

TRC LOWELL

MONTGOMERY COUNTY RRF
PROJECT # 200454.0000.0000

CLIENT # T004
REPORT # 14-117

SUBMITTED BY:
CHESTER LabNet
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CHESTER LabNet

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Case Narrative

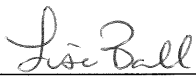
Date: March 24, 2014

General Information

Client: TRC Lowell
Client Number: T004
Report Number: 14-117
Sample Description: 8x10 Quartz Filters
Sample Numbers: 14-U262 – 14-U265

Analysis

Analytes: XRF Metals (Al - Pb)
Analytical Protocols: X-Ray Fluorescence: EPA IO-3.3
Analytical Notes: No problems were encountered during the analyses. Results are not blank corrected.
QA/QC Review: All of the data have been reviewed by the analysts performing the analyses and the project manager. All of the quality control and sample-specific information in this package is complete and meets or exceeds the minimum requirements for acceptability.
Comments: If you have any questions or concerns regarding this analysis, please feel free to contact the project manager.
Disclaimer: This report shall not be reproduced, except in full, without the written approval of the laboratory. The results only represent that of the samples as received into the laboratory.



Project Manager Date
Lisa Ball

Client: T004 - TRC-Lowell
Report Number: 14-117

Lab ID: 14-U262
Client ID: B'ville Metals 3 Pri
Filter ID: 303124
Site: Montgomery County RRF
Sample Period: 2/26/14 14:34 - 2/27/14 14:34
Deposit Area: 406. cm²

Analyte µg/filter

XRF

Al	324.6	± 94.76
* P	0.0000	± 52.58
S	363.2	± 36.01
Cl	483.5	± 35.97
K	397.8	± 24.81
Ca	2788.	±223.6
* Ti	9.338	± 5.359
* V	0.0000	± 2.192
Cr	21.44	± 1.746
Mn	11.90	± 1.502
Fe	385.8	± 20.14
* Co	0.0000	± 1.015
Ni	6.131	± 0.8526
Cu	51.93	± 2.801
Zn	34.14	± 3.410
* Ga	0.0812	± 1.421
Ge	8.079	± 1.340
* As	0.0000	± 1.137
* Se	1.259	± 1.096
Br	6.577	± 1.096
* Rb	0.6090	± 1.177
Sr	7.917	± 1.462
* Y	3.654	± 1.746
Zr	36.17	± 2.883
Mo	120.5	± 6.861
* Pd	0.0000	± 1.746
* Ag	0.0000	± 1.827
* Cd	0.0000	± 1.868
* In	0.1624	± 2.071
Sn	12.02	± 2.558
* Sb	1.624	± 3.086
Ba	116.4	± 14.29
* La	0.0000	± 16.40
* Hg	0.0000	± 3.167
* Pb	7.552	± 3.045

* - XRF Concentration is less than three times the uncertainty

Client: T004 - TRC-Lowell
Report Number: 14-117

Lab ID: 14-U265
Client ID: FBB Metals 3
Filter ID: 303127
Site: Montgomery County RRF
Sample Period: 2/26/14 14:34 - 2/27/14 14:34
Deposit Area: 406. cm²

Analyte	µg/filter	
XRF		
* Al	262.1	± 96.42
* P	0.0000	± 58.55
* S	0.0000	± 21.11
* Cl	0.0000	± 13.11
K	315.1	± 20.14
Ca	1757.	±142.1
Ti	23.87	± 2.233
* V	0.0000	± 1.299
Cr	14.58	± 1.462
Mn	6.861	± 1.299
Fe	100.6	± 5.522
* Co	0.0000	± 0.8120
Ni	4.628	± 0.7714
Cu	10.88	± 2.355
Zn	13.11	± 2.274
* Ga	0.9744	± 1.380
Ge	6.009	± 1.299
* As	0.0000	± 1.949
Se	3.329	± 1.096
Br	4.182	± 1.015
* Rb	0.0000	± 1.177
Sr	4.507	± 1.421
* Y	1.989	± 1.746
Zr	42.22	± 3.086
Mo	124.6	± 7.064
* Pd	0.4872	± 1.786
* Ag	0.5684	± 1.868
* Cd	1.705	± 1.868
* In	4.344	± 2.111
* Sn	4.994	± 2.558
* Sb	0.2842	± 3.086
* Ba	36.50	± 13.32
* La	11.45	± 16.61
* Hg	0.0000	± 3.167
Pb	11.37	± 3.045

