



ADVANTAGE
Environmental INC.
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Covanta Waste Incinerator Investigation



Conducted for:
Beyond Toxics
120 Shelton McMurphey Blvd., Suite 280
Eugene, OR 97401

Prepared By:
Advantage Environmental Inc.
9317 NE Hwy 99, Suite D
Vancouver, WA 98665

Conducted at
4850 Brooklake Rd NE
Salem, OR 97305

Sampling Date(s)
Thursday, February 17, 2022

Investigator(s)
Sidney Carter



ADVANTAGE Environmental INC.

Clean your world.

May 6, 2022

Beyond Toxics
Lisa Arkin
120 Shelton McMurphey Blvd., Suite 280
Eugene, OR 97401
larkin@beyondtoxics.org
541-465-8860

Re: Covanta Waste Incinerator Investigation: 4850 Brooklake Rd NE, Salem, OR 97305

Dear Ms. Arkin,

Advantage Environmental, Inc., (AEI) was retained by Beyond Toxics to complete an investigation for potential environmental pollution of the Covanta Waste Incinerator located at the address listed above. The results of the investigation are provided in the accompanying report.

The purpose of this investigation was to identify if qualitative data supporting an index representative of high environmental air pollution indicators exists for areas surrounding the incinerator. The scope of work included an analysis of previous studies conducted by the USDA (USDA PNW-GTR-938) and the Oregon DEQ utilizing *Orthotricum lyelii* as a bioindicator for environmental air pollutants, bulk sampling and analysis of *Orthotricum lyelii* moss, and a written report documenting the results of the investigation.

Thank you for choosing Advantage Environmental for this project. Please feel free to contact us at (360) 356-7628 if you have any questions.

Respectfully,
Advantage Environmental, Inc.

Cody Clarke
Project Manager

Introduction

USDA PNW-GTR-938

“ Many studies have used mosses and lichens to study atmospheric heavy-metal pollution (e.g., Berg and Steinnes 1997a, Gerdol et al. 2014, Nickel et al. 2014, Owczarek et al. 2001, Rühling and Tyler 1968). Mosses and lichens are commonly used as bioindicators of air quality because they readily accumulate pollutants over time. Unlike plants, they lack roots and absorb nutrients from the atmosphere. Mosses and lichens also lack the impermeable waxy coating of plant leaves so they absorb water over their entire surface like a sponge. Their high cation exchange capacity, a term that quantifies their ability to hold exchangeable, positively charged ions, helps cells capture dissolved nutrients during rain events (Bates 1994) and passively trap pollutants including heavy metals. Particulate pollutants also become trapped on the outer surfaces of the mosses and lichens (Aboal et al. 2011).

Traditional air quality monitoring relies on specialized instruments. However, owing to high purchasing costs and the expense of operation and data analysis, only a small number of instruments is usually available. For instance, Portland, Oregon, has one permanent air toxics monitor, and it costs \$40,000 annually to measure metals. One instrument is not sufficient to resolve the varying nature of pollutant concentration's on spatial scales smaller than the size of a metropolitan area, such as at the neighborhood level or smaller. Measuring pollutant levels in bioindicators is less costly than using instruments (each moss sample costs about \$150 for labor and lab analysis), thereby making it possible to collect the large number of samples needed to detect and quantify pollutants that disperse short distances from their source.”

AEI adopted the same sampling methodology outlined in the above mentioned report from the USDA. Utilizing this methodology, AEI collected samples to investigate bioindicators for environmental air pollutants.

Methodology

Moss

- Moss was collected at least 1 meter off the ground to avoid contamination from sprays and pets.
- Each moss sample location was geotagged (GPS location).
- Samples of moss were taken in areas where there is no proximity to environmental pollutants (“pristine” areas). This will establish a baseline reading of elements found naturally in the moss. This level of quality assurance and control is vital for demonstrating the correlation between proximity to the site of known pollution, and potential levels of pollutants detected in the moss, due to high concentrations of said pollutants in the air.
- Immediately upon collection, moss samples were stored at 4°C (39.2°F).
- Moss samples were dried for 24 hours at 40°C (104°F).
- Samples were sent to Specialty Analytical in Clackamas Oregon for analysis.

TCLP

- TCLP Soil samples were collected at a depth of 1”
- Each sample collected was geotagged (GPS location)
- Immediately upon collection, TCLP samples were stored at 4°C (39.2°F).
- Samples were sent to Specialty Analytical in Clackamas Oregon for analysis.

Moss

Based on the laboratory result, the experience of AEI investigators, and current industry practice AEI recommends additional sampling due to elevated levels of heavy metals found within the moss samples collected. Utilizing sample M2 as an indicator, there is reason to suspect high levels of heavy metal pollution being introduced into the air in the area nearby to the incinerator. It may be possible to confirm these suspicions with a larger dataset of samples collected at locations of increasing distance from the incinerator.

Sample M2 was the closets of the three samples collected at a distance of 556 meters from the incinerator vs 5,078 meters (M1) & 8,168 meters (M3). All heavy metals detected in sample M2 were ~100% higher than the heavy metals detected in samples M1 & M3. Additionally, these samples were collected during cold rainy months which may have reduced heavy metal concentrations within the samples collected. Previous moss studies have shown higher numbers of heavy metals within moss samples collected during the dry summer months.

