PAHs	PCB Aroclors	Metals*		Notes/Comments
SB-2020-005:24-11042020	11/4/20	1315	Soil	6									Hold
SB-2020-016:2-11042020		1350		8	X	X	X	X	X	X	X		
SB-2020-016:7-11042020		1402		8	X	X	X	X	X	X	X		
SB-2020-016:12-11042020		1415		8	X	X	X	X	X	X	X		
SB-2020-016:20-11042020		1425		8									Hold
SB-2020-016:25-11042020		1435		8									Hold
SB-2020-015:1-11042020		1500		8	X	X	X	X	X	X	X		
SB-2020-015:7-11042020		1520		8	X	X	X	X	X	X	X		
SB-2020-015:13-11042020		1535		8	X	X	X	X	X	X	X		
SB-2020-015:20.5-11042020		1540		8		X					X		

*See note page 1

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: RYAN PETERSON	Printed Name: Jacob Salter	Printed Name:	Printed Name:
	Company: S&W	Company: ARI	Company:	Company:
	Date & Time: 11/5/20 1515	Date & Time: 11/05/2020 1515	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.*

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: ~~20L0117~~/20L0098	Turn-around Requested: Standard	Page: 3 of 4	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6811	Date:	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 6	Cooler Temps: See CRF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RBP, MRH, CTC		

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Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Gx	Dx	BTEX	HVOCs	PAHs	PCB Aroclors	Metals**		Notes/Comments
~~SB-2020-015:23-110420~~	~~11/4/20~~	1545	Soil	8									Hold
A2-07A:12-11052020	11/5/20	0935	Soil	3	X	X							**
A2-07A:13.5-11052020	11/5/20	0945	Soil	3	X	X							**
A2-07A:18-11052020	11/5/20	0950	Soil	3	X	X							**
A2-07A:20-11052020	11/5/20	1000	Soil	3									Hold
A2-07A:25-11052020	11/5/20	1025	Soil	3	X	X							
~~TB-3 TB-3-110520~~	11/5/20	1025	Water	1	X								
A2-07A:30-11052020	11/5/20	1030	Soil	3									Hold
SB-2020-014:1.5-11052020	11/5/20	1125	Soil	8	X	X	X	X	X	X	X		
SB-2020-014:7-11052020	11/5/20	1135	Soil	8	X	X	X	X	X	X	X		

Notes/Comments: * See note page 1; ** Strong VOC odor, possible NAPL

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: RYAN PETERSON	Printed Name: Shoshana Howard	Printed Name:	Printed Name:
	Company: S&W	Company: ARI	Company:	Company:
	Date & Time: 11/5/20 1515	Date & Time: 11/05/2020 1515	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.*

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: ~~20L0097~~ 20L0098	Turn-around Requested: Standard	Page: 4 of 4	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6811	Date: 11/5/20	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 6	Cooler Temps: See CRF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RBP, MRH, CTC		

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Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Gx	Dx	BTEX	HVOCs	PAHs	PCBs (Aroclors)	Metals*		Notes/Comments
SB-2020-014:11-11052020	11/5/20	1145	soil	8	X	X	X	X	X	X	X		*See Note on Page 1
SB-2020-100:11-11052020	11/5/20	1155	Soil	8	X	X	X	X	X	X	X		
SB-2020-014:18-11052020	11/5/20	1210	Soil	8									Hold
SB-2020-014:23-11052020	11/5/20	1225	Soil	8									Hold
SB-2020-008:2-11052020	11/5/20	1335	Soil	6		X	X	X	X	X	X		
SB-2020-008:5.5-11052020	11/5/20	1340	Soil	6		X	X	X	X	X	X		
SB-2020-008:11.5-11052020	11/5/20	1345	Soil	6		X	X	X	X	X	X		
SB-2020-008:20-11052020	11/5/20	1350	Soil	6									Hold
SB-2020-008:23-11052020	11/5/20	1400	Soil	6									Hold
NO FURTHER													

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: RYAN PETERSON	Printed Name: Jacob Slatter	Printed Name:	Printed Name:
	Company: S&W	Company: ARI	Company:	Company:
	Date & Time: 11/5/2020 1515	Date & Time: 11/05/2020 1515	Date & Time:	Date & Time:

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

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

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Reply all | Delete | Junk | Block | ...

Re: S&W LDW Follow Ups

From: Amanda Volgardsen Johnson <amanda.volgardsen@arilabs.com>
Sent: Monday, December 7, 2020 9:35 AM
To: Sample Receiving <sample-receiving@arilabs.com>
Subject: S&W LDW Follow Ups

Will you please pull and log the samples below on a new work order for the analyses requested?

20L0098

SB-2020-015:23-1104~~5~~2020 for Cu and Ni
04
IS ~ 12/07/2020

SB-2020-007:20-21.4-11042020 for As and Hg

Regards,
Amanda Volgardsen Johnson
Analytical Resources, Inc.
Project Manager

- Direct: 206-695-6220
- Office: 206-695-6200
- Cell: 253-797-5154 (preferred as I mainly work remotely)

As many of our staff are working remotely we have changed sample receiving hours to 8 to 5 until further notice, sorry about the inconvenience .
https://www.arilabs.com

Version changes coming this year to SW-846 8260 and 8270 organic and 6010 and 6020 metals analysis methods.

"Humor is the universal solvent against the abrasive elements of life." - Alan Simpson

Reply | Reply all | Forward

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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	22-Dec-2020 14:19

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-2020-007:20-21.4-11042020	20L0098-01	Solid	04-Nov-2020 10:50	07-Dec-2020 12:31
SB-2020-015:23-11042020	20L0098-02	Solid	04-Nov-2020 15:45	07-Dec-2020 12:31

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	22-Dec-2020 14:19

Work Order Case Narrative

Sample receipt

Samples as listed on the preceding page were received 07-Dec-2020 12:31 under ARI work order 20L0098. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Total Metals - EPA Method 6020A/7471B

The samples were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blanks 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: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	22-Dec-2020 14:19

SB-2020-007:20-21.4-11042020

20L0098-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/04/2020 10:50
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 17:52

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0098-01 A 02
Preparation Batch: BIL0367 — Sample Size: 1.015 g (wet) — Dry Weight:0.78 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 76.90

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.26	3.68	mg/kg	

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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	22-Dec-2020 14:19

SB-2020-007:20-21.4-11042020

20L0098-01 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/04/2020 10:50
Instrument: HYDRA Analyst: SKM — Analyzed: 12/18/2020 18:28

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20L0098-01 A
Preparation Batch: BIL0368 — Sample Size: 0.273 g (wet) — Dry Weight:0.21 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 76.90

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00500	0.0238	0.0280	mg/kg	H

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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	22-Dec-2020 14:19

SB-2020-015:23-11042020

20L0098-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/04/2020 15:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 17:57

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0098-02 A 02
Preparation Batch: BIL0367 — Sample Size: 1.018 g (wet) — Dry Weight:0.80 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 79.06

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Copper	7440-50-8	20	0.42	0.62	8.12	mg/kg	
Nickel	7440-02-0	20	0.06	0.62	6.60	mg/kg	

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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	22-Dec-2020 14:19

Metals and Metallic Compounds - Quality Control

Batch BIL0367 - SWN EPA 3050B

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 (BIL0367-BLK1)					Prepared: 16-Dec-2020 Analyzed: 17-Dec-2020 15:47							
Arsenic	75a	ND	0.02	0.20	mg/kg							U
Copper	63	ND	0.34	0.50	mg/kg							U
Copper	65	ND	0.35	0.50	mg/kg							U
Nickel	60	ND	0.05	0.50	mg/kg							U
Nickel	62	ND	0.22	0.50	mg/kg							U
LCS (BIL0367-BS1)					Prepared: 16-Dec-2020 Analyzed: 17-Dec-2020 15:52							
Arsenic	75a	22.7	0.02	0.20	mg/kg	25.0		90.8	80-120			
Copper	63	24.3	0.34	0.50	mg/kg	25.0		97.2	80-120			
Copper	65	24.3	0.35	0.50	mg/kg	25.0		97.3	80-120			
Nickel	60	23.7	0.05	0.50	mg/kg	25.0		94.8	80-120			
Nickel	62	23.5	0.22	0.50	mg/kg	25.0		93.8	80-120			

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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	22-Dec-2020 14:19

Metals and Metallic Compounds - Quality Control

Batch BIL0368 - SMM EPA 7471B

Instrument: HYDRA Analyst: SKM

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIL0368-BLK1)				Prepared: 16-Dec-2020 Analyzed: 18-Dec-2020 18:22							
Mercury	ND	0.00525	0.0250	mg/kg							U
LCS (BIL0368-BS1)				Prepared: 16-Dec-2020 Analyzed: 18-Dec-2020 18:24							
Mercury	0.510	0.00525	0.0250	mg/kg	0.500		102	80-120			

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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	22-Dec-2020 14:19

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020A UCT-KED in Solid	
Arsenic-75a	DoD-ELAP,WADOE,ADEC
Arsenic-75a	NELAP,DoD-ELAP,ADEC
Arsenic-75a	NELAP,DoD-ELAP,WADOE,ADEC
Arsenic-75a	NELAP,DoD-ELAP,WADOE,ADEC
Copper-63	NELAP,DoD-ELAP,WADOE
Copper-63	DoD-ELAP,WADOE
Copper-63	NELAP,DoD-ELAP
Copper-63	NELAP,DoD-ELAP,WADOE
Copper-65	NELAP,DoD-ELAP,WADOE
Copper-65	NELAP,DoD-ELAP,WADOE
Copper-65	DoD-ELAP,WADOE
Copper-65	NELAP,DoD-ELAP
Nickel-60	DoD-ELAP,WADOE,ADEC
Nickel-60	NELAP,DoD-ELAP,ADEC
Nickel-60	NELAP,DoD-ELAP,WADOE,ADEC
Nickel-60	NELAP,DoD-ELAP,WADOE,ADEC
Nickel-62	NELAP,DoD-ELAP,WADOE,ADEC
Nickel-62	DoD-ELAP,WADOE,ADEC
Nickel-62	NELAP,DoD-ELAP,ADEC
Nickel-62	NELAP,DoD-ELAP,WADOE,ADEC
EPA 7471B in Solid	
Mercury	WADOE,NELAP,DoD-ELAP,CALAP
Mercury	WADOE,NELAP,DoD-ELAP
Mercury	WADOE,DoD-ELAP,CALAP
Mercury	NELAP,DoD-ELAP,CALAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021

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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	22-Dec-2020 14:19

Notes and Definitions

D	The reported value is from a dilution
H	Hold time violation - Hold time was exceeded.
J	Estimated concentration value detected below the reporting limit.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
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

07 January 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)
20L0100	N/A

Amanda Volgardsen

Digitally signed by Amanda Volgardsen
Date: 2021.01.07 10:09:03 -08'00'

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

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

Analytical Resources, Inc.

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ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

20L0100

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20K0101	Turn-around Requested: Standard	Page: 1 of 5	
ARI Client Company: Shannon & Wilson, Inc	Phone: 206-695-6811	Date: 11/2/20	Ice Present?
Client Contact: Shoshana Howard		No. of Coolers:	Cooler Temps:
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: CTC and RBP		

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: Metals*	Analysis Requested: PCB fractions	Notes/Comments
HA-2020-007:0-11022020	11/2/20	0915	Soil	1			Hold
HA-2020-007:0.25-11022020		0920		1	X		
HA-2020-007:0.8-11022020		0925		1			Hold
HA-2020-008:0-11022020		0940		1	X		
HA-2020-008:0.5-11022020		0945		1			Hold
HA-2020-006:0-11022020		1025		1			Hold
HA-2020-006:0.3-11022020		1030		1	X		
HA-2020-006:0.8-11022020		1035		1			Hold
HA-2020-004:0-11022020		1055		1			Hold
HA-2020-004:0.2-11022020		1100		2	X	NO	No PCB analysis

* arsenic, barium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, selenium, silver, vanadium, zinc

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: RYAN PETERSON	Printed Name: Samantha Colon	Printed Name:	Printed Name:
	Company: Shannon & Wilson	Company: ARI	Company:	Company:
	Date & Time: 11/3/20 1645	Date & Time: 11/3/2020 1645	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.

20L0100

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20K0101	Turn-around Requested: Standard	Page: 2 of 5	
ARI Client Company: Shannon & Wilson, Inc	Phone: 206-695-6811	Date: 11/4/20	Ice Present?
Client Contact: Shoshana Howard		No. of Coolers:	Cooler Temps:
Client Project Name: EDW			
Client Project #: 21-1-12596	Samplers: RSP + CSC		

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Tukwila, WA 98168
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Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Metals*	Analysis Requested: PCB Aroclors	Notes/Comments
HA-2020-004:0.7-11022020	11/2/20	1110	Soil	1			Hold
HA-2020-008:0-11022020	"	1115	"	1			Hold
HA-2020-003:0.2-11022020	"	1120	"	2	X	X	
HA-2020-003:0.7-11022020	"	1130	"	1			Hold
HA-2020-100:0.2-11022020	"	1125	"	2	X	X	
HA-2020-001:0-11022020	"	1205	"	2	X	X	
HA-2020-001:0.5-11022020	"	1210	"	1			Hold
HA-2020-005:0-11022020	"	1300	"	2	X		
HA-2020-005:0.5-11022020	"	1305	"	1			Hold
HA-2020-002:0-11022020	"	1330	"	2	X	X	

Comments/Special Instructions

	Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)		Samantha Colon		
Printed Name:	RYAN PETERSON	Samantha Colon		
Company:	Shannon & Wilson	ARI		
Date & Time:	11/3/20 1645	11/3/2020 1645		

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.*

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20L0100

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20KG101	Turn-around Requested: Standard	Page: 3 of 5	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6811	Date: 11/2/20 – 11/3/20	Ice Present?
Client Contact: Shoshana Howard		No. of Coolers:	Cooler Temps:
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RBP + CTC		

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Analytical Chemists and Consultants
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Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Metals*	PCB Aroclors	TPH-G	TPH-Dx	PAHs	HVOCs			Notes/Comments
HA-2020-002:0.5-11022020	11/2/20	1335	Soil	1									Hold
SB-2020-029:3.2-11032020	11/3/20	0930	Soil	5	X		X	X	X				
SB-2020-029:7.5-11032020		0945	Soil	5	X			X	X				Hold RBP
SB-2020-045:2.8-11032020		1035	Soil	5/10	X	X	X	X	X	X			
TB-1-11032020		1055	Water	1			X			X			
SB-2020-045:7.2-11032020		1055	Soil	10	X	X		X	X				
SB-2020-028:2.3-11032020		1130	Soil	3	X			X	X				
SB-2020-028:6.8-11032020		1135	Soil	3	X			X	X				
SB-2020-001:2.2-11032020		1220	Soil	3	X			X	X				
SB-2020-001:6.8-11032020		1225	Soil	3	X			X	X				

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: RYAN PETERSON	Printed Name: Samantha Colon	Printed Name:	Printed Name:
	Company: Shannon & Wilson	Company: ARI	Company:	Company:
	Date & Time: 11/3/20 1645	Date & Time: 11/3/2020 1645	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

20L0100

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20K0101	Turn-around Requested: Standard	Page: 4 of 5	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6811	Date: 11/3/20	Ice Present?
Client Contact: Shoshana Howard		No. of Coolers:	Cooler Temps:
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RBP + MRH		

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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: TPH-Dx	Analysis Requested: PCB Aroclors	Notes/Comments
A1-02A:5-110320	11/3/20	1415	Soil	1	X		
A1-100:5-110320		1415		1	X		
A1-02A:10-110320		1430		1	X		
A1-02A:12.8-110320		1440		1	X		
A1-02A:18-110320		1450		1	X		
A1-02A:25-110320		1455		1	X		
TSA-Concrete-001:0.6-110320		1320	Concrete	1		X	
TSA-Concrete-002:0.6-110320		1330	Concrete	1		X	
TSA-2020-001:1.9-110320		~~1300~~ 1040	Soil	1		X	
TSA-2020-001:1.9-110320		~~1305~~ 1235		1			Hold

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
	(Signature)	(Signature)	(Signature)	(Signature)
	Printed Name: RYAN PETERSON	Printed Name: Samantha Colon	Printed Name:	Printed Name:
	Company: Shannon & Wilson	Company: ARI	Company:	Company:
	Date & Time: 11/3/20 1645	Date & Time: 11/3/2020 1645	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

20L0100

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20K0101	Turn-around Requested: Standard	Page: 5 of 5	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6811	Date: 11/3/20	Ice Present?
Client Contact: Shoshana Howard		No. of Coolers:	Cooler Temps:
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: ~~RAP~~ CK		

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: PCB Aroclors	Notes/Comments
TSA-2020-002:1.5-110320	11/3/20	1300	Soil	1	X	
TSA-2020-002:2-110320		1305		1		Hold
TSA-2020-003:1.5-110320		1250		1	X	
TSA-2020-003:2-110320		1255		1		Hold

A/O Further

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
	(Signature)	(Signature)	(Signature)	(Signature)
	Printed Name: RYAN PETERSON	Printed Name: Samantha Colon	Printed Name:	Printed Name:
	Company: Shannon & Wilson	Company: ARI	Company:	Company:
	Date & Time: 11/3/20 1645	Date & Time: 11/3/2020 1645	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.

Reply all Delete Junk Block ...

Fw: Check-In Lower Duwamish Waterway Project

20L0100

Based on the preliminary data from this sample set, can we run the following held samples for the metals marked with an "X" in the table below? There may be additional follow-ups, but wanted to get you started on these.

Sample	barium	cobalt	lead	selenium	silver	vanadium	arsenic	Cadmium	zinc	mercury	chromium	copper	nickel
HA-2020-001:0.5-11022020	X		X	X	X	X	X	X	X	X	X	X	X
HA-2020-002:0.5-11022020	X		X	X	X	X		X	X		X	X	X
HA-2020-003:0-11022020	X		X	X	X	X	X		X		X	X	X
HA-2020-003:0.7-11022020	X		X	X	X	X	X		X		X	X	X
HA-2020-004:0-11022020	X	X	X	X	X	X	X				X	X	X
HA-2020-004:0.7-11022020	X	X	X	X	X	X	X				X	X	X
HA-2020-005:0.5-11022020	X	X	X	X	X	X	X	X	X	X	X	X	X
HA-2020-006:0-11022020				X	X	X	X				X	X	X
HA-2020-006:0.8-11022020				X	X	X	X				X	X	X
HA-2020-007:0-11022020	X	X	X	X	X	X	X		X		X	X	X
HA-2020-007:0.6-11022020	X	X	X	X	X	X	X		X		X	X	X
HA-2020-008:0.5-11022020	X		X	X	X	X	X	X	X		X	X	X

Please let me know that you received this. Let me know if you have any questions!

Thanks,

Shoshana Howard, PE | Senior Engineer
400 N. 34th St., Suite 100
Seattle, WA 98103-8636
www.shannonwilson.com
Phone: (206) 632-8020 Fax: (206) 695-6777
Direct: (206) 695-6811 skh@shanwil.com

From: Amanda Volgardsen Johnson <amanda.volgardsen@arilabs.com>
Sent: Wednesday, November 25, 2020 8:23 AM
To: Shoshana Howard <SKH@shanwil.com>
Subject: Re: Check-In Lower Duwamish Waterway Project

Draft for Public Comment

Reply all | Delete | Junk | Block | ...

Re: Shannon and Wilson Follow Ups

20L0100

Please pull the requested samples and log on a new work order PCBs only. Let me know if you need additional information.

-HA-2020-001:0.5-11022020
-HA-2020-002:0.5-11022020
-HA-2020-003:0-11022020
-HA-2020-003:0.7-11022020
-TSA-2020-001:1.9-11032020
-TSA-2020-002:2-11032020
-TSA-2020-003:2-11032020

Regards,
Amanda Volgardsen Johnson
Analytical Resources, Inc.
Project Manager

- Direct: 206-695-6220
- Office: 206-695-6200
- Cell: 253-797-5154 (preferred as I mainly work remotely)

I will be offline early Friday December 24th. ARI will be closed Christmas December 25th with limited hours over the weekend following.
As many of our staff are working remotely we have changed sample receiving hours to 8 to 5 until further notice, sorry about the inconvenience .
https://www.arilabs.com

Version changes coming this year to SW-846 8260 and 8270 organic and 6010 and 6020 metals analysis methods.

"Humor is the universal solvent against the abrasive elements of life." - Alan Simpson

Reply | Reply all | Forward

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
HA-2020-007:0-11022020	20L0100-01	Solid	02-Nov-2020 09:15	07-Dec-2020 12:51
HA-2020-007:0.8-11022020	20L0100-02	Solid	02-Nov-2020 09:25	07-Dec-2020 12:51
HA-2020-008:0.5-11022020	20L0100-03	Solid	02-Nov-2020 09:45	07-Dec-2020 12:51
HA-2020-006:0-11022020	20L0100-04	Solid	02-Nov-2020 10:25	07-Dec-2020 12:51
HA-2020-006:0.8-11022020	20L0100-05	Solid	02-Nov-2020 10:35	07-Dec-2020 12:51
HA-2020-004:0-11022020	20L0100-06	Solid	02-Nov-2020 10:55	07-Dec-2020 12:51
HA-2020-004:0.7-11022020	20L0100-07	Solid	02-Nov-2020 11:10	07-Dec-2020 12:51
HA-2020-003:0-11022020	20L0100-08	Solid	02-Nov-2020 11:15	07-Dec-2020 12:51
HA-2020-003:0.7-11022020	20L0100-09	Solid	02-Nov-2020 11:30	07-Dec-2020 12:51
HA-2020-001:0.5-11022020	20L0100-10	Solid	02-Nov-2020 12:10	07-Dec-2020 12:51
HA-2020-005:0.5-11022020	20L0100-11	Solid	02-Nov-2020 13:05	07-Dec-2020 12:51
HA-2020-002:0.5-11022020	20L0100-12	Solid	02-Nov-2020 13:35	07-Dec-2020 12:51

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: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

Work Order Case Narrative

Sample receipt

Samples as listed on the preceding page were received 07-Dec-2020 12:51 under ARI work order 20L0100. For details regarding sample receipt, please refer to the Cooler Receipt Form.

PCB Aroclors - EPA Method SW8082A

The samples were extracted and analyzed within the recommended holding times. Samples were kept frozen until analysis.

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 was clean at the reporting limits.

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

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

Total Metals - EPA Method 6020A

The samples were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blanks were clean at the reporting limits.

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

Several samples have flagged low spike recoveries, also the natural concentrations of Chromium, Lead, Copper and Nickel are so much greater than the concentrations spiked. These elements have been flagged with "HC" qualifiers on the MS/MSD. The duplicate has a Selenium concentration <=5 times the reporting limit and the replicate control limit defaults to +/- the reporting limits instead of 20% of the RPD. The duplicate has been flagged with an "L" qualifier. The results are advisory. No further corrective action was taken.

Total Hg - EPA Method 7470/7471

The samples were analyzed outside of the 28 day recommended holding time and have been flagged with "H" qualifiers.

Initial and continuing calibrations were within method requirements.

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

The method blank was 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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-007:0-11022020

20L0100-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 09:15
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 16:02

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-01 A 02
Preparation Batch: BIL0367 — Sample Size: 1.055 g (wet) — Dry Weight:1.05 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 99.12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.05	0.48	43.0	mg/kg	
Cobalt	7440-48-4	20	0.03	0.19	37.3	mg/kg	
Selenium	7782-49-2	20	0.42	1.91	0.94	mg/kg	J
Silver	7440-22-4	20	0.02	0.19	0.56	mg/kg	
Vanadium	7440-62-2	20	0.04	0.19	48.9	mg/kg	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-007:0-11022020

20L0100-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 09:15

Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 16:02

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-01 A 02

Preparation Batch: BIL0367 — Sample Size: 1.055 g (wet) — Dry Weight:1.05 g

Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 99.12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.19	39.2	mg/kg	
Copper	7440-50-8	500	8.13	12.0	946	mg/kg	D
Nickel	7440-02-0	500	1.20	12.0	4230	mg/kg	D
Zinc	7440-66-6	20	0.9	3.8	170	mg/kg	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-007:0-11022020

20L0100-01RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 09:15

Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 20:16

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-01RE1 A 02

Preparation Batch: BIL0367 — Sample Size: 1.055 g (wet) — Dry Weight:1.05 g

Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 99.12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	500	3.11	12.0	673	mg/kg	D
Lead	7439-92-1	500	1.63	2.39	585	mg/kg	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-007:0.8-11022020

20L0100-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 09:25
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 20:50

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-02 A 02
Preparation Batch: BIL0367 — Sample Size: 1.028 g (wet) — Dry Weight:1.01 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 98.04

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.05	0.50	37.4	mg/kg	
Chromium	7440-47-3	500	3.22	12.4	528	mg/kg	D
Cobalt	7440-48-4	20	0.03	0.20	32.7	mg/kg	
Lead	7439-92-1	20	0.07	0.10	47.0	mg/kg	
Selenium	7782-49-2	20	0.44	1.98	ND	mg/kg	U
Silver	7440-22-4	20	0.02	0.20	0.27	mg/kg	
Vanadium	7440-62-2	20	0.04	0.20	47.3	mg/kg	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-007:0.8-11022020

20L0100-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 09:25
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 20:50

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-02 A 02
Preparation Batch: BIL0367 — Sample Size: 1.028 g (wet) — Dry Weight:1.01 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 98.04

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.20	54.5	mg/kg	
Copper	7440-50-8	500	8.43	12.4	979	mg/kg	D
Nickel	7440-02-0	500	1.24	12.4	3710	mg/kg	D
Zinc	7440-66-6	20	0.8	4.0	63.7	mg/kg	

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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: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-008:0.5-11022020

20L0100-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 09:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 20:55

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-03 A 02
Preparation Batch: BIL0367 — Sample Size: 1.059 g (wet) — Dry Weight:0.93 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 87.59

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.54	53.6	mg/kg	
Chromium	7440-47-3	20	0.14	0.54	12.1	mg/kg	
Lead	7439-92-1	20	0.07	0.11	13.9	mg/kg	
Selenium	7782-49-2	20	0.47	2.16	0.79	mg/kg	J
Silver	7440-22-4	20	0.02	0.22	0.06	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.22	39.1	mg/kg	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-008:0.5-11022020

20L0100-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 09:45
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 20:55

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-03 A 02
Preparation Batch: BIL0367 — Sample Size: 1.059 g (wet) — Dry Weight:0.93 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 87.59

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.22	4.55	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	0.29	mg/kg	
Copper	7440-50-8	20	0.37	0.54	23.3	mg/kg	
Nickel	7440-02-0	20	0.05	0.54	39.3	mg/kg	
Zinc	7440-66-6	20	0.9	4.3	60.6	mg/kg	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-006:0-11022020

20L0100-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 10:25

Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/18/2020 17:13

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-04 A 02

Preparation Batch: BIL0367 — Sample Size: 1.088 g (wet) — Dry Weight:1.08 g

Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 98.96

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	1000	3.25	23.2	5690	mg/kg	D
Selenium	7782-49-2	20	0.41	1.86	ND	mg/kg	U
Silver	7440-22-4	50	0.04	0.46	0.36	mg/kg	J, D
Vanadium	7440-62-2	4000	7.43	37.2	89.9	mg/kg	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-006:0-11022020

20L0100-04 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 10:25
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 20:59

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-04 A 02
Preparation Batch: BIL0367 — Sample Size: 1.088 g (wet) — Dry Weight:1.08 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 98.96

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.19	17.8	mg/kg	
Copper	7440-50-8	1000	15.8	23.2	611	mg/kg	D
Nickel	7440-02-0	1000	2.32	23.2	4080	mg/kg	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-006:0.8-11022020

20L0100-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 10:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/18/2020 18:12

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-05 A 02
Preparation Batch: BIL0367 — Sample Size: 1.022 g (wet) — Dry Weight:0.97 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 94.78

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chromium	7440-47-3	1000	6.71	25.8	2490	mg/kg	D
Selenium	7782-49-2	20	0.45	2.06	0.56	mg/kg	J
Silver	7440-22-4	20	0.02	0.21	0.09	mg/kg	J
Vanadium	7440-62-2	1000	2.06	10.3	38.0	mg/kg	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: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-006:0.8-11022020

20L0100-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 10:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 21:04

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-05 A 02
Preparation Batch: BIL0367 — Sample Size: 1.022 g (wet) — Dry Weight:0.97 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 94.78

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.21	6.93	mg/kg	
Copper	7440-50-8	20	0.35	0.52	199	mg/kg	
Nickel	7440-02-0	1000	2.58	25.8	1410	mg/kg	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-004:0-11022020

20L0100-06 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 10:55
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 21:16

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-06 A 02
Preparation Batch: BIL0367 — Sample Size: 1.021 g (wet) — Dry Weight:0.97 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 95.12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.05	0.51	265	mg/kg	
Chromium	7440-47-3	200	1.34	5.15	944	mg/kg	D
Cobalt	7440-48-4	20	0.03	0.21	27.3	mg/kg	
Lead	7439-92-1	200	0.70	1.03	246	mg/kg	D
Selenium	7782-49-2	20	0.45	2.06	1.36	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.21	70.3	mg/kg	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-004:0-11022020

20L0100-06 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 10:55

Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 21:16

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-06 A 02

Preparation Batch: BIL0367 — Sample Size: 1.021 g (wet) — Dry Weight:0.97 g

Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 95.12

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.21	25.2	mg/kg	
Copper	7440-50-8	200	3.50	5.15	682	mg/kg	D
Nickel	7440-02-0	200	0.51	5.15	1960	mg/kg	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-004:0.7-11022020

20L0100-07 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 11:10
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 21:21

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-07 A 02
Preparation Batch: BIL0367 — Sample Size: 1.049 g (wet) — Dry Weight:0.98 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 93.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.51	71.3	mg/kg	
Chromium	7440-47-3	20	0.13	0.51	143	mg/kg	
Cobalt	7440-48-4	20	0.03	0.20	9.42	mg/kg	
Lead	7439-92-1	20	0.07	0.10	36.1	mg/kg	
Selenium	7782-49-2	20	0.45	2.04	0.56	mg/kg	J
Silver	7440-22-4	20	0.02	0.20	0.28	mg/kg	
Vanadium	7440-62-2	20	0.02	0.20	37.2	mg/kg	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-004:0.7-11022020

20L0100-07 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 11:10
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 21:21

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-07 A 02
Preparation Batch: BIL0367 — Sample Size: 1.049 g (wet) — Dry Weight:0.98 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 93.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.20	7.86	mg/kg	
Copper	7440-50-8	20	0.35	0.51	153	mg/kg	
Nickel	7440-02-0	50	0.13	1.28	309	mg/kg	D

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-003:0-11022020

20L0100-08 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/02/2020 11:15
Instrument: ECD7 Analyst: JGR — Analyzed: 12/27/2020 20:15

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20L0100-08 A 01
	Preparation Batch: BIL0499	Sample Size: 13.46 g (wet)	Dry Weight:12.55 g
	Prepared: 12/22/2020	Final Volume: 2.5 mL	% Solids: 93.24
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0100-08 A 01
	Cleanup Batch: CIL0263	Initial Volume: 2.5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20L0100-08 A 01
	Cleanup Batch: CIL0262	Initial Volume: 2.5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0100-08 A 01
	Cleanup Batch: CIL0261	Initial Volume: 2.5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	25.1	ug/kg	
Aroclor 1254	11097-69-1	1	1.6	4.0	22.3	ug/kg	
Aroclor 1260	11096-82-5	1	0.6	4.0	26.5	ug/kg	
Surrogate: Decachlorobiphenyl				*40-126 %*	*64.5*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*74.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*78.4*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*80.7*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-003:0-11022020

20L0100-08 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 11:15

Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 21:25

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-08 A 02

Preparation Batch: BIL0367 — Sample Size: 1.06 g (wet) — Dry Weight:0.98 g

Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 92.20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.51	261	mg/kg	
Chromium	7440-47-3	200	0.72	5.12	1400	mg/kg	D
Lead	7439-92-1	20	0.07	0.10	219	mg/kg	
Selenium	7782-49-2	20	0.45	2.05	17.0	mg/kg	
Silver	7440-22-4	20	0.02	0.20	2.28	mg/kg	
Vanadium	7440-62-2	20	0.04	0.20	69.6	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-003:0-11022020

20L0100-08 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 11:15
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 21:25

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-08 A 02
Preparation Batch: BIL0367 — Sample Size: 1.06 g (wet) — Dry Weight:0.98 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 92.20

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.20	9.71	mg/kg	
Copper	7440-50-8	200	3.48	5.12	514	mg/kg	D
Nickel	7440-02-0	200	0.51	5.12	819	mg/kg	D
Zinc	7440-66-6	200	8.4	40.9	694	mg/kg	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-003:0.7-11022020

20L0100-09 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/02/2020 11:30
Instrument: ECD7 Analyst: JGR — Analyzed: 12/27/2020 21:16

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20L0100-09 A 01
	Preparation Batch: BIL0499	Sample Size: 13.75 g (wet)	Dry Weight:12.51 g
	Prepared: 12/22/2020	Final Volume: 2.5 mL	% Solids: 90.97
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0100-09 A 01
	Cleanup Batch: CIL0263	Initial Volume: 2.5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20L0100-09 A 01
	Cleanup Batch: CIL0262	Initial Volume: 2.5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0100-09 A 01
	Cleanup Batch: CIL0261	Initial Volume: 2.5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	22.4	ug/kg	
Aroclor 1254	11097-69-1	1	1.6	4.0	13.6	ug/kg	
Aroclor 1260	11096-82-5	1	0.6	4.0	13.3	ug/kg	
Surrogate: Decachlorobiphenyl				*40-126 %*	*67.6*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*75.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*85.2*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*81.2*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-003:0.7-11022020

20L0100-09 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 11:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/18/2020 17:19

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-09 A 02
Preparation Batch: BIL0367 — Sample Size: 1.049 g (wet) — Dry Weight:0.96 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 91.92

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	200	0.58	5.19	318	mg/kg	D
Chromium	7440-47-3	200	1.35	5.19	1630	mg/kg	D
Lead	7439-92-1	20	0.07	0.10	114	mg/kg	
Selenium	7782-49-2	20	0.46	2.07	7.76	mg/kg	
Silver	7440-22-4	20	0.02	0.21	1.64	mg/kg	
Vanadium	7440-62-2	1000	2.07	10.4	79.3	mg/kg	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-003:0.7-11022020

20L0100-09 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 11:30
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 21:30

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-09 A 02
Preparation Batch: BIL0367 — Sample Size: 1.049 g (wet) — Dry Weight:0.96 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 91.92

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.21	8.16	mg/kg	
Copper	7440-50-8	200	3.53	5.19	435	mg/kg	D
Nickel	7440-02-0	200	0.52	5.19	672	mg/kg	D
Zinc	7440-66-6	20	0.9	4.1	218	mg/kg	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-001:0.5-11022020

20L0100-10 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 12:10

Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/18/2020 15:08

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-10 A 02

Preparation Batch: BIL0367 — Sample Size: 1.011 g (wet) — Dry Weight:0.92 g

Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 90.81

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.54	88.7	mg/kg	
Chromium	7440-47-3	20	0.14	0.54	41.8	mg/kg	
Lead	7439-92-1	20	0.07	0.11	57.1	mg/kg	
Selenium	7782-49-2	20	0.48	2.18	0.75	mg/kg	J
Silver	7440-22-4	20	0.02	0.22	0.13	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.22	33.6	mg/kg	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-001:0.5-11022020

20L0100-10 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 12:10
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 21:59

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-10 A 02
Preparation Batch: BIL0367 — Sample Size: 1.011 g (wet) — Dry Weight:0.92 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 90.81

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.22	21.2	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	0.32	mg/kg	
Copper	7440-50-8	20	0.37	0.54	141	mg/kg	
Nickel	7440-02-0	20	0.05	0.54	109	mg/kg	
Zinc	7440-66-6	20	1.0	4.4	178	mg/kg	

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-001:0.5-11022020

20L0100-10 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/02/2020 12:10

Instrument: HYDRA Analyst: SKM — Analyzed: 12/18/2020 18:30

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20L0100-10 A

Preparation Batch: BIL0368 — Sample Size: 0.211 g (wet) — Dry Weight:0.19 g

Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 90.81

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00548	0.0261	0.112	mg/kg	H

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-005:0.5-11022020

20L0100-11 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/02/2020 13:05
Instrument: ECD7 Analyst: JGR — Analyzed: 12/27/2020 21:37

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20L0100-11 A 01
	Preparation Batch: BIL0499	Sample Size: 14.06 g (wet)	Dry Weight:12.54 g
	Prepared: 12/22/2020	Final Volume: 2.5 mL	% Solids: 89.16
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0100-11 A 01
	Cleanup Batch: CIL0263	Initial Volume: 2.5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20L0100-11 A 01
	Cleanup Batch: CIL0262	Initial Volume: 2.5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0100-11 A 01
	Cleanup Batch: CIL0261	Initial Volume: 2.5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	8.2	ug/kg	
Aroclor 1254	11097-69-1	1	1.6	4.0	25.2	ug/kg	
Aroclor 1260	11096-82-5	1	0.6	4.0	59.0	ug/kg	
Surrogate: Decachlorobiphenyl				*40-126 %*	*74.7*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*77.3*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*88.7*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*82.7*	*%*	

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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: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-005:0.5-11022020

20L0100-11 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 13:05
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/18/2020 17:57

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-11 A 02
Preparation Batch: BIL0367 — Sample Size: 1.019 g (wet) — Dry Weight:0.87 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 85.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	50	0.16	1.43	82.4	mg/kg	D
Chromium	7440-47-3	50	0.37	1.43	373	mg/kg	D
Cobalt	7440-48-4	20	0.03	0.23	10.7	mg/kg	
Lead	7439-92-1	20	0.08	0.11	94.3	mg/kg	
Selenium	7782-49-2	20	0.50	2.29	1.21	mg/kg	J
Silver	7440-22-4	50	0.05	0.57	0.70	mg/kg	D
Vanadium	7440-62-2	20	0.02	0.23	44.3	mg/kg	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-005:0.5-11022020

20L0100-11 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 13:05
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 22:03

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-11 A 02
Preparation Batch: BIL0367 — Sample Size: 1.019 g (wet) — Dry Weight:0.87 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 85.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.23	31.7	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	2.14	mg/kg	
Copper	7440-50-8	20	0.40	0.57	172	mg/kg	
Nickel	7440-02-0	50	0.14	1.43	409	mg/kg	D
Zinc	7440-66-6	20	1.1	4.6	238	mg/kg	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-005:0.5-11022020

20L0100-11 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 11/02/2020 13:05
Instrument: HYDRA Analyst: SKM — Analyzed: 12/18/2020 18:38

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 20L0100-11 A
Preparation Batch: BIL0368 — Sample Size: 0.232 g (wet) — Dry Weight:0.20 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 85.68

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00528	0.0252	0.102	mg/kg	H

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-002:0.5-11022020

20L0100-12 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/02/2020 13:35
Instrument: ECD7 Analyst: JGR — Analyzed: 12/27/2020 21:57

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20L0100-12 A 01
	Preparation Batch: BIL0499	Sample Size: 13.93 g (wet)	Dry Weight:12.55 g
	Prepared: 12/22/2020	Final Volume: 2.5 mL	% Solids: 90.09
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0100-12 A 01
	Cleanup Batch: CIL0263	Initial Volume: 2.5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20L0100-12 A 01
	Cleanup Batch: CIL0262	Initial Volume: 2.5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0100-12 A 01
	Cleanup Batch: CIL0261	Initial Volume: 2.5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	3.1	ug/kg	J
Aroclor 1254	11097-69-1	1	1.6	4.0	4.1	ug/kg	
Aroclor 1260	11096-82-5	1	0.6	4.0	3.8	ug/kg	J
Surrogate: Decachlorobiphenyl				*40-126 %*	*69.3*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*57.8*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*78.1*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*73.3*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-002:0.5-11022020

20L0100-12 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 13:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/21/2020 14:53

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-12 A 02
Preparation Batch: BIL0367 — Sample Size: 1.083 g (wet) — Dry Weight:0.97 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 89.54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	100	0.29	2.58	134	mg/kg	D
Chromium	7440-47-3	500	3.35	12.9	3650	mg/kg	D
Lead	7439-92-1	20	0.07	0.10	178	mg/kg	
Selenium	7782-49-2	20	0.45	2.06	10.7	mg/kg	
Silver	7440-22-4	100	0.09	1.03	1.81	mg/kg	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-002:0.5-11022020

20L0100-12 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 11/02/2020 13:35
Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/17/2020 22:08

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-12 A 02
Preparation Batch: BIL0367 — Sample Size: 1.083 g (wet) — Dry Weight:0.97 g
Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 89.54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cadmium	7440-43-9	20	0.03	0.10	1.18	mg/kg	
Copper	7440-50-8	500	8.77	12.9	1240	mg/kg	D
Nickel	7440-02-0	500	1.29	12.9	775	mg/kg	D
Zinc	7440-66-6	500	21.1	103	924	mg/kg	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

HA-2020-002:0.5-11022020

20L0100-12RE1 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 11/02/2020 13:35

Instrument: ICPMS1 Analyst: MCB — Analyzed: 12/21/2020 15:20

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 20L0100-12RE1 A 02

Preparation Batch: BIL0367 — Sample Size: 1.083 g (wet) — Dry Weight:0.97 g

Prepared: 12/16/2020 — Final Volume: 50 mL — % Solids: 89.54

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vanadium	7440-62-2	2000	4.12	20.6	ND	mg/kg	U

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Analytical Report

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400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

Aroclor PCB - Quality Control

Batch BIL0499 - EPA 3546 (Microwave)

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 (BIL0499-BLK1)				Prepared: 22-Dec-2020 Analyzed: 27-Dec-2020 19:13							
Aroclor 1016	ND	1.6	4.0	ug/kg							U
Aroclor 1221	ND	1.6	4.0	ug/kg							U
Aroclor 1232	ND	1.6	4.0	ug/kg							U
Aroclor 1242	ND	1.6	4.0	ug/kg							U
Aroclor 1248	ND	1.6	4.0	ug/kg							U
Aroclor 1254	ND	1.6	4.0	ug/kg							U
Aroclor 1260	ND	0.6	4.0	ug/kg							U
Surrogate: Decachlorobiphenyl	5.05			ug/kg	*8.00*		*63.1*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.26			ug/kg	*8.00*		*65.8*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	6.18			ug/kg	*8.00*		*77.3*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	5.37			ug/kg	*8.00*		*67.2*	*44-120*			
LCS (BIL0499-BS1)				Prepared: 22-Dec-2020 Analyzed: 27-Dec-2020 19:33							
Aroclor 1016 [2C]	87.5	1.6	4.0	ug/kg	101		86.8	56-120			
Aroclor 1260 [2C]	94.9	0.6	4.0	ug/kg	101		94.1	58-120			
Surrogate: Decachlorobiphenyl	5.72			ug/kg	*8.00*		*71.5*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.75			ug/kg	*8.00*		*71.9*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	7.31			ug/kg	*8.00*		*91.3*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	5.90			ug/kg	*8.00*		*73.7*	*44-120*			
Matrix Spike (BIL0499-MS1)		**Source: 20L0100-08**		Prepared: 22-Dec-2020 Analyzed: 27-Dec-2020 20:35							
Aroclor 1016	74.2	1.6	4.0	ug/kg	100	ND	74.0	56-120			
Aroclor 1260 [2C]	93.1	0.6	4.0	ug/kg	100	26.5	66.3	58-120			
Surrogate: Decachlorobiphenyl	4.94			ug/kg	*7.97*		*62.0*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.68			ug/kg	*7.97*		*71.3*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	6.02			ug/kg	*7.97*		*75.5*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	6.01			ug/kg	*7.97*		*75.4*	*44-120*			

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

Matrix Spike Dup (BIL0499-MSD1)		**Source: 20L0100-08**		Prepared: 22-Dec-2020 Analyzed: 27-Dec-2020 20:56							
Aroclor 1016	77.6	1.6	4.0	ug/kg	100	ND	77.3	56-120	4.38	30	
Aroclor 1260 [2C]	101	0.6	4.0	ug/kg	100	26.5	74.4	58-120	8.37	30	
Surrogate: Decachlorobiphenyl	5.14			ug/kg	*7.97*		*64.5*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.90			ug/kg	*7.97*		*74.1*	*44-120*			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

