

Appendix D

Groundwater Monitoring

Appendix D4

Laboratory Reports

1st Quarter 2024



Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

26 February 2024

Min-Soon Yim
Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle, WA 98124-4018

RE: South Park Landfill -Parametrix Water (553-155-067)

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)
24B0127

Associated SDG ID(s)
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 enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

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

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

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





Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number: 24B0127	Turn-around Requested: 2 weeks	Date: 2/6/2024
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: 1 of 2
Client Contact: Laura Lee	Phone: 206 394-3665	No. of Coolers: Coolers: _____ Temps: _____

Client Project Name: SPU South Park Landfill					Analysis Requested										Notes/Comments			
Samplers: Chris Bourgeois HWA					cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn											
Sample ID	Date	Time	Matrix	Number of Containers														
SPL-GW-MW12-0224			water	13	X	X	X											MS/MSD
SPL-GW-MW14-0224			water	7	X	X	X											
SPL-GW-MW29-0224	2/6/24	1600	water	7	X	X	X											
SPL-GW-MW18-0224			water	7	X	X	X											
SPL-GW-MW32-0224	2/5/24	1120	water	7	X	X	X											
SPL-GW-MW33-0224	2/5/24	1015	water	7	X	X	X											
SPL-GW-MW10-0224	2/5/24	1245	water	7	X	X	X											
SPL-GW-MW60-0224			water	7	X	X	X											
SPL-GW-MW80-0224	2/6/24		water	2	X	X												

Comments/Special Instructions	Relinquished by: (Signature) 	Received by: (Signature) 	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Richard Anderson	Printed Name: Phillip Bates	Printed Name:	Printed Name:
	Company: MWA Geosciences	Company: AR	Company:	Company:
	Date & Time: 2/6/24 4:45 pm	Date & Time: 2/6/24 16:45	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, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number: 24B0127	Turn-around Requested: 2 weeks	Date: 2/6/24
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: 2 of 2
Client Contact: Laura Lee, Parametrix	Phone: 206 394-3665	No. of Coolers: 1 Cooler Temps: 5.4

Client Project Name: SPU South Park Landfill					Analysis Requested										Notes/Comments		
Client Project #: 553-1550-067		Samplers: Chris Bourgeois HWA			cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn										
Sample ID	Date	Time	Matrix	Number of Containers													
SPL-GW-MW25-0224	2/5/24	1400	water	13	X	X	X										MS/MSD
SPL-GW-MW30-0224			water	7	X	X	X										
SPL-GW-MW31-0224			water	7	X	X	X										
SPL-GW-MW24-0224	2/6/24	1320	water	7	X	X	X										
SPL-GW-MW26-0224	2/6/24	1445	water	7	X	X	X										
SPL-GW-MW08-0224	2/6/24	0910	water	7	X	X	X										
SPL-GW-MW27-0224	2/6/24	1120	water	7	X	X	X										
SPL-GW-MW61-0224	2/5/24	1500	water	7	X	X	X										
SPL-GW-MW81-0224			water	2	X	X											

Comments/Special Instructions	Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature) <i>[Signature]</i>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Richard Anderson	Printed Name: Phillip Bowers	Printed Name:	Printed Name:
	Company: Hurst Geosciences	Company: AR	Company:	Company:
	Date & Time: 2/6/24 4:45pm	Date & Time: 2/6/24 16:45	Date & Time:	Date & Time:

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Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
26-Feb-2024 10:57

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SPL-GW-MW29-0224	24B0127-01	Water	06-Feb-2024 16:00	06-Feb-2024 16:45
SPL-GW-MW32-0224	24B0127-02	Water	05-Feb-2024 11:20	06-Feb-2024 16:45
SPL-GW-MW33-0224	24B0127-03	Water	05-Feb-2024 10:15	06-Feb-2024 16:45
SPL-GW-MW10-0224	24B0127-04	Water	05-Feb-2024 12:45	06-Feb-2024 16:45
SPL-GW-MW80-0224	24B0127-05	Water	05-Feb-2024 00:00	06-Feb-2024 16:45
SPL-GW-MW25-0224	24B0127-06	Water	05-Feb-2024 14:00	06-Feb-2024 16:45
SPL-GW-MW24-0224	24B0127-07	Water	06-Feb-2024 13:20	06-Feb-2024 16:45
SPL-GW-MW26-0224	24B0127-08	Water	06-Feb-2024 14:45	06-Feb-2024 16:45
SPL-GW-MW08-0224	24B0127-09	Water	06-Feb-2024 09:10	06-Feb-2024 16:45
SPL-GW-MW27-0224	24B0127-10	Water	06-Feb-2024 11:20	06-Feb-2024 16:45
SPL-GW-MW61-0224	24B0127-11	Water	05-Feb-2024 15:00	06-Feb-2024 16:45



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
26-Feb-2024 10:57

Work Order Case Narrative

Client: Seattle Public Utilities
Project: South Park Landfill
Work Order: 24B0127

Sample receipt

Samples as listed on the preceding page were received February 6, 2024 under ARI work order 24B0127}. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits with the exception of analytes flagged on the associated forms.

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

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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



Seattle Public Utilities

700-5th Ave, Ste 4900, Box 34018

Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water

Project Number: 553-155-067

Project Manager: Min-Soon Yim

Reported:

26-Feb-2024 10:57

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

Total Metals - EPA Method 6020B

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

Initial and continuing calibrations were within method requirements.

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

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.



WORK ORDER

24B0127

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Seattle Public Utilities

Project Manager: Kelly Bottem

Project: South Park Landfill -Parametrix Water

Project Number: 553-155-067

Preservation Confirmation

Container ID	Container Type	pH
24B0127-01 A	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
24B0127-01 B	VOA Vial, Clear, 40 mL, HCL	
24B0127-01 C	VOA Vial, Clear, 40 mL, HCL	
24B0127-01 D	VOA Vial, Clear, 40 mL, HCL	
24B0127-01 E	VOA Vial, Clear, 40 mL	
24B0127-01 F	VOA Vial, Clear, 40 mL	
24B0127-01 G	VOA Vial, Clear, 40 mL	
24B0127-02 A	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
24B0127-02 B	VOA Vial, Clear, 40 mL, HCL	
24B0127-02 C	VOA Vial, Clear, 40 mL, HCL	
24B0127-02 D	VOA Vial, Clear, 40 mL, HCL	
24B0127-02 E	VOA Vial, Clear, 40 mL	
24B0127-02 F	VOA Vial, Clear, 40 mL	
24B0127-02 G	VOA Vial, Clear, 40 mL	
24B0127-03 A	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
24B0127-03 B	VOA Vial, Clear, 40 mL, HCL	
24B0127-03 C	VOA Vial, Clear, 40 mL, HCL	
24B0127-03 D	VOA Vial, Clear, 40 mL, HCL	
24B0127-03 E	VOA Vial, Clear, 40 mL	
24B0127-03 F	VOA Vial, Clear, 40 mL	
24B0127-03 G	VOA Vial, Clear, 40 mL	
24B0127-04 A	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
24B0127-04 B	VOA Vial, Clear, 40 mL, HCL	
24B0127-04 C	VOA Vial, Clear, 40 mL, HCL	
24B0127-04 D	VOA Vial, Clear, 40 mL, HCL	
24B0127-04 E	VOA Vial, Clear, 40 mL	
24B0127-04 F	VOA Vial, Clear, 40 mL	
24B0127-04 G	VOA Vial, Clear, 40 mL	
24B0127-05 A	VOA Vial, Clear, 40 mL, HCL	
24B0127-05 B	VOA Vial, Clear, 40 mL	
24B0127-06 A	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
24B0127-06 B	VOA Vial, Clear, 40 mL, HCL	
24B0127-06 C	VOA Vial, Clear, 40 mL, HCL	
24B0127-06 D	VOA Vial, Clear, 40 mL, HCL	



WORK ORDER

24B0127

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Seattle Public Utilities	Project Manager: Kelly Bottem
Project: South Park Landfill -Parametrix Water	Project Number: 553-155-067

24B0127-06 E	VOA Vial, Clear, 40 mL, HCL	
24B0127-06 F	VOA Vial, Clear, 40 mL, HCL	
24B0127-06 G	VOA Vial, Clear, 40 mL, HCL	
24B0127-06 H	VOA Vial, Clear, 40 mL	
24B0127-06 I	VOA Vial, Clear, 40 mL	
24B0127-06 J	VOA Vial, Clear, 40 mL	
24B0127-06 K	VOA Vial, Clear, 40 mL	
24B0127-06 L	VOA Vial, Clear, 40 mL	
24B0127-06 M	VOA Vial, Clear, 40 mL	
24B0127-07 A	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
24B0127-07 B	VOA Vial, Clear, 40 mL, HCL	
24B0127-07 C	VOA Vial, Clear, 40 mL, HCL	
24B0127-07 D	VOA Vial, Clear, 40 mL, HCL	
24B0127-07 E	VOA Vial, Clear, 40 mL	
24B0127-07 F	VOA Vial, Clear, 40 mL	
24B0127-07 G	VOA Vial, Clear, 40 mL	
24B0127-08 A	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
24B0127-08 B	VOA Vial, Clear, 40 mL, HCL	
24B0127-08 C	VOA Vial, Clear, 40 mL, HCL	
24B0127-08 D	VOA Vial, Clear, 40 mL, HCL	
24B0127-08 E	VOA Vial, Clear, 40 mL	
24B0127-08 F	VOA Vial, Clear, 40 mL	
24B0127-08 G	VOA Vial, Clear, 40 mL	
24B0127-09 A	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
24B0127-09 B	VOA Vial, Clear, 40 mL, HCL	
24B0127-09 C	VOA Vial, Clear, 40 mL, HCL	
24B0127-09 D	VOA Vial, Clear, 40 mL, HCL	
24B0127-09 E	VOA Vial, Clear, 40 mL	
24B0127-09 F	VOA Vial, Clear, 40 mL	
24B0127-09 G	VOA Vial, Clear, 40 mL	
24B0127-10 A	HDPE NM, 500 mL, 1:1 HNO3	<2 pass
24B0127-10 B	VOA Vial, Clear, 40 mL, HCL	
24B0127-10 C	VOA Vial, Clear, 40 mL, HCL	
24B0127-10 D	VOA Vial, Clear, 40 mL, HCL	
24B0127-10 E	VOA Vial, Clear, 40 mL	
24B0127-10 F	VOA Vial, Clear, 40 mL	



WORK ORDER

24B0127

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Seattle Public Utilities

Project Manager: Kelly Bottem

Project: South Park Landfill -Parametrix Water

Project Number: 553-155-067

24B0127-10 G	VOA Vial, Clear, 40 mL	
24B0127-11 A	HDPE NM, 500 mL, 1:1 HNO ₃	← 2 pass
24B0127-11 B	VOA Vial, Clear, 40 mL, HCL	
24B0127-11 C	VOA Vial, Clear, 40 mL, HCL	
24B0127-11 D	VOA Vial, Clear, 40 mL, HCL	
24B0127-11 E	VOA Vial, Clear, 40 mL	
24B0127-11 F	VOA Vial, Clear, 40 mL	
24B0127-11 G	VOA Vial, Clear, 40 mL	

KFC

Preservation Confirmed By

2/27/24

Date



Cooler Receipt Form

ARI Client: SPU
 COC No(s): _____ (NA)
 Assigned ARI Job No: 24B0127

Project Name: South Park Landfill
 Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
 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 16:45 5.4 _____
 If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: J209709
 Cooler Accepted by: PIB Date: 2/06/24 Time: 16:45

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: KFC Date: 2/07/24 Time: 0853 Labels checked by: KFC

**** 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: _____



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW29-0224
24B0127-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 02/06/2024 16:00
Instrument: NT3 Analyst: PKC	Analyzed: 02/07/2024 19:07
Sample Preparation:	Extract ID: 24B0127-01 D
Preparation Method: EPA 5030C (Purge and Trap)	
Preparation Batch: BMB0200	Sample Size: 10 mL
Prepared: 02/07/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	90.3	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW29-0224
24B0127-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 02/06/2024 16:00
Instrument: NT16 Analyst: PAB	Analyzed: 02/08/2024 15:14
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0127-01 E
Preparation Batch: BMB0231	Sample Size: 10 mL
Prepared: 02/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0496	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>107</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW29-0224
24B0127-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Preparation Method: REN - EPA 3010A M	Sample Size: 25 mL	Sampled: 02/06/2024 16:00
Instrument: ICPMS2 Analyst: HAL	Preparation Batch: BMB0461	Final Volume: 25 mL	Analyzed: 02/22/2024 19:38
Sample Preparation:	Prepared: 02/16/2024	Extract ID: 24B0127-01 A	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	21.7	mg/L	D
Manganese	7439-96-5	10	0.00500	0.587	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW32-0224
24B0127-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 02/05/2024 11:20
Instrument: NT3 Analyst: PKC	Preparation Batch: BMB0200	Analyzed: 02/07/2024 19:29
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24B0127-02 B
	Final Volume: 10 mL	
Prepared: 02/07/2024		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.44	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	100	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW32-0224
24B0127-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 02/05/2024 11:20
Instrument: NT16 Analyst: PAB	Analyzed: 02/08/2024 15:35
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0127-02 E
Preparation Batch: BMB0231	Sample Size: 10 mL
Prepared: 02/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.195	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>106</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW32-0224
24B0127-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Preparation Method: REN - EPA 3010A M	Sample Size: 25 mL	Sampled: 02/05/2024 11:20
Instrument: ICPMS2 Analyst: HAL	Preparation Batch: BMB0461	Final Volume: 25 mL	Analyzed: 02/22/2024 19:40
Sample Preparation:	Prepared: 02/16/2024	Extract ID: 24B0127-02 A	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	15.5	mg/L	D
Manganese	7439-96-5	20	0.0100	1.40	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW33-0224
24B0127-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 02/05/2024 10:15
Instrument: NT3 Analyst: PKC	Preparation Batch: BMB0200	Analyzed: 02/07/2024 19:51
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24B0127-03 B
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>102</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW33-0224
24B0127-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 02/05/2024 10:15
Instrument: NT16 Analyst: PAB	Analyzed: 02/08/2024 15:55
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0127-03 E
Preparation Batch: BMB0231	Sample Size: 10 mL
Prepared: 02/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.125	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	106	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW33-0224
24B0127-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS2 Analyst: HAL	Sampled: 02/05/2024 10:15 Analyzed: 02/22/2024 19:42
Sample Preparation:	Preparation Method: REN - EPA 3010A M Preparation Batch: BMB0461 Prepared: 02/16/2024	Sample Size: 25 mL Final Volume: 25 mL Extract ID: 24B0127-03 A

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	16.3	mg/L	D
Manganese	7439-96-5	20	0.0100	1.62	mg/L	D



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
26-Feb-2024 10:57

SPL-GW-MW10-0224
24B0127-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 02/05/2024 12:45
Instrument: NT3 Analyst: PKC Analyzed: 02/07/2024 20:13
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 24B0127-04 C
Preparation Batch: BMB0200 Sample Size: 10 mL
Prepared: 02/07/2024 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.74	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	102	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW10-0224
24B0127-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 02/05/2024 12:45
Instrument: NT16 Analyst: PAB	Analyzed: 02/08/2024 16:16
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0127-04 E
Preparation Batch: BMB0231	Sample Size: 10 mL
Prepared: 02/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.109	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	106	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW10-0224
24B0127-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Preparation Method: REN - EPA 3010A M	Sample Size: 25 mL	Sampled: 02/05/2024 12:45
Instrument: ICPMS2 Analyst: HAL	Preparation Batch: BMB0461	Final Volume: 25 mL	Analyzed: 02/22/2024 19:43
Sample Preparation:	Prepared: 02/16/2024	Extract ID: 24B0127-04 A	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	35.2	mg/L	D
Manganese	7439-96-5	20	0.0100	2.05	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW80-0224
24B0127-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 02/05/2024 00:00
Instrument: NT3 Analyst: PKC	Preparation Batch: BMB0200	Analyzed: 02/07/2024 20:35
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24B0127-05 A
	Final Volume: 10 mL	
Prepared: 02/07/2024		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>91.4</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW80-0224
24B0127-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 02/05/2024 00:00
Instrument: NT16 Analyst: PAB	Analyzed: 02/08/2024 16:37
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0127-05 B
Preparation Batch: BMB0231	Sample Size: 10 mL
Prepared: 02/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>105</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW25-0224
24B0127-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 02/05/2024 14:00
Instrument: NT3 Analyst: PKC	Analyzed: 02/13/2024 17:56
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0127-06 C
Preparation Batch: BMB0362	Sample Size: 10 mL
Prepared: 02/13/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>114</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW25-0224
24B0127-06 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 02/05/2024 14:00
Instrument: NT16 Analyst: PAB	Analyzed: 02/08/2024 16:57
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0127-06 H
Preparation Batch: BMB0231	Sample Size: 10 mL
Prepared: 02/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.417	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>104</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW25-0224
24B0127-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: DOE	Sampled: 02/05/2024 14:00	Analyzed: 02/21/2024 22:16
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMB0461	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 02/16/2024		Extract ID: 24B0127-06 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	50	0.0250	2.73	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW25-0224
24B0127-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Sampled: 02/05/2024 14:00
Instrument: ICPMS2 Analyst: HAL	Analyzed: 02/22/2024 20:04
Sample Preparation: Preparation Method: REN - EPA 3010A M	Extract ID: 24B0127-06 A
Preparation Batch: BMB0461	Sample Size: 25 mL
Prepared: 02/16/2024	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	35.6	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW24-0224
24B0127-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 02/06/2024 13:20
Instrument: NT3 Analyst: PKC	Analyzed: 02/13/2024 18:18
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0127-07 C
Preparation Batch: BMB0362	Sample Size: 10 mL
Prepared: 02/13/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>115</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW24-0224
24B0127-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 02/06/2024 13:20
Instrument: NT16 Analyst: PAB	Analyzed: 02/08/2024 17:18
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0127-07 E
Preparation Batch: BMB0231	Sample Size: 10 mL
Prepared: 02/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0325	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>107</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW24-0224
24B0127-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Preparation Method: REN - EPA 3010A M	Sample Size: 25 mL	Sampled: 02/06/2024 13:20
Instrument: ICPMS2 Analyst: HAL	Preparation Batch: BMB0461	Final Volume: 25 mL	Analyzed: 02/22/2024 19:45
Sample Preparation:	Prepared: 02/16/2024	Extract ID: 24B0127-07 A	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	28.6	mg/L	D
Manganese	7439-96-5	20	0.0100	1.73	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW26-0224
24B0127-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 02/06/2024 14:45
Instrument: NT3 Analyst: PKC	Preparation Batch: BMB0362	Analyzed: 02/13/2024 18:40
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24B0127-08 D
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.42	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	108	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW26-0224
24B0127-08 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 02/06/2024 14:45
Instrument: NT16 Analyst: PAB	Analyzed: 02/08/2024 17:38
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0127-08 F
Preparation Batch: BMB0231	Sample Size: 10 mL
Prepared: 02/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0420	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>107</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW26-0224
24B0127-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Preparation Method: REN - EPA 3010A M	Sample Size: 25 mL	Sampled: 02/06/2024 14:45
Instrument: ICPMS2 Analyst: HAL	Preparation Batch: BMB0461	Final Volume: 25 mL	Analyzed: 02/22/2024 19:47
Sample Preparation:	Prepared: 02/16/2024	Extract ID: 24B0127-08 A	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	5	0.180	5.42	mg/L	D
Manganese	7439-96-5	5	0.00250	0.0688	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW08-0224
24B0127-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 02/06/2024 09:10
Instrument: NT3 Analyst: PKC	Preparation Batch: BMB0362	Analyzed: 02/13/2024 19:02
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24B0127-09 C
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>120</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW08-0224
24B0127-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 02/06/2024 09:10
Instrument: NT16 Analyst: PAB	Analyzed: 02/08/2024 17:59
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0127-09 F
Preparation Batch: BMB0231	Sample Size: 10 mL
Prepared: 02/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0660	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>106</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW08-0224
24B0127-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Preparation Method: REN - EPA 3010A M	Sample Size: 25 mL	Sampled: 02/06/2024 09:10
Instrument: ICPMS2 Analyst: HAL	Preparation Batch: BMB0461	Final Volume: 25 mL	Analyzed: 02/22/2024 19:49
Sample Preparation:	Prepared: 02/16/2024	Extract ID: 24B0127-09 A	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	14.3	mg/L	D
Manganese	7439-96-5	10	0.00500	1.09	mg/L	D



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
26-Feb-2024 10:57

SPL-GW-MW27-0224
24B0127-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 02/06/2024 11:20
Instrument: NT3 Analyst: PKC Analyzed: 02/13/2024 19:25

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 24B0127-10 C
Preparation Batch: BMB0362 Sample Size: 10 mL
Prepared: 02/13/2024 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>108</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW27-0224
24B0127-10 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 02/06/2024 11:20
Instrument: NT16 Analyst: PAB	Analyzed: 02/08/2024 18:19
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0127-10 E
Preparation Batch: BMB0231	Sample Size: 10 mL
Prepared: 02/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0569	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>106</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW27-0224
24B0127-10 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Preparation Method: REN - EPA 3010A M	Sample Size: 25 mL	Sampled: 02/06/2024 11:20
Instrument: ICPMS2 Analyst: HAL	Preparation Batch: BMB0461	Final Volume: 25 mL	Analyzed: 02/22/2024 19:50
Sample Preparation:	Prepared: 02/16/2024	Extract ID: 24B0127-10 A	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	12.7	mg/L	D
Manganese	7439-96-5	10	0.00500	0.385	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW61-0224
24B0127-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 02/05/2024 15:00
Instrument: NT3 Analyst: PKC	Preparation Batch: BMB0362	Analyzed: 02/13/2024 19:47
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24B0127-11 C
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	112	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW61-0224
24B0127-11 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 02/05/2024 15:00
Instrument: NT16 Analyst: PAB	Analyzed: 02/08/2024 18:40
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0127-11 E
Preparation Batch: BMB0231	Sample Size: 10 mL
Prepared: 02/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.411	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>105</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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SPL-GW-MW61-0224
24B0127-11 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS2 Analyst: HAL	Sampled: 02/05/2024 15:00
Sample Preparation:	Preparation Method: REN - EPA 3010A M Preparation Batch: BMB0461 Prepared: 02/16/2024	Analyzed: 02/22/2024 19:52
	Sample Size: 25 mL Final Volume: 25 mL	Extract ID: 24B0127-11 A

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	33.6	mg/L	D
Manganese	7439-96-5	10	0.00500	2.69	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMB0200 - EPA 8260D

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMB0200-BLK1)					Prepared: 07-Feb-2024 Analyzed: 07-Feb-2024 13:12					
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.69		ug/L	5.00		93.7	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMB0200 - EPA 8260D

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMB0200-BS1)					Prepared: 07-Feb-2024 Analyzed: 07-Feb-2024 11:19					
cis-1,2-Dichloroethene	8.86	0.20	ug/L	10.0		88.6	80-121			
Surrogate: 1,2-Dichloroethane-d4	4.99		ug/L	5.00		99.8	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMB0200 - EPA 8260D

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMB0200-BSD1)					Prepared: 07-Feb-2024 Analyzed: 07-Feb-2024 12:04					
cis-1,2-Dichloroethene	9.90	0.20	ug/L	10.0	99.0	99.0	80-121	11.10	30	
Surrogate: 1,2-Dichloroethane-d4	4.84		ug/L	5.00	96.9	96.9	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMB0200 - EPA 8260D

Volatile Organic Compounds - Quality Control

Batch BMB0362 - EPA 8260D

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMB0362-BLK2)										
				Prepared: 13-Feb-2024 Analyzed: 13-Feb-2024 12:44						
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.91		ug/L	5.00		98.1	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMB0362 - EPA 8260D

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMB0362-BS2)					Prepared: 13-Feb-2024 Analyzed: 13-Feb-2024 11:15					
cis-1,2-Dichloroethene	10.3	0.20	ug/L	10.0		103	80-121			
Surrogate: 1,2-Dichloroethane-d4	5.39		ug/L	5.00		108	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMB0362 - EPA 8260D

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMB0362-BSD2)					Prepared: 13-Feb-2024 Analyzed: 13-Feb-2024 11:59					
cis-1,2-Dichloroethene	10.8	0.20	ug/L	10.0		108	80-121	5.17	30	
Surrogate: 1,2-Dichloroethane-d4	5.00		ug/L	5.00		99.9	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMB0362 - EPA 8260D

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMB0362-MS1)		Source: 24B0127-06		Prepared: 13-Feb-2024		Analyzed: 13-Feb-2024 21:14				
cis-1,2-Dichloroethene	7.21	0.20	ug/L	10.0	ND	70.5	80-121			*
Surrogate: 1,2-Dichloroethane-d4	5.53		ug/L	5.00	5.70	111	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMB0362 - EPA 8260D

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMB0362-MSD1)		Source: 24B0127-06		Prepared: 13-Feb-2024		Analyzed: 13-Feb-2024 21:36				
cis-1,2-Dichloroethene	6.88	0.20	ug/L	10.0	ND	67.2	80-121	4.66	30	*
Surrogate: 1,2-Dichloroethane-d4	5.80		ug/L	5.00	5.70	116	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMB0362 - EPA 8260D