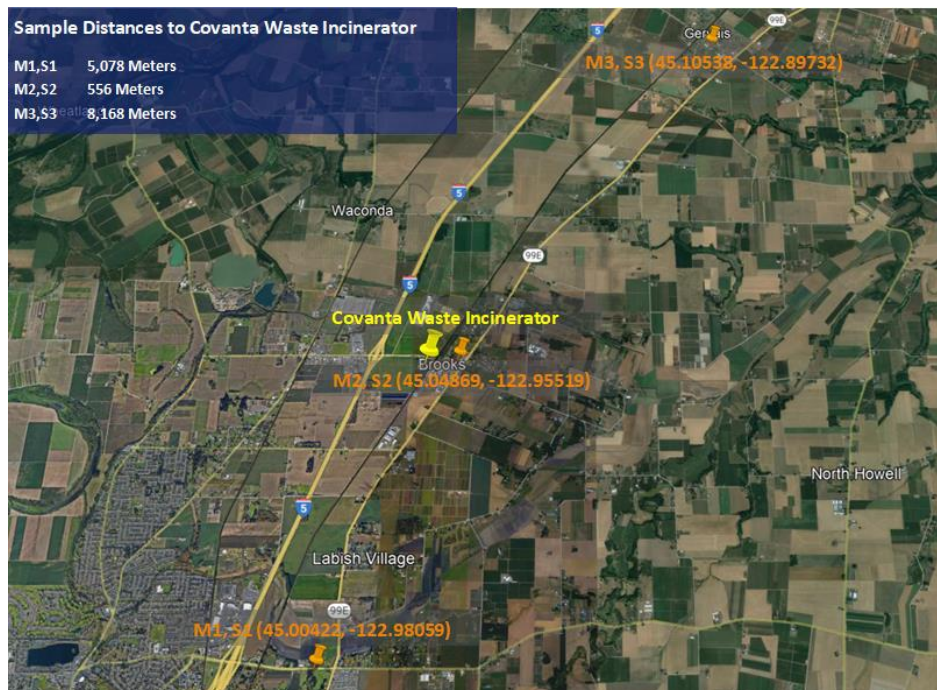
In conclusion, due to the findings of elevated heavy metals in sample M2 and the limited number of samples taken AEI recommends additional samples be taken to correlate data between air and soil samples. Currently no concise conclusion can be draw in an attempt to correlate the data points.

Moss Samples			
Metal	M2 (mg/kg) Nearest to incinerator	M1 (mg/kg)	M3 (mg/kg)
Arsenic	ND	ND	ND
Barium	57	24.3	27.2
Cadmium	0.216	0.102	ND
Chromium	2.96	1.34	1.38
Lead	4.67	1.69	2.04
Selenium	ND	ND	ND
Silver	ND	ND	ND
Mercury	0.184	0.0867	0.0595

Red shaded areas are elevated levels of heavy metals near the incinerator site.

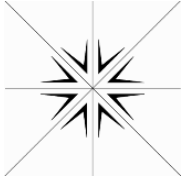
Soil Samples			
Metal	M2 (mg/kg) Nearest to incinerator	M1 (mg/kg)	M3 (mg/kg)
Arsenic	2.92	2.11	2.31
Barium	93.1	59.9	89.3
Cadmium	ND	ND	0.198
Chromium	13.1	8.86	11.2
Lead	6.81	19.6	86.3
Selenium	ND	ND	ND
Silver	ND	ND	ND
Mercury	0.0316	0.035	0.156

Red shaded areas are elevated levels of heavy metals near the incinerator site.



Warranty

Advantage Environmental Inc. warrants that this report has been prepared in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances.



Specialty Analytical

9011 SE Janssen Rd
Clackamas, OR 97015
TEL: (503) 607-1331

Website: www.specialtyanalytical.com

March 04, 2022

Sid Carter
Advantage Environmental
9317 NE Hwy 99 Suite D
Vancouver, WA 98665
TEL:
FAX:

RE: Beyond Toxics/ BTOX-COV-1

Order No.: 2202154

Dear Sid Carter:

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications, except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

If you have any questions regarding these tests, please feel free to call.

Sincerely,

Marty French
Lab Director

Specialty Analytical

WO#: 2202154

Date Reported: 3/4/2022

CLIENT: Advantage Environmental
Project: Beyond Toxics/ BTOX-COV-1

Lab ID: 2202154-001
Client Sample ID M1

Matrix: SOLID
Collection Date: 2/17/2022 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	
RCRA_8_S					SW 6020B	SW3050B	Analyst: EG
ICP/MS METALS-TOTAL RECOVERABLE							
Arsenic	ND	0.988		mg/Kg	10	2/21/2022 2:32:39 PM	
Barium	24.3	0.494		mg/Kg	10	2/21/2022 2:32:39 PM	
Cadmium	0.102	0.0988		mg/Kg	10	2/21/2022 2:32:39 PM	
Chromium	1.34	0.988		mg/Kg	10	2/21/2022 2:32:39 PM	
Lead	1.69	0.247		mg/Kg	10	2/21/2022 2:32:39 PM	
Selenium	ND	0.988		mg/Kg	10	2/21/2022 2:32:39 PM	
Silver	ND	0.0988		mg/Kg	10	2/21/2022 2:32:39 PM	
RCRA_8_S					SW 7471B	SW 7471B	Analyst: KH
TOTAL MERCURY							
Mercury	0.0867	0.00958		mg/Kg	1	3/4/2022 10:45:00 AM	

