



BARTLETT ENGINEERING & SURVEYING, PC

1906 Nash Street North Wilson, NC 27893-1726
Phone: (252) 399-0704 Fax: (252) 399-0804
www.bartlett.us.com

January 6, 2016

Ming-Tai Chao, P.E. Environmental Engineer
Permitting Branch, Solid Waste Section
Division of Waste Management
1646 Mail Service Center
Raleigh, NC 27699-1646

Permit No.	Date	Document ID No.
98-09	January 08, 2015,	25439

Received by an e-mail
Date: **January 08, 2015**
Solid Waste Section
Raleigh Central Office

Reference: Wilson County C&D Landfill –2015 Permit Amendment Application Addendum,
Permit#98-09

Mr. Chao,

On behalf of Wilson County, Bartlett Engineering and Surveying, P.C. is submitting an addendum to the Operation Plan of the 2015 Permit Amendment Application for the West-Side C&D LF, permit# 98-09 to allow use of the residual glass/porcelain A2 Fines as the haul road material (note: the CSP material will not be used). Product information and handling is as follows:

- A2 fines material residues to be used at the Wilson County C&D LF will be obtained from the facility located at:
Reflective Recycling, Inc.
2606 Wilco Boulevard
Wilson, NC 27893
Contact Info: Bill Clark
Phone: 281-520-0613
Email: Bill.Clark@Ref-Ind.com
- While a quantitative determination of the percentage of non-conforming waste material was not performed, a visual determination of the quantity of paper, organic debris, bones/food wastes, and plastic in the A2 Fines and CSP material is estimated as approximately <5% by volume or <1% by weight by Babb and Associates. No more than 10% percent of non-conformance C&D solid wastes to be allowed in the A2 Fines. Random screening protocols on the beneficial use material is required and to be conducted by the qualified landfill staff/operator to ensure the landfill facility does not intend to receive prohibited waste at the landfill disposal unit.
- The maximum quantity of 500 tons of residual glass/porcelain (A2 Fines) allowed per year for use at the landfill facility.

- The material/residue to be temporarily stored adjacent to the working face and used approximately on monthly intervals.
- The material/residue to be used as the landfill haul material must be inside the C&D landfill waste footprint.
- The amount of the material/residue used at the facility per period of time must be weighted at the on-site scale house, recorded, and documented in the annual report. The record must be placed in the facility operating record.

Should you have any questions or require additional information, please do not hesitate to call our office.

Respectfully,



Jonathan Meade
Environmental Specialist

Chao, Ming-tai

From: Jon Meade <jonm@bartletteng.com>
Sent: Friday, January 08, 2016 11:42 AM
To: Chao, Ming-tai
Cc: Andy Davis
Subject: RE: Beneficial use of glass at West side C&DLF, 98-09
Attachments: NCDWM Addendum Letter 1-6-16.pdf

Hi Ming,

Attached is the addendum letter for use of A2 fines on the haul road. Let me know if this is sufficient for submittal or if you need any additional information.

Thanks! jon

From: Andy Davis [mailto:adavis@wilson-co.com]
Sent: Wednesday, December 30, 2015 11:16 AM
To: Jon Meade <jonm@bartletteng.com>
Subject: FW: Beneficial use of glass at West side C&DLF, 98-09

Jon can you take care of this.

From: Chao, Ming-tai [mailto:ming.chao@ncdenr.gov]
Sent: Wednesday, December 16, 2015 3:05 PM
To: Andy Davis
Cc: Shackelford, Dennis; Colledge, John H; Mussler, Ed; Robert Bartlett (robertb@Bartletteng.com)
Subject: Beneficial use of glass at West side C&DLF, 98-09

Hi Andy:

After talking with my colleagues Dennis and John in the Field Operations Branch about the beneficial use of the residual glass/porcelain (A2 Fines and CSP) as the haul road material at Wilson County West-Side C&DLF, permit number 98-09, I will suggest that Wilson County to officially propose the use of the residual for beneficial use in the addendum to Operations Plan. In a minimum the Addendum should contain the following info which will be incorporated into the new Permit to Operate for the Wilson County West-Side C&DLF:

1. The narratives/paragraphs to describe the sources of the residual glass/porcelain (A2 Fines and CSP) – the facility name address, physical location, and contact info – phone # & e-mail address. The sources of the material must be inside the approved landfill service area – Wilson County.
2. According to the letter report dated 12/22/2014 (see attached e-mail message), non-conformance C&D solid wastes – paper, organic debris, bones/food wastes, plastics were observed inside the collect waste samples. The County must define/determine the maximum percentage of the non-conformance C&D solid wastes in the proposed residual glass/porcelain (A2 Fines and CSP). Random screening protocols on the beneficial use material is required and conducted by the qualified landfill staff/operator to ensure the landfill facility does not intend to receive prohibit waste at the landfill disposal unit.
3. The maximum quantity of the residual glass/porcelain (A2 Fines and CSP) per year or per period of time will be accepted at the facility.

4. How is the material/residual temporarily stockpiled at the landfill facility? The storage location that is adjacent to working face is a preferable approach; otherwise, the measures or structures to contain leachate must be properly addressed and shown the revised Facility Plan drawing. The maximum duration of the stockpile or how soon the stockpiled material will be used up must be determined in the proposal.
5. The material /residual to be used as the landfill haul material must be inside the C&D landfill waste footprint.
6. Recordation. The amount of the beneficial material used at the facility per period time must be weighted at the on-site scale house and documented in the annual report. The record must be placed in the facility operating record.

Please submit the addendum/proposal in a timely manner so the new permit can be issued to the County by January 15, 2016. If you have any questions please contact me; have a wonderful day!

Ming Chao

Ming-Tai Chao, P.E.