* - XRF Concentration is less than three times the uncertainty

XRF-772 REPLICATE REPORT

3.98

Original ID: 14-U264

Replicate ID: RU264

Filter Lot:

Deposit Mass: 244 μg

Deposit Area: 1.0 cm^2

Particle Size: T

Element	Original ug/cm2	Replicate ug/cm2	Difference ug/cm2	RPD
Al	1.0882 +- 0.2341	1.1328 +- 0.2330	-0.0446 +- 0.3303	+ -4.0 +- 29.7
P	0.0000 +- 0.1213	0.0000 +- 0.1366	0.0000 +- 0.1827	
S	0.8430 +- 0.0852	0.9199 +- 0.0886	-0.0769 +- 0.1230	+ -8.7 +- 14.0
Cl	2.7155 +- 0.1816	2.7212 +- 0.1816	-0.0058 +- 0.2568	+ -0.2 +- 9.4
K	1.1381 +- 0.0699	1.1310 +- 0.0694	0.0071 +- 0.0985	+ 0.6 +- 8.7
Ca	7.0362 +- 0.5631	6.9222 +- 0.5540	0.1140 +- 0.7899	+ 1.6 +- 11.3
Ti	0.1122 +- 0.0148	0.0872 +- 0.0143	0.0250 +- 0.0206	0 25.0 +- 20.6
V	0.0000 +- 0.0056	0.0000 +- 0.0055	0.0000 +- 0.0079	
Cr	0.0451 +- 0.0040	0.0466 +- 0.0041	-0.0014 +- 0.0057	+ -3.1 +- 12.5
Mn	0.0475 +- 0.0045	0.0499 +- 0.0046	-0.0024 +- 0.0064	+ -5.0 +- 13.2
Fe	1.8565 +- 0.0961	1.8394 +- 0.0952	0.0171 +- 0.1353	+ 0.9 +- 7.3
Co	0.0000 +- 0.0030	0.0000 +- 0.0030	0.0000 +- 0.0043	
Ni	0.0143 +- 0.0021	0.0135 +- 0.0021	0.0009 +- 0.0030	+ 6.2 +- 21.2
Cu	0.2535 +- 0.0134	0.2589 +- 0.0137	-0.0054 +- 0.0192	+ -2.1 +- 7.5
Zn	0.0886 +- 0.0088	0.0909 +- 0.0089	-0.0023 +- 0.0125	+ -2.5 +- 14.0
Ga	0.0000 +- 0.0035	0.0000 +- 0.0035	0.0000 +- 0.0049	
Ge	0.0086 +- 0.0032	0.0137 +- 0.0033	-0.0051 +- 0.0046	
As	0.0095 +- 0.0028	0.0066 +- 0.0028	0.0029 +- 0.0040	+ 35.6 +- 49.9
Se	0.0061 +- 0.0027	0.0046 +- 0.0027	0.0015 +- 0.0038	
Br	0.0131 +- 0.0026	0.0139 +- 0.0026	-0.0008 +- 0.0036	+ -6.1 +- 27.0
Rb	0.0039 +- 0.0029	0.0000 +- 0.0029	0.0039 +- 0.0041	
Sr	0.0255 +- 0.0036	0.0186 +- 0.0035	0.0070 +- 0.0051	0 31.7 +- 23.0
Y	0.0070 +- 0.0042	0.0000 +- 0.0042	0.0070 +- 0.0060	
Zr	0.0971 +- 0.0073	0.0975 +- 0.0074	-0.0004 +- 0.0104	+ -0.4 +- 10.7
Mo	0.2990 +- 0.0170	0.3146 +- 0.0177	-0.0156 +- 0.0245	+ -5.1 +- 8.0
Pd	0.0000 +- 0.0043	0.0000 +- 0.0044	0.0000 +- 0.0062	
Ag	0.0071 +- 0.0045	0.0000 +- 0.0045	0.0071 +- 0.0064	
Cd	0.0075 +- 0.0046	0.0000 +- 0.0046	0.0075 +- 0.0065	
In	0.0000 +- 0.0051	0.0000 +- 0.0051	0.0000 +- 0.0072	
Sn	0.0436 +- 0.0065	0.0457 +- 0.0065	-0.0021 +- 0.0092	+ -4.8 +- 20.7
Sb	0.0081 +- 0.0075	0.0189 +- 0.0076	-0.0108 +- 0.0107	
Ba	0.2620 +- 0.0347	0.3546 +- 0.0366	-0.0927 +- 0.0504	0 -30.1 +- 16.3
La	0.0000 +- 0.0404	0.0000 +- 0.0402	0.0000 +- 0.0570	
Hg	0.0044 +- 0.0078	0.0000 +- 0.0078	0.0044 +- 0.0110	
Pb	0.0070 +- 0.0074	0.0034 +- 0.0075	0.0036 +- 0.0105	