Lab ID: 2202154-002
Client Sample ID M2

Matrix: SOLID
Collection Date: 2/17/2022 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	
RCRA_8_S					SW 6020B	SW3050B	Analyst: EG
ICP/MS METALS-TOTAL RECOVERABLE							
Arsenic	ND	0.984		mg/Kg	10	2/21/2022 3:07:50 PM	
Barium	57.0	0.492		mg/Kg	10	2/21/2022 3:07:50 PM	
Cadmium	0.216	0.0984		mg/Kg	10	2/21/2022 3:07:50 PM	
Chromium	2.96	0.984		mg/Kg	10	2/21/2022 3:07:50 PM	
Lead	4.76	0.246		mg/Kg	10	2/21/2022 3:07:50 PM	
Selenium	ND	0.984		mg/Kg	10	2/21/2022 3:07:50 PM	
Silver	ND	0.0984		mg/Kg	10	2/21/2022 3:07:50 PM	
RCRA_8_S					SW 7471B	SW 7471B	Analyst: KH
TOTAL MERCURY							
Mercury	0.184	0.00929		mg/Kg	1	3/4/2022 10:53:00 AM	

Specialty Analytical

WO#: 2202154
Date Reported: 3/4/2022

CLIENT: Advantage Environmental
Project: Beyond Toxics/ BTOX-COV-1

Lab ID: 2202154-003 **Matrix:** SOLID
Client Sample ID M3 **Collection Date:** 2/17/2022 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
RCRA_8_S					SW 6020B	SW3050B Analyst: EG
ICP/MS METALS-TOTAL RECOVERABLE						
Arsenic	ND	0.974		mg/Kg	10	2/21/2022 3:11:16 PM
Barium	27.2	0.487		mg/Kg	10	2/21/2022 3:11:16 PM
Cadmium	ND	0.0974		mg/Kg	10	2/21/2022 3:11:16 PM
Chromium	1.38	0.974		mg/Kg	10	2/21/2022 3:11:16 PM
Lead	2.04	0.243		mg/Kg	10	2/21/2022 3:11:16 PM
Selenium	ND	0.974		mg/Kg	10	2/21/2022 3:11:16 PM
Silver	ND	0.0974		mg/Kg	10	2/21/2022 3:11:16 PM
RCRA_8_S					SW 7471B	SW 7471B Analyst: KH
TOTAL MERCURY						
Mercury	0.0595	0.0101		mg/Kg	1	3/4/2022 10:55:00 AM

Lab ID: 2202154-004 **Matrix:** SOLID
Client Sample ID S1 **Collection Date:** 2/17/2022 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
RCRA_8_S					SW 6020B	SW3050B Analyst: EG
ICP/MS METALS-TOTAL RECOVERABLE						
Arsenic	2.11	0.990		mg/Kg	10	2/21/2022 3:14:41 PM
Barium	59.9	0.495		mg/Kg	10	2/21/2022 3:14:41 PM
Cadmium	ND	0.0990		mg/Kg	10	2/21/2022 3:14:41 PM
Chromium	8.86	0.990		mg/Kg	10	2/21/2022 3:14:41 PM
Lead	19.6	0.247		mg/Kg	10	2/21/2022 3:14:41 PM
Selenium	ND	0.990		mg/Kg	10	2/21/2022 3:14:41 PM
Silver	ND	0.0990		mg/Kg	10	2/21/2022 3:14:41 PM
RCRA_8_S					SW 7471B	SW 7471B Analyst: KH
TOTAL MERCURY						
Mercury	0.0350	0.00976		mg/Kg	1	3/4/2022 11:01:00 AM

Specialty Analytical

WO#: 2202154
Date Reported: 3/4/2022

CLIENT: Advantage Environmental
Project: Beyond Toxics/ BTOX-COV-1

Lab ID: 2202154-005 **Matrix:** SOLID
Client Sample ID S2 **Collection Date:** 2/17/2022 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
RCRA_8_S					SW 6020B	SW3050B Analyst: EG
ICP/MS METALS-TOTAL RECOVERABLE						
Arsenic	2.92	0.990		mg/Kg	10	2/21/2022 3:18:06 PM
Barium	93.1	0.495		mg/Kg	10	2/21/2022 3:18:06 PM
Cadmium	ND	0.0990		mg/Kg	10	2/21/2022 3:18:06 PM
Chromium	13.1	0.990		mg/Kg	10	2/21/2022 3:18:06 PM
Lead	6.81	0.248		mg/Kg	10	2/21/2022 3:18:06 PM
Selenium	ND	0.990		mg/Kg	10	2/21/2022 3:18:06 PM
Silver	ND	0.0990		mg/Kg	10	2/21/2022 3:18:06 PM
RCRA_8_S					SW 7471B	SW 7471B Analyst: KH
TOTAL MERCURY						
Mercury	0.0316	0.00975		mg/Kg	1	3/4/2022 11:03:00 AM

Lab ID: 2202154-006 **Matrix:** SOLID
Client Sample ID S3 **Collection Date:** 2/17/2022 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
RCRA_8_S					SW 6020B	SW3050B Analyst: EG
ICP/MS METALS-TOTAL RECOVERABLE						
Arsenic	2.31	0.984		mg/Kg	10	2/21/2022 3:21:31 PM
Barium	89.3	0.492		mg/Kg	10	2/21/2022 3:21:31 PM
Cadmium	0.198	0.0984		mg/Kg	10	2/21/2022 3:21:31 PM
Chromium	11.2	0.984		mg/Kg	10	2/21/2022 3:21:31 PM
Lead	86.3	0.246		mg/Kg	10	2/21/2022 3:21:31 PM
Selenium	ND	0.984		mg/Kg	10	2/21/2022 3:21:31 PM
Silver	ND	0.0984		mg/Kg	10	2/21/2022 3:21:31 PM
RCRA_8_S					SW 7471B	SW 7471B Analyst: KH
TOTAL MERCURY						
Mercury	0.156	0.0102		mg/Kg	1	3/4/2022 11:05:00 AM

