



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CHICAGO REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605



LABORATORY ACCREDITATION BUREAU

ACCREDITED ISO/IEC 17025

Certificate # L2280 Testing

Date: 4/21/2014

Subject: Review of Region 5 Data for SE Chicago Petcoke

From: Greg Mitsakopoulos, Group Leader
Region 5 Chicago Regional Laboratory

Greg Mitsakopoulos 4/21/14

To: Air Division, US EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60605

The data being transmitted under this cover memo successfully passed CRL's internal data review procedures as documented in our current Quality Management Plan (QMP) and appropriate Standard Operating Procedures (SOPs). Please be aware that CRL does not perform data validation which is based on your data quality objectives. This function must be performed independently of the laboratory generating the data.

Results in this report represent only the samples analyzed.

Please have the U.S. EPA Project Manager/Officer call the CRL Sample Coordinator at (312) 353-0375 for any comments or questions.

Attached are Results for: SE Chicago Petcoke

/ /

Data Management Coordinator and Date Received

Date Transmitted: ____/____/____

Analyses included in this report:

Metals full ICP (S), axial

Replaces report 1403001, 1403002 FINAL

Apr 01 14 0912 JRM



Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Phone:(312)353-8370 Fax:(312)886-2591



Air Division, US EPA Region 5 77 West Jackson Boulevard Chicago IL, 60605	Project: SE Chicago Petcoke Project Number: [none] Project Manager: Motria Caudill	Reported: Apr-21-14 09:22
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Analysis Case Narrative

This amended report replaces '1403001,1403002 FINAL Apr 01 14 0912'. In the narrative below, the sampling organization is now correctly identified as KCBX. Everything else remains the same.

General Information

CRL received 13 sediment samples for metals analysis by inductively coupled plasma-atomic emission spectroscopy (ICP-AES) on 3/3-3/4/2014 for work orders 1403001 (6) and 1403002 (7). An empty jar was received for 1403002-08. The samples were collected on 3/3-3/4/2014 by KCBX. Greg Mitsakopoulos, the designated analyst for the samples, may be reached at (312) 353-0377.

The requested analytes were aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, selenium, silver, sodium, thallium, vanadium and zinc.

Station identifiers are listed next to their corresponding CRL sample numbers in the results section of the report.

Supporting data are to be filed under work order 1403001.

Sample Analysis and Results

Analyst A. Wroble digested the samples. Batch B403032 was prepared on 3/13/14 using CRL SOP METALS025, Revision 7 (EPA Method 200.2). The digests were analyzed by inductively coupled plasma-atomic emission spectroscopy on 3/17, 3/21 and 3/28/14 using CRL SOP METALS004, Revision 7.2 (EPA Method 200.7). The initial run, not reported, was for five-fold dilutions of all samples. The other runs pursued lower reporting limits- the digests were filtered and analyzed with no dilutions. All samples except for 1403001-01, 1403002-01 and associated quality control samples were reported from the 3/21/14 run.

Quality Control

All quality control (QC) audits for the requested analytes were within CRL limits or had no bearing on the data, except for the following:

Laboratory Duplicate (DUP): Relative percent difference (RPD) limits = 20%.

The pair 1403001-01/B403032-DUP1 failed the audit with a manganese RPD of 31.1%. More importantly, the source sample does not contain manganese at or above the 0.91 mg/kg reporting limit (RL), but the duplicate has a reportable 1.1 mg/kg manganese (RL 0.95 mg/kg). Therefore, it will be flagged "J" as a estimated non-detectable.


Greg Mitsakopoulos, Group Leader



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The pair 1403002-01/B403032-DUP2 failed this audit with an aluminum RPD of 25.0%. The source sample has been flagged "J" for imprecision.

Laboratory Control Solution Measured (LCM): Recovery Limit = 100 ± 10%.

For the 3/21 run, the 1 mg/L sodium audit failed with as low as 87.4% recovery. Sodium results above RL originating from that run will be flagged "L" for estimated low bias.

Matrix Spike (MS): Recovery Limit = 100 ± 20%.

Source samples 1403001-01 and 1403002-01 will be flagged "L" for potential low bias on vanadium, with recoveries on B403032-MS1 and B403032-MS2 of 63.7% and 51.4%, respectively.