Aroclor PCB - Quality Control

Batch BIL0499 - EPA 3546 (Microwave)

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BIL0499-MSD1)	**Source: 20L0100-08**			Prepared: 22-Dec-2020	Analyzed: 27-Dec-2020 20:56						
Surrogate: Decachlorobiphenyl [2C]	6.50			ug/kg	*7.97*		*81.5*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	6.56			ug/kg	*7.97*		*82.3*	*44-120*			

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: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

Metals and Metallic Compounds - Quality Control

Batch BIL0367 - SWN EPA 3050B

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 (BIL0367-BLK1)					Prepared: 16-Dec-2020 Analyzed: 17-Dec-2020 15:47							
Barium	135	ND	0.06	0.50	mg/kg							U
Barium	137	ND	0.05	0.50	mg/kg							U
Chromium	52	ND	0.13	0.50	mg/kg							U
Chromium	53	ND	0.07	0.50	mg/kg							U
Cobalt	59	ND	0.03	0.20	mg/kg							U
Lead	208	ND	0.07	0.10	mg/kg							U
Selenium	78	ND	0.44	2.00	mg/kg							U
Silver	107	ND	0.02	0.20	mg/kg							U
Vanadium	51a	ND	0.04	0.20	mg/kg							U
Vanadium	51b	ND	0.02	0.20	mg/kg							U
Arsenic	75a	ND	0.02	0.20	mg/kg							U
Cadmium	111	ND	0.03	0.10	mg/kg							U
Cadmium	114	ND	0.04	0.10	mg/kg							U
Copper	63	ND	0.34	0.50	mg/kg							U
Copper	65	ND	0.35	0.50	mg/kg							U
Nickel	60	ND	0.05	0.50	mg/kg							U
Nickel	62	ND	0.22	0.50	mg/kg							U
Zinc	66	3.8	0.8	4.0	mg/kg							J
Zinc	67	3.4	0.9	4.0	mg/kg							J
LCS (BIL0367-BS1)					Prepared: 16-Dec-2020 Analyzed: 17-Dec-2020 15:52							
Barium	135	24.0	0.06	0.50	mg/kg	25.0		95.9	80-120			
Barium	137	23.5	0.05	0.50	mg/kg	25.0		94.1	80-120			
Chromium	52	23.1	0.13	0.50	mg/kg	25.0		92.2	80-120			
Chromium	53	24.0	0.07	0.50	mg/kg	25.0		96.0	80-120			
Cobalt	59	23.3	0.03	0.20	mg/kg	25.0		93.3	80-120			
Lead	208	23.8	0.07	0.10	mg/kg	25.0		95.0	80-120			
Selenium	78	71.9	0.44	2.00	mg/kg	80.0		89.9	80-120			
Silver	107	23.1	0.02	0.20	mg/kg	25.0		92.2	80-120			
Vanadium	51a	22.1	0.04	0.20	mg/kg	25.0		88.4	80-120			
Vanadium	51b	22.4	0.02	0.20	mg/kg	25.0		89.5	80-120			
Arsenic	75a	22.7	0.02	0.20	mg/kg	25.0		90.8	80-120			
Cadmium	111	23.3	0.03	0.10	mg/kg	25.0		93.4	80-120			
Cadmium	114	23.4	0.04	0.10	mg/kg	25.0		93.6	80-120			
Copper	63	24.3	0.34	0.50	mg/kg	25.0		97.2	80-120			

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

Metals and Metallic Compounds - Quality Control

Batch BIL0367 - SWN EPA 3050B

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 (BIL0367-BS1)					Prepared: 16-Dec-2020 Analyzed: 17-Dec-2020 15:52							
Copper	65	24.3	0.35	0.50	mg/kg	25.0		97.3	80-120			
Nickel	60	23.7	0.05	0.50	mg/kg	25.0		94.8	80-120			
Nickel	62	23.5	0.22	0.50	mg/kg	25.0		93.8	80-120			
Zinc	66	76.9	0.8	4.0	mg/kg	80.0		96.1	80-120			
Zinc	67	70.9	0.9	4.0	mg/kg	80.0		88.6	80-120			
Duplicate (BIL0367-DUP1)			**Source: 20L0100-01**		Prepared: 16-Dec-2020 Analyzed: 17-Dec-2020 16:08							
Barium	137	44.5	0.05	0.48	mg/kg		43.0			3.30	20	
Cobalt	59	27.1	0.03	0.19	mg/kg		37.3			31.80	20	*
Selenium	78	0.68	0.42	1.92	mg/kg		0.94			32.30	20	L, J
Silver	107	0.61	0.02	0.19	mg/kg		0.56			8.37	20	
Vanadium	51a	50.3	0.04	0.19	mg/kg		48.9			2.85	20	
Arsenic	75a	27.3	0.02	0.19	mg/kg		39.2			35.90	20	*
Cadmium	111	1.07	0.03	0.10	mg/kg		1.80			51.20	20	*
Zinc	67	166	0.9	3.8	mg/kg		170			2.34	20	
Duplicate (BIL0367-DUP2)			**Source: 20L0100-01RE1**		Prepared: 16-Dec-2020 Analyzed: 17-Dec-2020 20:21							
Chromium	52	833	3.12	12.0	mg/kg		673			21.20	20	*, D
Lead	208	133	1.63	2.40	mg/kg		585			126.00	20	*, D
Duplicate (BIL0367-DUP3)			**Source: 20L0100-01**		Prepared: 16-Dec-2020 Analyzed: 18-Dec-2020 18:26							
Copper	63	855	8.16	12.0	mg/kg		946			10.10	20	D
Nickel	60	2220	1.20	12.0	mg/kg		4230			62.60	20	*, D
Matrix Spike (BIL0367-MS1)			**Source: 20L0100-01**		Prepared: 16-Dec-2020 Analyzed: 17-Dec-2020 16:15							
Barium	137	63.3	0.05	0.48	mg/kg	24.0	43.0	84.4	75-125			
Cobalt	59	48.8	0.03	0.19	mg/kg	24.0	37.3	47.8	75-125			*
Selenium	78	58.0	0.42	1.92	mg/kg	76.8	0.94	74.3	75-125			*
Silver	107	24.1	0.02	0.19	mg/kg	24.0	0.56	98.3	75-125			
Vanadium	51a	65.4	0.04	0.19	mg/kg	24.0	48.9	69.1	75-125			*
Arsenic	75a	45.3	0.02	0.19	mg/kg	24.0	39.2	25.5	75-125			*
Cadmium	111	21.3	0.03	0.10	mg/kg	24.0	1.80	81.2	75-125			
Zinc	67	228	0.9	3.8	mg/kg	76.8	170	75.7	75-125			

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

Matrix Spike (BIL0367-MS2)			**Source: 20L0100-01RE1**		Prepared: 16-Dec-2020 Analyzed: 17-Dec-2020 20:25							

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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: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

Metals and Metallic Compounds - Quality Control

Batch BIL0367 - SWN EPA 3050B

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 (BIL0367-MS2)			**Source: 20L0100-01RE1**		Prepared: 16-Dec-2020 Analyzed: 17-Dec-2020 20:25							
Chromium	52	737	3.12	12.0	mg/kg	24.0	673	263	75-125			HC, D
Lead	208	169	1.63	2.40	mg/kg	24.0	585	-1730	75-125			HC, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike (BIL0367-MS3)			**Source: 20L0100-01**		Prepared: 16-Dec-2020 Analyzed: 18-Dec-2020 18:30							
Copper	63	2920	8.16	12.0	mg/kg	24.0	946	8240	75-125			HC, D
Nickel	60	2410	1.20	12.0	mg/kg	24.0	4230	-7610	75-125			HC, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BIL0367-MSD1)			**Source: 20L0100-01**		Prepared: 16-Dec-2020 Analyzed: 17-Dec-2020 16:22							
Barium	137	63.7	0.05	0.48	mg/kg	23.9	43.0	86.6	75-125	0.72	20	
Cobalt	59	59.8	0.03	0.19	mg/kg	23.9	37.3	93.9	75-125	20.20	20	*
Selenium	78	57.4	0.42	1.91	mg/kg	76.5	0.94	73.9	75-125	0.95	20	*
Silver	107	20.3	0.02	0.19	mg/kg	23.9	0.56	82.4	75-125	17.50	20	
Vanadium	51a	79.3	0.04	0.19	mg/kg	23.9	48.9	127	75-125	19.10	20	*
Arsenic	75a	76.3	0.02	0.19	mg/kg	23.9	39.2	155	75-125	51.00	20	*
Cadmium	111	21.4	0.03	0.10	mg/kg	23.9	1.80	82.1	75-125	0.58	20	
Zinc	67	236	0.9	3.8	mg/kg	76.5	170	85.5	75-125	3.12	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BIL0367-MSD2)			**Source: 20L0100-01RE1**		Prepared: 16-Dec-2020 Analyzed: 17-Dec-2020 20:31							
Chromium	52	705	3.11	12.0	mg/kg	23.9	673	131	75-125	4.44	20	HC, D
Lead	208	182	1.63	2.39	mg/kg	23.9	585	-1690	75-125	7.30	20	HC, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BIL0367-MSD3)			**Source: 20L0100-01**		Prepared: 16-Dec-2020 Analyzed: 18-Dec-2020 18:34							
Copper	63	1050	8.13	12.0	mg/kg	23.9	946	439	75-125	94.20	20	HC, D
Nickel	60	3650	1.20	12.0	mg/kg	23.9	4230	-2430	75-125	41.10	20	HC, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Post Spike (BIL0367-PS1)			**Source: 20L0100-01**		Prepared: 16-Dec-2020 Analyzed: 17-Dec-2020 16:29							
Cobalt	59	1240			mg/kg	500	37.3	92.0	80-120			
Selenium	78	1490			mg/kg	1600	0.94	91.7	80-120			
Vanadium	51a	1480			mg/kg	500	48.9	90.9	80-120			
Arsenic	75a	1280			mg/kg	500	39.2	91.1	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: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

Metals and Metallic Compounds - Quality Control

Batch BIL0368 - SMM EPA 7471B

Instrument: HYDRA Analyst: SKM

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIL0368-BLK1)				Prepared: 16-Dec-2020 Analyzed: 18-Dec-2020 18:22							
Mercury	ND	0.00525	0.0250	mg/kg							U
LCS (BIL0368-BS1)				Prepared: 16-Dec-2020 Analyzed: 18-Dec-2020 18:24							
Mercury	0.510	0.00525	0.0250	mg/kg	0.500		102	80-120			
Duplicate (BIL0368-DUP1)		**Source: 20L0100-10**		Prepared: 16-Dec-2020 Analyzed: 18-Dec-2020 18:32							
Mercury	0.110	0.00540	0.0257	mg/kg		0.112			1.57	20	
Matrix Spike (BIL0368-MS1)		**Source: 20L0100-10**		Prepared: 16-Dec-2020 Analyzed: 18-Dec-2020 18:34							
Mercury	0.425	0.00551	0.0262	mg/kg	0.262	0.112	119	75-125			

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

Matrix Spike Dup (BIL0368-MSD1)		**Source: 20L0100-10**		Prepared: 16-Dec-2020 Analyzed: 18-Dec-2020 18:36							
Mercury	0.414	0.00543	0.0258	mg/kg	0.258	0.112	117	75-125	2.56	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: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020A in Solid	
Silver-107	NELAP,DoD-ELAP,WADOE
Silver-107	DoD-ELAP,WADOE
Silver-107	NELAP,DoD-ELAP
Silver-107	NELAP,DoD-ELAP,WADOE
Barium-135	NELAP,DoD-ELAP,WADOE,ADEC
Barium-135	NELAP,DoD-ELAP,WADOE,ADEC
Barium-135	DoD-ELAP,WADOE,ADEC
Barium-135	NELAP,DoD-ELAP,ADEC
Barium-137	NELAP,DoD-ELAP,ADEC
Barium-137	DoD-ELAP,WADOE,ADEC
Barium-137	NELAP,DoD-ELAP,WADOE,ADEC
Barium-137	NELAP,DoD-ELAP,WADOE,ADEC
Cobalt-59	NELAP,DoD-ELAP,WADOE
Cobalt-59	NELAP,DoD-ELAP,WADOE
Cobalt-59	DoD-ELAP,WADOE
Cobalt-59	NELAP,DoD-ELAP
Chromium-52	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-52	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-52	NELAP,DoD-ELAP,ADEC
Chromium-52	DoD-ELAP,WADOE,ADEC
Chromium-53	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-53	DoD-ELAP,WADOE,ADEC
Chromium-53	NELAP,DoD-ELAP,ADEC
Chromium-53	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,ADEC
Selenium-82	DoD-ELAP,WADOE
Selenium-82	NELAP,DoD-ELAP,WADOE
Selenium-82	NELAP,DoD-ELAP
Selenium-82	NELAP,DoD-ELAP,WADOE
Selenium-78	DoD-ELAP,WADOE
Selenium-78	NELAP,DoD-ELAP
Selenium-78	NELAP,DoD-ELAP,WADOE

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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: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

Selenium-78	NELAP,DoD-ELAP,WADOE
Vanadium-51a	DoD-ELAP,WADOE,ADEC
Vanadium-51a	NELAP,DoD-ELAP,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	DoD-ELAP,WADOE,ADEC
Vanadium-51b	DoD-ELAP,WADOE,ADEC
Vanadium-51b	DoD-ELAP,ADEC
Vanadium-51b	DoD-ELAP,WADOE,ADEC

EPA 6020A UCT-KED in Solid

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

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

Zinc-66	NELAP,DoD-ELAP
Zinc-66	NELAP,DoD-ELAP,WADOE
Zinc-66	NELAP,DoD-ELAP,WADOE
Zinc-67	NELAP,DoD-ELAP,WADOE
Zinc-67	DoD-ELAP,WADOE
Zinc-67	NELAP,DoD-ELAP
Zinc-67	NELAP,DoD-ELAP,WADOE

EPA 7471B in Solid

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

EPA 8082A in Solid

Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1016	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1016 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1221	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1221 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1232	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1232 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1242	DoD-ELAP,NELAP,CALAP,ADEC

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

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

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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: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

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

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021

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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: 21-1-122596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	07-Jan-2021 10:02

Notes and Definitions

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

Draft for Public Comment

Analytical Resources, Incorporated
Analytical Chemists and Consultants

07 January 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)
20L0286	N/A

Amanda Volgardsen

Digitally signed by Amanda Volgardsen
Date: 2021.01.07 10:49:25 -08'00'

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

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

Analytical Resources, Inc.

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ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

Draft for Public Comment

20L0286

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20K0101	Turn-around Requested: Standard	Page: 1 of 5	
ARI Client Company: Shannon & Wilson, Inc	Phone: 206-695-6811	Date: 11/2/20	Ice Present?
Client Contact: Shoshana Howard		No. of Coolers:	Cooler Temps:
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: CTC and RBP		

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

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Metals*	Analysis Requested: PCB Aroclors	Notes/Comments
HA-2020-007:0-11022020	11/2/20	0915	Soil	1			Hold
HA-2020-007:0.25-11022020		0920		1	X		
HA-2020-007:0.8-11022020		0925		1			Hold
HA-2020-008:0-11022020		0940		1	X		
HA-2020-008:0.5-11022020		0945		1			Hold
HA-2020-006:0-11022020		1025		1			Hold
HA-2020-006:0.3-11022020		1030		1	X		
HA-2020-006:0.8-11022020		1035		1			Hold
HA-2020-004:0-11022020		1055		1			Hold
HA-2020-004:0.2-11022020		1100		2	X	NO ~~X~~ FM	No PCB analysis

* arsenic, barium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, selenium, silver, vanadium, zinc

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: RYAN PETERSON	Printed Name: Samantha Colon	Printed Name:	Printed Name:
	Company: Shannon & Wilson	Company: ARI	Company:	Company:
	Date & Time: 11/3/20 1645	Date & Time: 11/3/2020 1645	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: 20K0101	Turn-around Requested: Standard	Page: 2 of 5	
ARI Client Company: Shannon & Wilson, Inc	Phone: 206-695-6811	Date: 11/2/20	Ice Present?
Client Contact: Shoshana Howard		No. of Coolers:	Cooler Temps:
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: BSP + CTC		

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: Metals*	Analysis Requested: PCB Aroclors	Notes/Comments
HA-2020-004:0.7-11022020	11/2/20	1110	Soil	1			Hold
HA-2020-005:0-11022020	"	1115	"	1			Hold
HA-2020-003:0.2-11022020		1120		2	X	X	
HA-2020-003:0.7-11022020		1130		1			Hold
HA-2020-100:0.2-11022020		1125		2	X	X	
HA-2020-001:0-11022020		1205		2	X	X	
HA-2020-001:0.5-11022020		1210		1			Hold
HA-2020-005:0-11022020		1300		2	X		
~~HA-~~2020-005:0.5-11022020		1305		1			Hold
HA-2020-002:0-11022020		1330		2	X	X	

* = See notes on Page 2

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: RYAN PETERSON	Printed Name: Samantha Colon	Printed Name:	Printed Name:
	Company: Shannon & Wilson	Company: ARI	Company:	Company:
	Date & Time: 11/3/20 1645	Date & Time: 11/3/2020 1645	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.*

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Draft for Public Comment

20L0286

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20K0101	Turn-around Requested: Standard	Page: 3 of 5	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6811	Date: 11/2/20 – 11/3/20	Ice Present?
Client Contact: Shoshana Howard		No. of Coolers:	Cooler Temps:
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RBP + CTC		

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Tukwila, WA 98168
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www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Metals*	PCB Aroclors	TPH-G	TPH-Dx	PAHs	HVOCs			Notes/Comments
HA-2020-002:0.5-11022020	11/2/20	1335	Soil	1									Hold
SB-2020-029:3.2-11032020	11/3/20	0930	Soil	5	X		X	X	X				
SB-2020-029:7.5-11032020		0945	Soil	5	X			X	X				Hold PAH
SB-2020-045:2.8-11032020		1035	Soil	5/10	X	X	X	X	X	X			
TB-1-11032020		1055	Water	1			X			X			
SB-2020-045:7.2-11032020		1055	Soil	10	X	X		X	X				
SB-2020-028:2.3-11032020		1130	Soil	3	X			X	X				
SB-2020-028:6.8-11032020		1135	Soil	3	X			X	X				
SB-2020-001:2.2-11032020		1220	Soil	3	X			X	X				
SB-2020-001:6.8-11032020		1225	Soil	3	X			X	X				

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: RYAN PETERSON	Printed Name: Samantha Colon	Printed Name:	Printed Name:
	Company: Shannon & Wilson	Company: ARI	Company:	Company:
	Date & Time: 11/3/20 1645	Date & Time: 11/3/2020 1645	Date & Time:	Date & Time:

*Notes/Comments: * = See note on Page 1*

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20K0101	Turn-around Requested: Standard	Page: 4 of 5	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6811	Date: 11/3/20	Ice Present?
Client Contact: Shoshana Howard		No. of Coolers:	Cooler Temps:
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RBP + MRH		

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Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TPH-Dx	Analysis Requested: PCB Aroclors	Notes/Comments
A1-02A:5-110320	11/3/20	1415	Soil	1	X		
A1-100:5-110320		1415		1	X		
A1-02A:10-110320		1430		1	X		
A1-02A:12.8-110320		1440		1	X		
A1-02A:18-110320		1450		1	X		
A1-02A:25-110320		1455		1	X		
TSA-Concrete-co1:0.6-110320		1320	Concrete	1		X	
TSA-Concrete-co2:0.6-110320		1330	Concrete	1		X	
~~TSA-2020-co1:1.9-110320~~		~~1300~~ 1040	Soil	1		X	
TSA-2020-co1:1.9-110320		~~1305~~ 1235		1			Hold

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
	(Signature)	(Signature)	(Signature)	(Signature)
	Printed Name: Ryan Peterson	Printed Name: Samantha Colon	Printed Name:	Printed Name:
	Company: Shannon & Wilson	Company: ARI	Company:	Company:
	Date & Time: 11/3/20 1645	Date & Time: 11/3/2020 1645	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.*

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20L0286

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20K0101	Turn-around Requested: Standard	Page: 5 of 5	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6811	Date: 11/3/20	Ice Present?
Client Contact: Shoshana Howard		No. of Coolers:	Cooler Temps:
Client Project Name: LDW			
Client Project #: 31-1-12596	Samplers: ~~RBP~~ CK		

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Tukwila, WA 98168
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Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: PCB Aroclors	Notes/Comments
~~TSA-2020-002.1.5-110320~~	11/3/20	1300	Soil	1	X	
~~TSA-2020-002.2-110320~~		1305		1		Hold
~~TSA-2020-003.1.5-110320~~		1250		1	X	
~~TSA-2020-003.2-110320~~		1255		1		Hold

No Further

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Ryan Peterson	Printed Name: Samantha Colon	Printed Name:	Printed Name:
	Company: Shannon & Wilson	Company: ARI	Company:	Company:
	Date & Time: 11/3/20 1645	Date & Time: 11/3/2020 1645	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.*

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Reply all | Delete | Junk | Block | ...

Shannon and Wilson Follow Ups



Amanda Volgardsen Johnson
Wed 12/16/2020 1:43 PM
To: Sample Receiving

20L0286

Hello,
Please pull the requested samples and log on a new work order PCBs only. Let me know if you need additional information.

-HA-2020-001:0.5-11022020
-HA-2020-002:0.5-11022020
-HA-2020-003:0-11022020
-HA-2020-003:0.7-11022020
-TSA-2020-001:1.9-11032020
-TSA-2020-002:2-11032020
-TSA-2020-003:2-11032020

Regards,
Amanda Volgardsen Johnson
Analytical Resources, Inc.
Project Manager

- Direct: 206-695-6220
- Office: 206-695-6200
- Cell: 253-797-5154 (preferred as I mainly work remotely)

I will be offline early Friday December 24th. ARI will be closed Christmas December 25th with limited hours over the weekend following.
As many of our staff are working remotely we have changed sample receiving hours to 8 to 5 until further notice, sorry about the inconvenience .
https://www.arilabs.com

Version changes coming this year to SW-846 8260 and 8270 organic and 6010 and 6020 metals analysis methods.

"Humor is the universal solvent against the abrasive elements of life." - Alan Simpson

Reply | Reply all | Forward

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	07-Jan-2021 10:45

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TSA-2020-001:1.9-11032020	20L0286-01	Solid	03-Nov-2020 12:35	16-Dec-2020 16:15
TSA-2020-002:2-11032020	20L0286-02	Solid	03-Nov-2020 13:05	16-Dec-2020 16:15
TSA-2020-003:2-11032020	20L0286-03	Solid	03-Nov-2020 12:55	16-Dec-2020 16:15

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	07-Jan-2021 10:45

Work Order Case Narrative

Sample receipt

Samples as listed on the preceding page were received 16-Dec-2020 16:15 under ARI work order 20L0286. For details regarding sample receipt, please refer to the Cooler Receipt Form.

PCB Aroclors - EPA Method SW8082A

The samples 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 was clean at the reporting limits.

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

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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	07-Jan-2021 10:45

TSA-2020-001:1.9-11032020

20L0286-01 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/03/2020 12:35
Instrument: ECD7 Analyst: JGR — Analyzed: 12/27/2020 22:18

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20L0286-01 A 01
	Preparation Batch: BIL0499	Sample Size: 13.66 g (wet)	Dry Weight:12.57 g
	Prepared: 12/22/2020	Final Volume: 2.5 mL	% Solids: 92.02
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0286-01 A 01
	Cleanup Batch: CIL0263	Initial Volume: 2.5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20L0286-01 A 01
	Cleanup Batch: CIL0262	Initial Volume: 2.5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0286-01 A 01
	Cleanup Batch: CIL0261	Initial Volume: 2.5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	20.6	ug/kg	
Aroclor 1260	11096-82-5	1	0.6	4.0	44.5	ug/kg	P1
Surrogate: Decachlorobiphenyl				*40-126 %*	*67.1*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*66.3*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*79.4*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*67.4*	*%*	

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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	07-Jan-2021 10:45

TSA-2020-002:2-11032020

20L0286-02 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/03/2020 13:05
Instrument: ECD7 Analyst: JGR — Analyzed: 12/27/2020 22:39

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20L0286-02 A 01
	Preparation Batch: BIL0499	Sample Size: 13.21 g (wet)	Dry Weight:12.53 g
	Prepared: 12/22/2020	Final Volume: 2.5 mL	% Solids: 94.86
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0286-02 A 01
	Cleanup Batch: CIL0263	Initial Volume: 2.5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20L0286-02 A 01
	Cleanup Batch: CIL0262	Initial Volume: 2.5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0286-02 A 01
	Cleanup Batch: CIL0261	Initial Volume: 2.5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	2.8	ug/kg	J
Aroclor 1260	11096-82-5	1	0.6	4.0	0.9	ug/kg	J
Surrogate: Decachlorobiphenyl				*40-126 %*	*70.1*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*65.2*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*87.0*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*67.2*	*%*	

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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	07-Jan-2021 10:45

TSA-2020-003:2-11032020

20L0286-03 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/03/2020 12:55
Instrument: ECD7 Analyst: JGR — Analyzed: 12/27/2020 22:59

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20L0286-03 A 01
	Preparation Batch: BIL0499	Sample Size: 13.25 g (wet)	Dry Weight:12.56 g
	Prepared: 12/22/2020	Final Volume: 5 mL	% Solids: 94.81
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0286-03 A 01
	Cleanup Batch: CIL0263	Initial Volume: 5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20L0286-03 A 01
	Cleanup Batch: CIL0262	Initial Volume: 5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0286-03 A 01
	Cleanup Batch: CIL0261	Initial Volume: 5 mL	
	Cleaned: 24-Dec-2020	Final Volume: 5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	10	31.0	79.6	ND	ug/kg	U
Aroclor 1221	11104-28-2	10	31.0	79.6	ND	ug/kg	U
Aroclor 1232	11141-16-5	10	31.0	79.6	ND	ug/kg	U
Aroclor 1242	53469-21-9	10	31.0	79.6	ND	ug/kg	U
Aroclor 1248	12672-29-6	10	31.0	79.6	ND	ug/kg	U
Aroclor 1254	11097-69-1	10	31.0	79.6	618	ug/kg	D
Aroclor 1260	11096-82-5	10	11.7	79.6	155	ug/kg	D
Surrogate: Decachlorobiphenyl				*40-126 %*	*104*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*52.2*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*111*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*57.7*	*%*	

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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	07-Jan-2021 10:45

Aroclor PCB - Quality Control

Batch BIL0499 - EPA 3546 (Microwave)

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 (BIL0499-BLK1)				Prepared: 22-Dec-2020 Analyzed: 27-Dec-2020 19:13							
Aroclor 1016	ND	1.6	4.0	ug/kg							U
Aroclor 1221	ND	1.6	4.0	ug/kg							U
Aroclor 1232	ND	1.6	4.0	ug/kg							U
Aroclor 1242	ND	1.6	4.0	ug/kg							U
Aroclor 1248	ND	1.6	4.0	ug/kg							U
Aroclor 1254	ND	1.6	4.0	ug/kg							U
Aroclor 1260	ND	0.6	4.0	ug/kg							U
Surrogate: Decachlorobiphenyl	5.05			ug/kg	*8.00*		*63.1*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.26			ug/kg	*8.00*		*65.8*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	6.18			ug/kg	*8.00*		*77.3*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	5.37			ug/kg	*8.00*		*67.2*	*44-120*			
LCS (BIL0499-BS1)				Prepared: 22-Dec-2020 Analyzed: 27-Dec-2020 19:33							
Aroclor 1016 [2C]	87.5	1.6	4.0	ug/kg	101		86.8	56-120			
Aroclor 1260 [2C]	94.9	0.6	4.0	ug/kg	101		94.1	58-120			
Surrogate: Decachlorobiphenyl	5.72			ug/kg	*8.00*		*71.5*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.75			ug/kg	*8.00*		*71.9*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	7.31			ug/kg	*8.00*		*91.3*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	5.90			ug/kg	*8.00*		*73.7*	*44-120*			

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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	07-Jan-2021 10:45

Certified Analyses included in this Report

Analyte	Certifications
EPA 8082A in Solid	
Aroclor 1016	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1016	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1016 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1221	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1221 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1232 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1242 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,CALAP,ADEC

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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	07-Jan-2021 10:45

Aroclor 1248	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1248 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1254	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1254 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1260	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1262	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1268	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1268 [2C]	DoD-ELAP,NELAP,CALAP,ADEC

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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	07-Jan-2021 10:45

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021

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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	07-Jan-2021 10:45

Notes and Definitions

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

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

20 January 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)
20L0436	N/A

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

~~ARI Job #: 20K0117~~ SC 20L0436

Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20K0117	Turn-around Requested: Standard	Page: 1 of 4	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6673	Date: 11/4/20	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 6	Cooler Temps: See CRF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RBP + MRH		

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Sample ID	Date	Time	Matrix	No. Containers	TPH-Dx	PAHs	PCB Aroclors	Metals+	GX	BTEX	HVOCs		Notes/Comments
					Analysis Requested								
SB-2020-007:1.2-2.8-11042020	11/4/20	0945	Soil	2	X	X	X	X					X = arsenic, barium, cadmium, chromium, cobalt, copper, ~~iron~~, lead, mercury, nickel, selenium, silver, vanadium, zinc
SB-2020-007:6-7-11042020		0950		2	X	X	X	X					
SB-2020-007:10-10.9-11042020		1000		2	X	X	X	X					
SB-2020-007:20-21.4-11042020		1050		2		X	X						Hold
SB-2020-007:23-24.6-11042020		1100		2		X	X						Hold
TB-2-11042020		1235	Water	1					X	X	X		
SB-2020-005:1-11042020		1235	Soil	6	X	X		X	~~X~~ NO	X	X		
SB-2020-005:6-11042020		1250		6	X	X		X		X	X		
SB-2020-005:12-11042020		1305		6	X	X		X		X	X		
SB-2020-005:20-11042020		1310		6		X							Hold

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: RYAN PETERSON	Printed Name: Sarah Walter	Printed Name:	Printed Name:
	Company: S&W	Company: ARI	Company:	Company:
	Date & Time: 11/5/2020 1515	Date & Time: 11/05/2020 1515	Date & Time:	Date & Time:

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

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

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~~ARI Job #: 20L0117~~ SC 20L0436

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20L0117	Turn-around Requested: Standard	Page: 2 of 4	
ARI Client Company: Shannon & Wilson, Inc	Phone: 206-695-6673	Date: 11/4/20	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 6	Cooler Temps: See CRF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: NBP+ MLH		

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Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: 6PPD	DPPD	6PPD-Q	HVOCs	PAHs	PCB Aroclors	Metals**		Notes/Comments
													*=See note Page 1
SB-2020-005:24-11042020	11/4/20	1315	Soil	6									Hold
SB-2020-016:2-11042020		1350		8	X	X	X	X	X	X	X		
SB-2020-016:7-11042020		1400		8	X	X	X	X	X	X	X		
SB-2020-016:12-11042020		1415		8	X	X	X	X	X	X	X		
SB-2020-016:20-11042020		1425		8									Hold
SB-2020-016:25-11042020		1435		8									Hold
SB-2020-015:1-11042020		1500		8	X	X	X	X	X	X	X		
SB-2020-015:7-11042020		1520		8	X	X	X	X	X	X	X		
SB-2020-015:13-11042020		1535		8	X	X	X	X	X	X	X		
SB-2020-015:20.5-11042020		1540		8		X					X		

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: RYAN PETERSON	Printed Name: Jacob Salter	Printed Name:	Printed Name:
	Company: S&W	Company: ARI	Company:	Company:
	Date & Time: 11/5/20 1515	Date & Time: 11/05/2020 1515	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.*

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20L0436

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20L0117	Turn-around Requested: Standard	Page: 3 of 4	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6811	Date:	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 6	Cooler Temps: See CRF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RBP, MAH, CTC		

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Sample ID	Date	Time	Matrix	No. Containers	Gx	Dx	BTEX	HVOCs	PAHs	PCB Aroclors	Metals*		Notes/Comments
					Analysis Requested								
SB-2020-015:23-110420	11/4/20	1545	Soil	8									Hold
A2-07A:12-11052020	11/5/20	0935	Soil	3	X	X							**
A2-07A:13.5-11052020	11/5/20	0945	Soil	3	X	X							**
A2-07A:18-11052020	11/5/20	0950	Soil	3	X	X							**
A2-07A:20-11052020	11/5/20	1000	Soil	3									Hold
A2-07A:25-11052020	11/5/20	1025	Soil	3	X	X							
~~TB-3~~ TB-3-11052020	11/5/20	1025	Water	1	X								
A2-07A:30-11052020	11/5/20	1030	Soil	3									Hold
SB-2020-014:1.5-11052020	11/5/20	1125	Soil	8	X	X	X	X	X	X	X		
SB-2020-014:7-11052020	11/5/20	1135	Soil	8	X	X	X	X	X	X	X		

* See note page 1
** Strong VOC odor, possible NAPL

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Ryan Peterson	Printed Name: Sarah Walter	Printed Name:	Printed Name:
	Company: S&W	Company: ARI	Company:	Company:
	Date & Time: 11/5/20 1515	Date & Time: 11/05/2020 1515	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.*

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20L0436

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20K0117	Turn-around Requested: Standard	Page: 4 of 4	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6811	Date: 11/5/20	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 6	Cooler Temps: See CRF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RBP, MRH, CTC		

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Sample ID	Date	Time	Matrix	No. Containers	Gx	Dx	BTEX	HVOCs	PAHs	PCBs (Aroclors)	Metals*		Notes/Comments
SB-2020-014:11-11052020	11/5/20	1145	Soil	8	X	X	X	X	X	X	X		
SB-2020-100:11-11052020	11/5/20	1155	Soil	8	X	X	X	X	X	X	X		
SB-2020-014:18-11052020	11/5/20	1210	Soil	8					X	X			Hold
SB-2020-014:23-11052020	11/5/20	1225	Soil	8					X	X			Hold
SB-2020-008:2-11052020	11/5/20	1335	Soil	6		X	X	X	X	X	X		
SB-2020-008:5.5-11052020	11/5/20	1340	Soil	6		X	X	X	X	X	X		
SB-2020-008:11.5-11052020	11/5/20	1345	Soil	6		X	X	X	X	X	X		
SB-2020-008:20-11052020	11/5/20	1350	Soil	6					X				Hold
SB-2020-008:23-11052020	11/5/20	1400	Soil	6									Hold
NO FURTHER													

*See Note on Page 1

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: RYAN PETERSON	Printed Name: Jacob Slatter	Printed Name:	Printed Name:
	Company: SEW	Company: ARI	Company:	Company:
	Date & Time: 11/5/2020 1515	Date & Time: 11/05/2020 1515	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.*

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Reply all | Delete | Junk | Block | ...

Fw: 20K0117 LDW Follow-Ups

From: Shoshana Howard <SKH@shanwil.com>
Sent: Tuesday, December 29, 2020 11:33 AM
To: Amanda Volgardsen Johnson <amanda.volgardsen@arilabs.com>
Subject: 20K0117 LDW Follow-Ups

20L0436

Hi Amanda,

Based on the initial results for samples in work order 20K0117, please run the following held samples for the listed analyses.

Sample	Analyses
SB-2020-007:20-21.4-11042020	PAHs and PCBs
SB-2020-007:23-24.6-11042020	PAHs and PCBs
SB-2020-005:20-11042020	PAHs
SB-2020-014:18-11052020	PAHs and PCBs
SB-2020-014:23-11052020	PAHs and PCBs
SB-2020-008:20-11052020	PAHs

Let me know if you have any questions. Another follow-up request for the other work order (20K0152) will be sent in a separate email.

Thanks!

Shoshana Howard, PE | Senior Engineer
400 N. 34th St., Suite 100
Seattle, WA 98103-8636
www.shannonwilson.com
Phone: (206) 632-8020 Fax: (206) 695-6777
Direct: (206) 695-6811 skh@shanwil.com

Reply | Reply all | Forward

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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	20-Jan-2021 11:40

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-2020-007:20-21.4-11042020	20L0436-01	Solid	04-Nov-2020 10:50	29-Dec-2020 14:22
SB-2020-007:23-24.6-11042020	20L0436-02	Solid	04-Nov-2020 11:00	29-Dec-2020 14:22
SB-2020-005:20-11042020	20L0436-03	Solid	04-Nov-2020 13:10	29-Dec-2020 14:22
SB-2020-014:18-11052020	20L0436-04	Solid	05-Nov-2020 12:10	29-Dec-2020 14:22
SB-2020-014:23-11052020	20L0436-05	Solid	05-Nov-2020 12:25	29-Dec-2020 14:22
SB-2020-008:20-11052020	20L0436-06	Solid	05-Nov-2020 13:50	29-Dec-2020 14:22

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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	20-Jan-2021 11:40

Work Order Case Narrative

Sample receipt

Samples as listed on the preceding page were received 29-Dec-2020 14:22 under ARI work order 20L0436. For details regarding sample receipt, please refer to the Cooler Receipt Form.

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

The samples were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements, with the exception of SIJ0085-SCV1 which is outside of control limits high for Dibenzofuran. No corrective action was taken.

The initial calibration verification is outside of control limits high for Benzo(g,h,i-perylene. Assocaited detected results and QC have been flagged with "Q" qualifiers. No further corrective action was taken.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limits.

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

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

PCB Aroclors - EPA Method SW8082A

The samples 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 was clean at the reporting limits.

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

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory 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: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	20-Jan-2021 11:40

SB-2020-007:20-21.4-11042020

20L0436-01 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/04/2020 10:50
Instrument: NT11 Analyst: VTS — Analyzed: 01/14/2021 16:43

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20L0436-01 A 02
	Preparation Batch: BIL0797	Sample Size: 13.25 g (wet)	Dry Weight:10.04 g
	Prepared: 01/05/2021	Final Volume: 0.5 mL	% Solids: 75.75
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0436-01 A 02
	Cleanup Batch: CJA0088	Initial Volume: 0.5 mL	
	Cleaned: 11-Jan-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0436-01 A 02
	Cleanup Batch: CJA0087	Initial Volume: 0.5 mL	
	Cleaned: 11-Jan-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	12.3	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	16.3	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	16.4	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	4.53	ug/kg	
Acenaphthene	83-32-9	1	0.09	0.50	4.28	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	7.23	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	4.53	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	24.6	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	6.39	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	19.0	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	21.2	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	5.51	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	9.13	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	5.64	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	2.47	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	2.57	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	5.61	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	4.19	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	1.07	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	6.03	ug/kg	Q
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*59.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*94.2*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*84.3*	*%*	

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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	20-Jan-2021 11:40

SB-2020-007:20-21.4-11042020

20L0436-01 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/04/2020 10:50
Instrument: ECD7 Analyst: JGR — Analyzed: 01/11/2021 21:22

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20L0436-01 A 01
	Preparation Batch: BIL0795	Sample Size: 16.57 g (wet)	Dry Weight:12.55 g
	Prepared: 01/04/2021	Final Volume: 2.5 mL	% Solids: 75.75
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0436-01 A 01
	Cleanup Batch: CJA0081	Initial Volume: 2.5 mL	
	Cleaned: 08-Jan-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20L0436-01 A 01
	Cleanup Batch: CJA0079	Initial Volume: 2.5 mL	
	Cleaned: 08-Jan-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0436-01 A 01
	Cleanup Batch: CJA0080	Initial Volume: 2.5 mL	
	Cleaned: 08-Jan-2021	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*69.7*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*64.1*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*67.2*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*60.9*	*%*	

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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	20-Jan-2021 11:40

SB-2020-007:23-24.6-11042020

20L0436-02 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/04/2020 11:00
Instrument: NT11 Analyst: VTS — Analyzed: 01/14/2021 17:16

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20L0436-02 A 02
	Preparation Batch: BIL0797	Sample Size: 13.41 g (wet)	Dry Weight:10.03 g
	Prepared: 01/05/2021	Final Volume: 0.5 mL	% Solids: 74.78
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0436-02 A 02
	Cleanup Batch: CJA0088	Initial Volume: 0.5 mL	
	Cleaned: 11-Jan-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0436-02 A 02
	Cleanup Batch: CJA0087	Initial Volume: 0.5 mL	
	Cleaned: 11-Jan-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	9.87	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	5.46	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	5.61	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	2.43	ug/kg	
Acenaphthene	83-32-9	1	0.09	0.50	6.21	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	5.67	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	8.25	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	19.5	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	6.22	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	26.9	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	22.4	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	5.73	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	7.87	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	6.93	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	2.79	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	2.81	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	4.53	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	5.59	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	1.19	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	7.52	ug/kg	Q
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*61.6*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*97.0*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*83.9*	*%*	

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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	20-Jan-2021 11:40

SB-2020-007:23-24.6-11042020

20L0436-02 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/04/2020 11:00
Instrument: ECD7 Analyst: JGR — Analyzed: 01/11/2021 21:43

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20L0436-02 A 01
	Preparation Batch: BIL0795	Sample Size: 16.83 g (wet)	Dry Weight:12.59 g
	Prepared: 01/04/2021	Final Volume: 2.5 mL	% Solids: 74.78
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0436-02 A 01
	Cleanup Batch: CJA0081	Initial Volume: 2.5 mL	
	Cleaned: 08-Jan-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20L0436-02 A 01
	Cleanup Batch: CJA0079	Initial Volume: 2.5 mL	
	Cleaned: 08-Jan-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0436-02 A 01
	Cleanup Batch: CJA0080	Initial Volume: 2.5 mL	
	Cleaned: 08-Jan-2021	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.5	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.5	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.5	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.5	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.5	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.5	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*67.7*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*61.9*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*64.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*60.4*	*%*	

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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	20-Jan-2021 11:40

SB-2020-005:20-11042020

20L0436-03 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/04/2020 13:10
Instrument: NT11 Analyst: VTS — Analyzed: 01/14/2021 17:48

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20L0436-03 A 02
	Preparation Batch: BIL0797	Sample Size: 12.2 g (wet)	Dry Weight:10.01 g
	Prepared: 01/05/2021	Final Volume: 0.5 mL	% Solids: 82.01
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0436-03 A 02
	Cleanup Batch: CJA0088	Initial Volume: 0.5 mL	
	Cleaned: 11-Jan-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0436-03 A 02
	Cleanup Batch: CJA0087	Initial Volume: 0.5 mL	
	Cleaned: 11-Jan-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	4.00	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	4.54	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	4.71	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	1.60	ug/kg	
Acenaphthene	83-32-9	1	0.09	0.50	3.16	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	3.32	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	4.91	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	34.5	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	10.1	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	49.1	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	49.2	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	26.2	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	31.1	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	22.6	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	13.4	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	12.2	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	30.2	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	21.6	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	7.04	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	20.1	ug/kg	Q
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*55.2*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*87.4*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*74.8*	*%*	

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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	20-Jan-2021 11:40

SB-2020-014:18-11052020

20L0436-04 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM			Sampled: 11/05/2020 12:10
Instrument: NT11 Analyst: VTS			Analyzed: 01/14/2021 18:21
Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20L0436-04 A 02
	Preparation Batch: BIL0797	Sample Size: 12.68 g (wet)	Dry Weight:10.06 g
	Prepared: 01/05/2021	Final Volume: 0.5 mL	% Solids: 79.32
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0436-04 A 02
	Cleanup Batch: CJA0088	Initial Volume: 0.5 mL	
	Cleaned: 11-Jan-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0436-04 A 02
	Cleanup Batch: CJA0087	Initial Volume: 0.5 mL	
	Cleaned: 11-Jan-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	1.81	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	0.60	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	0.64	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.09	0.50	0.29	ug/kg	J
Dibenzofuran	132-64-9	1	0.13	0.50	0.24	ug/kg	J
Fluorene	86-73-7	1	0.07	0.50	0.18	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.50	1.47	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	0.15	ug/kg	J
Fluoranthene	206-44-0	1	0.08	0.50	0.90	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	1.12	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	0.34	ug/kg	J
Chrysene	218-01-9	1	0.07	0.50	0.64	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	0.34	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.10	ug/kg	J
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	0.09	0.50	0.11	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	0.11	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	0.27	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*54.2*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*82.2*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*79.7*	*%*	

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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	20-Jan-2021 11:40

