

**SCS ENGINEERS**

April 28, 2017  
File No. 02203023.64

**RFP Attachment 1,  
Exhibit IV**

Mr. Andrew Kays  
Northeast Maryland Waste Disposal Authority  
Tower II, Suite 402  
100 S. Charles Street  
Baltimore, MD 21201-2705

**SUBJECT:** Focused Phase II Site Investigation  
Former Harford Waste-to-Energy Facility  
1 Magnolia Road, Joppa, Maryland

Dear Mr. Kays:

As requested by the Northeast Maryland Waste Disposal Authority (NMWDA), SCS Engineers performed a focused Phase II environmental site investigation of the Subject Property. As part of the decommissioning activities of the former Harford County incinerator waste-to-energy facility adjacent to the U.S. Army Aberdeen Proving Ground-Edgewood Area, the NMWDA desired to implement a focused environmental assessment of near-surface soils and sediment at the facility. The purpose of the assessment was to evaluate levels of metals constituents in near-surface soils and sediment, to establish baseline conditions prior to transfer of the facility to the U.S. Army.

Areas of investigation were identified by representatives of SCS and NMWDA, and included:

- Former ash handling building (potential ash residuals in sub-soils)
- Two on-site stormwater ponds (potential ash residuals in sediment accumulation)
- Ash truck haul road (potential ash residuals in surficial soils)
- Former white goods storage area (potential ash residuals in surficial soils)

The scope of work included soil borings using direct-push equipment and hand auger, sediment sampling, and laboratory analyses of samples. This letter report presents the findings of the focused Phase II investigation. The location of the Subject Property is illustrated on **Figure 1 in Attachment A**, and a Site Vicinity Map is presented as **Figure 2 in Attachment A**.

## **SCOPE OF SERVICES**

This Phase II investigation was performed in general accordance with SCS's scope of work and standard operating procedures (SOPs) for similar site investigation activities. The assessment is based on:

- Field observations made during environmental investigation activities performed on February 28, 2017. Field investigation activities included the advancement of ten

borings on-site, identified as B-1 through B-10 and two sediment samples, identified as S-1 and S-2 (see attached **Figure 2**).

- Sampling of soil from the ten borings and two sediment samples.
- Laboratory analyses of soil and sediment samples for PP-13 Metals.
- Data review and interpretation.

### **Limitations and Exceptions**

No exceptions to or deviations from the scope of work were encountered. Sample locations were field-adjusted, as necessary, due to actual field conditions.

This report has been prepared exclusively for the use of NMWDA, with care and skill generally exercised by reputable professionals under similar circumstances, in this or similar localities. No warranty, expressed or implied, is made as to the professional opinions presented herein. Third parties use this report at their own risk.

### **SITE DESCRIPTION**

The Subject Property is located at 1 Magnolia Road, in Joppa, MD and encompasses 13-acres. East and south of the site is the U.S. Army Aberdeen Proving Ground-Edgewood Area. Site and area features are illustrated on **Figure 2** in **Attachment A**.

The Former Harford County incinerator waste-to-energy facility operated from 1988 to 2016. Based on review of historical aerial photographs, the site was undeveloped prior to the construction of the waste-to-energy facility.

The facility was designed to process a maximum of 360 tons of solid waste per day (or approximately 115,000 tons per year). Operations ceased on March 17, 2016, and facility decommissioning activities were largely completed by March 2017. NMWDA's lease on the site with the U.S. Government ends in March 2019.

### **INVESTIGATION ACTIVITIES**

A focused Phase II subsurface investigation was conducted to evaluate levels of metals constituents, due to potential ash residuals, in near surface soils and in sediment from two retention ponds, as part of the pending transfer of the facility to the U.S. Army.

Field investigation and sampling activities are summarized below. The facility was demolished and base site utilities had been disconnected. However, prior to the field work, SCS coordinated with Tidewater, Inc. (GeoProbe subcontractor) for the underground utility markings through Miss Utility.

## Soil Borings and Sediment Sampling

On February 28, 2017, Austin Drooger of SCS oversaw and directed Tidewater in performing the soil borings at the site. The investigation was performed using a track-mounted Geoprobe™ rig. A total of ten exploratory borings (B-1 through B-10) were advanced at the Subject Site. Two additional shallow soil borings were advanced using a hand auger. The boring locations are depicted on **Figure 2** in **Attachment A**. The weather conditions at the time of the investigation were sunny with an air temperature of approximately 60 degrees Fahrenheit.

During probing, stainless steel rods were hydraulically driven into the subsurface, and a stainless steel macro-core sampler and disposable acetate liners were utilized to obtain continuous soil cores. Soils encountered during probing consisted brown silty sands near surface, which transitioned to brown silty sands and clays. Soil boring B-5 was extended to a maximum depth of 16 feet below grade (fbg), where shallow groundwater was encountered. Soil borings B-1, B-2, B-3, B-4, B-6, B-7, and B-8 were advanced to 4 fbg. Soil borings B-9 and B-10 were advanced using a stainless steel hand auger to depths of 4 fbg and 2.5 fbg, respectively. Soil samples B-7 and B-9 were collected as background samples for intra comparison between samples on site. Field screening results are summarized on the boring logs in **Attachment B**.

Two soil samples were collected from each soil boring. Soil samples were collected from each location at approximately 1-2 fbg and at maximum depth or at the soil-groundwater interface. Soils were submitted to Martel Laboratories located in Baltimore, MD for Priority Pollutant Metals (PP-13) analysis by EPA Method 6010C and 7471. The chemical analytical results are presented below in **Table 1**. The laboratory analytical report is included in **Attachment C**.

Soils were visually observed and field-screened for volatile organic compounds (VOCs) using a Rae Systems MiniRae Lite photoionization detector (PID) equipped with a 10.6 eV lamp. The PID was field-calibrated to zero air and using 100 parts-per-million isobutylene calibration gas.

During the field screening process, soil samples from each probe were collected at four foot depth intervals and placed in sealable plastic bags for VOC headspace measurement using the PID. No elevated PID readings were observed in soil samples from the ten boring locations advanced at the Subject Property. No discernible ash was observed in soils/borings.