QC SUMMARY REPORT

Specialty Analytical

WO#: 2202154
3/4/2022

Client: Advantage Environmental
Project: Beyond Toxics/ BTOX-COV-1

TestCode: 6020_S

Sample ID: ICV	SampType: ICV	TestCode: 6020_S	Units: mg/Kg	Prep Date:	RunNo: 43846						
Client ID: ICV	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/18/2022	SeqNo: 561492						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	4.94	0.100	5.00	0	98.7	90	110				
Barium	4.95	0.0500	5.00	0	99.0	90	110				
Cadmium	5.02	0.0100	5.00	0	100	90	110				
Chromium	5.09	0.100	5.00	0	102	90	110				
Lead	4.84	0.0250	5.00	0	96.8	90	110				
Selenium	4.99	0.100	5.00	0	99.9	90	110				
Silver	5.01	0.0100	5.00	0	100	90	110				B

Sample ID: MB-19212	SampType: MBLK	TestCode: 6020_S	Units: mg/Kg	Prep Date: 2/17/2022	RunNo: 43846						
Client ID: PBS	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/18/2022	SeqNo: 561497						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Barium	ND	0.0500									
Cadmium	ND	0.0100									
Chromium	ND	0.100									
Lead	ND	0.0250									
Selenium	ND	0.100									
Silver	0.0114	0.0100									

Qualifiers: B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: 2202154
3/4/2022

Client: Advantage Environmental
Project: Beyond Toxics/ BTOX-COV-1

TestCode: 6020_S

Sample ID: LCS-19212	SampType: LCS	TestCode: 6020_S	Units: mg/Kg	Prep Date: 2/17/2022	RunNo: 43846						
Client ID: LCSS	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/18/2022	SeqNo: 561498						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	4.77	1.00	5.00	0	95.3	73.4	120				
Barium	5.02	0.500	5.00	0	100	80	120				
Cadmium	4.86	0.100	5.00	0	97.3	80	120				
Chromium	5.37	1.00	5.00	0	107	80	120				
Lead	5.07	0.250	5.00	0	101	80	120				
Selenium	4.69	1.00	5.00	0	93.8	79.5	119				
Silver	5.10	0.100	5.00	0	102	70	130				

Sample ID: 2202148-001ADUP	SampType: DUP	TestCode: 6020_S	Units: mg/Kg	Prep Date: 2/17/2022	RunNo: 43846						
Client ID: BatchQC	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/18/2022	SeqNo: 561500						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	2.80	0.974						1.62	53.7	20	RMI
Cadmium	9.05	0.0974						2.28	119	20	RMI
Chromium	10.2	0.974						4.90	69.8	20	RMI
Selenium	ND	0.974						0	0	20	RMI
Silver	0.394	0.0974						0.325	19.1	20	

Qualifiers: B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: 2202154
3/4/2022

Client: Advantage Environmental
Project: Beyond Toxics/ BTOX-COV-1

TestCode: 6020_S

Sample ID: 2202148-001AMS	SampType: MS	TestCode: 6020_S	Units: mg/Kg	Prep Date: 2/17/2022	RunNo: 43846						
Client ID: BatchQC	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/18/2022	SeqNo: 561501						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	6.98	0.995	4.97	1.62	108	70	130				
Cadmium	9.04	0.0995	4.97	2.28	136	70	130				SMI
Chromium	13.7	0.995	4.97	4.90	177	70	130				SMI
Selenium	4.82	0.995	4.97	0.176	93.4	70	130				
Silver	5.39	0.0995	4.97	0.325	102	70	130				

Sample ID: 2202148-001AMSD	SampType: MSD	TestCode: 6020_S	Units: mg/Kg	Prep Date: 2/17/2022	RunNo: 43846						
Client ID: BatchQC	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/18/2022	SeqNo: 561502						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	7.12	0.965	4.83	1.62	114	70	130	6.98	1.90	20	
Cadmium	8.08	0.0965	4.83	2.28	120	70	130	9.04	11.2	20	
Chromium	16.0	0.965	4.83	4.90	231	70	130	13.7	15.7	20	SMI
Selenium	4.25	0.965	4.83	0.176	84.5	70	130	4.82	12.5	20	
Silver	4.83	0.0965	4.83	0.325	93.3	70	130	5.39	10.9	20	

Sample ID: CCV	SampType: CCV	TestCode: 6020_S	Units: mg/Kg	Prep Date:	RunNo: 43846						
Client ID: CCV	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/18/2022	SeqNo: 561503						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers: B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: 2202154
3/4/2022

Client: Advantage Environmental
Project: Beyond Toxics/ BTOX-COV-1

TestCode: 6020_S

Sample ID: CCV	SampType: CCV	TestCode: 6020_S	Units: mg/Kg	Prep Date:	RunNo: 43846						
Client ID: CCV	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/18/2022	SeqNo: 561503						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	4.72	0.100	5.00	0	94.5	90	110				
Barium	4.83	0.0500	5.00	0	96.5	90	110				
Cadmium	5.05	0.0100	5.00	0	101	90	110				
Chromium	5.06	0.100	5.00	0	101	90	110				
Lead	4.85	0.0250	5.00	0	97.0	90	110				
Selenium	4.72	0.100	5.00	0	94.4	90	110				
Silver	4.89	0.0100	5.00	0	97.9	90	110				B