RPD: Relative Percent Difference $(X1-X2)/[(X1+X2)/2]*100$. RPD is calculated when original value is greater than three times its uncertainty.

CHESTER LabNet

XRF-772 XRF Analytical Quality Assurance Report

Client: TRC-Lowell

Report: 14-117

Analysis Period: March 19, 2014

Number of Samples: 4

1. Precision Data

Micromatter Multi-elemental Quality Control Standard: QS285

QC Standard Results

Analyte	n	Counts per Second			c.v.	%E
		Calib.	Meas.	S.D.		
Ti(0)	1	296.65	276.34	na	na	-6.85
Fe(1)	1	343.19	317.37	na	na	-7.52
Se(2)	1	420.82	424.63	na	na	0.91
Pb(2)	1	508.47	520.49	na	na	2.36
Cd(3)	1	161.66	165.26	na	na	2.23

2. Accuracy Data

NIST Standard Reference Materials: SRM 1832, SRM 1833

Analyte/ SRM	n	Certified Value($\mu\text{g}/\text{cm}^2$)	Measured Value ($\mu\text{g}/\text{cm}^2$)				% Rec.
			High	Low	Average		
Al 1832	4	14.6 +/- .97	15.15	14.72	14.88	+/- 0.17	101.9
Si 1832	4	34.0 +/- 1.1	36.66	35.54	36.17	+/- 0.45	106.4
Si 1833	4	31.5 +/- 2.1	32.59	32.41	32.49	+/- 0.07	103.2
S 2708	4	2.46 +/- .25	2.47	2.37	2.41	+/- 0.04	97.7
K 1833	4	16.4 +/- 1.64	17.42	16.99	17.26	+/- 0.16	105.2
Ca 1832	4	1.32 +/- 0.17	1.27	1.19	1.23	+/- 0.03	92.9
Ti 1833	4	12.1 +/- 1.79	11.87	11.63	11.73	+/- 0.10	96.9
V 1832	4	4.70 +/- .49	4.55	4.37	4.48	+/- 0.07	95.3
Mn 1832	4	4.54 +/- .49	4.84	4.80	4.82	+/- 0.01	106.1
Fe 1833	4	13.6 +/- .45	13.48	13.16	13.34	+/- 0.12	98.1
Cu 1832	4	2.43 +/- .16	2.62	2.55	2.60	+/- 0.03	106.9
Zn 2783	4	.180 +/- .013	0.19	0.18	0.18	+/- 0.00	102.5
Pb 1833	4	16.1 +/- .75	16.49	16.20	16.34	+/- 0.11	101.5

NIST: National Institute of Standards and Technology

% Rec: Percent Recovery = (Experimental/Given) x 100

n: Number of Observations

S.D.: Standard Deviation

c.v.: Coefficient of Variation = (S.D./Measured) x 100

% E: Percent Error = [(Measured-Calibrated)/Calibrated] x 100



AIR ANALYSIS - SORBENT MEDIA
CHAIN OF CUSTODY

Westborough, MA
TEL: 508-898-9220
FAX: 508-822-3288

Mansfield, MA
TEL: 508-822-9300
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Client Information

Client: TRC Environmental
Address: 21 Griffin Road North
Windsor, CT

Project Name: Montgomery County RRF
Project Location: Maryland
Project # 200454.0000.0000

(Use Project name as Project #)
Project Manager:
ALPHA Quote #:

