Gregor, Margaret

From: Gregor, Margaret
Sent: Saturday, March 14, 2015 4:36 PM
To: philip.calandrillo@nycha.nyc.gov
Cc: Laval, Darrell; Natalie Loney (Loney.Natalie@epa.gov)
Subject: EPA Soil Sampling Results for Red Hook East/Columbia Smelting Site
Attachments: EPA Soil Sampling Results for Red Hook East Houses.pdf; EPA Columbia Smelting Brief Fact Sheet.pdf; EPA Columbia Smelting Expanded Fact Sheet.pdf; Columbia Elevated Lead Levels.pdf

Philip,

As we discussed yesterday, please find attached the results of EPA's October 2014 soil sampling in the Red Hook East Houses, as well as a sampling location map which includes all of the elevated lead detections. The samples were collected to determine whether a historic secondary smelter located across the street in Red Hook Park, known as the Columbia Smelting & Refining Works (Columbia) facility, may have resulted in contamination of surrounding soils.

Results showed that there are two locations in the grassy, fenced areas along Bush Street, between Hicks and Henry Streets, which contain lead in the upper foot of soil at levels above our health-based screening level, the EPA Removal Management Level (RML) of 400 parts per million (ppm). However, as I mentioned yesterday, the detections are only slightly above the RML (between 400 and 1100 ppm in the upper foot) and are within a typical urban background range for lead. These areas are not play areas or main thoroughfares and appeared to have good vegetative cover during the sampling event, which helps to reduce the risk of direct contact with this soil. Based on these factors, it does not appear that these detections present a significant health hazard. Higher lead detections, as well as elevated arsenic detections, were found more than a foot below the ground surface, but it does not appear that there is a current exposure pathway which could present a health risk. Analysis of the results indicated that these lead and arsenic detections are not associated with the historic smelter, and are likely due to historic fill used during construction of the housing complex. EPA is not planning to collect additional samples from the Red Hook East Houses at this time as part of the Columbia investigation.

I'm also attaching the fact sheets for EPA's investigation of the Columbia site; the expanded fact sheet goes into greater detail and the brief version provides the same information, but is geared towards the general public. I'll be in touch this coming week along with the Community Involvement Coordinator, Natalie Loney, to coordinate distribution in the Red Hook Houses offices. We'll continue to keep you posted with updates on the planned cleanup and interim actions. We'll be issuing additional fact sheets and may have public meetings about the site as necessary.

Feel free to get in touch any time if you have any questions or need additional information. Apologies for the long email and thank you for your assistance with this investigation!

Best regards,

Margaret Gregor
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EPA Soil Sampling Results for Red Hook East Houses, Collected October 15, 2014
Columbia Smelting and Refining Works Site Investigation

SAMPLE NAME	CHEMICAL	RESULT (ppm)	LAB QUALIFIER	REPORTING DETECTION LIMIT	METHOD DETECTION LIMIT	QUANTITATION LIMIT	EPA RML
1411-S01-0001	Aluminum	11000		14	5.7	14	77000
1411-S01-0001	Antimony	3.7		2.8	0.17	2.8	31
1411-S01-0001	Arsenic	12		1.1	0.21	1.1	34
1411-S01-0001	Barium	310		14	0.48	14	15000
1411-S01-0001	Beryllium	0.52		0.42	0.10	0.42	160
1411-S01-0001	Cadmium	1.7		0.42	0.020	0.42	70
1411-S01-0001	Calcium	14000		70	6.5	70	
1411-S01-0001	Chromium	53		0.70	0.075	0.70	
1411-S01-0001	Cobalt	8.1		2.8	0.41	2.8	23
1411-S01-0001	Copper	110		1.4	0.41	1.4	3100
1411-S01-0001	Iron	20000		7.0	2.9	7.0	55000
1411-S01-0001	**Lead**	**500**		**1.1**	**0.32**	**1.1**	**400**
1411-S01-0001	Magnesium	4200		70	5.1	70	
1411-S01-0001	Manganese	380		0.70	0.11	0.70	1800
1411-S01-0001	Nickel	44		2.8	0.37	2.8	1500
1411-S01-0001	Potassium	1100		70	24	70	
1411-S01-0001	Selenium	2.8	U	2.8	0.33	2.8	390
1411-S01-0001	Silver	3.5	U	3.5	0.12	3.5	390
1411-S01-0001	Sodium	150		140	7.8	140	
1411-S01-0001	Thallium	2.8	U	2.8	0.40	2.8	0.78
1411-S01-0001	Tin	36		1.4	0.29	1.4	47000
1411-S01-0001	Vanadium	51		2.8	0.15	2.8	390
1411-S01-0001	Zinc	420		2.8	0.84	2.8	23000
1411-S01-0106	Aluminum	10000		9.7	4.0	9.7	77000
1411-S01-0106	Antimony	3.2		1.9	0.12	1.9	31
1411-S01-0106	Arsenic	13		0.78	0.14	0.78	34
1411-S01-0106	Barium	200		9.7	0.33	9.7	15000
1411-S01-0106	Beryllium	0.29		0.29	0.072	0.29	160
1411-S01-0106	Cadmium	1.4		0.29	0.014	0.29	70
1411-S01-0106	Calcium	6500		48	4.5	48	
1411-S01-0106	Chromium	27		0.48	0.052	0.48	
1411-S01-0106	Cobalt	4.1		1.9	0.28	1.9	23
1411-S01-0106	Copper	82		0.97	0.28	0.97	3100
1411-S01-0106	Iron	16000		4.8	2.0	4.8	55000
1411-S01-0106	Lead	300		0.78	0.22	0.78	400
1411-S01-0106	Magnesium	3700		48	3.6	48	
1411-S01-0106	Manganese	220		0.48	0.073	0.48	1800
1411-S01-0106	Nickel	14		1.9	0.26	1.9	1500
1411-S01-0106	Potassium	460	K	48	17	48	
1411-S01-0106	Selenium	1.9	U	1.9	0.23	1.9	390
1411-S01-0106	Silver	2.4	U	2.4	0.083	2.4	390
1411-S01-0106	Sodium	110		97	5.4	97	
1411-S01-0106	Thallium	3.9	UL	3.9	0.28	3.9	0.78
1411-S01-0106	Tin	28		0.97	0.20	0.97	47000
1411-S01-0106	Vanadium	68		1.9	0.10	1.9	390
1411-S01-0106	Zinc	180		1.9	0.59	1.9	23000
1411-S01-0612	Aluminum	8500		10	4.1	10	77000