**Table 1. PP-13 Metal Detections (2/28/17)**

Sample	Date	Antimony mg/kg	Arsenic mg/kg	Beryllium mg/kg	Cadmium mg/kg	Chromium mg/kg	Copper mg/kg	Lead mg/kg	Mercury mg/kg	Nickel mg/kg	Selenium mg/kg	Silver mg/kg	Thallium mg/kg	Zinc mg/kg
B-1@1'	2/28/2017	ND	4.89	ND	ND	24.1	15.1	3.65	ND	8.89	ND	ND	ND	31.8
B-1@4'	2/28/2017	ND	3.83	ND	ND	29	9.32	3.16	0.088	10.1	ND	ND	ND	31.1
B-2@1'	2/28/2017	3.33	ND	ND	ND	19.3	66.3	2.53	ND	13.3	ND	ND	ND	14.3
B-2@4'	2/28/2017	ND	2.05	ND	ND	13.2	3.47	6.19	ND	11.2	ND	ND	ND	32
B-3@1'	2/28/2017	5.03	1.87	ND	ND	16.5	11.8	12.2	ND	6.07	ND	ND	ND	33.2
B-3@4'	2/28/2017	2.37	2.5	ND	ND	18.1	132	47.2	ND	6.63	ND	ND	ND	35.3
B-4@2'	2/28/2017	ND	3.94	ND	ND	20.7	7.13	5.04	ND	5.84	ND	ND	ND	14.2
B-4@4'	2/28/2017	ND	3.81	ND	ND	15.8	4.04	3.93	ND	3.65	ND	ND	ND	13.6
B-5@2'	2/28/2017	ND	3.49	ND	ND	16.1	9.19	17.6	0.1	9.68	ND	ND	ND	57.2
B-5@12'	2/28/2017	ND	2.47	ND	ND	12.6	15.2	4.64	ND	ND	ND	ND	ND	3.23
B-6@2'	2/28/2017	ND	2.71	ND	ND	23.5	7.22	5.02	ND	7.7	ND	ND	ND	25.8
B-6@4'	2/28/2017	ND	2.39	ND	ND	23.2	7.66	2.56	ND	7.95	ND	ND	ND	26.9
B-7@1'	2/28/2017	ND	4.08	ND	1.71	19.5	7.22	15.5	ND	6.12	ND	ND	ND	73.9
B-7@4'	2/28/2017	ND	4.68	ND	ND	28.5	9.84	4.65	ND	10.8	ND	ND	ND	32.7
B-8@1'	2/28/2017	ND	2.78	ND	ND	16	6.81	4.89	ND	7.33	ND	ND	ND	22.8
B-8@4'	2/28/2017	ND	3.89	ND	ND	19	8.28	2.68	ND	9.02	ND	ND	ND	24.3
B-9@1'	2/28/2017	ND	3.11	ND	ND	21	13.8	9.3	ND	11	ND	ND	ND	26.6
B-9@4'	2/28/2017	ND	2.45	ND	ND	22.4	11.5	13.6	ND	13.6	ND	ND	ND	31.4
B-10@1'	2/28/2017	ND	1.28	ND	ND	13	9.21	6.59	ND	3.28	ND	ND	ND	20.1
B-10@2.5'	2/28/2017	ND	2.64	ND	ND	14.4	4.68	4.26	ND	ND	ND	ND	ND	9.54
S-1	2/28/2017	3.62	1.7	ND	1.22	17	38.8	23.1	0.11	16.1	ND	ND	ND	499
S-2	2/28/2017	6.4	2.77	ND	12	8.99	29.7	49.4	0.1	9.21	ND	ND	ND	952
<b>Detection Limit (mg/kg)</b>		2	1	1	1	1	1	1	0.083	2	2	2	2	2
<b>Maryland Residential Clean-Up Standard (mg/kg)</b>		3.1	0.43	16	3.9	23	310	400	2.3	160	39	39	0.55	2300
ND = Not detected at or above mg/kg = milligram per kilogram Background samples: B-7@1', B-7@4', B-9@1', B-9@4' Maryland Non-Residential Cleanup Standards based on State of Maryland Department of the Environment Cleanup Standards for Soil and Groundwater, June 2008														

## CONCLUSIONS

A focused Phase II site investigation was performed at the former Harford County incinerator waste-to-energy facility to evaluate metals concentrations in near-surface soils and sediment, as part of the pending return of the site to the U.S. Army.

The investigation included ten soil borings advanced at the property, and two retention pond sediment samples. A total of twenty soil samples (two from each boring) and two sediment samples were collected for laboratory analyses. Field screening with the PID did not yield evidence of elevated organic vapors in soil. No discernible ash was evident in the soil borings.

Antimony, arsenic, cadmium, chromium, copper, lead, nickel, and zinc were reported in the soil samples at varying concentrations, below the MDE non-residential cleanup standards. The metals concentrations were also consistent with naturally-occurring levels found in soils (Shields, Edward J. (compiled by), Pollution Control Engineer's Handbook, Second Printing, Cahners Publishing Company, Des Plaines, Illinois, undated). Additionally, the metals concentrations identified in the soils on site are in line with the mean background metals concentrations for Eastern Maryland referenced in Appendix 2 of the State of Maryland Department of the Environment Cleanup Standards. More specifically:

- Antimony was detected in samples B-2, B-3, S-1, and S-2 at levels ranging from 2.37 to 6.4 mg/kg. Naturally-occurring levels of antimony range from 0.6 to 10 mg/kg.
- Arsenic was detected in all samples except B-2@1' at levels ranging from 1.7 to 4.89 mg/kg. Naturally-occurring levels of arsenic range from 0.1 to 40 mg/kg.
- Cadmium was detected in B-7, S-1, and S-2 at levels ranging from 1.22 to 12 mg/kg. Naturally-occurring levels of cadmium range from 0.01 to 7 mg/kg.
- Chromium was reported in all of the samples, at concentrations ranging from 13 to 29 mg/kg. Naturally-occurring levels of chromium range from 5 to 3,000 mg/kg.
- Copper was reported in all of the samples, at concentrations ranging from 3.47 to 66.3 mg/kg. Naturally-occurring levels of copper range from 2 to 100 mg/kg.
- Lead was detected in all samples at levels ranging from 2.53 to 49.4 mg/kg. Naturally-occurring levels of lead range from 2 to 200 mg/kg.
- Mercury was detected in B-1@4', B-5@2', S-1 and S-2 at levels ranging from 0.088 to 0.11 mg/kg. Naturally-occurring levels of mercury range from 0.01 to 0.8 mg/kg.
- Nickel was detected in all the samples except B-5@12' and B-10@2.5', at levels ranging from 3.28 to 16.1 mg/kg. Naturally-occurring levels of nickel range from 5 to 1,000 mg/kg.

- Zinc was detected in all of the samples at levels ranging from 3.23 to 952 mg/kg. Naturally-occurring levels of zinc range from 10 to 300 mg/kg.
- Beryllium, selenium, silver, and thallium were not detected in the soil or sediment samples.

In summary, the metals detections were well below the non-residential cleanup standard established by the Maryland Department of the Environment (MDE) with the exception of the arsenic levels. The arsenic levels were detected above the non-residential cleanup standard; however, the levels are consistent with the on-site background levels and the regional soil background levels. SCS has not identified evidence of significant metals impacts to near-surface soil at the property related to the former use of the site as an incinerator waste-to-energy facility.

SCS appreciates the opportunity to assist NMWDA on this important project. If you have any questions and if we can assist further on the project, please do not hesitate to contact us. Thanks again.