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMB0231 - EPA 8260D-SIM

Instrument: NT16 Analyst: PAB

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMB0231-BLK1)					Prepared: 08-Feb-2024 Analyzed: 08-Feb-2024 11:04					
Vinyl chloride	ND	0.0200	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4990		ug/L	5000		99.9	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMB0231 - EPA 8260D-SIM

Instrument: NT16 Analyst: PAB

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMB0231-BS1)					Prepared: 08-Feb-2024 Analyzed: 08-Feb-2024 09:54					
Vinyl chloride	2.39	0.0200	ug/L	2.00		120	62-141			
Surrogate: 1,2-Dichloroethane-d4	5090		ug/L	5000		102	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMB0231 - EPA 8260D-SIM

Instrument: NT16 Analyst: PAB

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMB0231-BSD1)					Prepared: 08-Feb-2024 Analyzed: 08-Feb-2024 10:15					
Vinyl chloride	1.94	0.0200	ug/L	2.00		97.1	62-141	20.80	30	
Surrogate: 1,2-Dichloroethane-d4	5140		ug/L	5000		103	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMB0231 - EPA 8260D-SIM

Instrument: NT16 Analyst: PAB

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMB0231-MS1)		Source: 24B0127-06		Prepared: 08-Feb-2024		Analyzed: 08-Feb-2024 19:21				
Vinyl chloride	2.37	0.0200	ug/L	2.00	0.417	97.5	62-141			
Surrogate: 1,2-Dichloroethane-d4	5420		ug/L	5000	5190	108	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMB0231 - EPA 8260D-SIM

Instrument: NT16 Analyst: PAB

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMB0231-MSD1)		Source: 24B0127-06		Prepared: 08-Feb-2024		Analyzed: 08-Feb-2024 19:41				
Vinyl chloride	2.35	0.0200	ug/L	2.00	0.417	96.4	62-141	0.95	30	
Surrogate: 1,2-Dichloroethane-d4	5380		ug/L	5000	5190	108	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMB0231 - EPA 8260D-SIM

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMB0461 - EPA 6020B

Instrument: ICPMS1 Analyst: DOE

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMB0461-BLK2)			Prepared: 16-Feb-2024 Analyzed: 21-Feb-2024 18:59								
Manganese	55	ND	0.000500	mg/L							U
LCS (BMB0461-BS2)			Prepared: 16-Feb-2024 Analyzed: 21-Feb-2024 19:04								
Manganese	55	0.0253	0.000500	mg/L	0.0250		101	80-120			
Duplicate (BMB0461-DUP2)			Source: 24B0127-06			Prepared: 16-Feb-2024 Analyzed: 21-Feb-2024 22:21					
Manganese	55	2.71	0.0250	mg/L		2.73			0.67	20	D
Matrix Spike (BMB0461-MS2)			Source: 24B0127-06			Prepared: 16-Feb-2024 Analyzed: 21-Feb-2024 22:26					
Manganese	55	2.65	0.0250	mg/L	0.0250	2.73	-304	75-125			HC, D

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

Matrix Spike Dup (BMB0461-MSD2)			Source: 24B0127-06			Prepared: 16-Feb-2024 Analyzed: 21-Feb-2024 22:31					
Manganese	55	2.74	0.0250	mg/L	0.0250	2.73	39.4	75-125	3.18	20	HC, D

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

Instrument: ICPMS2 Analyst: HAL

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMB0461-BLK3)			Prepared: 16-Feb-2024 Analyzed: 22-Feb-2024 19:17								
Iron	54	ND	0.0360	mg/L							U
LCS (BMB0461-BS3)			Prepared: 16-Feb-2024 Analyzed: 22-Feb-2024 19:19								
Iron	54	4.99	0.0360	mg/L	5.00		99.7	80-120			
Duplicate (BMB0461-DUP4)			Source: 24B0127-06			Prepared: 16-Feb-2024 Analyzed: 22-Feb-2024 20:05					
Iron	54	34.6	1.80	mg/L		35.6			2.90	20	D
Matrix Spike (BMB0461-MS4)			Source: 24B0127-06			Prepared: 16-Feb-2024 Analyzed: 22-Feb-2024 20:07					
Iron	54	39.8	1.80	mg/L	5.00	35.6	84.2	75-125			D

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMB0461 - EPA 6020B

Instrument: ICPMS2 Analyst: HAL

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMB0461-MSD4)			Source: 24B0127-06			Prepared: 16-Feb-2024 Analyzed: 22-Feb-2024 20:09					
Iron	54	40.7	1.80	mg/L	5.00	35.6	101	75-125	2.14	20	D

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Feb-2024 10:57
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Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
EPA 8260D in Water	
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
EPA 8260D-SIM in Water	
Vinyl chloride	NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2024
WADOE	WA Dept of Ecology	C558	06/30/2024
WA-DW	Ecology - Drinking Water	C558	06/30/2024



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
26-Feb-2024 10:57

Notes and Definitions

- * Flagged value is not within established control limits.
- D The reported value is from a dilution
- E The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
- HC The natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
- J Estimated concentration value detected below the reporting limit.
- 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, LLC
Analytical Chemists and Consultants
Tukwila, WA

28 February 2024

Min-Soon Yim
Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle, WA 98124-4018

RE: South Park Landfill -Parametrix Water (553-155-067)

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)
24B0164

Associated SDG ID(s)
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 enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

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

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

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



Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number: <u>24B0164</u>	Turn-around Requested: 2 weeks	Date: <u>2/7/24</u>
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: <u>1</u> of <u>2</u>
Client Contact: Laura Lee	Phone: 206 394-3665	No. of Coolers: <u>2.8</u>
		Coolers: <u>2.8</u>

Client Project Name: SPU South Park Landfill					Analysis Requested										Notes/Comments			
Samplers: Chris Bourgeois HWA					cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn											
Sample ID	Date	Time	Matrix	Number of Containers														
SPL-GW-MW12-0224	<u>2/7/24</u>	<u>955</u>	water	13	X	X	X											MS/MSD
SPL-GW-MW14-0224	<u>2/7/24</u>	<u>1145</u>	water	7	X	X	X											
SPL-GW-MW29-0224			water	7	X	X	X											
SPL-GW-MW18-0224	<u>2/7/24</u>	<u>840</u>	water	7	X	X	X											
SPL-GW-MW32-0224			water	7	X	X	X											
SPL-GW-MW33-0224			water	7	X	X	X											
SPL-GW-MW10-0224			water	7	X	X	X											
SPL-GW-MW60-0224	<u>2/7/24</u>	<u>1030</u>	water	7	X	X	X											
SPL-GW-MW80-0224			water	2	X	X												

Comments/Special Instructions	Relinquished by: (Signature) <u>[Signature]</u>	Received by: (Signature) <u>[Signature]</u>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: <u>Richard Anderson</u>	Printed Name: <u>Kevin Cruz</u>	Printed Name:	Printed Name:
	Company: <u>HWA Sciences</u>	Company: <u>ARIC</u>	Company:	Company:
	Date & Time: <u>2/7/24 2:47 pm</u>	Date & Time: <u>020724 1447</u>	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, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number: 24B0164	Turn-around Requested: 2 weeks	Date: 2/7/24
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: 2 of 2
Client Contact: Laura Lee, Parametrix	Phone: 206 394-3665	No. of Coolers: Cooler Temps: 2.8

Client Project Name: SPU South Park Landfill					Analysis Requested										Notes/Comments				
Client Project #: 553-1550-067		Samplers: Chris Bourgeois HWA			cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn												
Sample ID	Date	Time	Matrix	Number of Containers															
SPL-GW-MW25-0224			water	13	X	X	X												MS/MSD
SPL-GW-MW30-0224	2/7/24	1315	water	7	X	X	X												
SPL-GW-MW31-0224	2/7/24	1415	water	7	X	X	X												
SPL-GW-MW24-0224			water	7	X	X	X												
SPL-GW-MW26-0224			water	7	X	X	X												
SPL-GW-MW08-0224			water	7	X	X	X												
SPL-GW-MW27-0224			water	7	X	X	X												
SPL-GW-MW61-0224			water	7	X	X	X												
SPL-GW-MW81-0224	2/7/24	-	water	2	X	X													
Comments/Special Instructions	Relinquished by: (Signature) 		Received by: (Signature) 		Relinquished by: (Signature)					Received by: (Signature)									
	Printed Name: Richard Anderson		Printed Name: Kevin Cruz		Printed Name:					Printed Name:									
	Company: Hunt Geoservices		Company: ARMC		Company:					Company:									
	Date & Time: 2/7/24 2:47 pm		Date & Time: 02/07/24 1447		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, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
28-Feb-2024 10:30

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SPL-GW-MW12-0224	24B0164-01	Water	07-Feb-2024 09:55	07-Feb-2024 14:47
SPL-GW-MW14-0224	24B0164-02	Water	07-Feb-2024 11:45	07-Feb-2024 14:47
SPL-GW-MW18-0224	24B0164-03	Water	07-Feb-2024 08:40	07-Feb-2024 14:47
SPL-GW-MW60-0224	24B0164-04	Water	07-Feb-2024 10:30	07-Feb-2024 14:47
SPL-GW-MW30-0223	24B0164-05	Water	07-Feb-2024 13:15	07-Feb-2024 14:47
SPL-GW-MW31-0223	24B0164-06	Water	07-Feb-2024 14:15	07-Feb-2024 14:47
SPL-GW-MW81-0224	24B0164-07	Water	07-Feb-2024 00:00	07-Feb-2024 14:47



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
28-Feb-2024 10:30

Work Order Case Narrative

Client: Seattle Public Utilities
Project: South Park Landfill
Work Order: 24B0164

Sample receipt

Samples as listed on the preceding page were received February 7, 2024 under ARI work order 24B0164. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits with the exception of analytes flagged on the associated forms.

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

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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



Seattle Public Utilities

700-5th Ave, Ste 4900, Box 34018

Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water

Project Number: 553-155-067

Project Manager: Min-Soon Yim

Reported:

28-Feb-2024 10:30

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

Total Metals - EPA Method 6020B

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

Initial and continuing calibrations were within method requirements.

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

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.



WORK ORDER

24B0164

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Seattle Public Utilities

Project Manager: Kelly Bottem

Project: South Park Landfill -Parametrix Water

Project Number: 553-155-067

Preservation Confirmation

Container ID	Container Type	pH
24B0164-01 A	HDPE NM, 500 mL, 1:1 HNO3	<2 PASS
24B0164-01 B	VOA Vial, Clear, 40 mL, HCL	
24B0164-01 C	VOA Vial, Clear, 40 mL, HCL	
24B0164-01 D	VOA Vial, Clear, 40 mL, HCL	
24B0164-01 E	VOA Vial, Clear, 40 mL, HCL	
24B0164-01 F	VOA Vial, Clear, 40 mL, HCL	
24B0164-01 G	VOA Vial, Clear, 40 mL, HCL	
24B0164-01 H	VOA Vial, Clear, 40 mL	
24B0164-01 I	VOA Vial, Clear, 40 mL	
24B0164-01 J	VOA Vial, Clear, 40 mL	
24B0164-01 K	VOA Vial, Clear, 40 mL	
24B0164-01 L	VOA Vial, Clear, 40 mL	
24B0164-01 M	VOA Vial, Clear, 40 mL	
24B0164-02 A	HDPE NM, 500 mL, 1:1 HNO3	<2 PASS
24B0164-02 E	VOA Vial, Clear, 40 mL, HCL	
24B0164-02 F	VOA Vial, Clear, 40 mL, HCL	
24B0164-02 G	VOA Vial, Clear, 40 mL, HCL	
24B0164-02 H	VOA Vial, Clear, 40 mL	
24B0164-02 I	VOA Vial, Clear, 40 mL	
24B0164-02 J	VOA Vial, Clear, 40 mL	
24B0164-03 A	HDPE NM, 500 mL, 1:1 HNO3	<2 PASS
24B0164-03 E	VOA Vial, Clear, 40 mL, HCL	
24B0164-03 F	VOA Vial, Clear, 40 mL, HCL	
24B0164-03 G	VOA Vial, Clear, 40 mL, HCL	
24B0164-03 H	VOA Vial, Clear, 40 mL	
24B0164-03 I	VOA Vial, Clear, 40 mL	
24B0164-03 J	VOA Vial, Clear, 40 mL	
24B0164-04 A	HDPE NM, 500 mL, 1:1 HNO3	<2 PASS
24B0164-04 E	VOA Vial, Clear, 40 mL, HCL	
24B0164-04 F	VOA Vial, Clear, 40 mL, HCL	
24B0164-04 G	VOA Vial, Clear, 40 mL, HCL	
24B0164-04 H	VOA Vial, Clear, 40 mL	
24B0164-04 I	VOA Vial, Clear, 40 mL	
24B0164-04 J	VOA Vial, Clear, 40 mL	



WORK ORDER

24B0164

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Seattle Public Utilities	Project Manager: Kelly Bottem
Project: South Park Landfill -Parametrix Water	Project Number: 553-155-067

24B0164-05 A	HDPE NM, 500 mL, 1:1 HNO3	e2 pass
24B0164-05 E	VOA Vial, Clear, 40 mL, HCL	
24B0164-05 F	VOA Vial, Clear, 40 mL, HCL	
24B0164-05 G	VOA Vial, Clear, 40 mL, HCL	
24B0164-05 H	VOA Vial, Clear, 40 mL	
24B0164-05 I	VOA Vial, Clear, 40 mL	
24B0164-05 J	VOA Vial, Clear, 40 mL	
24B0164-06 A	HDPE NM, 500 mL, 1:1 HNO3	e2 pass
24B0164-06 E	VOA Vial, Clear, 40 mL, HCL	
24B0164-06 F	VOA Vial, Clear, 40 mL, HCL	
24B0164-06 G	VOA Vial, Clear, 40 mL, HCL	
24B0164-06 H	VOA Vial, Clear, 40 mL	
24B0164-06 I	VOA Vial, Clear, 40 mL	
24B0164-06 J	VOA Vial, Clear, 40 mL	
24B0164-07 A	VOA Vial, Clear, 40 mL	
24B0164-07 B	VOA Vial, Clear, 40 mL, HCL	

KFC

Preservation Confirmed By _____

020824

Date _____



Cooler Receipt Form

ARI Client: SPU

Project Name: SPU South park landfill

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 2480164

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 1447 _____ 2.8 _____

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 3009709

Cooler Accepted by: KFC Date: 02/07/24 Time: 1447

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: KFC Date: 02/07/24 Time: 1148 Labels checked by: KFC

**** 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: _____



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW12-0224
24B0164-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 02/07/2024 09:55
Instrument: NT20 Analyst: LN	Analyzed: 02/13/2024 15:35
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 24B0164-01 E
	Preparation Batch: BMB0356 Sample Size: 10 mL
	Prepared: 02/13/2024 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	104	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW12-0224
24B0164-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 02/07/2024 09:55
Instrument: NT16 Analyst: PAB	Analyzed: 02/09/2024 11:57
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0164-01 H
Preparation Batch: BMB0292	Sample Size: 10 mL
Prepared: 02/09/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>104</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW12-0224
24B0164-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: DOE	Sampled: 02/07/2024 09:55	Analyzed: 02/26/2024 22:41
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMB0414	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 02/15/2024		Extract ID: 24B0164-01 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	5	0.180	1.14	mg/L	D
Manganese	7439-96-5	5	0.00250	0.130	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW14-0224
24B0164-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 02/07/2024 11:45
Instrument: NT20 Analyst: LN	Preparation Batch: BMB0356	Analyzed: 02/13/2024 15:57
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24B0164-02 D
	Final Volume: 10 mL	
Prepared: 02/13/2024		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>107</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW14-0224
24B0164-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 02/07/2024 11:45
Instrument: NT16 Analyst: PAB	Analyzed: 02/09/2024 12:18
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0164-02 E
Preparation Batch: BMB0292	Sample Size: 10 mL
Prepared: 02/09/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>105</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW14-0224
24B0164-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS2 Analyst: HAL	Sampled: 02/07/2024 11:45	Analyzed: 02/22/2024 20:10
Sample Preparation:	Preparation Method: REN - EPA 3010A M Preparation Batch: BMB0414 Prepared: 02/15/2024	Sample Size: 25 mL Final Volume: 25 mL	Extract ID: 24B0164-02 A

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	3.26	mg/L	D
Manganese	7439-96-5	10	0.00500	0.778	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW18-0224
24B0164-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 02/07/2024 08:40
Instrument: NT20 Analyst: LN	Preparation Batch: BMB0356	Analyzed: 02/13/2024 16:20
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24B0164-03 B
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>105</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW18-0224
24B0164-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 02/07/2024 08:40
Instrument: NT16 Analyst: PAB	Analyzed: 02/09/2024 12:38
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0164-03 E
Preparation Batch: BMB0292	Sample Size: 10 mL
Prepared: 02/09/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>106</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW18-0224
24B0164-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS2 Analyst: HAL	Sampled: 02/07/2024 08:40 Analyzed: 02/22/2024 20:12
Sample Preparation:	Preparation Method: REN - EPA 3010A M Preparation Batch: BMB0414 Prepared: 02/15/2024	Sample Size: 25 mL Final Volume: 25 mL Extract ID: 24B0164-03 A

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	14.3	mg/L	D
Manganese	7439-96-5	10	0.00500	0.866	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW60-0224
24B0164-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 02/07/2024 10:30
Instrument: NT20 Analyst: LN	Preparation Batch: BMB0356	Analyzed: 02/13/2024 16:43
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24B0164-04 B
	Final Volume: 10 mL	
Prepared: 02/13/2024		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>109</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW60-0224
24B0164-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 02/07/2024 10:30
Instrument: NT16 Analyst: PAB	Analyzed: 02/09/2024 12:59
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0164-04 E
Preparation Batch: BMB0292	Sample Size: 10 mL
Prepared: 02/09/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>106</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW60-0224
24B0164-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS2 Analyst: HAL	Sampled: 02/07/2024 10:30
Sample Preparation:	Preparation Method: REN - EPA 3010A M Preparation Batch: BMB0414 Prepared: 02/15/2024	Analyzed: 02/22/2024 20:14
	Sample Size: 25 mL Final Volume: 25 mL	Extract ID: 24B0164-04 A

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	1.28	mg/L	D
Manganese	7439-96-5	20	0.0100	0.150	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW30-0223
24B0164-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 02/07/2024 13:15
Instrument: NT20 Analyst: LN	Preparation Batch: BMB0356	Analyzed: 02/13/2024 17:06
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24B0164-05 B
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.26	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	107	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW30-0223
24B0164-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 02/07/2024 13:15
Instrument: NT16 Analyst: PAB	Analyzed: 02/09/2024 13:20
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0164-05 E
Preparation Batch: BMB0292	Sample Size: 10 mL
Prepared: 02/09/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0422	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>104</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW30-0223
24B0164-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Preparation Method: REN - EPA 3010A M	Sample Size: 25 mL	Sampled: 02/07/2024 13:15
Instrument: ICPMS2 Analyst: HAL	Preparation Batch: BMB0414	Final Volume: 25 mL	Analyzed: 02/22/2024 20:16
Sample Preparation:	Prepared: 02/15/2024		Extract ID: 24B0164-05 A

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	5	0.180	2.47	mg/L	D
Manganese	7439-96-5	5	0.00250	0.0490	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW31-0223
24B0164-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 02/07/2024 14:15
Instrument: NT20 Analyst: LN	Preparation Batch: BMB0356	Analyzed: 02/13/2024 17:28
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24B0164-06 B
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>108</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW31-0223
24B0164-06 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 02/07/2024 14:15
Instrument: NT16 Analyst: PAB	Analyzed: 02/09/2024 13:40
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0164-06 E
Preparation Batch: BMB0292	Sample Size: 10 mL
Prepared: 02/09/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.402	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>106</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW31-0223
24B0164-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS2 Analyst: HAL	Sampled: 02/07/2024 14:15 Analyzed: 02/22/2024 20:17
Sample Preparation:	Preparation Method: REN - EPA 3010A M Preparation Batch: BMB0414 Prepared: 02/15/2024	Sample Size: 25 mL Final Volume: 25 mL Extract ID: 24B0164-06 A

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	20.7	mg/L	D
Manganese	7439-96-5	10	0.00500	0.858	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW81-0224
24B0164-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 02/07/2024 00:00
Instrument: NT20 Analyst: LN	Preparation Batch: BMB0356	Analyzed: 02/13/2024 17:51
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24B0164-07 B
	Final Volume: 10 mL	
Prepared: 02/13/2024		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>111</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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SPL-GW-MW81-0224
24B0164-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 02/07/2024 00:00
Instrument: NT16 Analyst: PAB	Analyzed: 02/09/2024 11:16
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24B0164-07 A
Preparation Batch: BMB0292	Sample Size: 10 mL
Prepared: 02/09/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>101</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMB0356 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMB0356-BLK1)					Prepared: 13-Feb-2024 Analyzed: 13-Feb-2024 09:44					
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.42		ug/L	5.00		108	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMB0356 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMB0356-BS1)					Prepared: 13-Feb-2024 Analyzed: 13-Feb-2024 08:58					
cis-1,2-Dichloroethene	9.74	0.20	ug/L	10.0		97.4	80-121			
Surrogate: 1,2-Dichloroethane-d4	4.97		ug/L	5.00		99.4	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMB0356 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMB0356-BSD1)					Prepared: 13-Feb-2024 Analyzed: 13-Feb-2024 09:21					
cis-1,2-Dichloroethene	9.85	0.20	ug/L	10.0		98.5	80-121	1.06	30	
Surrogate: 1,2-Dichloroethane-d4	5.06		ug/L	5.00		101	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMB0356 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMB0356-MS2)		Source: 24B0164-01		Prepared: 13-Feb-2024		Analyzed: 13-Feb-2024 18:14				
cis-1,2-Dichloroethene	8.16	0.20	ug/L	10.0	ND	79.8	80-121			*
Surrogate: 1,2-Dichloroethane-d4	5.05		ug/L	5.00	5.21	101	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMB0356 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMB0356-MSD2)		Source: 24B0164-01		Prepared: 13-Feb-2024		Analyzed: 13-Feb-2024 18:37				
cis-1,2-Dichloroethene	10.2	0.20	ug/L	10.0	ND	99.8	80-121	21.90	30	
Surrogate: 1,2-Dichloroethane-d4	5.15		ug/L	5.00	5.21	103	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMB0356 - EPA 8260D

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMB0292 - EPA 8260D-SIM

Instrument: NT16 Analyst: PAB

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMB0292-BLK1)				Prepared: 09-Feb-2024 Analyzed: 09-Feb-2024 10:01						
Vinyl chloride	ND	0.0200	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5080		ug/L	5000		102	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMB0292 - EPA 8260D-SIM

Instrument: NT16 Analyst: PAB

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMB0292-BS1)					Prepared: 09-Feb-2024 Analyzed: 09-Feb-2024 08:29					
Vinyl chloride	2.28	0.0200	ug/L	2.00		114	62-141			
Surrogate: 1,2-Dichloroethane-d4	5170		ug/L	5000		103	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMB0292 - EPA 8260D-SIM

Instrument: NT16 Analyst: PAB

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMB0292-BSD1)					Prepared: 09-Feb-2024 Analyzed: 09-Feb-2024 08:49					
Vinyl chloride	1.91	0.0200	ug/L	2.00		95.3	62-141	18.10	30	
Surrogate: 1,2-Dichloroethane-d4	5180		ug/L	5000		104	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMB0292 - EPA 8260D-SIM

Instrument: NT16 Analyst: PAB

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMB0292-MS1)		Source: 24B0164-01		Prepared: 09-Feb-2024		Analyzed: 09-Feb-2024 18:07				
Vinyl chloride	1.80	0.0200	ug/L	2.00	ND	90.1	62-141			
Surrogate: 1,2-Dichloroethane-d4	5370		ug/L	5000	5220	107	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMB0292 - EPA 8260D-SIM

Instrument: NT16 Analyst: PAB

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMB0292-MSD1)										
		Source: 24B0164-01		Prepared: 09-Feb-2024		Analyzed: 09-Feb-2024 18:27				
Vinyl chloride	1.79	0.0200	ug/L	2.00	ND	89.6	62-141	0.57	30	
Surrogate: 1,2-Dichloroethane-d4	5380		ug/L	5000	5220	108	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Feb-2024 10:30
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMB0292 - EPA 8260D-SIM

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMB0414 - EPA 6020B

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMB0414-BLK1)					Prepared: 15-Feb-2024 Analyzed: 22-Feb-2024 17:52						
Manganese	55	ND	0.000500	mg/L							U
LCS (BMB0414-BS1)					Prepared: 15-Feb-2024 Analyzed: 22-Feb-2024 17:57						
Manganese	55	0.0253	0.000500	mg/L	0.0250		101	80-120			
Duplicate (BMB0414-DUP2)					Source: 24B0164-01		Prepared: 15-Feb-2024 Analyzed: 26-Feb-2024 22:44				
Iron	54	1.11	0.180	mg/L		1.14			2.15	20	D
Manganese	55	0.128	0.00250	mg/L		0.130			1.18	20	D
Matrix Spike (BMB0414-MS2)					Source: 24B0164-01		Prepared: 15-Feb-2024 Analyzed: 26-Feb-2024 22:46				
Iron	54	5.44	0.180	mg/L	5.00	1.14	86.0	75-125			D
Manganese	55	0.148	0.00250	mg/L	0.0250	0.130	72.1	75-125			HC, D

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

Matrix Spike Dup (BMB0414-MSD2)					Source: 24B0164-01		Prepared: 15-Feb-2024 Analyzed: 26-Feb-2024 22:48				
Iron	54	5.05	0.180	mg/L	5.00	1.14	78.3	75-125	7.36	20	D
Manganese	55	0.142	0.00250	mg/L	0.0250	0.130	50.4	75-125	3.73	20	HC, D

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

Instrument: ICPMS2 Analyst: HAL

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMB0414-BLK2)					Prepared: 15-Feb-2024 Analyzed: 22-Feb-2024 20:29						
Iron	54	ND	0.0360	mg/L							U
LCS (BMB0414-BS2)					Prepared: 15-Feb-2024 Analyzed: 22-Feb-2024 20:31						
Iron	54	5.03	0.0360	mg/L	5.00		101	80-120			



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
28-Feb-2024 10:30

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
EPA 8260D in Water	
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
EPA 8260D-SIM in Water	
Vinyl chloride	NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2024
WADOE	WA Dept of Ecology	C558	06/30/2024
WA-DW	Ecology - Drinking Water	C558	06/30/2024



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
28-Feb-2024 10:30

Notes and Definitions

- * Flagged value is not within established control limits.
- D The reported value is from a dilution
- E The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
- HC The natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
- J Estimated concentration value detected below the reporting limit.
- 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.