SB-2020-014:18-11052020

20L0436-04 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/05/2020 12:10
Instrument: ECD7 Analyst: JGR — Analyzed: 01/11/2021 22:04

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20L0436-04 A 01
	Preparation Batch: BIL0795	Sample Size: 15.8 g (wet)	Dry Weight:12.53 g
	Prepared: 01/04/2021	Final Volume: 2.5 mL	% Solids: 79.32
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0436-04 A 01
	Cleanup Batch: CJA0081	Initial Volume: 2.5 mL	
	Cleaned: 08-Jan-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20L0436-04 A 01
	Cleanup Batch: CJA0079	Initial Volume: 2.5 mL	
	Cleaned: 08-Jan-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0436-04 A 01
	Cleanup Batch: CJA0080	Initial Volume: 2.5 mL	
	Cleaned: 08-Jan-2021	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*78.4*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*66.5*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*82.9*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*66.5*	*%*	

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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: 21-1-12596	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	20-Jan-2021 11:40

SB-2020-014:23-11052020

20L0436-05 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/05/2020 12:25
Instrument: NT11 Analyst: VTS — Analyzed: 01/14/2021 19:58

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20L0436-05 A 02
	Preparation Batch: BIL0797	Sample Size: 12.58 g (wet)	Dry Weight:10.07 g
	Prepared: 01/05/2021	Final Volume: 0.5 mL	% Solids: 80.02
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0436-05 A 02
	Cleanup Batch: CJA0088	Initial Volume: 0.5 mL	
	Cleaned: 11-Jan-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0436-05 A 02
	Cleanup Batch: CJA0087	Initial Volume: 0.5 mL	
	Cleaned: 11-Jan-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	0.50	ug/kg	J
1-Methylnaphthalene	90-12-0	1	0.11	0.50	0.19	ug/kg	J
2-Methylnaphthalene	91-57-6	1	0.13	0.50	0.25	ug/kg	J
Acenaphthylene	208-96-8	1	0.06	0.50	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.09	0.50	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.13	0.50	ND	ug/kg	U
Fluorene	86-73-7	1	0.07	0.50	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.11	0.50	0.44	ug/kg	J
Anthracene	120-12-7	1	0.07	0.50	ND	ug/kg	U
Fluoranthene	206-44-0	1	0.08	0.50	0.94	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	1.06	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	0.95	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	1.60	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	2.09	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.92	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.94	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	1.74	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	2.55	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.35	ug/kg	J
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	3.34	ug/kg	Q
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*55.9*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*79.0*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*76.5*	*%*	

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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	20-Jan-2021 11:40

SB-2020-014:23-11052020

20L0436-05 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/05/2020 12:25
Instrument: ECD7 Analyst: JGR — Analyzed: 01/11/2021 23:05

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20L0436-05 A 01
	Preparation Batch: BIL0795	Sample Size: 15.71 g (wet)	Dry Weight:12.57 g
	Prepared: 01/04/2021	Final Volume: 2.5 mL	% Solids: 80.02
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0436-05 A 01
	Cleanup Batch: CJA0081	Initial Volume: 2.5 mL	
	Cleaned: 08-Jan-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20L0436-05 A 01
	Cleanup Batch: CJA0079	Initial Volume: 2.5 mL	
	Cleaned: 08-Jan-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0436-05 A 01
	Cleanup Batch: CJA0080	Initial Volume: 2.5 mL	
	Cleaned: 08-Jan-2021	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*75.0*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*61.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*80.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*63.9*	*%*	

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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	20-Jan-2021 11:40

SB-2020-008:20-11052020

20L0436-06 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/05/2020 13:50
Instrument: NT11 Analyst: VTS — Analyzed: 01/14/2021 20:30

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20L0436-06 A 02
	Preparation Batch: BIL0797	Sample Size: 12.26 g (wet)	Dry Weight:10.06 g
	Prepared: 01/05/2021	Final Volume: 0.5 mL	% Solids: 82.03
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0436-06 A 02
	Cleanup Batch: CJA0088	Initial Volume: 0.5 mL	
	Cleaned: 11-Jan-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0436-06 A 02
	Cleanup Batch: CJA0087	Initial Volume: 0.5 mL	
	Cleaned: 11-Jan-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	9.56	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	10.2	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	11.7	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.62	ug/kg	
Acenaphthene	83-32-9	1	0.09	0.50	3.73	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	6.00	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	3.59	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	16.6	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	4.96	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	15.0	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	13.9	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	3.97	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	6.39	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	4.06	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	1.63	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	1.65	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	3.24	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	2.55	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.57	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	3.79	ug/kg	Q
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*51.6*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*83.4*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*76.4*	*%*	

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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	20-Jan-2021 11:40

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIL0797 - EPA 3546 (Microwave) Low Level

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 (BIL0797-BLK1)				Prepared: 05-Jan-2021 Analyzed: 14-Jan-2021 15:38							
Naphthalene	ND	0.44	0.60	ug/kg							U
1-Methylnaphthalene	0.12	0.11	0.50	ug/kg							J
2-Methylnaphthalene	0.15	0.13	0.50	ug/kg							J
Acenaphthylene	ND	0.06	0.50	ug/kg							U
Acenaphthene	ND	0.09	0.50	ug/kg							U
Dibenzofuran	ND	0.13	0.50	ug/kg							U
Fluorene	ND	0.07	0.50	ug/kg							U
Phenanthrene	0.19	0.11	0.50	ug/kg							J
Anthracene	ND	0.07	0.50	ug/kg							U
Fluoranthene	0.16	0.08	0.50	ug/kg							J
Pyrene	0.16	0.09	0.50	ug/kg							J
Benzo(a)anthracene	ND	0.07	0.50	ug/kg							U
Chrysene	0.08	0.07	0.50	ug/kg							J
Benzo(b)fluoranthene	ND	0.07	0.50	ug/kg							U
Benzo(k)fluoranthene	ND	0.10	0.50	ug/kg							U
Benzo(j)fluoranthene	ND	0.10	0.50	ug/kg							U
Benzo(a)pyrene	ND	0.09	0.50	ug/kg							U
Indeno(1,2,3-cd)pyrene	ND	0.09	0.50	ug/kg							U
Dibenzo(a,h)anthracene	ND	0.11	0.50	ug/kg							U
Benzo(g,h,i)perylene	ND	0.09	0.50	ug/kg							U
Surrogate: 2-Methylnaphthalene-d10	8.00			ug/kg	*15.0*		*53.3*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	10.0			ug/kg	*15.0*		*66.9*	*30-160*			
Surrogate: Fluoranthene-d10	10.8			ug/kg	*15.0*		*72.0*	*30-160*			
LCS (BIL0797-BS1)				Prepared: 05-Jan-2021 Analyzed: 14-Jan-2021 16:11							
Naphthalene	8.33	0.44	0.60	ug/kg	15.0		55.5	30-160			
1-Methylnaphthalene	8.82	0.11	0.50	ug/kg	15.0		58.8	30-160			
2-Methylnaphthalene	8.79	0.13	0.50	ug/kg	15.0		58.6	30-160			
Acenaphthylene	7.57	0.06	0.50	ug/kg	15.0		50.5	30-160			
Acenaphthene	8.49	0.09	0.50	ug/kg	15.0		56.6	30-160			
Dibenzofuran	8.82	0.13	0.50	ug/kg	15.0		58.8	30-160			
Fluorene	9.37	0.07	0.50	ug/kg	15.0		62.5	30-160			
Phenanthrene	9.92	0.11	0.50	ug/kg	15.0		66.1	30-160			
Anthracene	9.57	0.07	0.50	ug/kg	15.0		63.8	30-160			
Fluoranthene	11.8	0.08	0.50	ug/kg	15.0		78.4	30-160			

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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	20-Jan-2021 11:40

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIL0797 - EPA 3546 (Microwave) Low Level

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 (BIL0797-BS1)				Prepared: 05-Jan-2021 Analyzed: 14-Jan-2021 16:11							
Pyrene	11.7	0.09	0.50	ug/kg	15.0		78.2	30-160			
Benzo(a)anthracene	12.1	0.07	0.50	ug/kg	15.0		80.6	30-160			
Chrysene	11.5	0.07	0.50	ug/kg	15.0		76.7	30-160			
Benzo(b)fluoranthene	12.6	0.07	0.50	ug/kg	15.0		84.1	30-160			
Benzo(k)fluoranthene	12.1	0.10	0.50	ug/kg	15.0		80.6	30-160			
Benzo(j)fluoranthene	10.9	0.10	0.50	ug/kg	15.0		72.7	30-160			
Benzo(a)pyrene	10.9	0.09	0.50	ug/kg	15.0		72.8	30-160			
Indeno(1,2,3-cd)pyrene	11.3	0.09	0.50	ug/kg	15.0		75.1	30-160			
Dibenzo(a,h)anthracene	11.4	0.11	0.50	ug/kg	15.0		76.0	30-160			
Benzo(g,h,i)perylene	10.4	0.09	0.50	ug/kg	15.0		69.6	30-160			Q
Surrogate: 2-Methylnaphthalene-d10	8.25			ug/kg	*15.0*		*55.0*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	11.2			ug/kg	*15.0*		*74.6*	*30-160*			
Surrogate: Fluoranthene-d10	11.6			ug/kg	*15.0*		*77.5*	*30-160*			
Matrix Spike (BIL0797-MS1)		**Source: 20L0436-04**		Prepared: 05-Jan-2021 Analyzed: 14-Jan-2021 18:53							
Naphthalene	8.65	0.44	0.60	ug/kg	14.9	1.81	45.8	30-160			
1-Methylnaphthalene	8.41	0.11	0.50	ug/kg	14.9	0.60	52.4	30-160			
2-Methylnaphthalene	8.30	0.13	0.50	ug/kg	14.9	0.64	51.3	30-160			
Acenaphthylene	7.40	0.06	0.50	ug/kg	14.9	ND	49.6	30-160			
Acenaphthene	8.28	0.09	0.50	ug/kg	14.9	0.29	53.6	30-160			
Dibenzofuran	8.13	0.13	0.50	ug/kg	14.9	0.24	52.9	30-160			
Fluorene	8.87	0.07	0.50	ug/kg	14.9	0.18	58.3	30-160			
Phenanthrene	11.0	0.11	0.50	ug/kg	14.9	1.47	63.6	30-160			
Anthracene	10.0	0.07	0.50	ug/kg	14.9	0.15	66.2	30-160			
Fluoranthene	12.3	0.08	0.50	ug/kg	14.9	0.90	76.4	30-160			
Pyrene	12.7	0.09	0.50	ug/kg	14.9	1.12	77.4	30-160			
Benzo(a)anthracene	12.2	0.07	0.50	ug/kg	14.9	0.34	79.4	30-160			
Chrysene	11.5	0.07	0.50	ug/kg	14.9	0.64	73.0	30-160			
Benzo(b)fluoranthene	13.0	0.07	0.50	ug/kg	14.9	0.34	84.7	30-160			
Benzo(k)fluoranthene	11.7	0.10	0.50	ug/kg	14.9	0.10	77.6	30-160			
Benzo(j)fluoranthene	10.3	0.10	0.50	ug/kg	14.9	ND	69.4	30-160			
Benzo(a)pyrene	11.4	0.09	0.50	ug/kg	14.9	0.11	75.7	30-160			
Indeno(1,2,3-cd)pyrene	12.7	0.09	0.50	ug/kg	14.9	0.11	84.7	30-160			
Dibenzo(a,h)anthracene	12.6	0.10	0.50	ug/kg	14.9	ND	84.8	30-160			
Benzo(g,h,i)perylene	11.8	0.08	0.50	ug/kg	14.9	0.27	77.0	30-160			Q

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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	20-Jan-2021 11:40

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIL0797 - EPA 3546 (Microwave) Low Level

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BIL0797-MS1)	**Source: 20L0436-04**			Prepared: 05-Jan-2021	Analyzed: 14-Jan-2021 18:53						
Surrogate: 2-Methylnaphthalene-d10	7.79			ug/kg	*14.9*	*8.09*	*52.3*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	12.5			ug/kg	*14.9*	*12.3*	*83.9*	*30-160*			
Surrogate: Fluoranthene-d10	11.7			ug/kg	*14.9*	*11.9*	*78.6*	*30-160*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BIL0797-MSD1)	**Source: 20L0436-04**			Prepared: 05-Jan-2021	Analyzed: 14-Jan-2021 19:25						
Naphthalene	10.4	0.44	0.60	ug/kg	14.9	1.81	57.7	30-160	18.60	30	
1-Methylnaphthalene	9.78	0.11	0.50	ug/kg	14.9	0.60	61.6	30-160	15.00	30	
2-Methylnaphthalene	9.77	0.13	0.50	ug/kg	14.9	0.64	61.2	30-160	16.30	30	
Acenaphthylene	8.75	0.06	0.50	ug/kg	14.9	ND	58.7	30-160	16.70	30	
Acenaphthene	9.65	0.09	0.50	ug/kg	14.9	0.29	62.7	30-160	15.20	30	
Dibenzofuran	9.57	0.13	0.50	ug/kg	14.9	0.24	62.5	30-160	16.30	30	
Fluorene	10.4	0.07	0.50	ug/kg	14.9	0.18	68.4	30-160	15.70	30	
Phenanthrene	11.5	0.11	0.50	ug/kg	14.9	1.47	67.4	30-160	5.10	30	
Anthracene	10.5	0.07	0.50	ug/kg	14.9	0.15	69.1	30-160	4.22	30	
Fluoranthene	12.3	0.08	0.50	ug/kg	14.9	0.90	76.5	30-160	0.06	30	
Pyrene	13.0	0.09	0.50	ug/kg	14.9	1.12	79.4	30-160	2.30	30	
Benzo(a)anthracene	12.7	0.07	0.50	ug/kg	14.9	0.34	83.0	30-160	4.27	30	
Chrysene	11.9	0.07	0.50	ug/kg	14.9	0.64	75.5	30-160	3.15	30	
Benzo(b)fluoranthene	13.1	0.07	0.50	ug/kg	14.9	0.34	85.6	30-160	0.98	30	
Benzo(k)fluoranthene	12.2	0.10	0.50	ug/kg	14.9	0.10	81.1	30-160	4.35	30	
Benzo(j)fluoranthene	10.9	0.10	0.50	ug/kg	14.9	ND	73.3	30-160	5.49	30	
Benzo(a)pyrene	12.1	0.09	0.50	ug/kg	14.9	0.11	80.4	30-160	5.97	30	
Indeno(1,2,3-cd)pyrene	13.3	0.09	0.50	ug/kg	14.9	0.11	88.6	30-160	4.51	30	
Dibenzo(a,h)anthracene	13.2	0.10	0.50	ug/kg	14.9	ND	88.4	30-160	4.21	30	
Benzo(g,h,i)perylene	12.4	0.08	0.50	ug/kg	14.9	0.27	81.4	30-160	5.38	30	Q
Surrogate: 2-Methylnaphthalene-d10	8.65			ug/kg	*14.9*	*8.09*	*58.0*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	12.6			ug/kg	*14.9*	*12.3*	*84.5*	*30-160*			
Surrogate: Fluoranthene-d10	11.8			ug/kg	*14.9*	*11.9*	*79.0*	*30-160*			
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	20-Jan-2021 11:40

Aroclor PCB - Quality Control

Batch BIL0795 - EPA 3546 (Microwave)

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 (BIL0795-BLK1)				Prepared: 04-Jan-2021 Analyzed: 11-Jan-2021 20:41							
Aroclor 1016	ND	1.6	4.0	ug/kg							U
Aroclor 1221	ND	1.6	4.0	ug/kg							U
Aroclor 1232	ND	1.6	4.0	ug/kg							U
Aroclor 1242	ND	1.6	4.0	ug/kg							U
Aroclor 1248	ND	1.6	4.0	ug/kg							U
Aroclor 1254	ND	1.6	4.0	ug/kg							U
Aroclor 1260	ND	0.6	4.0	ug/kg							U
Surrogate: Decachlorobiphenyl	6.63			ug/kg	*8.00*		*82.8*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.29			ug/kg	*8.00*		*66.2*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	6.83			ug/kg	*8.00*		*85.4*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	5.60			ug/kg	*8.00*		*70.0*	*44-120*			
LCS (BIL0795-BS1)				Prepared: 04-Jan-2021 Analyzed: 11-Jan-2021 21:02							
Aroclor 1016 [2C]	78.4	1.6	4.0	ug/kg	101		77.7	56-120			
Aroclor 1260	86.7	0.6	4.0	ug/kg	101		86.0	58-120			
Surrogate: Decachlorobiphenyl	6.83			ug/kg	*8.00*		*85.3*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.34			ug/kg	*8.00*		*66.8*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	7.16			ug/kg	*8.00*		*89.5*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	5.53			ug/kg	*8.00*		*69.1*	*44-120*			
Matrix Spike (BIL0795-MS1)		**Source: 20L0436-05**		Prepared: 04-Jan-2021 Analyzed: 11-Jan-2021 23:26							
Aroclor 1016	84.2	1.9	5.0	ug/kg	126	ND	66.9	56-120			
Aroclor 1260	101	0.7	5.0	ug/kg	126	ND	80.2	58-120			
Surrogate: Decachlorobiphenyl	7.59			ug/kg	*10.0*		*75.9*	*40-126*			
Surrogate: Tetrachlorometaxylene	6.59			ug/kg	*10.0*		*65.9*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	8.26			ug/kg	*10.0*		*82.6*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	6.73			ug/kg	*10.0*		*67.3*	*44-120*			

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

Matrix Spike Dup (BIL0795-MSD1)		**Source: 20L0436-05**		Prepared: 04-Jan-2021 Analyzed: 11-Jan-2021 23:46							
Aroclor 1016	85.4	1.9	5.0	ug/kg	126	ND	67.8	56-120	1.39	30	
Aroclor 1260	101	0.7	5.0	ug/kg	126	ND	80.2	58-120	0.09	30	
Surrogate: Decachlorobiphenyl	8.12			ug/kg	*10.0*		*81.2*	*40-126*			
Surrogate: Tetrachlorometaxylene	6.75			ug/kg	*10.0*		*67.5*	*44-120*			

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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	20-Jan-2021 11:40

Aroclor PCB - Quality Control

Batch BIL0795 - EPA 3546 (Microwave)

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BIL0795-MSD1)	**Source: 20L0436-05**			Prepared: 04-Jan-2021	Analyzed: 11-Jan-2021 23:46						
Surrogate: Decachlorobiphenyl [2C]	8.74			ug/kg	*10.0*		*87.5*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	6.84			ug/kg	*10.0*		*68.4*	*44-120*			

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	20-Jan-2021 11:40

Certified Analyses included in this Report

Analyte	Certifications
EPA 8082A in Solid	
Aroclor 1016	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1016	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1016 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1221	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1221 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1232 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1242 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,CALAP,ADEC

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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	20-Jan-2021 11:40

Aroclor 1248	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1248 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1254	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1254 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1260	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1262	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1268	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1268 [2C]	DoD-ELAP,NELAP,CALAP,ADEC

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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	20-Jan-2021 11:40

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021

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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	20-Jan-2021 11:40

Notes and Definitions

*	Flagged value is not within established control limits.
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.
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).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

20 January 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)
20L0437	N/A

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

20L0437

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20K0152	Turn-around Requested: Standard	Page: 1 of 3	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206 695-6811	Date: 11/5/20	Ice Present? Yes
Client Contact: Shoshanna Howard		No. of Coolers: 3	Cooler Temps: See CRF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: CTC + RBP		

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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: 6x	Dx	BTEX	HVOCs	PAHs	PCB Aroclors	Metals *	Total Organic Carbon / Grain Size	Notes/Comments
SB-2020-013:1.5-11052020	11/5/20	1515	Soil	3		X			X	X	X	XX	
SB-2020-013:6-11052020	11/5/20	1520	Soil	3		X			X	X	X	XX	
SB-2020-013:11.5-11052020	11/5/20	1525	Soil	3		X			X	X	X	XX	
SB-2020-013:20.5-11052020	11/5/20	1530	Soil	3					X	X			Hold
SB-2020-013:23-11052020	11/5/20	1535	Soil	3					X	X			Hold
TB-4-11052020	11/5/20	1600	Water	~~3~~ 1	X		X	X					
EB-1-11052020	11/5/20	1610	Water	9			X	X	X	X	X**		
SB-2020-004:2.5-11062020	11/6/20	0905	Soil	7		X	X	X	X	X	X	X X	
SB-2020-004:8-11062020	11/6/20	0910	Soil	7		X	X	X	X	X	X	X X	
SB-2020-004:13-11062020	11/6/20	0915	Soil	7		X	X	X	X	X	X	X X	

* = See note on table 1
** = Waters have different metals list than soil. Total and dissolved

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Lab to filter for dissolved metals.	Printed Name: Christian Canfield	Printed Name: Jacob Haltz	Printed Name:	Printed Name:
	Company: Shannon & Wilson, Inc.	Company: ARI	Company:	Company:
	Date & Time: 11/6/2020 ~~1500~~ 1531	Date & Time: 11/06/2020 1531	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

20L0437

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20L0152	Turn-around Requested: Standard	Page: 2 of 3	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6811	Date: 11/5-6/20	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: CTC + RBP		

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Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
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Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: Gx	Dx	BTEX	HVOCs	PAHs	PCBs (Aroclors)	* Metals	Total Org. Carbon	Grain Size	Notes/Comments
MS/MSD-SB-004:13-11062020	11/6/20	0920	Soil	7		X	X	X	X	X	X	X	X	*=See note on Table 1 **=waters have different metals list than soil. Total & Dissolved
SB-2020-004:17-11062020	11/6/20	0925	Soil	8		X	X	X	X	X	X	X	X	
SB-2020-101:17-11062020	11/6/20	0930	Soil	7		X	X	X	X	X	X	X	X	
SB-2020-004:21-11062020	11/6/20	0935	Soil	7		X	X	X	X	X	X	X	X	
SB-2020-004:27-11062020	11/6/20	0945	Soil	7		X	X	X	X	X	X	X	X	
A2-16A:9.5-11062020	11/6/20	1155	Soil	3	X	X								
A2-16A:12.5-11062020	11/6/20	1200	Soil	3	X	X								
A2-16A:18-11062020	11/6/20	1205	Soil	3	X	X								
A2-16A:20-11062020	11/6/20	1210	Soil	3										Hold
EB-2-11062020	11/6/20	1330	Water	ctr ~~11~~ 9			X	X	X	X	X**			

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Christian Canfield	Printed Name: ~~Jacob~~ Jacob Haltz	Printed Name:	Printed Name:
	Company: Shannon & Wilson, Inc.	Company: ARI	Company:	Company:
	Date & Time: 11/6/2020 ~~1400~~ 1531	Date & Time: 11/06/2020 1531	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

20L0437

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 20K0152	Turn-around Requested: Standard	Page: 3 of 3	
ARI Client Company: Shannon & Wilson, Inc.	Phone: 206-695-6811	Date: 11/5-6/20	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: CTC + RBP		

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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	Analysis Requested: Gx	Dx	BTEX	HVOCs	PAHs	PCBs (Aroclors)	Metals *	Total Org. Carbon / Grain Size	Notes/Comments
EB-3-1106202	11/6/20	1340	Water	CTC 9			X	X	X	X	X**		* = See note on Table 1 ** = Waters have different metals list than soil. Total & Dissolved.

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Christian Canfield	Printed Name: Jacob Haltz	Printed Name:	Printed Name:
	Company: Shannon & Wilson, Inc.	Company: ARI	Company:	Company:
	Date & Time: 11/6/2020 CTC ~~1100~~ 1531	Date & Time: 11/06/2020 1531	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.

Reply all | Delete | Junk | Block | ...

Re: 20K0152 LDW Follow-ups

Version changes coming this year to SW-846 8260 and 8270 organic and 6010 and 6020 metals analysis methods.

"Humor is the universal solvent against the abrasive elements of life." - Alan Simpson

---

From: Shoshana Howard <SKH@shanwil.com>
Sent: Tuesday, December 29, 2020 11:33 AM
To: Amanda Volgardsen Johnson <amanda.volgardsen@arilabs.com>
Subject: 20K0152 LDW Follow-ups

Hi Amanda, 20L0437

Based on the initial results for samples in work order 20K0152, please run the following held samples for the listed analyses.

Sample	
SB-2020-013:20.5-11052020	PAHs and PCBs
SB-2020-013:23-11052020	PAHs and PCBs

Let me know if you have any questions!

Thanks and hope you have a great new year!

Shoshana Howard, PE | Senior Engineer
400 N. 34th St., Suite 100
Seattle, WA 98103-8636
www.shannonwilson.com
Phone: (206) 632-8020 Fax: (206) 695-6777
Direct: (206) 695-6811 skh@shanwil.com

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Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	20-Jan-2021 11:53

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-2020-013:20.5-11052020	20L0437-01	Solid	05-Nov-2020 15:30	29-Dec-2020 14:27
SB-2020-013:23-11052020	20L0437-02	Solid	05-Nov-2020 15:35	29-Dec-2020 14:27

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	20-Jan-2021 11:53

Work Order Case Narrative

Sample receipt

Samples as listed on the preceding page were received 29-Dec-2020 14:27 under ARI work order 20L0437. For details regarding sample receipt, please refer to the Cooler Receipt Form.

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

The samples were extracted and analyzed within the recommended holding times.

Sample SB-2020-013:20.5-11052020 was reamalyzed at a dilution due to "E" flagged compound concentrations exceeding the upper calibration limits. No further corrective action was taken.

Initial and continuing calibrations were within method requirements, with the exception of SIJ0085-SCV1 which is outside of control limits high for Dibenzofuran. No corrective action was taken.

The initial calibration verification (ICV) is outside of control limits high for Benzo(g,h,i)perylene. Associated detected results and QC have been flagged with "Q" qualifiers. No further corrective action was taken.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

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

PCB Aroclors - EPA Method SW8082A

The samples 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 was clean at the reporting limits.

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

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Seattle WA, 98103-8636	Project Manager: Meg Strong	20-Jan-2021 11:53

SB-2020-013:20.5-11052020

20L0437-01 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/05/2020 15:30
Instrument: NT11 Analyst: VTS — Analyzed: 01/14/2021 21:03

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20L0437-01 A 02
	Preparation Batch: BIL0797	Sample Size: 14.76 g (wet)	Dry Weight:10.03 g
	Prepared: 01/05/2021	Final Volume: 0.5 mL	% Solids: 67.98
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0437-01 A 02
	Cleanup Batch: CJA0088	Initial Volume: 0.5 mL	
	Cleaned: 11-Jan-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0437-01 A 02
	Cleanup Batch: CJA0087	Initial Volume: 0.5 mL	
	Cleaned: 11-Jan-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	16.4	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	9.43	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	10.4	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	4.05	ug/kg	
Acenaphthene	83-32-9	1	0.09	0.50	45.2	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	9.95	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	16.9	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	57.4	ug/kg	E
Anthracene	120-12-7	1	0.07	0.50	19.6	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	71.6	ug/kg	E
Pyrene	129-00-0	1	0.09	0.50	65.2	ug/kg	E
Benzo(a)anthracene	56-55-3	1	0.07	0.50	28.4	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	37.5	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	26.5	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	11.4	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	10.3	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	24.6	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	14.6	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	4.47	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	17.0	ug/kg	Q
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*57.4*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*93.5*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*78.5*	*%*	

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SB-2020-013:20.5-11052020

20L0437-01 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/05/2020 15:30
Instrument: ECD7 Analyst: JGR — Analyzed: 01/12/2021 00:07

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20L0437-01 A 01
	Preparation Batch: BIL0795	Sample Size: 18.42 g (wet)	Dry Weight:12.52 g
	Prepared: 01/04/2021	Final Volume: 2.5 mL	% Solids: 67.98
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0437-01 A 01
	Cleanup Batch: CJA0081	Initial Volume: 2.5 mL	
	Cleaned: 08-Jan-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20L0437-01 A 01
	Cleanup Batch: CJA0079	Initial Volume: 2.5 mL	
	Cleaned: 08-Jan-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0437-01 A 01
	Cleanup Batch: CJA0080	Initial Volume: 2.5 mL	
	Cleaned: 08-Jan-2021	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	22.7	ug/kg	
Aroclor 1260	11096-82-5	1	0.6	4.0	176	ug/kg	
Surrogate: Decachlorobiphenyl				*40-126 %*		*NRS*	NRS
Surrogate: Tetrachlorometaxylene				*44-120 %*	*57.3*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*63.1*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*58.4*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	20-Jan-2021 11:53

SB-2020-013:20.5-11052020

20L0437-01RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/05/2020 15:30
Instrument: NT11 Analyst: VTS — Analyzed: 01/19/2021 10:44

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20L0437-01RE1 A 02
	Preparation Batch: BIL0797	Sample Size: 14.76 g (wet)	Dry Weight:10.03 g
	Prepared: 01/05/2021	Final Volume: 0.5 mL	% Solids: 67.98
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0437-01RE1 A 02
	Cleanup Batch: CJA0088	Initial Volume: 0.5 mL	
	Cleaned: 11-Jan-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0437-01RE1 A 02
	Cleanup Batch: CJA0087	Initial Volume: 0.5 mL	
	Cleaned: 11-Jan-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	2	0.88	1.20	16.0	ug/kg	D
1-Methylnaphthalene	90-12-0	2	0.21	1.00	8.70	ug/kg	D
2-Methylnaphthalene	91-57-6	2	0.26	1.00	10.0	ug/kg	D
Acenaphthylene	208-96-8	2	0.13	1.00	2.78	ug/kg	D
Acenaphthene	83-32-9	2	0.18	1.00	47.9	ug/kg	D
Dibenzofuran	132-64-9	2	0.25	1.00	9.32	ug/kg	D
Fluorene	86-73-7	2	0.14	1.00	16.8	ug/kg	D
Phenanthrene	85-01-8	2	0.23	1.00	65.6	ug/kg	D
Anthracene	120-12-7	2	0.15	1.00	26.5	ug/kg	D
Fluoranthene	206-44-0	2	0.16	1.00	88.6	ug/kg	D
Pyrene	129-00-0	2	0.18	1.00	78.6	ug/kg	D
Benzo(a)anthracene	56-55-3	2	0.14	1.00	30.3	ug/kg	D
Chrysene	218-01-9	2	0.14	1.00	40.0	ug/kg	D
Benzo(b)fluoranthene	205-99-2	2	0.13	1.00	26.4	ug/kg	D
Benzo(k)fluoranthene	207-08-9	2	0.20	1.00	12.5	ug/kg	D
Benzo(j)fluoranthene	205-82-3	2	0.19	1.00	11.7	ug/kg	Q, D
Benzo(a)pyrene	50-32-8	2	0.17	1.00	25.1	ug/kg	D
Indeno(1,2,3-cd)pyrene	193-39-5	2	0.18	1.00	14.4	ug/kg	D
Dibenzo(a,h)anthracene	53-70-3	2	0.21	1.00	4.19	ug/kg	D
Benzo(g,h,i)perylene	191-24-2	2	0.17	1.00	17.2	ug/kg	D
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*56.2*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*87.6*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*83.5*	*%*	

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400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	20-Jan-2021 11:53

SB-2020-013:23-11052020

20L0437-02 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 11/05/2020 15:35
Instrument: NT11 Analyst: VTS — Analyzed: 01/14/2021 21:35

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 20L0437-02 A 02
	Preparation Batch: BIL0797	Sample Size: 13.71 g (wet)	Dry Weight:10.02 g
	Prepared: 01/05/2021	Final Volume: 0.5 mL	% Solids: 73.12
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0437-02 A 02
	Cleanup Batch: CJA0088	Initial Volume: 0.5 mL	
	Cleaned: 11-Jan-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0437-02 A 02
	Cleanup Batch: CJA0087	Initial Volume: 0.5 mL	
	Cleaned: 11-Jan-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	7.51	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	8.06	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	9.06	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	1.22	ug/kg	
Acenaphthene	83-32-9	1	0.09	0.50	8.95	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	6.83	ug/kg	
Fluorene	86-73-7	1	0.07	0.50	6.58	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	16.5	ug/kg	
Anthracene	120-12-7	1	0.07	0.50	5.50	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	25.4	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	19.8	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	5.29	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	6.23	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	4.34	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	1.68	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	1.61	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	3.16	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	2.47	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.51	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	3.38	ug/kg	Q
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*55.4*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*86.2*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*78.7*	*%*	

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SB-2020-013:23-11052020

20L0437-02 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 11/05/2020 15:35
Instrument: ECD7 Analyst: JGR — Analyzed: 01/12/2021 00:27

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 20L0437-02 A 01
	Preparation Batch: BIL0795	Sample Size: 17.16 g (wet)	Dry Weight:12.55 g
	Prepared: 01/04/2021	Final Volume: 2.5 mL	% Solids: 73.12
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 20L0437-02 A 01
	Cleanup Batch: CJA0081	Initial Volume: 2.5 mL	
	Cleaned: 08-Jan-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:20L0437-02 A 01
	Cleanup Batch: CJA0079	Initial Volume: 2.5 mL	
	Cleaned: 08-Jan-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:20L0437-02 A 01
	Cleanup Batch: CJA0080	Initial Volume: 2.5 mL	
	Cleaned: 08-Jan-2021	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*69.5*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*60.9*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*67.3*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*65.5*	*%*	

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Semivolatile Organic Compounds - SIM - Quality Control

Batch BIL0797 - EPA 3546 (Microwave) Low Level

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 (BIL0797-BLK1)				Prepared: 05-Jan-2021 Analyzed: 14-Jan-2021 15:38							
Naphthalene	ND	0.44	0.60	ug/kg							U
1-Methylnaphthalene	0.12	0.11	0.50	ug/kg							J
2-Methylnaphthalene	0.15	0.13	0.50	ug/kg							J
Acenaphthylene	ND	0.06	0.50	ug/kg							U
Acenaphthene	ND	0.09	0.50	ug/kg							U
Dibenzofuran	ND	0.13	0.50	ug/kg							U
Fluorene	ND	0.07	0.50	ug/kg							U
Phenanthrene	0.19	0.11	0.50	ug/kg							J
Anthracene	ND	0.07	0.50	ug/kg							U
Fluoranthene	0.16	0.08	0.50	ug/kg							J
Pyrene	0.16	0.09	0.50	ug/kg							J
Benzo(a)anthracene	ND	0.07	0.50	ug/kg							U
Chrysene	0.08	0.07	0.50	ug/kg							J
Benzo(b)fluoranthene	ND	0.07	0.50	ug/kg							U
Benzo(k)fluoranthene	ND	0.10	0.50	ug/kg							U
Benzo(j)fluoranthene	ND	0.10	0.50	ug/kg							U
Benzo(a)pyrene	ND	0.09	0.50	ug/kg							U
Indeno(1,2,3-cd)pyrene	ND	0.09	0.50	ug/kg							U
Dibenzo(a,h)anthracene	ND	0.11	0.50	ug/kg							U
Benzo(g,h,i)perylene	ND	0.09	0.50	ug/kg							U
Surrogate: 2-Methylnaphthalene-d10	8.00			ug/kg	*15.0*		*53.3*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	10.0			ug/kg	*15.0*		*66.9*	*30-160*			
Surrogate: Fluoranthene-d10	10.8			ug/kg	*15.0*		*72.0*	*30-160*			
LCS (BIL0797-BS1)				Prepared: 05-Jan-2021 Analyzed: 14-Jan-2021 16:11							
Naphthalene	8.33	0.44	0.60	ug/kg	15.0		55.5	30-160			
1-Methylnaphthalene	8.82	0.11	0.50	ug/kg	15.0		58.8	30-160			
2-Methylnaphthalene	8.79	0.13	0.50	ug/kg	15.0		58.6	30-160			
Acenaphthylene	7.57	0.06	0.50	ug/kg	15.0		50.5	30-160			
Acenaphthene	8.49	0.09	0.50	ug/kg	15.0		56.6	30-160			
Dibenzofuran	8.82	0.13	0.50	ug/kg	15.0		58.8	30-160			
Fluorene	9.37	0.07	0.50	ug/kg	15.0		62.5	30-160			
Phenanthrene	9.92	0.11	0.50	ug/kg	15.0		66.1	30-160			
Anthracene	9.57	0.07	0.50	ug/kg	15.0		63.8	30-160			
Fluoranthene	11.8	0.08	0.50	ug/kg	15.0		78.4	30-160			

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Seattle WA, 98103-8636	Project Manager: Meg Strong	20-Jan-2021 11:53

Semivolatile Organic Compounds - SIM - Quality Control

Batch BIL0797 - EPA 3546 (Microwave) Low Level

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 (BIL0797-BS1)				Prepared: 05-Jan-2021 Analyzed: 14-Jan-2021 16:11							
Pyrene	11.7	0.09	0.50	ug/kg	15.0		78.2	30-160			
Benzo(a)anthracene	12.1	0.07	0.50	ug/kg	15.0		80.6	30-160			
Chrysene	11.5	0.07	0.50	ug/kg	15.0		76.7	30-160			
Benzo(b)fluoranthene	12.6	0.07	0.50	ug/kg	15.0		84.1	30-160			
Benzo(k)fluoranthene	12.1	0.10	0.50	ug/kg	15.0		80.6	30-160			
Benzo(j)fluoranthene	10.9	0.10	0.50	ug/kg	15.0		72.7	30-160			
Benzo(a)pyrene	10.9	0.09	0.50	ug/kg	15.0		72.8	30-160			
Indeno(1,2,3-cd)pyrene	11.3	0.09	0.50	ug/kg	15.0		75.1	30-160			
Dibenzo(a,h)anthracene	11.4	0.11	0.50	ug/kg	15.0		76.0	30-160			
Benzo(g,h,i)perylene	10.4	0.09	0.50	ug/kg	15.0		69.6	30-160			Q
Surrogate: 2-Methylnaphthalene-d10	8.25			ug/kg	*15.0*		*55.0*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	11.2			ug/kg	*15.0*		*74.6*	*30-160*			
Surrogate: Fluoranthene-d10	11.6			ug/kg	*15.0*		*77.5*	*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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	20-Jan-2021 11:53

Aroclor PCB - Quality Control

Batch BIL0795 - EPA 3546 (Microwave)

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 (BIL0795-BLK1)				Prepared: 04-Jan-2021 Analyzed: 11-Jan-2021 20:41							
Aroclor 1016	ND	1.6	4.0	ug/kg							U
Aroclor 1221	ND	1.6	4.0	ug/kg							U
Aroclor 1232	ND	1.6	4.0	ug/kg							U
Aroclor 1242	ND	1.6	4.0	ug/kg							U
Aroclor 1248	ND	1.6	4.0	ug/kg							U
Aroclor 1254	ND	1.6	4.0	ug/kg							U
Aroclor 1260	ND	0.6	4.0	ug/kg							U
Surrogate: Decachlorobiphenyl	6.63			ug/kg	*8.00*		*82.8*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.29			ug/kg	*8.00*		*66.2*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	6.83			ug/kg	*8.00*		*85.4*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	5.60			ug/kg	*8.00*		*70.0*	*44-120*			
LCS (BIL0795-BS1)				Prepared: 04-Jan-2021 Analyzed: 11-Jan-2021 21:02							
Aroclor 1016 [2C]	78.4	1.6	4.0	ug/kg	101		77.7	56-120			
Aroclor 1260	86.7	0.6	4.0	ug/kg	101		86.0	58-120			
Surrogate: Decachlorobiphenyl	6.83			ug/kg	*8.00*		*85.3*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.34			ug/kg	*8.00*		*66.8*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	7.16			ug/kg	*8.00*		*89.5*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	5.53			ug/kg	*8.00*		*69.1*	*44-120*			

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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: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	20-Jan-2021 11:53

Certified Analyses included in this Report

Analyte	Certifications
EPA 8082A in Solid	
Aroclor 1016	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1016	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1016 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1221	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1221 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1232 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1242 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,CALAP,ADEC

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	20-Jan-2021 11:53

Aroclor 1248	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1248 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1254	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1254 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1260	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1262	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262 [2C]	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1268	DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,CALAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,CALAP,ADEC
Aroclor 1268 [2C]	DoD-ELAP,NELAP,CALAP,ADEC

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	20-Jan-2021 11:53

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: 21-1-125996	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	20-Jan-2021 11:53

Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
J	Estimated concentration value detected below the reporting limit.
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).
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

04 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)
21A0352	N/A

Susan Dunnihoo

Digitally signed by Susan Dunnihoo
Date: 2021.08.04 10:48:29 -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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ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

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Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21A0352	Turn-around Requested: Standard	Page: 1 of 5	
ARI Client Company: Shannon & Wilson	Phone:	Date: 1/25/21	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 4	Cooler Temps: See COC
Client Project Name: LDW			
Client Project #: 21-1-~~109~~ 12596	Samplers: RBP, CTC, MRH		

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Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TPH-G (7)	TPH-Dx	BTEX	HVOCs	PAHs	PCB Aroclors	Metals		Notes/Comments
SB-2020-017:2-01252021	1/25/21	0908	Soil	7	X	X	X	X	X	X	X		
SB-2020-017:5-01252021		0915	Soil	7	X	X	X	X	X	X	X		
SB-2020-017:10.5-01252021		0920		7	X	X	X	X	X	X	X		
SB-2020-017:12.6-01252021		0930		7	H	H	H	H	H	H	H		
SB-2020-039:2-01252021		1010		7	X	X	X	X	X		X		
SB-2020-039:7.4-01252021		1015		7	X	X	X	X	X		X		
SB-2020-039:10.7-01252021		1020		7	X	X	X	X	X		X		
SB-2020-039:13.2-01252021		1025		7	H	H	H	H	H		H		
SB-2020-009:2-01252021		1100		7	X	X	X	X	X		X		
SB-2020-004:6-01252021		1105		7	X	X	X	X	X		X		

Comments/Special Instructions
X = run analysis
H = hold analysis

Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Printed Name: RYAN PETERSON	Printed Name: Jacob Haltz	Printed Name:	Printed Name:
Company: Shannon & Wilson	Company: ARI	Company:	Company:
Date & Time: 1/25/21 1640	Date & Time: 01/25/2021 1640	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: 21A0352	Turn-around Requested: Standard	Page: 2 of 5	
ARI Client Company: Shannon & Wilson	Phone:	Date: 1/25/21	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 4	Cooler Temps: See CRF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: CTC, RBP, MKH		

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Sample ID	Date	Time	Matrix	No. Containers	TPH-G	TPH-Dx	BTEX	HVOCs	PAHs	PCB Aroclors	Metals		Notes/Comments
					Analysis Requested								
SB-2020-009:10.8-01252021	1/25/21	1110	Soil	7	X	X	X	X	X		X		
SB-2020-009:13.3-01252021		1115	Soil	7	H	H	H	H	H		H		
TSA-2020-004:1.2-01252021		1145		1						X			
TSA-2020-004:1.7-01252021		1150		1						H			
TSA-2020-004:3-01252021		1155		1						H			
TSA-2020-004:6-01252021		1200		1						H			
Asphalt-001-01252021		12005	asphalt	1						X			
TSA-2020-005:1.2-01252021		1215	Soil	1						X			
TSA-2020-005:1.7-01252021		1220		1						H			
TSA-2020-005:3-01252021		1225		1						H			

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
X = run analysis H = hold analysis	(Signature)	(Signature)	(Signature)	(Signature)
	Printed Name: RYAN PETERSON	Printed Name: Sarah Leith	Printed Name:	Printed Name:
	Company: Shannon & Wilson	Company: ARI	Company:	Company:
	Date & Time: 1/25/21 1640	Date & Time: 01/25/2021 1640	Date & Time:	Date & Time:

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

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

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21A0352	Turn-around Requested: Standard	Page: 3 of 5	
ARI Client Company: Shannon & Wilson	Phone:	Date: 1/25/21	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 4	Cooler Temps: See CRF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RBP, CTC, MRH		

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Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TPH-G	TPH-Dx	BTEX	HVOCs	PAHs	PCB Aroclors	Metals		Notes/Comments
TSA-2020-005:6-01252021	1/25/21	1230	Soil	1						H			
TSA-2020-100:1.2-01252021		1300	Soil	1						X			
Asphalt-002-01252021		1245	Asphalt	1						X			
TSA-2020-006:1.2-01252021		1245	Soil	1						X			
TSA-2020-006:1.7-01252021		1250		1						H			
TSA-2020-006:3-01252021		1255		1						H			
TSA-2020-006:6-01252021		1300		1						H			
SB-2020-011:1-01252021		1340		2		X			X		X		
SB-2020-011:3-01252021		1347		2		X			X		X		
SB-2020-011:10-01252021		1350		2		X			X		X		