Very truly yours,



Austin Drooger  
Project Professional



John E. Tabella, PG, LEED AP  
Project Director

**SCS ENGINEERS**

cc: Deji Fawole, SCS Engineers

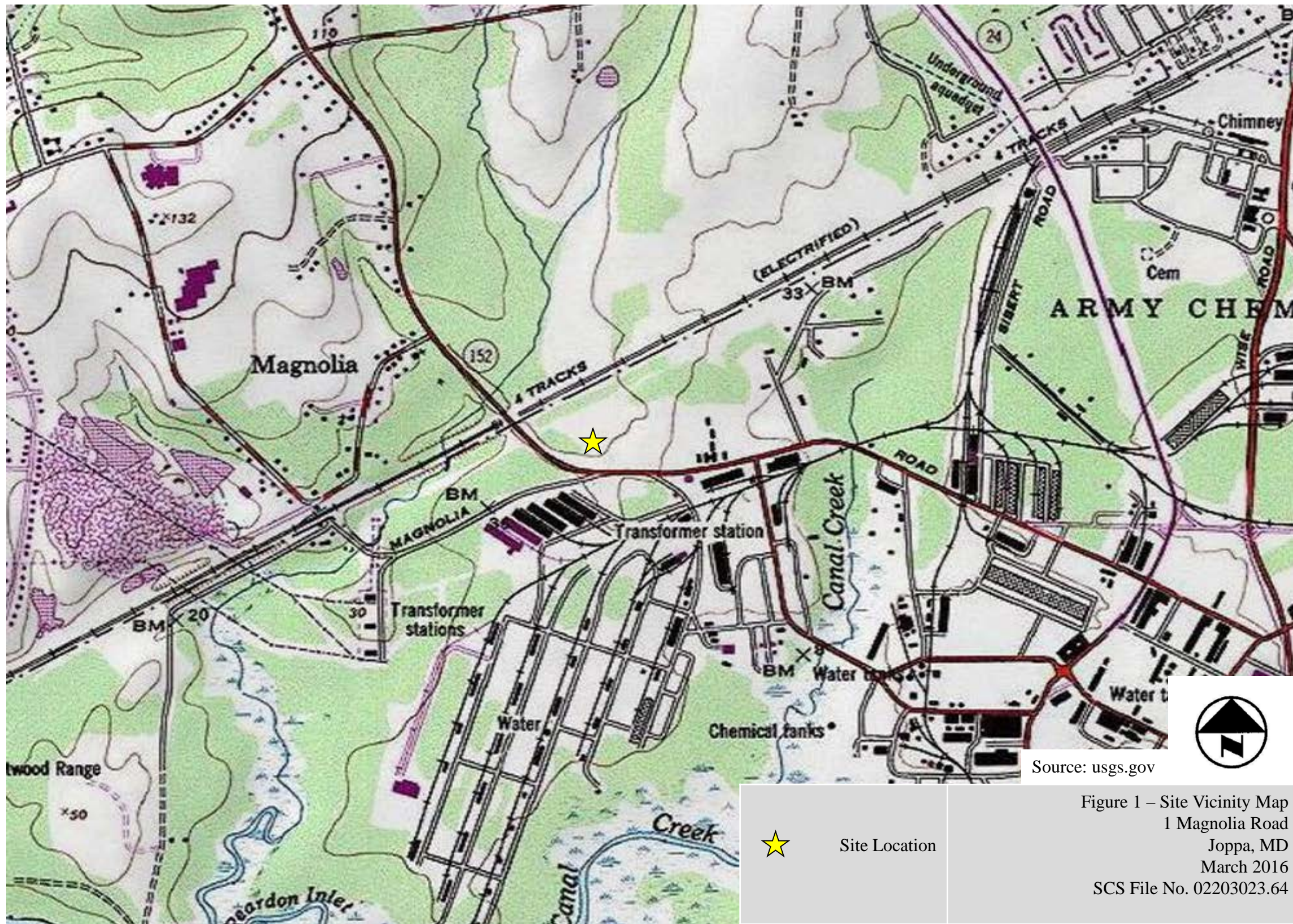
Attachments: as stated

Attachment A

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FIGURES





Source: usgs.gov



★ Site Location

Figure 1 – Site Vicinity Map  
 1 Magnolia Road  
 Joppa, MD  
 March 2016  
 SCS File No. 02203023.64





Source: [Google Earth](#)

Sample Location Map  
 1 Magnolia Road  
 Joppa, MD  
 March 2017  
 SCS File No. 2303023.64

Notes:  
 Soil Samples ●  
 Sediment Samples ■  
 Stormwater flow →  
 Background Samples: B-7 and B-9

Attachment B

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BORING LOGS



<b>Soil Boring B-1</b>			
<b>Depth</b>	<b>Depth</b>	<b>Comments</b>	<b>PID</b>
0-1'	Dark brown loam		0.0
1'-4'	Brown silty clay		0.1
Groundwater was not encountered in this boring. Soil sample collected at 1' and 4'.			

<b>Soil Boring B-2</b>			
<b>Depth</b>	<b>Depth</b>	<b>Comments</b>	<b>PID</b>
0-1'	Brown/gray sand and gravel		0.0
1'-4'	Brown sand – some organics		0.3
Groundwater was not encountered in this boring. Soil sample collected at 1' and 4'.			

<b>Soil Boring B-3</b>			
<b>Depth</b>	<b>Depth</b>	<b>Comments</b>	<b>PID</b>
0-1'	Brown sand some gravel		0.3
1'-4'	Brown sand some gravel	Wet	0.0
Groundwater was not encountered in this boring. Soil sample collected at 1' and 4'.			

<b>Soil Boring B-4</b>			
<b>Depth</b>	<b>Depth</b>	<b>Comments</b>	<b>PID</b>
0-2'	Red/brown sandy clay		0.0
1'-4'	Red/brown clay		0.1
Groundwater was not encountered in this boring. Soil sample collected at 2' and 4'.			

<b>Soil Boring B-5</b>			
<b>Depth</b>	<b>Depth</b>	<b>Comments</b>	<b>PID</b>
0-4'	Dark brown sandy clay		0.2
4'-8'	Dark brown clay		0.3
8'-12'	Dark brown clay	Damp	0.4
12'-16'	Light tan sand	Wet	0.2
Groundwater was encountered in this boring at 14'. Soil sample collected at 1' and 4'.			

<b>Soil Boring B-6</b>			
<b>Depth</b>	<b>Depth</b>	<b>Comments</b>	<b>PID</b>
0-8"	Concrete		----
8"-1'	Brown silty clay		0.3
1'-4'	Brown silty clay		0.3
Groundwater was not encountered in this boring. Soil sample collected at 2' and 4'.			

<b>Soil Boring B-7</b>			
<b>Depth</b>	<b>Depth</b>	<b>Comments</b>	<b>PID</b>
0-1'	Brown silty clay		0.1
1'-4'	Brown silty clay		0.0
Groundwater was not encountered in this boring. Soil sample collected at 1' and 4'.			

<b>Soil Boring B-8</b>			
<b>Depth</b>	<b>Depth</b>	<b>Comments</b>	<b>PID</b>
0-1'	Brown silty clay		0.1
1'-4'			0.2
Groundwater was not encountered in this boring. Soil sample collected at 1' and 4'.			

<b>Soil Boring B-9</b>			
<b>Depth</b>	<b>Depth</b>	<b>Comments</b>	<b>PID</b>
0-1'	Brown sand		0.1
1'-4'	Brown sand		0.1
Groundwater was not encountered in this boring. Soil sample collected at 1' and 4'.			

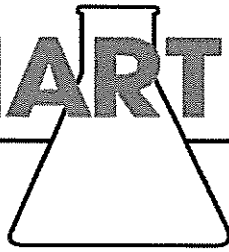
<b>Soil Boring B-10</b>			
<b>Depth</b>	<b>Depth</b>	<b>Comments</b>	<b>PID</b>
0-1'	Brown loam	Damp	0.7
1'-2.5'	Brown loam	Wet	0.6
Shallow groundwater was encountered in this boring. Soil sample collected at 1' and 2.5'.			