2nd Quarter 2024



Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

22 May 2024

Min-Soon Yim
Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle, WA 98124-4018

RE: South Park Landfill -Parametrix Water (553-1550-067)

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)
24E0067

Associated SDG ID(s)
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 enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

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

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

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



Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number: 24E0067	Turn-around Requested: 2 weeks	Date: 5/2/2024
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: 1 of 2
Client Contact: Laura Lee	Phone: 206 394-3665	No. of Coolers: Coolers: Temps:

Client Project Name: SPU South Park Landfill					Analysis Requested										Notes/Comments			
Samplers: Chris Bourgeois HWA & Richard Anderson HWA					cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn											
Sample ID	Date	Time	Matrix	Number of Containers														
SPL-GW-MW12-0524	5/1/24	1355	water	7	X	X	X											
SPL-GW-MW14-0524	5/1/24	1535	water	13	X	X	X											MS/MSD
SPL-GW-MW29-0524	5/1/24	1720	water	7	X	X	X											
SPL-GW-MW18-0524	 	 	water	7	X	X	X											
SPL-GW-MW32-0524	5/1/24	1215	water	7	X	X	X											
SPL-GW-MW33-0524	5/1/24	1300	water	7	X	X	X											
SPL-GW-MW10-0524	5/1/24	1100	water	7	X	X	X											
SPL-GW-MW60-0524	5/1/24	1600	water	7	X	X	X											
SPL-GW-MW80-0524	5/1/24	—	water	2	X	X												
Comments/Special Instructions	Relinquished by: (Signature) <i>Chris Bourgeois</i>		Received by: (Signature) <i>Emma Stewart</i>		Relinquished by: (Signature)					Received by: (Signature)								
	Printed Name: Chris Bourgeois		Printed Name: Emma Stewart		Printed Name:					Printed Name:								
	Company: HWA		Company: ARI		Company:					Company:								
	Date & Time: 5/2/24		Date & Time: 5/2/24 08:27		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, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number: 24 E0067	Turn-around Requested: 2 weeks	Date: 5/2/2024
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: 2 of 2
Client Contact: Laura Lee, Parametrix	Phone: 206 394-3665	No. of Coolers: _____ Cooler Temps: _____

Client Project Name: SPU South Park Landfill					Analysis Requested										Notes/Comments			
Client Project #: 553-1550-067		Samplers: Chris Bourgeois HWA & Richard Anderson HWA			cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn											
Sample ID	Date	Time	Matrix	Number of Containers														
SPL-GW-MW25-0524	5/1/24	1000	water	7	X	X	X											
SPL-GW-MW30-0524			water	13	X	X	X											MS/MSD
SPL-GW-MW31-0524			water	7	X	X	X											
SPL-GW-MW24-0524			water	7	X	X	X											
SPL-GW-MW26-0524			water	7	X	X	X											
SPL-GW-MW08-0524			water	7	X	X	X											
SPL-GW-MW27-0524			water	7	X	X	X											
SPL-GW-MW61-0524			water	7	X	X	X											
SPL-GW-MW81-0524			water	2	X	X												
Comments/Special Instructions	Relinquished by: (Signature) <i>Chris Bourgeois</i>			Received by: (Signature) <i>Emma Stewart</i>			Relinquished by: (Signature)			Received by: (Signature)								
	Printed Name: <i>Chris Bourgeois</i>			Printed Name: <i>Emma Stewart</i>			Printed Name:			Printed Name:								
	Company: <i>HWA</i>			Company: <i>ARI</i>			Company:			Company:								
	Date & Time: <i>5/2/24</i>			Date & Time: <i>5/2/24 08:27</i>			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, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-1550-067
Project Manager: Min-Soon Yim

Reported:
22-May-2024 15:21

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SPL-GW-MW12-0524	24E0067-01	Water	01-May-2024 13:55	02-May-2024 08:27
SPL-GW-MW14-0524	24E0067-02	Water	01-May-2024 15:35	02-May-2024 08:27
SPL-GW-MW29-0524	24E0067-03	Water	01-May-2024 17:20	02-May-2024 08:27
SPL-GW-MW32-0524	24E0067-04	Water	01-May-2024 12:15	02-May-2024 08:27
SPL-GW-MW33-0524	24E0067-05	Water	01-May-2024 13:00	02-May-2024 08:27
SPL-GW-MW10-0524	24E0067-06	Water	01-May-2024 11:00	02-May-2024 08:27
SPL-GW-MW60-0524	24E0067-07	Water	01-May-2024 16:00	02-May-2024 08:27
SPL-GW-MW80-0524	24E0067-08	Water	01-May-2024 00:00	02-May-2024 08:27
SPL-GW-MW25-0524	24E0067-09	Water	01-May-2024 10:00	02-May-2024 08:27



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-1550-067
Project Manager: Min-Soon Yim

Reported:
22-May-2024 15:21

Work Order Case Narrative

Client: Seattle Public Utilities
Project: South Park Landfill
Work Order: 24E0067

Sample receipt

Samples as listed on the preceding page were received May 2, 2024 under ARI work order 24E0067. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits with the exception of analytes flagged on the associated forms.

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

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-1550-067
Project Manager: Min-Soon Yim

Reported:
22-May-2024 15:21

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

Total Metals - EPA Method 6020B

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

Initial and continuing calibrations including interference checks were within method requirements for reported elements.

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

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

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits with the exception of analytes flagged on the associated forms.



WORK ORDER

24E0067

Client: Seattle Public Utilities	Project Manager: Kelly Bottem
Project: South Park Landfill -Parametrix Water	Project Number: 553-155-067

Preservation Confirmation

Container ID	Container Type	pH
24E0067-01 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0067-01 B	VOA Vial, Clear, 40 mL	
24E0067-01 C	VOA Vial, Clear, 40 mL	
24E0067-01 D	VOA Vial, Clear, 40 mL	
24E0067-01 E	VOA Vial, Clear, 40 mL, HCL	
24E0067-01 F	VOA Vial, Clear, 40 mL, HCL	
24E0067-01 G	VOA Vial, Clear, 40 mL, HCL	
24E0067-02 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0067-02 B	VOA Vial, Clear, 40 mL	
24E0067-02 C	VOA Vial, Clear, 40 mL	
24E0067-02 D	VOA Vial, Clear, 40 mL	
24E0067-02 E	VOA Vial, Clear, 40 mL	
24E0067-02 F	VOA Vial, Clear, 40 mL	
24E0067-02 G	VOA Vial, Clear, 40 mL	
24E0067-02 H	VOA Vial, Clear, 40 mL, HCL	
24E0067-02 I	VOA Vial, Clear, 40 mL, HCL	
24E0067-02 J	VOA Vial, Clear, 40 mL, HCL	
24E0067-02 K	VOA Vial, Clear, 40 mL, HCL	
24E0067-02 L	VOA Vial, Clear, 40 mL, HCL	
24E0067-02 M	VOA Vial, Clear, 40 mL, HCL	
24E0067-03 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0067-03 B	VOA Vial, Clear, 40 mL	
24E0067-03 C	VOA Vial, Clear, 40 mL	
24E0067-03 D	VOA Vial, Clear, 40 mL	
24E0067-03 E	VOA Vial, Clear, 40 mL, HCL	
24E0067-03 F	VOA Vial, Clear, 40 mL, HCL	
24E0067-03 G	VOA Vial, Clear, 40 mL, HCL	
24E0067-04 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0067-04 B	VOA Vial, Clear, 40 mL	
24E0067-04 C	VOA Vial, Clear, 40 mL	
24E0067-04 D	VOA Vial, Clear, 40 mL	
24E0067-04 E	VOA Vial, Clear, 40 mL, HCL	



WORK ORDER

24E0067

Client: Seattle Public Utilities	Project Manager: Kelly Bottem
Project: South Park Landfill -Parametrix Water	Project Number: 553-155-067

24E0067-04 F	VOA Vial, Clear, 40 mL, HCL	
24E0067-04 G	VOA Vial, Clear, 40 mL, HCL	
24E0067-05 A	HDPE NM, 500 mL, 1:1 HNO3	C2 Pass
24E0067-05 B	VOA Vial, Clear, 40 mL	
24E0067-05 C	VOA Vial, Clear, 40 mL	
24E0067-05 D	VOA Vial, Clear, 40 mL	
24E0067-05 E	VOA Vial, Clear, 40 mL, HCL	
24E0067-05 F	VOA Vial, Clear, 40 mL, HCL	
24E0067-05 G	VOA Vial, Clear, 40 mL, HCL	
24E0067-06 A	HDPE NM, 500 mL, 1:1 HNO3	C2 Pass
24E0067-06 B	VOA Vial, Clear, 40 mL	
24E0067-06 C	VOA Vial, Clear, 40 mL	
24E0067-06 D	VOA Vial, Clear, 40 mL	
24E0067-06 E	VOA Vial, Clear, 40 mL, HCL	
24E0067-06 F	VOA Vial, Clear, 40 mL, HCL	
24E0067-06 G	VOA Vial, Clear, 40 mL, HCL	
24E0067-07 A	HDPE NM, 500 mL, 1:1 HNO3	C2 Pass
24E0067-07 B	VOA Vial, Clear, 40 mL	
24E0067-07 C	VOA Vial, Clear, 40 mL	
24E0067-07 D	VOA Vial, Clear, 40 mL	
24E0067-07 E	VOA Vial, Clear, 40 mL, HCL	
24E0067-07 F	VOA Vial, Clear, 40 mL, HCL	
24E0067-07 G	VOA Vial, Clear, 40 mL, HCL	
24E0067-08 A	VOA Vial, Clear, 40 mL	
24E0067-08 B	VOA Vial, Clear, 40 mL, HCL	
24E0067-09 A	HDPE NM, 500 mL, 1:1 HNO3	C2 Pass
24E0067-09 B	VOA Vial, Clear, 40 mL	
24E0067-09 C	VOA Vial, Clear, 40 mL	
24E0067-09 D	VOA Vial, Clear, 40 mL	
24E0067-09 E	VOA Vial, Clear, 40 mL, HCL	
24E0067-09 F	VOA Vial, Clear, 40 mL, HCL	
24E0067-09 G	VOA Vial, Clear, 40 mL, HCL	



WORK ORDER

24E0067

Client: Seattle Public Utilities	Project Manager: Kelly Bottem
Project: South Park Landfill -Parametrix Water	Project Number: 553-155-067

vD

Preservation Confirmed By

05/02/2024

Date



Cooler Receipt Form

ARI Client: SPU

Project Name: _____

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 24E0067

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 08²⁷ 2.9

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 9708

Cooler Accepted by: [Signature] Date: 5/2/24 Time: 08²⁷

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: VD Date: 05/02/2024 Time: 08:39 Labels checked by: _____

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

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

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW12-0524
24E0067-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 05/01/2024 13:55
Instrument: NT20 Analyst: LN Analyzed: 05/02/2024 11:00
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 24E0067-01 E
Preparation Batch: BME0063 Sample Size: 10 mL
Prepared: 05/02/2024 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.20	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	106	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW12-0524
24E0067-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 05/01/2024 13:55
Instrument: NT16 Analyst: EM	Analyzed: 05/03/2024 14:15
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0067-01 B
Preparation Batch: BME0116	Sample Size: 10 mL
Prepared: 05/03/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>99.1</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW12-0524
24E0067-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS2 Analyst: DOE	Sampled: 05/01/2024 13:55	Analyzed: 05/14/2024 14:47
Sample Preparation:	Preparation Method: REN - EPA 3010A M Preparation Batch: BME0317 Prepared: 05/13/2024	Sample Size: 25 mL Final Volume: 25 mL	Extract ID: 24E0067-01 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	2	0.0720	2.07	mg/L	D
Manganese	7439-96-5	2	0.00100	0.150	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW14-0524
24E0067-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 05/01/2024 15:35
Instrument: NT20 Analyst: LN	Preparation Batch: BME0063	Analyzed: 05/02/2024 11:23
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24E0067-02 H
	Final Volume: 10 mL	
Prepared: 05/02/2024		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	105	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW14-0524
24E0067-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 05/01/2024 15:35
Instrument: NT16 Analyst: EM	Analyzed: 05/03/2024 14:37
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0067-02 B
Preparation Batch: BME0116	Sample Size: 10 mL
Prepared: 05/03/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>100</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW14-0524
24E0067-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 05/01/2024 15:35	Analyzed: 05/16/2024 17:55
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BME0317	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 05/13/2024		Extract ID: 24E0067-02 A	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	3.49	mg/L	D
Manganese	7439-96-5	20	0.0100	0.791	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW29-0524
24E0067-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 05/01/2024 17:20
Instrument: NT20 Analyst: LN	Analyzed: 05/02/2024 11:47
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0067-03 E
Preparation Batch: BME0063	Sample Size: 10 mL
Prepared: 05/02/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>108</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW29-0524
24E0067-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 05/01/2024 17:20
Instrument: NT16 Analyst: EM	Analyzed: 05/03/2024 14:59
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0067-03 D
Preparation Batch: BME0116	Sample Size: 10 mL
Prepared: 05/03/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0909	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>103</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW29-0524
24E0067-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS2 Analyst: DOE	Sampled: 05/01/2024 17:20 Analyzed: 05/14/2024 14:24
Sample Preparation:	Preparation Method: REN - EPA 3010A M Preparation Batch: BME0317 Prepared: 05/13/2024	Sample Size: 25 mL Final Volume: 25 mL Extract ID: 24E0067-03 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	26.4	mg/L	D
Manganese	7439-96-5	10	0.00500	0.666	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW32-0524
24E0067-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 05/01/2024 12:15
Instrument: NT20 Analyst: LN	Preparation Batch: BME0063	Analyzed: 05/02/2024 12:10
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24E0067-04 E
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.57	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	108	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW32-0524
24E0067-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 05/01/2024 12:15
Instrument: NT16 Analyst: EM	Analyzed: 05/03/2024 15:22
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0067-04 B
Preparation Batch: BME0116	Sample Size: 10 mL
Prepared: 05/03/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.307	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>104</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW32-0524
24E0067-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS2	Analyst: DOE	Sampled: 05/01/2024 12:15	Analyzed: 05/14/2024 14:25
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BME0317	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 05/13/2024		Extract ID: 24E0067-04 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	12.8	mg/L	D
Manganese	7439-96-5	20	0.0100	1.25	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW33-0524
24E0067-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 05/01/2024 13:00
Instrument: NT20 Analyst: LN	Analyzed: 05/02/2024 12:33
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0067-05 E
Preparation Batch: BME0063	Sample Size: 10 mL
Prepared: 05/02/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	107	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW33-0524
24E0067-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 05/01/2024 13:00
Instrument: NT16 Analyst: EM	Analyzed: 05/03/2024 15:45
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0067-05 D
Preparation Batch: BME0116	Sample Size: 10 mL
Prepared: 05/03/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.130	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>103</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW33-0524
24E0067-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS2 Analyst: DOE	Sampled: 05/01/2024 13:00	Analyzed: 05/14/2024 14:27
Sample Preparation:	Preparation Method: REN - EPA 3010A M Preparation Batch: BME0317 Prepared: 05/13/2024	Sample Size: 25 mL Final Volume: 25 mL	Extract ID: 24E0067-05 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	16.4	mg/L	D
Manganese	7439-96-5	20	0.0100	1.76	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW10-0524
24E0067-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 05/01/2024 11:00
Instrument: NT20 Analyst: LN	Preparation Batch: BME0063	Analyzed: 05/02/2024 12:56
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24E0067-06 E
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.85	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	109	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW10-0524
24E0067-06 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 05/01/2024 11:00
Instrument: NT16 Analyst: EM	Analyzed: 05/03/2024 16:08
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0067-06 B
Preparation Batch: BME0116	Sample Size: 10 mL
Prepared: 05/03/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0966	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>103</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW10-0524
24E0067-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS2 Analyst: DOE	Sampled: 05/01/2024 11:00 Analyzed: 05/14/2024 14:43
Sample Preparation:	Preparation Method: REN - EPA 3010A M Preparation Batch: BME0317 Prepared: 05/13/2024	Sample Size: 25 mL Final Volume: 25 mL Extract ID: 24E0067-06 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	35.5	mg/L	D
Manganese	7439-96-5	50	0.0250	2.01	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW60-0524
24E0067-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 05/01/2024 16:00
Instrument: NT20 Analyst: LN	Preparation Batch: BME0063	Analyzed: 05/02/2024 13:19
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24E0067-07 E
	Final Volume: 10 mL	
Prepared: 05/02/2024		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	111	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW60-0524
24E0067-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 05/01/2024 16:00
Instrument: NT16 Analyst: EM	Analyzed: 05/03/2024 16:31
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0067-07 D
Preparation Batch: BME0116	Sample Size: 10 mL
Prepared: 05/03/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>102</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW60-0524
24E0067-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS2	Analyst: DOE	Sampled: 05/01/2024 16:00	Analyzed: 05/14/2024 14:44
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BME0317	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 05/13/2024		Extract ID: 24E0067-07 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	3.55	mg/L	D
Manganese	7439-96-5	50	0.0250	0.814	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW80-0524
24E0067-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 05/01/2024 00:00
Instrument: NT20 Analyst: LN	Preparation Batch: BME0063	Analyzed: 05/02/2024 13:43
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24E0067-08 B
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	113	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW80-0524
24E0067-08 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 05/01/2024 00:00
Instrument: NT16 Analyst: EM	Analyzed: 05/03/2024 16:53
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0067-08 A
Preparation Batch: BME0116	Sample Size: 10 mL
Prepared: 05/03/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>101</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW25-0524
24E0067-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 05/01/2024 10:00
Instrument: NT20 Analyst: LN	Preparation Batch: BME0063	Analyzed: 05/02/2024 14:06
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24E0067-09 E
	Final Volume: 10 mL	
Prepared: 05/02/2024		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.21	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	106	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW25-0524
24E0067-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 05/01/2024 10:00
Instrument: NT16 Analyst: EM	Analyzed: 05/03/2024 17:15
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0067-09 C
Preparation Batch: BME0116	Sample Size: 10 mL
Prepared: 05/03/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.386	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>105</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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SPL-GW-MW25-0524
24E0067-09 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS2 Analyst: DOE	Sampled: 05/01/2024 10:00 Analyzed: 05/14/2024 14:46
Sample Preparation:	Preparation Method: REN - EPA 3010A M Preparation Batch: BME0317 Prepared: 05/13/2024	Sample Size: 25 mL Final Volume: 25 mL Extract ID: 24E0067-09 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	34.9	mg/L	D
Manganese	7439-96-5	50	0.0250	2.85	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0063 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BME0063-BLK1)					Prepared: 02-May-2024 Analyzed: 02-May-2024 10:37					
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.49		ug/L	5.00		110	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0063 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BME0063-BS1)				Prepared: 02-May-2024 Analyzed: 02-May-2024 09:05						
cis-1,2-Dichloroethene	10.1	0.20	ug/L	10.0		101	80-121			
Surrogate: 1,2-Dichloroethane-d4	5.17		ug/L	5.00		103	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0063 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BME0063-BSD1)				Prepared: 02-May-2024 Analyzed: 02-May-2024 09:51						
cis-1,2-Dichloroethene	10.2	0.20	ug/L	10.0		102	80-121	0.82	30	
Surrogate: 1,2-Dichloroethane-d4	5.35		ug/L	5.00		107	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0063 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BME0063-MS1)		Source: 24E0067-02		Prepared: 02-May-2024		Analyzed: 02-May-2024 14:54				
cis-1,2-Dichloroethene	7.42	0.20	ug/L	10.0	ND	74.2	80-121			*
Surrogate: 1,2-Dichloroethane-d4	5.53		ug/L	5.00	5.25	111	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0063 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BME0063-MSD1)		Source: 24E0067-02		Prepared: 02-May-2024		Analyzed: 02-May-2024 15:17				
cis-1,2-Dichloroethene	7.03	0.20	ug/L	10.0	ND	70.3	80-121	5.43	30	*
Surrogate: 1,2-Dichloroethane-d4	5.33		ug/L	5.00	5.25	107	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BME0116-BLK1)					Prepared: 03-May-2024 Analyzed: 03-May-2024 13:08					
Vinyl chloride	ND	0.0200	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5050		ug/L	5000		101	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BME0116-BS1)					Prepared: 03-May-2024 Analyzed: 03-May-2024 12:24					
Vinyl chloride	1.84	0.0200	ug/L	2.00		91.8	62-141			
Surrogate: 1,2-Dichloroethane-d4	5130		ug/L	5000		103	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BME0116-BSD1)					Prepared: 03-May-2024 Analyzed: 03-May-2024 12:46					
Vinyl chloride	2.19	0.0200	ug/L	2.00		109	62-141	17.40	30	
Surrogate: 1,2-Dichloroethane-d4	5180		ug/L	5000		104	80-129			



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-1550-067
Project Manager: Min-Soon Yim

Reported:
22-May-2024 15:21

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BME0116-MS1)		Source: 24E0067-02		Prepared: 03-May-2024		Analyzed: 03-May-2024 20:49				
Vinyl chloride	1.96	0.0200	ug/L	2.00	ND	97.9	62-141			
Surrogate: 1,2-Dichloroethane-d4	5330		ug/L	5000	5000	107	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BME0116-MSD1)		Source: 24E0067-02		Prepared: 03-May-2024		Analyzed: 03-May-2024 21:09				
Vinyl chloride	1.96	0.0200	ug/L	2.00	ND	98.0	62-141	0.14	30	
Surrogate: 1,2-Dichloroethane-d4	5330		ug/L	5000	5000	107	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BME0317 - EPA 6020B

Instrument: ICPMS1 Analyst: HAL

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BME0317-BLK3)						Prepared: 13-May-2024 Analyzed: 16-May-2024 17:49					
Iron	54	ND	0.0360	mg/L							U
LCS (BME0317-BS3)						Prepared: 13-May-2024 Analyzed: 16-May-2024 17:52					
Iron	54	4.89	0.0360	mg/L	5.00		97.9	80-120			
Manganese	55	0.0253	0.000500	mg/L	0.0250		101	80-120			
Duplicate (BME0317-DUP2)						Source: 24E0067-02 Prepared: 13-May-2024 Analyzed: 16-May-2024 17:58					
Iron	54	3.65	0.720	mg/L		3.49			4.41	20	D
Manganese	55	0.834	0.0100	mg/L		0.791			5.33	20	D
Matrix Spike (BME0317-MS2)						Source: 24E0067-02 Prepared: 13-May-2024 Analyzed: 16-May-2024 18:01					
Iron	54	9.41	0.720	mg/L	5.00	3.49	118	75-125			D
Manganese	55	0.860	0.0100	mg/L	0.0250	0.791	279	75-125			*, D

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

Matrix Spike Dup (BME0317-MSD2)						Source: 24E0067-02 Prepared: 13-May-2024 Analyzed: 16-May-2024 18:04					
Iron	54	9.49	0.720	mg/L	5.00	3.49	120	75-125	0.86	20	D
Manganese	55	0.880	0.0100	mg/L	0.0250	0.791	357	75-125	2.26	20	*, D

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

Instrument: ICPMS2 Analyst: DOE

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BME0317-BLK2)						Prepared: 13-May-2024 Analyzed: 15-May-2024 14:12					
Manganese	55	ND	0.000500	mg/L							U
LCS (BME0317-BS2)						Prepared: 13-May-2024 Analyzed: 15-May-2024 14:16					
Manganese	55	0.0230	0.000500	mg/L	0.0250		92.1	80-120			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:21
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Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
EPA 8260D in Water	
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
EPA 8260D-SIM in Water	
Vinyl chloride	NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2024
WADOE	WA Dept of Ecology	C558	06/30/2024
WA-DW	Ecology - Drinking Water	C558	06/30/2024



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-1550-067
Project Manager: Min-Soon Yim

Reported:
22-May-2024 15:21

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.
- 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, LLC
Analytical Chemists and Consultants
Tukwila, WA

22 May 2024

Min-Soon Yim
Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle, WA 98124-4018

RE: South Park Landfill -Parametrix Water (553-1550-067)

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)
24E0106

Associated SDG ID(s)
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 enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

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

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

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





Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number: 24E0106	Turn-around Requested: 2 weeks	Date: 5/3/2024
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: 1 of 2
Client Contact: Laura Lee	Phone: 206 394-3665	No. of Coolers: _____ Temps: _____

Client Project Name: SPU South Park Landfill					Analysis Requested										Notes/Comments			
Samplers: Chris Bourgeois HWA & Richard Anderson HWA					cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn											
Sample ID	Date	Time	Matrix	Number of Containers														
SPL-GW-MW12-0524			water	7	X	X	X											
SPL-GW-MW14-0524			water	13	X	X	X											MS/MSD
SPL-GW-MW29-0524			water	7	X	X	X											
SPL-GW-MW18-0524	5/2/24	1140	water	7	X	X	X											
SPL-GW-MW32-0524			water	7	X	X	X											
SPL-GW-MW33-0524			water	7	X	X	X											
SPL-GW-MW10-0524			water	7	X	X	X											
SPL-GW-MW60-0524			water	7	X	X	X											
SPL-GW-MW80-0524			water	2	X	X												

Comments/Special Instructions	Relinquished by: (Signature) 	Received by: (Signature) 	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Richard Anderson	Printed Name: R. Leeseemann	Printed Name:	Printed Name:
	Company: HWA	Company: ARI	Company:	Company:
	Date & Time: 5/3/24 1005	Date & Time: 5-3-24 10:05	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, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.



Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number: 24E0106	Turn-around Requested: 2 weeks	Date: 5/3/24
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: 2 of 2
Client Contact: Laura Lee, Parametrix	Phone: 206 394-3665	No. of Coolers: _____ Coolers Temps: _____

Client Project Name: SPU South Park Landfill					Analysis Requested										Notes/Comments		
Client Project #: 553-1550-067		Samplers: Chris Bourgeois HWA & Richard Anderson HWA			cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn										
Sample ID	Date	Time	Matrix	Number of Containers													
SPL-GW-MW25-0524			water	7	X	X	X										
SPL-GW-MW30-0524	5/2/24	930	water	13	X	X	X										MS/MSD
SPL-GW-MW31-0524	5/2/24	1040	water	7	X	X	X										
SPL-GW-MW24-0524	5/2/24	1240	water	7	X	X	X										
SPL-GW-MW26-0524	5/2/24	1345	water	7	X	X	X										
SPL-GW-MW08-0524	5/3/24	810	water	7	X	X	X										
SPL-GW-MW27-0524	5/3/24	935	water	7	X	X	X										
SPL-GW-MW61-0524	5/2/24	1000	water	7	X	X	X										
SPL-GW-MW81-0524	5/3/24	—	water	2	X	X											

Comments/Special Instructions	Relinquished by: (Signature) 	Received by: (Signature) 	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Richard Anderson	Printed Name: R. Leeseemann	Printed Name:	Printed Name:
	Company: HWA	Company: ART	Company:	Company:
	Date & Time: 5/3/24 1005	Date & Time: 5-3-24 10:09	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, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-1550-067
Project Manager: Min-Soon Yim

Reported:
22-May-2024 15:31

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SPL-GW-MW18-0524	24E0106-01	Water	02-May-2024 11:40	03-May-2024 10:05
SPL-GW-MW30-0524	24E0106-02	Water	02-May-2024 09:30	03-May-2024 10:05
SPL-GW-MW31-0524	24E0106-03	Water	02-May-2024 10:40	03-May-2024 10:05
SPL-GW-MW24-0524	24E0106-04	Water	02-May-2024 12:40	03-May-2024 10:05
SPL-GW-MW26-0524	24E0106-05	Water	02-May-2024 13:45	03-May-2024 10:05
SPL-GW-MW08-0524	24E0106-06	Water	03-May-2024 08:10	03-May-2024 10:05
SPL-GW-MW27-0524	24E0106-07	Water	03-May-2024 09:35	03-May-2024 10:05
SPL-GW-MW61-0524	24E0106-08	Water	02-May-2024 10:00	03-May-2024 10:05
SPL-GW-MW81-0524	24E0106-09	Water	03-May-2024 00:00	03-May-2024 10:05



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-1550-067
Project Manager: Min-Soon Yim

Reported:
22-May-2024 15:31

Work Order Case Narrative

Client: Seattle Public Utilities
Project: South Park Landfill
Work Order: 24E0106

Sample receipt

Samples as listed on the preceding page were received May 3, 2024 under ARI work order 24E0106. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

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

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

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

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



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-1550-067
Project Manager: Min-Soon Yim

Reported:
22-May-2024 15:31

advisory control limits.

Total Metals - EPA Method 6020B

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

Initial and continuing calibrations including interference checks were within method requirements for reported elements.

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

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

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



WORK ORDER

24E0106

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Seattle Public Utilities

Project Manager: Kelly Bottem

Project: South Park Landfill -Parametrix Water

Project Number: 553-1550-067

Preservation Confirmation

Container ID	Container Type	pH
24E0106-01 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0106-01 B	VOA Vial, Clear, 40 mL	bubble
24E0106-01 C	VOA Vial, Clear, 40 mL	
24E0106-01 D	VOA Vial, Clear, 40 mL	
24E0106-01 E	VOA Vial, Clear, 40 mL, HCL	
24E0106-01 F	VOA Vial, Clear, 40 mL, HCL	
24E0106-01 G	VOA Vial, Clear, 40 mL, HCL	
24E0106-02 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0106-02 B	VOA Vial, Clear, 40 mL	
24E0106-02 C	VOA Vial, Clear, 40 mL	
24E0106-02 D	VOA Vial, Clear, 40 mL	
24E0106-02 E	VOA Vial, Clear, 40 mL	
24E0106-02 F	VOA Vial, Clear, 40 mL	
24E0106-02 G	VOA Vial, Clear, 40 mL	
24E0106-02 H	VOA Vial, Clear, 40 mL, HCL	
24E0106-02 I	VOA Vial, Clear, 40 mL, HCL	
24E0106-02 J	VOA Vial, Clear, 40 mL, HCL	
24E0106-02 K	VOA Vial, Clear, 40 mL, HCL	
24E0106-02 L	VOA Vial, Clear, 40 mL, HCL	
24E0106-02 M	VOA Vial, Clear, 40 mL, HCL	
24E0106-03 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0106-03 B	VOA Vial, Clear, 40 mL	
24E0106-03 C	VOA Vial, Clear, 40 mL	
24E0106-03 D	VOA Vial, Clear, 40 mL	
24E0106-03 E	VOA Vial, Clear, 40 mL, HCL	
24E0106-03 F	VOA Vial, Clear, 40 mL, HCL	
24E0106-03 G	VOA Vial, Clear, 40 mL, HCL	
24E0106-04 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 pass
24E0106-04 B	VOA Vial, Clear, 40 mL	
24E0106-04 C	VOA Vial, Clear, 40 mL	
24E0106-04 D	VOA Vial, Clear, 40 mL	
24E0106-04 E	VOA Vial, Clear, 40 mL, HCL	
24E0106-04 F	VOA Vial, Clear, 40 mL, HCL	
24E0106-04 G	VOA Vial, Clear, 40 mL, HCL	



WORK ORDER

24E0106

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Seattle Public Utilities	Project Manager: Kelly Bottem
Project: South Park Landfill -Parametrix Water	Project Number: 553-1550-067

24E0106-05 A	HDPE NM, 500 mL, 1:1 HNO3	C 2 pass
24E0106-05 B	VOA Vial, Clear, 40 mL	
24E0106-05 C	VOA Vial, Clear, 40 mL	
24E0106-05 D	VOA Vial, Clear, 40 mL	
24E0106-05 E	VOA Vial, Clear, 40 mL, HCL	
24E0106-05 F	VOA Vial, Clear, 40 mL, HCL	
24E0106-05 G	VOA Vial, Clear, 40 mL, HCL	
24E0106-06 A	HDPE NM, 500 mL, 1:1 HNO3	C 2 pass
24E0106-06 B	VOA Vial, Clear, 40 mL	
24E0106-06 C	VOA Vial, Clear, 40 mL	
24E0106-06 D	VOA Vial, Clear, 40 mL	
24E0106-06 E	VOA Vial, Clear, 40 mL, HCL	
24E0106-06 F	VOA Vial, Clear, 40 mL, HCL	
24E0106-06 G	VOA Vial, Clear, 40 mL, HCL	
24E0106-07 A	HDPE NM, 500 mL, 1:1 HNO3	C 2 pass
24E0106-07 B	VOA Vial, Clear, 40 mL	
24E0106-07 C	VOA Vial, Clear, 40 mL	
24E0106-07 D	VOA Vial, Clear, 40 mL	
24E0106-07 E	VOA Vial, Clear, 40 mL, HCL	
24E0106-07 F	VOA Vial, Clear, 40 mL, HCL	
24E0106-07 G	VOA Vial, Clear, 40 mL, HCL	
24E0106-08 A	HDPE NM, 500 mL, 1:1 HNO3	C 2 pass
24E0106-08 B	VOA Vial, Clear, 40 mL	
24E0106-08 C	VOA Vial, Clear, 40 mL	
24E0106-08 D	VOA Vial, Clear, 40 mL	
24E0106-08 E	VOA Vial, Clear, 40 mL, HCL	
24E0106-08 F	VOA Vial, Clear, 40 mL, HCL	
24E0106-08 G	VOA Vial, Clear, 40 mL, HCL	
24E0106-09 A	VOA Vial, Clear, 40 mL	
24E0106-09 B	VOA Vial, Clear, 40 mL, HCL	

VD

05/03/2024

Preservation Confirmed By

Date



Cooler Receipt Form

ARI Client: SPU SP Landfill
 COC No(s): C NA
 Assigned ARI Job No: 24E0106

Project Name: _____
 Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
 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 YES NO
 Were custody papers properly filled out (ink, signed, etc.) YES YES NO
 Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 10:05 1.7
 If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 04
 Cooler Accepted by: RL Date: 5-3-24 Time: 10:05

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: JD Date: 05/03/2024 Time: 10:41 Labels checked by: _____

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

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

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW18-0524
24E0106-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 05/02/2024 11:40
Instrument: NT20 Analyst: LN	Analyzed: 05/03/2024 12:39
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0106-01 G
Preparation Batch: BME0101	Sample Size: 10 mL
Prepared: 05/03/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	110	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW18-0524
24E0106-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 05/02/2024 11:40
Instrument: NT16 Analyst: EM	Analyzed: 05/03/2024 17:37
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0106-01 D
Preparation Batch: BME0116	Sample Size: 10 mL
Prepared: 05/03/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>102</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW18-0524
24E0106-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Sampled: 05/02/2024 11:40
Instrument: ICPMS1 Analyst: HAL	Analyzed: 05/16/2024 18:50
Sample Preparation: Preparation Method: REN - EPA 3010A M	Extract ID: 24E0106-01 A
Preparation Batch: BME0345	Sample Size: 25 mL
Prepared: 05/14/2024	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	12.3	mg/L	D
Manganese	7439-96-5	10	0.00500	0.683	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW30-0524
24E0106-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 05/02/2024 09:30
Instrument: NT20 Analyst: LN	Preparation Batch: BME0101	Analyzed: 05/03/2024 13:03
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24E0106-02 H
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.25	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	109	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW30-0524
24E0106-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 05/02/2024 09:30
Instrument: NT16 Analyst: EM	Analyzed: 05/03/2024 17:59
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0106-02 B
Preparation Batch: BME0116	Sample Size: 10 mL
Prepared: 05/03/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0827	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>103</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW30-0524
24E0106-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 05/02/2024 09:30	Analyzed: 05/14/2024 17:36
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BME0345	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 05/14/2024		Extract ID: 24E0106-02 A	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	0.539	mg/L	D
Manganese	7439-96-5	10	0.00500	0.0566	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW31-0524
24E0106-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 05/02/2024 10:40
Instrument: NT20 Analyst: LN	Preparation Batch: BME0101	Analyzed: 05/03/2024 13:27
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24E0106-03 E
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.32	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	111	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW31-0524
24E0106-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 05/02/2024 10:40
Instrument: NT16 Analyst: EM	Analyzed: 05/03/2024 18:21
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0106-03 B
Preparation Batch: BME0116	Sample Size: 10 mL
Prepared: 05/03/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.690	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>102</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW31-0524
24E0106-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Preparation Method: REN - EPA 3010A M	Sample Size: 25 mL	Sampled: 05/02/2024 10:40
Instrument: ICPMS1 Analyst: HAL	Preparation Batch: BME0345	Final Volume: 25 mL	Analyzed: 05/16/2024 18:53
Sample Preparation:	Prepared: 05/14/2024		Extract ID: 24E0106-03 A

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	18.7	mg/L	D
Manganese	7439-96-5	10	0.00500	0.775	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW24-0524
24E0106-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 05/02/2024 12:40
Instrument: NT20 Analyst: LN	Preparation Batch: BME0101	Analyzed: 05/03/2024 13:50
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24E0106-04 E
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	110	%	



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-1550-067
Project Manager: Min-Soon Yim

Reported:
22-May-2024 15:31

SPL-GW-MW24-0524
24E0106-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM Sampled: 05/02/2024 12:40
Instrument: NT16 Analyst: EM Analyzed: 05/03/2024 18:43

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 24E0106-04 B
Preparation Batch: BME0116 Sample Size: 10 mL
Prepared: 05/03/2024 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0272	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>102</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW24-0524
24E0106-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 05/02/2024 12:40	Analyzed: 05/16/2024 19:05
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BME0345	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 05/14/2024		Extract ID: 24E0106-04 A	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	25.1	mg/L	D
Manganese	7439-96-5	20	0.0100	1.49	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW26-0524
24E0106-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 05/02/2024 13:45
Instrument: NT20 Analyst: LN	Preparation Batch: BME0101	Analyzed: 05/03/2024 14:14
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24E0106-05 E
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.33	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	111	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW26-0524
24E0106-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 05/02/2024 13:45
Instrument: NT16 Analyst: EM	Analyzed: 05/03/2024 19:05
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0106-05 B
Preparation Batch: BME0116	Sample Size: 10 mL
Prepared: 05/03/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>102</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW26-0524
24E0106-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Preparation Method: REN - EPA 3010A M	Sample Size: 25 mL	Sampled: 05/02/2024 13:45
Instrument: ICPMS1 Analyst: HAL	Preparation Batch: BME0345	Final Volume: 25 mL	Analyzed: 05/16/2024 19:08
Sample Preparation:	Prepared: 05/14/2024		Extract ID: 24E0106-05 A

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	5	0.180	7.82	mg/L	D
Manganese	7439-96-5	5	0.00250	0.100	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW08-0524
24E0106-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 05/03/2024 08:10
Instrument: NT20 Analyst: LN	Preparation Batch: BME0101	Analyzed: 05/03/2024 14:38
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24E0106-06 E
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	112	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW08-0524
24E0106-06 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 05/03/2024 08:10
Instrument: NT16 Analyst: EM	Analyzed: 05/03/2024 19:26
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0106-06 B
Preparation Batch: BME0116	Sample Size: 10 mL
Prepared: 05/03/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0594	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>104</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW08-0524
24E0106-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Sampled: 05/03/2024 08:10
Instrument: ICPMS1 Analyst: HAL	Analyzed: 05/16/2024 18:56
Sample Preparation: Preparation Method: REN - EPA 3010A M	Extract ID: 24E0106-06 A
Preparation Batch: BME0345	Sample Size: 25 mL
Prepared: 05/14/2024	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	12.0	mg/L	D
Manganese	7439-96-5	10	0.00500	0.763	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW27-0524
24E0106-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 05/03/2024 09:35
Instrument: NT20 Analyst: LN	Preparation Batch: BME0101	Analyzed: 05/03/2024 15:02
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24E0106-07 E
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.21	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	114	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW27-0524
24E0106-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 05/03/2024 09:35
Instrument: NT16 Analyst: EM	Analyzed: 05/03/2024 19:47
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0106-07 B
Preparation Batch: BME0116	Sample Size: 10 mL
Prepared: 05/03/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0728	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>103</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW27-0524
24E0106-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Preparation Method: REN - EPA 3010A M	Sample Size: 25 mL	Sampled: 05/03/2024 09:35
Instrument: ICPMS1 Analyst: HAL	Preparation Batch: BME0345	Final Volume: 25 mL	Analyzed: 05/16/2024 18:59
Sample Preparation:	Prepared: 05/14/2024		Extract ID: 24E0106-07 A

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	2.74	mg/L	D
Manganese	7439-96-5	10	0.00500	0.146	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW61-0524
24E0106-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 05/02/2024 10:00
Instrument: NT20 Analyst: LN	Preparation Batch: BME0101	Analyzed: 05/03/2024 15:25
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24E0106-08 E
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.32	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	113	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW61-0524
24E0106-08 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 05/02/2024 10:00
Instrument: NT16 Analyst: EM	Analyzed: 05/03/2024 20:08
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0106-08 B
Preparation Batch: BME0116	Sample Size: 10 mL
Prepared: 05/03/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0849	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>103</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW61-0524
24E0106-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 05/02/2024 10:00	Analyzed: 05/16/2024 19:02
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BME0345	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 05/14/2024		Extract ID: 24E0106-08 A	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	0.563	mg/L	D
Manganese	7439-96-5	10	0.00500	0.0557	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW81-0524
24E0106-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 05/03/2024 00:00
Instrument: NT20 Analyst: LN	Preparation Batch: BME0101	Analyzed: 05/03/2024 15:49
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24E0106-09 B
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	114	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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SPL-GW-MW81-0524
24E0106-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 05/03/2024 00:00
Instrument: NT16 Analyst: EM	Analyzed: 05/03/2024 20:29
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24E0106-09 A
Preparation Batch: BME0116	Sample Size: 10 mL
Prepared: 05/03/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>102</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0101 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BME0101-BLK1)					Prepared: 03-May-2024 Analyzed: 03-May-2024 11:53					
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.39		ug/L	5.00		108	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0101 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BME0101-BS1)				Prepared: 03-May-2024 Analyzed: 03-May-2024 11:06						
cis-1,2-Dichloroethene	10.3	0.20	ug/L	10.0		103	80-121			
Surrogate: 1,2-Dichloroethane-d4	5.35		ug/L	5.00		107	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0101 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BME0101-BSD1)				Prepared: 03-May-2024 Analyzed: 03-May-2024 10:43						
cis-1,2-Dichloroethene	10.3	0.20	ug/L	10.0		103	80-121	0.43	30	
Surrogate: 1,2-Dichloroethane-d4	5.07		ug/L	5.00		101	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0101 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BME0101-MS1)		Source: 24E0106-02		Prepared: 03-May-2024		Analyzed: 03-May-2024 16:13				
cis-1,2-Dichloroethene	10.5	0.20	ug/L	10.0	0.25	103	80-121			
Surrogate: 1,2-Dichloroethane-d4	5.60		ug/L	5.00	5.43	112	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BME0101 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BME0101-MSD1)		Source: 24E0106-02		Prepared: 03-May-2024		Analyzed: 03-May-2024 16:37				
cis-1,2-Dichloroethene	10.4	0.20	ug/L	10.0	0.25	101	80-121	1.35	30	
Surrogate: 1,2-Dichloroethane-d4	5.40		ug/L	5.00	5.43	108	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BME0116-BLK1)					Prepared: 03-May-2024 Analyzed: 03-May-2024 13:08					
Vinyl chloride	ND	0.0200	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5050		ug/L	5000		101	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BME0116-BS1)					Prepared: 03-May-2024 Analyzed: 03-May-2024 12:24					
Vinyl chloride	1.84	0.0200	ug/L	2.00		91.8	62-141			
Surrogate: 1,2-Dichloroethane-d4	5130		ug/L	5000		103	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BME0116-BSD1)					Prepared: 03-May-2024 Analyzed: 03-May-2024 12:46					
Vinyl chloride	2.19	0.0200	ug/L	2.00		109	62-141	17.40	30	
Surrogate: 1,2-Dichloroethane-d4	5180		ug/L	5000		104	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BME0116-MS2)		Source: 24E0106-02		Prepared: 03-May-2024		Analyzed: 03-May-2024 21:30				
Vinyl chloride	2.15	0.0200	ug/L	2.00	0.0827	103	62-141			
Surrogate: 1,2-Dichloroethane-d4	5420		ug/L	5000	5170	108	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-1550-067 Project Manager: Min-Soon Yim	Reported: 22-May-2024 15:31
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BME0116 - EPA 8260D-SIM

Instrument: NT16 Analyst: EM

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BME0116-MSD2)		Source: 24E0106-02		Prepared: 03-May-2024		Analyzed: 03-May-2024 21:51				
Vinyl chloride	1.94	0.0200	ug/L	2.00	0.0827	92.8	62-141	10.40	30	
Surrogate: 1,2-Dichloroethane-d4	5340		ug/L	5000	5170	107	80-129			

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



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-1550-067
Project Manager: Min-Soon Yim

Reported:
22-May-2024 15:31

Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BME0345 - EPA 6020B

Instrument: ICPMS1 Analyst: HAL

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BME0345-BLK1)						Prepared: 14-May-2024 Analyzed: 14-May-2024 17:25					
Iron	54	ND	0.0360	mg/L							U
Manganese	55	ND	0.000500	mg/L							U
LCS (BME0345-BS1)						Prepared: 14-May-2024 Analyzed: 14-May-2024 17:30					
Iron	54	4.72	0.0360	mg/L	5.00		94.3	80-120			
Manganese	55	0.0260	0.000500	mg/L	0.0250		104	80-120			
Duplicate (BME0345-DUP1)						Source: 24E0106-02 Prepared: 14-May-2024 Analyzed: 14-May-2024 17:39					
Iron	54	0.558	0.360	mg/L		0.539			3.52	20	D
Manganese	55	0.0600	0.00500	mg/L		0.0566			5.68	20	D
Matrix Spike (BME0345-MS1)						Source: 24E0106-02 Prepared: 14-May-2024 Analyzed: 14-May-2024 17:42					
Iron	54	5.54	0.360	mg/L	5.00	0.539	100	75-125			D
Manganese	55	0.0830	0.00500	mg/L	0.0250	0.0566	105	75-125			D

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

Matrix Spike Dup (BME0345-MSD1)						Source: 24E0106-02 Prepared: 14-May-2024 Analyzed: 14-May-2024 17:45					
Iron	54	5.53	0.360	mg/L	5.00	0.539	99.9	75-125	0.19	20	D
Manganese	55	0.0818	0.00500	mg/L	0.0250	0.0566	101	75-125	1.46	20	D

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



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-1550-067
Project Manager: Min-Soon Yim

Reported:
22-May-2024 15:31

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
EPA 8260D in Water	
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
EPA 8260D-SIM in Water	
Vinyl chloride	NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2024
WADOE	WA Dept of Ecology	C558	06/30/2024
WA-DW	Ecology - Drinking Water	C558	06/30/2024



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-1550-067
Project Manager: Min-Soon Yim

Reported:
22-May-2024 15:31

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
- 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.
- 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.

3rd Quarter 2024



Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

26 August 2024

Min-Soon Yim
Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle, WA 98124-4018

RE: South Park Landfill -Parametrix Water (553-155-067)

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)
24H0113

Associated SDG ID(s)
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 enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

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

Analytical Resources, LLC

Kelly Bottem, Client Services Manager



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



Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number: 24H0113	Turn-around Requested: 2 weeks	Date: 8/6/24
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: of
Client Contact: Laura Lee	Phone: 206 394-3665	No. of Coolers: Cooler Temps: Temps:

Client Project Name: SPU South Park Landfill					Analysis Requested								Notes/Comments		
Samplers: Richard Anderson & Avril Fosbre HWA					Cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn								
Sample ID	Date	Time	Matrix	Number of Containers											
SPL-GW-MW12-0824			water	7	X	X	X								
SPL-GW-MW14-0824			water	7	X	X	X								
SPL-GW-MW29-0824			water	13	X	X	X								MS/MSD
SPL-GW-MW18-0824			water	7	X	X	X								
SPL-GW-MW32-0824			water	7	X	X	X								
SPL-GW-MW33-0824	8/6/24	1510	water	7	X	X	X								
SPL-GW-MW10-0824			water	7	X	X	X								
SPL-GW-MW60-0824			water	7	X	X	X								
SPL-GW-MW80-0824	8/6/24	1645	water	2	X	X									
Comments/Special Instructions	Relinquished by: (Signature) 		Received by: (Signature) 		Relinquished by: (Signature)			Received by: (Signature)							
	Printed Name: Richard Anderson		Printed Name: Savannah Wright		Printed Name:			Printed Name:							
	Company: HWA		Company: ARI		Company:			Company:							
	Date & Time: 8/6/24 1645		Date & Time: 8-6-24 16:36		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, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
26-Aug-2024 13:23

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SPL-GW-MW33-0824	24H0113-01	Water	06-Aug-2024 15:10	06-Aug-2024 16:36
SPL-GW-MW80-0824	24H0113-02	Water	06-Aug-2024 00:00	06-Aug-2024 16:36



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
26-Aug-2024 13:23

Work Order Case Narrative

Client: Seattle Public Utilities
Project: South Park Landfill
Work Order: 24H0113

Sample receipt

Samples as listed on the preceding page were received August 6, 2024 under ARI work order 24H0113. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

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

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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



Seattle Public Utilities

700-5th Ave, Ste 4900, Box 34018

Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water

Project Number: 553-155-067

Project Manager: Min-Soon Yim

Reported:

26-Aug-2024 13:23

Total Metals - EPA Method 6020B

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

Initial and continuing calibrations including interference checks were within method requirements for reported elements.