Sample ID: CCB	SampType: CCB	TestCode: 6020_S	Units: mg/Kg	Prep Date:	RunNo: 43846						
Client ID: CCB	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/18/2022	SeqNo: 561504						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Barium	ND	0.0500									
Cadmium	ND	0.0100									
Chromium	ND	0.100									
Lead	0.0395	0.0250									
Selenium	ND	0.100									
Silver	ND	0.0100									

Qualifiers: B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: 2202154
3/4/2022

Client: Advantage Environmental
Project: Beyond Toxics/ BTOX-COV-1

TestCode: 6020_S

Sample ID: 2202148-001ADUP	SampType: DUP	TestCode: 6020_S	Units: mg/Kg	Prep Date: 2/17/2022	RunNo: 43846						
Client ID: BatchQC	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/18/2022	SeqNo: 561506						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	2670	48.7						1410	62.0	20	RMI
Lead	8030	24.4						2400	108	20	RMI

Sample ID: 2202148-001AMS	SampType: MS	TestCode: 6020_S	Units: mg/Kg	Prep Date: 2/17/2022	RunNo: 43846						
Client ID: BatchQC	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/18/2022	SeqNo: 561507						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	2550	49.7	4.97	1410	23100	70	130				SMC
Lead	6130	24.9	4.97	2400	75100	70	130				SMC

Sample ID: 2202148-001AMSD	SampType: MSD	TestCode: 6020_S	Units: mg/Kg	Prep Date: 2/17/2022	RunNo: 43846						
Client ID: BatchQC	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/18/2022	SeqNo: 561508						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	3100	48.3	4.83	1410	35100	70	130	2550	19.3	20	SMC
Lead	6140	24.1	4.83	2400	77500	70	130	6130	0.107	20	SMC

Qualifiers: B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: 2202154
3/4/2022

Client: Advantage Environmental
Project: Beyond Toxics/ BTOX-COV-1

TestCode: 6020_S

Sample ID: CCV	SampType: CCV	TestCode: 6020_S	Units: mg/Kg	Prep Date:	RunNo: 43846						
Client ID: CCV	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/18/2022	SeqNo: 561509						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	4.71	0.100	5.00	0	94.2	90	110				
Barium	4.71	0.0500	5.00	0	94.3	90	110				
Cadmium	4.91	0.0100	5.00	0	98.2	90	110				
Chromium	5.09	0.100	5.00	0	102	90	110				
Lead	4.66	0.0250	5.00	0	93.2	90	110				
Selenium	4.76	0.100	5.00	0	95.2	90	110				
Silver	4.75	0.0100	5.00	0	95.1	90	110				B

Sample ID: CCB	SampType: CCB	TestCode: 6020_S	Units: mg/Kg	Prep Date:	RunNo: 43846						
Client ID: CCB	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/18/2022	SeqNo: 561510						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Barium	ND	0.0500									
Cadmium	ND	0.0100									
Chromium	ND	0.100									
Lead	ND	0.0250									
Selenium	ND	0.100									
Silver	ND	0.0100									

Qualifiers: B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: 2202154
3/4/2022

Client: Advantage Environmental
Project: Beyond Toxics/ BTOX-COV-1

TestCode: 6020_S

Sample ID: ICV	SampType: ICV	TestCode: 6020_S	Units: mg/Kg	Prep Date:	RunNo: 43846						
Client ID: ICV	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/21/2022	SeqNo: 561662						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	4.99	0.100	5.00	0	99.9	90	110				
Barium	5.01	0.0500	5.00	0	100	90	110				
Cadmium	4.99	0.0100	5.00	0	99.7	90	110				
Chromium	5.12	0.100	5.00	0	102	90	110				
Lead	5.06	0.0250	5.00	0	101	90	110				
Selenium	5.06	0.100	5.00	0	101	90	110				
Silver	5.02	0.0100	5.00	0	100	90	110				B

Sample ID: CCB	SampType: CCB	TestCode: 6020_S	Units: mg/Kg	Prep Date:	RunNo: 43846						
Client ID: CCB	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/21/2022	SeqNo: 561665						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Barium	ND	0.0500									
Cadmium	ND	0.0100									
Chromium	ND	0.100									
Lead	ND	0.0250									
Selenium	ND	0.100									
Silver	ND	0.0100									

Qualifiers: B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: 2202154
3/4/2022

Client: Advantage Environmental
Project: Beyond Toxics/ BTOX-COV-1

TestCode: 6020_S

Sample ID: CCV	SampType: CCV	TestCode: 6020_S	Units: mg/Kg	Prep Date:	RunNo: 43846						
Client ID: CCV	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/21/2022	SeqNo: 561670						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	4.76	0.100	5.00	0	95.1	90	110				
Barium	4.87	0.0500	5.00	0	97.5	90	110				
Cadmium	4.90	0.0100	5.00	0	98.0	90	110				
Chromium	4.86	0.100	5.00	0	97.2	90	110				
Lead	4.81	0.0250	5.00	0	96.3	90	110				
Selenium	4.80	0.100	5.00	0	96.0	90	110				
Silver	4.92	0.0100	5.00	0	98.3	90	110				B

Sample ID: CCB	SampType: CCB	TestCode: 6020_S	Units: mg/Kg	Prep Date:	RunNo: 43846						
Client ID: CCB	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/21/2022	SeqNo: 561671						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Barium	ND	0.0500									
Cadmium	ND	0.0100									
Chromium	ND	0.100									
Lead	ND	0.0250									
Selenium	ND	0.100									
Silver	ND	0.0100									

Qualifiers: B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: 2202154
3/4/2022

