



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4**

Science and Ecosystem Support Division
Field Services Branch
980 College Station Road
Athens, Georgia 30605-2720

July 31, 2017

4SESD-FSB

MEMORANDUM:

SUBJECT: Case Development Investigation Evaluation Report (AERC Recycling Solutions)
West Melbourne, Florida
SESD Project No. 17-0238

FROM: Art Masters 
Enforcement Section

THRU: Mike Bowden, Chief 
Enforcement Section

TO: Parvez Mallick
Environmental Engineer
Hazardous Waste Enforcement and Compliance Section

Attached is the Case Development Investigation Evaluation Report for the sampling investigation conducted at the AERC Recycling Solutions facility on March 21, 2017. If you have any questions or comments, please contact me by phone at (706) 355-8612 or by email at masters.arthur@epa.gov.

Attachment

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Project ID: 17-0238

Sampling Investigation Final Report AERC Recycling Solutions

4317-J Fortune Place

West Melbourne, FL 32904-1509

Project Date: March 21, 2017

Report Date: July 31, 2017



Project Leader: Art Masters

Enforcement Section

Field Services Branch

Science & Ecosystem Support Division

USEPA – Region 4

980 College Station Road

Athens, Georgia 30605-2720

The activities depicted in this report are accredited under the US EPA Region 4 Science and Ecosystem Support Division ISO/IEC 17025 accreditation issued by the ANSI-ASQ National Accreditation Board. Refer to certificate and scope of accreditation AT-1644.



Requestor:

Parvez Mallick

Hazardous Waste Enforcement & Compliance
Branch

Resource Conservation & Restoration
Division (RCRD)

USEPA Region 4

61 Forsyth Street

Atlanta, GA 30303

Approvals:


SESD Project Leader:



Art Masters
Enforcement Section
Field Services Branch

7/31/17
Date

Approving Official:

for 
Mike Bowden, Chief
Enforcement Section
Field Services Branch

7/31/17
Date

CASE DEVELOPMENT INVESTIGATION EVALUTATION REPORT
AERC RECYCLING SOLUTIONS
WEST MELBOURNE, FLORIDA

I. INTRODUCTION

On March 21, 2017, Science and Ecosystem Support Division (SESD) personnel conducted a case development investigation evaluation (CDIE) with sampling at the AERC facility located at 4317-J Fortune Place in West Melbourne, Florida. This CDIE was requested by Parvez Mallick of the Resource Conservation & Restoration Division (RCRD), Hazardous Waste Enforcement and Compliance Branch (ECB). Preliminary results from this sampling were provided in a separate correspondence, transmitted to the ECB on June 14, 2017.

The following personnel took part in the investigation:

<u>PERSONNEL</u>	<u>AFFILIATION</u>	<u>PHONE</u>
Arthur Masters	USEPA, SESD, Project Leader (not on site)	706-355-8612
Mike Neill	USEPA, SESD	706-355-8614
Marty Allen	USEPA, SESD	706-355-8651
Parvez Mallick	USEPA, ECB	404-562-8594

II. SUMMARY

During SESD's investigation, four samples were collected. One sample, A01 was collected from an exterior roll-off container containing crushed bulbs. Two sediment samples, A02 and A04 were collected from the paved area behind the facility. A control soil sample, A03, was collected from the landscaped area adjacent to the parking lot. Eight metals regulated under 40 CFR 261.24 were detected in one or more samples. No regulated metals analytes exceeded the Toxicity Characteristic (TC) maximum concentrations as found in Table 1 of 40 CFR 261.24.

III. BACKGROUND

AERC has been permitted to operate a mercury containing lamp and device storage and recovery facility. The storage of mercury containing lamps and devices is limited to 223,200 lamps or 968 drums. The total storage of non-hazardous materials located outside in covered containers is a maximum of twenty-two tons.

AERC also operates a 10-day transfer facility for hazardous waste destined for the AERC Pennsylvania facility, which is a permitted Treatment, Storage, Disposal facility (TSD). AERC is a large quantity generator of hazardous waste, a large quantity handler of universal waste, a universal waste transporter and a hazardous waste transporter.

The facility receives spent mercury containing bulbs and devices for the purpose of recycling. The facility crushes or dismantles and separates the lamps or devices to produce separated individual recyclable components such as glass, scrap metal and mercury containing powder (phosphor powder). A lamp recycler (LSS-1) separates the end caps, glass, shatter shields, and filaments from the phosphor powder. The metal and phosphor powder is sent to AERC Recycling Solutions, Allentown, Pennsylvania for thermal retort. At times when the LSS-1 is not working properly, the glass is put through the machine twice and then sent off to the Brevard County landfill. Samples are taken daily of the glass and end caps; composited, and sent for testing once each week. The facility cannot process lamps or devices containing liquid mercury. Items containing liquid mercury are consolidated and sent to the Pennsylvania facility.

IV. DISCUSSION OF FIELD ACTIVITIES

USEPA SEDD personnel arrived at the site at about 9:10 AM on January 25, 2016 and after meeting with Mark Larsen, AERC's Operations Manager, began an inspection and sampling in accordance with SEDD's Quality Assurance Project Plan dated March 08, 2017. Samples were collected to determine if the crushed glass, which is managed as non-hazardous waste could be hazardous and to determine if regulated contaminants were being released to the environment. Sample locations are listed in Table 1 and displayed in Figure 1.

Table 1 Sample Locations and Descriptions

Sample ID	Latitude	Longitude	Description	Matrix
A01	28.09413	-080.69793	Crushed glass from roll-off	Waste
A02	28.09401	-080.69827	Sediment from storm drain	Sediment
A03	28.09400	-080.69739	0" - 3" control soil sample	Soil
A04	28.09403	-080.69774	Sediment near roll-off	Sediment

Sample A01 was a six-point composite sample collected from the roll-off container containing crushed glass from fluorescent bulb recycling activities. Sample A02 was collected from sediment in the storm water drain sump. Sample A03 was the control soil sample collected from the lawn area east of the parking lot. Sample A04 was a sediment sample collected from the parking area near the roll-off container.

Six photographs were taken as part of this investigation by Mike Neill. They are included with captions in this report following the data tables.

V. RESULTS OF ANALYSES

Samples were analyzed for metals scan using USEPA methods 6010 and 200.8 as well as mercury by USEPA methods 245.1 and 7473. The Toxicity Characteristic Leaching Procedure (TCLP) was requested for any sample which the metals scan detected regulated analytes at a level which could potentially

exceed the TC maximum concentration as found in 40 CFR 261.24 Table 1. Sample A01 was only analyzed for TCLP metals due to a laboratory concern that there was insufficient volume for both analyses. After consultation with the project leader, it was decided that the TCLP analysis was the priority. Table 2 summarizes the metal scan results. Table 3 summarizes the TCLP analytical results as compared to the TC regulatory levels. The tables present results only for detected analytes. SESD's complete analytical report is included as Appendix A.

Mercury was the singular analyte detected in the TCLP analysis of sample A01. The concentration of mercury detected in the sample was .0092 mg/L. This value is below the TC regulatory level of .2 mg/L.

Laboratory analyses of Sample A02 detected six TC metals. Arsenic was detected at .39 mg/kg. Barium was detected at 2.6 mg/kg. Cadmium was detected at 0.29 mg/kg. Chromium was detected at 11 mg/kg. Lead was detected at 11 mg/kg and mercury was detected at 0.064 mg/kg. None of these analytes could potentially exceed the TC regulatory levels, therefore TCLP analysis was not performed on sample A02.

Five TC metals were detected in Sample A03. Arsenic was detected at 4.2 mg/kg. Barium was detected at 10 mg/kg. Chromium was detected at 5.5 mg/kg. Lead was detected at 5.9 mg/kg and mercury was detected at 0.14 mg/kg. None of these analytes could potentially exceed the TC regulatory levels, therefore TCLP analysis was not performed on sample A03.