Field duplicate: CRL does not have audit limits for field QC, but it is noted that the station identifiers indicate that samples 1403002-02 and 1403002-07 are a field duplicate pair. While not all analytes above RL had high RPD, iron was notable with 80% RPD.

gm 4/21/14

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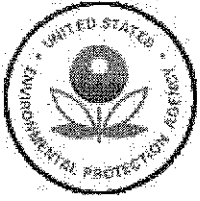
Project: SE Chicago Petcoke
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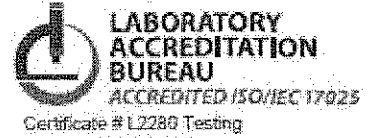
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 Project Number: [none]
 Project Manager: Motria Caudill

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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-1	1403001-01	Soil	Mar-03-14 08:30	Mar-03-14 15:45
S-2	1403001-02	Soil	Mar-03-14 09:50	Mar-03-14 15:45
S-3	1403001-03	Soil	Mar-03-14 10:40	Mar-03-14 15:45
S-4	1403001-04	Soil	Mar-03-14 11:15	Mar-03-14 15:45
S-5	1403001-05	Soil	Mar-03-14 13:10	Mar-03-14 15:45
S-6	1403001-06	Soil	Mar-03-14 13:35	Mar-03-14 15:45
N-1	1403002-01	Soil	Mar-04-14 08:38	Mar-04-14 15:15
N-2	1403002-02	Soil	Mar-04-14 09:10	Mar-04-14 15:15
N-3	1403002-03	Soil	Mar-04-14 10:30	Mar-04-14 15:15
N-4	1403002-04	Soil	Mar-04-14 09:50	Mar-04-14 15:15
N-5	1403002-05	Soil	Mar-04-14 12:50	Mar-04-14 15:15
N-6	1403002-06	Soil	Mar-04-14 13:20	Mar-04-14 15:15
N-2 Duplicate	1403002-07	Soil	Mar-04-14 09:10	Mar-04-14 15:15

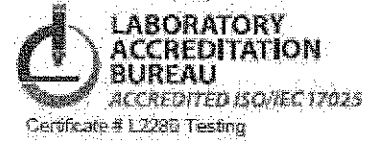
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Metals by ICP using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

S-1 (1403001-01) Soil Sampled: Mar-03-14 08:30 Received: Mar-03-14 15:45

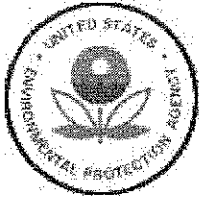
Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	U			23	mg/kg	1	B403032	Mar-11-14	Mar-28-14
Antimony	U			5.7	"	"	"	"	"
Arsenic	U			4.6	"	"	"	"	"
Barium	1.1			0.68	"	"	"	"	"
Beryllium	U			0.23	"	"	"	"	"
Cadmium	U			0.23	"	"	"	"	"
Calcium	510			23	"	"	"	"	"
Chromium	U			0.57	"	"	"	"	"
Cobalt	U			0.68	"	"	"	"	"
Copper	U			2.3	"	"	"	"	"
Iron	31			9.1	"	"	"	"	"
Lead	U			3.4	"	"	"	"	"
Magnesium	48			23	"	"	"	"	"
Manganese	U	J		0.91	"	"	"	"	"
Nickel	2.8			0.68	"	"	"	"	"
Potassium	U			91	"	"	"	"	"
Selenium	U			5.7	"	"	"	"	"
Silver	U			1.1	"	"	"	"	"
Sodium	48			46	"	"	"	"	"
Thallium	U			6.8	"	"	"	"	"
Vanadium	28	L		0.57	"	"	"	"	"
Zinc	3.5			3.4	"	"	"	"	"

S-2 (1403001-02) Soil Sampled: Mar-03-14 09:50 Received: Mar-03-14 15:45

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	U			23	mg/kg	1	B403032	Mar-11-14	Mar-21-14
Antimony	U			5.8	"	"	"	"	"
Arsenic	U			4.7	"	"	"	"	"
Barium	0.82			0.70	"	"	"	"	"
Beryllium	U			0.23	"	"	"	"	"
Cadmium	U			0.23	"	"	"	"	"
Calcium	27			23	"	"	"	"	"
Chromium	U			0.58	"	"	"	"	"
Cobalt	U			0.70	"	"	"	"	"
Copper	U			2.3	"	"	"	"	"