Notes

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EPA Soil Sampling Results for Red Hook East Houses, Collected October 15, 2014
Columbia Smelting and Refining Works Site Investigation

SAMPLE NAME	CHEMICAL	RESULT (ppm)	LAB QUALIFIER	REPORTING DETECTION LIMIT	METHOD DETECTION LIMIT	QUANTITATION LIMIT	EPA RML
1411-S01-0612	Antimony	3.4		2.0	0.12	2.0	31
1411-S01-0612	Arsenic	12		0.81	0.15	0.81	34
1411-S01-0612	Barium	480		10	0.35	10	15000
1411-S01-0612	Beryllium	0.43		0.30	0.075	0.30	160
1411-S01-0612	Cadmium	2.0		0.30	0.014	0.30	70
1411-S01-0612	Calcium	1700		51	4.7	51	
1411-S01-0612	Chromium	19		0.51	0.054	0.51	
1411-S01-0612	Cobalt	7.1		2.0	0.29	2.0	23
1411-S01-0612	Copper	120		1.0	0.29	1.0	3100
1411-S01-0612	Iron	18000		5.1	2.1	5.1	55000
1411-S01-0612	**Lead**	**580**		**0.81**	**0.23**	**0.81**	**400**
1411-S01-0612	Magnesium	1500		51	3.7	51	
1411-S01-0612	Manganese	380		0.51	0.077	0.51	1800
1411-S01-0612	Nickel	19		2.0	0.27	2.0	1500
1411-S01-0612	Potassium	450		51	17	51	
1411-S01-0612	Selenium	2.0	U	2.0	0.24	2.0	390
1411-S01-0612	Silver	3.0	U	3.0	0.087	3.0	390
1411-S01-0612	Sodium	370		100	5.7	100	
1411-S01-0612	Thallium	4.0	U	4.0	0.29	4.0	0.78
1411-S01-0612	Tin	86		1.0	0.21	1.0	47000
1411-S01-0612	Vanadium	37		2.0	0.11	2.0	390
1411-S01-0612	Zinc	400		2.0	0.61	2.0	23000
1411-S01-1218	Aluminum	5800		9.7	4.0	9.7	77000
1411-S01-1218	Antimony	4.9		1.9	0.12	1.9	31
1411-S01-1218	Arsenic	12		0.77	0.14	0.77	34
1411-S01-1218	Barium	470		9.7	0.33	9.7	15000
1411-S01-1218	Beryllium	0.29		0.29	0.072	0.29	160
1411-S01-1218	Cadmium	1.4		0.29	0.014	0.29	70
1411-S01-1218	Calcium	3600		48	4.5	48	
1411-S01-1218	Chromium	19		0.48	0.052	0.48	
1411-S01-1218	Cobalt	6.7		1.9	0.28	1.9	23
1411-S01-1218	Copper	230		0.97	0.28	0.97	3100
1411-S01-1218	Iron	30000		48	20	48	55000
1411-S01-1218	**Lead**	**710**		**0.77**	**0.22**	**0.77**	**400**
1411-S01-1218	Magnesium	2000		48	3.5	48	
1411-S01-1218	Manganese	310		0.48	0.073	0.48	1800
1411-S01-1218	Nickel	22		1.9	0.26	1.9	1500
1411-S01-1218	Potassium	690		48	17	48	
1411-S01-1218	Selenium	1.9	U	1.9	0.23	1.9	390
1411-S01-1218	Silver	2.4	U	2.4	0.083	2.4	390
1411-S01-1218	Sodium	200		97	5.4	97	
1411-S01-1218	Thallium	3.9	U	3.9	0.28	3.9	0.78
1411-S01-1218	Tin	140		0.97	0.20	0.97	47000
1411-S01-1218	Vanadium	25		1.9	0.10	1.9	390
1411-S01-1218	Zinc	860		1.9	0.58	1.9	23000
1411-S01-1824	Aluminum	5700		9.7	4.0	9.7	77000
1411-S01-1824	Antimony	7.9		1.9	0.12	1.9	31