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
X = run analysis H = hold analysis	(Signature)	(Signature)	(Signature)	(Signature)
	Printed Name: MARTIN PETERSON	Printed Name: Jacob Haake	Printed Name:	Printed Name:
	Company: Shannon & Wilson	Company: ARI	Company:	Company:
	Date & Time: 1/25/21 1640	Date & Time: 01/25/2021 1640	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: 21A0352	Turn-around Requested: Standard	Page: 4 of 5	
ARI Client Company: Shannon & Wilson	Phone:	Date: 1/25/21	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 4	Cooler Temps: See COF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RSP, 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: TPH-G	TPH-Dx	BTEX	HVOCs	PAHs	PCB Aroclors	Metals	Total Organic Carbon and Grain Size Analysis	Notes/Comments
SB-2020-011:13.4-01252021	1/25/21	1355	Soil	2		H			H		H		
SB-2020-101:1-01252021		1400	↓	2		X			X		X		
Asphalt-003-01252021		1420	Asphalt	1						X			
SB-2020-012:2-01252021		1421	Soil	2		X			X		X		
SB-2020-012:3.4-01252021		1422		2		X			X		X		
SB-2020-012:10.4-01252021		1425		2		X			X		X		
SB-2020-012:12.6-01252021		1430		2		H			H		H		
MW-66:1.2-012521		1305		5		X	X	X	X		X		
MW-66:5.5-012521		1320		6		X	X	X	X		X	X	
MW-66:10.0-012521		1350	↓	5		X	X	X	X		X		

Comments/Special Instructions
X = run analysis
H = hold analysis

Relinquished by: (Signature)		Received by: (Signature)	
Printed Name:	Ryan Peterson	Printed Name:	Jacob Lalta
Company:	Shannon & Wilson	Company:	ARI
Date & Time:	1/25/21 1640	Date & Time:	01/25/2021 1640
Relinquished by: (Signature)		Received by: (Signature)	
Printed Name:		Printed Name:	
Company:		Company:	
Date & Time:		Date & Time:	

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Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21A0352	Turn-around Requested: Standard
ARI Client Company: Shannon & Wilson	Phone:
Client Contact: Shoshana Howard	
Client Project Name: LDW	
Client Project #: 21-1-12596	Samplers: RBP, GTG, MRH

Page: 5 of 5	
Date: 1/25/21	Ice Present? Yes
No. of Coolers: 4	Cooler Temps: See COC

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	PCB Aroclors	Metals	Total Organic Carbon and Grain Size Analysis	Notes/Comments
MW-66:15.5-012521	1/25/21	1400	Soil	6		H	H	H	H		H	X	
MW-66:20.5-012521		1415		5		H	H	H	H		H		
SB-2020-034:10.7-012520 21		1525		6	X	X	X	X					
SB-2020-102:10.7-012520 21		1600		6	X	X	X	X					
SB-2020-034:15-012520 21		1545		6	X	X	X						
SB-2020-034:21-012520 21		1550		6	X	X	X						
TB-1-012520 21		1600	Water	1	X		X	X					
As Further													

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: RYAN PETERSON	Printed Name: Jacob Shelter	Printed Name:	Printed Name:
	Company: Shannon & Wilson	Company: ARI	Company:	Company:
	Date & Time: 1/25/21 1640	Date & Time: 01/25/2021 1640	Date & Time:	Date & Time:

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Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21A0352	Turn-around Requested: Standard	Page: 1 of 5	
ARI Client Company: Shannon & Wilson	Phone:	Date: 1/25/21	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 4	Cooler Temps: See COC
Client Project Name: LDW			
Client Project #: 21-1-~~109~~ 12596	Samplers: RBP, CTC, MRH		

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Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
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Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TPH-G (7)	TPH-Dx	BTEX	HVOCs	PAHs	PCB Aroclors	Metals		Notes/Comments
SB-~~2020~~-017:2-01252021	1/25/21	0908	Soil	7	X	X	X	X	X	X	X		In sample IDs, please replace all occurrences of "2020" with "2021" -SKH
SB-~~2020~~-017:5-01252021		0915	Soil	7	X	X	X	X	X	X	X		
SB-~~2020~~-017:10.5-01252021		0920		7	X	X	X	X	X	X	X		
SB-~~2020~~-017:12.6-01252021		0930		7	H	H	H	H	H	H	H		
SB-~~2020~~-039:2-01252021		1010		7	X	X	X	X	X		X		
SB-~~2020~~-039:7.4-01252021		1015		7	X	X	X	X	X		X		
SB-~~2020~~-039:10.7-01252021		1020		7	X	X	X	X	X		X		
SB-~~2020~~-039:13.2-01252021		1025		7	H	H	H	H	H		H		
SB-~~2020~~-009:2-01252021		1100		7	X	X	X	X	X		X		
SB-~~2020~~-004:6-01252021		1105		7	X	X	X	X	X		X		

Comments/Special Instructions
X = run analysis
H = hold analysis

	Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)				
Printed Name:	RYAN PETERSON	Jacob Hall		
Company:	Shannon & Wilson	ARI		
Date & Time:	1/25/21 1640	01/25/2021 1640		

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Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21A0352	Turn-around Requested: Standard	Page: 2 of 5	
ARI Client Company: Shannon & Wilson	Phone:	Date: 1/25/21	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 4	Cooler Temps: See COC
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: CTC, RBP, MJCH		

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206-695-6200 206-695-6201 (fax)
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Sample ID	Date	Time	Matrix	No. Containers	TPH-G	TPH-Dx	BTEX	HVOCs	PAHs	PCB Aroclors	Metals		Notes/Comments
					Analysis Requested								
SB-2020-009:10.8-01252021	1/25/21	1110	Soil	7	X	X	X	X	X		X		In sample IDs, please replace all occurrences of "2020" with "2021" -SKH
SB-2020-009:13.3-01252021		1115	Soil	7	H	H	H	H	H		H		
TSA-2020-004:1.2-01252021		1145		1						X			
TSA-2020-004:1.7-01252021		1150		1						H			
TSA-2020-004:3-01252021		1155		1						H			
TSA-2020-004:6-01252021		1200		1						H			
Asphalt-001-01252021		12005	asphalt	1						X			
TSA-2020-005:1.2-01252021		1215	Soil	1						X			
TSA-2020-005:1.7-01252021		1220		1						H			
TSA-2020-005:3-01252021		1225		1						H			

Comments/Special Instructions
X = run analysis
H = hold analysis

	Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)				
Printed Name:	RYAN PETERSON	Scott Leith		
Company:	Shannon & Wilson	ARI		
Date & Time:	1/25/21 1640	01/25/2021 1640		

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Draft for Public Comment

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21A0352	Turn-around Requested: Standard	Page: 3 of 5	
ARI Client Company: Shannon & Wilson	Phone:	Date: 1/25/21	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 4	Cooler Temps: See CRF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RBP, CTC, MRH		

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Sample ID	Date	Time	Matrix	No. Containers	TPH-G	TPH-Dx	BTEX	HVOCs	PAHs	PCB Aroclors	Metals		Notes/Comments
TSA-2020-005:6-01252021	1/25/21	1230	Soil	1						H			In sample IDs, please replace all occurrences of "2020" with "2021" -SKH
TSA-2020-100:1.2-01252021		1300	Soil	1						X			
Asphalt-002-01252021		1245	Asphalt	1						X			
TSA-2020-006:1.2-01252021		1245	Soil	1						X			
TSA-2020-006:1.7-01252021		1250		1						H			
TSA-2020-006:3-01252021		1255		1						H			
TSA-2020-006:6-01252021		1300		1						H			
SB-2020-011:1-01252021		1340		2		X			X		X		
SB-2020-011:3-01252021		1347		2		X			X		X		
SB-2020-011:10-01252021		1350		2		X			X		X		

Comments/Special Instructions
X = run analysis
H = hold analysis

	Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature)				
Printed Name:	Matt Peterson	Jacob Hecht		
Company:	Shannon & Wilson	ARI		
Date & Time:	1/25/21 1640	01/25/2021 1640		

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21A0352	Turn-around Requested: Standard	Page: 4 of 5	
ARI Client Company: Shannon & Wilson	Phone:	Date: 1/25/21	Ice Present? Yes
Client Contact: Shoshana Howard		No. of Coolers: 4	Cooler Temps: See COF
Client Project Name: LDW			
Client Project #: 21-1-12596	Samplers: RSP, CTC, MRH		

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Sample ID	Date	Time	Matrix	No. Containers	TPH-G	TPH-Dx	BTEX	HVOCs	PAHs	PCB Aroclors	Metals	Total Organic Carbon and Grain Size Analysis	Notes/Comments
SB-2020-011:13.4-01252021	1/25/21	1355	Soil	2		H			H		H		In sample IDs, please replace all occurrences of "2020" with "2021" -SKH
SB-2020-101:1-01252021		1400	↓	2		X			X		X		
Asphalt-003-01252021		1420	Asphalt	1						X			
SB-2020-012:2-01252021		1421	Soil	2		X			X		X		
SB-2020-012:3.4-01252021		1422		2		X			X		X		
SB-2020-012:10.4-01252021		1425		2		X			X		X		
SB-2020-012:12.6-01252021		1430		2		H			H		H		
MW-66:1.2-012521		1305		5		X	X	X	X		X		
MW-66:5.5-012521		1320		6		X	X	X	X		X	X	
MW-66:10.0-012521		1350	↓	5		X	X	X	X		X		

Comments/Special Instructions
X = run analysis
H = hold analysis

Relinquished by: (Signature)		Received by: (Signature)	
Printed Name:	RYAN PETERSON	Printed Name:	Jacob Laite
Company:	Shannon & Wilson	Company:	ARI
Date & Time:	1/25/21 1640	Date & Time:	01/25/2021 1640
Relinquished by: (Signature)		Received by: (Signature)	
Printed Name:		Printed Name:	
Company:		Company:	
Date & Time:		Date & Time:	

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 21A0352	Turn-around Requested: Standard
ARI Client Company: Shannon & Wilson	Phone:
Client Contact: Shoshana Howard	
Client Project Name: LDW	
Client Project #: 21-1-12596	Samplers: RBP, GTG, MRH

Page: 5 of 5	
Date: 1/25/21	Ice Present? Yes
No. of Coolers: 4	Cooler Temps: See CR

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Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TPH-G	TPH-Dx	BTEX	HVOCs	PAHs	PCB Aroclors	Metals	Total Organic Carbon and Grain Size Analysis	Notes/Comments
MW-66:15.5-012521	1/25/21	1400	Soil	6		H	H	H	H		H	X	In sample IDs, please replace all occurrences of "2020" with "2021" -SKH
MW-66:20.5-012521		1415		5		H	H	H	H		H		
SB-2020-034:10.7-012520 21		1525		6	X	X	X	X					
SB-2020-102:10.7-012520 21		1600		6	X	X	X	X					
SB-2020-034:15-012520 21		1545		6	X	X	X						
SB-2020-034:21-012520 21		1550		6	X	X	X						
TB-1-012520 21		1600	Water	1	X		X	X					

No Further

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: RYAN PETERSON	Printed Name: Jacob Shafer	Printed Name:	Printed Name:
	Company: Shannon & Wilson	Company: ARI	Company:	Company:
	Date & Time: 1/25/21 1640	Date & Time: 01/25/2021 1640	Date & Time:	Date & Time:

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Materials Testing & Consulting, Inc.
Geotechnical Engineering • Special Inspection • Materials Testing • Environmental Consulting

Project:	Lower Duwamish (21A0352)	**Date Received:**	January 27, 2021
Project #:	21S023-04	**Sampled By:**	Others
Client :	Analytical Resources, Inc.	**Date Reported:**	March 11, 2021
Source:	Multiple	**Tested By:**	B. Goble, S. Bennett
MTC Sample#:	Multiple		

CASE NARRATIVE

1. Two samples were submitted for grain size analysis according to Puget Sound Estuary Protocol (PSEP) methodology.
2. The samples were run in a single batch and one sample from another job was chosen for triplicate analysis. The triplicate data is reported on the QA summary.
3. The data is provided in summary tables and plots.
4. There were no noted anomalies during this testing.

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: E Gabriel Goble

Draft for Public Comment

Materials Testing & Consulting, Inc.

Geotechnical Engineering • Special Inspection • Materials Testing • Environmental Consulting

Project: Lower Duwamish (21A0352)
Project #: 21S023-04
Date Received: January 27, 2021
Date Tested: March 9, 2021

Client: Analytical Resources, Inc.
Sampled by: Others
Tested by: B. Goble, S. Bennett

Apparent Grain Size Distribution Summary

Percent Finer Than Indicated Size

Sample No.	Gravel			Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt				Clay	
Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
Sieve Size (microns)	3/8"	#4 (4750)	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (63)	31.0	15.6	7.8	3.9	2.0	1.0
MW-67:5.5-01262021	100.0	100.0	100.0	99.9	99.5	98.5	93.7	80.0	64.7	43.2	29.9	20.4	13.8	5.7
	100.0	100.0	100.0	99.8	99.4	97.2	92.4	78.5	63.0	44.1	30.5	20.8	13.6	5.6
	100.0	100.0	99.8	99.6	99.4	98.7	94.8	81.2	68.3	48.9	34.2	23.5	15.4	7.5
MW-66:5.5-0112521	100.0	100.0	99.1	97.1	86.0	53.7	25.9	13.5	8.1	6.0	4.6	3.4	2.4	1.6
MW-66:15.5-0112521	100.0	100.0	99.7	99.0	94.8	73.6	44.7	21.4	14.2	11.3	9.1	7.0	4.9	3.4

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

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Regional Offices: Olympia ~ 360.534.9777 Bellingham ~ 360.647.6061 Silverdale ~ 360.698.6787 Tukwila ~ 206.241.1974
Visit our website: www.mtc-inc.net

Materials Testing & Consulting, Inc.

Geotechnical Engineering • Special Inspection • Materials Testing • Environmental Consulting

Project: Lower Duwamish (21A0352)
Project #: 21S023-04
Date Received: January 27, 2021
Date Tested: March 9, 2021

Client: Analytical Resources, Inc.
Sampled by: Others
Tested by: B. Goble, S. Bennett

Apparent Grain Size Distribution Summary

Percent Retained in Each Size Fraction

Sample No.	Gravel	Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Coarse Silt	Medium Silt	Fine Silt	Very Fine Silt	Clay			Total Fines
Phi Size	< -1	-1 to 0	0 to 1	1 to 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	> 10	> 4
Sieve Size (microns)	> #10 (2000)	10-18 (2000-1000)	18-35 (1000-500)	35-60 (500-250)	60-120 (250-125)	120-230 (125-62)	62.5-31.0	31.0-15.6	15.6-7.8	7.8-3.9	3.9-2.0	2.0-1.0	<1.0	<230 (<62)
MW-67:5.5-01262021	0.0	0.1	0.4	1.0	4.8	13.7	15.3	21.5	13.3	9.5	6.7	8.0	5.7	80.0
	0.0	0.2	0.5	2.1	4.9	13.8	15.6	18.9	13.6	9.7	7.3	7.9	5.6	78.5
	0.2	0.2	0.2	0.7	3.9	13.6	12.9	19.4	14.7	10.7	8.1	8.0	7.5	81.2
MW-66:5.5-0112521	0.9	2.0	11.1	32.3	27.8	12.4	5.4	2.0	1.5	1.2	1.0	0.8	1.6	13.5
MW-66:15.5-0112521	0.3	0.7	4.2	21.2	28.9	23.3	7.2	2.9	2.2	2.0	2.1	1.5	3.4	21.4

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Reviewed by: E Gabriel Goble

Draft for Public Comment

Materials Testing & Consulting, Inc.

Geotechnical Engineering • Special Inspection • Materials Testing • Environmental Consulting

Project: Lower Duwamish (21A0352)
Project #: 21S023-04
Date Received: January 27, 2021
Date Tested: March 9, 2021

Client: Analytical Resources, Inc.
Sampled by: Others
Tested by: B. Goble, S. Bennett

Relative Standard Deviation, By Phi Size

Sample ID	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
MW-67:5.5-01262021	100.0	100.0	100.0	99.9	99.5	98.5	93.7	80.0	64.7	43.2	29.9	20.4	13.8	5.7
	100.0	100.0	100.0	99.8	99.4	97.2	92.4	78.5	63.0	44.1	30.5	20.8	13.6	5.6
	100.0	100.0	99.8	99.6	99.4	98.7	94.8	81.2	68.3	48.9	34.2	23.5	15.4	7.5
AVE	100.0	100.0	99.9	99.8	99.4	98.2	93.6	79.9	65.3	45.4	31.5	21.6	14.2	6.3
STDEV	0.0	0.0	0.1	0.1	0.1	0.6	1.0	1.1	2.2	2.5	1.9	1.4	0.8	0.8
%RSD	0.0	0.0	0.1	0.1	0.1	0.7	1.1	1.4	3.4	5.5	6.0	6.3	5.9	13.4

The Triplicate Applies To The Following Samples

Client ID	Date Sampled	Date Extracted	Date Complete	QA Ratio (95-105)	Data Qualifiers	Pipette Portion (5.0-25.0g)
MW-67:5.5-01262021	1/26/2021	3/1/2021	3/9/2021	101.1		17.2
	1/26/2021	3/1/2021	3/9/2021	101.6		15.8
	1/26/2021	3/1/2021	3/9/2021	103.6		17.5
MW-66:5.5-0112521	1/25/2021	3/1/2021	3/9/2021	103.6		18.6
MW-66:15.5-0112521	1/25/2021	3/1/2021	3/9/2021	104.7		15.8

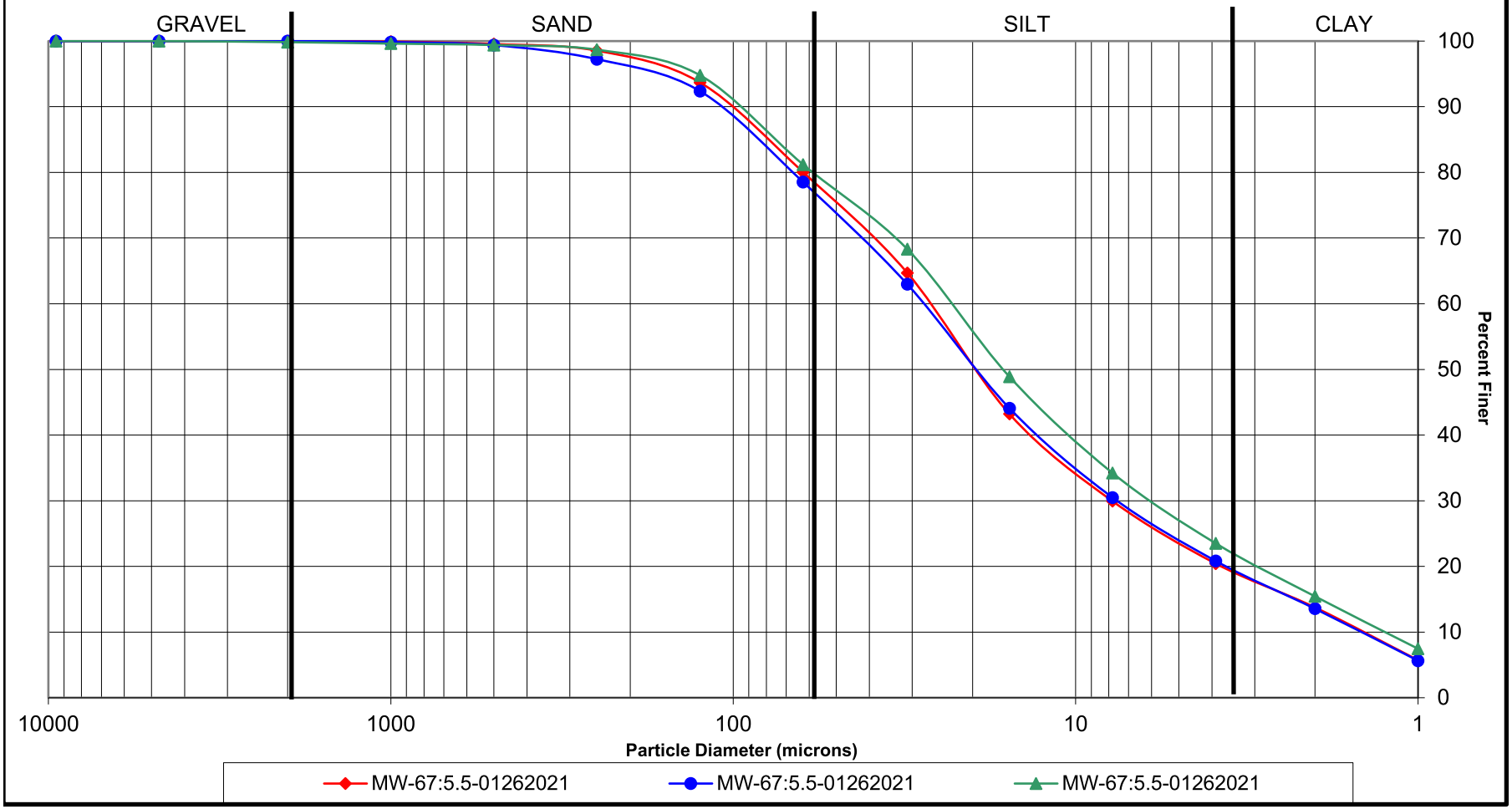
All results apply only to actual locations and materials tested. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

Reviewed by: EGabriel Goble

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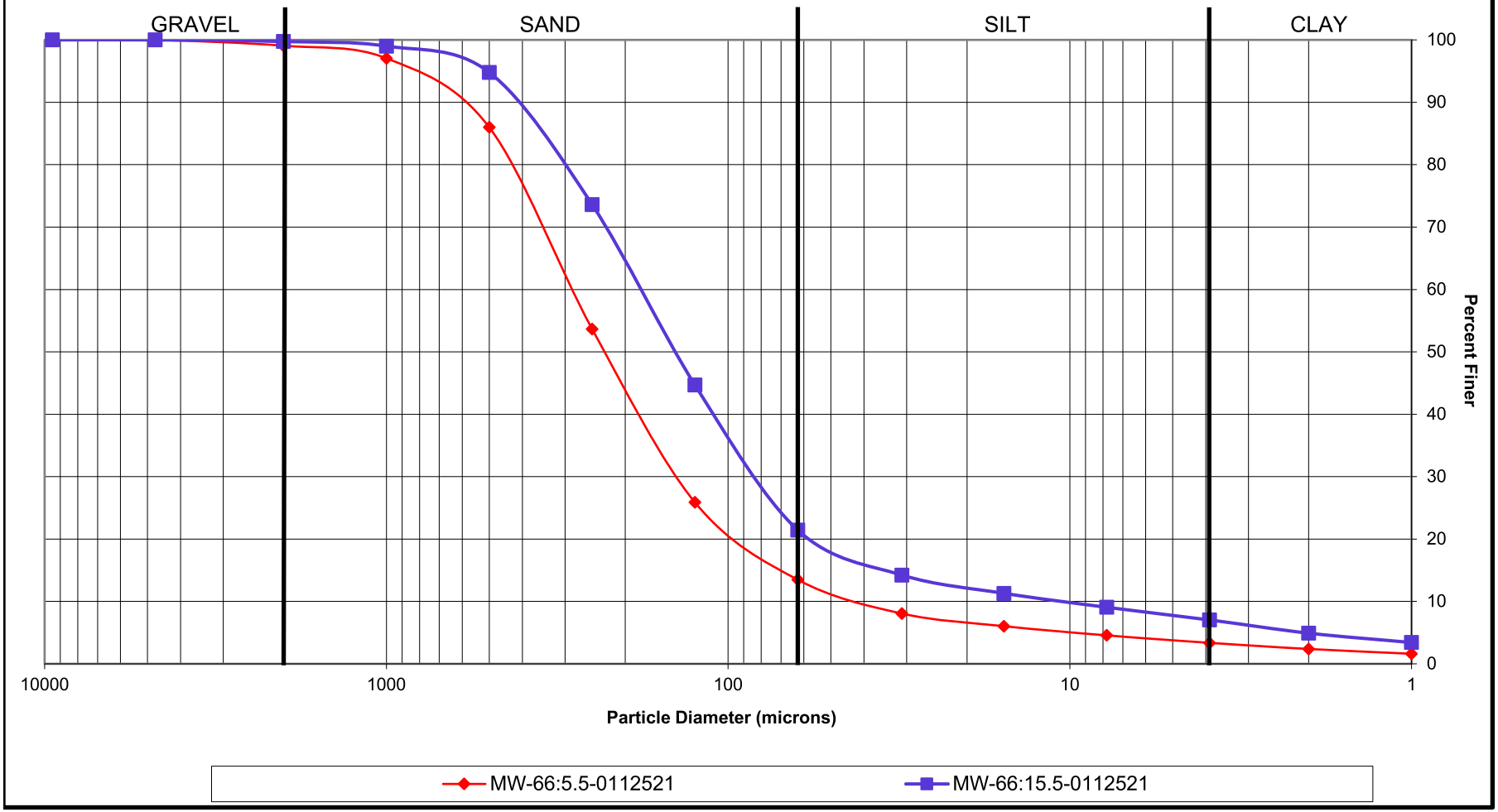
PSEP Grain Size Distribution

Triplicate Sample Plot



MATERIALS TESTING & CONSULTING, INC.

PSEP Grain Size Distribution



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	04-Aug-2021 10:04

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB-2021-017:2-01252021	21A0352-01	Solid	25-Jan-2021 09:08	25-Jan-2021 16:40
SB-2021-017:5-01252021	21A0352-02	Solid	25-Jan-2021 09:15	25-Jan-2021 16:40
SB-2021-017:10.5-01252021	21A0352-03	Solid	25-Jan-2021 09:20	25-Jan-2021 16:40
SB-2021-017:12.6-01252021	21A0352-04	Solid	25-Jan-2021 09:30	25-Jan-2021 16:40
SB-2021-039:2-01252021	21A0352-05	Solid	25-Jan-2021 10:10	25-Jan-2021 16:40
SB-2021-039:7.4-01252021	21A0352-06	Solid	25-Jan-2021 10:15	25-Jan-2021 16:40
SB-2021-039:10.7-01252021	21A0352-07	Solid	25-Jan-2021 10:20	25-Jan-2021 16:40
SB-2021-039:13.2-01252021	21A0352-08	Solid	25-Jan-2021 10:25	25-Jan-2021 16:40
SB-2021-009:2-01252021	21A0352-09	Solid	25-Jan-2021 11:00	25-Jan-2021 16:40
SB-2021-009:6-01252021	21A0352-10	Solid	25-Jan-2021 11:05	25-Jan-2021 16:40
SB-2021-009:10.8-01252021	21A0352-11	Solid	25-Jan-2021 11:10	25-Jan-2021 16:40
SB-2021-009:13.3-01252021	21A0352-12	Solid	25-Jan-2021 11:15	25-Jan-2021 16:40
TSA-2021-004:1.2-01252021	21A0352-13	Solid	25-Jan-2021 11:45	25-Jan-2021 16:40
TSA-2021-004:3-01252021	21A0352-14	Solid	25-Jan-2021 11:55	25-Jan-2021 16:40
TSA-2021-004:6-01252021	21A0352-15	Solid	25-Jan-2021 12:00	25-Jan-2021 16:40
Asphalt-001-01252021	21A0352-16	Solid	25-Jan-2021 12:05	25-Jan-2021 16:40
TSA-2021-005:1.2-01252021	21A0352-17	Solid	25-Jan-2021 12:15	25-Jan-2021 16:40
TSA-2021-005:1.7-01252021	21A0352-18	Solid	25-Jan-2021 12:20	25-Jan-2021 16:40
TSA-2021-005:3-01252021	21A0352-19	Solid	25-Jan-2021 12:25	25-Jan-2021 16:40
TSA-2021-005:6-01252021	21A0352-20	Solid	25-Jan-2021 12:30	25-Jan-2021 16:40
TSA-2021-100:1.2-01252021	21A0352-21	Solid	25-Jan-2021 13:00	25-Jan-2021 16:40
Asphalt-002-01252021	21A0352-22	Solid	25-Jan-2021 12:45	25-Jan-2021 16:40
TSA-2021-006:1.2-01252021	21A0352-23	Solid	25-Jan-2021 12:45	25-Jan-2021 16:40
TSA-2021-006:1.7-01252021	21A0352-24	Solid	25-Jan-2021 12:50	25-Jan-2021 16:40
TSA-2021-006:3-01252021	21A0352-25	Solid	25-Jan-2021 12:55	25-Jan-2021 16:40
TSA-2021-006:6-01252021	21A0352-26	Solid	25-Jan-2021 13:00	25-Jan-2021 16:40
SB-2021-011:1-01252021	21A0352-27	Solid	25-Jan-2021 13:40	25-Jan-2021 16:40
SB-2021-011:3-01252021	21A0352-28	Solid	25-Jan-2021 13:47	25-Jan-2021 16:40
SB-2021-011:10-01252021	21A0352-29	Solid	25-Jan-2021 13:50	25-Jan-2021 16:40
SB-2021-011:13.9-01252021	21A0352-30	Solid	25-Jan-2021 13:55	25-Jan-2021 16:40
SB-2021-101:1-01252021	21A0352-31	Solid	25-Jan-2021 14:00	25-Jan-2021 16:40
Asphalt-003-01252021	21A0352-32	Solid	25-Jan-2021 14:20	25-Jan-2021 16:40
SB-2021-012:2-01252021	21A0352-33	Solid	25-Jan-2021 14:21	25-Jan-2021 16:40
SB-2021-012:3.4-01252021	21A0352-34	Solid	25-Jan-2021 14:22	25-Jan-2021 16:40
SB-2021-012:10.4-01252021	21A0352-35	Solid	25-Jan-2021 14:25	25-Jan-2021 16:40
SB-2021-012:12.6-01252021	21A0352-36	Solid	25-Jan-2021 14:30	25-Jan-2021 16:40
MW-66:1.2-0112521	21A0352-37	Solid	25-Jan-2021 13:05	25-Jan-2021 16:40
MW-66:5.5-0112521	21A0352-38	Solid	25-Jan-2021 13:20	25-Jan-2021 16:40
MW-66:10.0-0112521	21A0352-39	Solid	25-Jan-2021 13:50	25-Jan-2021 16:40

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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	04-Aug-2021 10:04

MW-66:15.5-0112521	21A0352-40	Solid	25-Jan-2021 14:00	25-Jan-2021 16:40
MW-66:20.5-0112521	21A0352-41	Solid	25-Jan-2021 14:15	25-Jan-2021 16:40
SB-2021-034:10.7-01252021	21A0352-42	Solid	25-Jan-2021 15:25	25-Jan-2021 16:40
SB-2021-102:10.7-01252021	21A0352-43	Solid	25-Jan-2021 16:00	25-Jan-2021 16:40
SB-2021-034:15-01252021	21A0352-44	Solid	25-Jan-2021 15:45	25-Jan-2021 16:40
SB-2021-034:21-01252021	21A0352-45	Solid	25-Jan-2021 15:50	25-Jan-2021 16:40
TB-1-01252021	21A0352-46	Water	25-Jan-2021 16:00	25-Jan-2021 16:40
TSA-2021-004:1.7-01252021	21A0352-47	Solid	25-Jan-2021 11:50	25-Jan-2021 16:40

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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	04-Aug-2021 10:04

Work Order Case Narrative

Client: Shannon & Wilson, Inc
Project: Lower Duwamish
Work Order: 21A0352

Sample receipt

Samples as listed on the preceding page were received 25-Jan-2021 16:40 under ARI work order 21A0352. 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 (ICV/CCV) were within method requirements except Aroclor 1260 which was out of control high in the CCVs on column zb-5 but passes on column zb-35. The internal standard Hexabromobiphenyl which was out of control low on column zb-35 but passes on column zb-5. The samples were reanalyzed with similar results, indicating outliers are due to matrix interference. Value are reported from the second run from column zb-5 as QC was better. Affected samples 21A0352-01, -02, -03, -13, -16, -17, -21, -21, -22 and -23.

Internal standard areas were within limits except Hexabromobiphenyl which was out of control the CCV as explained above.

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.

Sample specific QC was performed in association with sample 21A0352-01 in batch BJB0156. The matrix spike/matrix spike duplicate (MS/MSD) 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.

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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	04-Aug-2021 10:04

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 except Tetrachloroethane which was out of control high . All samples which contain analyte have been flagged with a "Q" qualifier.

Internal standard areas were within limits except 1,4-Dichlorobenzene-d4 which was out of control low in sample 21A0352-37 the sample was reanalyzed with similar results. Both data sets reported.

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 except Phenanthrene, Dibenzofuran and Benzo(b)fluoranthene which were out of control low in control low in batch BJB0164 and Phenanthrene and Dibenzofurans which were out of control low in batch BJB0155. 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 4-Bromofluorobenzene which was out of control low in sample 21A0352-37 and 4-Bromofluorobenzene and 1,2-Dichloroethane-d4 which were out of control low in sample 21A0352-37RE1. Both data sets have been reported

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 21A0352-27 in batch BJB0164 and 21A0352-01 in batch BJB0155. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits except percent recovery of flagged analytes which were out of control low.

Total Metals - EPA Method 6020B

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

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 reference material (SRM) percent recoveries were within control limits.

Sample specific QC was performed in association with sample 21A0352-01 in batch BJB0107. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and the MS/MSD relative percent difference (RPD) were within advisory control limits. The duplicate (DUP) relative percent differences (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.

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 21A0352-01 in batch BJA0795. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and the MS/MSD relative percent difference (RPD) were within advisory control limits. The duplicate (DUP) relative percent difference (RPD) was 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.

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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	04-Aug-2021 10:04

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 21A0352-01 in batch BJB0144, in association with sample 21A0352-48 in batch BJB0148 and in association with sample 21A0352-31 in batch BJB0163. The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and the MS/MSD relative percent difference (RPD) were within advisory control limits.

REVISED to correction to VOC target lists.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Shannon & Wilson Project Name: LDH

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

Assigned ARI Job No: 21A0352 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 1640 1.8 2.4 0.6 0.5 ___ ___

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: D00506

Cooler Accepted by: JGW Date: 01/26/2021 Time: 1640

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: SC Date: 1/26/21 Time: 1112 Labels checked by: SC

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

Sample ID on Bottle (SC CoC)	Sample ID on COC (SC Bottle)	Sample ID on Bottle	Sample ID on COC
~~MW-66:1.2-012521~~	~~MW-66~~ SC		
MW-66:5.5-012521	MW-66:1.2-012521		

Additional Notes, Discrepancies, & Resolutions:

- 16oz glass jar from sample MW-66:5.5-012521 was labeled improperly. Sample was determined based on time + Number of containers to be MW-66:5.5-012521 rather than MW-66-1.2-012521.
- Vials from sample SB-2020-039:13.2-012521 were smeared + some were illegible. Proper placement was determined based on how they were grouped in bags within coolers.

By: SC Date: 1/26/21

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-017:2-01252021

21A0352-01 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/25/2021 09:08

Instrument: NT5 Analyst: PB — Analyzed: 01/26/2021 15:10

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 21A0352-01 C

Preparation Batch: BJA0680 — Sample Size: 3.62 g (wet) — Dry Weight:3.08 g

Prepared: 01/26/2021 — Final Volume: 5 mL — % Solids: 85.22

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.38	1.62	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.54	1.62	ND	ug/kg	U
trans-1,2-Dichloroethene	156-60-5	1	0.43	1.62	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.39	1.62	ND	ug/kg	U
Benzene	71-43-2	1	0.48	1.62	ND	ug/kg	U
Trichloroethene	79-01-6	1	0.34	1.62	ND	ug/kg	U
Toluene	108-88-3	1	0.24	1.62	ND	ug/kg	U
Tetrachloroethene	127-18-4	1	0.42	1.62	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.33	1.62	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.64	3.24	ND	ug/kg	U
o-Xylene	95-47-6	1	0.36	1.62	ND	ug/kg	U
Xylenes, total	1330-20-7	1	1.00	3.24	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*92.0*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*97.3*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*105*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-017:2-01252021

21A0352-01 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 01/25/2021 09:08

Instrument: NT2 Analyst: LH — Analyzed: 01/27/2021 11:09

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 21A0352-01 F

Preparation Batch: BJA0691 — Sample Size: 3.956 g (wet) — Dry Weight:3.37 g

Prepared: 01/27/2021 — Final Volume: 5 mL — % Solids: 85.22

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	8280	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*96.0*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*94.9*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-017:2-01252021

21A0352-01 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 09:08
Instrument: NT11 Analyst: VTS — Analyzed: 02/25/2021 13:45

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-01 A 02
	Preparation Batch: BJB0155	Sample Size: 11.77 g (wet)	Dry Weight:10.03 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 85.22
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-01 A 02
	Cleanup Batch: CJB0164	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-01 A 02
	Cleanup Batch: CJB0163	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	9.89	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	18.4	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	17.0	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.34	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	2.19	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	5.97	ug/kg	Q
Fluorene	86-73-7	1	0.07	0.50	1.15	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	32.8	ug/kg	Q
Anthracene	120-12-7	1	0.07	0.50	6.11	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	26.1	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	29.7	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	10.8	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	13.9	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	7.67	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	4.06	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	4.57	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	11.6	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	6.24	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	1.81	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	7.95	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*47.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*82.5*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*77.2*	*%*	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-017:2-01252021

21A0352-01 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 09:08
Instrument: FID4 Analyst: CTO — Analyzed: 02/06/2021 15:34

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-01 A 01
Preparation Batch: BJB0144 — Sample Size: 10.01 g (wet) — Dry Weight:8.53 g
Prepared: 02/04/2021 — Final Volume: 1 mL — % Solids: 85.22

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	5.86	8.72	mg/kg	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	11.7	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*89.8*	*%*	

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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	04-Aug-2021 10:04

SB-2021-017:2-01252021

21A0352-01 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 01/25/2021 09:08
Instrument: ECD7 Analyst: JGR — Analyzed: 02/20/2021 19:21

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21A0352-01 A 03
	Preparation Batch: BJB0156	Sample Size: 14.68 g (wet)	Dry Weight:12.51 g
	Prepared: 02/05/2021	Final Volume: 2.5 mL	% Solids: 85.22
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-01 A 03
	Cleanup Batch: CJB0107	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21A0352-01 A 03
	Cleanup Batch: CJB0105	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-01 A 03
	Cleanup Batch: CJB0106	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*86.2*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*74.3*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*76.1*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*70.0*	*%*	

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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	04-Aug-2021 10:04

SB-2021-017:2-01252021

21A0352-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 01/25/2021 09:08

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 21:15

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-01 B 01

Preparation Batch: BJB0107 — Sample Size: 1.037 g (wet) — Dry Weight:0.94 g

Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 90.72

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.53	33.5	mg/kg	
Chromium	7440-47-3	20	0.14	0.53	9.77	mg/kg	
Cobalt	7440-48-4	20	0.03	0.21	4.68	mg/kg	
Lead	7439-92-1	20	0.07	0.11	2.14	mg/kg	
Selenium	7782-49-2	20	0.47	2.13	1.08	mg/kg	J
Silver	7440-22-4	20	0.02	0.21	0.04	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.21	32.4	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-017:2-01252021

21A0352-01 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 01/25/2021 09:08
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 21:15

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-01 B 01
Preparation Batch: BJB0107 — Sample Size: 1.037 g (wet) — Dry Weight:0.94 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 90.72

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.21	2.71	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	ND	mg/kg	U
Copper	7440-50-8	20	0.36	0.53	10.4	mg/kg	
Nickel	7440-02-0	20	0.05	0.53	8.97	mg/kg	
Zinc	7440-66-6	20	0.9	4.3	25.8	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-017:2-01252021

21A0352-01 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/25/2021 09:08
Instrument: HYDRA Analyst: BLC — Analyzed: 02/04/2021 12:20

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21A0352-01 B
Preparation Batch: BJA0795 — Sample Size: 0.218 g (wet) — Dry Weight:0.20 g
Prepared: 02/01/2021 — Final Volume: 50 mL — % Solids: 90.72

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00531	0.0253	0.00624	mg/kg	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-017:5-01252021

21A0352-02 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/25/2021 09:15

Instrument: NT5 Analyst: PB — Analyzed: 01/26/2021 15:34

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 21A0352-02 C

Preparation Batch: BJA0680 — Sample Size: 3.84 g (wet) — Dry Weight:3.45 g

Prepared: 01/26/2021 — Final Volume: 5 mL — % Solids: 89.95

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.34	1.45	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.49	1.45	ND	ug/kg	U
trans-1,2-Dichloroethene	156-60-5	1	0.39	1.45	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.35	1.45	ND	ug/kg	U
Benzene	71-43-2	1	0.43	1.45	ND	ug/kg	U
Trichloroethene	79-01-6	1	0.31	1.45	ND	ug/kg	U
Toluene	108-88-3	1	0.22	1.45	ND	ug/kg	U
Tetrachloroethene	127-18-4	1	0.37	1.45	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.29	1.45	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.57	2.90	ND	ug/kg	U
o-Xylene	95-47-6	1	0.32	1.45	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.89	2.90	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*96.1*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*97.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*105*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*99.9*	*%*	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

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21A0352-02 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 01/25/2021 09:15

Instrument: NT2 Analyst: LH — Analyzed: 01/27/2021 11:30

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 21A0352-02 E

Preparation Batch: BJA0691 — Sample Size: 4.801 g (wet) — Dry Weight:4.32 g

Prepared: 01/27/2021 — Final Volume: 5 mL — % Solids: 89.95

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	6350	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*97.2*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*104*	*%*	

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21A0352-02 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 09:15
Instrument: NT11 Analyst: VTS — Analyzed: 02/25/2021 15:22

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-02 A 02
	Preparation Batch: BJB0155	Sample Size: 11.16 g (wet)	Dry Weight:10.04 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 89.95
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-02 A 02
	Cleanup Batch: CJB0164	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-02 A 02
	Cleanup Batch: CJB0163	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	0.82	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	0.88	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	1.05	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.09	0.50	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.13	0.50	0.39	ug/kg	J
Fluorene	86-73-7	1	0.07	0.50	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.11	0.50	1.64	ug/kg	Q
Anthracene	120-12-7	1	0.07	0.50	0.14	ug/kg	J
Fluoranthene	206-44-0	1	0.08	0.50	0.60	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	0.68	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	0.31	ug/kg	J
Chrysene	218-01-9	1	0.07	0.50	0.64	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	0.35	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.13	ug/kg	J
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.11	ug/kg	J
Benzo(a)pyrene	50-32-8	1	0.09	0.50	0.13	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	0.12	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	0.24	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*51.0*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*82.9*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*82.3*	*%*	

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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	04-Aug-2021 10:04

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21A0352-02 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 09:15
Instrument: FID4 Analyst: CTO — Analyzed: 02/06/2021 16:38

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-02 A 01
Preparation Batch: BJB0144 — Sample Size: 10.01 g (wet) — Dry Weight:9.00 g
Prepared: 02/04/2021 — Final Volume: 1 mL — % Solids: 89.95

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	5.55	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	11.1	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*89.6*	*%*	

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Analytical Report

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SB-2021-017:5-01252021

21A0352-02 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 01/25/2021 09:15
Instrument: ECD7 Analyst: JGR — Analyzed: 02/20/2021 20:23

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21A0352-02 A 03
	Preparation Batch: BJB0156	Sample Size: 13.92 g (wet)	Dry Weight:12.52 g
	Prepared: 02/05/2021	Final Volume: 2.5 mL	% Solids: 89.95
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-02 A 03
	Cleanup Batch: CJB0107	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21A0352-02 A 03
	Cleanup Batch: CJB0105	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-02 A 03
	Cleanup Batch: CJB0106	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*79.1*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*64.5*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*73.7*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*65.5*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

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21A0352-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 01/25/2021 09:15
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 19:46

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-02 B 01
Preparation Batch: BJB0107 — Sample Size: 1.018 g (wet) — Dry Weight:0.86 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 84.35