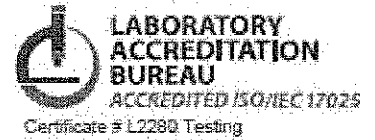
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Project Manager: Motria Caudill

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Metals by ICP using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

S-2 (1403001-02) Soil Sampled: Mar-03-14 09:50 Received: Mar-03-14 15:45

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Iron	20			9.3	mg/kg	1	B403032	Mar-11-14	Mar-21-14
Lead	U			3.5	"	"	"	"	"
Magnesium	U			23	"	"	"	"	"
Manganese	U			0.93	"	"	"	"	"
Nickel	1.3			0.70	"	"	"	"	"
Potassium	U			93	"	"	"	"	"
Selenium	U			5.8	"	"	"	"	"
Silver	U			1.2	"	"	"	"	"
Sodium	U			47	"	"	"	"	"
Thallium	U			7.0	"	"	"	"	"
Vanadium	14			0.58	"	"	"	"	"
Zinc	U			3.5	"	"	"	"	"

S-3 (1403001-03) Soil Sampled: Mar-03-14 10:40 Received: Mar-03-14 15:45

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	55			22	mg/kg	1	B403032	Mar-11-14	Mar-21-14
Antimony	U			5.5	"	"	"	"	"
Arsenic	U			4.4	"	"	"	"	"
Barium	1.7			0.66	"	"	"	"	"
Beryllium	U			0.22	"	"	"	"	"
Cadmium	U			0.22	"	"	"	"	"
Calcium	130			22	"	"	"	"	"
Chromium	U			0.55	"	"	"	"	"
Cobalt	U			0.66	"	"	"	"	"
Copper	U			2.2	"	"	"	"	"
Iron	76			8.8	"	"	"	"	"
Lead	U			3.3	"	"	"	"	"
Magnesium	29			22	"	"	"	"	"
Manganese	2.1			0.88	"	"	"	"	"
Nickel	1.1			0.66	"	"	"	"	"
Potassium	U			88	"	"	"	"	"
Selenium	U			5.5	"	"	"	"	"
Silver	U			1.1	"	"	"	"	"
Sodium	U			44	"	"	"	"	"
Thallium	U			6.6	"	"	"	"	"

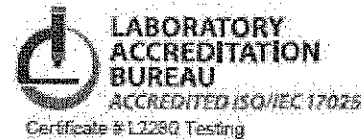
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Project: SE Chicago Petcoke
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Project Manager: Motria Caudill

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Metals by ICP using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

S-3 (1403001-03) Soil Sampled: Mar-03-14 10:40 Received: Mar-03-14 15:45

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Vanadium	6.4			0.55	mg/kg	1	B403032	Mar-11-14	Mar-21-14
Zinc	4.2			3.3	"	"	"	"	"

S-4 (1403001-04) Soil Sampled: Mar-03-14 11:15 Received: Mar-03-14 15:45

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	240			20	mg/kg	1	B403032	Mar-11-14	Mar-21-14
Antimony	U			5.1	"	"	"	"	"
Arsenic	U			4.1	"	"	"	"	"
Barium	6.4			0.61	"	"	"	"	"
Beryllium	U			0.20	"	"	"	"	"
Cadmium	U			0.20	"	"	"	"	"
Calcium	2300			20	"	"	"	"	"
Chromium	0.99			0.51	"	"	"	"	"
Cobalt	U			0.61	"	"	"	"	"
Copper	U			2.0	"	"	"	"	"
Iron	1300			8.1	"	"	"	"	"
Lead	3.0			3.0	"	"	"	"	"
Magnesium	440			20	"	"	"	"	"
Manganese	46			0.81	"	"	"	"	"
Nickel	2.6			0.61	"	"	"	"	"
Potassium	U			81	"	"	"	"	"
Selenium	U			5.1	"	"	"	"	"
Silver	U			1.0	"	"	"	"	"
Sodium	95	L		41	"	"	"	"	"
Thallium	U			6.1	"	"	"	"	"
Vanadium	24			0.51	"	"	"	"	"
Zinc	29			3.0	"	"	"	"	"