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

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



WORK ORDER

24H0113

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Seattle Public Utilities

Project Manager: Kelly Bottem

Project: South Park Landfill -Parametrix Water

Project Number: 553-155-067

Preservation Confirmation

Container ID	Container Type	pH
24H0113-01 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 Pass
24H0113-01 B	VOA Vial, Clear, 40 mL, HCL	
24H0113-01 C	VOA Vial, Clear, 40 mL, HCL	
24H0113-01 D	VOA Vial, Clear, 40 mL, HCL	
24H0113-01 E	VOA Vial, Clear, 40 mL	
24H0113-01 F	VOA Vial, Clear, 40 mL	
24H0113-01 G	VOA Vial, Clear, 40 mL	
24H0113-02 A	VOA Vial, Clear, 40 mL	
24H0113-02 B	VOA Vial, Clear, 40 mL, HCL	

RL
Preservation Confirmed By

8-7-24
Date



Cooler Receipt Form

ARI Client: Public Utility
 COC No(s): _____ (NA)
 Assigned ARI Job No: 24H0113

Project Name: _____
 Delivered by: Fed-Ex UPS Courier (Hand Delivered) Other: _____
 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) 8.5
 Time 16:36
 If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 9708
 Cooler Accepted by: JW Date: 8-6-24 Time: 16:36

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: RL Date: 8-7-24 Time: 08:01 Labels checked by: RL

**** 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:

No sample time on SPL-GW-MW80-0824.

By: _____ Date: _____



Cooler Temperature Compliance Form

ARI Work Order: <u>2440113</u>		
Cooler#:		Temperature(°C): <u>8.5</u>
Sample ID	Bottle Count	Bottle Type
<p style="font-size: 1.2em; color: blue;">Samples were above 6.0°C upon arrival</p>		
Cooler#:		Temperature(°C):
Sample ID	Bottle Count	Bottle Type
Cooler#:		Temperature(°C):
Sample ID	Bottle Count	Bottle Type
Cooler#:		Temperature(°C):
Sample ID	Bottle Count	Bottle Type
Cooler#:		Temperature(°C):
Sample ID	Bottle Count	Bottle Type

Completed by: SW Date: 8-6-24 Time: 16:36



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:23
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SPL-GW-MW33-0824
24H0113-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)		Sampled: 08/06/2024 15:10
Instrument: NT3 Analyst: LN	Preparation Batch: BMH0151	Sample Size: 10 mL	Analyzed: 08/08/2024 11:53
Sample Preparation:	Prepared: 08/08/2024	Final Volume: 10 mL	Extract ID: 24H0113-01 B

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	108	%	
<i>Surrogate: Toluene-d8</i>			80-120 %	99.3	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:23
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SPL-GW-MW33-0824
24H0113-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/06/2024 15:10
Instrument: NT16 Analyst: PKC	Analyzed: 08/12/2024 20:42
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0113-01 G
Preparation Batch: BMH0217	Sample Size: 10 mL
Prepared: 08/12/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.192	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	101	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:23
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SPL-GW-MW33-0824
24H0113-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: DOE	Sampled: 08/06/2024 15:10	Analyzed: 08/22/2024 21:18
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMH0376	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 08/20/2024		Extract ID: 24H0113-01 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	18.7	mg/L	D
Manganese	7439-96-5	50	0.0250	1.97	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:23
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SPL-GW-MW80-0824
24H0113-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 08/06/2024 00:00
Instrument: NT3 Analyst: LN	Analyzed: 08/08/2024 12:15
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0113-02 B
Preparation Batch: BMH0151	Sample Size: 10 mL
Prepared: 08/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>97.3</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:23
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SPL-GW-MW80-0824
24H0113-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/06/2024 00:00
Instrument: NT16 Analyst: PKC	Analyzed: 08/12/2024 20:18
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0113-02 A
Preparation Batch: BMH0217	Sample Size: 10 mL
Prepared: 08/12/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	99.1	%	



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
26-Aug-2024 13:23

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMH0151 - EPA 8260D

Instrument: NT3 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMH0151-BLK1)					Prepared: 08-Aug-2024 Analyzed: 08-Aug-2024 09:40					
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.05		ug/L	5.00		101	80-129			
Surrogate: Toluene-d8	4.88		ug/L	5.00		97.6	80-120			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:23
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMH0151 - EPA 8260D

Instrument: NT3 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMH0151-BS1)				Prepared: 08-Aug-2024 Analyzed: 08-Aug-2024 08:12						
cis-1,2-Dichloroethene	8.70	0.20	ug/L	10.0		87.0	80-121			
Surrogate: 1,2-Dichloroethane-d4	5.01		ug/L	5.00		100	80-129			
Surrogate: Toluene-d8	5.00		ug/L	5.00		99.9	80-120			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:23
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMH0151 - EPA 8260D

Instrument: NT3 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMH0151-BSD1)				Prepared: 08-Aug-2024 Analyzed: 08-Aug-2024 08:56						
cis-1,2-Dichloroethene	10.1	0.20	ug/L	10.0		101	80-121	14.80	30	
Surrogate: 1,2-Dichloroethane-d4	5.07		ug/L	5.00		101	80-129			
Surrogate: Toluene-d8	4.91		ug/L	5.00		98.2	80-120			



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
26-Aug-2024 13:23

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMH0217 - EPA 8260D-SIM

Instrument: NT16 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMH0217-BLK1)					Prepared: 12-Aug-2024 Analyzed: 12-Aug-2024 19:55					
Vinyl chloride	ND	0.0200	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4950		ug/L	5000		99.0	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:23
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMH0217 - EPA 8260D-SIM

Instrument: NT16 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMH0217-BS1)					Prepared: 12-Aug-2024 Analyzed: 12-Aug-2024 18:43					
Vinyl chloride	2.48	0.0200	ug/L	2.00		124	62-141			
Surrogate: 1,2-Dichloroethane-d4	5110		ug/L	5000		102	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:23
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMH0217 - EPA 8260D-SIM

Instrument: NT16 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMH0217-BSD1)					Prepared: 12-Aug-2024 Analyzed: 12-Aug-2024 19:08					
Vinyl chloride	2.42	0.0200	ug/L	2.00		121	62-141	2.29	30	
Surrogate: 1,2-Dichloroethane-d4	5100		ug/L	5000		102	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:23
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMH0376 - EPA 6020B

Instrument: ICPMS1 Analyst: DOE

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMH0376-BLK1)						Prepared: 20-Aug-2024 Analyzed: 22-Aug-2024 15:21					
Iron	54	ND	0.0360	mg/L							U
Manganese	55	ND	0.000500	mg/L							U
LCS (BMH0376-BS1)						Prepared: 20-Aug-2024 Analyzed: 22-Aug-2024 15:26					
Iron	54	4.66	0.0360	mg/L	5.00		93.1	80-120			
Manganese	55	0.0259	0.000500	mg/L	0.0250		103	80-120			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:23
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Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
EPA 8260D in Water	
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
EPA 8260D-SIM in Water	
Vinyl chloride	NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2025
WADOE	WA Dept of Ecology	C558	06/30/2025
WA-DW	Ecology - Drinking Water	C558	06/30/2025



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
26-Aug-2024 13:23

Notes and Definitions

- * Flagged value is not within established control limits.
- D The reported value is from a dilution
- 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.
- 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, LLC
Analytical Chemists and Consultants
Tukwila, WA

26 August 2024

Min-Soon Yim
Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle, WA 98124-4018

RE: South Park Landfill -Parametrix Water (553-155-067)

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)
24H0116

Associated SDG ID(s)
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 enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

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

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

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



Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number: <u>2440116</u>	Turn-around Requested: 2 weeks	Date: <u>8/6/24</u>
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: <u>2</u> of <u>2</u>
Client Contact: Laura Lee, Parametrix	Phone: 206 394-3665	No. of Coolers: _____ Coolers: _____
		Temp: _____ Temps: _____

Client Project Name: SPU South Park Landfill					Analysis Requested								Notes/Comments
Sample ID	Date	Time	Matrix	Number of Containers	cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn						
SPL-GW-MW25-0824			water	7	X	X	X						
SPL-GW-MW30-0824	8/6/24	1000	water	7 6	X	X	X						
SPL-GW-MW31-0824	8/6/24	0900	water	13	X	X	X						MS/MSD
SPL-GW-MW24-0824	8/6/24	1405	water	7	X	X	X						
SPL-GW-MW26-0824	8/6/24	1315	water	7	X	X	X						
SPL-GW-MW08-0824	8/6/24	1115	water	7	X	X	X						
SPL-GW-MW27-0824	8/6/24	1210	water	7	X	X	X						
SPL-GW-MW61-0824	8/6/24	0945	water	7	X	X	X						
SPL-GW-MW81-0824			water	2	X	X							

Comments/Special Instructions	Relinquished by: (Signature) <u>[Signature]</u>	Received by: (Signature) <u>[Signature]</u>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: <u>Richard Anderson</u>	Printed Name: <u>Savannah Wright</u>	Printed Name:	Printed Name:
	Company: <u>HWA</u>	Company: <u>Ari</u>	Company:	Company:
	Date & Time: <u>8/6/24 1645</u>	Date & Time: <u>8-6-24 16:36</u>	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, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
26-Aug-2024 13:25

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SPL-GW-MW30-0824	24H0116-01	Water	06-Aug-2024 10:00	06-Aug-2024 16:36
SPL-GW-MW31-0824	24H0116-02	Water	06-Aug-2024 09:00	06-Aug-2024 16:36
SPL-GW-MW24-0824	24H0116-03	Water	06-Aug-2024 14:05	06-Aug-2024 16:36
SPL-GW-MW26-0824	24H0116-04	Water	06-Aug-2024 13:15	06-Aug-2024 16:36
SPL-GW-MW08-0824	24H0116-05	Water	06-Aug-2024 11:15	06-Aug-2024 16:36
SPL-GW-MW27-0824	24H0116-06	Water	06-Aug-2024 12:10	06-Aug-2024 16:36
SPL-GW-MW61-0824	24H0116-07	Water	06-Aug-2024 09:45	06-Aug-2024 16:36



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
26-Aug-2024 13:25

Work Order Case Narrative

Client: Seattle Public Utilities
Project: South Park Landfill
Work Order: 24H0116

Sample receipt

Samples as listed on the preceding page were received August 6, 2024 under ARI work order 24H0116. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

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

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

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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



Seattle Public Utilities

700-5th Ave, Ste 4900, Box 34018

Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water

Project Number: 553-155-067

Project Manager: Min-Soon Yim

Reported:

26-Aug-2024 13:25

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

Total Metals - EPA Method 6020B

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

Initial and continuing calibrations including interference checks were within method requirements for reported elements.

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

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

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



WORK ORDER

24H0116

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Seattle Public Utilities

Project Manager: Kelly Bottem

Project: South Park Landfill -Parametrix Water

Project Number: 553-155-067

Preservation Confirmation

Container ID	Container Type	pH
24H0116-01 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 Pass
24H0116-01 B	VOA Vial, Clear, 40 mL, HCL	
24H0116-01 C	VOA Vial, Clear, 40 mL, HCL	
24H0116-01 D	VOA Vial, Clear, 40 mL	
24H0116-01 E	VOA Vial, Clear, 40 mL	
24H0116-01 F	VOA Vial, Clear, 40 mL	
24H0116-02 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 Pass
24H0116-02 B	VOA Vial, Clear, 40 mL, HCL	
24H0116-02 C	VOA Vial, Clear, 40 mL, HCL	
24H0116-02 D	VOA Vial, Clear, 40 mL, HCL	
24H0116-02 E	VOA Vial, Clear, 40 mL, HCL	
24H0116-02 F	VOA Vial, Clear, 40 mL, HCL	
24H0116-02 G	VOA Vial, Clear, 40 mL, HCL	
24H0116-02 H	VOA Vial, Clear, 40 mL	
24H0116-02 I	VOA Vial, Clear, 40 mL	
24H0116-02 J	VOA Vial, Clear, 40 mL	
24H0116-02 K	VOA Vial, Clear, 40 mL	
24H0116-02 L	VOA Vial, Clear, 40 mL	
24H0116-02 M	VOA Vial, Clear, 40 mL	
24H0116-03 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 Pass
24H0116-03 B	VOA Vial, Clear, 40 mL, HCL	
24H0116-03 C	VOA Vial, Clear, 40 mL, HCL	
24H0116-03 D	VOA Vial, Clear, 40 mL, HCL	
24H0116-03 E	VOA Vial, Clear, 40 mL	
24H0116-03 F	VOA Vial, Clear, 40 mL	
24H0116-03 G	VOA Vial, Clear, 40 mL	
24H0116-04 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 Pass
24H0116-04 B	VOA Vial, Clear, 40 mL, HCL	
24H0116-04 C	VOA Vial, Clear, 40 mL, HCL	
24H0116-04 D	VOA Vial, Clear, 40 mL, HCL	
24H0116-04 E	VOA Vial, Clear, 40 mL	
24H0116-04 F	VOA Vial, Clear, 40 mL	
24H0116-04 G	VOA Vial, Clear, 40 mL	
24H0116-05 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 Pass



WORK ORDER

24H0116

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Seattle Public Utilities

Project Manager: Kelly Bottem

Project: South Park Landfill -Parametrix Water

Project Number: 553-155-067

24H0116-05 B	VOA Vial, Clear, 40 mL, HCL
24H0116-05 C	VOA Vial, Clear, 40 mL, HCL
24H0116-05 D	VOA Vial, Clear, 40 mL, HCL
24H0116-05 E	VOA Vial, Clear, 40 mL
24H0116-05 F	VOA Vial, Clear, 40 mL
24H0116-05 G	VOA Vial, Clear, 40 mL
24H0116-06 A	HDPE NM, 500 mL, 1:1 HNO3 < 2 Pass
24H0116-06 B	VOA Vial, Clear, 40 mL, HCL
24H0116-06 C	VOA Vial, Clear, 40 mL, HCL
24H0116-06 D	VOA Vial, Clear, 40 mL, HCL
24H0116-06 E	VOA Vial, Clear, 40 mL
24H0116-06 F	VOA Vial, Clear, 40 mL
24H0116-06 G	VOA Vial, Clear, 40 mL
24H0116-07 A	HDPE NM, 500 mL, 1:1 HNO3 < 2 Pass
24H0116-07 B	VOA Vial, Clear, 40 mL, HCL
24H0116-07 C	VOA Vial, Clear, 40 mL, HCL
24H0116-07 D	VOA Vial, Clear, 40 mL, HCL
24H0116-07 E	VOA Vial, Clear, 40 mL
24H0116-07 F	VOA Vial, Clear, 40 mL
24H0116-07 G	VOA Vial, Clear, 40 mL

RL

Preservation Confirmed By

8-7-24

Date



Cooler Receipt Form

ARI Client: Public Utility
 COC No(s): _____ (NA)
 Assigned ARI Job No: 2440116

Project Name: _____
 Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
 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) 8.5

Time 16:36

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 9708

Cooler Accepted by: JW Date: 8-6-24 Time: 16:36

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: RL Date: 8-7-24 Time: 09:17 Labels checked by: RL

**** 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: _____



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW30-0824
24H0116-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 08/06/2024 10:00
Instrument: NT3 Analyst: LN	Analyzed: 08/08/2024 12:37
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0116-01 B
Preparation Batch: BMH0151	Sample Size: 10 mL
Prepared: 08/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.74	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	102	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW30-0824
24H0116-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/06/2024 10:00
Instrument: NT16 Analyst: PKC	Analyzed: 08/12/2024 21:04
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0116-01 F
Preparation Batch: BMH0217	Sample Size: 10 mL
Prepared: 08/12/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.232	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	101	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW30-0824
24H0116-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: DOE	Sampled: 08/06/2024 10:00	Analyzed: 08/22/2024 20:54
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMH0376	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 08/20/2024		Extract ID: 24H0116-01 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	5	0.180	3.65	mg/L	D
Manganese	7439-96-5	5	0.00250	0.155	mg/L	D



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
26-Aug-2024 13:25

SPL-GW-MW31-0824
24H0116-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 08/06/2024 09:00
Instrument: NT3 Analyst: LN	Preparation Batch: BMH0151	Analyzed: 08/08/2024 12:59
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24H0116-02 B
	Final Volume: 10 mL	
	Prepared: 08/08/2024	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.33	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>104</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW31-0824
24H0116-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/06/2024 09:00
Instrument: NT16 Analyst: PKC	Analyzed: 08/12/2024 21:27
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0116-02 K
Preparation Batch: BMH0217	Sample Size: 10 mL
Prepared: 08/12/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.741	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>100</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW31-0824
24H0116-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Sampled: 08/06/2024 09:00	
Instrument: ICPMS1 Analyst: DOE	Analyzed: 08/22/2024 19:14	
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Extract ID: 24H0116-02 A 01
	Preparation Batch: BMH0376	Sample Size: 25 mL
	Prepared: 08/20/2024	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	22.2	mg/L	D
Manganese	7439-96-5	50	0.0250	0.945	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW24-0824
24H0116-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 08/06/2024 14:05
Instrument: NT3 Analyst: LN	Preparation Batch: BMH0151	Analyzed: 08/08/2024 13:21
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24H0116-03 D
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>106</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW24-0824
24H0116-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/06/2024 14:05
Instrument: NT16 Analyst: PKC	Analyzed: 08/12/2024 21:50
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0116-03 F
Preparation Batch: BMH0217	Sample Size: 10 mL
Prepared: 08/12/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0501	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>101</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW24-0824
24H0116-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: DOE	Sampled: 08/06/2024 14:05	Analyzed: 08/22/2024 21:08
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMH0376	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 08/20/2024		Extract ID: 24H0116-03 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	30.3	mg/L	D
Manganese	7439-96-5	50	0.0250	1.92	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW26-0824
24H0116-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 08/06/2024 13:15
Instrument: NT3 Analyst: LN	Preparation Batch: BMH0151	Analyzed: 08/08/2024 13:43
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24H0116-04 D
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.22	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	100	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW26-0824
24H0116-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/06/2024 13:15
Instrument: NT16 Analyst: PKC	Analyzed: 08/12/2024 22:13
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0116-04 E
Preparation Batch: BMH0217	Sample Size: 10 mL
Prepared: 08/12/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>103</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW26-0824
24H0116-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: DOE	Sampled: 08/06/2024 13:15	Analyzed: 08/22/2024 20:59
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMH0376	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 08/20/2024		Extract ID: 24H0116-04 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	9.10	mg/L	D
Manganese	7439-96-5	10	0.00500	0.109	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW08-0824
24H0116-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 08/06/2024 11:15
Instrument: NT3 Analyst: LN	Preparation Batch: BMH0151	Analyzed: 08/08/2024 14:06
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24H0116-05 C
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>111</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW08-0824
24H0116-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/06/2024 11:15
Instrument: NT16 Analyst: PKC	Analyzed: 08/12/2024 22:36
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0116-05 F
Preparation Batch: BMH0217	Sample Size: 10 mL
Prepared: 08/12/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0613	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>101</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW08-0824
24H0116-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Preparation Method: REN - EPA 3010A M	Sample Size: 25 mL	Sampled: 08/06/2024 11:15
Instrument: ICPMS1 Analyst: DOE	Preparation Batch: BMH0376	Final Volume: 25 mL	Analyzed: 08/22/2024 21:13
Sample Preparation:	Prepared: 08/20/2024		Extract ID: 24H0116-05 A 01

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	15.2	mg/L	D
Manganese	7439-96-5	50	0.0250	0.916	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW27-0824
24H0116-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 08/06/2024 12:10
Instrument: NT3 Analyst: LN	Preparation Batch: BMH0151	Analyzed: 08/08/2024 14:28
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24H0116-06 B
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>107</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW27-0824
24H0116-06 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/06/2024 12:10
Instrument: NT16 Analyst: PKC	Analyzed: 08/12/2024 22:58
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0116-06 E
Preparation Batch: BMH0217	Sample Size: 10 mL
Prepared: 08/12/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0581	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>102</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW27-0824
24H0116-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Preparation Method: REN - EPA 3010A M	Sampled: 08/06/2024 12:10
Instrument: ICPMS1 Analyst: DOE	Preparation Batch: BMH0376	Analyzed: 08/22/2024 21:04
Sample Preparation:	Prepared: 08/20/2024	Extract ID: 24H0116-06 A 01
	Sample Size: 25 mL	
	Final Volume: 25 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	20.8	mg/L	D
Manganese	7439-96-5	10	0.00500	0.537	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW61-0824
24H0116-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 08/06/2024 09:45
Instrument: NT3 Analyst: LN	Preparation Batch: BMH0151	Analyzed: 08/08/2024 14:50
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24H0116-07 B
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.34	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>107</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW61-0824
24H0116-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/06/2024 09:45
Instrument: NT16 Analyst: PKC	Analyzed: 08/12/2024 23:21
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0116-07 E
Preparation Batch: BMH0217	Sample Size: 10 mL
Prepared: 08/12/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.793	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>102</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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SPL-GW-MW61-0824
24H0116-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: DOE	Sampled: 08/06/2024 09:45	Analyzed: 08/22/2024 19:58
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMH0376	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 08/20/2024		Extract ID: 24H0116-07 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	5	0.180	20.0	mg/L	D
Manganese	7439-96-5	5	0.00250	0.835	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMH0151 - EPA 8260D

Instrument: NT3 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMH0151-BLK1)					Prepared: 08-Aug-2024 Analyzed: 08-Aug-2024 09:40					
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.05		ug/L	5.00		101	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMH0151 - EPA 8260D

Instrument: NT3 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMH0151-BS1)					Prepared: 08-Aug-2024 Analyzed: 08-Aug-2024 08:12					
cis-1,2-Dichloroethene	8.70	0.20	ug/L	10.0		87.0	80-121			
Surrogate: 1,2-Dichloroethane-d4	5.01		ug/L	5.00		100	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMH0151 - EPA 8260D

Instrument: NT3 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMH0151-BSD1)				Prepared: 08-Aug-2024 Analyzed: 08-Aug-2024 08:56						
cis-1,2-Dichloroethene	10.1	0.20	ug/L	10.0		101	80-121	14.80	30	
Surrogate: 1,2-Dichloroethane-d4	5.07		ug/L	5.00		101	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMH0151 - EPA 8260D

Instrument: NT3 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMH0151-MS1)		Source: 24H0116-02		Prepared: 08-Aug-2024	Analyzed: 08-Aug-2024 15:44					
cis-1,2-Dichloroethene	9.14	0.20	ug/L	10.0	0.33	88.1	80-121			
Surrogate: 1,2-Dichloroethane-d4	5.38		ug/L	5.00	5.21	108	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMH0151 - EPA 8260D

Instrument: NT3 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMH0151-MSD1)		Source: 24H0116-02		Prepared: 08-Aug-2024		Analyzed: 08-Aug-2024 16:06				
cis-1,2-Dichloroethene	8.44	0.20	ug/L	10.0	0.33	81.2	80-121	7.92	30	
Surrogate: 1,2-Dichloroethane-d4	5.48		ug/L	5.00	5.21	110	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMH0217 - EPA 8260D-SIM

Instrument: NT16 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMH0217-BLK1)					Prepared: 12-Aug-2024 Analyzed: 12-Aug-2024 19:55					
Vinyl chloride	ND	0.0200	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4950		ug/L	5000		99.0	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMH0217 - EPA 8260D-SIM

Instrument: NT16 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMH0217-BS1)					Prepared: 12-Aug-2024 Analyzed: 12-Aug-2024 18:43					
Vinyl chloride	2.48	0.0200	ug/L	2.00		124	62-141			
Surrogate: 1,2-Dichloroethane-d4	5110		ug/L	5000		102	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMH0217 - EPA 8260D-SIM

Instrument: NT16 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMH0217-BSD1)					Prepared: 12-Aug-2024 Analyzed: 12-Aug-2024 19:08					
Vinyl chloride	2.42	0.0200	ug/L	2.00		121	62-141	2.29	30	
Surrogate: 1,2-Dichloroethane-d4	5100		ug/L	5000		102	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMH0217 - EPA 8260D-SIM

