Environmental Monitoring and Technologies, Inc.

8100 N. Austin Avenue Morton Grove, IL 60053-3203 **P** 847.967.6666 800.246.0663 **F** 847.967.6735 www.emt.com

Analytical Report

Bill Fowler
Advanced Waste Services, Inc.
1126 S. 70th Street, Suite N408B
West Allis, WI 53214

March 25, 2015

Work Order: 15C0725

RE: AWS Samples
Acme Galv. Vac Box 3-17

Dear Bill Fowler:

Enclosed are the analytical reports for the EMT Work Order listed. Also included with this analytical report is a copy of the chain of custody associated with these samples. If you have any questions, please contact me.

Sincerely,

Mark Steuer
Project Manager
847.967.6666
MSteuer@emt.com
Approved for release: 3/25/2015 8:13:46AM

Approved by,

Matthew Gregory
Technical Manager

The contents of this report apply to the sample(s) analyzed. No duplication is allowed except in its entirety. Detection and Reporting limits are adjusted for sample size used, dilutions and moisture content, if applicable.

State of Wisconsin Dept of Natural Resources, Cert No. 999888890

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Sample Summary

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1503020-01	15C0725-01	Wastewater	03/20/15 00:00	03/20/15 13:45

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Case Narrative

Client: Advanced Waste Services, Inc.
Date: 03/25/2015
Project: AWS Samples
Acme Galv. Vac Box 3-17
Work Order: 15C0725

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

Work Order: 15C0725

The samples were received on 3/20/2015 1:45:00 PM . The samples arrived in good condition and properly preserved. The temperature of the cooler at receipt was 5 degrees C.

Refer to Qualifiers and Definitions for quality and analytical clarifications or deviations.

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Client Sample Results

Client: Advanced Waste Services, Inc.
Project: AWS Samples
Acme Galv. Vac Box 3-17
Work Order: 15C0725

Client Sample ID: 1503020-01
Report Date: 03/25/2015
Collection Date: 03/20/2015 00:00
Matrix: Wastewater
Lab ID: 15C0725-01

Analyses	Result	EMT Reporting Limit	Qual	Units	Reg Limit	MDL	Date/Time Analyzed	Batch	Analyst	DF
Metals by ICP-AES										
Method: SW6010B / SW3015 / SW1311										
Arsenic, TCLP	< 0.0635	0.250		mg/L	5	0.0635	03/23/15 22:05	B5C0845	C.S2	5
Barium, TCLP	**0.436**	0.250		mg/L	100	0.0100	03/23/15 22:05	B5C0845	C.S2	5
Cadmium, TCLP	**0.0131**	0.0250		mg/L	1	0.0100	03/23/15 22:05	B5C0845	C.S2	5
Chromium, TCLP	**0.296**	0.250		mg/L	5	0.0205	03/23/15 22:05	B5C0845	C.S2	5
Lead, TCLP	**0.0944**	0.250		mg/L	5	0.0800	03/23/15 22:05	B5C0845	C.S2	5
Selenium, TCLP	< 0.0900	0.250		mg/L	1	0.0900	03/23/15 22:05	B5C0845	C.S2	5
Silver, TCLP	< 0.0370	0.250		mg/L	5	0.0370	03/23/15 22:05	B5C0845	C.S2	5
Mercury by CVAA										
Method: SW7470A / SW1311										
Mercury, TCLP	< 0.00020	0.00200		mg/L	0.2	0.00020	03/24/15 14:11	B5C0888	ZZZ	1

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Dates Report

Client: Advanced Waste Services, Inc.
Project: AWS Samples
Acme Galv. Vac Box 3-17
Work Order: 15C0725

Report Date: 03/25/2015

Sample ID	Client Sample ID	Collection	Matrix	Test Name	Leached Prep Date	Prep Date	Analysis Date	Batch ID	Sequence
15C0725-01	1503020-01	03/20/15	Wastewater	Selenium, TCLP ICP-AES	03/20/15 16:15	03/23/15 12:00	03/23/15 22:05	B5C0845	S5C0391
				Lead, TCLP ICP-AES	03/20/15 16:15	03/23/15 12:00	03/23/15 22:05		
				Chromium, TCLP ICP-AES	03/20/15 16:15	03/23/15 12:00	03/23/15 22:05		
				Cadmium, TCLP ICP-AES	03/20/15 16:15	03/23/15 12:00	03/23/15 22:05		
				Barium, TCLP ICP-AES	03/20/15 16:15	03/23/15 12:00	03/23/15 22:05		
				Arsenic, TCLP ICP-AES	03/20/15 16:15	03/23/15 12:00	03/23/15 22:05		
				Silver, TCLP ICP-AES	03/20/15 16:15	03/23/15 12:00	03/23/15 22:05		
				Mercury, TCLP CVAA	03/20/15 16:15	03/24/15 09:30	03/24/15 14:11	B5C0888	S5C0410