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.07	0.58	39.3	mg/kg	
Chromium	7440-47-3	20	0.15	0.58	16.3	mg/kg	
Cobalt	7440-48-4	20	0.03	0.23	5.12	mg/kg	
Lead	7439-92-1	20	0.08	0.12	2.86	mg/kg	
Selenium	7782-49-2	20	0.51	2.33	1.30	mg/kg	J
Silver	7440-22-4	20	0.02	0.23	0.06	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.23	36.8	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

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21A0352-02 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 01/25/2021 09:15
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 19:46

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-02 B 01
Preparation Batch: BJB0107 — Sample Size: 1.018 g (wet) — Dry Weight:0.86 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 84.35

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.23	3.33	mg/kg	
Cadmium	7440-43-9	20	0.03	0.12	0.07	mg/kg	J
Copper	7440-50-8	20	0.40	0.58	13.1	mg/kg	
Nickel	7440-02-0	20	0.06	0.58	10.5	mg/kg	
Zinc	7440-66-6	20	1.0	4.7	27.3	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-017:5-01252021

21A0352-02 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/25/2021 09:15
Instrument: HYDRA Analyst: BLC — Analyzed: 02/04/2021 12:35

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21A0352-02 B
Preparation Batch: BJA0795 — Sample Size: 0.238 g (wet) — Dry Weight:0.20 g
Prepared: 02/01/2021 — Final Volume: 50 mL — % Solids: 84.35

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00523	0.0249	0.00790	mg/kg	J

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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	04-Aug-2021 10:04

SB-2021-017:10.5-01252021

21A0352-03 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/25/2021 09:20
Instrument: NT5 Analyst: PB — Analyzed: 01/26/2021 15:58

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 21A0352-03 C
Preparation Batch: BJA0680 — Sample Size: 5.78 g (wet) — Dry Weight:4.64 g
Prepared: 01/26/2021 — Final Volume: 5 mL — % Solids: 80.35

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.25	1.08	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.36	1.08	ND	ug/kg	U
trans-1,2-Dichloroethene	156-60-5	1	0.29	1.08	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.26	1.08	ND	ug/kg	U
Benzene	71-43-2	1	0.32	1.08	ND	ug/kg	U
Trichloroethene	79-01-6	1	0.23	1.08	ND	ug/kg	U
Toluene	108-88-3	1	0.16	1.08	ND	ug/kg	U
Tetrachloroethene	127-18-4	1	0.28	1.08	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.22	1.08	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.42	2.15	ND	ug/kg	U
o-Xylene	95-47-6	1	0.24	1.08	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.66	2.15	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*93.4*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*95.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*98.1*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*100*	*%*	

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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	04-Aug-2021 10:04

SB-2021-017:10.5-01252021

21A0352-03 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 01/25/2021 09:20
Instrument: NT2 Analyst: LH — Analyzed: 01/27/2021 11:50

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 21A0352-03 E
Preparation Batch: BJA0691 — Sample Size: 4.658 g (wet) — Dry Weight:3.74 g
Prepared: 01/27/2021 — Final Volume: 5 mL — % Solids: 80.35

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	7900	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*97.2*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*104*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-017:10.5-01252021

21A0352-03 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 09:20
Instrument: NT11 Analyst: VTS — Analyzed: 02/25/2021 15:54

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-03 A 02
	Preparation Batch: BJB0155	Sample Size: 12.46 g (wet)	Dry Weight:10.01 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 80.35
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-03 A 02
	Cleanup Batch: CJB0164	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-03 A 02
	Cleanup Batch: CJB0163	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	1.43	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	2.65	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	2.68	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.09	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	0.27	ug/kg	J
Dibenzofuran	132-64-9	1	0.13	0.50	1.03	ug/kg	Q
Fluorene	86-73-7	1	0.07	0.50	0.35	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.50	5.10	ug/kg	Q
Anthracene	120-12-7	1	0.07	0.50	0.45	ug/kg	J
Fluoranthene	206-44-0	1	0.08	0.50	2.02	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	2.43	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	0.98	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	1.82	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	0.71	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.27	ug/kg	J
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.28	ug/kg	J
Benzo(a)pyrene	50-32-8	1	0.09	0.50	0.40	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	0.26	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	0.57	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*51.2*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*85.7*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*82.1*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-017:10.5-01252021

21A0352-03 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 09:20
Instrument: FID4 Analyst: CTO — Analyzed: 02/06/2021 16:59

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-03 A 01
Preparation Batch: BJB0144 — Sample Size: 10.01 g (wet) — Dry Weight:8.04 g
Prepared: 02/04/2021 — Final Volume: 1 mL — % Solids: 80.35

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	6.22	6.39	mg/kg	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	12.4	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*85.2*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-017:10.5-01252021

21A0352-03 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 01/25/2021 09:20
Instrument: ECD7 Analyst: JGR — Analyzed: 02/20/2021 20:43

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21A0352-03 A 03
	Preparation Batch: BJB0156	Sample Size: 15.58 g (wet)	Dry Weight:12.52 g
	Prepared: 02/05/2021	Final Volume: 2.5 mL	% Solids: 80.35
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-03 A 03
	Cleanup Batch: CJB0107	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21A0352-03 A 03
	Cleanup Batch: CJB0105	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-03 A 03
	Cleanup Batch: CJB0106	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	ND	ug/kg	U
Surrogate: Decachlorobiphenyl				*40-126 %*	*80.4*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*63.0*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*71.6*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*66.8*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-017:10.5-01252021

21A0352-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 01/25/2021 09:20
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 19:51

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-03 B 01
Preparation Batch: BJB0107 — Sample Size: 1.033 g (wet) — Dry Weight:0.86 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 83.62

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.58	37.5	mg/kg	
Chromium	7440-47-3	20	0.15	0.58	23.4	mg/kg	
Cobalt	7440-48-4	20	0.03	0.23	5.76	mg/kg	
Lead	7439-92-1	20	0.08	0.12	3.32	mg/kg	
Selenium	7782-49-2	20	0.51	2.32	1.27	mg/kg	J
Silver	7440-22-4	20	0.02	0.23	0.06	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.23	36.9	mg/kg	

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SB-2021-017:10.5-01252021

21A0352-03 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 01/25/2021 09:20
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 19:51

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-03 B 01
Preparation Batch: BJB0107 — Sample Size: 1.033 g (wet) — Dry Weight:0.86 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 83.62

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.23	3.56	mg/kg	
Cadmium	7440-43-9	20	0.03	0.12	0.07	mg/kg	J
Copper	7440-50-8	20	0.39	0.58	16.1	mg/kg	
Nickel	7440-02-0	20	0.06	0.58	11.8	mg/kg	
Zinc	7440-66-6	20	0.9	4.6	29.8	mg/kg	

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SB-2021-017:10.5-01252021

21A0352-03 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/25/2021 09:20
Instrument: HYDRA Analyst: BLC — Analyzed: 02/04/2021 12:37

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21A0352-03 B
Preparation Batch: BJA0795 — Sample Size: 0.229 g (wet) — Dry Weight:0.19 g
Prepared: 02/01/2021 — Final Volume: 50 mL — % Solids: 83.62

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00548	0.0261	0.0154	mg/kg	J

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-039:2-01252021

21A0352-05 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/25/2021 10:10

Instrument: NT5 Analyst: PB — Analyzed: 01/26/2021 16:22

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 21A0352-05 C

Preparation Batch: BJA0680 — Sample Size: 4.1 g (wet) — Dry Weight:1.30 g

Prepared: 01/26/2021 — Final Volume: 5 mL — % Solids: 31.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.91	3.85	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	1.29	3.85	ND	ug/kg	U
trans-1,2-Dichloroethene	156-60-5	1	1.02	3.85	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.92	3.85	ND	ug/kg	U
Benzene	71-43-2	1	1.14	3.85	ND	ug/kg	U
Trichloroethene	79-01-6	1	0.82	3.85	ND	ug/kg	U
Toluene	108-88-3	1	0.58	3.85	ND	ug/kg	U
Tetrachloroethene	127-18-4	1	0.99	3.85	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.78	3.85	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	1.51	7.71	ND	ug/kg	U
o-Xylene	95-47-6	1	0.86	3.85	ND	ug/kg	U
Xylenes, total	1330-20-7	1	2.37	7.71	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*91.7*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*98.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*105*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*101*	*%*	

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SB-2021-039:2-01252021

21A0352-05 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 01/25/2021 10:10

Instrument: NT2 Analyst: LH — Analyzed: 01/27/2021 12:11

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 21A0352-05 F

Preparation Batch: BJA0691 — Sample Size: 4.037 g (wet) — Dry Weight:1.28 g

Prepared: 01/27/2021 — Final Volume: 5 mL — % Solids: 31.65

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	30400	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*97.2*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*98.9*	*%*	

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SB-2021-039:2-01252021

21A0352-05 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 10:10
Instrument: NT11 Analyst: VTS — Analyzed: 02/25/2021 16:26

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-05 A 02
	Preparation Batch: BJB0155	Sample Size: 11.07 g (wet)	Dry Weight:10.04 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 90.67
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-05 A 02
	Cleanup Batch: CJB0164	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-05 A 02
	Cleanup Batch: CJB0163	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	0.58	ug/kg	J
1-Methylnaphthalene	90-12-0	1	0.11	0.50	0.26	ug/kg	J
2-Methylnaphthalene	91-57-6	1	0.13	0.50	0.30	ug/kg	J
Acenaphthylene	208-96-8	1	0.06	0.50	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.09	0.50	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.13	0.50	ND	ug/kg	U
Fluorene	86-73-7	1	0.07	0.50	0.08	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.50	1.38	ug/kg	Q
Anthracene	120-12-7	1	0.07	0.50	0.09	ug/kg	J
Fluoranthene	206-44-0	1	0.08	0.50	0.53	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	0.58	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	0.22	ug/kg	J
Chrysene	218-01-9	1	0.07	0.50	0.46	ug/kg	J
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	0.23	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.12	ug/kg	J
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.11	ug/kg	J
Benzo(a)pyrene	50-32-8	1	0.09	0.50	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	0.11	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	0.23	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*50.9*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*70.3*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*77.0*	*%*	

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SB-2021-039:2-01252021

21A0352-05 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 10:10
Instrument: FID4 Analyst: CTO — Analyzed: 02/06/2021 17:20

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-05 A 01
Preparation Batch: BJB0144 — Sample Size: 10.01 g (wet) — Dry Weight:9.08 g
Prepared: 02/04/2021 — Final Volume: 1 mL — % Solids: 90.67

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	5.51	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	11.0	16.6	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*88.8*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-039:2-01252021

21A0352-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 01/25/2021 10:10
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 19:56

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-05 B 01
Preparation Batch: BJB0107 — Sample Size: 1.053 g (wet) — Dry Weight:0.98 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 92.92

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.51	19.6	mg/kg	
Chromium	7440-47-3	20	0.13	0.51	11.1	mg/kg	
Cobalt	7440-48-4	20	0.03	0.20	4.16	mg/kg	
Lead	7439-92-1	20	0.07	0.10	1.55	mg/kg	
Selenium	7782-49-2	20	0.45	2.04	1.01	mg/kg	J
Silver	7440-22-4	20	0.02	0.20	0.03	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.20	32.8	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-039:2-01252021

21A0352-05 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 01/25/2021 10:10
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 19:56

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-05 B 01
Preparation Batch: BJB0107 — Sample Size: 1.053 g (wet) — Dry Weight:0.98 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 92.92

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.20	2.30	mg/kg	
Cadmium	7440-43-9	20	0.03	0.10	ND	mg/kg	U
Copper	7440-50-8	20	0.35	0.51	8.76	mg/kg	
Nickel	7440-02-0	20	0.05	0.51	7.91	mg/kg	
Zinc	7440-66-6	20	0.8	4.1	20.4	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-039:2-01252021

21A0352-05 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/25/2021 10:10
Instrument: HYDRA Analyst: BLC — Analyzed: 02/04/2021 12:39

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21A0352-05 B
Preparation Batch: BJA0795 — Sample Size: 0.207 g (wet) — Dry Weight:0.19 g
Prepared: 02/01/2021 — Final Volume: 50 mL — % Solids: 92.92

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00546	0.0260	0.0775	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-039:7.4-01252021

21A0352-06 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/25/2021 10:15
Instrument: NT5 Analyst: PB — Analyzed: 01/26/2021 16:46

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 21A0352-06 C
Preparation Batch: BJA0680 — Sample Size: 5.08 g (wet) — Dry Weight:3.64 g
Prepared: 01/26/2021 — Final Volume: 5 mL — % Solids: 71.74

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.32	1.37	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.46	1.37	ND	ug/kg	U
trans-1,2-Dichloroethene	156-60-5	1	0.36	1.37	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.33	1.37	ND	ug/kg	U
Benzene	71-43-2	1	0.41	1.37	ND	ug/kg	U
Trichloroethene	79-01-6	1	0.29	1.37	ND	ug/kg	U
Toluene	108-88-3	1	0.21	1.37	ND	ug/kg	U
Tetrachloroethene	127-18-4	1	0.35	1.37	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.28	1.37	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.54	2.74	ND	ug/kg	U
o-Xylene	95-47-6	1	0.31	1.37	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.85	2.74	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*92.6*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*97.1*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*103*	*%*	
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	04-Aug-2021 10:04

SB-2021-039:7.4-01252021

21A0352-06 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 01/25/2021 10:15
Instrument: NT2 Analyst: LH — Analyzed: 01/27/2021 12:32

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 21A0352-06 E
Preparation Batch: BJA0691 — Sample Size: 4.738 g (wet) — Dry Weight:3.40 g
Prepared: 01/27/2021 — Final Volume: 5 mL — % Solids: 71.74

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	9320	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*97.2*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*107*	*%*	

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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	04-Aug-2021 10:04

SB-2021-039:7.4-01252021

21A0352-06 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 10:15
Instrument: NT11 Analyst: VTS — Analyzed: 02/25/2021 16:59

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-06 A 02
	Preparation Batch: BJB0155	Sample Size: 13.96 g (wet)	Dry Weight:10.01 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 71.74
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-06 A 02
	Cleanup Batch: CJB0164	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-06 A 02
	Cleanup Batch: CJB0163	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	108	ug/kg	E
1-Methylnaphthalene	90-12-0	1	0.11	0.50	13.5	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	20.4	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	27.7	ug/kg	
Acenaphthene	83-32-9	1	0.09	0.50	14.2	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	12.5	ug/kg	Q
Fluorene	86-73-7	1	0.07	0.50	7.38	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	53.8	ug/kg	Q, E
Anthracene	120-12-7	1	0.07	0.50	9.17	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	50.9	ug/kg	E
Pyrene	129-00-0	1	0.09	0.50	55.9	ug/kg	E
Benzo(a)anthracene	56-55-3	1	0.07	0.50	3.78	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	8.75	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	7.25	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	3.07	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	3.66	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	7.62	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	7.39	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.70	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	16.4	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*50.3*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*47.1*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*73.9*	*%*	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-039:7.4-01252021

21A0352-06 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 10:15
Instrument: FID4 Analyst: CTO — Analyzed: 02/06/2021 17:41

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-06 A 01
Preparation Batch: BJB0144 — Sample Size: 10.01 g (wet) — Dry Weight:7.18 g
Prepared: 02/04/2021 — Final Volume: 1 mL — % Solids: 71.74

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	6.96	11.6	mg/kg	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)	RRO	1	13.9	66.6	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*93.3*	*%*	

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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	04-Aug-2021 10:04

SB-2021-039:7.4-01252021

21A0352-06 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 01/25/2021 10:15
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 20:00

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-06 B 01
Preparation Batch: BJB0107 — Sample Size: 1.07 g (wet) — Dry Weight:0.77 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 71.98

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.07	0.65	52.4	mg/kg	
Chromium	7440-47-3	20	0.17	0.65	16.7	mg/kg	
Cobalt	7440-48-4	20	0.04	0.26	11.4	mg/kg	
Lead	7439-92-1	20	0.09	0.13	3.88	mg/kg	
Selenium	7782-49-2	20	0.57	2.60	1.76	mg/kg	J
Silver	7440-22-4	20	0.02	0.26	0.09	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.26	72.0	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-039:7.4-01252021

21A0352-06 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 01/25/2021 10:15
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 20:00

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-06 B 01
Preparation Batch: BJB0107 — Sample Size: 1.07 g (wet) — Dry Weight:0.77 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 71.98

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.26	4.99	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.08	mg/kg	J
Copper	7440-50-8	20	0.44	0.65	24.1	mg/kg	
Nickel	7440-02-0	20	0.06	0.65	18.6	mg/kg	
Zinc	7440-66-6	20	1.1	5.2	39.4	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-039:7.4-01252021

21A0352-06 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/25/2021 10:15
Instrument: HYDRA Analyst: BLC — Analyzed: 02/04/2021 12:41

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21A0352-06 B
Preparation Batch: BJA0795 — Sample Size: 0.212 g (wet) — Dry Weight:0.15 g
Prepared: 02/01/2021 — Final Volume: 50 mL — % Solids: 71.98

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00688	0.0328	0.0142	mg/kg	J

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-039:7.4-01252021

21A0352-06RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 10:15
Instrument: NT11 Analyst: VTS — Analyzed: 02/26/2021 15:45

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-06RE1 A 02
	Preparation Batch: BJB0155	Sample Size: 13.96 g (wet)	Dry Weight:10.01 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 71.74
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-06RE1 A 02
	Cleanup Batch: CJB0164	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-06RE1 A 02
	Cleanup Batch: CJB0163	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	5	2.19	3.00	154	ug/kg	D
1-Methylnaphthalene	90-12-0	5	0.53	2.50	12.9	ug/kg	D
2-Methylnaphthalene	91-57-6	5	0.64	2.50	19.9	ug/kg	D
Acenaphthylene	208-96-8	5	0.32	2.50	28.7	ug/kg	D
Acenaphthene	83-32-9	5	0.44	2.50	14.0	ug/kg	D
Dibenzofuran	132-64-9	5	0.63	2.50	12.0	ug/kg	Q, D
Fluorene	86-73-7	5	0.34	2.50	6.63	ug/kg	D
Phenanthrene	85-01-8	5	0.57	2.50	61.9	ug/kg	Q, D
Anthracene	120-12-7	5	0.37	2.50	8.22	ug/kg	D
Fluoranthene	206-44-0	5	0.40	2.50	58.2	ug/kg	D
Pyrene	129-00-0	5	0.44	2.50	69.1	ug/kg	D
Benzo(a)anthracene	56-55-3	5	0.36	2.50	3.80	ug/kg	D
Chrysene	218-01-9	5	0.35	2.50	8.75	ug/kg	D
Benzo(b)fluoranthene	205-99-2	5	0.33	2.50	5.42	ug/kg	D
Benzo(k)fluoranthene	207-08-9	5	0.50	2.50	2.88	ug/kg	D
Benzo(j)fluoranthene	205-82-3	5	0.48	2.50	3.92	ug/kg	D
Benzo(a)pyrene	50-32-8	5	0.43	2.50	6.52	ug/kg	D
Indeno(1,2,3-cd)pyrene	193-39-5	5	0.44	2.50	5.69	ug/kg	D
Dibenzo(a,h)anthracene	53-70-3	5	0.52	2.50	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	5	0.42	2.50	13.9	ug/kg	D
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*49.9*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*33.7*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*72.6*	*%*	

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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	04-Aug-2021 10:04

SB-2021-039:10.7-01252021

21A0352-07 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/25/2021 10:20
Instrument: NT5 Analyst: PB — Analyzed: 01/26/2021 17:10

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 21A0352-07 C
Preparation Batch: BJA0680 — Sample Size: 4.87 g (wet) — Dry Weight:3.46 g
Prepared: 01/26/2021 — Final Volume: 5 mL — % Solids: 70.97

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.34	1.45	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.49	1.45	ND	ug/kg	U
trans-1,2-Dichloroethene	156-60-5	1	0.38	1.45	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.35	1.45	ND	ug/kg	U
Benzene	71-43-2	1	0.43	1.45	0.91	ug/kg	J
Trichloroethene	79-01-6	1	0.31	1.45	ND	ug/kg	U
Toluene	108-88-3	1	0.22	1.45	0.50	ug/kg	J
Tetrachloroethene	127-18-4	1	0.37	1.45	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.29	1.45	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.57	2.89	ND	ug/kg	U
o-Xylene	95-47-6	1	0.32	1.45	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.89	2.89	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*92.4*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*98.5*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*102*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*100*	*%*	

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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	04-Aug-2021 10:04

SB-2021-039:10.7-01252021

21A0352-07 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 01/25/2021 10:20
Instrument: NT2 Analyst: LH — Analyzed: 01/27/2021 12:53

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 21A0352-07 E
Preparation Batch: BJA0691 — Sample Size: 4.435 g (wet) — Dry Weight:3.15 g
Prepared: 01/27/2021 — Final Volume: 5 mL — % Solids: 70.97

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	9990	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*96.1*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*103*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-039:10.7-01252021

21A0352-07 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 10:20
Instrument: NT11 Analyst: VTS — Analyzed: 02/25/2021 17:31

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-07 A 02
	Preparation Batch: BJB0155	Sample Size: 14.1 g (wet)	Dry Weight:10.01 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 70.97
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-07 A 02
	Cleanup Batch: CJB0164	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-07 A 02
	Cleanup Batch: CJB0163	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	1.16	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	0.76	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	0.79	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.13	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	0.11	ug/kg	J
Dibenzofuran	132-64-9	1	0.13	0.50	0.31	ug/kg	J
Fluorene	86-73-7	1	0.07	0.50	0.25	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.50	2.26	ug/kg	Q
Anthracene	120-12-7	1	0.07	0.50	0.14	ug/kg	J
Fluoranthene	206-44-0	1	0.08	0.50	1.45	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	1.73	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	0.50	ug/kg	J
Chrysene	218-01-9	1	0.07	0.50	1.26	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	0.75	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.27	ug/kg	J
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.32	ug/kg	J
Benzo(a)pyrene	50-32-8	1	0.09	0.50	0.48	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	0.39	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	2.29	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*44.6*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*88.2*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*78.7*	*%*	

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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: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-039:10.7-01252021

21A0352-07 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 10:20
Instrument: FID4 Analyst: CTO — Analyzed: 02/06/2021 18:02

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-07 A 01
Preparation Batch: BJB0144 — Sample Size: 10.01 g (wet) — Dry Weight:7.10 g
Prepared: 02/04/2021 — Final Volume: 1 mL — % Solids: 70.97

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	7.04	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	14.1	32.3	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*87.5*	*%*	

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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	04-Aug-2021 10:04

SB-2021-039:10.7-01252021

21A0352-07 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 01/25/2021 10:20
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 20:06

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-07 B 01
Preparation Batch: BJB0107 — Sample Size: 1.06 g (wet) — Dry Weight:0.77 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 72.29

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.07	0.65	73.9	mg/kg	
Chromium	7440-47-3	20	0.17	0.65	19.6	mg/kg	
Cobalt	7440-48-4	20	0.04	0.26	6.11	mg/kg	
Lead	7439-92-1	20	0.09	0.13	4.34	mg/kg	
Selenium	7782-49-2	20	0.57	2.61	1.61	mg/kg	J
Silver	7440-22-4	20	0.02	0.26	0.06	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.26	54.8	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-039:10.7-01252021

21A0352-07 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 01/25/2021 10:20
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 20:06

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-07 B 01
Preparation Batch: BJB0107 — Sample Size: 1.06 g (wet) — Dry Weight:0.77 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 72.29

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.26	5.35	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.05	mg/kg	J
Copper	7440-50-8	20	0.44	0.65	27.7	mg/kg	
Nickel	7440-02-0	20	0.07	0.65	16.4	mg/kg	
Zinc	7440-66-6	20	1.1	5.2	37.5	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-039:10.7-01252021

21A0352-07 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/25/2021 10:20
Instrument: HYDRA Analyst: BLC — Analyzed: 02/04/2021 12:43

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21A0352-07 B
Preparation Batch: BJA0795 — Sample Size: 0.281 g (wet) — Dry Weight:0.20 g
Prepared: 02/01/2021 — Final Volume: 50 mL — % Solids: 72.29

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00517	0.0246	0.0370	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-009:2-01252021

21A0352-09 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/25/2021 11:00

Instrument: NT5 Analyst: PB — Analyzed: 01/26/2021 17:34

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 21A0352-09 D

Preparation Batch: BJA0680 — Sample Size: 3.94 g (wet) — Dry Weight:3.52 g

Prepared: 01/26/2021 — Final Volume: 5 mL — % Solids: 89.26

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.33	1.42	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.48	1.42	ND	ug/kg	U
trans-1,2-Dichloroethene	156-60-5	1	0.38	1.42	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.34	1.42	ND	ug/kg	U
Benzene	71-43-2	1	0.42	1.42	ND	ug/kg	U
Trichloroethene	79-01-6	1	0.30	1.42	ND	ug/kg	U
Toluene	108-88-3	1	0.21	1.42	ND	ug/kg	U
Tetrachloroethene	127-18-4	1	0.37	1.42	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.29	1.42	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.56	2.84	ND	ug/kg	U
o-Xylene	95-47-6	1	0.32	1.42	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.88	2.84	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*96.5*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*98.5*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*104*	*%*	
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	04-Aug-2021 10:04

SB-2021-009:2-01252021

21A0352-09 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 01/25/2021 11:00
Instrument: NT2 Analyst: LH — Analyzed: 01/27/2021 13:14

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 21A0352-09 E
Preparation Batch: BJA0691 — Sample Size: 4.644 g (wet) — Dry Weight:4.15 g
Prepared: 01/27/2021 — Final Volume: 5 mL — % Solids: 89.26

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	6630	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*97.7*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*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	04-Aug-2021 10:04

SB-2021-009:2-01252021

21A0352-09 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 11:00
Instrument: NT11 Analyst: VTS — Analyzed: 02/25/2021 18:03

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-09 A 02
	Preparation Batch: BJB0155	Sample Size: 11.26 g (wet)	Dry Weight:10.05 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 89.26
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-09 A 02
	Cleanup Batch: CJB0164	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-09 A 02
	Cleanup Batch: CJB0163	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	0.11	0.50	0.28	ug/kg	J
2-Methylnaphthalene	91-57-6	1	0.13	0.50	0.29	ug/kg	J
Acenaphthylene	208-96-8	1	0.06	0.50	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.09	0.50	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.13	0.50	ND	ug/kg	U
Fluorene	86-73-7	1	0.07	0.50	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.11	0.50	0.80	ug/kg	Q
Anthracene	120-12-7	1	0.07	0.50	ND	ug/kg	U
Fluoranthene	206-44-0	1	0.08	0.50	0.44	ug/kg	J
Pyrene	129-00-0	1	0.09	0.50	0.55	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	0.31	ug/kg	J
Chrysene	218-01-9	1	0.07	0.50	0.43	ug/kg	J
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	0.30	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.14	ug/kg	J
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.16	ug/kg	J
Benzo(a)pyrene	50-32-8	1	0.09	0.50	0.15	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	0.12	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	0.23	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*45.2*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*71.9*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*77.3*	*%*	

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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	04-Aug-2021 10:04

SB-2021-009:2-01252021

21A0352-09 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 11:00
Instrument: FID4 Analyst: CTO — Analyzed: 02/06/2021 18:23

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-09 A 01
Preparation Batch: BJB0144 — Sample Size: 10.01 g (wet) — Dry Weight:8.93 g
Prepared: 02/04/2021 — Final Volume: 1 mL — % Solids: 89.26

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	5.60	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	11.2	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*106*	*%*	

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Analytical Report

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-009:2-01252021

21A0352-09 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 01/25/2021 11:00
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 20:55

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-09 B 01
Preparation Batch: BJB0107 — Sample Size: 1.04 g (wet) — Dry Weight:0.92 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 88.15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.55	21.9	mg/kg	
Chromium	7440-47-3	20	0.14	0.55	10.4	mg/kg	
Cobalt	7440-48-4	20	0.03	0.22	3.92	mg/kg	
Lead	7439-92-1	20	0.07	0.11	1.75	mg/kg	
Selenium	7782-49-2	20	0.48	2.18	0.98	mg/kg	J
Silver	7440-22-4	20	0.02	0.22	0.04	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.22	35.4	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-009:2-01252021

21A0352-09 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 01/25/2021 11:00
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 20:55

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-09 B 01
Preparation Batch: BJB0107 — Sample Size: 1.04 g (wet) — Dry Weight:0.92 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 88.15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.22	2.70	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	ND	mg/kg	U
Copper	7440-50-8	20	0.37	0.55	9.12	mg/kg	
Nickel	7440-02-0	20	0.05	0.55	7.92	mg/kg	
Zinc	7440-66-6	20	0.9	4.4	21.8	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-009:2-01252021

21A0352-09 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/25/2021 11:00
Instrument: HYDRA Analyst: BLC — Analyzed: 02/04/2021 12:45

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21A0352-09 B
Preparation Batch: BJA0795 — Sample Size: 0.239 g (wet) — Dry Weight:0.21 g
Prepared: 02/01/2021 — Final Volume: 50 mL — % Solids: 88.15

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00498	0.0237	0.00655	mg/kg	J

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-009:6-01252021

21A0352-10 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/25/2021 11:05

Instrument: NT5 Analyst: PB — Analyzed: 01/26/2021 17:59

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 21A0352-10 C

Preparation Batch: BJA0680 — Sample Size: 4.16 g (wet) — Dry Weight:3.84 g

Prepared: 01/26/2021 — Final Volume: 5 mL — % Solids: 92.29

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.31	1.30	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.44	1.30	ND	ug/kg	U
trans-1,2-Dichloroethene	156-60-5	1	0.35	1.30	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.31	1.30	ND	ug/kg	U
Benzene	71-43-2	1	0.39	1.30	ND	ug/kg	U
Trichloroethene	79-01-6	1	0.28	1.30	ND	ug/kg	U
Toluene	108-88-3	1	0.20	1.30	ND	ug/kg	U
Tetrachloroethene	127-18-4	1	0.33	1.30	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.26	1.30	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.51	2.60	ND	ug/kg	U
o-Xylene	95-47-6	1	0.29	1.30	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.80	2.60	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*91.1*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*97.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*105*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*103*	*%*	

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-009:6-01252021

21A0352-10 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 01/25/2021 11:05

Instrument: NT2 Analyst: LH — Analyzed: 01/27/2021 13:35

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 21A0352-10 E

Preparation Batch: BJA0691 — Sample Size: 3.92 g (wet) — Dry Weight:3.62 g

Prepared: 01/27/2021 — Final Volume: 5 mL — % Solids: 92.29

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	7330	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*97.9*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*97.9*	*%*	

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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	04-Aug-2021 10:04

SB-2021-009:6-01252021

21A0352-10 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 11:05
Instrument: NT11 Analyst: VTS — Analyzed: 02/25/2021 18:36

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-10 A 02
	Preparation Batch: BJB0155	Sample Size: 10.88 g (wet)	Dry Weight:10.04 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 92.29
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-10 A 02
	Cleanup Batch: CJB0164	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-10 A 02
	Cleanup Batch: CJB0163	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	0.11	0.50	0.14	ug/kg	J
2-Methylnaphthalene	91-57-6	1	0.13	0.50	0.18	ug/kg	J
Acenaphthylene	208-96-8	1	0.06	0.50	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.09	0.50	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.13	0.50	ND	ug/kg	U
Fluorene	86-73-7	1	0.07	0.50	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.11	0.50	0.52	ug/kg	Q
Anthracene	120-12-7	1	0.07	0.50	ND	ug/kg	U
Fluoranthene	206-44-0	1	0.08	0.50	0.29	ug/kg	J
Pyrene	129-00-0	1	0.09	0.50	0.53	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	0.19	ug/kg	J
Chrysene	218-01-9	1	0.07	0.50	0.42	ug/kg	J
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	0.10	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	ND	ug/kg	U
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	0.09	0.50	0.13	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	ND	ug/kg	U
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*44.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*72.9*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*80.0*	*%*	

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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	04-Aug-2021 10:04

SB-2021-009:6-01252021

21A0352-10 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 11:05
Instrument: FID4 Analyst: CTO — Analyzed: 02/06/2021 18:44

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-10 A 01
Preparation Batch: BJB0144 — Sample Size: 10.01 g (wet) — Dry Weight:9.24 g
Prepared: 02/04/2021 — Final Volume: 1 mL — % Solids: 92.29

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	5.41	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	10.8	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*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	04-Aug-2021 10:04

SB-2021-009:6-01252021

21A0352-10 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 01/25/2021 11:05
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 21:00

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-10 B 01
Preparation Batch: BJB0107 — Sample Size: 1.053 g (wet) — Dry Weight:0.99 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 94.45

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.50	20.4	mg/kg	
Chromium	7440-47-3	20	0.13	0.50	9.43	mg/kg	
Cobalt	7440-48-4	20	0.03	0.20	3.01	mg/kg	
Lead	7439-92-1	20	0.07	0.10	1.01	mg/kg	
Selenium	7782-49-2	20	0.44	2.01	0.83	mg/kg	J
Silver	7440-22-4	20	0.02	0.20	0.03	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.20	33.6	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-009:6-01252021

21A0352-10 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 01/25/2021 11:05
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 21:00

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-10 B 01
Preparation Batch: BJB0107 — Sample Size: 1.053 g (wet) — Dry Weight:0.99 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 94.45

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.20	1.78	mg/kg	
Cadmium	7440-43-9	20	0.03	0.10	ND	mg/kg	U
Copper	7440-50-8	20	0.34	0.50	7.72	mg/kg	
Nickel	7440-02-0	20	0.05	0.50	5.83	mg/kg	
Zinc	7440-66-6	20	0.8	4.0	18.0	mg/kg	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-009:6-01252021

21A0352-10 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/25/2021 11:05
Instrument: HYDRA Analyst: BLC — Analyzed: 02/04/2021 12:51

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21A0352-10 B
Preparation Batch: BJA0795 — Sample Size: 0.279 g (wet) — Dry Weight:0.26 g
Prepared: 02/01/2021 — Final Volume: 50 mL — % Solids: 94.45

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00398	0.0190	0.00545	mg/kg	J

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-009:10.8-01252021

21A0352-11 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/25/2021 11:10

Instrument: NT5 Analyst: PB — Analyzed: 01/26/2021 18:23

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 21A0352-11 C

Preparation Batch: BJA0680 — Sample Size: 4.46 g (wet) — Dry Weight:3.57 g

Prepared: 01/26/2021 — Final Volume: 5 mL — % Solids: 80.07

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.33	1.40	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.47	1.40	ND	ug/kg	U
trans-1,2-Dichloroethene	156-60-5	1	0.37	1.40	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.34	1.40	ND	ug/kg	U
Benzene	71-43-2	1	0.41	1.40	0.67	ug/kg	J
Trichloroethene	79-01-6	1	0.30	1.40	ND	ug/kg	U
Toluene	108-88-3	1	0.21	1.40	ND	ug/kg	U
Tetrachloroethene	127-18-4	1	0.36	1.40	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.28	1.40	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.55	2.80	ND	ug/kg	U
o-Xylene	95-47-6	1	0.31	1.40	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.86	2.80	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*91.3*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*97.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*102*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*100*	*%*	

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SB-2021-009:10.8-01252021

21A0352-11 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 01/25/2021 11:10

Instrument: NT2 Analyst: PKC — Analyzed: 01/28/2021 15:18

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 21A0352-11 F

Preparation Batch: BJA0750 — Sample Size: 4.768 g (wet) — Dry Weight:3.82 g

Prepared: 01/28/2021 — Final Volume: 5 mL — % Solids: 80.07

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	7790	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*95.8*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*97.3*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-009:10.8-01252021

21A0352-11 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 11:10
Instrument: NT11 Analyst: VTS — Analyzed: 02/25/2021 19:08

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-11 A 02
	Preparation Batch: BJB0155	Sample Size: 12.5 g (wet)	Dry Weight:10.01 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 80.07
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-11 A 02
	Cleanup Batch: CJB0164	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-11 A 02
	Cleanup Batch: CJB0163	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	0.51	ug/kg	J
1-Methylnaphthalene	90-12-0	1	0.11	0.50	0.37	ug/kg	J
2-Methylnaphthalene	91-57-6	1	0.13	0.50	0.45	ug/kg	J
Acenaphthylene	208-96-8	1	0.06	0.50	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.09	0.50	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.13	0.50	0.15	ug/kg	J
Fluorene	86-73-7	1	0.07	0.50	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.11	0.50	0.80	ug/kg	Q
Anthracene	120-12-7	1	0.07	0.50	ND	ug/kg	U
Fluoranthene	206-44-0	1	0.08	0.50	0.38	ug/kg	J
Pyrene	129-00-0	1	0.09	0.50	0.54	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	0.15	ug/kg	J
Chrysene	218-01-9	1	0.07	0.50	0.35	ug/kg	J
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	0.15	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	ND	ug/kg	U
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	0.09	0.50	ND	ug/kg	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	0.16	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*46.0*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*75.2*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*83.8*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-009:10.8-01252021

21A0352-11 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 11:10
Instrument: FID4 Analyst: CTO — Analyzed: 02/06/2021 19:05

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-11 A 01
Preparation Batch: BJB0144 — Sample Size: 10.01 g (wet) — Dry Weight:8.02 g
Prepared: 02/04/2021 — Final Volume: 1 mL — % Solids: 80.07

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	6.24	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	12.5	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*91.0*	*%*	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

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21A0352-11 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 01/25/2021 11:10
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 21:05

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-11 B 01
Preparation Batch: BJB0107 — Sample Size: 1.066 g (wet) — Dry Weight:0.76 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 71.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.07	0.66	99.6	mg/kg	
Chromium	7440-47-3	20	0.17	0.66	21.6	mg/kg	
Cobalt	7440-48-4	20	0.04	0.26	9.70	mg/kg	
Lead	7439-92-1	20	0.09	0.13	5.21	mg/kg	
Selenium	7782-49-2	20	0.58	2.63	1.97	mg/kg	J
Silver	7440-22-4	20	0.02	0.26	0.11	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.26	71.9	mg/kg	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-009:10.8-01252021

21A0352-11 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 01/25/2021 11:10
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 21:05

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-11 B 01
Preparation Batch: BJB0107 — Sample Size: 1.066 g (wet) — Dry Weight:0.76 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 71.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.26	9.09	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.05	mg/kg	J
Copper	7440-50-8	20	0.45	0.66	32.4	mg/kg	
Nickel	7440-02-0	20	0.07	0.66	17.8	mg/kg	
Zinc	7440-66-6	20	1.1	5.3	47.0	mg/kg	

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SB-2021-009:10.8-01252021

21A0352-11 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/25/2021 11:10
Instrument: HYDRA Analyst: BLC — Analyzed: 02/04/2021 12:53

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21A0352-11 B
Preparation Batch: BJA0795 — Sample Size: 0.209 g (wet) — Dry Weight:0.15 g
Prepared: 02/01/2021 — Final Volume: 50 mL — % Solids: 71.36

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00704	0.0335	0.0457	mg/kg	

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TSA-2021-004:1.2-01252021

21A0352-13 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 01/25/2021 11:45
Instrument: ECD7 Analyst: JGR — Analyzed: 02/20/2021 21:25

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21A0352-13 A 01
	Preparation Batch: BJB0156	Sample Size: 13.81 g (wet)	Dry Weight:12.52 g
	Prepared: 02/05/2021	Final Volume: 2.5 mL	% Solids: 90.69
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-13 A 01
	Cleanup Batch: CJB0107	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21A0352-13 A 01
	Cleanup Batch: CJB0105	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-13 A 01
	Cleanup Batch: CJB0106	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	5	7.8	20.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	5	7.8	20.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	5	7.8	20.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	5	7.8	20.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	5	7.8	20.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	5	7.8	20.0	304	ug/kg	D
Aroclor 1260	11096-82-5	5	2.9	20.0	286	ug/kg	D
Surrogate: Decachlorobiphenyl				*40-126 %*	*119*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*46.9*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*		*NRS*	NRS
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*55.2*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

Asphalt-001-01252021

21A0352-16 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 01/25/2021 12:05
Instrument: ECD7 Analyst: JGR — Analyzed: 02/20/2021 21:45

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21A0352-16 A 01
	Preparation Batch: BJB0156	Sample Size: 2.53 g (wet)	Dry Weight:2.50 g
	Prepared: 02/05/2021	Final Volume: 2.5 mL	% Solids: 98.98
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-16 A 01
	Cleanup Batch: CJB0107	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21A0352-16 A 01
	Cleanup Batch: CJB0105	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-16 A 01
	Cleanup Batch: CJB0106	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	10	77.9	200	ND	ug/kg	U
Aroclor 1221	11104-28-2	10	77.9	200	ND	ug/kg	U
Aroclor 1232	11141-16-5	10	77.9	200	ND	ug/kg	U
Aroclor 1242	53469-21-9	10	77.9	200	ND	ug/kg	U
Aroclor 1248	12672-29-6	10	77.9	200	ND	ug/kg	U
Aroclor 1254	11097-69-1	10	77.9	200	3400	ug/kg	D
Aroclor 1260	11096-82-5	10	29.4	200	5270	ug/kg	D
Surrogate: Decachlorobiphenyl				*40-126 %*	*95.6*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*71.7*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*		*NRS*	NRS
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*98.8*	*%*	

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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	04-Aug-2021 10:04

TSA-2021-005:1.2-01252021

21A0352-17 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 01/25/2021 12:15
Instrument: ECD7 Analyst: JGR — Analyzed: 02/20/2021 22:06

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21A0352-17 A 01
	Preparation Batch: BJB0156	Sample Size: 13.72 g (wet)	Dry Weight:12.51 g
	Prepared: 02/05/2021	Final Volume: 2.5 mL	% Solids: 91.20
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-17 A 01
	Cleanup Batch: CJB0107	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21A0352-17 A 01
	Cleanup Batch: CJB0105	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-17 A 01
	Cleanup Batch: CJB0106	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	5	7.8	20.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	5	7.8	20.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	5	7.8	20.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	5	7.8	20.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	5	7.8	20.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	5	7.8	20.0	226	ug/kg	D
Aroclor 1260	11096-82-5	5	2.9	20.0	205	ug/kg	D
Surrogate: Decachlorobiphenyl				*40-126 %*	*117*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*61.6*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*		*NRS*	NRS
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*68.7*	*%*	

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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	04-Aug-2021 10:04

TSA-2021-100:1.2-01252021

21A0352-21 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 01/25/2021 13:00
Instrument: ECD7 Analyst: JGR — Analyzed: 02/20/2021 22:26

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21A0352-21 A 01
	Preparation Batch: BJB0156	Sample Size: 12.61 g (wet)	Dry Weight:12.52 g
	Prepared: 02/05/2021	Final Volume: 2.5 mL	% Solids: 99.27
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-21 A 01
	Cleanup Batch: CJB0107	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21A0352-21 A 01
	Cleanup Batch: CJB0105	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-21 A 01
	Cleanup Batch: CJB0106	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	5	7.8	20.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	5	7.8	20.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	5	7.8	20.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	5	7.8	20.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	5	7.8	20.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	5	7.8	20.0	322	ug/kg	D
Aroclor 1260	11096-82-5	5	2.9	20.0	148	ug/kg	D
Surrogate: Decachlorobiphenyl				*40-126 %*	*93.3*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*53.1*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*85.9*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*62.0*	*%*	

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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	04-Aug-2021 10:04

Asphalt-002-01252021

21A0352-22 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 01/25/2021 12:45
Instrument: ECD7 Analyst: JGR — Analyzed: 02/20/2021 22:47

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21A0352-22 A 01
	Preparation Batch: BJB0156	Sample Size: 2.51 g (wet)	Dry Weight:2.49 g
	Prepared: 02/05/2021	Final Volume: 2.5 mL	% Solids: 99.31
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-22 A 01
	Cleanup Batch: CJB0107	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21A0352-22 A 01
	Cleanup Batch: CJB0105	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-22 A 01
	Cleanup Batch: CJB0106	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	5	39.1	100	ND	ug/kg	U
Aroclor 1221	11104-28-2	5	39.1	100	ND	ug/kg	U
Aroclor 1232	11141-16-5	5	39.1	100	ND	ug/kg	U
Aroclor 1242	53469-21-9	5	39.1	100	ND	ug/kg	U
Aroclor 1248	12672-29-6	5	39.1	100	ND	ug/kg	U
Aroclor 1254	11097-69-1	5	39.1	100	182	ug/kg	D
Aroclor 1260	11096-82-5	5	14.8	100	261	ug/kg	D
Surrogate: Decachlorobiphenyl				*40-126 %*	*88.9*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*67.7*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*		*NRS*	NRS
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*86.2*	*%*	