Environmental Engineer

Permitting Branch, Solid Waste Section

NCDEQ, Division of Waste Management

(Mailing Address)

1646 Mail Service Center

Raleigh, NC 27699-1646

(Street Address)

Green Square, 217 West Jones Street

Raleigh, NC 27603

Tel. 919-707-8251

ming.chao@ncdenr.gov

<http://portal.ncdenr.org/web/wm/sw>



E-mail correspondence to and from this address may be subject to the North Carolina Public Records Law and may be disclosed to third parties.



ENCO Laboratories

Accurate. Timely. Responsive. Innovative.

102-A Woodwinds Industrial Court

Cary NC, 27511

Phone: 919.467.3090 FAX: 919.467.3515

Wednesday, December 17, 2014

Babb & Associates (BA024)

Attn: Gary Babb

3605 Country Cove Lane

Raleigh, NC 27606

RE: Laboratory Results for

Project Number: [none], Project Name/Desc: Reflective Recycling

ENCO Workorder(s): C415589

Dear Gary Babb,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Wednesday, December 3, 2014.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

The analytical results contained in this report are in compliance with NELAC standards, except as noted in the project narrative. This report shall not be reproduced except in full, without the written approval of the Laboratory.

This report contains only those analyses performed by Environmental Conservation Laboratories. Unless otherwise noted, all analyses were performed at ENCO Cary. Data from outside organizations will be reported under separate cover.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink that reads 'Bill Scott'. The signature is written in a cursive, flowing style.

Bill Scott

Project Manager

Enclosure(s)



www.encolabs.com

SAMPLE DETECTION SUMMARY

Client ID: A2 Fines

Lab ID: C415589-01

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>MDL</u>	<u>PQL</u>	<u>Units</u>	<u>Method</u>	<u>Notes</u>
Barium - Total	14.1		0.110	0.551	mg/kg dry	EPA 6010C	
Barium - TCLP	0.213	J	0.0500	0.500	mg/L	EPA 6010C	
Cadmium - Total	0.121		0.0106	0.0551	mg/kg dry	EPA 6010C	
Chromium - Total	2.33		0.110	0.551	mg/kg dry	EPA 6010C	
Lead - Total	33.1		0.132	0.551	mg/kg dry	EPA 6010C	
Lead - TCLP	0.642		0.105	0.500	mg/L	EPA 6010C	
Mercury - Total	0.796		0.00761	0.0265	mg/kg dry	EPA 7471B	
Silver - Total	0.263	J	0.110	0.551	mg/kg dry	EPA 6010C	

Client ID: CSP

Lab ID: C415589-02

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>MDL</u>	<u>PQL</u>	<u>Units</u>	<u>Method</u>	<u>Notes</u>
Arsenic - Total	1.48		0.100	0.500	mg/kg wet	EPA 6010C	
Barium - Total	10.9		0.100	0.500	mg/kg wet	EPA 6010C	
Barium - TCLP	0.149	J	0.0500	0.500	mg/L	EPA 6010C	
Cadmium - Total	0.0529		0.00960	0.0500	mg/kg wet	EPA 6010C	
Chromium - Total	1.39		0.100	0.500	mg/kg wet	EPA 6010C	
Lead - Total	9.94		0.120	0.500	mg/kg wet	EPA 6010C	
Mercury - Total	0.0269		0.00690	0.0240	mg/kg wet	EPA 7471B	

ANALYTICAL RESULTS

Description: A2 Fines

Lab Sample ID: C415589-01

Received: 12/03/14 11:30

Matrix: Soil

Sampled: 12/02/14 13:00

Work Order: C415589

Project: Reflective Recycling

Sampled By: Gary Babb

% Solids: 90.73

Metals by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Arsenic [7440-38-2]^	ND		mg/kg dry	1	0.110	0.551	4L10026	EPA 6010C	12/12/14 12:03	JDH	
Barium [7440-39-3]^	14.1		mg/kg dry	1	0.110	0.551	4L10026	EPA 6010C	12/12/14 12:03	JDH	
Cadmium [7440-43-9]^	0.121		mg/kg dry	1	0.0106	0.0551	4L10026	EPA 6010C	12/12/14 12:03	JDH	
Chromium [7440-47-3]^	2.33		mg/kg dry	1	0.110	0.551	4L10026	EPA 6010C	12/12/14 12:03	JDH	
Lead [7439-92-1]^	33.1		mg/kg dry	1	0.132	0.551	4L10026	EPA 6010C	12/12/14 12:03	JDH	
Mercury [7439-97-6]^	0.796		mg/kg dry	1	0.00761	0.0265	4L11033	EPA 7471B	12/12/14 15:46	T1D	
Selenium [7782-49-2]^	ND		mg/kg dry	1	0.110	0.551	4L10026	EPA 6010C	12/12/14 12:03	JDH	
Silver [7440-22-4]^	0.263	J	mg/kg dry	1	0.110	0.551	4L10026	EPA 6010C	12/12/14 12:03	JDH	

TCLP Metals by 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Arsenic [7440-38-2]^	ND		mg/L	1	0.270	0.500	4L15031	EPA 6010C	12/16/14 12:33	JDH	
Barium [7440-39-3]^	0.213	J	mg/L	1	0.0500	0.500	4L15031	EPA 6010C	12/16/14 12:33	JDH	
Cadmium [7440-43-9]^	ND		mg/L	1	0.0180	0.0500	4L15031	EPA 6010C	12/16/14 12:33	JDH	
Chromium [7440-47-3]^	ND		mg/L	1	0.0500	0.500	4L15031	EPA 6010C	12/16/14 12:33	JDH	
Lead [7439-92-1]^	0.642		mg/L	1	0.105	0.500	4L15031	EPA 6010C	12/16/14 12:33	JDH	
Mercury [7439-97-6]^	ND		mg/L	1	0.00340	0.00400	4L16014	EPA 7470A	12/17/14 13:00	T1D	
Selenium [7782-49-2]^	ND		mg/L	1	0.250	0.500	4L15031	EPA 6010C	12/16/14 12:33	JDH	
Silver [7440-22-4]^	ND		mg/L	1	0.0950	0.500	4L15031	EPA 6010C	12/16/14 12:33	JDH	