Appendix C

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LABORATORY ANALYTICAL REPORT



**SCS Engineers**  
 11260 Roger Bacon Dr.  
 Ste 300  
 Reston, VA 22090

Tuesday, March 21, 2017

**FINAL**  
**Certificate of Analysis**

**Attention: Austin Drooger**

Report for Lab No: 30314.

Samples received by Martel.

Project Identification: 02203023.64/Harford Waste to Energy - 2/28/17

Samples analyzed according to method requirements and QC exceptions available.

MARTEL NO.	CLIENT SAMPLE IDENTIFICATION			Sample Date/Time		
30314	000001	B-1@1'				02/28/2017 08:35
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Antimony	<2	mg/kg	EPA 6010C	2	03/07/2017 13:23 CSG	
Arsenic	4.89	mg/kg	EPA 6010C	1	03/07/2017 13:23 CSG	
Beryllium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:23 CSG	
Cadmium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:23 CSG	
Chromium	24.1	mg/kg	EPA 6010C	1	03/07/2017 13:23 CSG	
Copper	15.1	mg/kg	EPA 6010C	1	03/07/2017 13:23 CSG	
Lead	3.65	mg/kg	EPA 6010C	1	03/07/2017 13:23 CSG	
Mercury	<0.083	mg/kg	EPA 7471	0.083	03/17/2017 13:51 NK	
Nickel	8.89	mg/kg	EPA 6010C	2	03/07/2017 13:23 CSG	
Selenium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:23 CSG	
Silver	<2	mg/kg	EPA 6010C	2	03/07/2017 13:23 CSG	
Thallium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:23 CSG	
Zinc	31.8	mg/kg	EPA 6010C	2	03/07/2017 13:23 CSG	
Solids (Total)	85.3	%	SM 2540B		03/06/2017 15:10 CB	

MARTEL NO.	CLIENT SAMPLE IDENTIFICATION			Sample Date/Time		
30314	000002	B-1@4'				02/28/2017 08:35
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Antimony	<2	mg/kg	EPA 6010C	2	03/07/2017 13:26 CSG	
Arsenic	3.83	mg/kg	EPA 6010C	1	03/07/2017 13:26 CSG	
Beryllium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:26 CSG	
Cadmium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:26 CSG	
Chromium	29.0	mg/kg	EPA 6010C	1	03/07/2017 13:26 CSG	
Copper	9.32	mg/kg	EPA 6010C	1	03/07/2017 13:26 CSG	
Lead	3.16	mg/kg	EPA 6010C	1	03/07/2017 13:26 CSG	
Mercury	0.088	mg/kg	EPA 7471	0.083	03/17/2017 13:51 NK	
Nickel	10.1	mg/kg	EPA 6010C	2	03/07/2017 13:26 CSG	
Selenium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:26 CSG	
Silver	<2	mg/kg	EPA 6010C	2	03/07/2017 13:26 CSG	
Thallium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:26 CSG	
Zinc	31.1	mg/kg	EPA 6010C	2	03/07/2017 13:26 CSG	



MARTEL NO.	CLIENT SAMPLE IDENTIFICATION			Sample Date/Time
30314	000002	B-1@4'		02/28/2017 08:35
Compound	Test Value	Test Unit	Method	Detection Limit
Solids (Total)	80.0	%	SM 2540B	03/06/2017 15:10 CB

MARTEL NO.	CLIENT SAMPLE IDENTIFICATION			Sample Date/Time
30314	000003	B-2@1'		02/28/2017 08:50
Compound	Test Value	Test Unit	Method	Detection Limit
Antimony	3.33	mg/kg	EPA 6010C	2
Arsenic	<1	mg/kg	EPA 6010C	1
Beryllium	<1	mg/kg	EPA 6010C	1
Cadmium	<1	mg/kg	EPA 6010C	1
Chromium	19.3	mg/kg	EPA 6010C	1
Copper	66.3	mg/kg	EPA 6010C	1
Lead	2.53	mg/kg	EPA 6010C	1
Mercury	<0.083	mg/kg	EPA 7471	0.083
Nickel	13.3	mg/kg	EPA 6010C	2
Selenium	<2	mg/kg	EPA 6010C	2
Silver	<2	mg/kg	EPA 6010C	2
Thallium	<2	mg/kg	EPA 6010C	2
Zinc	14.3	mg/kg	EPA 6010C	2
Solids (Total)	91.3	%	SM 2540B	03/06/2017 15:10 CB

MARTEL NO.	CLIENT SAMPLE IDENTIFICATION			Sample Date/Time
30314	000004	B-2@4'		02/28/2017 08:50
Compound	Test Value	Test Unit	Method	Detection Limit
Antimony	<2	mg/kg	EPA 6010C	2
Arsenic	2.05	mg/kg	EPA 6010C	1
Beryllium	<1	mg/kg	EPA 6010C	1
Cadmium	<1	mg/kg	EPA 6010C	1
Chromium	13.2	mg/kg	EPA 6010C	1
Copper	3.47	mg/kg	EPA 6010C	1
Lead	6.19	mg/kg	EPA 6010C	1
Mercury	<0.083	mg/kg	EPA 7471	0.083
Nickel	11.2	mg/kg	EPA 6010C	2
Selenium	<2	mg/kg	EPA 6010C	2
Silver	<2	mg/kg	EPA 6010C	2
Thallium	<2	mg/kg	EPA 6010C	2
Zinc	32.0	mg/kg	EPA 6010C	2
Solids (Total)	84.8	%	SM 2540B	03/06/2017 15:10 CB

MARTEL NO.	CLIENT SAMPLE IDENTIFICATION			Sample Date/Time
30314	000005	B-3@1'		02/28/2017 09:00
Compound	Test Value	Test Unit	Method	Detection Limit
Antimony	5.03	mg/kg	EPA 6010C	2
Arsenic	1.87	mg/kg	EPA 6010C	1



MARTEL NO.	CLIENT SAMPLE IDENTIFICATION			Sample Date/Time		
30314	000005	B-3@1'				02/28/2017 09:00
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Beryllium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:38 CSG	
Cadmium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:38 CSG	
Chromium	16.5	mg/kg	EPA 6010C	1	03/07/2017 13:38 CSG	
Copper	11.8	mg/kg	EPA 6010C	1	03/07/2017 13:38 CSG	
Lead	12.2	mg/kg	EPA 6010C	1	03/07/2017 13:38 CSG	
Mercury	<0.083	mg/kg	EPA 7471	0.083	03/17/2017 13:51 NK	
Nickel	6.07	mg/kg	EPA 6010C	2	03/07/2017 13:38 CSG	
Selenium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:38 CSG	
Silver	<2	mg/kg	EPA 6010C	2	03/07/2017 13:38 CSG	
Thallium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:38 CSG	
Zinc	33.2	mg/kg	EPA 6010C	2	03/07/2017 13:38 CSG	
Solids (Total)	82.6	%	SM 2540B		03/06/2017 15:10 CB	