Eight TC metals were detected in Sample A04. Arsenic was detected at 1.1 mg/kg. Barium was detected at 86 mg/kg. Cadmium was detected at 1.5 mg/kg. Chromium was detected at 23 mg/kg. Lead was detected at 95 mg/kg. Mercury was detected at 2.6 mg/kg. Selenium was detected at 0.50 mg/kg. Silver was detected at 11 mg/kg. TCLP analysis was performed on sample A04. Barium and Mercury were detected in the TCLP extract at 0.68 mg/L and 0.00030 mg/L, respectively. The TC regulatory level for barium is 100 mg/L and for mercury is .2 mg/L, neither of which were exceeded.

VI. RESULTS OF FIELD QUALITY CONTROL SAMPLES

Sample A03 was collected as a control sample. Results of quality control analyses are contained in the Laboratory Analytical Reports in Appendix A, and are acceptable for the purposes of this investigation. The reported results are accurate within the limits of the methods.

VII. METHODOLOGY

Field activities were conducted in accordance with the Region 4, SESD *Field Branches Quality System and Technical Procedures* and the site specific Quality Assurance Project Plan dated March 8, 2017. Specific field procedures applicable to this investigation included the following:

Waste Sampling, SESDPROC-302-R3

Management of Investigation Derived Waste, SESDPROC -202-R3

Sediment Sampling, SESDPROC -200-R3

Field Equipment Cleaning and Decontamination, SESDPROC -205-R3

Global Positioning System, SESDPROC -110-R4

Samples were analyzed at the SESD laboratory in accordance with the *SESD Analytical Support Branch Laboratory Operations and Quality Assurance Manual*, April 27, 2017. The SESD laboratory is accredited by the ANSI-ASQ National Accreditation Board/ACLASS for ISO/IEC 17025.



Figure 1

Table 2**Metals Scan Data Summary****AERC Recycling Solutions, March 2017**

	Station ID	A02	A03	A04
	Sample ID	A02	A03	A04
	Matrix	Sediment	Subsurface Soil	Sediment
	Sample Date	3/21/2017 12:10	3/21/2017 12:25	3/21/2017 12:50
Analyte	Units			
% Solids	%	80	62	98
Aluminum	mg/kg dry	740	850	980 J,O
Antimony	mg/kg dry	0.76	0.63	25
Arsenic	mg/kg dry	0.39	4.2	1.1
Barium	mg/kg dry	2.6	10	86
Cadmium	mg/kg dry	0.29	---	1.5
Calcium	mg/kg dry	2000	3600	19000
Chromium	mg/kg dry	11	5.5	23
Cobalt	mg/kg dry	1.4	---	---
Copper	mg/kg dry	8.7	29	110 J,O
Iron	mg/kg dry	3400	1700	14000
Lead	mg/kg dry	11	5.9	95 J,O
Magnesium	mg/kg dry	110	610	690
Manganese	mg/kg dry	16	11	150
Mercury	mg/kg dry	0.064	0.14	2.6
Nickel	mg/kg dry	3.6	---	24
Selenium	mg/kg dry	---	---	0.50
Silver	mg/kg dry	---	---	11
Sodium	mg/kg dry	---	330	---
Strontium	mg/kg dry	13	290	290 J,O
Titanium	mg/kg dry	15	8.4	35
Vanadium	mg/kg dry	1.2	---	---
Yttrium	mg/kg dry	20	12	1300
Zinc	mg/kg dry	150	18	450 J,O

Qualifiers

-- - The analyte was not detected at or above the reporting level

J - The identification of the analyte is acceptable; the reported value is an estimate.

O - Other qualifiers; see laboratory analytical report in Appendix A for explanation.

Table 3
TCLP Data Summary
AERC Recycling Solutions, March, 2017

	Station ID		A01	A04
	Sample ID		A01	A04
	Matrix		Waste	Sediment
	Sample Date		3/21/2017 11:45	3/21/2017 12:50
Analyte	Units	Comparison Standard		
Barium	mg/L	<u><RCRA (TCLP): 100 mg/l ></u>	< 0.34 U,B-2	0.68
Mercury	mg/L	<u><RCRA (TCLP): .2 mg/l ></u>	0.0092	0.00030

Qualifiers

U - The analyte was not detected at or above the reporting level

B-2 - Reporting level elevated due to trace amounts of the analyte present in method blank.



Photo 1

Roll-off container, location of sample A01, facing north



Photo 2

Storm Drain, location of Sample A02, facing east



Photo 3

Location of Sample A03, facing west



Photo 4

Storm Drain area of sample A04, facing north



Photo 5

Close up of sediment, facing north



Photo 6

Close up of pavement near roll-off, facing north

Appendix A

Analytical Data Report

30 pages



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

June 21, 2017

4SESD-ASB

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 17-0238, AERC Recycling Solutions
Civil Enforcement

FROM: Terri White
ICS Analyst

THRU: Floyd Wellborn, Chief
ASB Inorganic Chemistry Section

TO: Arthur Masters

This data report is being reissued. Some or all of these results were previously reported. Please substitute the corrected results for those results previously reported. Please refer to the Report Narrative for more details.

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Support Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at www.epa.gov/region4/sesd/asbsop. Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Section 5.2 of the ASB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:

Method Used:

Accreditations:

Physical Properties (PHYSP)

Physical Properties

EPA 200.2 (Soil)

ISO

TCLP Metals (TCLPM)

TCLP Metals

EPA 200.8 (Soil)

ISO

TCLP Metals

EPA 200.8 (Waste)

ISO

TCLP Metals

EPA 245.1 (Soil)

ISO

TCLP Metals

EPA 245.1 (Waste)

ISO

TCLP Metals

EPA 6010 (Soil)

ISO

TCLP Metals

EPA 6010 (Waste)

ISO



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D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

Total Metals (TMTL)

Total Mercury	EPA 7473 (Soil)	ISO
Total Mercury	EPA 7473 (Waste)	ISO
Total Metals	EPA 200.8 (Soil)	ISO
Total Metals	EPA 6010 (Soil)	ISO



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D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

Report Narrative for Work Order: E171204 Analysis: TCLPM

06/21/17 TW Sample E171204-01 was not analyzed for total metals as agreed upon by ICS and Art Masters. A TCLP extract was completed and the extract was analyzed for TCLP analytes only. Mercury was the analyte of interest.

06/21/17 TW This data is being re-reported to include TCLP samples E171204-02 and E171204-03 with the TCLP results qualified as NA-5. These samples were not extracted due to no possibility of failing based on the total analyte determination. This will replace report E171204 PHYSP TCLPM TMTL Final 06 08 17 1343.

Sample Disposal Policy

Due to limited space for long term sample storage, ASB's policy is to dispose of samples on a periodic schedule. Air samples collected in summa canisters will be disposed of 30 days following the issuance of this report. All other sample media including original samples, sample extracts and or digestates will be disposed of, in accordance with applicable regulations, 60 days from the date of this report.

This sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time. If samples require storage beyond the 60-day period, please contact the Sample Control Coordinator by e-mail at R4SampleCustody@epa.gov.



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D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

SAMPLES INCLUDED IN THIS REPORT

Project: 17-0238, AERC Recycling Solutions

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
A01	E171204-01	Waste	3/21/17 11:45	3/23/17 15:37
A02	E171204-02	Sediment	3/21/17 12:10	3/23/17 15:37
A03	E171204-03	Subsurface Soil	3/21/17 12:25	3/23/17 15:37
A04	E171204-04	Sediment	3/21/17 12:50	3/23/17 15:37



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Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

DATA QUALIFIER DEFINITIONS

U	The analyte was not detected at or above the reporting limit.
B-2	Reporting level elevated due to trace amounts of analyte present in the method blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
NA-5	Not Analyzed. Cannot exceed TCLP regulatory levels based on Total Scan analyses.
QC-1	Analyte concentration low in continuing calibration verification standard
QM-2	Matrix Spike Recovery greater than method control limits
QM-3	Matrix Spike Precision outside method control limits

ACRONYMS AND ABBREVIATIONS

CAS	Chemical Abstracts Service Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.
MDL	Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
MRL	Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
TIC	Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

ACCREDITATIONS:

ISO	ASB is accredited by ISO/IEC 17025, including an amplification for forensic accreditation through ANSI-ASQ National Accreditation Board. Refer to the certificate and scope of accreditation AT-1644 at: http://www.epa.gov/aboutepa/about-region-4s-science-and-ecosystem-support-division-sesd
NR	The EPA Region 4 Laboratory has not requested accreditation for this test.