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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	04-Aug-2021 10:04

TSA-2021-006:1.2-01252021

21A0352-23 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 01/25/2021 12:45
Instrument: ECD7 Analyst: JGR — Analyzed: 02/20/2021 23:08

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21A0352-23 A 01
	Preparation Batch: BJB0156	Sample Size: 13.18 g (wet)	Dry Weight:12.57 g
	Prepared: 02/05/2021	Final Volume: 2.5 mL	% Solids: 95.35
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-23 A 01
	Cleanup Batch: CJB0107	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21A0352-23 A 01
	Cleanup Batch: CJB0105	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-23 A 01
	Cleanup Batch: CJB0106	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	ND	ug/kg	U
Aroclor 1254	11097-69-1	1	1.6	4.0	ND	ug/kg	U
Aroclor 1260	11096-82-5	1	0.6	4.0	1.4	ug/kg	J
Surrogate: Decachlorobiphenyl				*40-126 %*	*77.7*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*66.3*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*70.7*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*66.9*	*%*	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-011:1-01252021

21A0352-27 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 13:40
Instrument: NT11 Analyst: VTS — Analyzed: 02/23/2021 11:45

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-27 A 02
	Preparation Batch: BJB0164	Sample Size: 11.23 g (wet)	Dry Weight:10.01 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 89.17
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-27 A 02
	Cleanup Batch: CJB0140	Initial Volume: 0.5 mL	
	Cleaned: 22-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-27 A 02
	Cleanup Batch: CJB0139	Initial Volume: 0.5 mL	
	Cleaned: 22-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	22.8	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	8.62	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	13.2	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.76	ug/kg	
Acenaphthene	83-32-9	1	0.09	0.50	1.24	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	20.4	ug/kg	Q
Fluorene	86-73-7	1	0.07	0.50	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.11	0.50	73.4	ug/kg	Q, E
Anthracene	120-12-7	1	0.07	0.50	3.22	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	79.1	ug/kg	E
Pyrene	129-00-0	1	0.09	0.50	49.0	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	12.2	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	46.2	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	210	210	ND	ug/kg	Q, Y1, U
Benzo(k)fluoranthene	207-08-9	1	210	210	ND	ug/kg	Y1, U
Benzo(j)fluoranthene	205-82-3	1	210	210	ND	ug/kg	Y1, U
Benzo(a)pyrene	50-32-8	1	0.09	0.50	12.1	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	7.30	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	3.37	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	11.5	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*57.2*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*41.5*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*51.9*	*%*	

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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	04-Aug-2021 10:04

SB-2021-011:1-01252021

21A0352-27 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 13:40
Instrument: FID4 Analyst: CTO — Analyzed: 02/11/2021 16:01

Sample Preparation: Preparation Method: EPA 3550C (Ultrasonic) — Extract ID: 21A0352-27 A 01
Preparation Batch: BJB0163 — Sample Size: 10 g (wet) — Dry Weight:8.92 g
Prepared: 02/05/2021 — Final Volume: 1 mL — % Solids: 89.17

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	5.61	335	mg/kg	E
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)	RRO	1	11.2	1060	mg/kg	E
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*96.1*	*%*	

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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	04-Aug-2021 10:04

SB-2021-011:1-01252021

21A0352-27 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 01/25/2021 13:40
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 21:10

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-27 B 01
Preparation Batch: BJB0107 — Sample Size: 1.003 g (wet) — Dry Weight:0.85 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 84.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.07	0.59	288	mg/kg	
Chromium	7440-47-3	200	1.53	5.89	2160	mg/kg	D
Cobalt	7440-48-4	20	0.03	0.24	10.2	mg/kg	
Lead	7439-92-1	200	0.80	1.18	380	mg/kg	D
Selenium	7782-49-2	20	0.52	2.36	1.51	mg/kg	J
Silver	7440-22-4	20	0.02	0.24	0.58	mg/kg	
Vanadium	7440-62-2	200	0.47	2.36	108	mg/kg	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	04-Aug-2021 10:04

SB-2021-011:1-01252021

21A0352-27 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 01/25/2021 13:40
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 21:10

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-27 B 01
Preparation Batch: BJB0107 — Sample Size: 1.003 g (wet) — Dry Weight:0.85 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 84.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.24	7.63	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	4.39	mg/kg	
Copper	7440-50-8	20	0.40	0.59	217	mg/kg	
Nickel	7440-02-0	200	0.59	5.89	898	mg/kg	D
Zinc	7440-66-6	200	11.1	47.2	1260	mg/kg	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	04-Aug-2021 10:04

SB-2021-011:1-01252021

21A0352-27 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/25/2021 13:40
Instrument: HYDRA Analyst: BLC — Analyzed: 02/04/2021 12:56

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21A0352-27 B
Preparation Batch: BJA0795 — Sample Size: 0.23 g (wet) — Dry Weight:0.19 g
Prepared: 02/01/2021 — Final Volume: 50 mL — % Solids: 84.57

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00540	0.0257	0.195	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-011:1-01252021

21A0352-27RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 13:40
Instrument: NT11 Analyst: VTS — Analyzed: 02/23/2021 13:55

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-27RE1 A 02
	Preparation Batch: BJB0164	Sample Size: 11.23 g (wet)	Dry Weight:10.01 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 89.17
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-27RE1 A 02
	Cleanup Batch: CJB0140	Initial Volume: 0.5 mL	
	Cleaned: 22-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-27RE1 A 02
	Cleanup Batch: CJB0139	Initial Volume: 0.5 mL	
	Cleaned: 22-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	5	2.19	3.00	23.3	ug/kg	D
1-Methylnaphthalene	90-12-0	5	0.53	2.50	7.60	ug/kg	D
2-Methylnaphthalene	91-57-6	5	0.64	2.50	12.9	ug/kg	D
Acenaphthylene	208-96-8	5	0.32	2.50	0.71	ug/kg	J, D
Acenaphthene	83-32-9	5	0.44	2.50	0.73	ug/kg	J, D
Dibenzofuran	132-64-9	5	0.63	2.50	15.9	ug/kg	Q, D
Fluorene	86-73-7	5	0.34	2.50	ND	ug/kg	U
Phenanthrene	85-01-8	5	0.57	2.50	94.3	ug/kg	Q, D
Anthracene	120-12-7	5	0.37	2.50	0.88	ug/kg	J, D
Fluoranthene	206-44-0	5	0.40	2.50	115	ug/kg	D
Pyrene	129-00-0	5	0.44	2.50	72.1	ug/kg	D
Benzo(a)anthracene	56-55-3	5	0.36	2.50	12.6	ug/kg	D
Chrysene	218-01-9	5	0.35	2.50	44.7	ug/kg	D
Benzo(b)fluoranthene	205-99-2	5	0.33	2.50	21.2	ug/kg	Q, D
Benzo(k)fluoranthene	207-08-9	5	0.50	2.50	6.65	ug/kg	D
Benzo(j)fluoranthene	205-82-3	5	0.48	2.50	7.33	ug/kg	D
Benzo(a)pyrene	50-32-8	5	0.43	2.50	4.79	ug/kg	D
Indeno(1,2,3-cd)pyrene	193-39-5	5	0.44	2.50	8.42	ug/kg	D
Dibenzo(a,h)anthracene	53-70-3	5	0.52	2.50	1.89	ug/kg	J, D
Benzo(g,h,i)perylene	191-24-2	5	0.42	2.50	12.3	ug/kg	D
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*55.3*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*52.5*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*64.8*	*%*	

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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	04-Aug-2021 10:04

SB-2021-011:1-01252021

21A0352-27RE1 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 13:40
Instrument: FID4 Analyst: CTO — Analyzed: 02/13/2021 08:22

Sample Preparation: Preparation Method: EPA 3550C (Ultrasonic) — Extract ID: 21A0352-27RE1 A 01
Preparation Batch: BJB0163 — Sample Size: 10 g (wet) — Dry Weight:8.92 g
Prepared: 02/05/2021 — Final Volume: 1 mL — % Solids: 89.17

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	5	28.0	364	mg/kg	D
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)	RRO	5	56.1	1030	mg/kg	D
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*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	04-Aug-2021 10:04

SB-2021-011:3-01252021

21A0352-28 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 13:47
Instrument: NT11 Analyst: VTS — Analyzed: 02/25/2021 19:40

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-28 A 02
	Preparation Batch: BJB0155	Sample Size: 11.94 g (wet)	Dry Weight:10.01 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 83.83
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-28 A 02
	Cleanup Batch: CJB0164	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-28 A 02
	Cleanup Batch: CJB0163	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	35.1	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	27.7	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	41.9	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	3.99	ug/kg	
Acenaphthene	83-32-9	1	0.09	0.50	2.36	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	20.3	ug/kg	Q
Fluorene	86-73-7	1	0.07	0.50	2.30	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	99.1	ug/kg	Q, E
Anthracene	120-12-7	1	0.07	0.50	7.15	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	115	ug/kg	E
Pyrene	129-00-0	1	0.09	0.50	114	ug/kg	E
Benzo(a)anthracene	56-55-3	1	0.07	0.50	59.6	ug/kg	E
Chrysene	218-01-9	1	0.07	0.50	121	ug/kg	E
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	82.5	ug/kg	E
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	37.4	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	33.9	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	54.7	ug/kg	E
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	66.7	ug/kg	E
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	20.7	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	76.5	ug/kg	E
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*53.0*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*89.5*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*83.4*	*%*	

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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	04-Aug-2021 10:04

SB-2021-011:3-01252021

21A0352-28 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 13:47
Instrument: FID4 Analyst: CTO — Analyzed: 02/06/2021 19:26

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-28 A 01
Preparation Batch: BJB0144 — Sample Size: 10.01 g (wet) — Dry Weight:8.39 g
Prepared: 02/04/2021 — Final Volume: 1 mL — % Solids: 83.83

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	5.96	199	mg/kg	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)	RRO	1	11.9	365	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*80.6*	*%*	

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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	04-Aug-2021 10:04

SB-2021-011:3-01252021

21A0352-28 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 01/25/2021 13:47
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 22:02

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-28 B 01
Preparation Batch: BJB0107 — Sample Size: 1.014 g (wet) — Dry Weight:0.89 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 87.48

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.56	157	mg/kg	
Chromium	7440-47-3	100	0.73	2.82	420	mg/kg	D
Cobalt	7440-48-4	20	0.03	0.23	8.08	mg/kg	
Lead	7439-92-1	100	0.38	0.56	343	mg/kg	D
Selenium	7782-49-2	20	0.50	2.25	1.49	mg/kg	J
Silver	7440-22-4	20	0.02	0.23	0.54	mg/kg	
Vanadium	7440-62-2	20	0.05	0.23	155	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-011:3-01252021

21A0352-28 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 01/25/2021 13:47
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 22:02

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-28 B 01
Preparation Batch: BJB0107 — Sample Size: 1.014 g (wet) — Dry Weight:0.89 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 87.48

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.23	13.6	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	3.30	mg/kg	
Copper	7440-50-8	20	0.38	0.56	129	mg/kg	
Nickel	7440-02-0	20	0.06	0.56	59.3	mg/kg	
Zinc	7440-66-6	100	5.3	22.5	586	mg/kg	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	04-Aug-2021 10:04

SB-2021-011:3-01252021

21A0352-28 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/25/2021 13:47
Instrument: HYDRA Analyst: BLC — Analyzed: 02/04/2021 12:58

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21A0352-28 B
Preparation Batch: BJA0795 — Sample Size: 0.245 g (wet) — Dry Weight:0.21 g
Prepared: 02/01/2021 — Final Volume: 50 mL — % Solids: 87.48

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00490	0.0233	0.110	mg/kg	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-011:3-01252021

21A0352-28RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 13:47
Instrument: NT11 Analyst: VTS — Analyzed: 02/26/2021 16:17

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-28RE1 A 02
	Preparation Batch: BJB0155	Sample Size: 11.94 g (wet)	Dry Weight:10.01 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 83.83
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-28RE1 A 02
	Cleanup Batch: CJB0164	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-28RE1 A 02
	Cleanup Batch: CJB0163	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	5	2.19	3.00	38.0	ug/kg	D
1-Methylnaphthalene	90-12-0	5	0.53	2.50	29.0	ug/kg	D
2-Methylnaphthalene	91-57-6	5	0.64	2.50	45.7	ug/kg	D
Acenaphthylene	208-96-8	5	0.32	2.50	3.44	ug/kg	D
Acenaphthene	83-32-9	5	0.44	2.50	ND	ug/kg	U
Dibenzofuran	132-64-9	5	0.63	2.50	17.7	ug/kg	Q, D
Fluorene	86-73-7	5	0.34	2.50	1.58	ug/kg	J, D
Phenanthrene	85-01-8	5	0.57	2.50	151	ug/kg	Q, D
Anthracene	120-12-7	5	0.37	2.50	13.2	ug/kg	D
Fluoranthene	206-44-0	5	0.40	2.50	211	ug/kg	D
Pyrene	129-00-0	5	0.44	2.50	201	ug/kg	D
Benzo(a)anthracene	56-55-3	5	0.36	2.50	64.3	ug/kg	D
Chrysene	218-01-9	5	0.35	2.50	150	ug/kg	D
Benzo(b)fluoranthene	205-99-2	5	0.33	2.50	89.4	ug/kg	D
Benzo(k)fluoranthene	207-08-9	5	0.50	2.50	47.0	ug/kg	D
Benzo(j)fluoranthene	205-82-3	5	0.48	2.50	39.7	ug/kg	D
Benzo(a)pyrene	50-32-8	5	0.43	2.50	57.7	ug/kg	D
Indeno(1,2,3-cd)pyrene	193-39-5	5	0.44	2.50	60.7	ug/kg	D
Dibenzo(a,h)anthracene	53-70-3	5	0.52	2.50	17.5	ug/kg	D
Benzo(g,h,i)perylene	191-24-2	5	0.42	2.50	73.9	ug/kg	D
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*52.9*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*75.9*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*99.1*	*%*	

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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	04-Aug-2021 10:04

SB-2021-011:10-01252021

21A0352-29 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 13:50
Instrument: NT11 Analyst: VTS — Analyzed: 02/25/2021 20:12

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-29 A 02
	Preparation Batch: BJB0155	Sample Size: 12.27 g (wet)	Dry Weight:10.00 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 81.47
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-29 A 02
	Cleanup Batch: CJB0164	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-29 A 02
	Cleanup Batch: CJB0163	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	2.09	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	2.50	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	2.49	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.20	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	0.34	ug/kg	J
Dibenzofuran	132-64-9	1	0.13	0.50	0.98	ug/kg	Q
Fluorene	86-73-7	1	0.07	0.50	0.35	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.50	6.11	ug/kg	Q
Anthracene	120-12-7	1	0.07	0.50	0.80	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	4.28	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	5.77	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	2.12	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	4.50	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	4.24	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	1.26	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	1.30	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	4.17	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	3.37	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.11	0.50	0.71	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.09	0.50	5.42	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*46.4*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*96.7*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*82.5*	*%*	

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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	04-Aug-2021 10:04

SB-2021-011:10-01252021

21A0352-29 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 13:50
Instrument: FID4 Analyst: CTO — Analyzed: 02/06/2021 20:30

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-29 A 01
Preparation Batch: BJB0144 — Sample Size: 10.01 g (wet) — Dry Weight:8.16 g
Prepared: 02/04/2021 — Final Volume: 1 mL — % Solids: 81.47

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	6.13	8.94	mg/kg	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	12.3	33.3	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*85.3*	*%*	

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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	04-Aug-2021 10:04

SB-2021-011:10-01252021

21A0352-29 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 01/25/2021 13:50
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 22:07

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-29 B 01
Preparation Batch: BJB0107 — Sample Size: 1.029 g (wet) — Dry Weight:0.77 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 74.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.07	0.65	74.1	mg/kg	
Chromium	7440-47-3	20	0.17	0.65	19.9	mg/kg	
Cobalt	7440-48-4	20	0.04	0.26	7.98	mg/kg	
Lead	7439-92-1	20	0.09	0.13	4.06	mg/kg	
Selenium	7782-49-2	20	0.57	2.60	1.58	mg/kg	J
Silver	7440-22-4	20	0.02	0.26	0.08	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.26	46.3	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-011:10-01252021

21A0352-29 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 01/25/2021 13:50
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 22:07

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-29 B 01
Preparation Batch: BJB0107 — Sample Size: 1.029 g (wet) — Dry Weight:0.77 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 74.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.26	3.53	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.06	mg/kg	J
Copper	7440-50-8	20	0.44	0.65	22.0	mg/kg	
Nickel	7440-02-0	20	0.07	0.65	16.4	mg/kg	
Zinc	7440-66-6	20	1.1	5.2	40.5	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-011:10-01252021

21A0352-29 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/25/2021 13:50
Instrument: HYDRA Analyst: BLC — Analyzed: 02/04/2021 13:00

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21A0352-29 B
Preparation Batch: BJA0795 — Sample Size: 0.25 g (wet) — Dry Weight:0.19 g
Prepared: 02/01/2021 — Final Volume: 50 mL — % Solids: 74.65

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00563	0.0268	0.0320	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-101:1-01252021

21A0352-31 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 14:00
Instrument: NT11 Analyst: VTS — Analyzed: 02/23/2021 12:18

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-31 A 02
	Preparation Batch: BJB0164	Sample Size: 11.7 g (wet)	Dry Weight:10.08 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 86.18
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-31 A 02
	Cleanup Batch: CJB0140	Initial Volume: 0.5 mL	
	Cleaned: 22-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-31 A 02
	Cleanup Batch: CJB0139	Initial Volume: 0.5 mL	
	Cleaned: 22-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	10.7	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	7.35	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	8.57	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	1.10	ug/kg	
Acenaphthene	83-32-9	1	0.09	0.50	2.33	ug/kg	
Dibenzofuran	132-64-9	1	0.12	0.50	15.5	ug/kg	Q
Fluorene	86-73-7	1	0.07	0.50	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.11	0.50	82.1	ug/kg	Q, E
Anthracene	120-12-7	1	0.07	0.50	3.49	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	63.1	ug/kg	E
Pyrene	129-00-0	1	0.09	0.50	41.0	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	9.07	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	31.3	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	144	144	ND	ug/kg	Q, Y1, U
Benzo(k)fluoranthene	207-08-9	1	144	144	ND	ug/kg	Y1, U
Benzo(j)fluoranthene	205-82-3	1	144	144	ND	ug/kg	Y1, U
Benzo(a)pyrene	50-32-8	1	0.09	0.50	6.70	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	5.47	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	2.00	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	6.61	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*53.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*32.3*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*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	04-Aug-2021 10:04

SB-2021-101:1-01252021

21A0352-31 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 14:00
Instrument: FID4 Analyst: CTO — Analyzed: 02/11/2021 16:21

Sample Preparation: Preparation Method: EPA 3550C (Ultrasonic) — Extract ID: 21A0352-31 A 01
Preparation Batch: BJB0163 — Sample Size: 10 g (wet) — Dry Weight:8.62 g
Prepared: 02/05/2021 — Final Volume: 1 mL — % Solids: 86.18

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	5.80	389	mg/kg	E
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)	RRO	1	11.6	1180	mg/kg	E
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*91.7*	*%*	

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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	04-Aug-2021 10:04

SB-2021-101:1-01252021

21A0352-31 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 01/25/2021 14:00
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 22:12

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-31 B 01
Preparation Batch: BJB0107 — Sample Size: 1.032 g (wet) — Dry Weight:0.90 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 87.55

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.55	248	mg/kg	
Chromium	7440-47-3	400	1.55	11.1	2620	mg/kg	D
Cobalt	7440-48-4	20	0.03	0.22	16.6	mg/kg	
Lead	7439-92-1	20	0.08	0.11	256	mg/kg	
Selenium	7782-49-2	20	0.49	2.21	1.34	mg/kg	J
Silver	7440-22-4	20	0.02	0.22	0.61	mg/kg	
Vanadium	7440-62-2	400	0.35	4.43	183	mg/kg	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	04-Aug-2021 10:04

SB-2021-101:1-01252021

21A0352-31 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 01/25/2021 14:00
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 22:12

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-31 B 01
Preparation Batch: BJB0107 — Sample Size: 1.032 g (wet) — Dry Weight:0.90 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 87.55

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.22	11.4	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	4.68	mg/kg	
Copper	7440-50-8	400	7.53	11.1	454	mg/kg	D
Nickel	7440-02-0	400	1.11	11.1	1660	mg/kg	D
Zinc	7440-66-6	400	18.2	88.5	1020	mg/kg	D

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Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-101:1-01252021

21A0352-31 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/25/2021 14:00
Instrument: HYDRA Analyst: BLC — Analyzed: 02/04/2021 13:02

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21A0352-31 B
Preparation Batch: BJA0795 — Sample Size: 0.225 g (wet) — Dry Weight:0.20 g
Prepared: 02/01/2021 — Final Volume: 50 mL — % Solids: 87.55

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00533	0.0254	1.05	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-101:1-01252021

21A0352-31RE1 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 14:00
Instrument: NT11 Analyst: VTS — Analyzed: 02/23/2021 14:27

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-31RE1 A 02
	Preparation Batch: BJB0164	Sample Size: 11.7 g (wet)	Dry Weight:10.08 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 86.18
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-31RE1 A 02
	Cleanup Batch: CJB0140	Initial Volume: 0.5 mL	
	Cleaned: 22-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-31RE1 A 02
	Cleanup Batch: CJB0139	Initial Volume: 0.5 mL	
	Cleaned: 22-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	5	2.18	2.98	10.9	ug/kg	D
1-Methylnaphthalene	90-12-0	5	0.53	2.48	6.57	ug/kg	D
2-Methylnaphthalene	91-57-6	5	0.63	2.48	8.52	ug/kg	D
Acenaphthylene	208-96-8	5	0.32	2.48	1.02	ug/kg	J, D
Acenaphthene	83-32-9	5	0.44	2.48	0.70	ug/kg	J, D
Dibenzofuran	132-64-9	5	0.62	2.48	12.8	ug/kg	Q, D
Fluorene	86-73-7	5	0.34	2.48	ND	ug/kg	U
Phenanthrene	85-01-8	5	0.57	2.48	113	ug/kg	Q, D
Anthracene	120-12-7	5	0.37	2.48	3.15	ug/kg	D
Fluoranthene	206-44-0	5	0.40	2.48	97.2	ug/kg	D
Pyrene	129-00-0	5	0.44	2.48	63.0	ug/kg	D
Benzo(a)anthracene	56-55-3	5	0.36	2.48	9.17	ug/kg	D
Chrysene	218-01-9	5	0.35	2.48	30.8	ug/kg	D
Benzo(b)fluoranthene	205-99-2	5	0.33	2.48	14.2	ug/kg	Q, D
Benzo(k)fluoranthene	207-08-9	5	0.50	2.48	6.12	ug/kg	D
Benzo(j)fluoranthene	205-82-3	5	0.48	2.48	5.47	ug/kg	D
Benzo(a)pyrene	50-32-8	5	0.43	2.48	4.84	ug/kg	D
Indeno(1,2,3-cd)pyrene	193-39-5	5	0.44	2.48	5.65	ug/kg	D
Dibenzo(a,h)anthracene	53-70-3	5	0.52	2.48	1.50	ug/kg	J, D
Benzo(g,h,i)perylene	191-24-2	5	0.42	2.48	7.04	ug/kg	D
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*53.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*38.1*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*52.7*	*%*	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-101:1-01252021

21A0352-31RE1 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 14:00
Instrument: FID4 Analyst: CTO — Analyzed: 02/13/2021 08:43

Sample Preparation: Preparation Method: EPA 3550C (Ultrasonic) — Extract ID: 21A0352-31RE1 A 01
Preparation Batch: BJB0163 — Sample Size: 10 g (wet) — Dry Weight:8.62 g
Prepared: 02/05/2021 — Final Volume: 1 mL — % Solids: 86.18

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	5	29.0	455	mg/kg	D
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)	RRO	5	58.0	1220	mg/kg	D
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*112*	*%*	

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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	04-Aug-2021 10:04

Asphalt-003-01252021

21A0352-32 (Solid)

Aroclor PCB

Method: EPA 8082A — Sampled: 01/25/2021 14:20
Instrument: ECD7 Analyst: JGR — Analyzed: 02/23/2021 01:29

Sample Preparation:	Preparation Method: EPA 3546 (Microwave)		Extract ID: 21A0352-32 A 01
	Preparation Batch: BJB0156	Sample Size: 12.62 g (wet)	Dry Weight:12.53 g
	Prepared: 02/05/2021	Final Volume: 2.5 mL	% Solids: 99.25
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-32 A 01
	Cleanup Batch: CJB0107	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfuric Acid		Extract ID:21A0352-32 A 01
	Cleanup Batch: CJB0105	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-32 A 01
	Cleanup Batch: CJB0106	Initial Volume: 2.5 mL	
	Cleaned: 18-Feb-2021	Final Volume: 2.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Aroclor 1016	12674-11-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1221	11104-28-2	1	1.6	4.0	ND	ug/kg	U
Aroclor 1232	11141-16-5	1	1.6	4.0	ND	ug/kg	U
Aroclor 1242	53469-21-9	1	1.6	4.0	ND	ug/kg	U
Aroclor 1248	12672-29-6	1	1.6	4.0	2.2	ug/kg	J
Aroclor 1254	11097-69-1	1	1.6	4.0	2.2	ug/kg	J
Aroclor 1260	11096-82-5	1	0.6	4.0	2.0	ug/kg	J
Surrogate: Decachlorobiphenyl				*40-126 %*	*94.9*	*%*	
Surrogate: Tetrachlorometaxylene				*44-120 %*	*83.9*	*%*	
Surrogate: Decachlorobiphenyl [2C]				*40-126 %*	*93.5*	*%*	
Surrogate: Tetrachlorometaxylene [2C]				*44-120 %*	*80.3*	*%*	

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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	04-Aug-2021 10:04

SB-2021-012:2-01252021

21A0352-33 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 14:21
Instrument: NT11 Analyst: VTS — Analyzed: 02/25/2021 20:45

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-33 A 02
	Preparation Batch: BJB0155	Sample Size: 10.79 g (wet)	Dry Weight:10.00 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 92.66
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-33 A 02
	Cleanup Batch: CJB0164	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-33 A 02
	Cleanup Batch: CJB0163	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	ND	ug/kg	U
1-Methylnaphthalene	90-12-0	1	0.11	0.50	0.37	ug/kg	J
2-Methylnaphthalene	91-57-6	1	0.13	0.50	0.42	ug/kg	J
Acenaphthylene	208-96-8	1	0.06	0.50	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.09	0.50	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.13	0.50	0.33	ug/kg	J
Fluorene	86-73-7	1	0.07	0.50	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.11	0.50	4.24	ug/kg	Q
Anthracene	120-12-7	1	0.07	0.50	0.82	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	6.33	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	4.88	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	2.98	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	3.17	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	2.38	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	1.41	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	1.18	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	1.86	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	1.40	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.11	0.50	0.50	ug/kg	J
Benzo(g,h,i)perylene	191-24-2	1	0.09	0.50	1.53	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*41.4*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*79.8*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*75.7*	*%*	

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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	04-Aug-2021 10:04

SB-2021-012:2-01252021

21A0352-33 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 14:21
Instrument: FID4 Analyst: CTO — Analyzed: 02/06/2021 20:51

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-33 A 01
Preparation Batch: BJB0144 — Sample Size: 10.01 g (wet) — Dry Weight:9.28 g
Prepared: 02/04/2021 — Final Volume: 1 mL — % Solids: 92.66

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	5.39	19.4	mg/kg	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	10.8	14.6	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*83.1*	*%*	

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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	04-Aug-2021 10:04

SB-2021-012:2-01252021

21A0352-33 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 01/25/2021 14:21
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 22:16

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-33 B 01
Preparation Batch: BJB0107 — Sample Size: 1.022 g (wet) — Dry Weight:0.94 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 91.87

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.53	29.6	mg/kg	
Chromium	7440-47-3	20	0.14	0.53	11.3	mg/kg	
Cobalt	7440-48-4	20	0.03	0.21	4.51	mg/kg	
Lead	7439-92-1	20	0.07	0.11	2.77	mg/kg	
Selenium	7782-49-2	20	0.47	2.13	1.17	mg/kg	J
Silver	7440-22-4	20	0.02	0.21	0.04	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.21	34.2	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-012:2-01252021

21A0352-33 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 01/25/2021 14:21
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 22:16

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-33 B 01
Preparation Batch: BJB0107 — Sample Size: 1.022 g (wet) — Dry Weight:0.94 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 91.87

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.21	2.94	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	0.04	mg/kg	J
Copper	7440-50-8	20	0.36	0.53	10.6	mg/kg	
Nickel	7440-02-0	20	0.05	0.53	9.39	mg/kg	
Zinc	7440-66-6	20	0.9	4.3	24.6	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-012:2-01252021

21A0352-33 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/25/2021 14:21
Instrument: HYDRA Analyst: BLC — Analyzed: 02/04/2021 13:04

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21A0352-33 B
Preparation Batch: BJA0795 — Sample Size: 0.229 g (wet) — Dry Weight:0.21 g
Prepared: 02/01/2021 — Final Volume: 50 mL — % Solids: 91.87

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00499	0.0238	0.111	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-012:3.4-01252021

21A0352-34 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 14:22
Instrument: NT11 Analyst: VTS — Analyzed: 02/25/2021 21:17

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-34 A 02
	Preparation Batch: BJB0155	Sample Size: 13.96 g (wet)	Dry Weight:10.00 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 71.64
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-34 A 02
	Cleanup Batch: CJB0164	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-34 A 02
	Cleanup Batch: CJB0163	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	5.12	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	8.40	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	7.69	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.59	ug/kg	
Acenaphthene	83-32-9	1	0.09	0.50	1.57	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	4.72	ug/kg	Q
Fluorene	86-73-7	1	0.07	0.50	3.75	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	20.3	ug/kg	Q
Anthracene	120-12-7	1	0.07	0.50	3.22	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	16.7	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	14.5	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	4.46	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	7.95	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	5.01	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	1.91	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	2.08	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	4.35	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	3.44	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.73	ug/kg	
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	4.89	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*51.1*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*91.7*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*83.6*	*%*	

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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	04-Aug-2021 10:04

SB-2021-012:3.4-01252021

21A0352-34 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 14:22
Instrument: FID4 Analyst: CTO — Analyzed: 02/06/2021 21:12

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-34 A 01
Preparation Batch: BJB0144 — Sample Size: 10.01 g (wet) — Dry Weight:7.17 g
Prepared: 02/04/2021 — Final Volume: 1 mL — % Solids: 71.64

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	6.97	29.7	mg/kg	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)	RRO	1	13.9	198	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*74.3*	*%*	

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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	04-Aug-2021 10:04

SB-2021-012:3.4-01252021

21A0352-34 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 01/25/2021 14:22
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 22:21

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-34 B 01
Preparation Batch: BJB0107 — Sample Size: 1.006 g (wet) — Dry Weight:0.90 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 89.94

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.55	35.6	mg/kg	
Chromium	7440-47-3	20	0.14	0.55	12.1	mg/kg	
Cobalt	7440-48-4	20	0.03	0.22	4.67	mg/kg	
Lead	7439-92-1	20	0.08	0.11	1.84	mg/kg	
Selenium	7782-49-2	20	0.49	2.21	0.86	mg/kg	J
Silver	7440-22-4	20	0.02	0.22	0.04	mg/kg	J
Vanadium	7440-62-2	20	0.04	0.22	34.0	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-012:3.4-01252021

21A0352-34 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 01/25/2021 14:22
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 22:21

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-34 B 01
Preparation Batch: BJB0107 — Sample Size: 1.006 g (wet) — Dry Weight:0.90 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 89.94

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.02	0.22	2.84	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	ND	mg/kg	U
Copper	7440-50-8	20	0.38	0.55	10.1	mg/kg	
Nickel	7440-02-0	20	0.06	0.55	9.45	mg/kg	
Zinc	7440-66-6	20	0.9	4.4	25.4	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-012:3.4-01252021

21A0352-34 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/25/2021 14:22
Instrument: HYDRA Analyst: BLC — Analyzed: 02/04/2021 13:06

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21A0352-34 B
Preparation Batch: BJA0795 — Sample Size: 0.222 g (wet) — Dry Weight:0.20 g
Prepared: 02/01/2021 — Final Volume: 50 mL — % Solids: 89.94

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00526	0.0250	0.00706	mg/kg	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	04-Aug-2021 10:04

SB-2021-012:10.4-01252021

21A0352-35 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 14:25
Instrument: NT11 Analyst: VTS — Analyzed: 02/25/2021 21:49

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-35 A 02
	Preparation Batch: BJB0155	Sample Size: 13.24 g (wet)	Dry Weight:10.02 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 75.71
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-35 A 02
	Cleanup Batch: CJB0164	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-35 A 02
	Cleanup Batch: CJB0163	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	0.48	ug/kg	J
1-Methylnaphthalene	90-12-0	1	0.11	0.50	0.33	ug/kg	J
2-Methylnaphthalene	91-57-6	1	0.13	0.50	0.34	ug/kg	J
Acenaphthylene	208-96-8	1	0.06	0.50	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.09	0.50	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.13	0.50	ND	ug/kg	U
Fluorene	86-73-7	1	0.07	0.50	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.11	0.50	1.19	ug/kg	Q
Anthracene	120-12-7	1	0.07	0.50	0.09	ug/kg	J
Fluoranthene	206-44-0	1	0.08	0.50	0.51	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	0.67	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	0.30	ug/kg	J
Chrysene	218-01-9	1	0.07	0.50	0.60	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	0.34	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.12	ug/kg	J
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.11	ug/kg	J
Benzo(a)pyrene	50-32-8	1	0.09	0.50	0.20	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	0.11	ug/kg	J
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	0.29	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*45.4*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*86.8*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*79.2*	*%*	

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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	04-Aug-2021 10:04

SB-2021-012:10.4-01252021

21A0352-35 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 14:25
Instrument: FID4 Analyst: CTO — Analyzed: 02/06/2021 21:33

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-35 A 01
Preparation Batch: BJB0144 — Sample Size: 10.01 g (wet) — Dry Weight:7.58 g
Prepared: 02/04/2021 — Final Volume: 1 mL — % Solids: 75.71

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	6.60	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	13.2	13.6	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*95.9*	*%*	

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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	04-Aug-2021 10:04

SB-2021-012:10.4-01252021

21A0352-35 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 01/25/2021 14:25
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 22:26

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-35 B 01
Preparation Batch: BJB0107 — Sample Size: 1.091 g (wet) — Dry Weight:0.84 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 76.99

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.07	0.60	74.7	mg/kg	
Chromium	7440-47-3	20	0.15	0.60	26.3	mg/kg	
Cobalt	7440-48-4	20	0.03	0.24	7.34	mg/kg	
Lead	7439-92-1	20	0.08	0.12	6.86	mg/kg	
Selenium	7782-49-2	20	0.52	2.38	1.45	mg/kg	J
Silver	7440-22-4	20	0.02	0.24	0.09	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.24	50.5	mg/kg	

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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	04-Aug-2021 10:04

SB-2021-012:10.4-01252021

21A0352-35 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 01/25/2021 14:25
Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 22:26

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-35 B 01
Preparation Batch: BJB0107 — Sample Size: 1.091 g (wet) — Dry Weight:0.84 g
Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 76.99

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.24	4.77	mg/kg	
Cadmium	7440-43-9	20	0.04	0.12	0.08	mg/kg	J
Copper	7440-50-8	20	0.40	0.60	28.9	mg/kg	
Nickel	7440-02-0	20	0.06	0.60	16.2	mg/kg	
Zinc	7440-66-6	20	1.0	4.8	41.7	mg/kg	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-012:10.4-01252021

21A0352-35 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/25/2021 14:25
Instrument: HYDRA Analyst: BLC — Analyzed: 02/04/2021 13:08

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21A0352-35 B
Preparation Batch: BJA0795 — Sample Size: 0.264 g (wet) — Dry Weight:0.20 g
Prepared: 02/01/2021 — Final Volume: 50 mL — % Solids: 76.99

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00517	0.0246	0.0499	mg/kg	

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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

MW-66:1.2-0112521

21A0352-37 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/25/2021 13:05

Instrument: NT5 Analyst: PB — Analyzed: 01/26/2021 18:47

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 21A0352-37 C

Preparation Batch: BJA0680 — Sample Size: 4.21 g (wet) — Dry Weight:3.85 g

Prepared: 01/26/2021 — Final Volume: 5 mL — % Solids: 91.40

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.31	1.30	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.44	1.30	ND	ug/kg	U
trans-1,2-Dichloroethene	156-60-5	1	0.35	1.30	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.31	1.30	ND	ug/kg	U
Benzene	71-43-2	1	0.38	1.30	0.69	ug/kg	J
Trichloroethene	79-01-6	1	0.28	1.30	ND	ug/kg	U
Toluene	108-88-3	1	0.20	1.30	0.52	ug/kg	J
Tetrachloroethene	127-18-4	1	0.33	1.30	1.65	ug/kg	
Ethylbenzene	100-41-4	1	0.26	1.30	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.51	2.60	ND	ug/kg	U
o-Xylene	95-47-6	1	0.29	1.30	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.80	2.60	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*96.8*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*91.4*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*79.3*	*%*	*
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*102*	*%*	

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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	04-Aug-2021 10:04

MW-66:1.2-0112521

21A0352-37 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 13:05
Instrument: NT11 Analyst: VTS — Analyzed: 02/25/2021 22:21

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-37 A 02
	Preparation Batch: BJB0155	Sample Size: 10.96 g (wet)	Dry Weight:10.02 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 91.40
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-37 A 02
	Cleanup Batch: CJB0164	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-37 A 02
	Cleanup Batch: CJB0163	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	12.0	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	19.7	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	23.3	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.23	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.13	0.50	6.35	ug/kg	Q
Fluorene	86-73-7	1	0.07	0.50	0.26	ug/kg	J
Phenanthrene	85-01-8	1	0.11	0.50	9.08	ug/kg	Q
Anthracene	120-12-7	1	0.07	0.50	1.59	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	3.65	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	4.66	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	3.37	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	3.62	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	4.10	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.90	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	1.08	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	2.05	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	1.52	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.45	ug/kg	J
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	2.38	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*51.8*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*87.5*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*77.0*	*%*	

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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	04-Aug-2021 10:04

MW-66:1.2-0112521

21A0352-37 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 13:05
Instrument: FID4 Analyst: CTO — Analyzed: 02/06/2021 21:54

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-37 A 01
Preparation Batch: BJB0144 — Sample Size: 10.01 g (wet) — Dry Weight:9.15 g
Prepared: 02/04/2021 — Final Volume: 1 mL — % Solids: 91.40

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	5.46	9.50	mg/kg	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)	RRO	1	10.9	32.7	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*88.7*	*%*	

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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	04-Aug-2021 10:04

MW-66:1.2-0112521

21A0352-37 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 01/25/2021 13:05

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 22:31

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-37 B 01

Preparation Batch: BJB0107 — Sample Size: 1.044 g (wet) — Dry Weight:0.78 g

Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 75.19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.07	0.64	53.6	mg/kg	
Chromium	7440-47-3	20	0.17	0.64	19.2	mg/kg	
Cobalt	7440-48-4	20	0.04	0.25	4.57	mg/kg	
Lead	7439-92-1	20	0.09	0.13	13.8	mg/kg	
Selenium	7782-49-2	20	0.56	2.55	1.13	mg/kg	J
Silver	7440-22-4	20	0.02	0.25	0.08	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.25	34.2	mg/kg	

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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	04-Aug-2021 10:04

MW-66:1.2-0112521

21A0352-37 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 01/25/2021 13:05

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 22:31

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-37 B 01

Preparation Batch: BJB0107 — Sample Size: 1.044 g (wet) — Dry Weight:0.78 g

Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 75.19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.25	3.27	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.43	mg/kg	
Copper	7440-50-8	20	0.43	0.64	20.0	mg/kg	
Nickel	7440-02-0	20	0.06	0.64	19.5	mg/kg	
Zinc	7440-66-6	50	3.0	12.7	538	mg/kg	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	04-Aug-2021 10:04

MW-66:1.2-0112521

21A0352-37 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/25/2021 13:05

Instrument: HYDRA Analyst: BLC — Analyzed: 02/04/2021 13:10

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21A0352-37 B

Preparation Batch: BJA0795 — Sample Size: 0.225 g (wet) — Dry Weight:0.17 g

Prepared: 02/01/2021 — Final Volume: 50 mL — % Solids: 75.19

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00621	0.0296	0.0194	mg/kg	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	04-Aug-2021 10:04

MW-66:1.2-0112521

21A0352-37RE1 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/25/2021 13:05

Instrument: NT5 Analyst: PB — Analyzed: 01/27/2021 14:20

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 21A0352-37RE1 C

Preparation Batch: BJA0714 — Sample Size: 4.52 g (wet) — Dry Weight:4.13 g

Prepared: 01/26/2021 — Final Volume: 5 mL — % Solids: 91.40

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.28	1.21	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.41	1.21	ND	ug/kg	U
trans-1,2-Dichloroethene	156-60-5	1	0.32	1.21	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.29	1.21	ND	ug/kg	U
Benzene	71-43-2	1	0.36	1.21	0.85	ug/kg	J
Trichloroethene	79-01-6	1	0.26	1.21	ND	ug/kg	U
Toluene	108-88-3	1	0.18	1.21	ND	ug/kg	U
Tetrachloroethene	127-18-4	1	0.31	1.21	1.14	ug/kg	J
Ethylbenzene	100-41-4	1	0.24	1.21	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.47	2.42	0.69	ug/kg	J
o-Xylene	95-47-6	1	0.27	1.21	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.75	2.42	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*79.0*	*%*	*
Surrogate: Toluene-d8				*77-120 %*	*84.4*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*70.7*	*%*	*
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*90.3*	*%*	

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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	04-Aug-2021 10:04

MW-66:5.5-0112521

21A0352-38 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/25/2021 13:20

Instrument: NT5 Analyst: PB — Analyzed: 01/27/2021 14:44

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 21A0352-38 E

Preparation Batch: BJA0714 — Sample Size: 5.37 g (wet) — Dry Weight:4.92 g

Prepared: 01/27/2021 — Final Volume: 5 mL — % Solids: 91.64

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.24	1.02	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.34	1.02	ND	ug/kg	U
trans-1,2-Dichloroethene	156-60-5	1	0.27	1.02	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.24	1.02	ND	ug/kg	U
Benzene	71-43-2	1	0.30	1.02	ND	ug/kg	U
Trichloroethene	79-01-6	1	0.22	1.02	ND	ug/kg	U
Toluene	108-88-3	1	0.15	1.02	ND	ug/kg	U
Tetrachloroethene	127-18-4	1	0.26	1.02	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.21	1.02	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.40	2.03	ND	ug/kg	U
o-Xylene	95-47-6	1	0.23	1.02	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.63	2.03	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*96.0*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*98.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*104*	*%*	
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	04-Aug-2021 10:04

MW-66:5.5-0112521

21A0352-38 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 13:20
Instrument: NT11 Analyst: VTS — Analyzed: 02/25/2021 22:53

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-38 B 02
	Preparation Batch: BJB0155	Sample Size: 10.96 g (wet)	Dry Weight:10.04 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 91.64
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-38 B 02
	Cleanup Batch: CJB0164	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-38 B 02
	Cleanup Batch: CJB0163	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	0.46	ug/kg	J
1-Methylnaphthalene	90-12-0	1	0.11	0.50	0.92	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	0.88	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	ND	ug/kg	U
Acenaphthene	83-32-9	1	0.09	0.50	ND	ug/kg	U
Dibenzofuran	132-64-9	1	0.13	0.50	0.38	ug/kg	J
Fluorene	86-73-7	1	0.07	0.50	ND	ug/kg	U
Phenanthrene	85-01-8	1	0.11	0.50	1.36	ug/kg	Q
Anthracene	120-12-7	1	0.07	0.50	0.10	ug/kg	J
Fluoranthene	206-44-0	1	0.08	0.50	0.49	ug/kg	J
Pyrene	129-00-0	1	0.09	0.50	0.48	ug/kg	J
Benzo(a)anthracene	56-55-3	1	0.07	0.50	0.23	ug/kg	J
Chrysene	218-01-9	1	0.07	0.50	0.46	ug/kg	J
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	0.22	ug/kg	J
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	ND	ug/kg	U
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	ND	ug/kg	U
Benzo(a)pyrene	50-32-8	1	0.09	0.50	0.09	ug/kg	J
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	ND	ug/kg	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	ND	ug/kg	U
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	0.15	ug/kg	J
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*43.5*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*75.6*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*73.1*	*%*	