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Quality Control

Client: Advanced Waste Services, Inc.
Project: AWS Samples
Acme Galv. Vac Box 3-17
Work Order: 15C0725

Report Date: 03/25/2015
Matrix: Water

Metals by ICP-AES

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual	DF
Batch: B5C0845 - SW3015											
Blank (B5C0845-BLK1)				*Prepared: 03/23/2015 12:00*			*Analyzed: 03/23/2015 21:51*				
Arsenic	< 0.0127	0.0500	mg/L								1
Barium	< 0.00200	0.0500	mg/L								1
Cadmium	< 0.00200	0.00500	mg/L								1
Chromium	< 0.00410	0.0500	mg/L								1
Lead	< 0.0160	0.0500	mg/L								1
Selenium	< 0.0180	0.0500	mg/L								1
Silver	< 0.00740	0.0500	mg/L								1
LCS (B5C0845-BS1)				*Prepared: 03/23/2015 12:00*			*Analyzed: 03/23/2015 21:54*				
Arsenic	1.48	0.0500	mg/L	1.25		118	87-113			S	1
Barium	1.40	0.0500	mg/L	1.25		112	88-113				1
Cadmium	0.145	0.00500	mg/L	0.125		116	88-113			S	1
Chromium	1.38	0.0500	mg/L	1.25		110	90-113				1
Lead	1.36	0.0500	mg/L	1.25		109	86-113				1
Selenium	1.38	0.0500	mg/L	1.25		111	83-114				1
Silver	1.38	0.0500	mg/L	1.25		110	84-115				1
Serial Dilution (B5C0845-DUP1)		**Source: 15C0702-01**		*Prepared: 03/23/2015 12:00*			*Analyzed: 03/23/2015 22:45*				
Arsenic	< 0.0635	0.250	mg/L		ND				20		5
Barium	0.956	0.250	mg/L		0.880			8.21	20		5
Cadmium	0.0550	0.0250	mg/L		0.0476			14.4	20		5
Chromium	0.0456	0.250	mg/L		0.0279			48.3	20	P, J	5
Lead	< 0.0800	0.250	mg/L		ND				20		5
Selenium	< 0.0900	0.250	mg/L		ND				20		5
Silver	< 0.0370	0.250	mg/L		ND				20		5
MRL Check (B5C0845-MRL1)				*Prepared: 03/23/2015 12:00*			*Analyzed: 03/23/2015 21:58*				
Arsenic	0.0674	0.0500	mg/L	0.0625		108	70-130				1
Barium	0.0729	0.0500	mg/L	0.0625		117	70-130				1
Cadmium	0.00788	0.00500	mg/L	0.00625		126	70-130				1
Chromium	0.0742	0.0500	mg/L	0.0625		119	70-130				1
Lead	0.0616	0.0500	mg/L	0.0625		98.6	70-130				1
Selenium	0.0668	0.0500	mg/L	0.0625		107	70-130				1
Silver	0.0720	0.0500	mg/L	0.0625		115	70-130				1
Matrix Spike (B5C0845-MS1)		**Source: 15C0702-01**		*Prepared: 03/23/2015 12:00*			*Analyzed: 03/23/2015 22:20*				
Arsenic	1.44	0.0500	mg/L	1.25	ND	115	75-125				1
Barium	2.22	0.0500	mg/L	1.25	0.880	107	75-125				1
Cadmium	0.178	0.00500	mg/L	0.125	0.0476	105	75-125				1
Chromium	1.30	0.0500	mg/L	1.25	0.0279	102	75-125				1
Lead	1.25	0.0500	mg/L	1.25	ND	99.8	75-125				1
Selenium	1.34	0.0500	mg/L	1.25	ND	107	75-125				1

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Quality Control

(Continued)

Client: Advanced Waste Services, Inc.
Project: AWS Samples
Acme Galv. Vac Box 3-17
Work Order: 15C0725