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D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

TCLP Metals

Project: 17-0238, AERC Recycling Solutions

Sample ID: A01

Lab ID: E171204-01

Station ID: A01

Matrix: Waste

Date Collected: 3/21/17 11:45

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7440-38-2	Arsenic	1.0	U	mg/L	1.0	4/13/17 15:35	5/02/17 17:31	EPA 6010
7440-39-3	Barium	0.34	U, B-2	mg/L	0.34	4/13/17 15:35	5/02/17 17:31	EPA 6010
7440-43-9	Cadmium	0.10	U	mg/L	0.10	4/13/17 15:35	5/02/17 17:31	EPA 6010
7440-47-3	Chromium	0.10	U	mg/L	0.10	4/13/17 15:35	5/02/17 17:31	EPA 6010
7439-92-1	Lead	0.40	U	mg/L	0.40	4/13/17 15:35	5/02/17 17:31	EPA 6010
7439-97-6	Mercury	0.0092		mg/L	0.00025	4/13/17 16:24	5/03/17 16:20	EPA 245.1
7782-49-2	Selenium	0.90	U	mg/L	0.90	4/13/17 15:35	5/02/17 17:31	EPA 6010
7440-22-4	Silver	0.10	U	mg/L	0.10	4/13/17 15:35	5/02/17 17:31	EPA 6010



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D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

Total Metals

Project: 17-0238, AERC Recycling Solutions

Sample ID: A02

Lab ID: E171204-02

Station ID: A02

Matrix: Sediment

Date Collected: 3/21/17 12:10

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.064		mg/kg dry	0.048	4/12/17 12:19	4/12/17 17:36	EPA 7473
7429-90-5	Aluminum	740		mg/kg dry	9.8	4/07/17 11:24	4/25/17 18:06	EPA 6010
7440-36-0	Antimony	0.76		mg/kg dry	0.20	4/07/17 11:26	4/26/17 16:50	EPA 200.8
7440-38-2	Arsenic	0.39		mg/kg dry	0.20	4/07/17 11:26	4/26/17 16:50	EPA 200.8
7440-39-3	Barium	2.6		mg/kg dry	0.49	4/07/17 11:24	4/25/17 18:06	EPA 6010
7440-41-7	Beryllium	0.29	U	mg/kg dry	0.29	4/07/17 11:24	4/25/17 18:06	EPA 6010
7440-43-9	Cadmium	0.29		mg/kg dry	0.098	4/07/17 11:26	4/26/17 16:50	EPA 200.8
7440-70-2	Calcium	2000		mg/kg dry	25	4/07/17 11:24	4/25/17 18:06	EPA 6010
7440-47-3	Chromium	11		mg/kg dry	0.49	4/07/17 11:24	4/25/17 18:06	EPA 6010
7440-48-4	Cobalt	1.4		mg/kg dry	0.49	4/07/17 11:24	4/25/17 18:06	EPA 6010
7440-50-8	Copper	8.7		mg/kg dry	0.98	4/07/17 11:24	4/25/17 18:06	EPA 6010
7439-89-6	Iron	3400		mg/kg dry	9.8	4/07/17 11:24	4/25/17 18:06	EPA 6010
7439-92-1	Lead	11		mg/kg dry	0.20	4/07/17 11:26	4/26/17 16:50	EPA 200.8
7439-95-4	Magnesium	110		mg/kg dry	25	4/07/17 11:24	4/25/17 18:06	EPA 6010
7439-96-5	Manganese	16		mg/kg dry	0.49	4/07/17 11:24	4/25/17 18:06	EPA 6010
7439-98-7	Molybdenum	0.98	U	mg/kg dry	0.98	4/07/17 11:24	4/25/17 18:06	EPA 6010
7440-02-0	Nickel	3.6		mg/kg dry	0.98	4/07/17 11:24	4/25/17 18:06	EPA 6010
7440-09-7	Potassium	98	U	mg/kg dry	98	4/07/17 11:24	4/25/17 18:06	EPA 6010
7782-49-2	Selenium	0.39	U	mg/kg dry	0.39	4/07/17 11:26	4/26/17 16:50	EPA 200.8
7440-22-4	Silver	0.49	U	mg/kg dry	0.49	4/07/17 11:24	4/25/17 18:06	EPA 6010
7440-23-5	Sodium	98	U	mg/kg dry	98	4/07/17 11:24	4/25/17 18:06	EPA 6010
7440-24-6	Strontium	13		mg/kg dry	0.49	4/07/17 11:24	4/25/17 18:06	EPA 6010
7440-28-0	Thallium	0.20	U	mg/kg dry	0.20	4/07/17 11:26	4/26/17 16:50	EPA 200.8
7440-31-5	Tin	1.5	U	mg/kg dry	1.5	4/07/17 11:24	4/25/17 18:06	EPA 6010
7440-32-6	Titanium	15		mg/kg dry	0.49	4/07/17 11:24	4/25/17 18:06	EPA 6010
7440-62-2	Vanadium	1.2		mg/kg dry	0.49	4/07/17 11:24	4/25/17 18:06	EPA 6010
7440-65-5	Yttrium	20		mg/kg dry	0.29	4/07/17 11:24	4/25/17 18:06	EPA 6010
7440-66-6	Zinc	150		mg/kg dry	0.98	4/07/17 11:24	4/25/17 18:06	EPA 6010



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D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

TCLP Metals

Project: 17-0238, AERC Recycling Solutions

Sample ID: A02

Lab ID: E171204-02

Station ID: A02

Matrix: Sediment

Date Collected: 3/21/17 12:10

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7440-38-2	Arsenic:	NA-5			0.20	6/21/17 10:44	6/21/17 11:08	EPA 6010
7440-39-3	Barium:	NA-5			0.020	6/21/17 10:44	6/21/17 11:08	EPA 6010
7440-43-9	Cadmium:	NA-5			0.020	6/21/17 10:44	6/21/17 11:08	EPA 6010
7440-47-3	Chromium:	NA-5			0.020	6/21/17 10:44	6/21/17 11:08	EPA 6010
7439-92-1	Lead:	NA-5			0.080	6/21/17 10:44	6/21/17 11:08	EPA 6010
7439-97-6	Mercury:	NA-5			0.00020	6/21/17 10:44	6/21/17 11:08	EPA 245.1
7782-49-2	Selenium:	NA-5			0.18	6/21/17 10:44	6/21/17 11:08	EPA 6010
7440-22-4	Silver:	NA-5			0.020	6/21/17 10:44	6/21/17 11:08	EPA 6010



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980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

Physical Properties

Project: 17-0238, AERC Recycling Solutions

Sample ID: A02

Lab ID: E171204-02

Station ID: A02

Matrix: Sediment

Date Collected: 3/21/17 12:10

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
E1642941	% Solids	80		%	0.0	4/05/17 13:33	4/07/17 8:55	EPA 200.2