Description: CSP

Lab Sample ID: C415589-02

Received: 12/03/14 11:30

Matrix: Soil

Sampled: 12/02/14 13:00

Work Order: C415589

Project: Reflective Recycling

Sampled By: Gary Babb

% Solids:

Metals by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Arsenic [7440-38-2]^	1.48		mg/kg wet	1	0.100	0.500	4L10026	EPA 6010C	12/12/14 12:06	JDH	
Barium [7440-39-3]^	10.9		mg/kg wet	1	0.100	0.500	4L10026	EPA 6010C	12/12/14 12:06	JDH	
Cadmium [7440-43-9]^	0.0529		mg/kg wet	1	0.00960	0.0500	4L10026	EPA 6010C	12/12/14 12:06	JDH	
Chromium [7440-47-3]^	1.39		mg/kg wet	1	0.100	0.500	4L10026	EPA 6010C	12/12/14 12:06	JDH	
Lead [7439-92-1]^	9.94		mg/kg wet	1	0.120	0.500	4L10026	EPA 6010C	12/12/14 12:06	JDH	
Mercury [7439-97-6]^	0.0269		mg/kg wet	1	0.00690	0.0240	4L11033	EPA 7471B	12/12/14 15:53	T1D	
Selenium [7782-49-2]^	ND		mg/kg wet	1	0.100	0.500	4L10026	EPA 6010C	12/12/14 12:06	JDH	
Silver [7440-22-4]^	ND		mg/kg wet	1	0.100	0.500	4L10026	EPA 6010C	12/12/14 12:06	JDH	

TCLP Metals by 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	PQL	Batch	Method	Analyzed	By	Notes
Arsenic [7440-38-2]^	ND		mg/L	1	0.270	0.500	4L15031	EPA 6010C	12/16/14 12:48	JDH	
Barium [7440-39-3]^	0.149	J	mg/L	1	0.0500	0.500	4L15031	EPA 6010C	12/16/14 12:48	JDH	
Cadmium [7440-43-9]^	ND		mg/L	1	0.0180	0.0500	4L15031	EPA 6010C	12/16/14 12:48	JDH	
Chromium [7440-47-3]^	ND		mg/L	1	0.0500	0.500	4L15031	EPA 6010C	12/16/14 12:48	JDH	
Lead [7439-92-1]^	ND		mg/L	1	0.105	0.500	4L15031	EPA 6010C	12/16/14 12:48	JDH	
Mercury [7439-97-6]^	ND		mg/L	1	0.00340	0.00400	4L16014	EPA 7470A	12/17/14 13:02	T1D	
Selenium [7782-49-2]^	ND		mg/L	1	0.250	0.500	4L15031	EPA 6010C	12/16/14 12:48	JDH	
Silver [7440-22-4]^	ND		mg/L	1	0.0950	0.500	4L15031	EPA 6010C	12/16/14 12:48	JDH	

QUALITY CONTROL DATA

Metals by EPA 6000/7000 Series Methods - Quality Control

Batch 4L10026 - EPA 3050B

Blank (4L10026-BLK1)

Prepared: 12/10/2014 12:05 Analyzed: 12/12/2014 09:28

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	0.100	U	0.500	mg/kg wet							
Barium	0.100	U	0.500	mg/kg wet							
Cadmium	0.00960	U	0.0500	mg/kg wet							
Chromium	0.100	U	0.500	mg/kg wet							
Lead	0.120	U	0.500	mg/kg wet							
Selenium	0.100	U	0.500	mg/kg wet							
Silver	0.100	U	0.500	mg/kg wet							

LCS (4L10026-BS1)

Prepared: 12/10/2014 12:05 Analyzed: 12/12/2014 11:03

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	8.57		0.500	mg/kg wet	9.17		93	80-120			
Barium	8.74		0.500	mg/kg wet	9.17		95	80-120			
Cadmium	0.863		0.0500	mg/kg wet	0.917		94	80-120			
Chromium	8.68		0.500	mg/kg wet	9.17		95	80-120			
Lead	8.69		0.500	mg/kg wet	9.17		95	80-120			
Selenium	8.20		0.500	mg/kg wet	9.17		89	80-120			
Silver	8.35		0.500	mg/kg wet	9.17		91	80-120			

Matrix Spike (4L10026-MS1)

Prepared: 12/10/2014 12:05 Analyzed: 12/12/2014 11:10

Source: C413799-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	1220		64.3	mg/kg dry	1300	12.9 U	94	75-125			
Barium	1450		64.3	mg/kg dry	1300	193	96	75-125			
Cadmium	125		6.43	mg/kg dry	130	1.40	95	75-125			
Chromium	1270		64.3	mg/kg dry	1300	17.4	97	75-125			
Lead	1270		64.3	mg/kg dry	1300	15.4 U	98	75-125			
Selenium	1240		64.3	mg/kg dry	1300	12.9 U	95	75-125			
Silver	1210		64.3	mg/kg dry	1300	12.9 U	93	75-125			

Matrix Spike Dup (4L10026-MSD1)

Prepared: 12/10/2014 12:05 Analyzed: 12/12/2014 11:12

Source: C413799-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	1190		64.3	mg/kg dry	1260	12.9 U	94	75-125	3	20	
Barium	1390		64.3	mg/kg dry	1260	193	95	75-125	4	20	
Cadmium	121		6.43	mg/kg dry	126	1.40	95	75-125	3	20	
Chromium	1230		64.3	mg/kg dry	1260	17.4	96	75-125	4	20	
Lead	1210		64.3	mg/kg dry	1260	15.4 U	96	75-125	4	20	
Selenium	1160		64.3	mg/kg dry	1260	12.9 U	92	75-125	7	20	
Silver	1170		64.3	mg/kg dry	1260	12.9 U	93	75-125	4	20	