Instrument: NT16 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMH0217-MS1)		Source: 24H0116-02		Prepared: 12-Aug-2024		Analyzed: 12-Aug-2024 23:42				
Vinyl chloride	3.04	0.0200	ug/L	2.00	0.741	115	62-141			
Surrogate: 1,2-Dichloroethane-d4	5250		ug/L	5000	5000	105	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMH0217 - EPA 8260D-SIM

Instrument: NT16 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMH0217-MSD1)		Source: 24H0116-02		Prepared: 12-Aug-2024		Analyzed: 13-Aug-2024 00:04				
Vinyl chloride	3.19	0.0200	ug/L	2.00	0.741	122	62-141	4.86	30	
Surrogate: 1,2-Dichloroethane-d4	5290		ug/L	5000	5000	106	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 26-Aug-2024 13:25
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMH0376 - EPA 6020B

Instrument: ICPMS1 Analyst: DOE

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMH0376-BLK1)			Prepared: 20-Aug-2024 Analyzed: 22-Aug-2024 15:21								
Iron	54	ND	0.0360	mg/L							U
Manganese	55	ND	0.000500	mg/L							U
LCS (BMH0376-BS1)			Prepared: 20-Aug-2024 Analyzed: 22-Aug-2024 15:26								
Iron	54	4.66	0.0360	mg/L	5.00		93.1	80-120			
Manganese	55	0.0259	0.000500	mg/L	0.0250		103	80-120			
Duplicate (BMH0376-DUP1)			Source: 24H0116-02			Prepared: 20-Aug-2024 Analyzed: 22-Aug-2024 19:19					
Iron	54	23.5	1.80	mg/L		22.2			5.92	20	D
Manganese	55	0.996	0.0250	mg/L		0.945			5.22	20	D
Matrix Spike (BMH0376-MS1)			Source: 24H0116-02			Prepared: 20-Aug-2024 Analyzed: 22-Aug-2024 19:24					
Iron	54	28.9	1.80	mg/L	5.00	22.2	135	75-125			HC, D
Manganese	55	1.02	0.0250	mg/L	0.0250	0.945	313	75-125			HC, D

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

Matrix Spike Dup (BMH0376-MSD1)			Source: 24H0116-02			Prepared: 20-Aug-2024 Analyzed: 22-Aug-2024 19:28					
Iron	54	29.4	1.80	mg/L	5.00	22.2	144	75-125	1.53	20	HC, D
Manganese	55	1.03	0.0250	mg/L	0.0250	0.945	350	75-125	0.91	20	HC, D

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



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
26-Aug-2024 13:25

Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
EPA 8260D in Water	
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
EPA 8260D-SIM in Water	
Vinyl chloride	NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2025
WADOE	WA Dept of Ecology	C558	06/30/2025
WA-DW	Ecology - Drinking Water	C558	06/30/2025



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
26-Aug-2024 13:25

Notes and Definitions

- * Flagged value is not within established control limits.
- D The reported value is from a dilution
- 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.
- 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, LLC
Analytical Chemists and Consultants
Tukwila, WA

28 August 2024

Min-Soon Yim
Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle, WA 98124-4018

RE: South Park Landfill -Parametrix Water (553-155-067)

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)
24H0168

Associated SDG ID(s)
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 enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

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

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

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





Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number: 24H0168	Turn-around Requested: 2 weeks	Date: 8/7/24
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: 1 of 2
Client Contact: Laura Lee	Phone: 206 394-3665	No. of Coolers: 1 Cooler Temps: 500

Client Project Name: SPU South Park Landfill					Analysis Requested										Notes/Comments			
Samplers: Richard Anderson & Avril Fosbre HWA					cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn											
Sample ID	Date	Time	Matrix	Number of Containers														
SPL-GW-MW12-0824	8/7/24	945	water	7	X	X	X											
SPL-GW-MW14-0824	8/7/24	1045	water	7	X	X	X											
SPL-GW-MW29-0824	8/7/24	810	water	13	X	X	X											
SPL-GW-MW18-0824	8/7/24	810 655	water	7	X	X	X											MS/MSD
SPL-GW-MW32-0824	8/7/24	1210	water	7	X	X	X											
SPL-GW-MW33-0824			water	7	X	X	X											
SPL-GW-MW10-0824	8/7/24	1520	water	7	X	X	X											
SPL-GW-MW60-0824			water	7	X	X	X											
SPL-GW-MW80-0824			water	2	X	X												

Comments/Special Instructions	Relinquished by: (Signature) 	Received by: (Signature) 	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Richard Anderson	Printed Name: Matthew Deen	Printed Name:	Printed Name:
	Company: HWA	Company: ARCI	Company:	Company:
	Date & Time: 8/7/24 1631	Date & Time: 08/07/24 1631	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, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.



Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number: 24H0168	Turn-around Requested: 2 weeks	Date: 8/7/24
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: 2 of 2
Client Contact: Laura Lee, Parametrix	Phone: 206 394-3665	No. of Coolers: 1 Cooler Temps: 5.600

Client Project Name: SPU South Park Landfill					Analysis Requested										Notes/Comments		
Client Project #: 553-1550-067		Samplers: Richard Anderson & Avril Fosbre HWA			cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn										
Sample ID	Date	Time	Matrix	Number of Containers													
SPL-GW-MW25-0824	8/7/24	1330	water	7	X	X	X										
SPL-GW-MW30-0824			water	7	X	X	X										
SPL-GW-MW31-0824			water	13	X	X	X										MS/MSD
SPL-GW-MW24-0824			water	7	X	X	X										
SPL-GW-MW26-0824			water	7	X	X	X										
SPL-GW-MW08-0824			water	7	X	X	X										
SPL-GW-MW27-0824			water	7	X	X	X										
SPL-GW-MW61-0824			water	7	X	X	X										
SPL-GW-MW81-0824			water	2	X	X											

Comments/Special Instructions	Relinquished by: (Signature) 	Received by: (Signature) 	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Richard Anderson	Printed Name: Matt Deam	Printed Name:	Printed Name:
	Company: HWA	Company: ARICE	Company:	Company:
	Date & Time: 8/7/24 1631	Date & Time: 08/07/24 1631	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, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number:	Turn-around Requested: 2 weeks	Date: 8/7/24
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: 1 of 2
Client Contact: Laura Lee	Phone: 206 394-3665	No. of Coolers: 1 Cooler Temps: 500C

Client Project Name: SPU South Park Landfill					Analysis Requested								Notes/Comments		
Samplers: Richard Anderson & Avril Fosbre HWA					cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn								
Sample ID	Date	Time	Matrix	Number of Containers											
SPL-GW-MW12-0824	8/7/24	945	water	7	X	X	X								
SPL-GW-MW14-0824	8/7/24	1045	water	7	X	X	X								
SPL-GW-MW29-0824	8/7/24	810	water	13	X	X	X								MS/MSD
SPL-GW-MW18-0824	8/7/24	0655	water	7	X	X	X								
SPL-GW-MW32-0824	8/7/24	1210	water	7	X	X	X								
SPL-GW-MW33-0824			water	7	X	X	X								
SPL-GW-MW10-0824	8/7/24	1520	water	7	X	X	X								
SPL-GW-MW60-0824	8/7/24	840	water	7	X	X	X	(RA)							
SPL-GW-MW80-0824			water	2	X	X									
Comments/Special Instructions	Relinquished by: (Signature)		Received by: (Signature)			Relinquished by: (Signature)			Received by: (Signature)						
	Printed Name: Richard Anderson		Printed Name: Matthew Deane			Printed Name:			Printed Name:						
	Company: HWA		Company: ARCC			Company:			Company:						
	Date & Time: 8/7/24 1631		Date & Time: 08/07/24 (63)			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, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

COC amended to include additional samples
Please disregard strikeout on sample SPL-GW-MW60-0824



Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested: 2 weeks	Date: 8/7/24
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: 2 of 2
Client Contact: Laura Lee, Parametrix	Phone: 206 394-3665	No. of Coolers: 1 Cooler Temps: 5.60C

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

Client Project Name: SPU South Park Landfill	Analysis Requested	Notes/Comments
Client Project #: 553-1550-067	Samplers: Richard Anderson & Avril Fosbre HWA	

Sample ID	Date	Time	Matrix	Number of Containers	cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn											
SPL-GW-MW25-0824	8/7/24	1330	water	7	X	X	X											
SPL-GW-MW30-0824			water	7	X	X	X											
SPL-GW-MW31-0824			water	13	X	X	X											MS/MSD
SPL-GW-MW24-0824			water	7	X	X	X											
SPL-GW-MW26-0824			water	7	X	X	X											
SPL-GW-MW08-0824			water	7	X	X	X											
SPL-GW-MW27-0824			water	7	X	X	X											
SPL-GW-MW61-0824			water	7	X	X	X											
SPL-GW-MW81-0824	8/7/24	N/A	water	2	X	X	(RA)											

Comments/Special Instructions	Relinquished by: (Signature) 	Received by: (Signature) 	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Richard Anderson	Printed Name: Matthew Deam	Printed Name:	Printed Name:
	Company: HWA	Company: ARCC	Company:	Company:
	Date & Time: 8/7/24 1631	Date & Time: 08/07/24 1631	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, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

COC amended to include additional samples
Please disregard strikeout on sample SPL-GW-MW81-0824



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
28-Aug-2024 08:57

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SPL-GW-MW12-0824	24H0168-01	Water	07-Aug-2024 09:45	07-Aug-2024 16:31
SPL-GW-MW14-0824	24H0168-02	Water	07-Aug-2024 10:45	07-Aug-2024 16:31
SPL-GW-MW29-0824	24H0168-03	Water	07-Aug-2024 08:10	07-Aug-2024 16:31
SPL-GW-MW18-0824	24H0168-04	Water	07-Aug-2024 06:55	07-Aug-2024 16:31
SPL-GW-MW32-0824	24H0168-05	Water	07-Aug-2024 12:10	07-Aug-2024 16:31
SPL-GW-MW10-0824	24H0168-06	Water	07-Aug-2024 15:20	07-Aug-2024 16:31
SPL-GW-MW60-0824	24H0168-07	Water	07-Aug-2024 08:40	07-Aug-2024 16:31
SPL-GW-MW25-0824	24H0168-08	Water	07-Aug-2024 13:30	07-Aug-2024 16:31
SPL-GW-MW81-0824	24H0168-09	Water	07-Aug-2024 00:00	07-Aug-2024 16:31



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
28-Aug-2024 08:57

Work Order Case Narrative

Client: SEattle Public Utilities
Project: South Park Landfill
Work Order: 24H0168

Sample receipt

Samples as listed on the preceding page were received August 7, 2024 under ARI work order 24H0168. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits with the exception of analytes flagged on the associated forms.

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

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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



Seattle Public Utilities

700-5th Ave, Ste 4900, Box 34018

Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water

Project Number: 553-155-067

Project Manager: Min-Soon Yim

Reported:

28-Aug-2024 08:57

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

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

Total Metals - EPA Method 6020B

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

Initial and continuing calibrations including interference checks were within method requirements for reported elements.

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

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

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



WORK ORDER

24H0168

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Seattle Public Utilities

Project Manager: Kelly Bottem

Project: South Park Landfill -Parametrix Water

Project Number: 553-155-067

Preservation Confirmation

Container ID	Container Type	pH
24H0168-01 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 Pass
24H0168-01 B	VOA Vial, Clear, 40 mL, HCL	
24H0168-01 C	VOA Vial, Clear, 40 mL, HCL	
24H0168-01 D	VOA Vial, Clear, 40 mL, HCL	
24H0168-01 E	VOA Vial, Clear, 40 mL	
24H0168-01 F	VOA Vial, Clear, 40 mL	
24H0168-01 G	VOA Vial, Clear, 40 mL	
24H0168-02 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 Pass
24H0168-02 B	VOA Vial, Clear, 40 mL, HCL	
24H0168-02 C	VOA Vial, Clear, 40 mL, HCL	
24H0168-02 D	VOA Vial, Clear, 40 mL, HCL	
24H0168-02 E	VOA Vial, Clear, 40 mL	
24H0168-02 F	VOA Vial, Clear, 40 mL	
24H0168-02 G	VOA Vial, Clear, 40 mL	
24H0168-03 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 Pass
24H0168-03 B	VOA Vial, Clear, 40 mL, HCL	
24H0168-03 C	VOA Vial, Clear, 40 mL, HCL	
24H0168-03 D	VOA Vial, Clear, 40 mL, HCL	
24H0168-03 E	VOA Vial, Clear, 40 mL	
24H0168-03 F	VOA Vial, Clear, 40 mL	
24H0168-03 G	VOA Vial, Clear, 40 mL	
24H0168-03 H	VOA Vial, Clear, 40 mL	
24H0168-03 I	VOA Vial, Clear, 40 mL	
24H0168-03 J	VOA Vial, Clear, 40 mL	
24H0168-03 K	VOA Vial, Clear, 40 mL, HCL	
24H0168-03 L	VOA Vial, Clear, 40 mL, HCL	
24H0168-03 M	VOA Vial, Clear, 40 mL, HCL	
24H0168-04 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 Pass
24H0168-04 B	VOA Vial, Clear, 40 mL, HCL	
24H0168-04 C	VOA Vial, Clear, 40 mL, HCL	
24H0168-04 D	VOA Vial, Clear, 40 mL, HCL	
24H0168-04 E	VOA Vial, Clear, 40 mL	
24H0168-04 F	VOA Vial, Clear, 40 mL	
24H0168-04 G	VOA Vial, Clear, 40 mL	



WORK ORDER

24H0168

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Seattle Public Utilities	Project Manager: Kelly Bottem
Project: South Park Landfill -Parametrix Water	Project Number: 553-155-067

24H0168-05 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 Pass
24H0168-05 B	VOA Vial, Clear, 40 mL, HCL	
24H0168-05 C	VOA Vial, Clear, 40 mL, HCL	
24H0168-05 D	VOA Vial, Clear, 40 mL, HCL	
24H0168-05 E	VOA Vial, Clear, 40 mL	
24H0168-05 F	VOA Vial, Clear, 40 mL	
24H0168-05 G	VOA Vial, Clear, 40 mL	
24H0168-06 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 Pass
24H0168-06 B	VOA Vial, Clear, 40 mL, HCL	
24H0168-06 C	VOA Vial, Clear, 40 mL, HCL	
24H0168-06 D	VOA Vial, Clear, 40 mL, HCL	
24H0168-06 E	VOA Vial, Clear, 40 mL	
24H0168-06 F	VOA Vial, Clear, 40 mL	
24H0168-06 G	VOA Vial, Clear, 40 mL	
24H0168-07 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 Pass
24H0168-07 B	VOA Vial, Clear, 40 mL, HCL	
24H0168-07 C	VOA Vial, Clear, 40 mL, HCL	
24H0168-07 D	VOA Vial, Clear, 40 mL, HCL	
24H0168-07 E	VOA Vial, Clear, 40 mL	
24H0168-07 F	VOA Vial, Clear, 40 mL	
24H0168-07 G	VOA Vial, Clear, 40 mL	
24H0168-08 A	HDPE NM, 500 mL, 1:1 HNO3	< 2 Pass
24H0168-08 B	VOA Vial, Clear, 40 mL, HCL	
24H0168-08 C	VOA Vial, Clear, 40 mL, HCL	
24H0168-08 D	VOA Vial, Clear, 40 mL, HCL	
24H0168-08 E	VOA Vial, Clear, 40 mL	
24H0168-08 F	VOA Vial, Clear, 40 mL	
24H0168-08 G	VOA Vial, Clear, 40 mL	
24H0168-09 A	VOA Vial, Clear, 40 mL, HCL	
24H0168-09 B	VOA Vial, Clear, 40 mL	

RL
Preservation Confirmed By

8-8-24
Date



Cooler Receipt Form

ARI Client: Seattle Public Utility

Project Name: South Park Landfill

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 24H0168

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 16:31 5.6 _____

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: J009708

Cooler Accepted by: RL for MD Date: 8-7-24 Time: 1631

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: RL Date: 8-8-24 Time: 14:19 Labels checked by: RL

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

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

Additional Notes, Discrepancies, & Resolutions:

- Samples MW60 and MW81 were both received, but crossed out on COC. Client notified, and samples were not intended to be lined through.

By: RL Date: 8/8/24



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW12-0824
24H0168-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 08/07/2024 09:45
Instrument: NT3 Analyst: LN	Analyzed: 08/12/2024 14:23
Sample Preparation:	Preparation Method: EPA 5030C (Purge and Trap)
	Preparation Batch: BMH0210
	Sample Size: 10 mL
	Final Volume: 10 mL
	Extract ID: 24H0168-01 B

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	104	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW12-0824
24H0168-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/07/2024 09:45
Instrument: NT16 Analyst: PKC	Analyzed: 08/13/2024 12:41
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0168-01 E
Preparation Batch: BMH0243	Sample Size: 10 mL
Prepared: 08/13/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>99.0</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW12-0824
24H0168-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Sampled: 08/07/2024 09:45	
Instrument: ICPMS1 Analyst: DOE	Analyzed: 08/26/2024 16:45	
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Extract ID: 24H0168-01 A 01
	Preparation Batch: BMH0417	Sample Size: 25 mL
	Prepared: 08/21/2024	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	4	0.144	0.228	mg/L	D
Manganese	7439-96-5	4	0.00200	0.0290	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW14-0824
24H0168-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 08/07/2024 10:45
Instrument: NT3 Analyst: LN	Preparation Batch: BMH0210	Analyzed: 08/12/2024 14:45
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24H0168-02 B
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>109</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW14-0824
24H0168-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/07/2024 10:45
Instrument: NT16 Analyst: PKC	Analyzed: 08/13/2024 13:04
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0168-02 F
Preparation Batch: BMH0243	Sample Size: 10 mL
Prepared: 08/13/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>102</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW14-0824
24H0168-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: DOE	Sampled: 08/07/2024 10:45	Analyzed: 08/22/2024 21:27
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMH0417	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 08/21/2024		Extract ID: 24H0168-02 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	5.05	mg/L	D
Manganese	7439-96-5	10	0.00500	0.929	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW29-0824
24H0168-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 08/07/2024 08:10
Instrument: NT3 Analyst: LN	Preparation Batch: BMH0239	Analyzed: 08/13/2024 17:25
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24H0168-03 K
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>113</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW29-0824
24H0168-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/07/2024 08:10
Instrument: NT16 Analyst: PKC	Analyzed: 08/13/2024 13:27
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0168-03 G
Preparation Batch: BMH0243	Sample Size: 10 mL
Prepared: 08/13/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>102</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW29-0824
24H0168-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: DOE	Sampled: 08/07/2024 08:10	Analyzed: 08/22/2024 18:05
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMH0417	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 08/21/2024		Extract ID: 24H0168-03 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	21.4	mg/L	D
Manganese	7439-96-5	20	0.0100	0.636	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW18-0824
24H0168-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 08/07/2024 06:55
Instrument: NT3 Analyst: LN	Preparation Batch: BMH0210	Analyzed: 08/12/2024 15:29
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24H0168-04 B
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>110</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW18-0824
24H0168-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/07/2024 06:55
Instrument: NT16 Analyst: PKC	Analyzed: 08/13/2024 13:52
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0168-04 E
Preparation Batch: BMH0243	Sample Size: 10 mL
Prepared: 08/13/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0205	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>103</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW18-0824
24H0168-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: DOE	Sampled: 08/07/2024 06:55	Analyzed: 08/22/2024 21:54
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMH0417	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 08/21/2024		Extract ID: 24H0168-04 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	14.9	mg/L	D
Manganese	7439-96-5	20	0.0100	0.820	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW32-0824
24H0168-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 08/07/2024 12:10
Instrument: NT3 Analyst: LN	Preparation Batch: BMH0210	Analyzed: 08/12/2024 15:52
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24H0168-05 B
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.36	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	114	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW32-0824
24H0168-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/07/2024 12:10
Instrument: NT16 Analyst: PKC	Analyzed: 08/13/2024 14:17
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0168-05 F
Preparation Batch: BMH0243	Sample Size: 10 mL
Prepared: 08/13/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.306	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>104</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW32-0824
24H0168-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: DOE	Sampled: 08/07/2024 12:10	Analyzed: 08/22/2024 21:59
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMH0417	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 08/21/2024		Extract ID: 24H0168-05 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	16.1	mg/L	D
Manganese	7439-96-5	20	0.0100	1.33	mg/L	D



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
28-Aug-2024 08:57

SPL-GW-MW10-0824
24H0168-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D Sampled: 08/07/2024 15:20
Instrument: NT3 Analyst: LN Analyzed: 08/12/2024 16:14
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) Extract ID: 24H0168-06 B
Preparation Batch: BMH0210 Sample Size: 10 mL
Prepared: 08/12/2024 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.53	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>110</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW10-0824
24H0168-06 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/07/2024 15:20
Instrument: NT16 Analyst: PKC	Analyzed: 08/13/2024 14:41
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0168-06 E
Preparation Batch: BMH0243	Sample Size: 10 mL
Prepared: 08/13/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0802	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>105</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW10-0824
24H0168-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: DOE	Sampled: 08/07/2024 15:20	Analyzed: 08/22/2024 22:03
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMH0417	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 08/21/2024		Extract ID: 24H0168-06 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	37.7	mg/L	D
Manganese	7439-96-5	20	0.0100	2.15	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW60-0824
24H0168-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 08/07/2024 08:40
Instrument: NT3 Analyst: LN	Preparation Batch: BMH0210	Analyzed: 08/12/2024 16:36
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24H0168-07 B
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	116	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW60-0824
24H0168-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/07/2024 08:40
Instrument: NT16 Analyst: PKC	Analyzed: 08/13/2024 15:03
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0168-07 E
Preparation Batch: BMH0243	Sample Size: 10 mL
Prepared: 08/13/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.126	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>103</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW60-0824
24H0168-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: DOE	Sampled: 08/07/2024 08:40	Analyzed: 08/22/2024 21:32
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMH0417	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 08/21/2024		Extract ID: 24H0168-07 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	21.8	mg/L	D
Manganese	7439-96-5	10	0.00500	0.593	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW25-0824
24H0168-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 08/07/2024 13:30
Instrument: NT3 Analyst: LN	Preparation Batch: BMH0210	Analyzed: 08/12/2024 16:58
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24H0168-08 B
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>109</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW25-0824
24H0168-08 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/07/2024 13:30
Instrument: NT16 Analyst: PKC	Analyzed: 08/13/2024 15:26
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0168-08 E
Preparation Batch: BMH0243	Sample Size: 10 mL
Prepared: 08/13/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.249	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>105</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW25-0824
24H0168-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: DOE	Sampled: 08/07/2024 13:30	Analyzed: 08/22/2024 22:08
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMH0417	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 08/21/2024		Extract ID: 24H0168-08 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	35.4	mg/L	D
Manganese	7439-96-5	20	0.0100	2.87	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW81-0824
24H0168-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 08/07/2024 00:00
Instrument: NT3 Analyst: LN	Preparation Batch: BMH0210	Analyzed: 08/12/2024 17:20
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24H0168-09 A
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>99.8</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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SPL-GW-MW81-0824
24H0168-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 08/07/2024 00:00
Instrument: NT16 Analyst: PKC	Analyzed: 08/13/2024 15:49
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24H0168-09 B
Preparation Batch: BMH0243	Sample Size: 10 mL
Prepared: 08/13/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>102</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMH0210 - EPA 8260D

Instrument: NT3 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMH0210-BLK1)					Prepared: 12-Aug-2024 Analyzed: 12-Aug-2024 09:50					
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.93		ug/L	5.00		98.5	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMH0210 - EPA 8260D

Instrument: NT3 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMH0210-BS1)				Prepared: 12-Aug-2024 Analyzed: 12-Aug-2024 08:44						
cis-1,2-Dichloroethene	9.84	0.20	ug/L	10.0		98.4	80-121			
Surrogate: 1,2-Dichloroethane-d4	4.82		ug/L	5.00		96.4	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMH0210 - EPA 8260D

Instrument: NT3 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMH0210-BSD1)				Prepared: 12-Aug-2024 Analyzed: 12-Aug-2024 09:06						
cis-1,2-Dichloroethene	10.4	0.20	ug/L	10.0		104	80-121	5.69	30	
Surrogate: 1,2-Dichloroethane-d4	4.96		ug/L	5.00		99.2	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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Volatile Organic Compounds - Quality Control

Batch BMH0239 - EPA 8260D

Instrument: NT3 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMH0239-BLK1)				Prepared: 13-Aug-2024 Analyzed: 13-Aug-2024 10:00						
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.81		ug/L	5.00		96.2	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMH0239 - EPA 8260D

Instrument: NT3 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMH0239-BS1)				Prepared: 13-Aug-2024 Analyzed: 13-Aug-2024 08:54						
cis-1,2-Dichloroethene	8.88	0.20	ug/L	10.0		88.8	80-121			
Surrogate: 1,2-Dichloroethane-d4	4.72		ug/L	5.00		94.5	80-129			