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

Total Metals

Project: 17-0238, AERC Recycling Solutions

Sample ID: A03

Lab ID: E171204-03

Station ID: A03

Matrix: Subsurface Soil

Date Collected: 3/21/17 12:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.14		mg/kg dry	0.045	4/12/17 12:19	4/12/17 17:44	EPA 7473
7429-90-5	Aluminum	850		mg/kg dry	20	4/07/17 11:24	4/25/17 18:09	EPA 6010
7440-36-0	Antimony	0.63		mg/kg dry	0.20	4/07/17 11:26	4/26/17 16:55	EPA 200.8
7440-38-2	Arsenic	4.2		mg/kg dry	0.20	4/07/17 11:26	4/26/17 16:55	EPA 200.8
7440-39-3	Barium	10		mg/kg dry	1.0	4/07/17 11:24	4/25/17 18:09	EPA 6010
7440-41-7	Beryllium	0.60	U	mg/kg dry	0.60	4/07/17 11:24	4/25/17 18:09	EPA 6010
7440-43-9	Cadmium	0.10	U	mg/kg dry	0.10	4/07/17 11:26	4/26/17 16:55	EPA 200.8
7440-70-2	Calcium	3600		mg/kg dry	50	4/07/17 11:24	4/25/17 18:09	EPA 6010
7440-47-3	Chromium	5.5		mg/kg dry	1.0	4/07/17 11:24	4/25/17 18:09	EPA 6010
7440-48-4	Cobalt	1.0	U	mg/kg dry	1.0	4/07/17 11:24	4/25/17 18:09	EPA 6010
7440-50-8	Copper	29		mg/kg dry	2.0	4/07/17 11:24	4/25/17 18:09	EPA 6010
7439-89-6	Iron	1700		mg/kg dry	20	4/07/17 11:24	4/25/17 18:09	EPA 6010
7439-92-1	Lead	5.9		mg/kg dry	0.20	4/07/17 11:26	4/26/17 16:55	EPA 200.8
7439-95-4	Magnesium	610		mg/kg dry	50	4/07/17 11:24	4/25/17 18:09	EPA 6010
7439-96-5	Manganese	11		mg/kg dry	1.0	4/07/17 11:24	4/25/17 18:09	EPA 6010
7439-98-7	Molybdenum	2.0	U	mg/kg dry	2.0	4/07/17 11:24	4/25/17 18:09	EPA 6010
7440-02-0	Nickel	2.0	U	mg/kg dry	2.0	4/07/17 11:24	4/25/17 18:09	EPA 6010
7440-09-7	Potassium	200	U	mg/kg dry	200	4/07/17 11:24	4/25/17 18:09	EPA 6010
7782-49-2	Selenium	0.40	U	mg/kg dry	0.40	4/07/17 11:26	4/26/17 16:55	EPA 200.8
7440-22-4	Silver	1.0	U	mg/kg dry	1.0	4/07/17 11:24	4/25/17 18:09	EPA 6010
7440-23-5	Sodium	330		mg/kg dry	200	4/07/17 11:24	4/25/17 18:09	EPA 6010
7440-24-6	Strontium	290		mg/kg dry	1.0	4/07/17 11:24	4/25/17 18:09	EPA 6010
7440-28-0	Thallium	0.20	U	mg/kg dry	0.20	4/07/17 11:26	4/26/17 16:55	EPA 200.8
7440-31-5	Tin	3.0	U	mg/kg dry	3.0	4/07/17 11:24	4/25/17 18:09	EPA 6010
7440-32-6	Titanium	8.4		mg/kg dry	1.0	4/07/17 11:24	4/25/17 18:09	EPA 6010
7440-62-2	Vanadium	1.0	U	mg/kg dry	1.0	4/07/17 11:24	4/25/17 18:09	EPA 6010
7440-65-5	Yttrium	12		mg/kg dry	0.60	4/07/17 11:24	4/25/17 18:09	EPA 6010
7440-66-6	Zinc	18		mg/kg dry	2.0	4/07/17 11:24	4/25/17 18:09	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

TCLP Metals

Project: 17-0238, AERC Recycling Solutions

Sample ID: A03

Lab ID: E171204-03

Station ID: A03

Matrix: Subsurface Soil

Date Collected: 3/21/17 12:25

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7440-38-2	Arsenic:	NA-5			0.20	6/21/17 10:44	6/21/17 11:08	EPA 6010
7440-39-3	Barium:	NA-5			0.020	6/21/17 10:44	6/21/17 11:08	EPA 6010
7440-43-9	Cadmium:	NA-5			0.020	6/21/17 10:44	6/21/17 11:08	EPA 6010
7440-47-3	Chromium:	NA-5			0.020	6/21/17 10:44	6/21/17 11:08	EPA 6010
7439-92-1	Lead:	NA-5			0.080	6/21/17 10:44	6/21/17 11:08	EPA 6010
7439-97-6	Mercury:	NA-5			0.00020	6/21/17 10:44	6/21/17 11:08	EPA 245.1
7782-49-2	Selenium:	NA-5			0.18	6/21/17 10:44	6/21/17 11:08	EPA 6010
7440-22-4	Silver:	NA-5			0.020	6/21/17 10:44	6/21/17 11:08	EPA 6010



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980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

Physical Properties

Project: 17-0238, AERC Recycling Solutions

Sample ID: A03

Lab ID: E171204-03

Station ID: A03

Matrix: Subsurface Soil

Date Collected: 3/21/17 12:25

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
E1642941	% Solids	62		%	0.0	4/05/17 13:33	4/07/17 8:55	EPA 200.2



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

Total Metals

Project: 17-0238, AERC Recycling Solutions

Sample ID: A04

Lab ID: E171204-04

Station ID: A04

Matrix: Sediment

Date Collected: 3/21/17 12:50

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	2.6		mg/kg dry	0.046	4/12/17 12:19	4/12/17 17:52	EPA 7473
7429-90-5	Aluminum	980	J, QM-2, QM-3	mg/kg dry	100	4/07/17 11:24	4/25/17 18:14	EPA 6010
7440-36-0	Antimony	25		mg/kg dry	1.0	4/07/17 11:26	4/27/17 11:39	EPA 200.8
7440-38-2	Arsenic	1.1		mg/kg dry	0.20	4/07/17 11:26	4/27/17 11:35	EPA 200.8
7440-39-3	Barium	86		mg/kg dry	5.0	4/07/17 11:24	4/25/17 18:14	EPA 6010
7440-41-7	Beryllium	3.0	U	mg/kg dry	3.0	4/07/17 11:24	4/25/17 18:14	EPA 6010
7440-43-9	Cadmium	1.5		mg/kg dry	0.10	4/07/17 11:26	4/27/17 11:35	EPA 200.8
7440-70-2	Calcium	19000		mg/kg dry	250	4/07/17 11:24	4/25/17 18:14	EPA 6010
7440-47-3	Chromium	23		mg/kg dry	5.0	4/07/17 11:24	4/25/17 18:14	EPA 6010
7440-48-4	Cobalt	5.0	U	mg/kg dry	5.0	4/07/17 11:24	4/25/17 18:14	EPA 6010
7440-50-8	Copper	110	J, QM-3, QM-2	mg/kg dry	10	4/07/17 11:24	4/25/17 18:14	EPA 6010
7439-89-6	Iron	14000		mg/kg dry	100	4/07/17 11:24	4/25/17 18:14	EPA 6010
7439-92-1	Lead	95	J, QM-2	mg/kg dry	1.0	4/07/17 11:26	4/27/17 11:39	EPA 200.8
7439-95-4	Magnesium	690		mg/kg dry	250	4/07/17 11:24	4/25/17 18:14	EPA 6010
7439-96-5	Manganese	150		mg/kg dry	5.0	4/07/17 11:24	4/25/17 18:14	EPA 6010
7439-98-7	Molybdenum	10	U	mg/kg dry	10	4/07/17 11:24	4/25/17 18:14	EPA 6010
7440-02-0	Nickel	24		mg/kg dry	10	4/07/17 11:24	4/25/17 18:14	EPA 6010
7440-09-7	Potassium	1000	U	mg/kg dry	1000	4/07/17 11:24	4/25/17 18:14	EPA 6010
7782-49-2	Selenium	0.50		mg/kg dry	0.40	4/07/17 11:26	4/27/17 11:35	EPA 200.8
7440-22-4	Silver	11		mg/kg dry	5.0	4/07/17 11:24	4/25/17 18:14	EPA 6010
7440-23-5	Sodium	1000	U	mg/kg dry	1000	4/07/17 11:24	4/25/17 18:14	EPA 6010
7440-24-6	Strontium	290	J, QM-2	mg/kg dry	5.0	4/07/17 11:24	4/25/17 18:14	EPA 6010
7440-28-0	Thallium	0.20	U	mg/kg dry	0.20	4/07/17 11:26	4/27/17 11:35	EPA 200.8
7440-31-5	Tin	15	U	mg/kg dry	15	4/07/17 11:24	4/25/17 18:14	EPA 6010
7440-32-6	Titanium	35		mg/kg dry	5.0	4/07/17 11:24	4/25/17 18:14	EPA 6010
7440-62-2	Vanadium	5.0	U	mg/kg dry	5.0	4/07/17 11:24	4/25/17 18:14	EPA 6010
7440-65-5	Yttrium	1300		mg/kg dry	3.0	4/07/17 11:24	4/25/17 18:14	EPA 6010
7440-66-6	Zinc	450	J, QM-2	mg/kg dry	10	4/07/17 11:24	4/25/17 18:14	EPA 6010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