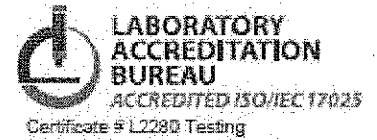
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Project Manager: Motria Caudill

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Metals by ICP using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

S-5 (1403001-05) Soil Sampled: Mar-03-14 13:10 Received: Mar-03-14 15:45

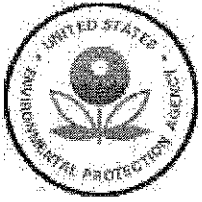
Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	U			22	mg/kg	1	B403032	Mar-11-14	Mar-21-14
Antimony	U			5.5	"	"	"	"	"
Arsenic	U			4.4	"	"	"	"	"
Barium	1.7			0.66	"	"	"	"	"
Beryllium	U			0.22	"	"	"	"	"
Cadmium	U			0.22	"	"	"	"	"
Calcium	57			22	"	"	"	"	"
Chromium	U			0.55	"	"	"	"	"
Cobalt	U			0.66	"	"	"	"	"
Copper	U			2.2	"	"	"	"	"
Iron	57			8.8	"	"	"	"	"
Lead	U			3.3	"	"	"	"	"
Magnesium	U			22	"	"	"	"	"
Manganese	2.3			0.88	"	"	"	"	"
Nickel	1.9			0.66	"	"	"	"	"
Potassium	U			88	"	"	"	"	"
Selenium	U			5.5	"	"	"	"	"
Silver	U			1.1	"	"	"	"	"
Sodium	U			44	"	"	"	"	"
Thallium	U			6.6	"	"	"	"	"
Vanadium	19			0.55	"	"	"	"	"
Zinc	8.2			3.3	"	"	"	"	"

S-6 (1403001-06) Soil Sampled: Mar-03-14 13:35 Received: Mar-03-14 15:45

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	73			22	mg/kg	1	B403032	Mar-11-14	Mar-21-14
Antimony	U			5.4	"	"	"	"	"
Arsenic	U			4.3	"	"	"	"	"
Barium	5.2			0.65	"	"	"	"	"
Beryllium	U			0.22	"	"	"	"	"
Cadmium	U			0.22	"	"	"	"	"
Calcium	370			22	"	"	"	"	"
Chromium	U			0.54	"	"	"	"	"
Cobalt	U			0.65	"	"	"	"	"
Copper	U			2.2	"	"	"	"	"

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Metals by ICP using EPA 200.7 (modified)
US EPA Region 5 Chicago Regional Laboratory

S-6 (1403001-06) Soil Sampled: Mar-03-14 13:35 Received: Mar-03-14 15:45

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Iron	250			8.6	mg/kg	1	B403032	Mar-11-14	Mar-21-14
Lead	U			3.2	"	"	"	"	"
Magnesium	75			22	"	"	"	"	"
Manganese	11			0.86	"	"	"	"	"
Nickel	2.1			0.65	"	"	"	"	"
Potassium	U			86	"	"	"	"	"
Selenium	U			5.4	"	"	"	"	"
Silver	U			1.1	"	"	"	"	"
Sodium	52	L		43	"	"	"	"	"
Thallium	U			6.5	"	"	"	"	"
Vanadium	19			0.54	"	"	"	"	"
Zinc	15			3.2	"	"	"	"	"

N-1 (1403002-01) Soil Sampled: Mar-04-14 08:38 Received: Mar-04-14 15:15

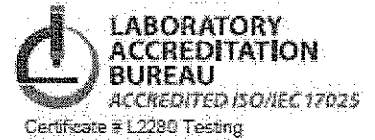
Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	48	J		20	mg/kg	1	B403032	Mar-11-14	Mar-28-14
Antimony	U			5.1	"	"	"	"	"
Arsenic	U			4.1	"	"	"	"	"
Barium	6.3			0.61	"	"	"	"	"
Beryllium	U			0.20	"	"	"	"	"
Cadmium	U			0.20	"	"	"	"	"
Calcium	280			20	"	"	"	"	"
Chromium	U			0.51	"	"	"	"	"
Cobalt	U			0.61	"	"	"	"	"
Copper	U			2.0	"	"	"	"	"
Iron	120			8.1	"	"	"	"	"
Lead	U			3.1	"	"	"	"	"
Magnesium	44			20	"	"	"	"	"
Manganese	2.4			0.81	"	"	"	"	"
Nickel	4.4			0.61	"	"	"	"	"
Potassium	U			81	"	"	"	"	"
Selenium	U			5.1	"	"	"	"	"
Silver	U			1.0	"	"	"	"	"
Sodium	51			41	"	"	"	"	"