Client: Advantage Environmental
Project: Beyond Toxics/ BTOX-COV-1

TestCode: 6020_S

Sample ID: CCV	SampType: CCV	TestCode: 6020_S	Units: mg/Kg	Prep Date:	RunNo: 43846						
Client ID: CCV	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/21/2022	SeqNo: 561672						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	4.77	0.100	5.00	0	95.4	90	110				
Barium	4.96	0.0500	5.00	0	99.3	90	110				
Cadmium	4.93	0.0100	5.00	0	98.5	90	110				
Chromium	4.93	0.100	5.00	0	98.6	90	110				
Lead	5.00	0.0250	5.00	0	99.9	90	110				
Selenium	4.80	0.100	5.00	0	96.1	90	110				
Silver	4.83	0.0100	5.00	0	96.6	90	110				B

Sample ID: CCB	SampType: CCB	TestCode: 6020_S	Units: mg/Kg	Prep Date:	RunNo: 43846						
Client ID: CCB	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/21/2022	SeqNo: 561673						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Barium	ND	0.0500									
Cadmium	ND	0.0100									
Chromium	ND	0.100									
Lead	ND	0.0250									
Selenium	ND	0.100									
Silver	ND	0.0100									

Qualifiers: B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: 2202154
3/4/2022

Client: Advantage Environmental
Project: Beyond Toxics/ BTOX-COV-1

TestCode: 6020_S

Sample ID: CCV	SampType: CCV	TestCode: 6020_S	Units: mg/Kg	Prep Date:	RunNo: 43846						
Client ID: CCV	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/21/2022	SeqNo: 561679						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	4.80	0.100	5.00	0	96.0	90	110				
Barium	4.86	0.0500	5.00	0	97.1	90	110				
Cadmium	5.00	0.0100	5.00	0	99.9	90	110				
Chromium	4.90	0.100	5.00	0	97.9	90	110				
Lead	4.76	0.0250	5.00	0	95.1	90	110				
Selenium	4.79	0.100	5.00	0	95.9	90	110				
Silver	4.76	0.0100	5.00	0	95.1	90	110				B

Sample ID: CCB	SampType: CCB	TestCode: 6020_S	Units: mg/Kg	Prep Date:	RunNo: 43846						
Client ID: CCB	Batch ID: 19212	TestNo: SW 6020B	SW3050B	Analysis Date: 2/21/2022	SeqNo: 561680						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Barium	ND	0.0500									
Cadmium	ND	0.0100									
Chromium	ND	0.100									
Lead	ND	0.0250									
Selenium	ND	0.100									
Silver	ND	0.0100									

Qualifiers: B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: 2202154
3/4/2022

Client: Advantage Environmental
Project: Beyond Toxics/ BTOX-COV-1

TestCode: HG_CTS

Sample ID: LCS-R44013	SampType: LCS	TestCode: HG_CTS	Units: mg/Kg	Prep Date:	RunNo: 44013						
Client ID: LCSS	Batch ID: 19267	TestNo: SW 7471B	SW 7471B	Analysis Date: 3/4/2022	SeqNo: 563521						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.364	0.0100	0.400	0	90.9	80	120				

Sample ID: LCSD-R44013	SampType: LCSD	TestCode: HG_CTS	Units: mg/Kg	Prep Date:	RunNo: 44013						
Client ID: LCSS02	Batch ID: 19267	TestNo: SW 7471B	SW 7471B	Analysis Date: 3/4/2022	SeqNo: 563522						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.395	0.0100	0.400	0	98.7	80	120	0.364	8.20	20	

Sample ID: MB-R44013	SampType: MBLK	TestCode: HG_CTS	Units: mg/Kg	Prep Date:	RunNo: 44013						
Client ID: PBS	Batch ID: 19267	TestNo: SW 7471B	SW 7471B	Analysis Date: 3/4/2022	SeqNo: 563524						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.0100									

Sample ID: 2202154-001ADUP	SampType: DUP	TestCode: HG_CTS	Units: mg/Kg	Prep Date: 3/3/2022	RunNo: 44013						
Client ID: M1	Batch ID: 19267	TestNo: SW 7471B	SW 7471B	Analysis Date: 3/4/2022	SeqNo: 563526						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.107	0.0101						0.0867	20.9	20	RMI

Qualifiers: B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: 2202154
3/4/2022

Client: Advantage Environmental
Project: Beyond Toxics/ BTOX-COV-1

TestCode: HG_CTS

Sample ID: 2202154-001ADUP	SampType: DUP	TestCode: HG_CTS	Units: mg/Kg	Prep Date: 3/3/2022	RunNo: 44013						
Client ID: M1	Batch ID: 19267	TestNo: SW 7471B	SW 7471B	Analysis Date: 3/4/2022	SeqNo: 563526						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: 2202154-001AMS	SampType: MS	TestCode: HG_CTS	Units: mg/Kg	Prep Date: 3/3/2022	RunNo: 44013						
Client ID: M1	Batch ID: 19267	TestNo: SW 7471B	SW 7471B	Analysis Date: 3/4/2022	SeqNo: 563527						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.767	0.00992	0.794	0.0867	85.7	75	125				

Sample ID: 2202154-001AMSD	SampType: MSD	TestCode: HG_CTS	Units: mg/Kg	Prep Date: 3/3/2022	RunNo: 44013						
Client ID: M1	Batch ID: 19267	TestNo: SW 7471B	SW 7471B	Analysis Date: 3/4/2022	SeqNo: 563528						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.382	0.00959	0.384	0.0867	77.1	75	125	0.767	66.9	20	RMI

Sample ID: CCV1-R44013	SampType: CCV	TestCode: HG_CTS	Units: mg/Kg	Prep Date:	RunNo: 44013						
Client ID: CCV	Batch ID: 19267	TestNo: SW 7471B	SW 7471B	Analysis Date: 3/4/2022	SeqNo: 563531						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.371	0.0100	0.400	0	92.6	90	110				