MARTEL NO.	CLIENT SAMPLE IDENTIFICATION			Sample Date/Time		
30314	000006	B-3@4'				02/28/2017 09:00
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Antimony	2.37	mg/kg	EPA 6010C	2	03/07/2017 13:40 CSG	
Arsenic	2.50	mg/kg	EPA 6010C	1	03/07/2017 13:40 CSG	
Beryllium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:40 CSG	
Cadmium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:40 CSG	
Chromium	18.1	mg/kg	EPA 6010C	1	03/07/2017 13:40 CSG	
Copper	132	mg/kg	EPA 6010C	1	03/07/2017 14:18 CSG	
Lead	47.2	mg/kg	EPA 6010C	1	03/07/2017 13:40 CSG	
Mercury	<0.083	mg/kg	EPA 7471	0.083	03/17/2017 13:51 NK	
Nickel	6.63	mg/kg	EPA 6010C	2	03/07/2017 13:40 CSG	
Selenium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:40 CSG	
Silver	<2	mg/kg	EPA 6010C	2	03/07/2017 13:40 CSG	
Thallium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:40 CSG	
Zinc	35.3	mg/kg	EPA 6010C	2	03/07/2017 13:40 CSG	
Solids (Total)	83.0	%	SM 2540B		03/06/2017 15:10 CB	

MARTEL NO.	CLIENT SAMPLE IDENTIFICATION			Sample Date/Time		
30314	000007	B-4@2'				02/28/2017 09:10
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Antimony	<2	mg/kg	EPA 6010C	2	03/07/2017 13:43 CSG	
Arsenic	3.94	mg/kg	EPA 6010C	1	03/07/2017 13:43 CSG	
Beryllium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:43 CSG	
Cadmium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:43 CSG	
Chromium	20.7	mg/kg	EPA 6010C	1	03/07/2017 13:43 CSG	
Copper	7.13	mg/kg	EPA 6010C	1	03/07/2017 13:43 CSG	
Lead	5.04	mg/kg	EPA 6010C	1	03/07/2017 13:43 CSG	
Mercury	<0.083	mg/kg	EPA 7471	0.083	03/17/2017 13:51 NK	
Nickel	5.84	mg/kg	EPA 6010C	2	03/07/2017 13:43 CSG	





MARTEL NO.		CLIENT SAMPLE IDENTIFICATION				Sample Date/Time
30314	000007	B-4@2'				02/28/2017 09:10
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Selenium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:43 CSG	
Silver	<2	mg/kg	EPA 6010C	2	03/07/2017 13:43 CSG	
Thallium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:43 CSG	
Zinc	14.2	mg/kg	EPA 6010C	2	03/07/2017 13:43 CSG	
Solids (Total)	82.6	%	SM 2540B		03/06/2017 15:10 CB	

MARTEL NO.		CLIENT SAMPLE IDENTIFICATION				Sample Date/Time
30314	000008	B-4@4'				02/28/2017 09:10
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Antimony	<2	mg/kg	EPA 6010C	2	03/07/2017 13:45 CSG	
Arsenic	3.81	mg/kg	EPA 6010C	1	03/07/2017 13:45 CSG	
Beryllium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:45 CSG	
Cadmium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:45 CSG	
Chromium	15.8	mg/kg	EPA 6010C	1	03/07/2017 13:45 CSG	
Copper	4.04	mg/kg	EPA 6010C	1	03/07/2017 13:45 CSG	
Lead	3.93	mg/kg	EPA 6010C	1	03/07/2017 13:45 CSG	
Mercury	<0.083	mg/kg	EPA 7471	0.083	03/17/2017 13:51 NK	
Nickel	3.65	mg/kg	EPA 6010C	2	03/07/2017 13:45 CSG	
Selenium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:45 CSG	
Silver	<2	mg/kg	EPA 6010C	2	03/07/2017 13:45 CSG	
Thallium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:45 CSG	
Zinc	13.6	mg/kg	EPA 6010C	2	03/07/2017 13:45 CSG	
Solids (Total)	89.2	%	SM 2540B		03/06/2017 15:10 CB	

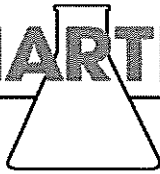
MARTEL NO.		CLIENT SAMPLE IDENTIFICATION				Sample Date/Time
30314	000009	B-5@2'				02/28/2017 09:30
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Antimony	<2	mg/kg	EPA 6010C	2	03/07/2017 13:48 CSG	
Arsenic	3.49	mg/kg	EPA 6010C	1	03/07/2017 13:48 CSG	
Beryllium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:48 CSG	
Cadmium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:48 CSG	
Chromium	16.1	mg/kg	EPA 6010C	1	03/07/2017 13:48 CSG	
Copper	9.19	mg/kg	EPA 6010C	1	03/07/2017 13:48 CSG	
Lead	17.6	mg/kg	EPA 6010C	1	03/07/2017 13:48 CSG	
Mercury	0.100	mg/kg	EPA 7471	0.083	03/17/2017 13:51 NK	
Nickel	9.68	mg/kg	EPA 6010C	2	03/07/2017 13:48 CSG	
Selenium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:48 CSG	
Silver	<2	mg/kg	EPA 6010C	2	03/07/2017 13:48 CSG	
Thallium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:48 CSG	
Zinc	57.2	mg/kg	EPA 6010C	2	03/07/2017 13:48 CSG	
Solids (Total)	86.3	%	SM 2540B		03/06/2017 15:10 CB	



MARTEL NO.		CLIENT SAMPLE IDENTIFICATION			Sample Date/Time	
30314	000010	B-5@12'			02/28/2017 09:30	
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Antimony	<2	mg/kg	EPA 6010C	2	03/07/2017 13:51 CSG	
Arsenic	2.47	mg/kg	EPA 6010C	1	03/07/2017 13:51 CSG	
Beryllium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:51 CSG	
Cadmium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:51 CSG	
Chromium	12.6	mg/kg	EPA 6010C	1	03/07/2017 13:51 CSG	
Copper	15.2	mg/kg	EPA 6010C	1	03/07/2017 13:51 CSG	
Lead	4.64	mg/kg	EPA 6010C	1	03/07/2017 13:51 CSG	
Mercury	<0.083	mg/kg	EPA 7471	0.083	03/17/2017 13:51 NK	
Nickel	<2	mg/kg	EPA 6010C	2	03/07/2017 13:51 CSG	
Selenium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:51 CSG	
Silver	<2	mg/kg	EPA 6010C	2	03/07/2017 13:51 CSG	
Thallium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:51 CSG	
Zinc	3.23	mg/kg	EPA 6010C	2	03/07/2017 13:51 CSG	
Solids (Total)	86.3	%	SM 2540B		03/06/2017 15:10 CB	

MARTEL NO.		CLIENT SAMPLE IDENTIFICATION			Sample Date/Time	
30314	000011	B-6@2'			02/28/2017 09:45	
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Antimony	<2	mg/kg	EPA 6010C	2	03/07/2017 13:53 CSG	
Arsenic	2.71	mg/kg	EPA 6010C	1	03/07/2017 13:53 CSG	
Beryllium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:53 CSG	
Cadmium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:53 CSG	
Chromium	23.5	mg/kg	EPA 6010C	1	03/07/2017 13:53 CSG	
Copper	7.22	mg/kg	EPA 6010C	1	03/07/2017 13:53 CSG	
Lead	5.02	mg/kg	EPA 6010C	1	03/07/2017 13:53 CSG	
Mercury	<0.083	mg/kg	EPA 7471	0.083	03/17/2017 13:51 NK	
Nickel	7.70	mg/kg	EPA 6010C	2	03/07/2017 13:53 CSG	
Selenium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:53 CSG	
Silver	<2	mg/kg	EPA 6010C	2	03/07/2017 13:53 CSG	
Thallium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:53 CSG	
Zinc	25.8	mg/kg	EPA 6010C	2	03/07/2017 13:53 CSG	
Solids (Total)	82.3	%	SM 2540B		03/07/2017 14:15 CB	