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N-1 (1403002-01) Soil Sampled: Mar-04-14 08:38 Received: Mar-04-14 15:15

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Thallium	U			6.1	mg/kg	1	B403032	Mar-11-14	Mar-28-14
Vanadium	38	L		0.51	"	"	"	"	"
Zinc	3.9			3.1	"	"	"	"	"

N-2 (1403002-02) Soil Sampled: Mar-04-14 09:10 Received: Mar-04-14 15:15

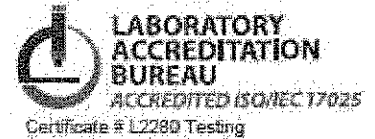
Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	130			24	mg/kg	1	B403032	Mar-11-14	Mar-21-14
Antimony	U			6.0	"	"	"	"	"
Arsenic	U			4.8	"	"	"	"	"
Barium	5.9			0.72	"	"	"	"	"
Beryllium	U			0.24	"	"	"	"	"
Cadmium	U			0.24	"	"	"	"	"
Calcium	880			24	"	"	"	"	"
Chromium	U			0.60	"	"	"	"	"
Cobalt	U			0.72	"	"	"	"	"
Copper	U			2.4	"	"	"	"	"
Iron	210			9.7	"	"	"	"	"
Lead	U			3.6	"	"	"	"	"
Magnesium	230			24	"	"	"	"	"
Manganese	14			0.97	"	"	"	"	"
Nickel	3.1			0.72	"	"	"	"	"
Potassium	U			97	"	"	"	"	"
Selenium	U			6.0	"	"	"	"	"
Silver	U			1.2	"	"	"	"	"
Sodium	56	L		48	"	"	"	"	"
Strontium	3.1			0.36	"	"	"	"	"
Thallium	U			7.2	"	"	"	"	"
Titanium	6.4			0.72	"	"	"	"	"
Vanadium	36			0.60	"	"	"	"	"
Zinc	7.7			3.6	"	"	"	"	"

GM 4/21/14
Greg Mitsakopoulos, Group Leader



Environmental Protection Agency Region 5 Chicago Regional Laboratory

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Air Division, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60605

Project: SE Chicago Petcoke
Project Number: [none]
Project Manager: Motria Caudill

Reported:
Apr-21-14 09:22

Metals by ICP using EPA 200.7 (modified) US EPA Region 5 Chicago Regional Laboratory

N-3 (1403002-03) Soil Sampled: Mar-04-14 10:30 Received: Mar-04-14 15:15

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	90			20	mg/kg	1	B403032	Mar-11-14	Mar-21-14
Antimony	U			5.1	"	"	"	"	"
Arsenic	U			4.1	"	"	"	"	"
Barium	2.0			0.61	"	"	"	"	"
Beryllium	U			0.20	"	"	"	"	"
Cadmium	U			0.20	"	"	"	"	"
Calcium	170			20	"	"	"	"	"
Chromium	U			0.51	"	"	"	"	"
Cobalt	U			0.61	"	"	"	"	"
Copper	U			2.0	"	"	"	"	"
Iron	98			8.1	"	"	"	"	"
Lead	U			3.1	"	"	"	"	"
Magnesium	73			20	"	"	"	"	"
Manganese	4.2			0.81	"	"	"	"	"
Nickel	1.1			0.61	"	"	"	"	"
Potassium	U			81	"	"	"	"	"
Selenium	U			5.1	"	"	"	"	"
Silver	U			1.0	"	"	"	"	"
Sodium	U			41	"	"	"	"	"
Strontium	0.74			0.31	"	"	"	"	"
Thallium	U			6.1	"	"	"	"	"
Titanium	U			0.61	"	"	"	"	"
Vanadium	4.0			0.51	"	"	"	"	"
Zinc	3.9			3.1	"	"	"	"	"