TCLP Metals

Project: 17-0238, AERC Recycling Solutions

Sample ID: A04

Lab ID: E171204-04

Station ID: A04

Matrix: Sediment

Date Collected: 3/21/17 12:50

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
7440-38-2	Arsenic	0.60	U	mg/L	0.60	5/25/17 14:39	6/01/17 14:57	EPA 6010
7440-39-3	Barium	0.68		mg/L	0.060	5/25/17 14:39	6/01/17 14:57	EPA 6010
7440-43-9	Cadmium	0.060	U	mg/L	0.060	5/25/17 14:39	6/01/17 14:57	EPA 6010
7440-47-3	Chromium	0.060	U	mg/L	0.060	5/25/17 14:39	6/01/17 14:57	EPA 6010
7439-92-1	Lead	0.24	U	mg/L	0.24	5/25/17 14:39	6/01/17 14:57	EPA 6010
7439-97-6	Mercury	0.00030		mg/L	5.E-5	5/25/17 13:48	6/01/17 18:07	EPA 245.1
7782-49-2	Selenium	0.54	U, J, QC-1	mg/L	0.54	5/25/17 14:39	6/01/17 14:57	EPA 6010
7440-22-4	Silver	0.060	U	mg/L	0.060	5/25/17 14:39	6/01/17 14:57	EPA 6010



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980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

Physical Properties

Project: 17-0238, AERC Recycling Solutions

Sample ID: A04

Lab ID: E171204-04

Station ID: A04

Matrix: Sediment

Date Collected: 3/21/17 12:50

<i>CAS Number</i>	<i>Analyte</i>	<i>Results</i>	<i>Qualifiers</i>	<i>Units</i>	<i>MRL</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Method</i>
E1642941	% Solids	98		%	0.0	4/05/17 13:33	4/07/17 8:55	EPA 200.2



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1704021 - M 200.2 Metals Soil

Blank (1704021-BLK1)

Prepared: 04/07/17 Analyzed: 04/25/17

EPA 6010

Aluminum	24.734	10	mg/kg dry							B-3
Barium	U	0.50	"							U
Beryllium	U	0.30	"							U
Calcium	60.828	25	"							B-3
Chromium	U	0.50	"							U
Cobalt	U	0.50	"							U
Copper	U	1.0	"							U
Iron	U	10	"							U
Magnesium	U	25	"							U
Manganese	U	0.50	"							U
Molybdenum	U	1.0	"							U
Nickel	U	1.0	"							U
Potassium	U	100	"							U
Silver	U	0.50	"							U
Sodium	U	100	"							U
Strontium	1.9411	0.50	"							B-3
Tin	U	1.5	"							U
Titanium	U	0.50	"							U
Vanadium	U	0.50	"							U
Yttrium	U	0.30	"							U
Zinc	U	1.0	"							U

Blank (1704021-BLK2)

Prepared: 04/07/17 Analyzed: 04/25/17

EPA 6010

Aluminum	11.435	10	mg/kg dry							B-3
Barium	U	0.50	"							U
Beryllium	U	0.30	"							U
Calcium	28.411	25	"							B-3
Chromium	U	0.50	"							U
Cobalt	U	0.50	"							U
Copper	U	1.0	"							U
Iron	U	10	"							U
Magnesium	U	25	"							U
Manganese	U	0.50	"							U
Molybdenum	U	1.0	"							U
Nickel	U	1.0	"							U
Potassium	U	100	"							U
Silver	U	0.50	"							U
Sodium	U	100	"							U



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1704021 - M 200.2 Metals Soil

Blank (1704021-BLK2)

Prepared: 04/07/17 Analyzed: 04/25/17

Strontium	0.90897	0.50	mg/kg dry							B-3
Tin	U	1.5	"							U
Titanium	U	0.50	"							U
Vanadium	U	0.50	"							U
Yttrium	U	0.30	"							U
Zinc	U	1.0	"							U

LCS (1704021-BS1)

Prepared: 04/07/17 Analyzed: 04/25/17

EPA 6010

Aluminum	481.41	10	mg/kg dry	500.00	96.3	85-115
Barium	52.429	0.50	"	50.000	105	85-115
Beryllium	20.347	0.30	"	20.000	102	85-115
Calcium	514.75	25	"	500.00	103	85-115
Chromium	46.821	0.50	"	50.000	93.6	85-115
Cobalt	46.657	0.50	"	50.000	93.3	85-115
Copper	29.499	1.0	"	30.000	98.3	85-115
Iron	517.57	10	"	500.00	104	85-115
Magnesium	494.58	25	"	500.00	98.9	85-115
Manganese	508.53	0.50	"	500.00	102	85-115
Molybdenum	30.915	1.0	"	30.000	103	85-115
Nickel	75.495	1.0	"	80.000	94.4	85-115
Potassium	949.11	100	"	1000.0	94.9	85-115
Silver	9.4657	0.50	"	10.000	94.7	85-115
Sodium	934.01	100	"	1000.0	93.4	85-115
Strontium	39.156	0.50	"	40.000	97.9	85-115
Tin	95.823	1.5	"	100.00	95.8	85-115
Titanium	49.962	0.50	"	50.000	99.9	85-115
Vanadium	37.814	0.50	"	40.000	94.5	85-115
Yttrium	29.779	0.30	"	30.000	99.3	85-115
Zinc	99.843	1.0	"	100.00	99.8	85-115



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D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1704021 - M 200.2 Metals Soil

Matrix Spike (1704021-MS1)

Source: E171204-04

Prepared: 04/07/17 Analyzed: 04/25/17

EPA 6010

Aluminum	1365.0	100	mg/kg dry	498.60	975.31	78.2	75-125			
Barium	129.86	5.0	"	49.860	85.564	88.8	75-125			
Beryllium	19.899	3.0	"	19.944	U	99.8	75-125			
Calcium	20394	250	"	498.60	19080	263	75-125			XM-1
Chromium	66.349	5.0	"	49.860	22.828	87.3	75-125			
Cobalt	50.618	5.0	"	49.860	2.9061	95.7	75-125			
Copper	150.30	10	"	29.916	113.19	124	75-125			
Iron	13304	100	"	498.60	14216	-183	75-125			XM-1
Magnesium	1181.0	250	"	498.60	693.04	97.9	75-125			
Manganese	651.65	5.0	"	498.60	154.27	99.8	75-125			
Molybdenum	30.574	10	"	29.916	1.5181	97.1	75-125			
Nickel	92.338	10	"	79.777	24.254	85.3	75-125			
Potassium	1055.0	1000	"	997.21	146.65	91.1	75-125			
Silver	21.208	5.0	"	9.9721	10.802	104	75-125			
Sodium	1044.9	1000	"	997.21	144.18	90.3	75-125			
Strontium	341.52	5.0	"	39.888	291.97	124	75-125			
Tin	92.642	15	"	99.721	3.1380	89.8	75-125			
Titanium	84.217	5.0	"	49.860	34.563	99.6	75-125			
Vanadium	42.478	5.0	"	39.888	2.8880	99.3	75-125			
Yttrium	1396.9	3.0	"	29.916	1301.2	320	75-125			XM-1
Zinc	548.17	10	"	99.721	447.86	101	75-125			