Phone: _____

Fax: _____

Email: ghunt@trcsolutions.com

Turn-Around Time
Standard Due Date: _____

Rush (only if pre approved) Time: _____

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/ Comments/Detection Limits
please remove at least a 47mm punch sized portion for secondary XRF analysis at
Chester LabNet in Tigar, OR.
do not analyze back-up samples unless directed by Gary Hunt or Melita Lihzis

For PCBs, selection is REQUIRED:
 Congeners
 Homologs
 Aroclors (Low Vol only)

ANALYSIS

NOTE: For metals, please specify elements of interest and media type.
 PM-10
 TSP
 MCE

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection			Flow Rate (L/min)	Total Volume (L)	Sample Matrix*	Sampler's Initials	Media ID# (1)	Media Type								
		Date	Start Time	End Time						TO-13A PCBs (High Vol)	TO-11A PCBs (Low Vol)	Hg via NIOSH 6009 Mod.	Metals	TO-17	Sample Comments (i.e. PID)			
4262	Bville-Metals-3 -Pri	2/20/21	14:34	14:34		AA	SP		X									
4263	Bville-Metals-3 -Col	2/21/21	14:34	14:34		AA	SP		X									
4264	Luck-Metals-3 -Pri	2/24/21	11:20	11:20		AA	SD		X									
4265	FBB-Metals-3	2/24/21	14:34	14:34		AA	SP		X									

***SAMPLE MATRIX CODES**

AA = Ambient Air (Indoor/Outdoor)
SV = Sol Vapor/Liquid Gas/SVE
Other = Please Specify

(1) Required for PUF cartridges, PM-10, and TSP filters and TO-17 sorbent tubes.

Media Code
D = DNPH Cartridge
F = Filter
P = PUF Cartridge
T = Sorbent Tube
O = Other

Relinquished By:
Stephen Dwyer

Date/Time
3-3-14 11:00

Received By:
[Signature]

Date/Time
3-4-14 10:23

ALPHA Job # **L1404480**

Date Rec'd in Lab **3-4-14**

Page _____ of _____

Report Information - Data Deliverables

Same as Client Info

PO # _____

Criteria Checker:

Other Formats:

EMAIL

Add'l Deliverables

Report to: (if different than Project Manager)
ghunt@trcsolutions.com

Regulatory Requirements/Report Limits

State/Fed _____ Program _____

Criteria _____

RAW DATA

Available upon request

TRC LOWELL

MONTGOMERY COUNTY RRF
PROJECT # 200454.0000.0000

CLIENT # T004
REPORT # 14-089

SUBMITTED BY:

CHESTER LabNet

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Case Narrative


Date: March 10, 2014

General Information

Client: TRC Lowell
Client Number: T004
Report Number: 14-089
Sample Description: 8x10 Quartz Filters
Sample Numbers: 14-U229 – 14-U236

Analysis

Analytes: XRF Metals (Al - Pb)
Analytical Protocols: X-Ray Fluorescence: EPA IO-3.3
Analytical Notes: No problems were encountered during the analyses. Results are not blank corrected.
QA/QC Review: All of the data have been reviewed by the analysts performing the analyses and the project manager. All of the quality control and sample-specific information in this package is complete and meets or exceeds the minimum requirements for acceptability.
Comments: If you have any questions or concerns regarding this analysis, please feel free to contact the project manager.
Disclaimer: This report shall not be reproduced, except in full, without the written approval of the laboratory. The results only represent that of the samples as received into the laboratory.


Project Manager 3/10/14
Paul Duda Date

Client: T004 - TRC-Lowell
Report Number: 14-089

Lab ID: 14-U231
Client ID: Luck Metals 1 Pri
Filter ID: 303134
Site: Montgomery County RRF
Sample Period: 1/28/14 10:27 - 1/29/14 10:27
Deposit Area: 406. cm²