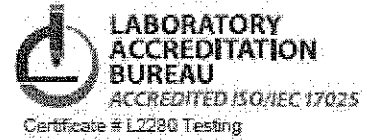
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Air Division, US EPA Region 5 77 West Jackson Boulevard Chicago IL, 60605	Project: SE Chicago Petcoke Project Number: [none] Project Manager: Motria Caudill	Reported: Apr-21-14 09:22
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**Metals by ICP using EPA 200.7 (modified)
US EPA Region 5 Chicago Regional Laboratory**

N-4 (1403002-04) Soil Sampled: Mar-04-14 09:50 Received: Mar-04-14 15:15

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	21			21	mg/kg	1	B403032	Mar-11-14	Mar-21-14
Antimony	U			5.2	"	"	"	"	"
Arsenic	U			4.1	"	"	"	"	"
Barium	0.68			0.62	"	"	"	"	"
Beryllium	U			0.21	"	"	"	"	"
Cadmium	U			0.21	"	"	"	"	"
Calcium	67			21	"	"	"	"	"
Chromium	U			0.52	"	"	"	"	"
Cobalt	U			0.62	"	"	"	"	"
Copper	U			2.1	"	"	"	"	"
Iron	28			8.3	"	"	"	"	"
Lead	U			3.1	"	"	"	"	"
Magnesium	21			21	"	"	"	"	"
Manganese	1.5			0.83	"	"	"	"	"
Nickel	1.0			0.62	"	"	"	"	"
Potassium	U			83	"	"	"	"	"
Selenium	U			5.2	"	"	"	"	"
Silver	U			1.0	"	"	"	"	"
Sodium	42	L		41	"	"	"	"	"
Strontium	U			0.31	"	"	"	"	"
Thallium	U			6.2	"	"	"	"	"
Titanium	U			0.62	"	"	"	"	"
Vanadium	5.3			0.52	"	"	"	"	"
Zinc	U			3.1	"	"	"	"	"

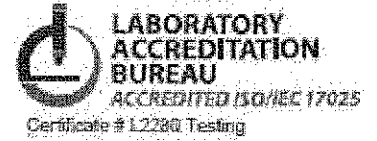
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Project: SE Chicago Petcoke
Project Number: [none]
Project Manager: Motria Caudill

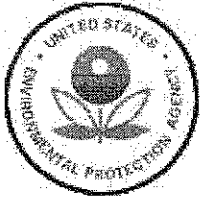
Reported:
Apr-21-14 09:22

**Metals by ICP using EPA 200.7 (modified)
US EPA Region 5 Chicago Regional Laboratory**

N-5 (1403002-05) Soil Sampled: Mar-04-14 12:50 Received: Mar-04-14 15:15

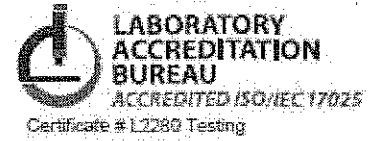
Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	78			22	mg/kg	I	B403032	Mar-11-14	Mar-21-14
Antimony	U			5.5	"	"	"	"	"
Arsenic	U			4.4	"	"	"	"	"
Barium	1.6			0.66	"	"	"	"	"
Beryllium	U			0.22	"	"	"	"	"
Cadmium	U			0.22	"	"	"	"	"
Calcium	530			22	"	"	"	"	"
Chromium	U			0.55	"	"	"	"	"
Cobalt	U			0.66	"	"	"	"	"
Copper	U			2.2	"	"	"	"	"
Iron	91			8.8	"	"	"	"	"
Lead	U			3.3	"	"	"	"	"
Magnesium	140			22	"	"	"	"	"
Manganese	11			0.88	"	"	"	"	"
Nickel	3.7			0.66	"	"	"	"	"
Potassium	U			88	"	"	"	"	"
Selenium	U			5.5	"	"	"	"	"
Silver	U			1.1	"	"	"	"	"
Sodium	U			44	"	"	"	"	"
Strontium	1.4			0.33	"	"	"	"	"
Thallium	U			6.6	"	"	"	"	"
Titanium	4.2			0.66	"	"	"	"	"
Vanadium	38			0.55	"	"	"	"	"
Zinc	3.4			3.3	"	"	"	"	"