Post Spike (4L10026-PS1)

Prepared: 12/10/2014 12:05 Analyzed: 12/12/2014 11:22

Source: C413799-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	0.203		0.0100	mg/L	0.200	-0.00399	101	80-120			
Barium	0.235		0.0100	mg/L	0.200	0.0303	102	80-120			
Cadmium	0.0205		0.00100	mg/L	0.0200	0.000220	101	80-120			
Chromium	0.208		0.0100	mg/L	0.200	0.00274	103	80-120			

QUALITY CONTROL DATA

Metals by EPA 6000/7000 Series Methods - Quality Control

Batch 4L10026 - EPA 3050B - Continued

Post Spike (4L10026-PS1) Continued

Prepared: 12/10/2014 12:05 Analyzed: 12/12/2014 11:22

Source: C413799-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Lead	0.206		0.0100	mg/L	0.200	0.000331	103	80-120			
Selenium	0.205		0.0100	mg/L	0.200	0.00112	102	80-120			
Silver	0.199		0.0100	mg/L	0.200	0.00168	98	80-120			

Batch 4L11033 - EPA 7471B

Blank (4L11033-BLK1)

Prepared: 12/11/2014 14:40 Analyzed: 12/12/2014 14:39

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	0.00690	U	0.0240	mg/kg wet							

LCS (4L11033-BS1)

Prepared: 12/11/2014 14:40 Analyzed: 12/12/2014 14:41

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	0.548		0.0240	mg/kg wet	0.562		97	80-120			

Matrix Spike (4L11033-MS1)

Prepared: 12/11/2014 14:40 Analyzed: 12/12/2014 14:47

Source: C413799-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	76.0		3.09	mg/kg dry	77.2	8.56	87	80-120			

Matrix Spike Dup (4L11033-MSD1)

Prepared: 12/11/2014 14:40 Analyzed: 12/12/2014 14:48

Source: C413799-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	62.7		2.50	mg/kg dry	62.6	8.56	87	80-120	19	20	

Post Spike (4L11033-PS1)

Prepared: 12/11/2014 14:40 Analyzed: 12/12/2014 14:51

Source: C413799-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	5.43		0.200	ug/L	5.00	0.499	99	75-125			

TCLP Metals by 6000/7000 Series Methods - Quality Control

Batch 4L15031 - EPA 3010A

Blank (4L15031-BLK1)

Prepared: 12/15/2014 17:00 Analyzed: 12/16/2014 12:26

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	0.270	U	0.500	mg/L							
Barium	0.0500	U	0.500	mg/L							
Cadmium	0.0180	U	0.0500	mg/L							
Chromium	0.0500	U	0.500	mg/L							
Lead	0.105	U	0.500	mg/L							
Selenium	0.250	U	0.500	mg/L							
Silver	0.0950	U	0.500	mg/L							

QUALITY CONTROL DATA

TCLP Metals by 6000/7000 Series Methods - Quality Control

Batch 4L15031 - EPA 3010A - Continued

LCS (4L15031-BS1)

Prepared: 12/15/2014 17:00 Analyzed: 12/16/2014 12:29

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Arsenic	0.197		0.0100	mg/L	0.200		98	80-120			
Barium	0.207		0.0100	mg/L	0.200		103	80-120			
Cadmium	0.0206		0.00100	mg/L	0.0200		103	80-120			
Chromium	0.195		0.0100	mg/L	0.200		98	80-120			
Lead	0.199		0.0100	mg/L	0.200		100	80-120			
Selenium	0.202		0.0100	mg/L	0.200		101	80-120			
Silver	0.191		0.0100	mg/L	0.200		95	80-120			

Matrix Spike (4L15031-MS1)

Prepared: 12/15/2014 17:00 Analyzed: 12/16/2014 12:36

Source: C415589-01

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Arsenic	9.89		0.500	mg/L	10.0	0.270 U	99	75-125			
Barium	10.3		0.500	mg/L	10.0	0.213	101	75-125			
Cadmium	1.01		0.0500	mg/L	1.00	0.0180 U	101	75-125			
Chromium	9.61		0.500	mg/L	10.0	0.0500 U	96	75-125			
Lead	10.5		0.500	mg/L	10.0	0.642	99	75-125			
Selenium	10.1		0.500	mg/L	10.0	0.250 U	101	75-125			
Silver	9.39		0.500	mg/L	10.0	0.0950 U	94	75-125			

Matrix Spike Dup (4L15031-MSD1)

Prepared: 12/15/2014 17:00 Analyzed: 12/16/2014 12:38

Source: C415589-01

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Arsenic	9.35		0.500	mg/L	10.0	0.270 U	94	75-125	6	20	
Barium	10.1		0.500	mg/L	10.0	0.213	99	75-125	2	20	
Cadmium	0.994		0.0500	mg/L	1.00	0.0180 U	99	75-125	2	20	
Chromium	9.67		0.500	mg/L	10.0	0.0500 U	97	75-125	0.6	20	
Lead	10.3		0.500	mg/L	10.0	0.642	97	75-125	2	20	
Selenium	9.56		0.500	mg/L	10.0	0.250 U	96	75-125	5	20	
Silver	9.48		0.500	mg/L	10.0	0.0950 U	95	75-125	1	20	

Post Spike (4L15031-PS1)