Qualifiers: B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: 2202154
3/4/2022

Client: Advantage Environmental
Project: Beyond Toxics/ BTOX-COV-1

TestCode: HG_CTS

Sample ID: CCB1-R44013	SampType: CCB	TestCode: HG_CTS	Units: mg/Kg	Prep Date:	RunNo: 44013						
Client ID: CCB	Batch ID: 19267	TestNo: SW 7471B	SW 7471B	Analysis Date: 3/4/2022	SeqNo: 563532						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.0100									

Sample ID: 2202164-001ADUP	SampType: DUP	TestCode: HG_CTS	Units: mg/Kg	Prep Date: 3/3/2022	RunNo: 44013						
Client ID: BatchQC	Batch ID: 19267	TestNo: SW 7471B	SW 7471B	Analysis Date: 3/4/2022	SeqNo: 563537						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.00963						0	0	20	

Sample ID: 2202164-001AMS	SampType: MS	TestCode: HG_CTS	Units: mg/Kg	Prep Date: 3/3/2022	RunNo: 44013						
Client ID: BatchQC	Batch ID: 19267	TestNo: SW 7471B	SW 7471B	Analysis Date: 3/4/2022	SeqNo: 563538						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.305	0.00945	0.378	0.00812	78.6	75	125				

Sample ID: 2202164-001AMSD	SampType: MSD	TestCode: HG_CTS	Units: mg/Kg	Prep Date: 3/3/2022	RunNo: 44013						
Client ID: BatchQC	Batch ID: 19267	TestNo: SW 7471B	SW 7471B	Analysis Date: 3/4/2022	SeqNo: 563539						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.277	0.00961	0.384	0.00812	70.0	75	125	0.305	9.71	20	SMI

Qualifiers: B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Specialty Analytical

WO#: 2202154
3/4/2022

Client: Advantage Environmental
Project: Beyond Toxics/ BTOX-COV-1

TestCode: HG_CTS

Sample ID: 2202164-001AMSD	SampType: MSD	TestCode: HG_CTS	Units: mg/Kg	Prep Date: 3/3/2022	RunNo: 44013						
Client ID: BatchQC	Batch ID: 19267	TestNo: SW 7471B	SW 7471B	Analysis Date: 3/4/2022	SeqNo: 563539						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: CCV3-R44013	SampType: CCV	TestCode: HG_CTS	Units: mg/Kg	Prep Date:	RunNo: 44013						
Client ID: CCV	Batch ID: 19267	TestNo: SW 7471B	SW 7471B	Analysis Date: 3/4/2022	SeqNo: 563550						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.399	0.0100	0.400	0	99.9	90	110				

Sample ID: CCB3-R44013	SampType: CCB	TestCode: HG_CTS	Units: mg/Kg	Prep Date:	RunNo: 44013						
Client ID: CCB	Batch ID: 19267	TestNo: SW 7471B	SW 7471B	Analysis Date: 3/4/2022	SeqNo: 563551						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0171	0.0100									

Qualifiers: B Analyte detected in the associated Method Blank H Holding times for preparation or analysis exceeded R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits



Specialty Analytical
 9011 SE Jannsen Rd
 Clackamas, Oregon 97015
 TEL: 503-607-1331 FAX: 503-607-1336
 Website: www.specialtyanalytical.com

Sample Receipt Checklist

Client Name **ADVANTAGE**

Work Order Number **2202154**

RcptNo: **1**

Date and Time Receive **2/18/2022 9:38:55 AM**

Received by: **Mandy Wehe**

Completed by

Reviewed by:

Completed Date: 2/18/2022

Reviewed Date: 2/22/2022 9:42:13 AM

Carrier name: Client

- | | | | | |
|---|--|--|-------------|-------------------------------------|
| Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present | <input type="checkbox"/> |
| Are matrices correctly identified on Chain of custody? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Is it clear what analyses were requested? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present | <input checked="" type="checkbox"/> |
| Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Were correct preservatives used and noted? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA | <input type="checkbox"/> |
| Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Were container labels complete (ID, Pres, Date)? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Was an attempt made to cool the samples? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA | <input type="checkbox"/> |
| All samples received at a temp. of > 0° C to 6.0° C? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA | <input type="checkbox"/> |
| Response when temperature is outside of range: | | | | |
| Preservative added to bottles: | | | | |
| Sample Temp. taken and recorded upon receipt? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | To | 0.3 °C |
| Water - Were bubbles absent in VOC vials? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | No Vials | <input checked="" type="checkbox"/> |
| Water - Was there Chlorine Present? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA | <input checked="" type="checkbox"/> |
| Water - pH acceptable upon receipt? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA | <input checked="" type="checkbox"/> |
| Are Samples considered acceptable? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Custody Seals present? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | | |
| Traffic Report or Packing Lists present? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | | |
| Airbill or Sticker? | Air Bill <input type="checkbox"/> | Sticker <input type="checkbox"/> | Not Present | <input checked="" type="checkbox"/> |
| Airbill No: | | | | |
| Sample Tags Present? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | | |
| Sample Tags Listed on COC? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | | |
| Tag Numbers: | | | | |
| Sample Condition? | Intact <input checked="" type="checkbox"/> | Broken <input type="checkbox"/> | Leaking | <input type="checkbox"/> |

Case Number:

SDG:

SAS:

Adjusted? _____ Checked by _____


Any No and/or NA (not applicable) response must be detailed in the comments section be