Report Date: 03/25/2015
Matrix: Water

Metals by ICP-AES

(Continued)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual	DF
Batch: B5C0845 - SW3015 *(Continued)*											
Matrix Spike (B5C0845-MS1) (Continued)		**Source: 15C0702-01**		*Prepared: 03/23/2015 12:00*			*Analyzed: 03/23/2015 22:20*				
Silver	0.962	0.0500	mg/L	1.25	ND	77.0	75-125				1
Matrix Spike Dup (B5C0845-MSD1)		**Source: 15C0702-01**		*Prepared: 03/23/2015 12:00*			*Analyzed: 03/23/2015 22:24*				
Arsenic	1.42	0.0500	mg/L	1.25	ND	114	75-125	1.22	20		1
Barium	2.20	0.0500	mg/L	1.25	0.880	105	75-125	1.13	20		1
Cadmium	0.174	0.00500	mg/L	0.125	0.0476	101	75-125	2.63	20		1
Chromium	1.29	0.0500	mg/L	1.25	0.0279	101	75-125	0.869	20		1
Lead	1.22	0.0500	mg/L	1.25	ND	97.6	75-125	2.26	20		1
Selenium	1.32	0.0500	mg/L	1.25	ND	105	75-125	1.98	20		1
Silver	1.19	0.0500	mg/L	1.25	ND	95.1	75-125	21.1	20	P	1
Post Spike (B5C0845-PS1)		**Source: 15C0702-01**		*Prepared: 03/23/2015 12:00*			*Analyzed: 03/23/2015 22:41*				
Arsenic	0.184	0.0556	mg/L	0.174	ND	106	80-120				1
Barium	1.05	0.0556	mg/L	0.174	0.880	99.9	80-120				1
Cadmium	0.217	0.00556	mg/L	0.174	0.0476	97.5	80-120				1
Chromium	0.194	0.0556	mg/L	0.174	0.0279	95.5	80-120				1
Lead	0.173	0.0556	mg/L	0.174	ND	99.9	80-120				1
Selenium	0.178	0.0556	mg/L	0.174	ND	103	80-120				1
Silver	0.162	0.0556	mg/L	0.174	ND	93.4	80-120				1

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Quality Control

(Continued)

Client: Advanced Waste Services, Inc.
Project: AWS Samples
Acme Galv. Vac Box 3-17
Work Order: 15C0725

Report Date: 03/25/2015
Matrix: Water

Mercury by CVAA

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual	DF
Batch: B5C0888											
Blank (B5C0888-BLK1)				*Prepared: 03/24/2015 09:30*			*Analyzed: 03/24/2015 14:00*				
Mercury	< 0.00010	0.00100	mg/L								1
Blank (B5C0888-BLK3)				*Prepared: 03/24/2015 09:30*			*Analyzed: 03/24/2015 14:38*				
Mercury	0.00010	0.00100	mg/L								1
Blank (B5C0888-BLK4)				*Prepared: 03/24/2015 09:30*			*Analyzed: 03/24/2015 14:40*				
Mercury	0.00070	0.00100	mg/L								1
LCS (B5C0888-BS1)				*Prepared: 03/24/2015 09:30*			*Analyzed: 03/24/2015 14:02*				
Mercury	0.00529	0.00100	mg/L	0.00500		106	82-119				1
MRL Check (B5C0888-MRL1)				*Prepared: 03/24/2015 09:30*			*Analyzed: 03/24/2015 13:56*				
Mercury	0.00028	0.00100	mg/L	0.000250		113	70-130				1
Matrix Spike (B5C0888-MS1)		**Source: 15C0614-01**		*Prepared: 03/24/2015 09:30*			*Analyzed: 03/24/2015 14:06*				
Mercury	0.00887	0.00200	mg/L	0.00400	0.00593	73.6	75-125			S	1
Matrix Spike (B5C0888-MS2)		**Source: 15C0690-01**		*Prepared: 03/24/2015 09:30*			*Analyzed: 03/24/2015 14:15*				
Mercury	0.0111	0.00500	mg/L	0.0100	0.00193	91.7	75-125				1
Matrix Spike Dup (B5C0888-MSD1)		**Source: 15C0614-01**		*Prepared: 03/24/2015 09:30*			*Analyzed: 03/24/2015 14:08*				
Mercury	0.00982	0.00200	mg/L	0.00400	0.00593	97.3	75-125	10.1	20	S	1
Matrix Spike Dup (B5C0888-MSD2)		**Source: 15C0690-01**		*Prepared: 03/24/2015 09:30*			*Analyzed: 03/24/2015 14:17*				
Mercury	0.0124	0.00500	mg/L	0.0100	0.00193	105	75-125	11.0	20		1

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Certified Analyses included in this Report

Analyte	CAS #	Certifications
SW6010B in Water		
Arsenic, TCLP	7440-38-2	AKDEC,ISO,WDNR,DoD,ILEPA
Barium, TCLP	7440-39-3	AKDEC,ISO,WDNR,DoD,ILEPA
Cadmium, TCLP	7440-43-9	AKDEC,ISO,WDNR,DoD,ILEPA
Chromium, TCLP	7440-47-3	AKDEC,ISO,WDNR,DoD,ILEPA
Lead, TCLP	7439-92-1	AKDEC,ISO,WDNR,DoD,ILEPA
Selenium, TCLP	7782-49-2	ISO,WDNR,DoD,ILEPA
Silver, TCLP	7440-22-4	ISO,WDNR,DoD,ILEPA
SW7470A in Water		
Mercury, TCLP	7439-97-6	DoD,ILEPA,WDNR