Prepared: 12/15/2014 17:00 Analyzed: 12/16/2014 12:41

Source: C415589-01

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Arsenic	0.186		0.0100	mg/L	0.200	-0.000102	93	80-120			
Barium	0.188		0.0100	mg/L	0.200	0.00426	92	80-120			
Cadmium	0.0183		0.00100	mg/L	0.0200	0.000182	91	80-120			
Chromium	0.182		0.0100	mg/L	0.200	0.000347	91	80-120			
Lead	0.197		0.0100	mg/L	0.200	0.0128	92	80-120			
Selenium	0.186		0.0100	mg/L	0.200	0.00199	92	80-120			
Silver	0.178		0.0100	mg/L	0.200	-0.000252	89	80-120			

Batch 4L16014 - EPA 7470A

Blank (4L16014-BLK1)

Prepared: 12/16/2014 11:50 Analyzed: 12/17/2014 12:41

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Mercury	0.00017	U	0.00020	mg/L							

QUALITY CONTROL DATA

TCLP Metals by 6000/7000 Series Methods - Quality Control

Batch 4L16014 - EPA 7470A - Continued

Blank (4L16014-BLK2)

Prepared: 12/16/2014 11:50 Analyzed: 12/17/2014 12:55

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Mercury	0.00340	U	0.00400	mg/L							

LCS (4L16014-BS1)

Prepared: 12/16/2014 11:50 Analyzed: 12/17/2014 12:44

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Mercury	0.00498		0.00020	mg/L	0.00500		100	80-120			

Matrix Spike (4L16014-MS1)

Prepared: 12/16/2014 11:50 Analyzed: 12/17/2014 12:48

Source: C414853-03

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Mercury	0.00502		0.00020	mg/L	0.00500	0.00017 U	100	75-125			

Matrix Spike Dup (4L16014-MSD1)

Prepared: 12/16/2014 11:50 Analyzed: 12/17/2014 12:50

Source: C414853-03

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Mercury	0.00486		0.00020	mg/L	0.00500	0.00017 U	97	75-125	3	25	

Post Spike (4L16014-PS1)

Prepared: 12/16/2014 11:50 Analyzed: 12/17/2014 12:53

Source: C414853-03

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Mercury	0.00428		0.00020	mg/L	0.00500	-0.00003	86	75-125			

FLAGS/NOTES AND DEFINITIONS

- B** The analyte was detected in the associated method blank.
- D** The sample was analyzed at dilution.
- J** The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL), adjusted for actual sample preparation data and moisture content, where applicable.
- U** The analyte was analyzed for but not detected to the level shown, adjusted for actual sample preparation data and moisture content, where applicable.
- E** The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate.
- MRL** Method Reporting Limit. The MRL is roughly equivalent to the practical quantitation limit (PQL) and is based on the low point of the calibration curve, when applicable, sample preparation factor, dilution factor, and, in the case of soil samples, moisture content.
- ND** The analyte was analyzed for but not detected to the level shown, adjusted for actual sample preparation data and moisture content, where applicable.
- N** The analysis indicates the presence of an analyte for which there is presumptive evidence (85% or greater confidence) to make a "tentative identification".
- P** Greater than 25% concentration difference was observed between the primary and secondary GC column. The lower concentration is reported.



December 22, 2014

Mr. Bill Clark, Director of Supply & Compliance
Reflective Recycling, Inc.
7822 Northwoods Drive
Sugar Land, Texas 77479

Re: Material Residue Samples
Reflective Recycling, Inc.
2606 Wilco Boulevard
Wilson, North Carolina 27893

Dear Mr. Clark:

As requested, Babb & Associates, P.A. has completed the sample collection and laboratory analysis of two material residue samples at the Reflective Recycling, Inc. facility in Wilson, North Carolina. A description of the sample collection and laboratory analytical results for the two residue samples is provided below.

A2 Fines Sample

A composite sample was collected of this residual material that consists primarily of fine glass chips and ground paper/organic debris. This material is relatively light with the glass fraction providing the bulk of the weight. Using a plastic bucket, a sample was collected from approximately six locations stockpiled on the back portion of the facility property. This material was thoroughly mixed prior to placing the sample in the laboratory prepared containers. The sample was labeled and delivered directly to the analytical laboratory (ENCO Laboratories) using chain of custody protocol. The sample was analyzed for both total and extractable (TCLP) heavy metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver). The TCLP extraction followed the procedure is set forth in 15A NCAC 13A Rule .0106 (b) EPA SW-846, Test Method 1311.

CSP Sample

A composite sample was collected of this residual material that consisted primarily of larger pieces (>1/2") of porcelain chips with miscellaneous plastic, organic debris, and bones (food waste). The glass fraction of this residue also provides the bulk of the weight. Using a plastic bucket, a sample was collected from approximately three locations from a single stockpile located at the back of the facility building. Due to the nature of this residue, several

pieces of porcelain were selected from the bucket sample for laboratory analysis. The sample was labeled and delivered directly to the analytical laboratory (ENCO Laboratories) using chain of custody protocol. The sample was analyzed for both total and extractable (TCLP) heavy metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver).

Laboratory Analytical Results

A summary of the laboratory analytical results is provided on the table attached to this correspondence. The results for both the A2 Fines and CSP samples indicate neither sample exceed the TCLP Standards for classification as a characteristic hazardous waste. Both samples reported results well below the established standards and are classified as non-hazardous residual materials.

While there is no regulatory standard for total metals concentrations, a general rule of thumb is 100 times the TCLP Standard. Any concentration above 100 times the TCLP Standard could be considered problematic and additional testing may be warranted. Using this guideline, the results for total metals for both the A2 Fines and CSP samples do not indicate a concern.

A copy of the ENCO Laboratories analytical report is attached to this correspondence.

Conclusion

Representative samples have been collected and analyzed for two residual materials at the Reflective Recycling facility in Wilson, North Carolina. Based on the results of laboratory analysis, these two residual materials (A2 Fines and CSP) are non-hazardous and should be acceptable for re-use or disposal at a permitted Subtitle D Solid Waste Facility in North Carolina. No additional testing or evaluation is recommended.