Analyte	µg/filter	
XRF		
Al	475.8	± 96.47
* P	0.0000	± 49.98
S	279.4	± 31.30
Cl	2056.	±134.0
K	427.9	± 26.55
Ca	2444.	±196.3
Ti	19.73	± 5.522
* V	0.0000	± 2.233
Cr	17.46	± 1.583
Mn	16.65	± 1.705
Fe	574.1	± 29.80
* Co	0.0000	± 1.177
Ni	2.598	± 0.8120
Cu	142.5	± 7.308
Zn	26.19	± 3.004
* Ga	0.0000	± 1.421
Ge	5.034	± 1.299
* As	1.502	± 1.177
* Se	0.1624	± 1.096
Br	10.11	± 1.177
Rb	3.816	± 1.218
Sr	6.131	± 1.421
* Y	3.004	± 1.746
Zr	40.03	± 3.004
Mo	132.1	± 7.389
* Pd	0.0000	± 1.786
* Ag	1.543	± 1.868
* Cd	0.9338	± 1.908
* In	0.8120	± 2.111
Sn	9.379	± 2.558
* Sb	0.0000	± 3.086
Ba	127.4	± 14.53
* La	17.26	± 16.44
* Hg	0.0000	± 3.167
* Pb	4.710	± 3.004

* - XRF Concentration is less than three times the uncertainty

Client: T004 - TRC-Lowell
Report Number: 14-089

Lab ID: 14-U232
Client ID: FBB Metals 1
Filter ID: 303117
Site: Montgomery County RRF
Deposit Area: 406. cm²

Analyte µg/filter

XRF

Al	323.6	± 96.34
* P	0.0000	± 53.55
* S	0.0000	± 20.75
* Cl	0.0000	± 13.20
K	307.5	± 19.69
Ca	1781.	±144.0
* Ti	0.0000	± 5.116
* V	0.0000	± 2.071
Cr	15.92	± 1.462
* Mn	3.289	± 1.218
Fe	93.54	± 5.156
* Co	0.0000	± 0.7714
Ni	5.075	± 0.7714
Cu	10.84	± 2.314
Zn	11.08	± 2.152
* Ga	0.8526	± 1.380
Ge	5.440	± 1.299
* As	2.355	± 1.137
* Se	2.598	± 1.096
* Br	0.0812	± 0.9744
* Rb	0.5278	± 1.177
Sr	5.928	± 1.421
Y	5.562	± 1.746
Zr	43.93	± 3.126
Mo	120.1	± 6.821
* Pd	0.0000	± 1.786
* Ag	0.0000	± 1.827
* Cd	0.6090	± 1.868
* In	0.0000	± 2.071
Sn	14.37	± 2.598
* Sb	0.0000	± 3.045
Ba	108.4	± 14.01
* La	5.968	± 16.32
* Hg	0.0000	± 3.167
* Pb	5.319	± 2.964

* - XRF Concentration is less than three times the uncertainty

Client: T004 - TRC-Lowell
Report Number: 14-089

Lab ID: 14-U236
Client ID: FBB Metals 2
Filter ID: 303122
Site: Montgomery County RRF
Sample Period: 2/ 6/14 17:46 - 2/ 7/14 16:46
Deposit Area: 406. cm²

Analyte	µg/filter	
XRF		
* Al	177.9	± 95.21
* P	0.0000	± 57.65
* S	18.76	± 20.99
* Cl	4.263	± 13.32
K	306.9	± 19.69
Ca	1772.	±143.2
* Ti	0.0000	± 5.197
* V	0.0000	± 2.111
Cr	15.79	± 1.462
Mn	6.131	± 1.259
Fe	102.1	± 5.562
* Co	0.0000	± 0.8120
Ni	4.466	± 0.7714
Cu	12.55	± 2.395
Zn	15.55	± 2.355
* Ga	1.218	± 1.380
Ge	6.699	± 1.299
* As	0.0000	± 1.137
* Se	2.274	± 1.096
* Br	2.883	± 1.015
* Rb	0.6902	± 1.177
Sr	8.851	± 1.462
* Y	2.842	± 1.746
Zr	57.57	± 3.695
Mo	121.1	± 6.902
* Pd	0.4060	± 1.786
* Ag	0.0000	± 1.827
* Cd	0.0000	± 1.827
* In	1.299	± 2.071
Sn	16.69	± 2.639
* Sb	0.0000	± 3.086
Ba	88.43	± 13.80
* La	7.552	± 16.48
* Hg	0.0000	± 3.167
* Pb	8.891	± 3.004