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
28-Aug-2024 08:57

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMH0239 - EPA 8260D

Instrument: NT3 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMH0239-BSD1)					Prepared: 13-Aug-2024 Analyzed: 13-Aug-2024 09:16					
cis-1,2-Dichloroethene	9.45	0.20	ug/L	10.0		94.5	80-121	6.29	30	
Surrogate: 1,2-Dichloroethane-d4	4.84		ug/L	5.00		96.8	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMH0239 - EPA 8260D

Instrument: NT3 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMH0239-MS2)		Source: 24H0168-03		Prepared: 13-Aug-2024		Analyzed: 13-Aug-2024 18:31				
cis-1,2-Dichloroethene	6.87	0.20	ug/L	10.0	ND	68.7	80-121			*
Surrogate: 1,2-Dichloroethane-d4	5.51		ug/L	5.00	5.63	110	80-129			

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



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
28-Aug-2024 08:57

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMH0239 - EPA 8260D

Instrument: NT3 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMH0239-MSD2)		Source: 24H0168-03		Prepared: 13-Aug-2024		Analyzed: 13-Aug-2024 18:54				
cis-1,2-Dichloroethene	7.51	0.20	ug/L	10.0	ND	75.1	80-121	8.91	30	*
Surrogate: 1,2-Dichloroethane-d4	5.35		ug/L	5.00	5.63	107	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMH0243 - EPA 8260D-SIM

Instrument: NT16 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMH0243-BLK1)					Prepared: 13-Aug-2024 Analyzed: 13-Aug-2024 11:27					
Vinyl chloride	ND	0.0200	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5040		ug/L	5000		101	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMH0243 - EPA 8260D-SIM

Instrument: NT16 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMH0243-BS1)					Prepared: 13-Aug-2024 Analyzed: 13-Aug-2024 10:42					
Vinyl chloride	2.21	0.0200	ug/L	2.00		111	62-141			
Surrogate: 1,2-Dichloroethane-d4	5260		ug/L	5000		105	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMH0243 - EPA 8260D-SIM

Instrument: NT16 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMH0243-BSD1)					Prepared: 13-Aug-2024 Analyzed: 13-Aug-2024 11:05					
Vinyl chloride	2.20	0.0200	ug/L	2.00		110	62-141	0.59	30	
Surrogate: 1,2-Dichloroethane-d4	5210		ug/L	5000		104	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMH0243 - EPA 8260D-SIM

Instrument: NT16 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMH0243-MS1)		Source: 24H0168-03		Prepared: 13-Aug-2024		Analyzed: 13-Aug-2024 20:01				
Vinyl chloride	2.75	0.0200	ug/L	2.00	ND	138	62-141			
Surrogate: 1,2-Dichloroethane-d4	4620		ug/L	5000	5110	92.3	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMH0243 - EPA 8260D-SIM

Instrument: NT16 Analyst: PKC

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMH0243-MSD1)		Source: 24H0168-03		Prepared: 13-Aug-2024		Analyzed: 13-Aug-2024 20:25				
Vinyl chloride	2.63	0.0200	ug/L	2.00	ND	132	62-141	4.47	30	
Surrogate: 1,2-Dichloroethane-d4	4700		ug/L	5000	5110	93.9	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMH0417 - EPA 6020B

Instrument: ICPMS1 Analyst: DOE

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMH0417-BLK1)			Prepared: 21-Aug-2024 Analyzed: 22-Aug-2024 13:49								
Iron	54	ND	0.0360	mg/L							U
Manganese	55	ND	0.000500	mg/L							U
LCS (BMH0417-BS1)			Prepared: 21-Aug-2024 Analyzed: 22-Aug-2024 13:54								
Iron	54	4.55	0.0360	mg/L	5.00		91.0	80-120			
Manganese	55	0.0260	0.000500	mg/L	0.0250		104	80-120			
Duplicate (BMH0417-DUP1)			Source: 24H0168-03			Prepared: 21-Aug-2024 Analyzed: 22-Aug-2024 18:10					
Iron	54	21.0	0.720	mg/L		21.4			1.84	20	D
Manganese	55	0.625	0.0100	mg/L		0.636			1.76	20	D
Matrix Spike (BMH0417-MS1)			Source: 24H0168-03			Prepared: 21-Aug-2024 Analyzed: 22-Aug-2024 18:14					
Iron	54	26.2	0.720	mg/L	5.00	21.4	95.8	75-125			D
Manganese	55	0.659	0.0100	mg/L	0.0250	0.636	92.1	75-125			D

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

Matrix Spike Dup (BMH0417-MSD1)			Source: 24H0168-03			Prepared: 21-Aug-2024 Analyzed: 22-Aug-2024 18:19					
Iron	54	27.8	0.720	mg/L	5.00	21.4	128	75-125	5.93	20	HC, D
Manganese	55	0.705	0.0100	mg/L	0.0250	0.636	274	75-125	6.65	20	HC, D

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 28-Aug-2024 08:57
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Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
EPA 8260D in Water	
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
EPA 8260D-SIM in Water	
Vinyl chloride	NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2025
WADOE	WA Dept of Ecology	C558	06/30/2025
WA-DW	Ecology - Drinking Water	C558	06/30/2025



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
28-Aug-2024 08:57

Notes and Definitions

- * Flagged value is not within established control limits.
- D The reported value is from a dilution
- E The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
- HC The natural concentration of the spiked analyte is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
- J Estimated concentration value detected below the reporting limit.
- 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.

4th Quarter 2024





Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

27 November 2024

Min-Soon Yim
Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle, WA 98124-4018

RE: South Park Landfill -Parametrix Water (553-155-067)

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)
24K0087

Associated SDG ID(s)
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 enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

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

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

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



Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number: <i>24K0087</i>	Turn-around Requested: 2 weeks	Date: <i>11/5/2024</i>
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: <i>1</i> of <i>2</i>
Client Contact: Laura Lee	Phone: 206 394-3665	No. of Coolers: <i>2</i> Cooler Temps: <i>10.4, 5.8</i>

Client Project Name: SPU South Park Landfill	Analysis Requested	Notes/Comments
Samplers: Richard Anderson & Krista Keski-Hynnala HWA		

Sample ID	Date	Time	Matrix	Number of Containers	cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn											
SPL-GW-MW12-1124	<i>11/5/2024</i>	<i>0835</i>	water	7	X	X	X											
SPL-GW-MW14-1124	<i>11/5/24</i>	<i>1050</i>	water	7	X	X	X											
SPL-GW-MW29-1124	<i>11/5/24</i>	<i>0955</i>	water	7	X	X	X											
SPL-GW-MW18-1124	<i>11/4/24</i>	<i>1455</i>	water	13	X	X	X											MS/MSD
SPL-GW-MW32-1124	<i>11/4/24</i>	<i>1400</i>	water	7	X	X	X											
SPL-GW-MW33-1124	<i>11/4/24</i>	<i>1255</i>	water	7	X	X	X											
SPL-GW-MW10-1124	<i>11/4/24</i>	<i>1040</i>	water	7	X	X	X											
SPL-GW-MW60-1124	<i>11/4/24</i>	<i>1600</i>	water	7	X	X	X											
SPL-GW-MW80-1124	<i>11/5/24</i>	<i>—</i>	water	2	X	X												

Comments/Special Instructions	Relinquished by: (Signature) <i>Krista Keski-Hynnala</i>	Received by: (Signature) <i>R Leese</i>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: <i>Krista Keski-Hynnala</i>	Printed Name: <i>R Leese</i>	Printed Name:	Printed Name:
	Company: <i>HWA Geosciences</i>	Company: <i>ARI</i>	Company:	Company:
	Date & Time: <i>11/5/2024 1335</i>	Date & Time: <i>11-5-24 1335</i>	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, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.

Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number: 24K0087	Turn-around Requested: 2 weeks	Date: 11/5/2024
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: 2 of 2
Client Contact: Laura Lee, Parametrix	Phone: 206 394-3665	No. of Coolers: 2 Cooler Temps:

Client Project Name: SPU South Park Landfill					Analysis Requested										Notes/Comments	
Sample ID	Date	Time	Matrix	Number of Containers	cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn									
SPL-GW-MW25-1124	11/4/24	1121	water	7	X	X	X									
SPL-GW-MW30-1124	11/5/24	1135	water	7	X	X	X									
SPL-GW-MW31-1124	11/5/24	1240	water	7	X	X	X									
SPL-GW-MW24-1124			water	13	X	X	X									MS/MSD
SPL-GW-MW26-1124			water	7	X	X	X									
SPL-GW-MW08-1124			water	7	X	X	X									
SPL-GW-MW27-1124			water	7	X	X	X									
SPL-GW-MW61-1124			water	7	X	X	X									
SPL-GW-MW81-1124			water	2	X	X										

Comments/Special Instructions	Relinquished by: (Signature) <i>[Signature]</i>	Received by: (Signature) <i>[Signature]</i>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: <i>Krista Keski-Hynnilla</i>	Printed Name: <i>R Leesemann</i>	Printed Name:	Printed Name:
	Company: <i>HWA Geosciences</i>	Company: <i>ARI</i>	Company:	Company:
	Date & Time: <i>11/5/2024 1335</i>	Date & Time: <i>11-5-24 1335</i>	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, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
27-Nov-2024 14:50

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SPL-GW-MW12-1124	24K0087-01	Water	05-Nov-2024 08:35	05-Nov-2024 13:35
SPL-GW-MW14-1124	24K0087-02	Water	05-Nov-2024 10:50	05-Nov-2024 13:35
SPL-GW-MW29-1124	24K0087-03	Water	05-Nov-2024 09:55	05-Nov-2024 13:35
SPL-GW-MW18-1124	24K0087-04	Water	04-Nov-2024 14:55	05-Nov-2024 13:35
SPL-GW-MW32-1124	24K0087-05	Water	04-Nov-2024 14:00	05-Nov-2024 13:35
SPL-GW-MW33-1124	24K0087-06	Water	04-Nov-2024 12:55	05-Nov-2024 13:35
SPL-GW-MW10-1124	24K0087-07	Water	04-Nov-2024 10:40	05-Nov-2024 13:35
SPL-GW-MW60-1124	24K0087-08	Water	04-Nov-2024 16:00	05-Nov-2024 13:35
SPL-GW-MW80-1124	24K0087-09	Water	04-Nov-2024 10:40	05-Nov-2024 13:35
SPL-GW-MW25-1124	24K0087-10	Water	04-Nov-2024 11:21	05-Nov-2024 13:35
SPL-GW-MW30-1124	24K0087-11	Water	05-Nov-2024 11:35	05-Nov-2024 13:35
SPL-GW-MW31-1124	24K0087-12	Water	05-Nov-2024 12:40	05-Nov-2024 13:35



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
27-Nov-2024 14:50

Work Order Case Narrative

Client: Seattle Public Utilities
Project: South Park Landfill
Work Order: 24K0087

Sample receipt

Samples as listed on the preceding page were received November 5, 2024 under ARI work order 24K0087. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

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

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

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
27-Nov-2024 14:50

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

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

Total Metals - EPA Method 6020B

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

Initial and continuing calibrations including interference checks were within method requirements for reported elements.

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

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

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits with the exception of analytes flagged on the associated forms.

Client: {CLIENT}

Project: {PROJECT}

Work Order: {WORKORDER}

Sample receipt

Samples as listed on the preceding page were received {RECEIVED} under ARI work order {WORKORDER}. For details regarding sample receipt, please refer to the Cooler Receipt Form.



WORK ORDER

24K0087

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Seattle Public Utilities

Project Manager: Kelly Bottem

Project: South Park Landfill -Parametrix Water

Project Number: 553-155-067

Preservation Confirmation

Container ID	Container Type	pH
24K0087-01 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-01 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-01 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-01 D	VOA Vial, Clear, 40 mL	
24K0087-01 E	VOA Vial, Clear, 40 mL	
24K0087-01 F	VOA Vial, Clear, 40 mL	
24K0087-01 G	HDPE NM, 500 mL, 1:1 HNO3	4.2p
24K0087-02 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-02 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-02 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-02 D	VOA Vial, Clear, 40 mL	
24K0087-02 E	VOA Vial, Clear, 40 mL	
24K0087-02 F	VOA Vial, Clear, 40 mL	
24K0087-02 G	HDPE NM, 500 mL, 1:1 HNO3	4.2p
24K0087-03 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-03 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-03 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-03 D	VOA Vial, Clear, 40 mL	
24K0087-03 E	VOA Vial, Clear, 40 mL	
24K0087-03 F	VOA Vial, Clear, 40 mL	
24K0087-03 G	HDPE NM, 500 mL, 1:1 HNO3	4.2p
24K0087-04 A	HDPE NM, 500 mL, 1:1 HNO3	4.2p
24K0087-04 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-04 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-04 D	VOA Vial, Clear, 40 mL, HCL	
24K0087-04 E	VOA Vial, Clear, 40 mL, HCL	
24K0087-04 F	VOA Vial, Clear, 40 mL, HCL	
24K0087-04 G	VOA Vial, Clear, 40 mL, HCL	
24K0087-04 H	VOA Vial, Clear, 40 mL	
24K0087-04 I	VOA Vial, Clear, 40 mL	
24K0087-04 J	VOA Vial, Clear, 40 mL	
24K0087-04 K	VOA Vial, Clear, 40 mL	
24K0087-04 L	VOA Vial, Clear, 40 mL	
24K0087-04 M	VOA Vial, Clear, 40 mL	



WORK ORDER

24K0087

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Seattle Public Utilities

Project Manager: Kelly Bottem

Project: South Park Landfill -Parametrix Water

Project Number: 553-155-067

24K0087-05 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-05 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-05 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-05 D	VOA Vial, Clear, 40 mL	
24K0087-05 E	VOA Vial, Clear, 40 mL	
24K0087-05 F	VOA Vial, Clear, 40 mL	
24K0087-05 G	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0087-06 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-06 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-06 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-06 D	VOA Vial, Clear, 40 mL	
24K0087-06 E	VOA Vial, Clear, 40 mL	
24K0087-06 F	VOA Vial, Clear, 40 mL	
24K0087-06 G	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0087-07 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-07 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-07 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-07 D	VOA Vial, Clear, 40 mL	
24K0087-07 E	VOA Vial, Clear, 40 mL	
24K0087-07 F	VOA Vial, Clear, 40 mL	
24K0087-07 G	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0087-08 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-08 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-08 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-08 D	VOA Vial, Clear, 40 mL	
24K0087-08 E	VOA Vial, Clear, 40 mL	
24K0087-08 F	VOA Vial, Clear, 40 mL	
24K0087-08 G	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0087-09 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-09 B	VOA Vial, Clear, 40 mL	
24K0087-10 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-10 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-10 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-10 D	VOA Vial, Clear, 40 mL	
24K0087-10 E	VOA Vial, Clear, 40 mL	
24K0087-10 F	VOA Vial, Clear, 40 mL	



WORK ORDER

24K0087

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Seattle Public Utilities	Project Manager: Kelly Bottem
Project: South Park Landfill -Parametrix Water	Project Number: 553-155-067

24K0087-10 G	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0087-11 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-11 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-11 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-11 D	VOA Vial, Clear, 40 mL	
24K0087-11 E	VOA Vial, Clear, 40 mL	
24K0087-11 F	VOA Vial, Clear, 40 mL	
24K0087-11 G	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0087-12 A	VOA Vial, Clear, 40 mL, HCL	
24K0087-12 B	VOA Vial, Clear, 40 mL, HCL	
24K0087-12 C	VOA Vial, Clear, 40 mL, HCL	
24K0087-12 D	VOA Vial, Clear, 40 mL	
24K0087-12 E	VOA Vial, Clear, 40 mL	
24K0087-12 F	VOA Vial, Clear, 40 mL	
24K0087-12 G	HDPE NM, 500 mL, 1:1 HNO3	L2p

SA

Preservation Confirmed By _____

11/05/24

Date _____



Cooler Receipt Form

ARI Client: SPU

Project Name: South Park Landfill

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 24K0087

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) Time B35 10:4 5:8 Temp Gun ID#: 5009708

Was a temperature blank included in the cooler? YES (NO)

Were coolers received between 0°- 6° (°C) YES (NO)

Was sufficient ice used (if appropriate)? NA YES (NO)

Cooler Accepted by: RL Date: 11-9-24 Time: 1335

Complete custody forms and attach all shipping documents

Log-In Phase:

What kind of packing material was used? Bubble Wrap Wet Ice (X) Gel Packs Baggies Foam Block N/A Other: _____

Are any samples that were out of temperature compliance documented in LIMS? 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: SA Date: 11/05/24 Time: 1500 Labels checked by: SA

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

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW12-1124
24K0087-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)		Sampled: 11/05/2024 08:35
Instrument: NT20 Analyst: LN	Preparation Batch: BMK0166	Sample Size: 10 mL	Analyzed: 11/07/2024 14:10
Sample Preparation:	Prepared: 11/07/2024	Final Volume: 10 mL	Extract ID: 24K0087-01 C

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	102	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW12-1124
24K0087-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/05/2024 08:35
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 14:54
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-01 D
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>99.6</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW12-1124
24K0087-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/05/2024 08:35	Analyzed: 11/25/2024 17:43
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0386	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/15/2024		Extract ID: 24K0087-01 G 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	10	0.360	ND	mg/L	U
Manganese	7439-96-5	10	0.00500	0.0168	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW14-1124
24K0087-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 11/05/2024 10:50
Instrument: NT20 Analyst: LN	Preparation Batch: BMK0166	Analyzed: 11/07/2024 14:33
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24K0087-02 C
	Final Volume: 10 mL	
	Prepared: 11/07/2024	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	101	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW14-1124
24K0087-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/05/2024 10:50
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 15:15
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-02 D
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>100</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW14-1124
24K0087-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/05/2024 10:50	Analyzed: 11/15/2024 21:09
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0386	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/15/2024		Extract ID: 24K0087-02 G	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	3.02	mg/L	D
Manganese	7439-96-5	20	0.0100	0.735	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW29-1124
24K0087-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 11/05/2024 09:55
Instrument: NT20 Analyst: LN	Analyzed: 11/07/2024 14:56
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-03 C
Preparation Batch: BMK0166	Sample Size: 10 mL
Prepared: 11/07/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	103	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW29-1124
24K0087-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/05/2024 09:55
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 15:36
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-03 D
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0442	ug/L	M
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>101</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW29-1124
24K0087-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Preparation Method: REN - EPA 3010A M	Sample Size: 25 mL	Sampled: 11/05/2024 09:55
Instrument: ICPMS1 Analyst: HAL	Preparation Batch: BMK0386	Final Volume: 25 mL	Analyzed: 11/15/2024 21:13
Sample Preparation:	Prepared: 11/15/2024	Extract ID: 24K0087-03 G	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	45.7	mg/L	D
Manganese	7439-96-5	50	0.0250	0.712	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW18-1124
24K0087-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 11/04/2024 14:55
Instrument: NT20 Analyst: LN	Analyzed: 11/07/2024 15:19
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-04 C
Preparation Batch: BMK0166	Sample Size: 10 mL
Prepared: 11/07/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	102	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW18-1124
24K0087-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/04/2024 14:55
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 15:57
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-04 H
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>102</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW18-1124
24K0087-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/04/2024 14:55	Analyzed: 11/15/2024 20:10
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0386	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/15/2024		Extract ID: 24K0087-04 A	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	11.6	mg/L	D
Manganese	7439-96-5	20	0.0100	0.727	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW32-1124
24K0087-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 11/04/2024 14:00
Instrument: NT20 Analyst: LN	Preparation Batch: BMK0166	Analyzed: 11/07/2024 15:42
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24K0087-05 C
	Final Volume: 10 mL	
Prepared: 11/07/2024		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.47	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	102	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW32-1124
24K0087-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/04/2024 14:00
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 16:18
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-05 F
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.357	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>102</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW32-1124
24K0087-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/04/2024 14:00	Analyzed: 11/15/2024 21:18
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0386	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/15/2024		Extract ID: 24K0087-05 G	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	14.4	mg/L	D
Manganese	7439-96-5	20	0.0100	1.16	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW33-1124
24K0087-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 11/04/2024 12:55
Instrument: NT20 Analyst: LN	Analyzed: 11/07/2024 16:05
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-06 C
Preparation Batch: BMK0166	Sample Size: 10 mL
Prepared: 11/07/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>101</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW33-1124
24K0087-06 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/04/2024 12:55
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 16:38
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-06 D
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.190	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>102</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW33-1124
24K0087-06 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/04/2024 12:55	Analyzed: 11/15/2024 21:22
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0386	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/15/2024		Extract ID: 24K0087-06 G	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	14.7	mg/L	D
Manganese	7439-96-5	50	0.0250	1.77	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW10-1124
24K0087-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 11/04/2024 10:40
Instrument: NT20 Analyst: LN	Analyzed: 11/07/2024 16:28
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-07 C
Preparation Batch: BMK0166	Sample Size: 10 mL
Prepared: 11/07/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.76	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	100	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW10-1124
24K0087-07 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/04/2024 10:40
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 16:59
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-07 D
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.125	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	103	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW10-1124
24K0087-07 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/04/2024 10:40	Analyzed: 11/15/2024 21:27
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0386	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/15/2024		Extract ID: 24K0087-07 G	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	36.2	mg/L	D
Manganese	7439-96-5	50	0.0250	2.25	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW60-1124
24K0087-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 11/04/2024 16:00
Instrument: NT20 Analyst: LN	Preparation Batch: BMK0166	Analyzed: 11/07/2024 16:51
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24K0087-08 C
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	102	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW60-1124
24K0087-08 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/04/2024 16:00
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 17:20
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-08 D
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>101</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW60-1124
24K0087-08 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/04/2024 16:00	Analyzed: 11/15/2024 21:31
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0386	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/15/2024		Extract ID: 24K0087-08 G	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	11.1	mg/L	D
Manganese	7439-96-5	20	0.0100	0.688	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW80-1124
24K0087-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 11/04/2024 10:40
Instrument: NT20 Analyst: LN	Preparation Batch: BMK0166	Analyzed: 11/07/2024 11:51
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24K0087-09 A
	Final Volume: 10 mL	
Prepared: 11/07/2024		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	101	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW80-1124
24K0087-09 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/04/2024 10:40
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 14:33
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-09 B
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>97.9</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW25-1124
24K0087-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 11/04/2024 11:21
Instrument: NT20 Analyst: LN	Analyzed: 11/07/2024 17:14
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-10 C
Preparation Batch: BMK0166	Sample Size: 10 mL
Prepared: 11/07/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.22	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	101	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW25-1124
24K0087-10 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/04/2024 11:21
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 17:40
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-10 D
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.441	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>104</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW25-1124
24K0087-10 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Sampled: 11/04/2024 11:21
Instrument: ICPMS1 Analyst: HAL	Analyzed: 11/15/2024 21:36
Sample Preparation: Preparation Method: REN - EPA 3010A M	Extract ID: 24K0087-10 G
Preparation Batch: BMK0386	Sample Size: 25 mL
Prepared: 11/15/2024	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	100	3.60	28.1	mg/L	D
Manganese	7439-96-5	100	0.0500	2.59	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW30-1124
24K0087-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 11/05/2024 11:35
Instrument: NT20 Analyst: LN	Analyzed: 11/07/2024 17:37
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-11 C
Preparation Batch: BMK0166	Sample Size: 10 mL
Prepared: 11/07/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.41	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	103	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW30-1124
24K0087-11 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/05/2024 11:35
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 18:00
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-11 D
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.259	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	104	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW30-1124
24K0087-11 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/05/2024 11:35	Analyzed: 11/15/2024 21:40
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0386	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/15/2024		Extract ID: 24K0087-11 G	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	5	0.180	4.67	mg/L	D
Manganese	7439-96-5	20	0.0100	0.178	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW31-1124
24K0087-12 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 11/05/2024 12:40
Instrument: NT20 Analyst: LN	Analyzed: 11/07/2024 18:00
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-12 B
Preparation Batch: BMK0166	Sample Size: 10 mL
Prepared: 11/07/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	0.36	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	99.8	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW31-1124
24K0087-12 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/05/2024 12:40
Instrument: NT16 Analyst: MN	Analyzed: 11/06/2024 18:21
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0087-12 D
Preparation Batch: BMK0128	Sample Size: 10 mL
Prepared: 11/06/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.776	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	103	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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SPL-GW-MW31-1124
24K0087-12 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/05/2024 12:40	Analyzed: 11/15/2024 22:19
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0386	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/15/2024		Extract ID: 24K0087-12 G	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	18.8	mg/L	D
Manganese	7439-96-5	20	0.0100	0.864	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0166 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMK0166-BLK1)					Prepared: 07-Nov-2024 Analyzed: 07-Nov-2024 10:09					
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.21		ug/L	5.00		104	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0166 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMK0166-BS1)					Prepared: 07-Nov-2024 Analyzed: 07-Nov-2024 09:00					
cis-1,2-Dichloroethene	9.82	0.20	ug/L	10.0		98.2	80-121			
Surrogate: 1,2-Dichloroethane-d4	5.22		ug/L	5.00		104	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0166 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMK0166-BSD1)					Prepared: 07-Nov-2024 Analyzed: 07-Nov-2024 09:23					
cis-1,2-Dichloroethene	10.0	0.20	ug/L	10.0		100	80-121	2.18	30	
Surrogate: 1,2-Dichloroethane-d4	5.02		ug/L	5.00		100	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0166 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMK0166-MS1)		Source: 24K0087-04			Prepared: 07-Nov-2024	Analyzed: 07-Nov-2024 18:46				
cis-1,2-Dichloroethene	10.0	0.20	ug/L	10.0	ND	100	80-121			
Surrogate: 1,2-Dichloroethane-d4	4.98		ug/L	5.00	5.12	99.7	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0166 - EPA 8260D