Babb & Associates, P.A. appreciates this opportunity to provide environmental services to Reflective Recycling, Inc. If there are any questions or comments regarding this correspondence, please contact the undersigned at (919) 325-0696.

Respectfully,

Babb & Associates, P.A.



Gary D. Babb, P.G.
President



Attachments

**Material Residue Samples
 Reflective Recycling, Inc.
 2606 Wilco Boulevard
 Wilson, North Carolina 27893**

A2 Fines	Total mg/kg dry	TCLP mg/L	TCLP Standard
Arsenic	ND	ND	5
Barium	14.1	0.213 J	100
Cadmium	0.121	ND	1
Chromium	2.33	ND	5
Lead	33.1	0.642	5
Mercury	0.796	ND	0.2
Selenium	ND	ND	1
Silver	0.263 J	ND	5
CSP Sample	Total mg/kg dry	TCLP mg/L	TCLP Standard
Arsenic	1.48	ND	5
Barium	10.9	0.149 J	100
Cadmium	0.0529	ND	1
Chromium	1.39	ND	5
Lead	9.94	ND	5
Mercury	0.0269	ND	0.2
Selenium	ND	ND	1
Silver	ND	ND	5

J - Estimated value, below quantitation limit

ND - Not Detected

TCLP Standard referenced at 15A NCAC 13A Rule .0106 (b)

Samples collected on 12/2/2014



ENCO Laboratories

Accurate. Timely. Responsive. Innovative.

102-A Woodwinds Industrial Court
Cary NC, 27511

Phone: 919.467.3090 FAX: 919.467.3515

Wednesday, December 17, 2014
Babb & Associates (BA024)
Attn: Gary Babb
3605 Country Cove Lane
Raleigh, NC 27606

RE: Laboratory Results for
Project Number: [none], Project Name/Desc: Reflective Recycling
ENCO Workorder(s): C415589

Dear Gary Babb,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Wednesday, December 3, 2014.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

The analytical results contained in this report are in compliance with NELAC standards, except as noted in the project narrative. This report shall not be reproduced except in full, without the written approval of the Laboratory.

This report contains only those analyses performed by Environmental Conservation Laboratories. Unless otherwise noted, all analyses were performed at ENCO Cary. Data from outside organizations will be reported under separate cover.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Bill Scott
Project Manager
Enclosure(s)



www.encolabs.com

SAMPLE DETECTION SUMMARY

Client ID: A2 Fines

Lab ID: C415589-01

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>MDL</u>	<u>PQL</u>	<u>Units</u>	<u>Method</u>	<u>Notes</u>
Barium - Total	14.1		0.110	0.551	mg/kg dry	EPA 6010C	
Barium - TCLP	0.213	J	0.0500	0.500	mg/L	EPA 6010C	
Cadmium - Total	0.121		0.0106	0.0551	mg/kg dry	EPA 6010C	
Chromium - Total	2.33		0.110	0.551	mg/kg dry	EPA 6010C	
Lead - Total	33.1		0.132	0.551	mg/kg dry	EPA 6010C	
Lead - TCLP	0.642		0.105	0.500	mg/L	EPA 6010C	
Mercury - Total	0.796		0.00761	0.0265	mg/kg dry	EPA 7471B	
Silver - Total	0.263	J	0.110	0.551	mg/kg dry	EPA 6010C	

Client ID: CSP

Lab ID: C415589-02

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>MDL</u>	<u>PQL</u>	<u>Units</u>	<u>Method</u>	<u>Notes</u>
Arsenic - Total	1.48		0.100	0.500	mg/kg wet	EPA 6010C	
Barium - Total	10.9		0.100	0.500	mg/kg wet	EPA 6010C	
Barium - TCLP	0.149	J	0.0500	0.500	mg/L	EPA 6010C	
Cadmium - Total	0.0529		0.00960	0.0500	mg/kg wet	EPA 6010C	
Chromium - Total	1.39		0.100	0.500	mg/kg wet	EPA 6010C	
Lead - Total	9.94		0.120	0.500	mg/kg wet	EPA 6010C	
Mercury - Total	0.0269		0.00690	0.0240	mg/kg wet	EPA 7471B	



ANALYTICAL RESULTS

Description: A2 Fines

Lab Sample ID: C415589-01

Received: 12/03/14 11:30

Matrix: Soil

Sampled: 12/02/14 13:00

Work Order: C415589

Project: Reflective Recycling

Sampled By: Gary Babb

% Solids: 90.73

Metals by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Table with 12 columns: Analyte [CAS Number], Results, Flag, Units, DF, MDL, PQL, Batch, Method, Analyzed, By, Notes. Rows include Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver.

TCLP Metals by 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Table with 12 columns: Analyte [CAS Number], Results, Flag, Units, DF, MDL, PQL, Batch, Method, Analyzed, By, Notes. Rows include Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver.

Description: CSP

Lab Sample ID: C415589-02

Received: 12/03/14 11:30

Matrix: Soil

Sampled: 12/02/14 13:00

Work Order: C415589

Project: Reflective Recycling

Sampled By: Gary Babb

% Solids:

Metals by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Table with 12 columns: Analyte [CAS Number], Results, Flag, Units, DF, MDL, PQL, Batch, Method, Analyzed, By, Notes. Rows include Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver.

TCLP Metals by 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Table with 12 columns: Analyte [CAS Number], Results, Flag, Units, DF, MDL, PQL, Batch, Method, Analyzed, By, Notes. Rows include Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver.