Matrix Spike Dup (1704021-MSD1)

Source: E171204-04

Prepared: 04/07/17 Analyzed: 04/25/17

EPA 6010

Aluminum	2019.4	99	mg/kg dry	494.46	975.31	211	75-125	38.7	20	QM-3, QM-2
Barium	130.54	4.9	"	49.446	85.564	91.0	75-125	0.523	20	
Beryllium	19.593	3.0	"	19.778	U	99.1	75-125	1.55	20	
Calcium	22895	250	"	494.46	19080	771	75-125	11.6	20	XM-1
Chromium	65.341	4.9	"	49.446	22.828	86.0	75-125	1.53	20	
Cobalt	49.642	4.9	"	49.446	2.9061	94.5	75-125	1.95	20	
Copper	194.76	9.9	"	29.668	113.19	275	75-125	25.8	20	QM-3, QM-2
Iron	14391	99	"	494.46	14216	35.4	75-125	7.85	20	XM-1
Magnesium	1278.1	250	"	494.46	693.04	118	75-125	7.89	20	
Manganese	674.96	4.9	"	494.46	154.27	105	75-125	3.51	20	
Molybdenum	28.766	9.9	"	29.668	1.5181	91.8	75-125	6.09	20	
Nickel	95.822	9.9	"	79.114	24.254	90.5	75-125	3.70	20	
Potassium	1048.8	990	"	988.92	146.65	91.2	75-125	0.594	20	



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980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1704021 - M 200.2 Metals Soil

Matrix Spike Dup (1704021-MSD1)		Source: E171204-04		Prepared: 04/07/17		Analyzed: 04/25/17				
Silver	20.880	4.9	mg/kg dry	9.8892	10.802	102	75-125	1.56	20	
Sodium	1051.7	990	"	988.92	144.18	91.8	75-125	0.651	20	
Strontium	355.03	4.9	"	39.557	291.97	159	75-125	3.88	20	QM-2
Tin	83.110	15	"	98.892	3.1380	80.9	75-125	10.8	20	
Titanium	85.270	4.9	"	49.446	34.563	103	75-125	1.24	20	
Vanadium	42.179	4.9	"	39.557	2.8880	99.3	75-125	0.707	20	
Yttrium	1426.1	3.0	"	29.668	1301.2	421	75-125	2.07	20	XM-1
Zinc	576.56	9.9	"	98.892	447.86	130	75-125	5.05	20	QM-2

MRL Verification (1704021-PS1)

Prepared: 04/07/17 Analyzed: 04/25/17

EPA 6010

Aluminum	12.803	10	mg/kg dry	10.000		128	70-130			MRL-3
Barium	0.48240	0.50	"	0.50000		96.5	70-130			MRL-3, U
Beryllium	0.29106	0.30	"	0.30000		97.0	70-130			MRL-3, U
Calcium	33.535	25	"	25.000		134	70-130			B-3, QR-2, MRL-3
Chromium	0.50980	0.50	"	0.50000		102	70-130			MRL-3
Cobalt	0.43008	0.50	"	0.50000		86.0	70-130			MRL-3, U
Copper	0.99963	1.0	"	1.0000		100	70-130			MRL-3, U
Iron	10.107	10	"	10.000		101	70-130			MRL-3
Magnesium	25.426	25	"	25.000		102	70-130			MRL-3
Manganese	0.50528	0.50	"	0.50000		101	70-130			MRL-3
Molybdenum	0.95363	1.0	"	1.0000		95.4	70-130			MRL-3, U
Nickel	0.99409	1.0	"	1.0000		99.4	70-130			MRL-3, U
Potassium	93.733	100	"	100.00		93.7	70-130			MRL-3, U
Silver	0.51075	0.50	"	0.50000		102	70-130			MRL-3
Sodium	93.117	100	"	100.00		93.1	70-130			MRL-3, U
Strontium	0.79820	0.50	"	0.50000		160	70-130			QR-2, MRL-3
Tin	1.2641	1.5	"	1.5000		84.3	70-130			MRL-3, U
Titanium	0.56248	0.50	"	0.50000		112	70-130			MRL-3
Vanadium	0.46776	0.50	"	0.50000		93.6	70-130			MRL-3, U
Yttrium	0.30681	0.30	"	0.30000		102	70-130			MRL-3



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980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1704021 - M 200.2 Metals Soil

MRL Verification (1704021-PS1)

Prepared: 04/07/17 Analyzed: 04/25/17

Zinc	1.1862	1.0	mg/kg dry	1.0000		119	70-130			MRL-3
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Batch 1704022 - M 200.2 Metals Soil

Blank (1704022-BLK1)

Prepared: 04/07/17 Analyzed: 04/26/17

EPA 200.8

Antimony	U	0.10	mg/kg dry							U
Arsenic	U	0.10	"							U
Cadmium	U	0.050	"							U
Lead	U	0.10	"							U
Selenium	U	0.20	"							U
Silver	U	0.050	"							U
Thallium	U	0.10	"							U

Blank (1704022-BLK2)

Prepared: 04/07/17 Analyzed: 04/26/17

EPA 200.8

Antimony	U	0.10	mg/kg dry							U
Arsenic	U	0.10	"							U
Cadmium	U	0.050	"							U
Lead	U	0.10	"							U
Selenium	U	0.20	"							U
Silver	U	0.050	"							U
Thallium	U	0.10	"							U

LCS (1704022-BS1)

Prepared: 04/07/17 Analyzed: 04/26/17

EPA 200.8

Antimony	96.164	1.2	mg/kg dry	100.00		96.2	85-115
Arsenic	48.228	1.2	"	50.000		96.5	85-115
Cadmium	19.404	0.62	"	20.000		97.0	85-115
Lead	102.32	1.2	"	100.00		102	85-115
Selenium	101.98	2.5	"	100.00		102	85-115
Silver	10.039	0.62	"	10.000		100	85-115
Thallium	20.991	1.2	"	20.000		105	85-115



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Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1704022 - M 200.2 Metals Soil

Matrix Spike (1704022-MS2)

Source: E171204-04RE2

Prepared: 04/07/17 Analyzed: 04/27/17

EPA 200.8

Antimony	116.18	2.5	mg/kg dry	99.721	25.143	91.3	70-130			
Arsenic	50.642	2.5	"	49.860	1.0348	102	70-130			
Cadmium	22.444	1.2	"	19.944	1.5638	105	70-130			
Lead	240.28	2.5	"	99.721	95.421	145	70-130			QM-2
Selenium	96.612	5.0	"	99.721	U	96.9	70-130			
Silver	14.370	1.2	"	9.9721	3.8922	105	70-130			
Thallium	20.133	2.5	"	19.944	U	101	70-130			

Matrix Spike Dup (1704022-MSD2)

Source: E171204-04RE2

Prepared: 04/07/17 Analyzed: 04/27/17

EPA 200.8

Antimony	115.17	2.5	mg/kg dry	98.892	25.143	91.0	70-130	0.877	20	
Arsenic	48.903	2.5	"	49.446	1.0348	98.9	70-130	3.49	20	
Cadmium	21.453	1.2	"	19.778	1.5638	101	70-130	4.52	20	
Lead	255.63	2.5	"	98.892	95.421	162	70-130	6.19	20	QM-2
Selenium	93.782	4.9	"	98.892	U	94.8	70-130	2.97	20	
Silver	14.206	1.2	"	9.8892	3.8922	104	70-130	1.15	20	
Thallium	18.824	2.5	"	19.778	U	95.2	70-130	6.72	20	

MRL Verification (1704022-PS1)