MARTEL NO.		CLIENT SAMPLE IDENTIFICATION			Sample Date/Time	
30314	000012	B-6@4'			02/28/2017 09:45	
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Antimony	<2	mg/kg	EPA 6010C	2	03/07/2017 13:56 CSG	
Arsenic	2.39	mg/kg	EPA 6010C	1	03/07/2017 13:56 CSG	
Beryllium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:56 CSG	
Cadmium	<1	mg/kg	EPA 6010C	1	03/07/2017 13:56 CSG	
Chromium	23.2	mg/kg	EPA 6010C	1	03/07/2017 13:56 CSG	
Copper	7.66	mg/kg	EPA 6010C	1	03/07/2017 13:56 CSG	
Lead	2.56	mg/kg	EPA 6010C	1	03/07/2017 13:56 CSG	



MARTEL NO.		CLIENT SAMPLE IDENTIFICATION			Sample Date/Time	
30314	000012	B-6@4'			02/28/2017 09:45	
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Mercury	<0.083	mg/kg	EPA 7471	0.083	03/17/2017 13:51 NK	
Nickel	7.95	mg/kg	EPA 6010C	2	03/07/2017 13:56 CSG	
Selenium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:56 CSG	
Silver	<2	mg/kg	EPA 6010C	2	03/07/2017 13:56 CSG	
Thallium	<2	mg/kg	EPA 6010C	2	03/07/2017 13:56 CSG	
Zinc	26.9	mg/kg	EPA 6010C	2	03/07/2017 13:56 CSG	
Solids (Total)	83.7	%	SM 2540B		03/07/2017 14:15 CB	

MARTEL NO.		CLIENT SAMPLE IDENTIFICATION			Sample Date/Time	
30314	000013	B-7@1'			02/28/2017 10:00	
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Antimony	<2	mg/kg	EPA 6010C	2	03/07/2017 14:03 CSG	
Arsenic	4.08	mg/kg	EPA 6010C	1	03/07/2017 14:03 CSG	
Beryllium	<1	mg/kg	EPA 6010C	1	03/07/2017 14:03 CSG	
Cadmium	1.71	mg/kg	EPA 6010C	1	03/07/2017 14:03 CSG	
Chromium	19.5	mg/kg	EPA 6010C	1	03/07/2017 14:03 CSG	
Copper	7.22	mg/kg	EPA 6010C	1	03/07/2017 14:03 CSG	
Lead	15.5	mg/kg	EPA 6010C	1	03/07/2017 14:03 CSG	
Mercury	<0.083	mg/kg	EPA 7471	0.083	03/20/2017 12:59 NK	
Nickel	6.12	mg/kg	EPA 6010C	2	03/07/2017 14:03 CSG	
Selenium	<2	mg/kg	EPA 6010C	2	03/07/2017 14:03 CSG	
Silver	<2	mg/kg	EPA 6010C	2	03/07/2017 14:03 CSG	
Thallium	<2	mg/kg	EPA 6010C	2	03/07/2017 14:03 CSG	
Zinc	73.9	mg/kg	EPA 6010C	2	03/07/2017 14:20 CSG	
Solids (Total)	82.2	%	SM 2540B		03/07/2017 14:15 CB	

MARTEL NO.		CLIENT SAMPLE IDENTIFICATION			Sample Date/Time	
30314	000014	B-7@4'			02/28/2017 10:00	
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Antimony	<2	mg/kg	EPA 6010C	2	03/07/2017 14:05 CSG	
Arsenic	4.68	mg/kg	EPA 6010C	1	03/07/2017 14:05 CSG	
Beryllium	<1	mg/kg	EPA 6010C	1	03/07/2017 14:05 CSG	
Cadmium	<1	mg/kg	EPA 6010C	1	03/07/2017 14:05 CSG	
Chromium	28.5	mg/kg	EPA 6010C	1	03/07/2017 14:05 CSG	
Copper	9.84	mg/kg	EPA 6010C	1	03/07/2017 14:05 CSG	
Lead	4.65	mg/kg	EPA 6010C	1	03/07/2017 14:05 CSG	
Mercury	<0.083	mg/kg	EPA 7471	0.083	03/20/2017 12:59 NK	
Nickel	10.8	mg/kg	EPA 6010C	2	03/07/2017 14:05 CSG	
Selenium	<2	mg/kg	EPA 6010C	2	03/07/2017 14:05 CSG	
Silver	<2	mg/kg	EPA 6010C	2	03/07/2017 14:05 CSG	
Thallium	<2	mg/kg	EPA 6010C	2	03/07/2017 14:05 CSG	
Zinc	32.7	mg/kg	EPA 6010C	2	03/07/2017 14:05 CSG	
Solids (Total)	82.8	%	SM 2540B		03/07/2017 14:15 CB	



MARTEL NO.		CLIENT SAMPLE IDENTIFICATION			Sample Date/Time	
30314	000015	B-8@1'			02/28/2017 10:15	
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Antimony	<2	mg/kg	EPA 6010C	2	03/07/2017 14:08 CSG	
Arsenic	2.78	mg/kg	EPA 6010C	1	03/07/2017 14:08 CSG	
Beryllium	<1	mg/kg	EPA 6010C	1	03/07/2017 14:08 CSG	
Cadmium	<1	mg/kg	EPA 6010C	1	03/07/2017 14:08 CSG	
Chromium	16.0	mg/kg	EPA 6010C	1	03/07/2017 14:08 CSG	
Copper	6.81	mg/kg	EPA 6010C	1	03/07/2017 14:08 CSG	
Lead	4.89	mg/kg	EPA 6010C	1	03/07/2017 14:08 CSG	
Mercury	<0.083	mg/kg	EPA 7471	0.083	03/20/2017 12:59 NK	
Nickel	7.33	mg/kg	EPA 6010C	2	03/07/2017 14:08 CSG	
Selenium	<2	mg/kg	EPA 6010C	2	03/07/2017 14:08 CSG	
Silver	<2	mg/kg	EPA 6010C	2	03/07/2017 14:08 CSG	
Thallium	<2	mg/kg	EPA 6010C	2	03/07/2017 14:08 CSG	
Zinc	22.8	mg/kg	EPA 6010C	2	03/07/2017 14:08 CSG	
Solids (Total)	89.3	%	SM 2540B		03/07/2017 14:15 CB	