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**Environmental Protection Agency Region 5
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Air Division, US EPA Region 5 77 West Jackson Boulevard Chicago IL, 60605	Project: SE Chicago Petcoke Project Number: [none] Project Manager: Motria Caudill	Reported: Apr-21-14 09:22
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**Metals by ICP using EPA 200.7 (modified)
US EPA Region 5 Chicago Regional Laboratory**

N-6 (1403002-06) Soil Sampled: Mar-04-14 13:20 Received: Mar-04-14 15:15

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	140			21	mg/kg	1	B403032	Mar-11-14	Mar-21-14
Antimony	U			5.4	"	"	"	"	"
Arsenic	U			4.3	"	"	"	"	"
Barium	58			0.64	"	"	"	"	"
Beryllium	U			0.21	"	"	"	"	"
Cadmium	U			0.21	"	"	"	"	"
Calcium	520			21	"	"	"	"	"
Chromium	U			0.54	"	"	"	"	"
Cobalt	U			0.64	"	"	"	"	"
Copper	U			2.1	"	"	"	"	"
Iron	170			8.6	"	"	"	"	"
Lead	U			3.2	"	"	"	"	"
Magnesium	120			21	"	"	"	"	"
Manganese	4.3			0.86	"	"	"	"	"
Nickel	1.9			0.64	"	"	"	"	"
Potassium	U			86	"	"	"	"	"
Selenium	U			5.4	"	"	"	"	"
Silver	U			1.1	"	"	"	"	"
Sodium	140	L		43	"	"	"	"	"
Strontium	23			0.32	"	"	"	"	"
Thallium	U			6.4	"	"	"	"	"
Titanium	15			0.64	"	"	"	"	"
Vanadium	23			0.54	"	"	"	"	"
Zinc	U			3.2	"	"	"	"	"

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Project: SE Chicago Petcoke
 Project Number: [none]
 Project Manager: Motria Caudill

Reported:
 Apr-21-14 09:22

Metals by ICP using EPA 200.7 (modified)
US EPA Region 5 Chicago Regional Laboratory

N-2 Duplicate (1403002-07) Soil Sampled: Mar-04-14 09:10 Received: Mar-04-14 15:15

Analyte	Result	Flags / Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Aluminum	150			23	mg/kg	1	B403032	Mar-11-14	Mar-21-14
Antimony	U			5.8	"	"	"	"	"
Arsenic	U			4.7	"	"	"	"	"
Barium	6.6			0.70	"	"	"	"	"
Beryllium	U			0.23	"	"	"	"	"
Cadmium	U			0.23	"	"	"	"	"
Calcium	1100			23	"	"	"	"	"
Chromium	1.1			0.58	"	"	"	"	"
Cobalt	U			0.70	"	"	"	"	"
Copper	U			2.3	"	"	"	"	"
Iron	500			9.4	"	"	"	"	"
Lead	U			3.5	"	"	"	"	"
Magnesium	240			23	"	"	"	"	"
Manganese	18			0.94	"	"	"	"	"
Nickel	3.2			0.70	"	"	"	"	"
Potassium	U			94	"	"	"	"	"
Selenium	U			5.8	"	"	"	"	"
Silver	U			1.2	"	"	"	"	"
Sodium	80	L		47	"	"	"	"	"
Strontium	6.2			0.35	"	"	"	"	"
Thallium	U			7.0	"	"	"	"	"
Titanium	9.8			0.70	"	"	"	"	"
Vanadium	33			0.58	"	"	"	"	"
Zinc	15			3.5	"	"	"	"	"

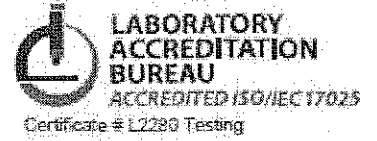
Jon 4/21/14

Greg Mitsakopoulos, Group Leader



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Air Division, US EPA Region 5
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Chicago IL, 60605

Project: SE Chicago Petcoke
Project Number: [none]
Project Manager: Motria Caudill

Reported:
Apr-21-14 09:22

Notes and Definitions

- L The identification of the analyte is acceptable; the reported value may be biased low. The actual value is expected to be greater than the reported value.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- U Not Detected
- NR Not Reported

Jan 4/21/14

Greg Mitsakopoulos, Group Leader