Prepared: 04/07/17 Analyzed: 04/26/17

EPA 200.8

Antimony	0.052972	0.10	mg/kg dry	0.050000		106	65-135			MRL-3, U
Arsenic	0.11828	0.10	"	0.10000		118	65-135			MRL-3
Cadmium	0.057456	0.050	"	0.050000		115	65-135			MRL-3
Lead	0.11071	0.10	"	0.10000		111	65-135			MRL-3
Selenium	0.22526	0.20	"	0.20000		113	65-135			MRL-3
Silver	0.055889	0.050	"	0.050000		112	65-135			MRL-3
Thallium	0.053829	0.10	"	0.050000		108	65-135			MRL-3, U

MRL Verification (1704022-PS2)

Prepared: 04/07/17 Analyzed: 04/27/17

EPA 200.8

Antimony	0.052946	0.10	mg/kg dry	0.050000		106	65-135			MRL-3, U
Arsenic	0.098575	0.10	"	0.10000		98.6	65-135			MRL-3, U
Cadmium	0.051392	0.050	"	0.050000		103	65-135			MRL-3
Lead	0.11595	0.10	"	0.10000		116	65-135			MRL-3
Selenium	0.16883	0.20	"	0.20000		84.4	65-135			MRL-3, U



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Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

Total Metals (TMTL) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1704022 - M 200.2 Metals Soil

MRL Verification (1704022-PS2)

Prepared: 04/07/17 Analyzed: 04/27/17

Silver	0.054384	0.050	mg/kg dry	0.050000		109	65-135			MRL-3
Thallium	0.058392	0.10	"	0.050000		117	65-135			MRL-3, U

Batch 1704027 - M 7473 Hg-Direct

Blank (1704027-BLK1)

Prepared & Analyzed: 04/12/17

EPA 7473

Mercury	U	0.050	mg/kg dry							U
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LCS (1704027-BS1)

Prepared & Analyzed: 04/12/17

EPA 7473

Mercury	0.86614	0.047	mg/kg dry	0.90000		96.2	80-120			
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LCS Dup (1704027-BSD1)

Prepared & Analyzed: 04/12/17

EPA 7473

Mercury	0.88766	0.049	mg/kg dry	0.90000		98.6	80-120	2.45	20	
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Matrix Spike (1704027-MS1)

Source: E171105-02

Prepared & Analyzed: 04/12/17

EPA 7473

Mercury	0.33509	0.048	mg/kg dry	0.96993	0.037237	30.7	80-120			QM-1
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Matrix Spike Dup (1704027-MSD1)

Source: E171105-02

Prepared & Analyzed: 04/12/17

EPA 7473

Mercury	0.37305	0.049	mg/kg dry	0.98912	0.037237	34.0	80-120	10.7	20	QM-1
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MRL Verification (1704027-PS1)

Prepared & Analyzed: 04/12/17

EPA 7473

Mercury	0.99800		ng Hg	1.0000		99.8	70-130			MRL-3
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D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

TCLP Metals (TCLPM) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1704031 - M 200.2 TCLP

Blank (1704031-BLK1)

Prepared: 04/13/17 Analyzed: 05/02/17

EPA 6010

Arsenic	U	0.050	mg/L							U
Barium	U	0.0050	"							U
Cadmium	U	0.0050	"							U
Chromium	U	0.0050	"							U
Lead	U	0.020	"							U
Selenium	U	0.045	"							U
Silver	U	0.0050	"							U

Blank (1704031-BLK2)

Prepared: 04/13/17 Analyzed: 05/02/17

EPA 6010

Arsenic	U	0.20	mg/L							U
Barium	0.0468	0.020	"							B-4
Cadmium	U	0.020	"							U
Chromium	U	0.020	"							U
Lead	U	0.080	"							U
Selenium	U	0.18	"							U
Silver	U	0.020	"							U

LCS (1704031-BS1)

Prepared: 04/13/17 Analyzed: 05/02/17

EPA 6010

Arsenic	4.94	0.50	mg/L	5.0000		98.9	85-115
Barium	4.85	0.050	"	5.0000		97.0	85-115
Cadmium	0.999	0.050	"	1.0000		99.9	85-115
Chromium	4.77	0.050	"	5.0000		95.4	85-115
Lead	5.00	0.20	"	5.0000		99.9	85-115
Selenium	0.962	0.45	"	1.0000		96.2	85-115
Silver	0.100	0.050	"	0.10000		100	85-115

Matrix Spike (1704031-MS1)

Source: E171204-01

Prepared: 04/13/17 Analyzed: 05/02/17

EPA 6010

Arsenic	19.9	2.0	mg/L	20.000	U	99.5	75-125
Barium	19.3	0.20	"	20.000	0.334	94.8	75-125
Cadmium	4.00	0.20	"	4.0000	U	100	75-125
Chromium	18.7	0.20	"	20.000	0.00981	93.4	75-125
Lead	20.2	0.80	"	20.000	0.142	100	75-125
Selenium	3.87	1.8	"	4.0000	U	96.8	75-125
Silver	0.411	0.20	"	0.40000	0.0326	94.6	75-125



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D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

TCLP Metals (TCLPM) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1704031 - M 200.2 TCLP

Matrix Spike Dup (1704031-MSD1)

Source: E171204-01

Prepared: 04/13/17 Analyzed: 05/02/17

EPA 6010

Arsenic	19.9	2.0	mg/L	20.000	U	99.4	75-125	0.0631	20	
Barium	19.1	0.20	"	20.000	0.334	93.8	75-125	0.994	25	
Cadmium	3.99	0.20	"	4.0000	U	99.8	75-125	0.228	25	
Chromium	18.6	0.20	"	20.000	0.00981	93.1	75-125	0.257	25	
Lead	20.2	0.80	"	20.000	0.142	100	75-125	0.00996	25	
Selenium	3.71	1.8	"	4.0000	U	92.8	75-125	4.24	25	
Silver	0.406	0.20	"	0.40000	0.0326	93.4	75-125	1.20	25	

MRL Verification (1704031-PS1)

Prepared: 04/13/17 Analyzed: 05/02/17

EPA 6010

Arsenic	0.0493	0.050	mg/L	0.050000		98.6	70-130			MRL-9, U
Barium	0.00733	0.0050	"	0.0050000		147	70-130			MRL-9, QR-2
Cadmium	0.00580	0.0050	"	0.0050000		116	70-130			MRL-9
Chromium	0.00864	0.0050	"	0.0050000		173	70-130			MRL-9, QR-2
Lead	0.0233	0.020	"	0.020000		117	70-130			MRL-9
Selenium	0.0547	0.045	"	0.045000		122	70-130			MRL-9
Silver	0.00483	0.0050	"	0.0050000		96.6	70-130			MRL-9, U

Batch 1704033 - M 245.1 TCLP extract

Blank (1704033-BLK1)

Prepared & Analyzed: 05/03/17

EPA 245.1

Mercury	U	0.000050	mg/L							U
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LCS (1704033-BS1)

Prepared & Analyzed: 05/03/17

EPA 245.1

Mercury	0.0020870	0.000050	mg/L	0.0020000		104	85-115			
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LCS Dup (1704033-BSD1)

Prepared & Analyzed: 05/03/17

EPA 245.1

Mercury	0.0020910	0.000050	mg/L	0.0020000		105	85-115	0.191	20	
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Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

TCLP Metals (TCLPM) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1704033 - M 245.1 TCLP extract

Matrix Spike (1704033-MS1)

Source: E171204-01

Prepared & Analyzed: 05/03/17

EPA 245.1

Mercury	0.011115	0.00025	mg/L	0.0020000	0.0092150	95.0	75-125			
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Matrix Spike Dup (1704033-MSD1)

Source: E171204-01

Prepared & Analyzed: 05/03/17

EPA 245.1

Mercury	0.010975	0.00025	mg/L	0.0020000	0.0092150	88.0	75-125	1.27	200	
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MRL Verification (1704033-PS1)