List of Certifications

Code	Description	Number	Expires
AKDEC	State of Alaska, Dept. Environmental Conservation	UST-105	07/16/2015
CPSC	US Consumer Product Safety Commission, Accredited by PJLA Lab No. 1050	L14-56	04/30/2016
DoD	Department of Defense, Accredited by PJLA	L14-55	04/30/2016
ILEPA	State of Illinois, NELAP Accredited Lab No. 100256	003041	07/27/2015
ISO	ISO/IEC 17025, Accredited by PJLA	L14-56	04/30/2016
LELAP	State of Louisiana, NELAP Accredited Lab No. 171344	05015	06/30/2015
WDNR	State of Wisconsin Dept of Natural Resources	999888890	08/31/2015

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Qualifiers and Definitions

Item	Description
J	Estimated Value
P	The %RPD result is above the laboratory control limits.
S	The recovery is outside of the laboratory control limits.
%Rec	Percent Recovery

ENVIRONMENTAL MONITORING AND TECHNOLOGIES, INC.

8100 North Austin Avenue
Morton Grove, Illinois 60053-3203

847-967-6666
FAX: 847-967-6735
www.emt.com

Chain of Custody Record

TURNARAOUND TIME:
☒ RUSH
____ day turnaround
☒ ROUTINE W-3

Due Date: ____-____-____ COC #: 144104

Company: Advanced Waste Services
Address: MKE WI
Phone #: (____) ____-____ Fax #: (____) ____-____
P.O. #: 53949 Proj.#: ____-____
Client Contact: Bill Fowler / Jim Brushwood
Project ID / Location: Acme Galv. Vac Box 3-17

Sample Type:
1. Waste Water 4. Sludge 7. Groundwater (filtered)
2. Drinking Water 5. Oil 8. Other
3. Soil 6. Groundwater ____

Container Type:
P - Plastic V - VOC Vial O - Other
G - Glass B - Tedlar Bag ____

Preservative:
1. None 4. NaOH 7. Zn Ace
2. H_2SO_4 5. HCl 8. Other
3. HNO_3 6. MeOH ____

Analyses

Sample I.D.	Sample Type	Container Size	Container Type	Container No.	Sampling By	Sampling Date	Sampling Time	pH	Temp.	Preservation Field	Preservation Lab	TCLP RCRA METALS										EMT USE ONLY
1503020-01		QT	G	1	WB		—	—	—	NO		X										OIA

EMT WORKORDER # 15C072

Relinquished By:	Date: 3-20-15 Time: 10:45	Received By:	Date: 3-20-15 Time: 10:45	EMT USE ONLY Client Code: Advanced Waste Services	☐ SAMPLE RECEIVED ON ICE
Relinquished By: Dave Kreuger	Date: 3-20-15 Time: 1150	Received By:	Date: 3-20-15 Time: 1150	EMT Project I.D. LAB Samples	☒ TEMPERATURE (Must be recorded if sampling was greater than 6 hrs. prior to sample receipt) 5
Relinquished By:	Date: 3-20-15 Time: 1345	Received For Lab By: Melissa Leya	Date: 3-20-15 Time: 13:45	Jar Lot No.	EMT SAMPLE RETURN POLICY ON BACK

SPECIAL INSTRUCTIONS:

Sample Receipt Checklist

Work Order: 15C0725

Printed: 3/20/2015 2:53:38PM

Client:	**Advanced Waste Services, Inc.**	**Date Due:**	**03/24/15 17:00 (2 day TAT)**
Project:	**AWS Samples**		

Received By:	**Melissa Meyer**	**Date Received:**	**03/20/15 13:45**
Logged In By:	**Melissa Meyer**	**Date Logged In:**	**03/20/15 12:03**

Samples Received at:	5°C
How were samples received?	EMT
Custody Seals Present	No
Custody Seals Intact	NA
Sample Cont/Cooler Intact	Yes
COC Present/Complete	No
COC/Labels Agree	Yes
Proper Cont/Preservation	Yes
Sufficient Sample Volume	Yes
Samples Within Holdtime	Yes
Cooler Temp Within Limits	Yes
VOA Water Vials Received	No
VOA Water Vials/Zero Headspace	NA
PM/Client Contact Required	No

COMMENTS

Coc missing sample time and date

Melissa Meyer
3/20/15
13:45