MARTEL NO.		CLIENT SAMPLE IDENTIFICATION			Sample Date/Time	
30314	000016	B-8@4'			02/28/2017 10:15	
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Antimony	<2	mg/kg	EPA 6010C	2	03/07/2017 14:10 CSG	
Arsenic	3.89	mg/kg	EPA 6010C	1	03/07/2017 14:10 CSG	
Beryllium	<1	mg/kg	EPA 6010C	1	03/07/2017 14:10 CSG	
Cadmium	<1	mg/kg	EPA 6010C	1	03/07/2017 14:10 CSG	
Chromium	19.0	mg/kg	EPA 6010C	1	03/07/2017 14:10 CSG	
Copper	8.28	mg/kg	EPA 6010C	1	03/07/2017 14:10 CSG	
Lead	2.68	mg/kg	EPA 6010C	1	03/07/2017 14:10 CSG	
Mercury	<0.083	mg/kg	EPA 7471	0.083	03/20/2017 12:59 NK	
Nickel	9.02	mg/kg	EPA 6010C	2	03/07/2017 14:10 CSG	
Selenium	<2	mg/kg	EPA 6010C	2	03/07/2017 14:10 CSG	
Silver	<2	mg/kg	EPA 6010C	2	03/07/2017 14:10 CSG	
Thallium	<2	mg/kg	EPA 6010C	2	03/07/2017 14:10 CSG	
Zinc	24.3	mg/kg	EPA 6010C	2	03/07/2017 14:10 CSG	
Solids (Total)	87.6	%	SM 2540B		03/08/2017 07:30 CB	

MARTEL NO.		CLIENT SAMPLE IDENTIFICATION			Sample Date/Time	
30314	000017	B-9@1'			02/28/2017 10:45	
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Antimony	<2	mg/kg	EPA 6020	2	03/17/2017 15:57 CSG	
Arsenic	3.11	mg/kg	EPA 6020	1	03/17/2017 15:57 CSG	
Beryllium	<1	mg/kg	EPA 6020	1	03/17/2017 15:57 CSG	
Cadmium	<1	mg/kg	EPA 6020	1	03/17/2017 15:57 CSG	
Chromium	21.0	mg/kg	EPA 6020	1	03/17/2017 15:57 CSG	
Copper	13.8	mg/kg	EPA 6020	1	03/17/2017 15:57 CSG	
Lead	9.30	mg/kg	EPA 6020	1	03/17/2017 15:57 CSG	





MARTEL NO.		CLIENT SAMPLE IDENTIFICATION				Sample Date/Time
30314	000017	B-9@1'				02/28/2017 10:45
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Mercury	<0.083	mg/kg	EPA 7471	0.083	03/20/2017 12:59 NK	
Nickel	11.0	mg/kg	EPA 6020	2	03/17/2017 15:57 CSG	
Selenium	<2	mg/kg	EPA 6020	2	03/17/2017 15:57 CSG	
Silver	<2	mg/kg	EPA 6020	2	03/17/2017 15:57 CSG	
Thallium	<2	mg/kg	EPA 6020	2	03/17/2017 15:57 CSG	
Zinc	26.6	mg/kg	EPA 6020	2	03/17/2017 15:57 CSG	
Solids (Total)	88.4	%	SM 2540B		03/07/2017 14:15 CB	

MARTEL NO.		CLIENT SAMPLE IDENTIFICATION				Sample Date/Time
30314	000018	B-9@4'				02/28/2017 10:45
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Antimony	<2	mg/kg	EPA 6020	2	03/17/2017 16:07 CSG	
Arsenic	2.45	mg/kg	EPA 6020	1	03/17/2017 16:07 CSG	
Beryllium	<1	mg/kg	EPA 6020	1	03/17/2017 16:07 CSG	
Cadmium	<1	mg/kg	EPA 6020	1	03/17/2017 16:07 CSG	
Chromium	22.4	mg/kg	EPA 6020	1	03/17/2017 16:07 CSG	
Copper	11.5	mg/kg	EPA 6020	1	03/17/2017 16:07 CSG	
Lead	13.6	mg/kg	EPA 6020	1	03/17/2017 16:07 CSG	
Mercury	<0.083	mg/kg	EPA 7471	0.083	03/20/2017 12:59 NK	
Nickel	13.6	mg/kg	EPA 6020	2	03/17/2017 16:07 CSG	
Selenium	<2	mg/kg	EPA 6020	2	03/17/2017 16:07 CSG	
Silver	<2	mg/kg	EPA 6020	2	03/17/2017 16:07 CSG	
Thallium	<2	mg/kg	EPA 6020	2	03/17/2017 16:07 CSG	
Zinc	31.4	mg/kg	EPA 6020	2	03/17/2017 16:07 CSG	
Solids (Total)	83.8	%	SM 2540B		03/07/2017 14:15 CB	

MARTEL NO.		CLIENT SAMPLE IDENTIFICATION				Sample Date/Time
30314	000019	B-10@1'				02/28/2017 11:30
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Antimony	<2	mg/kg	EPA 6020	2	03/17/2017 16:10 CSG	
Arsenic	1.28	mg/kg	EPA 6020	1	03/17/2017 16:10 CSG	
Beryllium	<1	mg/kg	EPA 6020	1	03/17/2017 16:10 CSG	
Cadmium	<1	mg/kg	EPA 6020	1	03/17/2017 16:10 CSG	
Chromium	13.0	mg/kg	EPA 6020	1	03/17/2017 16:10 CSG	
Copper	9.21	mg/kg	EPA 6020	1	03/17/2017 16:10 CSG	
Lead	6.59	mg/kg	EPA 6020	1	03/17/2017 16:10 CSG	
Mercury	<0.083	mg/kg	EPA 7471	0.083	03/20/2017 12:59 NK	
Nickel	3.28	mg/kg	EPA 6020	2	03/17/2017 16:10 CSG	
Selenium	<2	mg/kg	EPA 6020	2	03/17/2017 16:10 CSG	
Silver	<2	mg/kg	EPA 6020	2	03/17/2017 16:10 CSG	
Thallium	<2	mg/kg	EPA 6020	2	03/17/2017 16:10 CSG	
Zinc	20.1	mg/kg	EPA 6020	2	03/17/2017 16:10 CSG	
Solids (Total)	81.7	%	SM 2540B		03/07/2017 14:15 CB	



MARTEL NO.		CLIENT SAMPLE IDENTIFICATION				Sample Date/Time
30314	000020	B-10@25				02/28/2017 11:30
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Antimony	<2	mg/kg	EPA 6020	2	03/17/2017 16:13 CSG	
Arsenic	2.64	mg/kg	EPA 6020	1	03/17/2017 16:13 CSG	
Beryllium	<1	mg/kg	EPA 6020	1	03/17/2017 16:13 CSG	
Cadmium	<1	mg/kg	EPA 6020	1	03/17/2017 16:13 CSG	
Chromium	14.4	mg/kg	EPA 6020	1	03/17/2017 16:13 CSG	
Copper	4.68	mg/kg	EPA 6020	1	03/17/2017 16:13 CSG	
Lead	4.26	mg/kg	EPA 6020	1	03/17/2017 16:13 CSG	
Mercury	<0.083	mg/kg	EPA 7471	0.083	03/20/2017 12:59 NK	
Nickel	<2	mg/kg	EPA 6020	2	03/17/2017 16:13 CSG	
Selenium	<2	mg/kg	EPA 6020	2	03/17/2017 16:13 CSG	
Silver	<2	mg/kg	EPA 6020	2	03/17/2017 16:13 CSG	
Thallium	<2	mg/kg	EPA 6020	2	03/17/2017 16:13 CSG	
Zinc	9.54	mg/kg	EPA 6020	2	03/17/2017 16:13 CSG	
Solids (Total)	84.2	%	SM 2540B		03/07/2017 14:15 CB	