Instrument: NT20 Analyst: LN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMK0166-MSD1)		Source: 24K0087-04		Prepared: 07-Nov-2024		Analyzed: 07-Nov-2024 19:09				
cis-1,2-Dichloroethene	9.86	0.20	ug/L	10.0	ND	98.6	80-121	1.41	30	
Surrogate: 1,2-Dichloroethane-d4	5.13		ug/L	5.00	5.12	103	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0128 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMK0128-BLK1)					Prepared: 06-Nov-2024 Analyzed: 06-Nov-2024 13:32					
Vinyl chloride	ND	0.0200	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5010		ug/L	5000		100	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0128 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMK0128-BS1)					Prepared: 06-Nov-2024 Analyzed: 06-Nov-2024 12:30					
Vinyl chloride	1.65	0.0200	ug/L	2.00		82.3	62-141			
Surrogate: 1,2-Dichloroethane-d4	5170		ug/L	5000		103	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0128 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMK0128-BSD1)					Prepared: 06-Nov-2024 Analyzed: 06-Nov-2024 12:51					
Vinyl chloride	2.06	0.0200	ug/L	2.00	103	62-141	22.20	30		
Surrogate: 1,2-Dichloroethane-d4	5170		ug/L	5000	103	80-129				



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0128 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMK0128-MS1)		Source: 24K0087-04		Prepared: 06-Nov-2024		Analyzed: 06-Nov-2024 18:42				
Vinyl chloride	1.93	0.0200	ug/L	2.00	ND	95.7	62-141			
Surrogate: 1,2-Dichloroethane-d4	5260		ug/L	5000	5100	105	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0128 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMK0128-MSD1)		Source: 24K0087-04		Prepared: 06-Nov-2024		Analyzed: 06-Nov-2024 19:03				
Vinyl chloride	2.07	0.0200	ug/L	2.00	ND	102	62-141	6.63	30	
Surrogate: 1,2-Dichloroethane-d4	5270		ug/L	5000	5100	105	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMK0386 - EPA 6020B

Instrument: ICPMS1 Analyst: HAL

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMK0386-BLK1)					Prepared: 15-Nov-2024 Analyzed: 15-Nov-2024 18:07						
Iron	54	ND	0.0360	mg/L							U
Iron	57	ND	0.0360	mg/L							U
Manganese	55	ND	0.000500	mg/L							U

LCS (BMK0386-BS1)					Prepared: 15-Nov-2024 Analyzed: 15-Nov-2024 18:11						
Iron	54	4.89	0.0360	mg/L	5.00		97.9	80-120			
Iron	57	4.94	0.0360	mg/L	5.00		98.8	80-120			
Manganese	55	0.0230	0.000500	mg/L	0.0250		91.8	80-120			

Duplicate (BMK0386-DUP1)					Source: 24K0087-04 Prepared: 15-Nov-2024 Analyzed: 15-Nov-2024 20:14						
Iron	54	11.7	0.720	mg/L		11.6			1.25	20	D
Manganese	55	0.722	0.0100	mg/L		0.727			0.76	20	D

Matrix Spike (BMK0386-MS1)					Source: 24K0087-04 Prepared: 15-Nov-2024 Analyzed: 15-Nov-2024 20:19						
Iron	54	15.7	0.720	mg/L	5.00	11.6	83.0	75-125			D
Manganese	55	0.722	0.0100	mg/L	0.0250	0.727	-22.4	75-125			*, D

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

Matrix Spike Dup (BMK0386-MSD1)					Source: 24K0087-04 Prepared: 15-Nov-2024 Analyzed: 15-Nov-2024 20:23						
Iron	54	15.9	0.720	mg/L	5.00	11.6	86.5	75-125	1.09	20	D
Manganese	55	0.738	0.0100	mg/L	0.0250	0.727	42.8	75-125	2.23	20	*, D

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 27-Nov-2024 14:50
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Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Iron-57	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
EPA 8260D in Water	
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
EPA 8260D-SIM in Water	
Vinyl chloride	NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2025
WADOE	WA Dept of Ecology	C558	06/30/2025
WA-DW	Ecology - Drinking Water	C558	06/30/2025



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
27-Nov-2024 14:50

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.
- M Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
- 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, LLC
Analytical Chemists and Consultants
Tukwila, WA

01 December 2024

Min-Soon Yim
Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle, WA 98124-4018

RE: South Park Landfill -Parametrix Water (553-155-067)

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)
24K0161

Associated SDG ID(s)
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 enclosed Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

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

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

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



Chain of Custody Record & Laboratory Analysis Request

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

ARI Assigned Number: <u>24K0161</u>	Turn-around Requested: 2 weeks	Date: <u>11/6/2024</u>
ARI Client Company: Min Soon Yim, Seattle Public Utility	Phone: 206 684-7693	Page: <u>1</u> of <u>1</u>
Client Contact: Laura Lee, Parametrix	Phone: 206 394-3665	No. of Coolers: <u>1</u> Cooler Temps: <u>6.4°C</u>

Client Project Name: SPU South Park Landfill					Analysis Requested										Notes/Comments	
Client Project #: 553-1550-067		Samplers: Richard Anderson & Krista Keski-Hynnala HWA			cis-1,2-DCE	Vinyl Chloride	Total Fe, Mn									
Sample ID	Date	Time	Matrix	Number of Containers												
SPL-GW-MW25-1124			water	7	X	X	X									
SPL-GW-MW30-1124			water	7	X	X	X									
SPL-GW-MW31-1124			water	7	X	X	X									
SPL-GW-MW24-1124	<u>11/6/2024</u>	<u>0915</u>	water	13	X	X	X									MS/MSD
SPL-GW-MW26-1124	<u>11/6/2024</u>	<u>0830</u>	water	7	X	X	X									
SPL-GW-MW08-1124	<u>11/6/2024</u>	<u>1105</u>	water	7	X	X	X									
SPL-GW-MW27-1124	<u>11/6/2024</u>	<u>1025</u>	water	7	X	X	X									
SPL-GW-MW61-1124	<u>11/6/2024</u>	<u>1000</u>	water	7	X	X	X									
SPL-GW-MW81-1124	<u>11/6/2024</u>	<u>—</u>	water	2	X	X										

Comments/Special Instructions	Relinquished by: (Signature) <u>Krista Keski-Hynnala</u>	Received by: (Signature) <u>Matthew Danne</u>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: <u>Krista Keski-Hynnala</u>	Printed Name: <u>Matthew Danne</u>	Printed Name:	Printed Name:
	Company: <u>HWA Geosciences</u>	Company: <u>ARCC</u>	Company:	Company:
	Date & Time: <u>11/6/2024 1140</u>	Date & Time: <u>11/6/24 1140</u>	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: Unless specified by work order or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
01-Dec-2024 13:25

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SPL-GW-MW24-1124	24K0161-01	Water	06-Nov-2024 09:15	06-Nov-2024 11:40
SPL-GW-MW26-1124	24K0161-02	Water	06-Nov-2024 08:30	06-Nov-2024 11:40
SPL-GW-MW08-1124	24K0161-03	Water	06-Nov-2024 11:05	06-Nov-2024 11:40
SPL-GW-MW27-1124	24K0161-04	Water	06-Nov-2024 10:25	06-Nov-2024 11:40
SPL-GW-MW61-1124	24K0161-05	Water	06-Nov-2024 10:00	06-Nov-2024 11:40
SPL-GW-MW81-1124	24K0161-06	Water	06-Nov-2024 08:30	06-Nov-2024 11:40



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
01-Dec-2024 13:25

Work Order Case Narrative

Volatiles - EPA Method SW8260D

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits with the exception of analytes flagged on the associated forms.

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

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

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

Total Metals - EPA Method 6020B

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

Initial and continuing calibrations including interference checks were within method requirements for reported elements.

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



Seattle Public Utilities

700-5th Ave, Ste 4900, Box 34018

Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water

Project Number: 553-155-067

Project Manager: Min-Soon Yim

Reported:

01-Dec-2024 13:25

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 with the exception of analytes flagged on the associated forms.



WORK ORDER

24K0161

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Seattle Public Utilities

Project Manager: Kelly Bottem

Project: South Park Landfill -Parametrix Water

Project Number: 553-155-067

Preservation Confirmation

Container ID	Container Type	pH
24K0161-01 A	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0161-01 B	VOA Vial, Clear, 40 mL, HCL	
24K0161-01 C	VOA Vial, Clear, 40 mL, HCL	
24K0161-01 D	VOA Vial, Clear, 40 mL, HCL	
24K0161-01 E	VOA Vial, Clear, 40 mL, HCL	
24K0161-01 F	VOA Vial, Clear, 40 mL, HCL	
24K0161-01 G	VOA Vial, Clear, 40 mL, HCL	
24K0161-01 H	VOA Vial, Clear, 40 mL	
24K0161-01 I	VOA Vial, Clear, 40 mL	
24K0161-01 J	VOA Vial, Clear, 40 mL	
24K0161-01 K	VOA Vial, Clear, 40 mL	
24K0161-01 L	VOA Vial, Clear, 40 mL	
24K0161-01 M	VOA Vial, Clear, 40 mL	
24K0161-02 A	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0161-02 B	VOA Vial, Clear, 40 mL, HCL	
24K0161-02 C	VOA Vial, Clear, 40 mL, HCL	
24K0161-02 D	VOA Vial, Clear, 40 mL, HCL	
24K0161-02 E	VOA Vial, Clear, 40 mL	
24K0161-02 F	VOA Vial, Clear, 40 mL	
24K0161-02 G	VOA Vial, Clear, 40 mL	
24K0161-03 A	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0161-03 B	VOA Vial, Clear, 40 mL, HCL	
24K0161-03 C	VOA Vial, Clear, 40 mL, HCL	
24K0161-03 D	VOA Vial, Clear, 40 mL, HCL	
24K0161-03 E	VOA Vial, Clear, 40 mL	
24K0161-03 F	VOA Vial, Clear, 40 mL	
24K0161-03 G	VOA Vial, Clear, 40 mL	
24K0161-04 A	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0161-04 B	VOA Vial, Clear, 40 mL, HCL	
24K0161-04 C	VOA Vial, Clear, 40 mL, HCL	
24K0161-04 D	VOA Vial, Clear, 40 mL, HCL	
24K0161-04 E	VOA Vial, Clear, 40 mL	
24K0161-04 F	VOA Vial, Clear, 40 mL	
24K0161-04 G	VOA Vial, Clear, 40 mL	



WORK ORDER

24K0161

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Seattle Public Utilities	Project Manager: Kelly Bottem
Project: South Park Landfill -Parametrix Water	Project Number: 553-155-067

24K0161-05 A	HDPE NM, 500 mL, 1:1 HNO3	L2p
24K0161-05 B	VOA Vial, Clear, 40 mL, HCL	
24K0161-05 C	VOA Vial, Clear, 40 mL, HCL	
24K0161-05 D	VOA Vial, Clear, 40 mL, HCL	
24K0161-05 E	VOA Vial, Clear, 40 mL	
24K0161-05 F	VOA Vial, Clear, 40 mL	
24K0161-05 G	VOA Vial, Clear, 40 mL	
24K0161-06 A	VOA Vial, Clear, 40 mL, HCL	
24K0161-06 B	VOA Vial, Clear, 40 mL	

SA
Preservation Confirmed By

11/07/24
Date



Cooler Receipt Form

ARI Client: Parametrix

Project Name: SPU South Park Landfill

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 24K0161

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) Time 140 6:40 Temp Gun ID#: 50974

Was a temperature blank included in the cooler? YES NO

Were coolers received between 0°- 6° (°C) YES NO

Was sufficient ice used (if appropriate)? NA YES NO

Cooler Accepted by: MD Date: 11/04/24 Time: 1140

Complete custody forms and attach all shipping documents

Log-In Phase:

What kind of packing material was used? Bubble Wrap Wet Ice Gel Packs Baggies Foam Block N/A Other: _____

Are any samples that were out of temperature compliance documented in LIMS? 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: SA Date: 11/07/24 Time: 1453 Labels checked by: SA

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

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW24-1124
24K0161-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 11/06/2024 09:15
Instrument: NT3 Analyst: LH	Analyzed: 11/08/2024 00:44
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0161-01 D
Preparation Batch: BMK0181	Sample Size: 10 mL
Prepared: 11/07/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	110	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW24-1124
24K0161-01 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/06/2024 09:15
Instrument: NT16 Analyst: MN	Analyzed: 11/08/2024 14:15
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0161-01 H
Preparation Batch: BMK0197	Sample Size: 10 mL
Prepared: 11/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0524	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>101</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW24-1124
24K0161-01 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/06/2024 09:15	Analyzed: 11/25/2024 18:03
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0480	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/19/2024		Extract ID: 24K0161-01 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	100	3.60	23.4	mg/L	D
Manganese	7439-96-5	50	0.0250	1.51	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW26-1124
24K0161-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Sampled: 11/06/2024 08:30
Instrument: NT3 Analyst: LH	Analyzed: 11/08/2024 01:06
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0161-02 D
Preparation Batch: BMK0181	Sample Size: 10 mL
Prepared: 11/07/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>107</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW26-1124
24K0161-02 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/06/2024 08:30
Instrument: NT16 Analyst: MN	Analyzed: 11/08/2024 14:35
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0161-02 E
Preparation Batch: BMK0197	Sample Size: 10 mL
Prepared: 11/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0264	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>104</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW26-1124
24K0161-02 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/06/2024 08:30	Analyzed: 11/25/2024 17:47
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0480	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/19/2024		Extract ID: 24K0161-02 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	20	0.720	6.94	mg/L	D
Manganese	7439-96-5	10	0.00500	0.0945	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW08-1124
24K0161-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 11/06/2024 11:05
Instrument: NT3 Analyst: LH	Preparation Batch: BMK0181	Analyzed: 11/08/2024 01:28
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24K0161-03 B
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>108</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW08-1124
24K0161-03 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/06/2024 11:05
Instrument: NT16 Analyst: MN	Analyzed: 11/08/2024 14:56
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0161-03 E
Preparation Batch: BMK0197	Sample Size: 10 mL
Prepared: 11/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0545	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	101	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW08-1124
24K0161-03 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/06/2024 11:05	Analyzed: 11/25/2024 17:51
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0480	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/19/2024		Extract ID: 24K0161-03 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	12.3	mg/L	D
Manganese	7439-96-5	20	0.0100	0.714	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW27-1124
24K0161-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 11/06/2024 10:25
Instrument: NT3 Analyst: LH	Preparation Batch: BMK0181	Analyzed: 11/08/2024 01:50
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24K0161-04 C
	Final Volume: 10 mL	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			80-129 %	113	%	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW27-1124
24K0161-04 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/06/2024 10:25
Instrument: NT16 Analyst: MN	Analyzed: 11/08/2024 15:17
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0161-04 E
Preparation Batch: BMK0197	Sample Size: 10 mL
Prepared: 11/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0452	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>103</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW27-1124
24K0161-04 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/06/2024 10:25	Analyzed: 11/25/2024 17:55
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0480	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/19/2024		Extract ID: 24K0161-04 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	21.3	mg/L	D
Manganese	7439-96-5	10	0.00500	0.530	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW61-1124
24K0161-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 11/06/2024 10:00
Instrument: NT3 Analyst: LH	Preparation Batch: BMK0181	Analyzed: 11/08/2024 02:12
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24K0161-05 C
	Final Volume: 10 mL	
Prepared: 11/07/2024		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>111</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW61-1124
24K0161-05 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/06/2024 10:00
Instrument: NT16 Analyst: MN	Analyzed: 11/08/2024 15:37
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0161-05 E
Preparation Batch: BMK0197	Sample Size: 10 mL
Prepared: 11/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	0.0544	ug/L	
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>103</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW61-1124
24K0161-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Instrument: ICPMS1	Analyst: HAL	Sampled: 11/06/2024 10:00	Analyzed: 11/25/2024 17:59
Sample Preparation:	Preparation Method: REN - EPA 3010A M	Preparation Batch: BMK0480	Sample Size: 25 mL	Final Volume: 25 mL
	Prepared: 11/19/2024		Extract ID: 24K0161-05 A 01	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Iron	7439-89-6	50	1.80	22.1	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW61-1124
24K0161-05 (Water)

Metals and Metallic Compounds

Method: EPA 6020B	Sampled: 11/06/2024 10:00
Instrument: ICPMS2 Analyst: MCB	Analyzed: 11/27/2024 18:03
Sample Preparation: Preparation Method: REN - EPA 3010A M	Extract ID: 24K0161-05 A 01
Preparation Batch: BMK0480	Sample Size: 25 mL
Prepared: 11/19/2024	Final Volume: 25 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Manganese	7439-96-5	50	0.0250	1.59	mg/L	D



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW81-1124
24K0161-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D	Preparation Method: EPA 5030C (Purge and Trap)	Sampled: 11/06/2024 08:30
Instrument: NT3 Analyst: LH	Preparation Batch: BMK0181	Analyzed: 11/07/2024 19:56
Sample Preparation:	Sample Size: 10 mL	Extract ID: 24K0161-06 A
	Final Volume: 10 mL	
Prepared: 11/07/2024		

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
cis-1,2-Dichloroethene	156-59-2	1	0.20	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>95.6</i>	<i>%</i>	



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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SPL-GW-MW81-1124
24K0161-06 (Water)

Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM	Sampled: 11/06/2024 08:30
Instrument: NT16 Analyst: MN	Analyzed: 11/08/2024 13:54
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)	Extract ID: 24K0161-06 B
Preparation Batch: BMK0197	Sample Size: 10 mL
Prepared: 11/08/2024	Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Vinyl chloride	75-01-4	1	0.0200	ND	ug/L	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>			<i>80-129 %</i>	<i>98.2</i>	<i>%</i>	



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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0181 - EPA 8260D

Instrument: NT3 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMK0181-BLK1)					Prepared: 07-Nov-2024 Analyzed: 07-Nov-2024 18:49					
cis-1,2-Dichloroethene	ND	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.64		ug/L	5.00		92.7	80-129			



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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0181 - EPA 8260D

Instrument: NT3 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMK0181-BS1)					Prepared: 07-Nov-2024 Analyzed: 07-Nov-2024 17:43					
cis-1,2-Dichloroethene	9.99	0.20	ug/L	10.0		99.9	80-121			
Surrogate: 1,2-Dichloroethane-d4	4.81		ug/L	5.00		96.1	80-129			



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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0181 - EPA 8260D

Instrument: NT3 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMK0181-BSD1)					Prepared: 07-Nov-2024 Analyzed: 07-Nov-2024 18:05					
cis-1,2-Dichloroethene	9.65	0.20	ug/L	10.0		96.5	80-121	3.43	30	
Surrogate: 1,2-Dichloroethane-d4	4.89		ug/L	5.00		97.7	80-129			



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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0181 - EPA 8260D

Instrument: NT3 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMK0181-MS1)		Source: 24K0161-01		Prepared: 07-Nov-2024		Analyzed: 08-Nov-2024 02:35				
cis-1,2-Dichloroethene	6.86	0.20	ug/L	10.0	ND	68.6	80-121			*
Surrogate: 1,2-Dichloroethane-d4	5.32		ug/L	5.00	5.51	106	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMK0181 - EPA 8260D

Instrument: NT3 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMK0181-MSD1)		Source: 24K0161-01		Prepared: 07-Nov-2024		Analyzed: 08-Nov-2024 02:57				
cis-1,2-Dichloroethene	6.59	0.20	ug/L	10.0	ND	65.9	80-121	4.08	30	*
Surrogate: 1,2-Dichloroethane-d4	5.42		ug/L	5.00	5.51	108	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0197 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMK0197-BLK1)					Prepared: 08-Nov-2024 Analyzed: 08-Nov-2024 12:31					
Vinyl chloride	ND	0.0200	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5070		ug/L	5000		101	80-129			



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0197 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMK0197-BS1)					Prepared: 08-Nov-2024 Analyzed: 08-Nov-2024 11:29					
Vinyl chloride	1.81	0.0200	ug/L	2.00		90.4	62-141			
Surrogate: 1,2-Dichloroethane-d4	5210		ug/L	5000		104	80-129			



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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0197 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMK0197-BSD1)					Prepared: 08-Nov-2024 Analyzed: 08-Nov-2024 11:50					
Vinyl chloride	1.93	0.0200	ug/L	2.00		96.6	62-141	6.64	30	
Surrogate: 1,2-Dichloroethane-d4	5180		ug/L	5000		104	80-129			



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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0197 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BMK0197-MS1)		Source: 24K0161-01		Prepared: 08-Nov-2024		Analyzed: 08-Nov-2024 15:58				
Vinyl chloride	1.96	0.0200	ug/L	2.00	0.0524	95.2	62-141			
Surrogate: 1,2-Dichloroethane-d4	5370		ug/L	5000	5040	107	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - SIM - Quality Control

Batch BMK0197 - EPA 8260D-SIM

Instrument: NT16 Analyst: MN

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BMK0197-MSD1)		Source: 24K0161-01		Prepared: 08-Nov-2024		Analyzed: 08-Nov-2024 16:19				
Vinyl chloride	1.94	0.0200	ug/L	2.00	0.0524	94.6	62-141	0.63	30	
Surrogate: 1,2-Dichloroethane-d4	5330		ug/L	5000	5040	107	80-129			

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



Seattle Public Utilities 700-5th Ave, Ste 4900, Box 34018 Seattle WA, 98124-4018	Project: South Park Landfill -Parametrix Water Project Number: 553-155-067 Project Manager: Min-Soon Yim	Reported: 01-Dec-2024 13:25
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Analysis by: Analytical Resources, LLC

Metals and Metallic Compounds - Quality Control

Batch BMK0480 - EPA 6020B

Instrument: ICPMS1 Analyst: HAL

QC Sample/Analyte	Isotope	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMK0480-BLK1)						Prepared: 19-Nov-2024 Analyzed: 22-Nov-2024 21:00					
Iron	54	ND	0.0360	mg/L							U
Manganese	55	ND	0.000500	mg/L							U
LCS (BMK0480-BS1)						Prepared: 19-Nov-2024 Analyzed: 22-Nov-2024 21:04					
Iron	54	5.25	0.0360	mg/L	5.00		105	80-120			
Manganese	55	0.0231	0.000500	mg/L	0.0250		92.4	80-120			
Duplicate (BMK0480-DUP2)						Source: 24K0161-01 Prepared: 19-Nov-2024 Analyzed: 25-Nov-2024 18:07					
Iron	54	22.2	3.60	mg/L		23.4			5.36	20	D
Duplicate (BMK0480-DUP3)						Source: 24K0161-01 Prepared: 19-Nov-2024 Analyzed: 26-Nov-2024 23:09					
Manganese	55	1.43	0.0250	mg/L		1.51			5.44	20	D
Matrix Spike (BMK0480-MS2)						Source: 24K0161-01 Prepared: 19-Nov-2024 Analyzed: 25-Nov-2024 18:11					
Iron	54	26.7	3.60	mg/L	5.00	23.4	64.3	75-125			*, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike (BMK0480-MS3)						Source: 24K0161-01 Prepared: 19-Nov-2024 Analyzed: 26-Nov-2024 23:14					
Manganese	55	1.53	0.0250	mg/L	0.0250	1.51	91.6	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BMK0480-MSD2)						Source: 24K0161-01 Prepared: 19-Nov-2024 Analyzed: 25-Nov-2024 18:15					
Iron	54	27.1	3.60	mg/L	5.00	23.4	72.1	75-125	1.46	20	*, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BMK0480-MSD3)						Source: 24K0161-01 Prepared: 19-Nov-2024 Analyzed: 26-Nov-2024 23:19					
Manganese	55	1.54	0.0250	mg/L	0.0250	1.51	134	75-125	0.69	20	*, D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											



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Certified Analyses included in this Report

Analyte	Certifications
EPA 6020B in Water	
Iron-54	NELAP,WADOE,DoD-ELAP
Manganese-55	NELAP,WADOE,DoD-ELAP
EPA 8260D in Water	
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
EPA 8260D-SIM in Water	
Vinyl chloride	NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2025
WADOE	WA Dept of Ecology	C558	06/30/2025
WA-DW	Ecology - Drinking Water	C558	06/30/2025



Seattle Public Utilities
700-5th Ave, Ste 4900, Box 34018
Seattle WA, 98124-4018

Project: South Park Landfill -Parametrix Water
Project Number: 553-155-067
Project Manager: Min-Soon Yim

Reported:
01-Dec-2024 13:25

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.
- 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.