Prepared & Analyzed: 05/03/17

EPA 245.1

Mercury	0.10100		ug/L	0.10000		101	65-135			MRL-3
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Batch 1705090 - M 245.1 TCLP extract

Blank (1705090-BLK1)

Prepared: 05/25/17 Analyzed: 06/01/17

EPA 245.1

Mercury	U	0.000050	mg/L							U
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LCS (1705090-BS1)

Prepared: 05/25/17 Analyzed: 06/01/17

EPA 245.1

Mercury	0.0020220	0.000050	mg/L	0.0020000		101	85-115			
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Duplicate (1705090-DUP1)

Source: E171204-04

Prepared: 05/25/17 Analyzed: 06/01/17

EPA 245.1

Mercury	0.00029500	0.000050	mg/L		0.00029800			1.01	20	
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Matrix Spike (1705090-MS1)

Source: E171204-04

Prepared: 05/25/17 Analyzed: 06/01/17

EPA 245.1

Mercury	0.0023180	0.000050	mg/L	0.0020000	0.00029800	101	75-125			
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Matrix Spike Dup (1705090-MSD1)

Source: E171204-04

Prepared: 05/25/17 Analyzed: 06/01/17

EPA 245.1

Mercury	0.0023230	0.000050	mg/L	0.0020000	0.00029800	101	75-125	0.215	200	
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MRL Verification (1705090-PS1)

Prepared: 05/25/17 Analyzed: 06/01/17

EPA 245.1

Mercury	0.099000		ug/L	0.10000		99.0	65-135			MRL-9
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D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

TCLP Metals (TCLPM) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1705092 - M 200.2 TCLP

Blank (1705092-BLK1)

Prepared: 05/25/17 Analyzed: 06/01/17

EPA 6010

Arsenic	U	0.050	mg/L							U
Barium	U	0.0050	"							U
Cadmium	U	0.0050	"							U
Chromium	U	0.0050	"							U
Lead	U	0.020	"							U
Selenium	U	0.045	"							U
Silver	U	0.0050	"							U

Blank (1705092-BLK2)

Prepared: 05/25/17 Analyzed: 06/01/17

EPA 6010

Arsenic	U	0.20	mg/L							U
Barium	0.0683	0.020	"							B-4
Cadmium	U	0.020	"							U
Chromium	U	0.020	"							U
Lead	U	0.080	"							U
Selenium	U	0.18	"							U
Silver	U	0.020	"							U

LCS (1705092-BS1)

Prepared: 05/25/17 Analyzed: 06/01/17

EPA 6010

Arsenic	4.80	0.15	mg/L	5.0000		95.9	85-115
Barium	4.63	0.015	"	5.0000		92.6	85-115
Cadmium	0.950	0.015	"	1.0000		95.0	85-115
Chromium	4.61	0.015	"	5.0000		92.2	85-115
Lead	4.80	0.060	"	5.0000		96.0	85-115
Selenium	0.875	0.14	"	1.0000		87.5	85-115
Silver	0.0971	0.015	"	0.10000		97.1	85-115

Matrix Spike (1705092-MS1)

Source: E171607-04

Prepared: 05/25/17 Analyzed: 06/01/17

EPA 6010

Arsenic	20.6	0.60	mg/L	20.000	U	103	75-125
Barium	19.2	0.060	"	20.000	0.136	95.3	75-125
Cadmium	3.99	0.060	"	4.0000	0.0103	99.6	75-125
Chromium	18.5	0.060	"	20.000	0.00362	92.6	75-125
Lead	22.6	0.24	"	20.000	3.45	95.9	75-125
Selenium	3.76	0.54	"	4.0000	U	94.0	75-125
Silver	0.402	0.060	"	0.40000	U	100	75-125



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980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 17-0238

Project: 17-0238, AERC Recycling Solutions - Reported by Terri White

TCLP Metals (TCLPM) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1705092 - M 200.2 TCLP

Matrix Spike (1705092-MS2)

Source: E171204-04

Prepared: 05/25/17 Analyzed: 06/01/17

EPA 6010

Arsenic	20.4	0.60	mg/L	20.000	0.103	102	75-125
Barium	19.3	0.060	"	20.000	0.676	93.3	75-125
Cadmium	3.90	0.060	"	4.0000	0.0162	97.1	75-125
Chromium	18.0	0.060	"	20.000	0.00571	89.7	75-125
Lead	18.7	0.24	"	20.000	0.228	92.6	75-125
Selenium	3.77	0.54	"	4.0000	0.176	89.9	75-125
Silver	0.375	0.060	"	0.40000	U	93.9	75-125

Matrix Spike Dup (1705092-MSD1)

Source: E171607-04

Prepared: 05/25/17 Analyzed: 06/01/17

EPA 6010

Arsenic	20.4	0.60	mg/L	20.000	U	102	75-125	0.970	20
Barium	18.8	0.060	"	20.000	0.136	93.5	75-125	1.83	25
Cadmium	3.97	0.060	"	4.0000	0.0103	98.9	75-125	0.628	25
Chromium	18.4	0.060	"	20.000	0.00362	92.2	75-125	0.508	25
Lead	22.4	0.24	"	20.000	3.45	94.7	75-125	1.03	25
Selenium	3.69	0.54	"	4.0000	U	92.3	75-125	1.82	25
Silver	0.402	0.060	"	0.40000	U	100	75-125	0.0589	25

Matrix Spike Dup (1705092-MSD2)

Source: E171204-04

Prepared: 05/25/17 Analyzed: 06/01/17

EPA 6010

Arsenic	20.3	0.60	mg/L	20.000	0.103	101	75-125	0.868	20
Barium	19.1	0.060	"	20.000	0.676	92.3	75-125	1.06	25
Cadmium	3.88	0.060	"	4.0000	0.0162	96.5	75-125	0.592	25
Chromium	17.8	0.060	"	20.000	0.00571	89.0	75-125	0.878	25
Lead	18.6	0.24	"	20.000	0.228	92.1	75-125	0.502	25
Selenium	3.75	0.54	"	4.0000	0.176	89.3	75-125	0.613	25
Silver	0.369	0.060	"	0.40000	U	92.3	75-125	1.70	25

MRL Verification (1705092-PS1)

Prepared: 05/25/17 Analyzed: 06/01/17

EPA 6010

Arsenic	0.0487	0.050	mg/L	0.050000		97.3	70-130		MRL-9, U
Barium	0.00462	0.0050	"	0.0050000		92.4	70-130		MRL-9, U
Cadmium	0.00505	0.0050	"	0.0050000		101	70-130		MRL-9
Chromium	0.00469	0.0050	"	0.0050000		93.7	70-130		MRL-9, U
Lead	0.0169	0.020	"	0.020000		84.4	70-130		MRL-9, U



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TCLP Metals (TCLPM) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1705092 - M 200.2 TCLP

MRL Verification (1705092-PS1)

Prepared: 05/25/17 Analyzed: 06/01/17

Selenium	0.0404	0.045	mg/L	0.045000		89.8	70-130			MRL-9, U
Silver	0.00515	0.0050	"	0.0050000		103	70-130			MRL-9



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Physical Properties (PHYSP) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1704020 - M % Solids

Duplicate (1704020-DUP1)

Source: E171204-04

Prepared: 04/05/17 Analyzed: 04/07/17

EPA 200.2

% Solids	98.030	0.0	%		98.136			0.108	10	
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Notes and Definitions for QC Samples

U	The analyte was not detected at or above the reporting limit.
B-3	Level in blank does not impact data quality
B-4	Level in blank impacts MRLs.
MRL-3	MRL verification for Soil matrix
MRL-9	MRL verification for TCLP matrix
QC-1	Analyte concentration low in continuing calibration verification standard
QM-1	Matrix Spike Recovery less than method control limits
QM-2	Matrix Spike Recovery greater than method control limits
QM-3	Matrix Spike Precision outside method control limits
QR-2	MRL verification recovery greater than upper control limits.
XM-1	Sample background/spike ratio higher than method evaluation criteria

END OF REPORT