QUALITY CONTROL DATA

Metals by EPA 6000/7000 Series Methods - Quality Control

Batch 4L10026 - EPA 3050B

Blank (4L10026-BLK1)

Prepared: 12/10/2014 12:05 Analyzed: 12/12/2014 09:28

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	0.100	U	0.500	mg/kg wet							
Barium	0.100	U	0.500	mg/kg wet							
Cadmium	0.00960	U	0.0500	mg/kg wet							
Chromium	0.100	U	0.500	mg/kg wet							
Lead	0.120	U	0.500	mg/kg wet							
Selenium	0.100	U	0.500	mg/kg wet							
Silver	0.100	U	0.500	mg/kg wet							

LCS (4L10026-BS1)

Prepared: 12/10/2014 12:05 Analyzed: 12/12/2014 11:03

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	8.57		0.500	mg/kg wet	9.17		93	80-120			
Barium	8.74		0.500	mg/kg wet	9.17		95	80-120			
Cadmium	0.863		0.0500	mg/kg wet	0.917		94	80-120			
Chromium	8.68		0.500	mg/kg wet	9.17		95	80-120			
Lead	8.69		0.500	mg/kg wet	9.17		95	80-120			
Selenium	8.20		0.500	mg/kg wet	9.17		89	80-120			
Silver	8.35		0.500	mg/kg wet	9.17		91	80-120			

Matrix Spike (4L10026-MS1)

Prepared: 12/10/2014 12:05 Analyzed: 12/12/2014 11:10

Source: C413799-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	1220		64.3	mg/kg dry	1300	12.9 U	94	75-125			
Barium	1450		64.3	mg/kg dry	1300	193	96	75-125			
Cadmium	125		6.43	mg/kg dry	130	1.40	95	75-125			
Chromium	1270		64.3	mg/kg dry	1300	17.4	97	75-125			
Lead	1270		64.3	mg/kg dry	1300	15.4 U	98	75-125			
Selenium	1240		64.3	mg/kg dry	1300	12.9 U	95	75-125			
Silver	1210		64.3	mg/kg dry	1300	12.9 U	93	75-125			

Matrix Spike Dup (4L10026-MSD1)

Prepared: 12/10/2014 12:05 Analyzed: 12/12/2014 11:12

Source: C413799-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	1190		64.3	mg/kg dry	1260	12.9 U	94	75-125	3	20	
Barium	1390		64.3	mg/kg dry	1260	193	95	75-125	4	20	
Cadmium	121		6.43	mg/kg dry	126	1.40	95	75-125	3	20	
Chromium	1230		64.3	mg/kg dry	1260	17.4	96	75-125	4	20	
Lead	1210		64.3	mg/kg dry	1260	15.4 U	96	75-125	4	20	
Selenium	1160		64.3	mg/kg dry	1260	12.9 U	92	75-125	7	20	
Silver	1170		64.3	mg/kg dry	1260	12.9 U	93	75-125	4	20	

Post Spike (4L10026-PS1)

Prepared: 12/10/2014 12:05 Analyzed: 12/12/2014 11:22

Source: C413799-01

Analyte	Result	Flag	PQL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	0.203		0.0100	mg/L	0.200	-0.00399	101	80-120			
Barium	0.235		0.0100	mg/L	0.200	0.0303	102	80-120			
Cadmium	0.0205		0.00100	mg/L	0.0200	0.000220	101	80-120			
Chromium	0.208		0.0100	mg/L	0.200	0.00274	103	80-120			

QUALITY CONTROL DATA

Metals by EPA 6000/7000 Series Methods - Quality Control

Batch 4L10026 - EPA 3050B - Continued

Post Spike (4L10026-PS1) Continued

Prepared: 12/10/2014 12:05 Analyzed: 12/12/2014 11:22

Source: C413799-01

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Lead	0.206		0.0100	mg/L	0.200	0.000331	103	80-120			
Selenium	0.205		0.0100	mg/L	0.200	0.00112	102	80-120			
Silver	0.199		0.0100	mg/L	0.200	0.00168	98	80-120			

Batch 4L11033 - EPA 7471B

Blank (4L11033-BLK1)

Prepared: 12/11/2014 14:40 Analyzed: 12/12/2014 14:39

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Mercury	0.00690	U	0.0240	mg/kg wet							

LCS (4L11033-BS1)

Prepared: 12/11/2014 14:40 Analyzed: 12/12/2014 14:41

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Mercury	0.548		0.0240	mg/kg wet	0.562		97	80-120			

Matrix Spike (4L11033-MS1)

Prepared: 12/11/2014 14:40 Analyzed: 12/12/2014 14:47

Source: C413799-01

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Mercury	76.0		3.09	mg/kg dry	77.2	8.56	87	80-120			

Matrix Spike Dup (4L11033-MSD1)

Prepared: 12/11/2014 14:40 Analyzed: 12/12/2014 14:48

Source: C413799-01

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Mercury	62.7		2.50	mg/kg dry	62.6	8.56	87	80-120	19	20	

Post Spike (4L11033-PS1)

Prepared: 12/11/2014 14:40 Analyzed: 12/12/2014 14:51

Source: C413799-01

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Mercury	5.43		0.200	ug/L	5.00	0.499	99	75-125			

TCLP Metals by 6000/7000 Series Methods - Quality Control

Batch 4L15031 - EPA 3010A

Blank (4L15031-BLK1)

Prepared: 12/15/2014 17:00 Analyzed: 12/16/2014 12:26

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Arsenic	0.270	U	0.500	mg/L							
Barium	0.0500	U	0.500	mg/L							
Cadmium	0.0180	U	0.0500	mg/L							
Chromium	0.0500	U	0.500	mg/L							
Lead	0.105	U	0.500	mg/L							
Selenium	0.250	U	0.500	mg/L							
Silver	0.0950	U	0.500	mg/L							

QUALITY CONTROL DATA

TCLP Metals by 6000/7000 Series Methods - Quality Control

Batch 4L15031 - EPA 3010A - Continued

LCS (4L15031-BS1)