Specialty Analytical
9011 SE Jannsen Rd
Clackamas, Oregon 97015
TEL: 503-607-1331 FAX: 503-607-1336
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Sample Receipt Checklist

Client Contacted? Yes No NA Person Contacted: _____ Comments: _____
Contact Mode: Phone: Fax: Email: In Person: _____
Client Instructions: _____
Date Contacted: _____ Contacted By: _____
Regarding: _____
CorrectiveAction: _____

	Specialty Analytical 9011 SE Jannsen Rd Clackamas, OR 97015 Phone: 503-607-1331 Fax: 503-607-1336	Chain of Custody Record		
	Date: 2/17/2022 Page: 1 of 1	Laboratory Project No (internal): 2202154		
Client: Advantage Environmental Inc.	Project Name: Beyond Toxics	Temperature on Receipt: 0.3 °C		
Address: 9317 NE Hwy 99 Suite B	Project No: BTOX-COV-1 PO No:	Cooling: <i>icu</i> Shipped Via: <i>client</i>		
City, State, Zip: Vancouver, WA, 98665	Collected by: Adam Ennes	Custody Seal: Y <input checked="" type="checkbox"/> Intact / Broken Cooler / Bottle		
Telephone: 360-843-8765	State Collected: OR <input checked="" type="checkbox"/> WA <input type="checkbox"/> OTHER	MDL <input type="checkbox"/> TIER IV <input type="checkbox"/> EDD <input type="checkbox"/>	Sample Disposal: <input checked="" type="checkbox"/> Return to client <input checked="" type="checkbox"/> Disposal by lab (after 60 days)	
AP Email: adam.ennes@advantage-enviro.com	Report To (PM): Sidney Carter			
	PM Email: sid.carter@advantage-enviro.com			

Sample Name	Sample Date	Sample Time	Sample Matrix*	# of Containers	PCMA 8	Requested Tests	Comments
1 M1	2/17/22	9:30	Moss	1	<input checked="" type="checkbox"/>		
2 M2	2/17/22	10:15	Moss	1	<input checked="" type="checkbox"/>		
3 M3	2/17/22	10:45	Moss	1	<input checked="" type="checkbox"/>		
4 S1	2/17/22	9:30	Soil	1	<input checked="" type="checkbox"/>		
5 S2	2/17/22	10:15	Soil	1	<input checked="" type="checkbox"/>		
6 S3	2/17/22	10:45	Soil	1	<input checked="" type="checkbox"/>		
7							
8							
9							
10							

*Matrix: A=Air, AQ=Aqueous, L=Liquid, O=Oil, P=Product, S=Soil, SD=Sediment, SL=Solid, W=Water, DW=Drinking Water, GW=Ground Water, SW=Storm Water, WW=Waste Water, M=Miscellaneous

Turn-around Time: Standard (5-7 Business): 3 Day: 2 Day: Next Day: Same Day:

Expedited turn-around requests should be coordinated in advance

Relinquished <i>[Signature]</i> Date/Time: 2/18/22 @ 9:36 am	Received x <i>[Signature]</i> Date/Time: 2/18/22 9:35
Relinquished x Date/Time:	Received x Date/Time:
Relinquished x Date/Time:	Received x Date/Time:



Specialty Analytical
9011 SE Jannsen Ra
Clackamas, Oregon 97015
TEL: 503-607-1331 FAX: 503-607-1336
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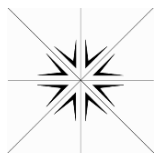
Definition Only

WO#: 2202154
Date: 3/4/2022

Definitions:

KEY TO FLAGS

- A: This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was qualified against gasoline calibration standards.
- A1: This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was qualified against diesel calibration standards.
- A2: This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was qualified against lube oil calibration standards.
- A3: The results was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.
- A4: The product appears to be aged or degraded.
- B: The blank exhibited a positive result greater than the reporting limit for this compound.
- CN: See Case Narrative.
- E: Result exceeds the calibration range for this compound. The result should be considered an estimate.
- F: The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.
- FS: Follow-up testing is suggested.
- G: Result may be biased high due to biogenic interferences. Clean up is recommended.
- H: Sample was analyzed outside recommended holding time.
- HT: At client's request, samples was analyzed outside of recommended holding time.
- HP: Sample was analyzed outside recommended holding time due to VOA having pH >2.
- J: The results for this analyte is between the MDL and the PQL and should be considered an
-



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Definitions:

estimated concentration.

K: Diesel result is biased high due to amount of Oil contained in the sample.

L: Diesel result is biased high due to amount of Gasoline contained in the sample.

M: Oil result is biased high due to amount of Diesel contained in the sample.

N: Gasoline result is biased high due to amount of Diesel contained in the sample.

MC: Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.

MI: Result is outside control limits due to matrix interference.

NH: Sample matrix is non-homogeneous

MSA: Value determined by Method of Standard Addition.

O: Laboratory Control Standard (LCS) exceeded laboratory control limits but meets CCV criteria. Data meets EPA requirements.

Q: Detection levels elevated due to sample matrix.

R: RPD control limits were exceeded

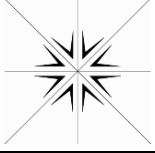
RF: Duplicate failed due to result being at or near the method-reporting limit.

RP: Matrix spike values exceed established QC limits; post digestion spike is in control.

S: Recovery is outside control limits.

SC: CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data meets EPA requirements.

SL: LCS exceeded recovery control limits, but associated MS/MSD passing. Data meets EPA requirements.



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Definitions:

TA: Sample treated with ascorbic acid for the removal of thiocyanates.