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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	04-Aug-2021 10:04

MW-66:5.5-0112521

21A0352-38 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 13:20
Instrument: FID4 Analyst: CTO — Analyzed: 02/06/2021 22:15

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-38 B 01
Preparation Batch: BJB0144 — Sample Size: 10.01 g (wet) — Dry Weight:9.17 g
Prepared: 02/04/2021 — Final Volume: 1 mL — % Solids: 91.64

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	5.45	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	10.9	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*83.4*	*%*	

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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	04-Aug-2021 10:04

MW-66:5.5-0112521

21A0352-38 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 01/25/2021 13:20

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 22:36

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-38 C 01

Preparation Batch: BJB0107 — Sample Size: 1.008 g (wet) — Dry Weight:0.88 g

Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 86.82

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.06	0.57	44.6	mg/kg	
Chromium	7440-47-3	20	0.15	0.57	26.4	mg/kg	
Cobalt	7440-48-4	20	0.03	0.23	5.13	mg/kg	
Lead	7439-92-1	20	0.08	0.11	10.0	mg/kg	
Selenium	7782-49-2	20	0.50	2.29	1.15	mg/kg	J
Silver	7440-22-4	20	0.02	0.23	0.08	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.23	36.1	mg/kg	

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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	04-Aug-2021 10:04

MW-66:5.5-0112521

21A0352-38 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 01/25/2021 13:20

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 22:36

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-38 C 01

Preparation Batch: BJB0107 — Sample Size: 1.008 g (wet) — Dry Weight:0.88 g

Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 86.82

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.23	3.01	mg/kg	
Cadmium	7440-43-9	20	0.03	0.11	0.37	mg/kg	
Copper	7440-50-8	20	0.39	0.57	20.6	mg/kg	
Nickel	7440-02-0	20	0.06	0.57	23.5	mg/kg	
Zinc	7440-66-6	50	2.7	11.4	426	mg/kg	D

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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
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Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

MW-66:5.5-0112521

21A0352-38 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/25/2021 13:20

Instrument: HYDRA Analyst: BLC — Analyzed: 02/04/2021 13:16

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21A0352-38 C

Preparation Batch: BJA0795 — Sample Size: 0.233 g (wet) — Dry Weight:0.20 g

Prepared: 02/01/2021 — Final Volume: 50 mL — % Solids: 86.82

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00519	0.0247	0.0153	mg/kg	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	04-Aug-2021 10:04

MW-66:5.5-0112521

21A0352-38 (Solid)

Wet Chemistry

Method: EPA 9060A m — Sampled: 01/25/2021 13:20

Instrument: TOC Cube Analyst: BF — Analyzed: 02/06/2021 20:59

Sample Preparation: Preparation Method: PSEP 1986 (modified) — Extract ID: 21A0352-38 C

Preparation Batch: BJB0199 — Sample Size: 0.5438 g (wet) — Dry Weight:0.48 g

Prepared: 02/05/2021 — Final Volume: 0.5438 mL — % Solids: 87.95

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.24	%	

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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	04-Aug-2021 10:04

MW-66:5.5-0112521

21A0352-38 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 01/25/2021 13:20

Instrument: BAL2 Analyst: KLE — Analyzed: 01/28/2021 04:34

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21A0352-38

Preparation Batch: BJA0724 — Sample Size: 5 g (wet) — Dry Weight:4.40 g

Prepared: 01/28/2021 — Final Volume: 5 g — % Solids: 87.95

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	87.95	%	

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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	04-Aug-2021 10:04

MW-66:10.0-0112521

21A0352-39 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/25/2021 13:50

Instrument: NT5 Analyst: PB — Analyzed: 01/27/2021 15:08

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 21A0352-39 C

Preparation Batch: BJA0714 — Sample Size: 5.81 g (wet) — Dry Weight:3.79 g

Prepared: 01/27/2021 — Final Volume: 5 mL — % Solids: 65.16

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.31	1.32	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.44	1.32	ND	ug/kg	U
trans-1,2-Dichloroethene	156-60-5	1	0.35	1.32	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.32	1.32	ND	ug/kg	U
Benzene	71-43-2	1	0.39	1.32	ND	ug/kg	U
Trichloroethene	79-01-6	1	0.28	1.32	0.52	ug/kg	J
Toluene	108-88-3	1	0.20	1.32	ND	ug/kg	U
Tetrachloroethene	127-18-4	1	0.34	1.32	0.42	ug/kg	J
Ethylbenzene	100-41-4	1	0.27	1.32	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.52	2.64	ND	ug/kg	U
o-Xylene	95-47-6	1	0.30	1.32	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.81	2.64	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*91.6*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*97.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*99.5*	*%*	
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	04-Aug-2021 10:04

MW-66:10.0-0112521

21A0352-39 (Solid)

Semivolatile Organic Compounds - SIM

Method: EPA 8270E-SIM — Sampled: 01/25/2021 13:50
Instrument: NT11 Analyst: VTS — Analyzed: 02/25/2021 23:26

Sample Preparation:	Preparation Method: EPA 3546 (Microwave) Low Level		Extract ID: 21A0352-39 A 02
	Preparation Batch: BJB0155	Sample Size: 15.37 g (wet)	Dry Weight:10.02 g
	Prepared: 02/05/2021	Final Volume: 0.5 mL	% Solids: 65.16
Sample Cleanup:	Cleanup Method: Silica Gel		Extract ID: 21A0352-39 A 02
	Cleanup Batch: CJB0164	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	
Sample Cleanup:	Cleanup Method: Sulfur		Extract ID:21A0352-39 A 02
	Cleanup Batch: CJB0163	Initial Volume: 0.5 mL	
	Cleaned: 24-Feb-2021	Final Volume: 0.5 mL	

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.44	0.60	3.64	ug/kg	
1-Methylnaphthalene	90-12-0	1	0.11	0.50	5.46	ug/kg	
2-Methylnaphthalene	91-57-6	1	0.13	0.50	5.40	ug/kg	
Acenaphthylene	208-96-8	1	0.06	0.50	0.36	ug/kg	J
Acenaphthene	83-32-9	1	0.09	0.50	0.96	ug/kg	
Dibenzofuran	132-64-9	1	0.13	0.50	2.56	ug/kg	Q
Fluorene	86-73-7	1	0.07	0.50	1.63	ug/kg	
Phenanthrene	85-01-8	1	0.11	0.50	11.1	ug/kg	Q
Anthracene	120-12-7	1	0.07	0.50	2.84	ug/kg	
Fluoranthene	206-44-0	1	0.08	0.50	7.63	ug/kg	
Pyrene	129-00-0	1	0.09	0.50	6.94	ug/kg	
Benzo(a)anthracene	56-55-3	1	0.07	0.50	2.38	ug/kg	
Chrysene	218-01-9	1	0.07	0.50	3.95	ug/kg	
Benzo(b)fluoranthene	205-99-2	1	0.07	0.50	2.21	ug/kg	
Benzo(k)fluoranthene	207-08-9	1	0.10	0.50	0.91	ug/kg	
Benzo(j)fluoranthene	205-82-3	1	0.10	0.50	0.99	ug/kg	
Benzo(a)pyrene	50-32-8	1	0.09	0.50	1.94	ug/kg	
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.09	0.50	1.57	ug/kg	
Dibenzo(a,h)anthracene	53-70-3	1	0.10	0.50	0.41	ug/kg	J
Benzo(g,h,i)perylene	191-24-2	1	0.08	0.50	2.16	ug/kg	
Surrogate: 2-Methylnaphthalene-d10				*30-160 %*	*45.7*	*%*	
Surrogate: Dibenzo[a,h]anthracene-d14				*30-160 %*	*79.1*	*%*	
Surrogate: Fluoranthene-d10				*30-160 %*	*76.5*	*%*	

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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	04-Aug-2021 10:04

MW-66:10.0-0112521

21A0352-39 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 13:50
Instrument: FID4 Analyst: CTO — Analyzed: 02/06/2021 22:36

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-39 A 01
Preparation Batch: BJB0144 — Sample Size: 10.01 g (wet) — Dry Weight:6.52 g
Prepared: 02/04/2021 — Final Volume: 1 mL — % Solids: 65.16

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	7.67	12.2	mg/kg	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)	RRO	1	15.3	48.4	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*93.8*	*%*	

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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	04-Aug-2021 10:04

MW-66:10.0-0112521

21A0352-39 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A — Sampled: 01/25/2021 13:50

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 22:42

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-39 B 01

Preparation Batch: BJB0107 — Sample Size: 1.022 g (wet) — Dry Weight:0.75 g

Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 73.00

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Barium	7440-39-3	20	0.08	0.67	72.0	mg/kg	
Chromium	7440-47-3	20	0.17	0.67	17.3	mg/kg	
Cobalt	7440-48-4	20	0.04	0.27	10.6	mg/kg	
Lead	7439-92-1	20	0.09	0.13	3.90	mg/kg	
Selenium	7782-49-2	20	0.59	2.68	1.49	mg/kg	J
Silver	7440-22-4	20	0.02	0.27	0.10	mg/kg	J
Vanadium	7440-62-2	20	0.05	0.27	52.4	mg/kg	

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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	04-Aug-2021 10:04

MW-66:10.0-0112521

21A0352-39 (Solid)

Metals and Metallic Compounds

Method: EPA 6020A UCT-KED — Sampled: 01/25/2021 13:50

Instrument: ICPMS2 Analyst: MCB — Analyzed: 02/05/2021 22:42

Sample Preparation: Preparation Method: SWN EPA 3050B — Extract ID: 21A0352-39 B 01

Preparation Batch: BJB0107 — Sample Size: 1.022 g (wet) — Dry Weight:0.75 g

Prepared: 02/03/2021 — Final Volume: 50 mL — % Solids: 73.00

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	20	0.03	0.27	3.57	mg/kg	
Cadmium	7440-43-9	20	0.04	0.13	0.27	mg/kg	
Copper	7440-50-8	20	0.46	0.67	28.4	mg/kg	
Nickel	7440-02-0	20	0.07	0.67	20.6	mg/kg	
Zinc	7440-66-6	20	1.1	5.4	143	mg/kg	

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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	04-Aug-2021 10:04

MW-66:10.0-0112521

21A0352-39 (Solid)

Metals and Metallic Compounds

Method: EPA 7471B — Sampled: 01/25/2021 13:50
Instrument: HYDRA Analyst: BLC — Analyzed: 02/04/2021 13:18

Sample Preparation: Preparation Method: SMM EPA 7471B — Extract ID: 21A0352-39 B
Preparation Batch: BJA0795 — Sample Size: 0.226 g (wet) — Dry Weight:0.16 g
Prepared: 02/01/2021 — Final Volume: 50 mL — % Solids: 73.00

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Mercury	7439-97-6	1	0.00636	0.0303	0.0533	mg/kg	

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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	04-Aug-2021 10:04

MW-66:15.5-0112521

21A0352-40 (Solid)

Wet Chemistry

Method: EPA 9060A m — Sampled: 01/25/2021 14:00

Instrument: TOC Cube Analyst: BF — Analyzed: 02/06/2021 21:30

Sample Preparation: Preparation Method: PSEP 1986 (modified) — Extract ID: 21A0352-40 C

Preparation Batch: BJB0199 — Sample Size: 0.5242 g (wet) — Dry Weight:0.39 g

Prepared: 02/05/2021 — Final Volume: 0.5242 mL — % Solids: 74.56

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.02	0.02	0.29	%	

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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	04-Aug-2021 10:04

MW-66:15.5-0112521

21A0352-40 (Solid)

Wet Chemistry

Method: SM 2540 G-97 — Sampled: 01/25/2021 14:00

Instrument: BAL2 Analyst: KLE — Analyzed: 01/28/2021 04:34

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 21A0352-40

Preparation Batch: BJA0724 — Sample Size: 5 g (wet) — Dry Weight:3.73 g

Prepared: 01/28/2021 — Final Volume: 5 g — % Solids: 74.56

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Solids		1	0.04	0.04	74.56	%	

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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	04-Aug-2021 10:04

SB-2021-034:10.7-01252021

21A0352-42 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/25/2021 15:25
Instrument: NT5 Analyst: PB — Analyzed: 01/27/2021 15:32

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 21A0352-42 B
Preparation Batch: BJA0714 — Sample Size: 5.09 g (wet) — Dry Weight:3.76 g
Prepared: 01/27/2021 — Final Volume: 5 mL — % Solids: 73.88

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.31	1.33	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.45	1.33	ND	ug/kg	U
trans-1,2-Dichloroethene	156-60-5	1	0.35	1.33	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.32	1.33	ND	ug/kg	U
Benzene	71-43-2	1	0.39	1.33	0.83	ug/kg	J
Trichloroethene	79-01-6	1	0.28	1.33	ND	ug/kg	U
Toluene	108-88-3	1	0.20	1.33	0.74	ug/kg	J
Tetrachloroethene	127-18-4	1	0.34	1.33	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.27	1.33	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.52	2.66	0.61	ug/kg	J
o-Xylene	95-47-6	1	0.30	1.33	ND	ug/kg	U
Xylenes, total	1330-20-7	1	0.82	2.66	ND	ug/kg	U
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*93.6*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*104*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*108*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*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	04-Aug-2021 10:04

SB-2021-034:10.7-01252021

21A0352-42 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 01/25/2021 15:25

Instrument: NT2 Analyst: LH — Analyzed: 01/27/2021 14:17

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 21A0352-42 D

Preparation Batch: BJA0691 — Sample Size: 4.655 g (wet) — Dry Weight:3.44 g

Prepared: 01/27/2021 — Final Volume: 5 mL — % Solids: 73.88

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	9040	179000	ug/kg	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*97.5*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*106*	*%*	

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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	04-Aug-2021 10:04

SB-2021-034:10.7-01252021

21A0352-42 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 15:25
Instrument: FID4 Analyst: CTO — Analyzed: 02/06/2021 22:57

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-42 A 01
Preparation Batch: BJB0144 — Sample Size: 10.01 g (wet) — Dry Weight:7.40 g
Prepared: 02/04/2021 — Final Volume: 1 mL — % Solids: 73.88

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	6.76	9.14	mg/kg	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)	RRO	1	13.5	15.8	mg/kg	
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*86.8*	*%*	

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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	04-Aug-2021 10:04

SB-2021-102:10.7-01252021

21A0352-43 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/25/2021 16:00
Instrument: NT5 Analyst: PB — Analyzed: 01/27/2021 15:56

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 21A0352-43 B
Preparation Batch: BJA0714 — Sample Size: 4.5 g (wet) — Dry Weight:3.46 g
Prepared: 01/27/2021 — Final Volume: 5 mL — % Solids: 76.85

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.34	1.45	ND	ug/kg	U
1,1-Dichloroethene	75-35-4	1	0.49	1.45	ND	ug/kg	U
trans-1,2-Dichloroethene	156-60-5	1	0.38	1.45	ND	ug/kg	U
cis-1,2-Dichloroethene	156-59-2	1	0.35	1.45	ND	ug/kg	U
Benzene	71-43-2	1	0.43	1.45	1.45	ug/kg	
Trichloroethene	79-01-6	1	0.31	1.45	ND	ug/kg	U
Toluene	108-88-3	1	0.22	1.45	1.39	ug/kg	J
Tetrachloroethene	127-18-4	1	0.37	1.45	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.29	1.45	0.62	ug/kg	J
m,p-Xylene	179601-23-1	1	0.57	2.89	1.67	ug/kg	J
o-Xylene	95-47-6	1	0.32	1.45	0.44	ug/kg	J
Xylenes, total	1330-20-7	1	0.89	2.89	2.12	ug/kg	J
Surrogate: 1,2-Dichloroethane-d4				*80-149 %*	*87.0*	*%*	
Surrogate: Toluene-d8				*77-120 %*	*99.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*105*	*%*	
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: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-102:10.7-01252021

21A0352-43 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 01/25/2021 16:00
Instrument: NT2 Analyst: LH — Analyzed: 01/27/2021 14:38

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 21A0352-43 D
Preparation Batch: BJA0691 — Sample Size: 4.472 g (wet) — Dry Weight:3.44 g
Prepared: 01/27/2021 — Final Volume: 5 mL — % Solids: 76.85

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	8780	83800	ug/kg	
HC ID: GAS						
Surrogate: Toluene-d8			*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*106*	*%*	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

SB-2021-102:10.7-01252021

21A0352-43 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 16:00
Instrument: FID4 Analyst: CTO — Analyzed: 02/09/2021 11:35

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-43 A 01
Preparation Batch: BJB0148 — Sample Size: 10.04 g (wet) — Dry Weight:7.72 g
Prepared: 02/05/2021 — Final Volume: 1 mL — % Solids: 76.85

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	6.48	8.88	mg/kg	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)	RRO	1	13.0	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*110*	*%*	

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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	04-Aug-2021 10:04

SB-2021-034:15-01252021

21A0352-44 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/25/2021 15:45

Instrument: NT5 Analyst: PB — Analyzed: 01/27/2021 16:20

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 21A0352-44 B

Preparation Batch: BJA0714 — Sample Size: 5.22 g (wet) — Dry Weight:4.15 g

Prepared: 01/27/2021 — Final Volume: 5 mL — % Solids: 79.48

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.28	0.96	ND	ug/kg	U
Toluene	108-88-3	1	0.14	0.96	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.19	0.96	2.26	ug/kg	
m,p-Xylene	179601-23-1	1	0.38	1.92	1.71	ug/kg	J
o-Xylene	95-47-6	1	0.21	0.96	0.65	ug/kg	J
Surrogate: Toluene-d8				*77-120 %*	*96.8*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*103*	*%*	

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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	04-Aug-2021 10:04

SB-2021-034:15-01252021

21A0352-44 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 01/25/2021 15:45

Instrument: NT2 Analyst: LH — Analyzed: 01/27/2021 14:58

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 21A0352-44 D

Preparation Batch: BJA0691 — Sample Size: 4.459 g (wet) — Dry Weight:3.54 g

Prepared: 01/27/2021 — Final Volume: 5 mL — % Solids: 79.48

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	8350	29800	ug/kg	
HC ID: GAS						
Surrogate: Toluene-d8			*80-120 %*	*98.2*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*104*	*%*	

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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	04-Aug-2021 10:04

SB-2021-034:15-01252021

21A0352-44 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 15:45
Instrument: FID4 Analyst: CTO — Analyzed: 02/09/2021 11:56

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-44 A 01
Preparation Batch: BJB0148 — Sample Size: 10.03 g (wet) — Dry Weight:7.97 g
Prepared: 02/05/2021 — Final Volume: 1 mL — % Solids: 79.48

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	10	62.7	67.1	mg/kg	D
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	10	125	571	mg/kg	D
HC ID: MOTOR OIL						
Surrogate: o-Terphenyl			*50-150 %*	*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	04-Aug-2021 10:04

SB-2021-034:21-01252021

21A0352-45 (Solid)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/25/2021 15:50

Instrument: NT5 Analyst: PB — Analyzed: 01/27/2021 16:44

Sample Preparation: Preparation Method: EPA 5035 (Sodium Bisulfate) — Extract ID: 21A0352-45 B

Preparation Batch: BJA0714 — Sample Size: 3.95 g (wet) — Dry Weight:3.39 g

Prepared: 01/27/2021 — Final Volume: 5 mL — % Solids: 85.83

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.37	1.27	ND	ug/kg	U
Toluene	108-88-3	1	0.19	1.27	ND	ug/kg	U
Ethylbenzene	100-41-4	1	0.26	1.27	ND	ug/kg	U
m,p-Xylene	179601-23-1	1	0.50	2.53	ND	ug/kg	U
o-Xylene	95-47-6	1	0.28	1.27	ND	ug/kg	U
Surrogate: Toluene-d8				*77-120 %*	*96.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*106*	*%*	

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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	04-Aug-2021 10:04

SB-2021-034:21-01252021

21A0352-45 (Solid)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 01/25/2021 15:50

Instrument: NT2 Analyst: LH — Analyzed: 01/27/2021 15:19

Sample Preparation: Preparation Method: EPA 5035 (Methanol Extraction) — Extract ID: 21A0352-45 D

Preparation Batch: BJA0691 — Sample Size: 4.975 g (wet) — Dry Weight:4.27 g

Prepared: 01/27/2021 — Final Volume: 5 mL — % Solids: 85.83

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	50	6680	ND	ug/kg	U
Surrogate: Toluene-d8			*80-120 %*	*98.5*	*%*	
Surrogate: 4-Bromofluorobenzene			*78-123 %*	*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	04-Aug-2021 10:04

SB-2021-034:21-01252021

21A0352-45 (Solid)

Petroleum Hydrocarbons

Method: NWTPH-Dx — Sampled: 01/25/2021 15:50
Instrument: FID4 Analyst: CTO — Analyzed: 02/09/2021 12:17

Sample Preparation: Preparation Method: EPA 3546 (Microwave) — Extract ID: 21A0352-45 A 01
Preparation Batch: BJB0148 — Sample Size: 10.05 g (wet) — Dry Weight:8.63 g
Prepared: 02/05/2021 — Final Volume: 1 mL — % Solids: 85.83

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	5.80	ND	mg/kg	U
Motor Oil Range Organics (C24-C38)	RRO	1	11.6	ND	mg/kg	U
Surrogate: o-Terphenyl			*50-150 %*	*103*	*%*	

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

TB-1-01252021

21A0352-46 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/25/2021 16:00

Instrument: NT2 Analyst: LH — Analyzed: 01/27/2021 10:25

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21A0352-46 A

Preparation Batch: BJA0695 — Sample Size: 10 mL

Prepared: 01/27/2021 — 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 %*	*90.8*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*94.5*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.5*	*%*	
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	04-Aug-2021 10:04

TB-1-01252021

21A0352-46 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 01/25/2021 16:00

Instrument: NT2 Analyst: LH — Analyzed: 01/27/2021 10:25

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21A0352-46 A

Preparation Batch: BJA0695 — Sample Size: 10 mL

Prepared: 01/27/2021 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*94.5*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*93.5*	*%*	

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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	04-Aug-2021 10:04

Volatile Organic Compounds - Quality Control

Batch BJA0680 - EPA 5035 (Sodium Bisulfate)

Instrument: NT5 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJA0680-BLK1)				Prepared: 26-Jan-2021 Analyzed: 26-Jan-2021 12:40							
Vinyl Chloride	ND	0.24	1.00	ug/kg							U
1,1-Dichloroethene	ND	0.34	1.00	ug/kg							U
trans-1,2-Dichloroethene	ND	0.27	1.00	ug/kg							U
cis-1,2-Dichloroethene	ND	0.24	1.00	ug/kg							U
Benzene	ND	0.30	1.00	ug/kg							U
Trichloroethene	ND	0.21	1.00	ug/kg							U
Toluene	ND	0.15	1.00	ug/kg							U
Tetrachloroethene	ND	0.26	1.00	ug/kg							U
Ethylbenzene	ND	0.20	1.00	ug/kg							U
m,p-Xylene	ND	0.39	2.00	ug/kg							U
o-Xylene	ND	0.22	1.00	ug/kg							U
Xylenes, total	ND	0.62	2.00	ug/kg							U
Surrogate: 1,2-Dichloroethane-d4	40.4			ug/kg	*50.0*		*80.8*	*80-149*			
Surrogate: Toluene-d8	48.1			ug/kg	*50.0*		*96.3*	*77-120*			
Surrogate: 4-Bromofluorobenzene	51.7			ug/kg	*50.0*		*103*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	48.9			ug/kg	*50.0*		*97.9*	*80-120*			
LCS (BJA0680-BS1)				Prepared: 26-Jan-2021 Analyzed: 26-Jan-2021 11:38							
Vinyl Chloride	50.2			ug/kg	50.0		100	74-135			
1,1-Dichloroethene	50.8			ug/kg	50.0		102	77-134			
trans-1,2-Dichloroethene	51.7			ug/kg	50.0		103	79-130			
cis-1,2-Dichloroethene	51.4			ug/kg	50.0		103	80-125			
Benzene	55.4			ug/kg	50.0		111	80-120			
Trichloroethene	58.9			ug/kg	50.0		118	80-120			
Toluene	57.6			ug/kg	50.0		115	75-120			
Tetrachloroethene	62.1			ug/kg	50.0		124	74-124			Q
Ethylbenzene	56.9			ug/kg	50.0		114	80-125			
m,p-Xylene	120			ug/kg	100		120	76-121			
o-Xylene	58.4			ug/kg	50.0		117	67-132			
Xylenes, total	178			ug/kg	150		119	67-132			
Surrogate: 1,2-Dichloroethane-d4	40.6			ug/kg	*50.0*		*81.1*	*80-149*			
Surrogate: Toluene-d8	48.7			ug/kg	*50.0*		*97.3*	*77-120*			
Surrogate: 4-Bromofluorobenzene	52.1			ug/kg	*50.0*		*104*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	50.2			ug/kg	*50.0*		*100*	*80-120*			

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

Volatile Organic Compounds - Quality Control

Batch BJA0680 - EPA 5035 (Sodium Bisulfate)

Instrument: NT5 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJA0680-BSD1)				Prepared: 26-Jan-2021 Analyzed: 26-Jan-2021 12:15							
Vinyl Chloride	49.3			ug/kg	50.0		98.5	74-135	1.80	30	
1,1-Dichloroethene	49.9			ug/kg	50.0		99.8	77-134	1.77	30	
trans-1,2-Dichloroethene	50.3			ug/kg	50.0		101	79-130	2.75	30	
cis-1,2-Dichloroethene	50.1			ug/kg	50.0		100	80-125	2.66	30	
Benzene	53.7			ug/kg	50.0		107	80-120	3.15	30	
Trichloroethene	57.6			ug/kg	50.0		115	80-120	2.15	30	
Toluene	55.5			ug/kg	50.0		111	75-120	3.65	30	
Tetrachloroethene	59.1			ug/kg	50.0		118	74-124	4.94	30	Q
Ethylbenzene	55.0			ug/kg	50.0		110	80-125	3.33	30	
m,p-Xylene	115			ug/kg	100		115	76-121	4.61	30	
o-Xylene	56.6			ug/kg	50.0		113	67-132	3.10	30	
Xylenes, total	171			ug/kg	150		114	67-132	4.12	30	
Surrogate: 1,2-Dichloroethane-d4	42.3			ug/kg	*50.0*		*84.6*	*80-149*			
Surrogate: Toluene-d8	49.1			ug/kg	*50.0*		*98.3*	*77-120*			
Surrogate: 4-Bromofluorobenzene	51.8			ug/kg	*50.0*		*104*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	49.0			ug/kg	*50.0*		*97.9*	*80-120*			

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400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

Volatile Organic Compounds - Quality Control

Batch BJA0691 - EPA 5035 (Methanol Extraction)

Instrument: NT2 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJA0691-BLK1)				Prepared: 27-Jan-2021	Analyzed: 27-Jan-2021 10:04					
Gasoline Range Organics (Tol-Nap)	ND	5000	ug/kg							U
Surrogate: Toluene-d8	4.74		ug/kg	*5.00*		*94.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.68		ug/kg	*5.00*		*93.6*	*78-123*			
LCS (BJA0691-BS1)				Prepared: 27-Jan-2021	Analyzed: 27-Jan-2021 07:39					
Gasoline Range Organics (Tol-Nap)	51600	5000	ug/kg	50000		103	70-121			
Surrogate: Toluene-d8	4.97		ug/kg	*5.00*		*99.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.01		ug/kg	*5.00*		*100*	*78-123*			
LCS Dup (BJA0691-BSD1)				Prepared: 27-Jan-2021	Analyzed: 27-Jan-2021 08:20					
Gasoline Range Organics (Tol-Nap)	52700	5000	ug/kg	50000		105	70-121	2.12	30	
Surrogate: Toluene-d8	4.98		ug/kg	*5.00*		*99.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.00		ug/kg	*5.00*		*100*	*78-123*			

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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	04-Aug-2021 10:04

Volatile Organic Compounds - Quality Control

Batch BJA0695 - 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 (BJA0695-BLK1)				Prepared: 27-Jan-2021 Analyzed: 27-Jan-2021 10:04							
Gasoline Range Organics (Tol-Nap)	ND		100	ug/L							U
Surrogate: Toluene-d8	4.74			ug/L	*5.00*		*94.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.68			ug/L	*5.00*		*93.6*	*80-120*			
Blank (BJA0695-BLK2)				Prepared: 27-Jan-2021 Analyzed: 27-Jan-2021 10:04							
Vinyl Chloride	ND	0.08	0.20	ug/L							U
1,1-Dichloroethene	ND	0.08	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.07	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Benzene	ND	0.05	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
Toluene	ND	0.05	0.20	ug/L							U
Tetrachloroethene	ND	0.09	0.20	ug/L							U
Ethylbenzene	ND	0.05	0.20	ug/L							U
m,p-Xylene	ND	0.14	0.40	ug/L							U
o-Xylene	ND	0.08	0.20	ug/L							U
Xylenes, total	ND	0.22	0.60	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.51			ug/L	*5.00*		*90.3*	*80-129*			
Surrogate: Toluene-d8	4.74			ug/L	*5.00*		*94.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.68			ug/L	*5.00*		*93.6*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.10			ug/L	*5.00*		*102*	*80-120*			
LCS (BJA0695-BS1)				Prepared: 27-Jan-2021 Analyzed: 27-Jan-2021 07:39							
Gasoline Range Organics (Tol-Nap)	1030		100	ug/L	1000		103	72-128			
Surrogate: Toluene-d8	4.97			ug/L	*5.00*		*99.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.01			ug/L	*5.00*		*100*	*80-120*			
LCS (BJA0695-BS2)				Prepared: 27-Jan-2021 Analyzed: 27-Jan-2021 07:59							
Vinyl Chloride	8.83	0.08	0.20	ug/L	10.0		88.3	66-133			
1,1-Dichloroethene	9.08	0.08	0.20	ug/L	10.0		90.8	69-135			
trans-1,2-Dichloroethene	10.4	0.07	0.20	ug/L	10.0		104	78-128			
cis-1,2-Dichloroethene	9.62	0.08	0.20	ug/L	10.0		96.2	80-121			
Benzene	10.4	0.05	0.20	ug/L	10.0		104	80-120			
Trichloroethene	10.8	0.07	0.20	ug/L	10.0		108	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	04-Aug-2021 10:04

Volatile Organic Compounds - Quality Control

Batch BJA0695 - 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 (BJA0695-BS2)					Prepared: 27-Jan-2021 Analyzed: 27-Jan-2021 07:59						
Toluene	10.1	0.05	0.20	ug/L	10.0		101	80-120			
Tetrachloroethene	10.9	0.09	0.20	ug/L	10.0		109	80-120			
Ethylbenzene	10.0	0.05	0.20	ug/L	10.0		100	80-120			
m,p-Xylene	18.6	0.14	0.40	ug/L	20.0		93.2	80-121			
o-Xylene	9.82	0.08	0.20	ug/L	10.0		98.2	80-121			
Xylenes, total	28.5	0.22	0.60	ug/L	30.0		94.9	76-127			
Surrogate: 1,2-Dichloroethane-d4	4.29			ug/L	*5.00*		*85.8*	*80-129*			
Surrogate: Toluene-d8	4.91			ug/L	*5.00*		*98.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.15			ug/L	*5.00*		*103*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.00			ug/L	*5.00*		*100*	*80-120*			
LCS Dup (BJA0695-BSD1)					Prepared: 27-Jan-2021 Analyzed: 27-Jan-2021 08:20						
Gasoline Range Organics (Tol-Nap)	1050		100	ug/L	1000		105	72-128	2.12	30	
Surrogate: Toluene-d8	4.98			ug/L	*5.00*		*99.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.00			ug/L	*5.00*		*100*	*80-120*			
LCS Dup (BJA0695-BSD2)					Prepared: 27-Jan-2021 Analyzed: 27-Jan-2021 08:42						
Vinyl Chloride	9.23	0.08	0.20	ug/L	10.0		92.3	66-133	4.44	30	
1,1-Dichloroethene	9.47	0.08	0.20	ug/L	10.0		94.7	69-135	4.23	30	
trans-1,2-Dichloroethene	11.0	0.07	0.20	ug/L	10.0		110	78-128	5.59	30	
cis-1,2-Dichloroethene	10.2	0.08	0.20	ug/L	10.0		102	80-121	5.74	30	
Benzene	10.8	0.05	0.20	ug/L	10.0		108	80-120	4.52	30	
Trichloroethene	11.3	0.07	0.20	ug/L	10.0		113	80-120	4.99	30	
Toluene	10.7	0.05	0.20	ug/L	10.0		107	80-120	5.48	30	
Tetrachloroethene	11.6	0.09	0.20	ug/L	10.0		116	80-120	5.90	30	
Ethylbenzene	10.5	0.05	0.20	ug/L	10.0		105	80-120	4.39	30	
m,p-Xylene	19.9	0.14	0.40	ug/L	20.0		99.7	80-121	6.75	30	
o-Xylene	10.5	0.08	0.20	ug/L	10.0		105	80-121	6.82	30	
Xylenes, total	30.5	0.22	0.60	ug/L	30.0		102	76-127	6.77	30	
Surrogate: 1,2-Dichloroethane-d4	4.32			ug/L	*5.00*		*86.5*	*80-129*			
Surrogate: Toluene-d8	4.90			ug/L	*5.00*		*98.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.09			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	4.99			ug/L	*5.00*		*99.9*	*80-120*			

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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	04-Aug-2021 10:04

Volatile Organic Compounds - Quality Control

Batch BJA0714 - EPA 5035 (Sodium Bisulfate)

Instrument: NT5 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJA0714-BLK1)				Prepared: 27-Jan-2021 Analyzed: 27-Jan-2021 12:22							
Vinyl Chloride	ND	0.24	1.00	ug/kg							U
1,1-Dichloroethene	ND	0.34	1.00	ug/kg							U
trans-1,2-Dichloroethene	ND	0.27	1.00	ug/kg							U
cis-1,2-Dichloroethene	ND	0.24	1.00	ug/kg							U
Benzene	ND	0.30	1.00	ug/kg							U
Trichloroethene	ND	0.21	1.00	ug/kg							U
Toluene	ND	0.15	1.00	ug/kg							U
Tetrachloroethene	ND	0.26	1.00	ug/kg							U
Ethylbenzene	ND	0.20	1.00	ug/kg							U
m,p-Xylene	ND	0.39	2.00	ug/kg							U
o-Xylene	ND	0.22	1.00	ug/kg							U
Xylenes, total	ND	0.62	2.00	ug/kg							U
Surrogate: 1,2-Dichloroethane-d4	41.2			ug/kg	*50.0*		*82.3*	*80-149*			
Surrogate: Toluene-d8	48.4			ug/kg	*50.0*		*96.7*	*77-120*			
Surrogate: 4-Bromofluorobenzene	51.9			ug/kg	*50.0*		*104*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	48.6			ug/kg	*50.0*		*97.3*	*80-120*			
LCS (BJA0714-BS1)				Prepared: 27-Jan-2021 Analyzed: 27-Jan-2021 11:20							
Vinyl Chloride	49.5			ug/kg	50.0		99.0	74-135			
1,1-Dichloroethene	48.3			ug/kg	50.0		96.6	77-134			
trans-1,2-Dichloroethene	48.0			ug/kg	50.0		96.0	79-130			
cis-1,2-Dichloroethene	48.1			ug/kg	50.0		96.2	80-125			
Benzene	50.1			ug/kg	50.0		100	80-120			
Trichloroethene	52.9			ug/kg	50.0		106	80-120			
Toluene	52.0			ug/kg	50.0		104	75-120			
Tetrachloroethene	51.7			ug/kg	50.0		103	74-124			
Ethylbenzene	49.3			ug/kg	50.0		98.6	80-125			
m,p-Xylene	102			ug/kg	100		102	76-121			
o-Xylene	50.3			ug/kg	50.0		101	67-132			
Xylenes, total	152			ug/kg	150		102	67-132			
Surrogate: 1,2-Dichloroethane-d4	45.4			ug/kg	*50.0*		*90.8*	*80-149*			
Surrogate: Toluene-d8	49.4			ug/kg	*50.0*		*98.9*	*77-120*			
Surrogate: 4-Bromofluorobenzene	51.7			ug/kg	*50.0*		*103*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	50.2			ug/kg	*50.0*		*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	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

Volatile Organic Compounds - Quality Control

Batch BJA0714 - EPA 5035 (Sodium Bisulfate)

Instrument: NT5 Analyst: PB

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BJA0714-BSD1)					Prepared: 27-Jan-2021 Analyzed: 27-Jan-2021 11:58						
Vinyl Chloride	50.9			ug/kg	50.0		102	74-135	2.76	30	
1,1-Dichloroethene	48.7			ug/kg	50.0		97.3	77-134	0.80	30	
trans-1,2-Dichloroethene	48.3			ug/kg	50.0		96.6	79-130	0.68	30	
cis-1,2-Dichloroethene	48.3			ug/kg	50.0		96.7	80-125	0.50	30	
Benzene	53.3			ug/kg	50.0		107	80-120	6.11	30	
Trichloroethene	56.1			ug/kg	50.0		112	80-120	5.86	30	
Toluene	54.9			ug/kg	50.0		110	75-120	5.45	30	
Tetrachloroethene	57.6			ug/kg	50.0		115	74-124	10.70	30	
Ethylbenzene	54.3			ug/kg	50.0		109	80-125	9.70	30	
m,p-Xylene	113			ug/kg	100		113	76-121	10.50	30	
o-Xylene	55.8			ug/kg	50.0		112	67-132	10.40	30	
Xylenes, total	169			ug/kg	150		113	67-132	10.50	30	
Surrogate: 1,2-Dichloroethane-d4	41.0			ug/kg	*50.0*		*82.0*	*80-149*			
Surrogate: Toluene-d8	49.1			ug/kg	*50.0*		*98.1*	*77-120*			
Surrogate: 4-Bromofluorobenzene	51.3			ug/kg	*50.0*		*103*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	49.1			ug/kg	*50.0*		*98.1*	*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	04-Aug-2021 10:04

Volatile Organic Compounds - Quality Control

Batch BJA0750 - EPA 5035 (Methanol Extraction)

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJA0750-BLK1)				Prepared: 28-Jan-2021	Analyzed: 28-Jan-2021 11:51					
Gasoline Range Organics (Tol-Nap)	ND	5000	ug/kg							U
Surrogate: Toluene-d8	4.76		ug/kg	*5.00*		*95.1*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.57		ug/kg	*5.00*		*91.3*	*78-123*			
LCS (BJA0750-BS1)				Prepared: 28-Jan-2021	Analyzed: 28-Jan-2021 10:07					
Gasoline Range Organics (Tol-Nap)	42500	5000	ug/kg	50000		85.0	70-121			
Surrogate: Toluene-d8	4.93		ug/kg	*5.00*		*98.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.99		ug/kg	*5.00*		*99.8*	*78-123*			
LCS Dup (BJA0750-BSD1)				Prepared: 28-Jan-2021	Analyzed: 28-Jan-2021 10:27					
Gasoline Range Organics (Tol-Nap)	53400	5000	ug/kg	50000		107	70-121	22.70	30	
Surrogate: Toluene-d8	4.88		ug/kg	*5.00*		*97.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.92		ug/kg	*5.00*		*98.4*	*78-123*			

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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	04-Aug-2021 10:04

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0155 - EPA 3546 (Microwave) Low Level

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 (BJB0155-BLK1)				Prepared: 05-Feb-2021 Analyzed: 25-Feb-2021 12:40							
Naphthalene	ND	0.44	0.60	ug/kg							U
1-Methylnaphthalene	ND	0.11	0.50	ug/kg							U
2-Methylnaphthalene	ND	0.13	0.50	ug/kg							U
Acenaphthylene	ND	0.06	0.50	ug/kg							U
Acenaphthene	ND	0.09	0.50	ug/kg							U
Dibenzofuran	ND	0.13	0.50	ug/kg							U
Fluorene	ND	0.07	0.50	ug/kg							U
Phenanthrene	ND	0.11	0.50	ug/kg							U
Anthracene	ND	0.07	0.50	ug/kg							U
Fluoranthene	0.09	0.08	0.50	ug/kg							J
Pyrene	ND	0.09	0.50	ug/kg							U
Benzo(a)anthracene	ND	0.07	0.50	ug/kg							U
Chrysene	ND	0.07	0.50	ug/kg							U
Benzo(b)fluoranthene	ND	0.07	0.50	ug/kg							U
Benzo(k)fluoranthene	ND	0.10	0.50	ug/kg							U
Benzo(j)fluoranthene	ND	0.10	0.50	ug/kg							U
Benzo(a)pyrene	ND	0.09	0.50	ug/kg							U
Indeno(1,2,3-cd)pyrene	ND	0.09	0.50	ug/kg							U
Dibenzo(a,h)anthracene	ND	0.11	0.50	ug/kg							U
Benzo(g,h,i)perylene	ND	0.09	0.50	ug/kg							U
Surrogate: 2-Methylnaphthalene-d10	7.80			ug/kg	*15.0*		*52.0*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	10.8			ug/kg	*15.0*		*71.8*	*30-160*			
Surrogate: Fluoranthene-d10	11.8			ug/kg	*15.0*		*78.5*	*30-160*			
LCS (BJB0155-BS1)				Prepared: 05-Feb-2021 Analyzed: 25-Feb-2021 13:12							
Naphthalene	7.35	0.44	0.60	ug/kg	15.0		49.0	30-160			
1-Methylnaphthalene	7.85	0.11	0.50	ug/kg	15.0		52.4	30-160			
2-Methylnaphthalene	7.73	0.13	0.50	ug/kg	15.0		51.5	30-160			
Acenaphthylene	6.79	0.06	0.50	ug/kg	15.0		45.2	30-160			
Acenaphthene	7.59	0.09	0.50	ug/kg	15.0		50.6	30-160			
Dibenzofuran	6.83	0.13	0.50	ug/kg	15.0		45.5	30-160			Q
Fluorene	8.24	0.07	0.50	ug/kg	15.0		54.9	30-160			
Phenanthrene	8.00	0.11	0.50	ug/kg	15.0		53.3	30-160			Q
Anthracene	10.1	0.07	0.50	ug/kg	15.0		67.0	30-160			
Fluoranthene	11.7	0.08	0.50	ug/kg	15.0		77.9	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	04-Aug-2021 10:04

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0155 - EPA 3546 (Microwave) Low Level