Prepared: 12/15/2014 17:00 Analyzed: 12/16/2014 12:29

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Arsenic	0.197		0.0100	mg/L	0.200		98	80-120			
Barium	0.207		0.0100	mg/L	0.200		103	80-120			
Cadmium	0.0206		0.00100	mg/L	0.0200		103	80-120			
Chromium	0.195		0.0100	mg/L	0.200		98	80-120			
Lead	0.199		0.0100	mg/L	0.200		100	80-120			
Selenium	0.202		0.0100	mg/L	0.200		101	80-120			
Silver	0.191		0.0100	mg/L	0.200		95	80-120			

Matrix Spike (4L15031-MS1)

Prepared: 12/15/2014 17:00 Analyzed: 12/16/2014 12:36

Source: C415589-01

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Arsenic	9.89		0.500	mg/L	10.0	0.270 U	99	75-125			
Barium	10.3		0.500	mg/L	10.0	0.213	101	75-125			
Cadmium	1.01		0.0500	mg/L	1.00	0.0180 U	101	75-125			
Chromium	9.61		0.500	mg/L	10.0	0.0500 U	96	75-125			
Lead	10.5		0.500	mg/L	10.0	0.642	99	75-125			
Selenium	10.1		0.500	mg/L	10.0	0.250 U	101	75-125			
Silver	9.39		0.500	mg/L	10.0	0.0950 U	94	75-125			

Matrix Spike Dup (4L15031-MSD1)

Prepared: 12/15/2014 17:00 Analyzed: 12/16/2014 12:38

Source: C415589-01

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Arsenic	9.35		0.500	mg/L	10.0	0.270 U	94	75-125	6	20	
Barium	10.1		0.500	mg/L	10.0	0.213	99	75-125	2	20	
Cadmium	0.994		0.0500	mg/L	1.00	0.0180 U	99	75-125	2	20	
Chromium	9.67		0.500	mg/L	10.0	0.0500 U	97	75-125	0.6	20	
Lead	10.3		0.500	mg/L	10.0	0.642	97	75-125	2	20	
Selenium	9.56		0.500	mg/L	10.0	0.250 U	96	75-125	5	20	
Silver	9.48		0.500	mg/L	10.0	0.0950 U	95	75-125	1	20	

Post Spike (4L15031-PS1)

Prepared: 12/15/2014 17:00 Analyzed: 12/16/2014 12:41

Source: C415589-01

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Arsenic	0.186		0.0100	mg/L	0.200	-0.000102	93	80-120			
Barium	0.188		0.0100	mg/L	0.200	0.00426	92	80-120			
Cadmium	0.0183		0.00100	mg/L	0.0200	0.000182	91	80-120			
Chromium	0.182		0.0100	mg/L	0.200	0.000347	91	80-120			
Lead	0.197		0.0100	mg/L	0.200	0.0128	92	80-120			
Selenium	0.186		0.0100	mg/L	0.200	0.00199	92	80-120			
Silver	0.178		0.0100	mg/L	0.200	-0.000252	89	80-120			

Batch 4L16014 - EPA 7470A

Blank (4L16014-BLK1)

Prepared: 12/16/2014 11:50 Analyzed: 12/17/2014 12:41

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>PQL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Mercury	0.00017	U	0.00020	mg/L							

QUALITY CONTROL DATA

TCLP Metals by 6000/7000 Series Methods - Quality Control

Batch 4L16014 - EPA 7470A - Continued

Blank (4L16014-BLK2)

Prepared: 12/16/2014 11:50 Analyzed: 12/17/2014 12:55

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Mercury	0.00340	U	0.00400	mg/L							

LCS (4L16014-BS1)

Prepared: 12/16/2014 11:50 Analyzed: 12/17/2014 12:44

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Mercury	0.00498		0.00020	mg/L	0.00500		100	80-120			

Matrix Spike (4L16014-MS1)

Prepared: 12/16/2014 11:50 Analyzed: 12/17/2014 12:48

Source: C414853-03

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Mercury	0.00502		0.00020	mg/L	0.00500	0.00017 U	100	75-125			

Matrix Spike Dup (4L16014-MSD1)

Prepared: 12/16/2014 11:50 Analyzed: 12/17/2014 12:50

Source: C414853-03

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Mercury	0.00486		0.00020	mg/L	0.00500	0.00017 U	97	75-125	3	25	

Post Spike (4L16014-PS1)

Prepared: 12/16/2014 11:50 Analyzed: 12/17/2014 12:53

Source: C414853-03

<u>Analyte</u>	<u>Result</u>	<u>Flag</u>	<u>POL</u>	<u>Units</u>	<u>Spike Level</u>	<u>Source Result</u>	<u>%REC</u>	<u>%REC Limits</u>	<u>RPD</u>	<u>RPD Limit</u>	<u>Notes</u>
Mercury	0.00428		0.00020	mg/L	0.00500	-0.00003	86	75-125			

FLAGS/NOTES AND DEFINITIONS

- B** The analyte was detected in the associated method blank.
- D** The sample was analyzed at dilution.
- J** The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL), adjusted for actual sample preparation data and moisture content, where applicable.
- U** The analyte was analyzed for but not detected to the level shown, adjusted for actual sample preparation data and moisture content, where applicable.
- E** The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate.
- MRL** Method Reporting Limit. The MRL is roughly equivalent to the practical quantitation limit (PQL) and is based on the low point of the calibration curve, when applicable, sample preparation factor, dilution factor, and, in the case of soil samples, moisture content.
- ND** The analyte was analyzed for but not detected to the level shown, adjusted for actual sample preparation data and moisture content, where applicable.
- N** The analysis indicates the presence of an analyte for which there is presumptive evidence (85% or greater confidence) to make a "tentative identification".
- P** Greater than 25% concentration difference was observed between the primary and secondary GC column. The lower concentration is reported.