* - XRF Concentration is less than three times the uncertainty

CHESTER LabNet

XRF-772 XRF Analytical Quality Assurance Report

Client: TRC-Lowell

Report: 14-089

Analysis Period: March 4, 2014

Number of Samples: 8

1. Precision Data

Micromatter Multi-elemental Quality Control Standard: QS285

QC Standard Results

Analyte	n	Counts per Second			c.v.	%E
		Calib.	Meas.	S.D.		
Ti(0)	1	296.65	277.46	na	na	-6.47
Fe(1)	1	343.19	324.50	na	na	-5.45
Se(2)	1	420.82	418.57	na	na	-0.53
Pb(2)	1	508.47	512.17	na	na	0.73
Cd(3)	1	161.66	164.10	na	na	1.51

2. Accuracy Data

NIST Standard Reference Materials: SRM 1832, SRM 1833

Analyte/ SRM	n	Certified Value($\mu\text{g}/\text{cm}^2$)	Measured Value ($\mu\text{g}/\text{cm}^2$)				% Rec.
			High	Low	Average		
Al 1832	4	14.6 +/- .97	15.19	14.75	14.90	+/- 0.18	102.1
Si 1832	4	34.0 +/- 1.1	36.66	36.31	36.53	+/- 0.14	107.4
Si 1833	4	31.5 +/- 2.1	32.59	32.08	32.41	+/- 0.20	102.9
S 2708	4	2.46 +/- .25	2.43	2.33	2.39	+/- 0.04	96.8
K 1833	4	16.4 +/- 1.64	17.49	17.01	17.28	+/- 0.17	105.4
Ca 1832	4	1.32 +/- 0.17	1.27	1.19	1.21	+/- 0.03	91.2
Ti 1833	4	12.1 +/- 1.79	11.87	11.63	11.75	+/- 0.08	97.1
V 1832	4	4.70 +/- .49	4.62	4.37	4.52	+/- 0.09	96.2
Mn 1832	4	4.54 +/- .49	4.85	4.81	4.83	+/- 0.02	106.5
Fe 1833	4	13.6 +/- .45	13.48	13.16	13.33	+/- 0.12	98.0
Cu 1832	4	2.43 +/- .16	2.62	2.55	2.59	+/- 0.02	106.5
Zn 2783	4	.180 +/- .013	0.18	0.18	0.18	+/- 0.00	100.5
Pb 1833	4	16.1 +/- .75	16.49	16.20	16.34	+/- 0.11	101.5

NIST: National Institute of Standards and Technology

% Rec: Percent Recovery = (Experimental/Given) x 100

n: Number of Observations

S.D.: Standard Deviation

c.v.: Coefficient of Variation = (S.D./Measured) x 100

% E: Percent Error = [(Measured-Calibrated)/Calibrated] x 100

XRF-772 REPLICATE REPORT

2.99

Original ID: 14-U235

Replicate ID: RU235

Filter Lot:

Deposit Mass: 246 µg

Deposit Area: 1.0 cm²

Particle Size: T

Element	Original ug/cm2		Replicate ug/cm2		Difference ug/cm2			RPD	
Al	1.4030	+ 0.2420	1.3932	+ 0.2356	0.0098	+ 0.3377	+	0.7	+ 24.2
P	0.0000	+ 0.1198	0.0000	+ 0.1247	0.0000	+ 0.1729			
S	2.4307	+ 0.1853	2.4256	+ 0.1831	0.0051	+ 0.2605	+	0.2	+ 10.7
Cl	4.6834	+ 0.3059	4.5236	+ 0.2941	0.1598	+ 0.4243	+	3.5	+ 9.2
K	1.2417	+ 0.0761	1.2349	+ 0.0753	0.0068	+ 0.1071	+	0.5	+ 8.6
Ca	6.9721	+ 0.5596	6.7946	+ 0.5439	0.1774	+ 0.7804	+	2.6	+ 11.3
Ti	0.1895	+ 0.0174	0.1736	+ 0.0169	0.0159	+ 0.0243	+	8.7	+ 13.4
V	0.0000	+ 0.0058	0.0000	+ 0.0059	0.0000	+ 0.0083			
Cr	0.0495	+ 0.0042	0.0440	+ 0.0040	0.0055	+ 0.0059	+	11.7	+ 12.5
Mn	0.0576	+ 0.0049	0.0482	+ 0.0047	0.0094	+ 0.0068	0	17.8	+ 12.9
Fe	2.9069	+ 0.1502	2.8340	+ 0.1463	0.0729	+ 0.2097	+	2.5	+ 7.3
Co	0.0000	+ 0.0036	0.0000	+ 0.0036	0.0000	+ 0.0051			
Ni	0.0064	+ 0.0021	0.0084	+ 0.0021	-0.0021	+ 0.0030			
Cu	0.1972	+ 0.0106	0.1956	+ 0.0105	0.0016	+ 0.0149	+	0.8	+ 7.6
Zn	0.0628	+ 0.0074	0.0713	+ 0.0077	-0.0085	+ 0.0107	+	-12.7	+ 16.0
Ga	0.0051	+ 0.0035	0.0040	+ 0.0035	0.0010	+ 0.0050			
Ge	0.0152	+ 0.0033	0.0124	+ 0.0033	0.0028	+ 0.0047	+	20.5	+ 33.8
As	0.0019	+ 0.0029	0.0088	+ 0.0029	-0.0068	+ 0.0041			
Se	0.0073	+ 0.0027	0.0060	+ 0.0027	0.0013	+ 0.0039			
Br	0.0187	+ 0.0027	0.0149	+ 0.0026	0.0038	+ 0.0038	0	22.6	+ 22.5
Rb	0.0062	+ 0.0029	0.0082	+ 0.0029	-0.0020	+ 0.0041			
Sr	0.0259	+ 0.0037	0.0287	+ 0.0037	-0.0027	+ 0.0053	+	-9.9	+ 19.3
Y	0.0038	+ 0.0043	0.0093	+ 0.0043	-0.0055	+ 0.0061			
Zr	0.1048	+ 0.0077	0.1100	+ 0.0078	-0.0052	+ 0.0110	+	-4.9	+ 10.2
Mo	0.3111	+ 0.0176	0.3038	+ 0.0172	0.0072	+ 0.0246	+	2.4	+ 8.0
Pd	0.0000	+ 0.0044	0.0000	+ 0.0044	0.0000	+ 0.0062			
Ag	0.0018	+ 0.0046	0.0000	+ 0.0046	0.0018	+ 0.0065			
Cd	0.0000	+ 0.0046	0.0000	+ 0.0046	0.0000	+ 0.0065			
In	0.0000	+ 0.0052	0.0129	+ 0.0052	-0.0128	+ 0.0074			
Sn	0.0371	+ 0.0065	0.0179	+ 0.0063	0.0192	+ 0.0090	-	69.9	+ 32.7
Sb	0.0000	+ 0.0076	0.0000	+ 0.0076	0.0000	+ 0.0107			
Ba	0.2894	+ 0.0354	0.3102	+ 0.0359	-0.0208	+ 0.0504	+	-6.9	+ 16.8
La	0.0189	+ 0.0407	0.0000	+ 0.0406	0.0189	+ 0.0575			
Hg	0.0078	+ 0.0079	0.0000	+ 0.0078	0.0078	+ 0.0111			
Tl	0.0000	+ 0.0077	0.0000	+ 0.0078	0.0000	+ 0.0110			
Pb	0.0210	+ 0.0075	0.0112	+ 0.0074	0.0098	+ 0.0106			
U	0.0025	+ 0.0048	0.0097	+ 0.0048	-0.0072	+ 0.0068			

RPD: Relative Percent Difference $(X1-X2)/[(X1+X2)/2]*100$. RPD is calculated when original value is greater than three times its uncertainty.

AIR ANALYSIS - SORBENT MEDIA
CHAIN OF CUSTODY

Page _____ of _____



Westerborough, MA
TEL: 508-898-9220
FAX: 508-822-3288

Manfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Client Information
Client: TRC Environmental
Address: 21 Griffin Road North
Windsor, CT

Project Information
Project Name: Montgomery County RRF
Project Location: Maryland
Project # 200454.0000.0000
(Use Project name as Project #)
Project Manager:
ALPHA Quote #:
Turn-Around Time

Phone: _____
Fax: _____
Email: ghunt@trcsolutions.com
Standard Due Date: _____
Rush (only if pre approved) Time: _____

FAX
 ADEX
Criteria Checker:
Other Formats:
 EMAIL
 Add'l Deliverables

Report to: (if different than Project Manager)
ghunt@trcsolutions.com

Report Information - Data Deliverables

Same as Client Info

PO # _____

Regulatory Requirements/Report Limits

State/Fed _____ Program _____ Criteria _____

ANALYSIS

For PCBs, selection is REQUIRED:
 Congeners
 Homologs
 Aroclors (Low Vol only)