MARTEL NO.		CLIENT SAMPLE IDENTIFICATION				Sample Date/Time
30314	000021	S-1				02/28/2017 11:00
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Antimony	3.62	mg/kg	EPA 6020	2	03/17/2017 16:15 CSG	
Arsenic	1.70	mg/kg	EPA 6020	1	03/17/2017 16:15 CSG	
Beryllium	<1	mg/kg	EPA 6020	1	03/17/2017 16:15 CSG	
Cadmium	1.22	mg/kg	EPA 6020	1	03/17/2017 16:15 CSG	
Chromium	17.0	mg/kg	EPA 6020	1	03/17/2017 16:15 CSG	
Copper	38.8	mg/kg	EPA 6020	1	03/17/2017 16:15 CSG	
Lead	23.1	mg/kg	EPA 6020	1	03/17/2017 16:44 CSG	
Mercury	0.110	mg/kg	EPA 7471	0.083	03/20/2017 12:59 NK	
Nickel	16.1	mg/kg	EPA 6020	2	03/17/2017 16:15 CSG	
Selenium	<2	mg/kg	EPA 6020	2	03/17/2017 16:15 CSG	
Silver	<2	mg/kg	EPA 6020	2	03/17/2017 16:15 CSG	
Thallium	<2	mg/kg	EPA 6020	2	03/17/2017 16:15 CSG	
Zinc	499	mg/kg	EPA 6020	2	03/17/2017 16:49 CSG	
Solids (Total)	53.5	%	SM 2540B		03/07/2017 14:15 CB	

MARTEL NO.		CLIENT SAMPLE IDENTIFICATION				Sample Date/Time
30314	000022	S-2				02/28/2017 11:10
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Antimony	6.40	mg/kg	EPA 6020	2	03/17/2017 16:18 CSG	
Arsenic	2.77	mg/kg	EPA 6020	1	03/17/2017 16:18 CSG	
Beryllium	<1	mg/kg	EPA 6020	1	03/17/2017 16:18 CSG	
Cadmium	12.0	mg/kg	EPA 6020	1	03/17/2017 16:18 CSG	
Chromium	8.99	mg/kg	EPA 6020	1	03/17/2017 16:18 CSG	
Copper	29.7	mg/kg	EPA 6020	1	03/17/2017 16:18 CSG	
Lead	49.4	mg/kg	EPA 6020	1	03/17/2017 16:47 CSG	



MARTEL NO.		CLIENT SAMPLE IDENTIFICATION				Sample Date/Time
30314	000022 S-2					02/28/2017 11:10
Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial	
Mercury	0.100	mg/kg	EPA 7471	0.083	03/20/2017 12:59 NK	
Nickel	9.21	mg/kg	EPA 6020	2	03/17/2017 16:18 CSG	
Selenium	<2	mg/kg	EPA 6020	2	03/17/2017 16:18 CSG	
Silver	<2	mg/kg	EPA 6020	2	03/17/2017 16:18 CSG	
Thallium	<2	mg/kg	EPA 6020	2	03/17/2017 16:18 CSG	
Zinc	952	mg/kg	EPA 6020	2	03/17/2017 16:52 CSG	
Solids (Total)	59.7	%	SM 2540B		03/07/2017 14:15 CB	

SMPLOG03

1025 Cromwell Bridge Road - Baltimore, Maryland 21286  
PH 410-825-7790 FAX 410-821-1054 EMAIL: martel@martellabs.com

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stdshdl.frx

### Notes and references:

SW-846="Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, U.S. EPA Washington D.C.

All samples tested were in acceptable condition, unless otherwise noted.  
The results presented herein relate only to the samples or items tested.

  
Project Manager

# MARTEL CHAIN OF CUSTODY / SAMPLE INFORMATION FORM

Martel Laboratories LLC Inc. • 1025 Cromwell Bridge Road • Baltimore, MD 21286 • (410) 825-7790 • FAX (410) 821-1054 Email: vk@martellabs.com

MARTEL Log # 30314 (602) Client Code \_\_\_\_\_

Client Name/Phone/FAX SCS Engineers 571-353-2000

Client Address 11260 Roger Bacon Drive Suite 90 Reston, VA 20190

Invoice Address SAME

Sampler Austin Dooger

Project Name/# 02203023-64/Hanford Waste to Energy

Contract/P.O Number Sales order B110145

Sample Turnaround Time Standard 10-85g

Station No./ Sample ID	Station Location	Matrix	Container Description/ Preservation Status	Potentially Hazardous?	# of Containers	Date	Time	Analyses Required/Comments
B-1@1'		Soil			1	2/28/17	8:35	PP-13 Metals
B-1@1'							8:35	
B-2@1'							8:50	
B-2@1'							8:50	
B-3@1'							9:00	
B-3@1'							9:00	
B-4@2'							9:10	
B-4@1'							9:10	
B-5@2'							9:55-9:30	
B-5@1'							9:55-9:30	
B-6@2'							10:05-9:45	
B-6@1'							10:05-9:45	
B-7@1'							1:00	

Transferred by: [Signature] Received by: [Signature]  
 Transferred by: [Signature] Received by: [Signature]  
 Transferred by: \_\_\_\_\_ Received by: \_\_\_\_\_

Date: 2/28/17 Date: 2/28/17  
 Date: 2/28/17 Date: 2/28/17  
 Date: 2/28/17 Date: 2/28/17

Sufficient ice? - Yes/No Yes  
 Sample containers present? - Yes/No Yes  
 Custody Seal present/intact? - Yes/No Intact

Initials: AS Date: 2/28/17

adooger@scsengineers.com



# MARTEL CHAIN OF CUSTODY / SAMPLE INFORMATION FORM

Martel Laboratories <sup>LLC</sup> Inc. • 1025 Cromwell Bridge Road • Baltimore, MD 21286 • (410) 825-7790 • FAX (410) 821-1054 Email: vk@martellabs.com

693

MARTEL Log # 30314 (2012) Client Code \_\_\_\_\_  
 Sampler Austin Droeger  
 Project Name/# 02203023.64 Herford Westport  
 Contract/P.O Number \_\_\_\_\_

Client Name/Phone/FAX SCS Engineers 571-353-2000  
 Client Address 11260 Roger Bacon Drive, 300, Reston, VA 20190  
 Invoice Address SAME

Station No./ Sample ID	Station Location	Matrix	Container Description/ Preservation Status	Potentially Hazardous?	# of Containers	Date	Time	Analyses Required/Comments
B-7@4		Soil		No	1	2/28/17	1000	PP-13 Metals
B-8@1							1015	
B-8@4							1015	
B-9@1							1045	
B-9@4							1045	
B-10@1							1130	
B-10@2.5							1130	
S-1							1100	
S-2							1110	

Sample Turnaround Time \_\_\_\_\_

Transferred by: [Signature] Date: 2/28/17 Time: \_\_\_\_\_  
 Received by: \_\_\_\_\_  
 Transferred by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Received by: \_\_\_\_\_  
 Transferred by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Cooler Receipt Information (LAB USE ONLY)  
 Sufficient ice? - Yes/No Yes/No If No, temp. = 6.5  
 Sample containers present? - Yes/No Yes/No If No, explain \_\_\_\_\_  
 Custody Seal present/intact? - Yes/No Yes/No  
 Initials: AD Date: 2/28/17