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 (BJB0155-BS1)				Prepared: 05-Feb-2021 Analyzed: 25-Feb-2021 13:12							
Pyrene	11.9	0.09	0.50	ug/kg	15.0		79.4	30-160			
Benzo(a)anthracene	11.5	0.07	0.50	ug/kg	15.0		76.6	30-160			
Chrysene	12.0	0.07	0.50	ug/kg	15.0		79.7	30-160			
Benzo(b)fluoranthene	11.0	0.07	0.50	ug/kg	15.0		73.5	30-160			
Benzo(k)fluoranthene	11.9	0.10	0.50	ug/kg	15.0		79.1	30-160			
Benzo(j)fluoranthene	12.8	0.10	0.50	ug/kg	15.0		85.4	30-160			
Benzo(a)pyrene	10.8	0.09	0.50	ug/kg	15.0		71.9	30-160			
Indeno(1,2,3-cd)pyrene	12.7	0.09	0.50	ug/kg	15.0		84.4	30-160			
Dibenzo(a,h)anthracene	12.4	0.11	0.50	ug/kg	15.0		82.4	30-160			
Benzo(g,h,i)perylene	12.5	0.09	0.50	ug/kg	15.0		83.2	30-160			
Surrogate: 2-Methylnaphthalene-d10	6.94			ug/kg	*15.0*		*46.3*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	10.7			ug/kg	*15.0*		*71.5*	*30-160*			
Surrogate: Fluoranthene-d10	10.9			ug/kg	*15.0*		*72.4*	*30-160*			
Matrix Spike (BJB0155-MS1)		**Source: 21A0352-01**		Prepared: 05-Feb-2021 Analyzed: 25-Feb-2021 14:17							
Naphthalene	14.7	0.52	0.70	ug/kg	17.6	9.89	27.2	30-160			*
1-Methylnaphthalene	25.4	0.12	0.59	ug/kg	17.6	18.4	40.1	30-160			
2-Methylnaphthalene	22.5	0.15	0.59	ug/kg	17.6	17.0	31.0	30-160			
Acenaphthylene	10.3	0.08	0.59	ug/kg	17.6	0.34	56.6	30-160			
Acenaphthene	11.6	0.10	0.59	ug/kg	17.6	2.19	53.3	30-160			
Dibenzofuran	15.4	0.15	0.59	ug/kg	17.6	5.97	53.4	30-160			Q
Fluorene	12.0	0.08	0.59	ug/kg	17.6	1.15	61.6	30-160			
Phenanthrene	37.5	0.13	0.59	ug/kg	17.6	32.8	27.1	30-160			*, Q
Anthracene	17.0	0.09	0.59	ug/kg	17.6	6.11	61.9	30-160			
Fluoranthene	22.2	0.10	0.59	ug/kg	17.6	26.1	-22.2	30-160			*
Pyrene	24.3	0.10	0.59	ug/kg	17.6	29.7	-30.6	30-160			*
Benzo(a)anthracene	17.7	0.08	0.59	ug/kg	17.6	10.8	38.8	30-160			
Chrysene	21.1	0.08	0.59	ug/kg	17.6	13.9	40.8	30-160			
Benzo(b)fluoranthene	17.1	0.08	0.59	ug/kg	17.6	7.67	53.4	30-160			
Benzo(k)fluoranthene	16.1	0.12	0.59	ug/kg	17.6	4.06	68.4	30-160			
Benzo(j)fluoranthene	15.7	0.11	0.59	ug/kg	17.6	4.57	63.2	30-160			
Benzo(a)pyrene	16.4	0.10	0.59	ug/kg	17.6	11.6	27.4	30-160			*
Indeno(1,2,3-cd)pyrene	18.2	0.10	0.59	ug/kg	17.6	6.24	68.2	30-160			
Dibenzo(a,h)anthracene	17.6	0.12	0.59	ug/kg	17.6	1.81	89.8	30-160			
Benzo(g,h,i)perylene	18.1	0.10	0.59	ug/kg	17.6	7.95	57.8	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	04-Aug-2021 10:04

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0155 - EPA 3546 (Microwave) Low Level

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJB0155-MS1)	**Source: 21A0352-01**			Prepared: 05-Feb-2021	Analyzed: 25-Feb-2021 14:17						
Surrogate: 2-Methylnaphthalene-d10	8.78			ug/kg	*17.6*	*7.11*	*49.9*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	15.4			ug/kg	*17.6*	*12.3*	*87.4*	*30-160*			
Surrogate: Fluoranthene-d10	14.4			ug/kg	*17.6*	*11.5*	*82.1*	*30-160*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJB0155-MSD1)	**Source: 21A0352-01**			Prepared: 05-Feb-2021	Analyzed: 25-Feb-2021 14:49						
Naphthalene	16.7	0.52	0.70	ug/kg	17.6	9.89	38.7	30-160	12.90	30	
1-Methylnaphthalene	25.1	0.12	0.59	ug/kg	17.6	18.4	38.3	30-160	1.20	30	
2-Methylnaphthalene	24.7	0.15	0.59	ug/kg	17.6	17.0	43.5	30-160	9.36	30	
Acenaphthylene	10.3	0.08	0.59	ug/kg	17.6	0.34	56.7	30-160	0.17	30	
Acenaphthene	11.4	0.10	0.59	ug/kg	17.6	2.19	52.2	30-160	1.73	30	
Dibenzofuran	15.8	0.15	0.59	ug/kg	17.6	5.97	55.8	30-160	2.74	30	Q
Fluorene	11.8	0.08	0.59	ug/kg	17.6	1.15	60.7	30-160	1.37	30	
Phenanthrene	31.5	0.13	0.59	ug/kg	17.6	32.8	-7.07	30-160	17.40	30	*, Q
Anthracene	15.3	0.09	0.59	ug/kg	17.6	6.11	52.5	30-160	10.20	30	
Fluoranthene	20.4	0.10	0.59	ug/kg	17.6	26.1	-31.9	30-160	8.07	30	*
Pyrene	22.3	0.10	0.59	ug/kg	17.6	29.7	-41.9	30-160	8.53	30	*
Benzo(a)anthracene	16.9	0.08	0.59	ug/kg	17.6	10.8	34.5	30-160	4.45	30	
Chrysene	19.9	0.08	0.59	ug/kg	17.6	13.9	34.2	30-160	5.71	30	
Benzo(b)fluoranthene	16.4	0.08	0.59	ug/kg	17.6	7.67	49.8	30-160	3.76	30	
Benzo(k)fluoranthene	15.5	0.12	0.59	ug/kg	17.6	4.06	65.3	30-160	3.41	30	
Benzo(j)fluoranthene	14.9	0.11	0.59	ug/kg	17.6	4.57	58.5	30-160	5.47	30	
Benzo(a)pyrene	16.6	0.10	0.59	ug/kg	17.6	11.6	28.5	30-160	1.19	30	*
Indeno(1,2,3-cd)pyrene	17.3	0.10	0.59	ug/kg	17.6	6.24	62.8	30-160	5.30	30	
Dibenzo(a,h)anthracene	17.0	0.12	0.59	ug/kg	17.6	1.81	86.4	30-160	3.44	30	
Benzo(g,h,i)perylene	16.8	0.10	0.59	ug/kg	17.6	7.95	50.1	30-160	7.74	30	
Surrogate: 2-Methylnaphthalene-d10	8.91			ug/kg	*17.6*	*7.11*	*50.6*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	14.8			ug/kg	*17.6*	*12.3*	*84.4*	*30-160*			
Surrogate: Fluoranthene-d10	13.7			ug/kg	*17.6*	*11.5*	*77.6*	*30-160*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											

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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	04-Aug-2021 10:04

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0164 - EPA 3546 (Microwave) Low Level

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 (BJB0164-BLK1)				Prepared: 05-Feb-2021 Analyzed: 23-Feb-2021 10:41							
Naphthalene	ND	0.44	0.60	ug/kg							U
1-Methylnaphthalene	0.14	0.11	0.50	ug/kg							J
2-Methylnaphthalene	0.17	0.13	0.50	ug/kg							J
Acenaphthylene	ND	0.06	0.50	ug/kg							U
Acenaphthene	ND	0.09	0.50	ug/kg							U
Dibenzofuran	ND	0.13	0.50	ug/kg							U
Fluorene	ND	0.07	0.50	ug/kg							U
Phenanthrene	ND	0.11	0.50	ug/kg							U
Anthracene	ND	0.07	0.50	ug/kg							U
Fluoranthene	ND	0.08	0.50	ug/kg							U
Pyrene	ND	0.09	0.50	ug/kg							U
Benzo(a)anthracene	ND	0.07	0.50	ug/kg							U
Chrysene	ND	0.07	0.50	ug/kg							U
Benzo(b)fluoranthene	ND	0.07	0.50	ug/kg							U
Benzo(k)fluoranthene	ND	0.10	0.50	ug/kg							U
Benzo(j)fluoranthene	ND	0.10	0.50	ug/kg							U
Benzo(a)pyrene	ND	0.09	0.50	ug/kg							U
Indeno(1,2,3-cd)pyrene	ND	0.09	0.50	ug/kg							U
Dibenzo(a,h)anthracene	ND	0.11	0.50	ug/kg							U
Benzo(g,h,i)perylene	ND	0.09	0.50	ug/kg							U
Surrogate: 2-Methylnaphthalene-d10	7.59			ug/kg	*15.0*		*50.6*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	8.82			ug/kg	*15.0*		*58.8*	*30-160*			
Surrogate: Fluoranthene-d10	12.1			ug/kg	*15.0*		*80.4*	*30-160*			
LCS (BJB0164-BS1)				Prepared: 05-Feb-2021 Analyzed: 23-Feb-2021 11:13							
Naphthalene	6.83	0.44	0.60	ug/kg	15.0		45.5	30-160			
1-Methylnaphthalene	6.59	0.11	0.50	ug/kg	15.0		43.9	30-160			
2-Methylnaphthalene	6.58	0.13	0.50	ug/kg	15.0		43.9	30-160			
Acenaphthylene	5.40	0.06	0.50	ug/kg	15.0		36.0	30-160			
Acenaphthene	6.60	0.09	0.50	ug/kg	15.0		44.0	30-160			
Dibenzofuran	5.99	0.13	0.50	ug/kg	15.0		39.9	30-160			Q
Fluorene	7.36	0.07	0.50	ug/kg	15.0		49.1	30-160			
Phenanthrene	7.21	0.11	0.50	ug/kg	15.0		48.0	30-160			Q
Anthracene	7.09	0.07	0.50	ug/kg	15.0		47.3	30-160			
Fluoranthene	10.3	0.08	0.50	ug/kg	15.0		68.7	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	04-Aug-2021 10:04

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0164 - EPA 3546 (Microwave) Low Level

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 (BJB0164-BS1)				Prepared: 05-Feb-2021 Analyzed: 23-Feb-2021 11:13							
Pyrene	10.5	0.09	0.50	ug/kg	15.0		70.0	30-160			
Benzo(a)anthracene	9.12	0.07	0.50	ug/kg	15.0		60.8	30-160			
Chrysene	10.7	0.07	0.50	ug/kg	15.0		71.4	30-160			
Benzo(b)fluoranthene	8.84	0.07	0.50	ug/kg	15.0		58.9	30-160			Q
Benzo(k)fluoranthene	9.22	0.10	0.50	ug/kg	15.0		61.5	30-160			
Benzo(j)fluoranthene	13.0	0.10	0.50	ug/kg	15.0		86.8	30-160			
Benzo(a)pyrene	7.97	0.09	0.50	ug/kg	15.0		53.1	30-160			
Indeno(1,2,3-cd)pyrene	9.64	0.09	0.50	ug/kg	15.0		64.3	30-160			
Dibenzo(a,h)anthracene	9.12	0.11	0.50	ug/kg	15.0		60.8	30-160			
Benzo(g,h,i)perylene	10.2	0.09	0.50	ug/kg	15.0		68.2	30-160			
Surrogate: 2-Methylnaphthalene-d10	6.90			ug/kg	*15.0*		*46.0*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	9.20			ug/kg	*15.0*		*61.3*	*30-160*			
Surrogate: Fluoranthene-d10	11.6			ug/kg	*15.0*		*77.3*	*30-160*			
Matrix Spike (BJB0164-MS1)		**Source: 21A0352-27**		Prepared: 05-Feb-2021 Analyzed: 23-Feb-2021 12:50							
Naphthalene	22.7	0.36	0.50	ug/kg	12.4	22.8	-0.528	30-160			*
1-Methylnaphthalene	13.3	0.09	0.41	ug/kg	12.4	8.62	37.5	30-160			
2-Methylnaphthalene	16.8	0.11	0.41	ug/kg	12.4	13.2	28.6	30-160			*
Acenaphthylene	4.94	0.05	0.41	ug/kg	12.4	0.76	33.7	30-160			
Acenaphthene	8.59	0.07	0.41	ug/kg	12.4	1.24	59.2	30-160			
Dibenzofuran	20.8	0.10	0.41	ug/kg	12.4	20.4	3.40	30-160			*, Q
Fluorene	8.69	0.06	0.41	ug/kg	12.4	ND	70.0	30-160			
Phenanthrene	62.3	0.09	0.41	ug/kg	12.4	73.4	-89.1	30-160			*, Q, E
Anthracene	8.22	0.06	0.41	ug/kg	12.4	3.22	40.2	30-160			
Fluoranthene	64.6	0.07	0.41	ug/kg	12.4	79.1	-116	30-160			*, E
Pyrene	43.0	0.07	0.41	ug/kg	12.4	49.0	-48.7	30-160			*, E
Benzo(a)anthracene	20.8	0.06	0.41	ug/kg	12.4	12.2	69.3	30-160			
Chrysene	56.6	0.06	0.41	ug/kg	12.4	46.2	83.5	30-160			E
Benzo(b)fluoranthene	29.3	0.05	0.41	ug/kg	12.4	ND	153	30-160			Q
Benzo(k)fluoranthene	29.3	0.08	0.41	ug/kg	12.4	ND	153	30-160			
Benzo(j)fluoranthene	29.3	0.08	0.41	ug/kg	12.4	ND	153	30-160			
Benzo(a)pyrene	24.3	0.07	0.41	ug/kg	12.4	12.1	98.7	30-160			
Indeno(1,2,3-cd)pyrene	17.3	0.07	0.41	ug/kg	12.4	7.30	80.7	30-160			
Dibenzo(a,h)anthracene	10.5	0.09	0.41	ug/kg	12.4	3.37	57.4	30-160			
Benzo(g,h,i)perylene	20.0	0.07	0.41	ug/kg	12.4	11.5	68.3	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	04-Aug-2021 10:04

Semivolatile Organic Compounds - SIM - Quality Control

Batch BJB0164 - EPA 3546 (Microwave) Low Level

Instrument: NT11 Analyst: VTS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJB0164-MS1)	**Source: 21A0352-27**			Prepared: 05-Feb-2021	Analyzed: 23-Feb-2021 12:50						
Surrogate: 2-Methylnaphthalene-d10	7.52			ug/kg	*12.4*	*8.57*	*60.6*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	10.0			ug/kg	*12.4*	*6.21*	*80.8*	*30-160*			
Surrogate: Fluoranthene-d10	6.10			ug/kg	*12.4*	*7.77*	*49.2*	*30-160*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJB0164-MSD1)	**Source: 21A0352-27**			Prepared: 05-Feb-2021	Analyzed: 23-Feb-2021 13:22						
Naphthalene	23.0	0.36	0.50	ug/kg	12.4	22.8	1.59	30-160	1.15	30	*
1-Methylnaphthalene	13.4	0.09	0.41	ug/kg	12.4	8.62	38.2	30-160	0.70	30	
2-Methylnaphthalene	16.4	0.11	0.41	ug/kg	12.4	13.2	25.0	30-160	2.69	30	*
Acenaphthylene	4.40	0.05	0.41	ug/kg	12.4	0.76	29.3	30-160	11.70	30	*
Acenaphthene	8.30	0.07	0.41	ug/kg	12.4	1.24	56.9	30-160	3.45	30	
Dibenzofuran	19.0	0.10	0.41	ug/kg	12.4	20.4	-11.1	30-160	9.08	30	*, Q
Fluorene	8.41	0.06	0.41	ug/kg	12.4	ND	67.8	30-160	3.29	30	
Phenanthrene	55.1	0.09	0.41	ug/kg	12.4	73.4	-147	30-160	12.30	30	*, Q, E
Anthracene	9.01	0.06	0.41	ug/kg	12.4	3.22	46.6	30-160	9.13	30	
Fluoranthene	59.3	0.07	0.41	ug/kg	12.4	79.1	-159	30-160	8.62	30	*, E
Pyrene	37.5	0.07	0.41	ug/kg	12.4	49.0	-92.6	30-160	13.50	30	*
Benzo(a)anthracene	16.8	0.06	0.41	ug/kg	12.4	12.2	36.8	30-160	21.40	30	
Chrysene	44.5	0.06	0.41	ug/kg	12.4	46.2	-13.4	30-160	23.80	30	*, E
Benzo(b)fluoranthene	22.9	0.05	0.41	ug/kg	12.4	ND	102	30-160			Q
Benzo(k)fluoranthene	22.9	0.08	0.41	ug/kg	12.4	ND	102	30-160			
Benzo(j)fluoranthene	22.9	0.08	0.41	ug/kg	12.4	ND	102	30-160			
Benzo(a)pyrene	17.1	0.07	0.41	ug/kg	12.4	12.1	40.2	30-160	35.00	30	*
Indeno(1,2,3-cd)pyrene	14.6	0.07	0.41	ug/kg	12.4	7.30	58.7	30-160	17.10	30	
Dibenzo(a,h)anthracene	9.63	0.09	0.41	ug/kg	12.4	3.37	50.4	30-160	8.67	30	
Benzo(g,h,i)perylene	16.7	0.07	0.41	ug/kg	12.4	11.5	41.7	30-160	18.00	30	
Surrogate: 2-Methylnaphthalene-d10	8.07			ug/kg	*12.4*	*8.57*	*65.0*	*30-160*			
Surrogate: Dibenzo[a,h]anthracene-d14	8.00			ug/kg	*12.4*	*6.21*	*64.4*	*30-160*			
Surrogate: Fluoranthene-d10	6.05			ug/kg	*12.4*	*7.77*	*48.7*	*30-160*			
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	04-Aug-2021 10:04

Petroleum Hydrocarbons - Quality Control

Batch BJB0144 - EPA 3546 (Microwave)

Instrument: FID4 Analyst: CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJB0144-BLK1)				Prepared: 04-Feb-2021 Analyzed: 06-Feb-2021 14:52						
Diesel Range Organics (C12-C24)	ND	5.00	mg/kg							U
Motor Oil Range Organics (C24-C38)	ND	10.0	mg/kg							U
Surrogate: o-Terphenyl	12.0		mg/kg	*11.3*		*106*	*50-150*			
LCS (BJB0144-BS1)				Prepared: 04-Feb-2021 Analyzed: 06-Feb-2021 15:13						
Diesel Range Organics (C12-C24)	145	5.00	mg/kg	150		97.0	63-120			
Surrogate: o-Terphenyl	12.1		mg/kg	*11.3*		*108*	*50-150*			
Matrix Spike (BJB0144-MS1)	**Source: 21A0352-01**			Prepared: 04-Feb-2021 Analyzed: 06-Feb-2021 15:55						
Diesel Range Organics (C12-C24)	147	5.86	mg/kg	176	8.72	78.8	63-120			
Surrogate: o-Terphenyl	11.7		mg/kg	*13.2*	*11.8*	*88.4*	*50-150*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BJB0144-MSD1)	**Source: 21A0352-01**			Prepared: 04-Feb-2021 Analyzed: 06-Feb-2021 16:16						
Diesel Range Organics (C12-C24)	144	5.86	mg/kg	176	8.72	76.7	63-120	2.55	30	
Surrogate: o-Terphenyl	11.6		mg/kg	*13.2*	*11.8*	*88.2*	*50-150*			
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	04-Aug-2021 10:04

Petroleum Hydrocarbons - Quality Control

Batch BJB0148 - EPA 3546 (Microwave)

Instrument: FID4 Analyst: CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJB0148-BLK1)				Prepared: 05-Feb-2021		Analyzed: 09-Feb-2021 10:53				
Diesel Range Organics (C12-C24)	ND	5.00	mg/kg							U
Motor Oil Range Organics (C24-C38)	ND	10.0	mg/kg							U
Surrogate: o-Terphenyl	12.3		mg/kg	*11.3*		*109*	*50-150*			
LCS (BJB0148-BS1)				Prepared: 05-Feb-2021		Analyzed: 09-Feb-2021 11:14				
Diesel Range Organics (C12-C24)	147	5.00	mg/kg	150		98.3	63-120			
Surrogate: o-Terphenyl	12.3		mg/kg	*11.3*		*109*	*50-150*			
Matrix Spike (BJB0148-MS1)	**Source: 21A0352-45**			Prepared: 05-Feb-2021		Analyzed: 09-Feb-2021 12:38				
Diesel Range Organics (C12-C24)	179	5.80	mg/kg	174	ND	101	63-120			
Surrogate: o-Terphenyl	14.9		mg/kg	*13.0*	*13.4*	*114*	*50-150*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BJB0148-MSD1)	**Source: 21A0352-45**			Prepared: 05-Feb-2021		Analyzed: 09-Feb-2021 13:00				
Diesel Range Organics (C12-C24)	170	5.80	mg/kg	174	ND	96.0	63-120	5.36	30	
Surrogate: o-Terphenyl	14.1		mg/kg	*13.0*	*13.4*	*108*	*50-150*			
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	04-Aug-2021 10:04

Petroleum Hydrocarbons - Quality Control

Batch BJB0163 - EPA 3550C (Ultrasonic)

Instrument: FID4 Analyst: CTO

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJB0163-BLK1)				Prepared: 05-Feb-2021		Analyzed: 11-Feb-2021 15:19				
Diesel Range Organics (C12-C24)	ND	5.00	mg/kg							U
Motor Oil Range Organics (C24-C38)	ND	10.0	mg/kg							U
Surrogate: o-Terphenyl	12.2		mg/kg	*11.3*		*108*	*50-150*			
LCS (BJB0163-BS1)				Prepared: 05-Feb-2021		Analyzed: 11-Feb-2021 15:40				
Diesel Range Organics (C12-C24)	139	5.00	mg/kg	150		92.6	63-120			
Surrogate: o-Terphenyl	12.3		mg/kg	*11.3*		*109*	*50-150*			
Matrix Spike (BJB0163-MS1)	**Source: 21A0352-31**			Prepared: 05-Feb-2021		Analyzed: 11-Feb-2021 16:42				
Diesel Range Organics (C12-C24)	541	5.80	mg/kg	174	389	87.3	63-120			E
Surrogate: o-Terphenyl	12.9		mg/kg	*13.1*	*12.0*	*98.8*	*50-150*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BJB0163-MSD1)	**Source: 21A0352-31**			Prepared: 05-Feb-2021		Analyzed: 11-Feb-2021 17:03				
Diesel Range Organics (C12-C24)	507	5.80	mg/kg	174	389	67.9	63-120	6.46	30	E
Surrogate: o-Terphenyl	13.0		mg/kg	*13.1*	*12.0*	*99.6*	*50-150*			
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	04-Aug-2021 10:04

Aroclor PCB - Quality Control

Batch BJB0156 - EPA 3546 (Microwave)

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 (BJB0156-BLK1)				Prepared: 05-Feb-2021 Analyzed: 20-Feb-2021 18:19							
Aroclor 1016	ND	1.6	4.0	ug/kg							U
Aroclor 1221	ND	1.6	4.0	ug/kg							U
Aroclor 1232	ND	1.6	4.0	ug/kg							U
Aroclor 1242	ND	1.6	4.0	ug/kg							U
Aroclor 1248	ND	1.6	4.0	ug/kg							U
Aroclor 1254	ND	1.6	4.0	ug/kg							U
Aroclor 1260	ND	0.6	4.0	ug/kg							U
Surrogate: Decachlorobiphenyl	7.19			ug/kg	*8.00*		*89.8*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.94			ug/kg	*8.00*		*74.3*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	7.09			ug/kg	*8.00*		*88.6*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	6.23			ug/kg	*8.00*		*77.8*	*44-120*			
LCS (BJB0156-BS1)				Prepared: 05-Feb-2021 Analyzed: 20-Feb-2021 18:40							
Aroclor 1016 [2C]	85.2	1.6	4.0	ug/kg	101		84.5	56-120			
Aroclor 1260	97.2	0.6	4.0	ug/kg	101		96.4	58-120			
Surrogate: Decachlorobiphenyl	7.23			ug/kg	*8.00*		*90.4*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.82			ug/kg	*8.00*		*72.8*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	7.02			ug/kg	*8.00*		*87.8*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	6.10			ug/kg	*8.00*		*76.2*	*44-120*			
LCS Dup (BJB0156-BSD1)				Prepared: 05-Feb-2021 Analyzed: 20-Feb-2021 19:01							
Aroclor 1016 [2C]	86.1	1.6	4.0	ug/kg	101		85.4	56-120	1.08	30	
Aroclor 1260	101	0.6	4.0	ug/kg	101		100	58-120	3.79	30	
Surrogate: Decachlorobiphenyl	7.49			ug/kg	*8.00*		*93.6*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.90			ug/kg	*8.00*		*73.7*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	7.07			ug/kg	*8.00*		*88.4*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	6.07			ug/kg	*8.00*		*75.9*	*44-120*			
Matrix Spike (BJB0156-MS1)		**Source: 21A0352-01**		Prepared: 05-Feb-2021 Analyzed: 20-Feb-2021 19:42							
Aroclor 1016	57.7	1.6	4.0	ug/kg	102	ND	56.6	56-120			
Aroclor 1260	89.4	0.6	4.0	ug/kg	102	ND	87.6	58-120			
Surrogate: Decachlorobiphenyl	6.60			ug/kg	*8.09*		*81.6*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.46			ug/kg	*8.09*		*67.4*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	5.74			ug/kg	*8.09*		*71.0*	*40-126*			

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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	04-Aug-2021 10:04

Aroclor PCB - Quality Control

Batch BJB0156 - EPA 3546 (Microwave)

Instrument: ECD7 Analyst: JGR

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BJB0156-MS1)	**Source: 21A0352-01**			Prepared: 05-Feb-2021	Analyzed: 20-Feb-2021 19:42						
Surrogate: Tetrachlorometaxylene [2C]	5.46			ug/kg	*8.09*		*67.4*	*44-120*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BJB0156-MSD1)	**Source: 21A0352-01**			Prepared: 05-Feb-2021	Analyzed: 20-Feb-2021 20:02						
Aroclor 1016	57.4	1.6	4.0	ug/kg	101	ND	57.0	56-120	0.52	30	
Aroclor 1260	82.5	0.6	4.0	ug/kg	101	ND	81.7	58-120	8.00	30	
Surrogate: Decachlorobiphenyl	6.17			ug/kg	*7.99*		*77.2*	*40-126*			
Surrogate: Tetrachlorometaxylene	5.75			ug/kg	*7.99*		*71.9*	*44-120*			
Surrogate: Decachlorobiphenyl [2C]	5.33			ug/kg	*7.99*		*66.7*	*40-126*			
Surrogate: Tetrachlorometaxylene [2C]	5.00			ug/kg	*7.99*		*62.5*	*44-120*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

Metals and Metallic Compounds - Quality Control

Batch BJA0795 - SMM EPA 7471B

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 (BJA0795-BLK1)				Prepared: 01-Feb-2021 Analyzed: 04-Feb-2021 12:16							
Mercury	ND	0.00525	0.0250	mg/kg							U
LCS (BJA0795-BS1)				Prepared: 01-Feb-2021 Analyzed: 04-Feb-2021 12:18							
Mercury	0.405	0.00525	0.0250	mg/kg	0.500		81.0	80-120			
Duplicate (BJA0795-DUP1)		**Source: 21A0352-01**		Prepared: 01-Feb-2021 Analyzed: 04-Feb-2021 12:26							
Mercury	0.00708	0.00538	0.0256	mg/kg		0.00624			12.50	20	J
Matrix Spike (BJA0795-MS1)		**Source: 21A0352-01**		Prepared: 01-Feb-2021 Analyzed: 04-Feb-2021 12:29							
Mercury	0.250	0.00528	0.0252	mg/kg	0.252	0.00624	96.9	75-125			

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

Matrix Spike Dup (BJA0795-MSD1)		**Source: 21A0352-01**		Prepared: 01-Feb-2021 Analyzed: 04-Feb-2021 12:31							
Mercury	0.266	0.00531	0.0253	mg/kg	0.253	0.00624	103	75-125	6.30	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: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

Metals and Metallic Compounds - Quality Control

Batch BJB0107 - SWN EPA 3050B

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 (BJB0107-BLK1)					Prepared: 03-Feb-2021 Analyzed: 04-Feb-2021 17:37							
Chromium	52	ND	0.13	0.50	mg/kg							U
Chromium	53	ND	0.07	0.50	mg/kg							U
Lead	208	ND	0.07	0.10	mg/kg							U
Selenium	78	ND	0.44	2.00	mg/kg							U
Silver	107	ND	0.02	0.20	mg/kg							U
Arsenic	75a	ND	0.02	0.20	mg/kg							U
Cadmium	111	ND	0.03	0.10	mg/kg							U
Cadmium	114	ND	0.04	0.10	mg/kg							U
Copper	63	ND	0.34	0.50	mg/kg							U
Copper	65	ND	0.35	0.50	mg/kg							U
Nickel	60	0.10	0.05	0.50	mg/kg							J
Nickel	62	ND	0.22	0.50	mg/kg							U
Zinc	66	ND	0.8	4.0	mg/kg							U
Zinc	67	ND	0.9	4.0	mg/kg							U
Blank (BJB0107-BLK2)					Prepared: 03-Feb-2021 Analyzed: 05-Feb-2021 14:42							
Barium	135	ND	0.06	0.50	mg/kg							U
Barium	137	ND	0.05	0.50	mg/kg							U
Cobalt	59	ND	0.03	0.20	mg/kg							U
Vanadium	51a	ND	0.04	0.20	mg/kg							U
Vanadium	51b	ND	0.02	0.20	mg/kg							U
LCS (BJB0107-BS1)					Prepared: 03-Feb-2021 Analyzed: 04-Feb-2021 17:42							
Chromium	52	26.2	0.13	0.50	mg/kg	25.0		105	80-120			
Chromium	53	26.1	0.07	0.50	mg/kg	25.0		104	80-120			
Lead	208	28.3	0.07	0.10	mg/kg	25.0		113	80-120			
Selenium	78	80.9	0.44	2.00	mg/kg	80.0		101	80-120			
Silver	107	26.4	0.02	0.20	mg/kg	25.0		106	80-120			
Arsenic	75a	25.3	0.02	0.20	mg/kg	25.0		101	80-120			
Cadmium	111	26.5	0.03	0.10	mg/kg	25.0		106	80-120			
Cadmium	114	26.1	0.04	0.10	mg/kg	25.0		104	80-120			
Copper	63	28.5	0.34	0.50	mg/kg	25.0		114	80-120			
Copper	65	28.3	0.35	0.50	mg/kg	25.0		113	80-120			
Nickel	60	27.7	0.05	0.50	mg/kg	25.0		111	80-120			
Nickel	62	26.6	0.22	0.50	mg/kg	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: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

Metals and Metallic Compounds - Quality Control

Batch BJB0107 - SWN EPA 3050B

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 (BJB0107-BS1)					Prepared: 03-Feb-2021 Analyzed: 04-Feb-2021 17:42							
Zinc	66	83.8	0.8	4.0	mg/kg	80.0		105	80-120			
Zinc	67	77.2	0.9	4.0	mg/kg	80.0		96.5	80-120			
LCS (BJB0107-BS2)					Prepared: 03-Feb-2021 Analyzed: 05-Feb-2021 14:46							
Barium	135	25.4	0.06	0.50	mg/kg	25.0		102	80-120			
Barium	137	25.6	0.05	0.50	mg/kg	25.0		102	80-120			
Cobalt	59	25.7	0.03	0.20	mg/kg	25.0		103	80-120			
Vanadium	51a	25.3	0.04	0.20	mg/kg	25.0		101	80-120			
Vanadium	51b	25.3	0.02	0.20	mg/kg	25.0		101	80-120			
Duplicate (BJB0107-DUP2)			**Source: 21A0352-01**		Prepared: 03-Feb-2021 Analyzed: 05-Feb-2021 21:19							
Barium	135	38.8	0.06	0.53	mg/kg		33.5			14.50	20	
Chromium	52	10.7	0.14	0.53	mg/kg		9.77			8.84	20	
Cobalt	59	4.99	0.03	0.21	mg/kg		4.68			6.34	20	
Lead	208	2.31	0.07	0.11	mg/kg		2.14			7.31	20	
Selenium	78	0.98	0.47	2.13	mg/kg		1.08			9.52	20	J
Silver	107	0.05	0.02	0.21	mg/kg		0.04			25.30	20	L, J
Vanadium	51a	33.2	0.04	0.21	mg/kg		32.4			2.39	20	
Arsenic	75a	3.03	0.02	0.21	mg/kg		2.71			11.20	20	
Cadmium	111	0.04	0.03	0.11	mg/kg		ND					J
Copper	63	11.3	0.36	0.53	mg/kg		10.4			8.26	20	
Nickel	60	10.1	0.05	0.53	mg/kg		8.97			11.50	20	
Zinc	66	26.6	0.9	4.3	mg/kg		25.8			2.94	20	
Matrix Spike (BJB0107-MS2)			**Source: 21A0352-01**		Prepared: 03-Feb-2021 Analyzed: 05-Feb-2021 21:24							
Barium	135	65.5	0.06	0.53	mg/kg	26.5	33.5	121	75-125			
Chromium	52	36.2	0.14	0.53	mg/kg	26.5	9.77	99.4	75-125			
Cobalt	59	31.3	0.03	0.21	mg/kg	26.5	4.68	100	75-125			
Lead	208	28.1	0.07	0.11	mg/kg	26.5	2.14	97.6	75-125			
Selenium	78	82.3	0.47	2.12	mg/kg	85.0	1.08	95.6	75-125			
Silver	107	26.5	0.02	0.21	mg/kg	26.5	0.04	99.5	75-125			
Vanadium	51a	58.2	0.04	0.21	mg/kg	26.5	32.4	97.1	75-125			
Arsenic	75a	27.9	0.02	0.21	mg/kg	26.5	2.71	94.8	75-125			
Cadmium	111	26.6	0.03	0.11	mg/kg	26.5	ND	100	75-125			
Copper	63	38.0	0.36	0.53	mg/kg	26.5	10.4	104	75-125			
Nickel	60	35.4	0.05	0.53	mg/kg	26.5	8.97	99.5	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	04-Aug-2021 10:04

Metals and Metallic Compounds - Quality Control

Batch BJB0107 - SWN EPA 3050B

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 (BJB0107-MS2)			**Source: 21A0352-01**			Prepared: 03-Feb-2021		Analyzed: 05-Feb-2021 21:24				
Zinc	66	108	0.9	4.2	mg/kg	85.0	25.8	97.0	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJB0107-MSD2)			**Source: 21A0352-01**			Prepared: 03-Feb-2021		Analyzed: 05-Feb-2021 21:30				
Barium	135	57.3	0.06	0.53	mg/kg	26.5	33.5	89.5	75-125	13.40	20	
Chromium	52	36.2	0.14	0.53	mg/kg	26.5	9.77	99.7	75-125	0.20	20	
Cobalt	59	30.4	0.03	0.21	mg/kg	26.5	4.68	97.0	75-125	2.85	20	
Lead	208	27.7	0.07	0.11	mg/kg	26.5	2.14	96.4	75-125	1.20	20	
Selenium	78	83.1	0.47	2.12	mg/kg	85.0	1.08	96.5	75-125	0.89	20	
Silver	107	26.1	0.02	0.21	mg/kg	26.5	0.04	98.3	75-125	1.24	20	
Vanadium	51a	58.6	0.04	0.21	mg/kg	26.5	32.4	98.8	75-125	0.75	20	
Arsenic	75a	27.9	0.02	0.21	mg/kg	26.5	2.71	94.8	75-125	0.02	20	
Copper	63	36.8	0.36	0.53	mg/kg	26.5	10.4	99.3	75-125	3.32	20	
Nickel	60	36.3	0.05	0.53	mg/kg	26.5	8.97	103	75-125	2.48	20	
Zinc	66	107	0.9	4.2	mg/kg	85.0	25.8	95.5	75-125	1.17	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Matrix Spike Dup (BJB0107-MSD4)			**Source: 21A0352-01**			Prepared: 03-Feb-2021		Analyzed: 08-Feb-2021 16:25				
Cadmium	111	27.1	0.03	0.11	mg/kg	26.5	ND	102	75-125	1.87	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.												
Reference (BJB0107-SRM1)						Prepared: 03-Feb-2021		Analyzed: 04-Feb-2021 18:49				
Selenium	78	93.4	0.44	2.00	mg/kg	93.1		100	78.9-121.4			
Arsenic	75a	94.5	0.02	0.20	mg/kg	97.6		96.8	82.8-111.4			
Cadmium	111	120	0.03	0.10	mg/kg	114		106	82.8-117.5			
Copper	63	99.5	0.34	0.50	mg/kg	97.7		102	83.9-115.7			
Nickel	60	129	0.05	0.50	mg/kg	119		108	82.4-117.6			
Reference (BJB0107-SRM2)						Prepared: 03-Feb-2021		Analyzed: 05-Feb-2021 14:52				
Barium	135	318	0.14	1.25	mg/kg	320		99.5	82.5-117.5			D
Chromium	52	143	0.33	1.25	mg/kg	147		97.4	81.6-117.7			D
Cobalt	59	45.8	0.07	0.50	mg/kg	46.7		98.0	83.9-116.3			D
Lead	208	104	0.17	0.25	mg/kg	105		99.2	82.6-117.1			D
Silver	107	31.9	0.04	0.50	mg/kg	32.0		99.6	79.7-120			D
Vanadium	51a	169	0.10	0.50	mg/kg	174		97.4	78.7-121.3			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	04-Aug-2021 10:04

Metals and Metallic Compounds - Quality Control

Batch BJB0107 - SWN EPA 3050B

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
Reference (BJB0107-SRM2)					Prepared: 03-Feb-2021 Analyzed: 05-Feb-2021 14:52							
Zinc	66	206	2.1	10.0	mg/kg	212		97.2	80.7-118.9			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	04-Aug-2021 10:04

Wet Chemistry - Quality Control

Batch BJA0724 - No Prep Wet Chem

Instrument: BAL2 Analyst: KLE

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJA0724-BLK1)				Prepared: 28-Jan-2021 Analyzed: 28-Jan-2021 04:34							
Total Solids	ND	0.04	0.04	%							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	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

Wet Chemistry - Quality Control

Batch BJB0199 - PSEP 1986 (modified)

Instrument: TOC Cube Analyst: BF

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BJB0199-BLK1)				Prepared: 05-Feb-2021 Analyzed: 06-Feb-2021 19:59							
Total Organic Carbon	ND	0.02	0.02	%							U
LCS (BJB0199-BS1)				Prepared: 05-Feb-2021 Analyzed: 06-Feb-2021 20:29							
Total Organic Carbon	44.6	0.02	0.02	%	44.4		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	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020A in Solid	
Silver-107	NELAP,DoD-ELAP,WADOE
Barium-135	NELAP,DoD-ELAP,WADOE,ADEC
Barium-137	NELAP,DoD-ELAP,WADOE,ADEC
Cobalt-59	NELAP,DoD-ELAP,WADOE
Chromium-52	NELAP,DoD-ELAP,WADOE,ADEC
Chromium-53	NELAP,DoD-ELAP,WADOE,ADEC
Lead-208	NELAP,DoD-ELAP,WADOE,ADEC
Selenium-82	NELAP,DoD-ELAP,WADOE
Selenium-78	NELAP,DoD-ELAP,WADOE
Vanadium-51a	NELAP,DoD-ELAP,WADOE,ADEC
Vanadium-51b	DoD-ELAP,WADOE,ADEC
EPA 6020A UCT-KED in Solid	
Arsenic-75a	NELAP,DoD-ELAP,WADOE,ADEC
Cadmium-111	NELAP,DoD-ELAP,WADOE,ADEC
Cadmium-114	NELAP,DoD-ELAP,WADOE,ADEC
Copper-63	NELAP,DoD-ELAP,WADOE
Copper-65	NELAP,DoD-ELAP,WADOE
Nickel-60	NELAP,DoD-ELAP,WADOE,ADEC
Nickel-62	NELAP,DoD-ELAP,WADOE,ADEC
Zinc-66	NELAP,DoD-ELAP,WADOE
Zinc-67	NELAP,DoD-ELAP,WADOE
EPA 7471B in Solid	
Mercury	WADOE,NELAP,DoD-ELAP
EPA 8082A in Solid	
Aroclor 1016	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1016 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1221 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1232 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1242 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1248 [2C]	WADOE,DoD-ELAP,NELAP,ADEC

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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	04-Aug-2021 10:04

Aroclor 1254	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1254 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1260 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1262 [2C]	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268	WADOE,DoD-ELAP,NELAP,ADEC
Aroclor 1268 [2C]	WADOE,DoD-ELAP,NELAP,ADEC

EPA 8260D in Solid

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

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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	04-Aug-2021 10:04

2-Chloroethyl vinyl ether	WADOE,DoD-ELAP,NELAP
4-Methyl-2-Pentanone	WADOE,DoD-ELAP,NELAP
cis-1,3-Dichloropropene	WADOE,DoD-ELAP,NELAP,ADEC
Toluene	WADOE,DoD-ELAP,NELAP,ADEC
trans-1,3-Dichloropropene	WADOE,DoD-ELAP,NELAP,ADEC
2-Hexanone	WADOE,DoD-ELAP,NELAP
1,1,2-Trichloroethane	WADOE,DoD-ELAP,NELAP,ADEC
1,3-Dichloropropane	WADOE,DoD-ELAP,NELAP,ADEC
Tetrachloroethene	WADOE,DoD-ELAP,NELAP,ADEC
Dibromochloromethane	WADOE,DoD-ELAP,NELAP,ADEC
1,2-Dibromoethane	WADOE,DoD-ELAP,NELAP,ADEC
Chlorobenzene	WADOE,DoD-ELAP,NELAP,ADEC
Ethylbenzene	WADOE,DoD-ELAP,NELAP,ADEC
1,1,1,2-Tetrachloroethane	WADOE,DoD-ELAP,NELAP,ADEC
m,p-Xylene	WADOE,DoD-ELAP,NELAP,ADEC
o-Xylene	WADOE,DoD-ELAP,NELAP,ADEC
Xylenes, total	WADOE
Styrene	WADOE,DoD-ELAP,NELAP,ADEC
Bromoform	WADOE,DoD-ELAP,NELAP,ADEC
1,1,2,2-Tetrachloroethane	WADOE,DoD-ELAP,NELAP,ADEC
1,2,3-Trichloropropane	WADOE,DoD-ELAP,NELAP,ADEC
trans-1,4-Dichloro 2-Butene	WADOE,DoD-ELAP,NELAP
n-Propylbenzene	WADOE,DoD-ELAP,NELAP
Bromobenzene	WADOE,DoD-ELAP,NELAP,ADEC
Isopropyl Benzene	WADOE,DoD-ELAP,NELAP,ADEC
2-Chlorotoluene	WADOE,DoD-ELAP,NELAP
4-Chlorotoluene	WADOE,DoD-ELAP,NELAP
t-Butylbenzene	WADOE,DoD-ELAP,NELAP
1,3,5-Trimethylbenzene	WADOE,DoD-ELAP,NELAP
1,2,4-Trimethylbenzene	WADOE,DoD-ELAP,NELAP
s-Butylbenzene	WADOE,DoD-ELAP,NELAP
4-Isopropyl Toluene	WADOE,DoD-ELAP,NELAP
1,3-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
1,4-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
n-Butylbenzene	WADOE,DoD-ELAP,NELAP
1,2-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
1,2-Dibromo-3-chloropropane	WADOE,DoD-ELAP,NELAP,ADEC
1,2,4-Trichlorobenzene	WADOE,DoD-ELAP,NELAP,ADEC
Hexachloro-1,3-Butadiene	WADOE,DoD-ELAP,NELAP,ADEC

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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	04-Aug-2021 10:04

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

EPA 8260D in Water

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

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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	04-Aug-2021 10:04

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
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

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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	04-Aug-2021 10:04

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 9060A m in Solid	
Total Organic Carbon	WADOE
NWTPH-Dx in Solid	
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
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 Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Mineral Spirits Range Organics (Tol-C12)	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
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE
NWTPHg in Solid	
Gasoline Range Organics (Tol-Nap)	DoD-ELAP
Gasoline Range Organics (2MP-TMB)	DoD-ELAP
Gasoline Range Organics (Tol-C12)	DoD-ELAP
Gasoline Range Organics (C6-C10)	DoD-ELAP
Gasoline Range Organics (C5-C12)	DoD-ELAP
4-Bromofluorobenzene (field spiked)	DoD-ELAP
NWTPHg in Water	
Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP

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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	04-Aug-2021 10:04

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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Analytical Report

Shannon & Wilson, Inc	Project: Lower Duwamish	
400 N 34th St., Suite 100	Project Number: Lower Duwamish	**Reported:**
Seattle WA, 98103-8636	Project Manager: Meg Strong	04-Aug-2021 10:04

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
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.

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04 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)
21A0376	N/A

Susan Dunnihoo

Digitally signed by Susan Dunnihoo
Date: 2021.08.04 11:52:16 -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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