NOTE: For metals, please specify elements of interest and media type.
 PM-10
 TSP
 MCE

These samples have been previously analyzed by Alpha
Other Project Specific Requirements/ Comments/Detection Limits please remove at least a 47mm punch sized portion for secondary XRF analysis at Chester LabNet in Tigard, OR.
do not analyze back-up samples unless directed by Gary Hunt or Melita Lihzis

All Columns Below Must Be Filled Out

Sample ID	Date	Collection			Flow Rate (L/min)	Total Volume (L)	Sample Matrix*	Sampler's Initials	Media ID# (†)	TO-13A	PCBs (High Vol)	PCBs (Low Vol)	TO-11A	Hg via NIOSH 6009 Mod	Metals	TO-17	Sample Comments (i.e. PID)
		Start Time	End Time	Volume													
Bville-Metals -Pri	1/28-29	13:30	13:31		AA	AA	filter ID # 303135								X		Volume: 14-4229
Bville-Metals -Col	1/28-29	13:30	13:31		AA	AA	filter ID # 303116								X		Volume: 14-4230
Luck-Metals -Pri	1/28-29	10:27	10:27		AA	AA	filter ID # 303134								X		Volume: 14-4231
FBB-Metals					AA	AA	filter ID # 303117								X		Field Blank 14-4232

Media Code
D = DNPH Cartridge
F = Filter
P = PUF Cartridge
T = Sorbent Tube
O = Other

Relinquished By: S. Boyle 2/4/14 14:30
Received By: [Signature] 2-6-14 1055
8-27-14 9:25

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

14-281



AIR ANALYSIS - SORBENT MEDIA
CHAIN OF CUSTODY

Westborough, MA
TEL: 508-898-9220
FAX: 508-822-3288

Project Name: Montgomery County RRF
Project Location: Maryland
Project # 200454.0000.0000

Client: TRC Environmental
Address: 21 Griffin Road North
Windsor, CT

Project Information
Project Name: Montgomery County RRF
Project Location: Maryland
Project # 200454.0000.0000

Client Information
Client: TRC Environmental
Address: 21 Griffin Road North
Windsor, CT

Page of

Report Information - Data Deliverables

FAX
 ADEX
Criteria Checker:
Other Formats:
 EMAIL
 Add'l Deliverables

Report to: (if different than Project Manager)
ghunt@trcsolutions.com

Regulatory Requirements/Report Limits
State/Fed Program: Criteria

Billing Information
 Same as Client Info
PO #

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/ Comments/Detection Limits
please remove at least a 47mm punch sized portion for secondary XRF analysis at
Chester LabNet in Tigard, OR.
do not analyze back-up samples unless directed by Gary Hunt or Melita Lihzis

For PCBs, selection is REQUIRED:
 Congeners
 Homologs
 Aroclors (Low Vol only)

NOTE: For metals, please specify elements of interest and media type.
 PM-10
 TSP
 MCE

All Columns Below Must Be Filled Out

Sample ID	Date	Collection		Flow Rate (L/min)	Total Volume (L)	Sample Matrix*	Sampler's Initials	Media ID# (1)	PCBs (High Vol)	PCBs (Low Vol)	TO-11A	Hg via NIOSH 6009 Mod.	Metals	TO-17	Sample Comments (i.e. PID)
		Start Time	End Time												
Bville-Metals- 2 -Pri	2-6-27	17:46	16:46			AA	SB						X		Volume: 14-0233
Bville-Metals- 2 -Col	2-6-27	17:46	16:46			AA	SB						X		Volume: 14-0234
Luck-Metals- 2 -Pri	2-6-27	16:43	15:43			AA	SB						X		Volume: 14-0235
FB-Metals- 2	2-6-27	17:46	16:46			AA	SB						X		Field Blank 14-0236

Media Code
D = DNPH Cartridge
F = Filter
P = PUF Cartridge
T = Sorbent Tube
O = Other

Relinquished By: *Stephen Bayko* Date/Time: 2-9-14/17:00

Received By: *Joselyn* Date/Time: 2-11-14 0940

Form No: 101-13 (rev 01-OCT-2013)

9-18-056-3551

RAW DATA

Available upon request