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SAMPLE NAME	CHEMICAL	RESULT (ppm)	LAB QUALIFIER	REPORTING DETECTION LIMIT	METHOD DETECTION LIMIT	QUANTITATION LIMIT	EPA RML
1411-S01-1824	Arsenic	11		0.78	0.14	0.78	34
1411-S01-1824	Barium	420		9.7	0.34	9.7	15000
1411-S01-1824	Beryllium	0.30		0.29	0.073	0.29	160
1411-S01-1824	Cadmium	1.2		0.29	0.014	0.29	70
1411-S01-1824	Calcium	14000		49	4.6	49	
1411-S01-1824	Chromium	28		0.49	0.053	0.49	
1411-S01-1824	Cobalt	7.7		1.9	0.28	1.9	23
1411-S01-1824	Copper	240		0.97	0.28	0.97	3100
1411-S01-1824	Iron	18000		4.9	2.0	4.9	55000
1411-S01-1824	**Lead**	**1000**		**0.78**	**0.22**	**0.78**	**400**
1411-S01-1824	Magnesium	2700		49	3.6	49	
1411-S01-1824	Manganese	290		0.49	0.074	0.49	1800
1411-S01-1824	Nickel	27		1.9	0.26	1.9	1500
1411-S01-1824	Potassium	660		49	17	49	
1411-S01-1824	Selenium	1.9	U	1.9	0.23	1.9	390
1411-S01-1824	Silver	5.4	U	5.4	0.083	5.4	390
1411-S01-1824	Sodium	220		97	5.4	97	
1411-S01-1824	Thallium	3.9	U	3.9	0.28	3.9	0.78
1411-S01-1824	Tin	110		0.97	0.20	0.97	47000
1411-S01-1824	Vanadium	27		1.9	0.10	1.9	390
1411-S01-1824	Zinc	610		1.9	0.59	1.9	23000
1411-S02-0001	Aluminum	14000		13	5.5	13	77000
1411-S02-0001	Antimony	3.1		2.7	0.16	2.7	31
1411-S02-0001	Arsenic	15		1.1	0.20	1.1	34
1411-S02-0001	Barium	210		13	0.46	13	15000
1411-S02-0001	Beryllium	0.58		0.40	0.10	0.40	160
1411-S02-0001	Cadmium	1.8		0.40	0.019	0.40	70
1411-S02-0001	Calcium	2800		67	6.3	67	
1411-S02-0001	Chromium	56		0.67	0.072	0.67	
1411-S02-0001	Cobalt	6.3		2.7	0.39	2.7	23
1411-S02-0001	Copper	130		1.3	0.39	1.3	3100
1411-S02-0001	Iron	20000		6.7	2.8	6.7	55000
1411-S02-0001	**Lead**	**460**		**1.1**	**0.31**	**1.1**	**400**
1411-S02-0001	Magnesium	2100		67	4.9	67	
1411-S02-0001	Manganese	250		0.67	0.10	0.67	1800
1411-S02-0001	Nickel	32		2.7	0.36	2.7	1500
1411-S02-0001	Potassium	910		67	23	67	
1411-S02-0001	Selenium	2.7	U	2.7	0.32	2.7	390
1411-S02-0001	Silver	2.7	U	2.7	0.11	2.7	390
1411-S02-0001	Sodium	130	U	130	7.5	130	
1411-S02-0001	Thallium	2.7	U	2.7	0.39	2.7	0.78
1411-S02-0001	Tin	40		1.3	0.28	1.3	47000
1411-S02-0001	Vanadium	79		2.7	0.14	2.7	390
1411-S02-0001	Zinc	230		2.7	0.81	2.7	23000
1411-S02-0106	Aluminum	10000		9.9	4.1	9.9	77000
1411-S02-0106	Antimony	2.7		2.0	0.12	2.0	31
1411-S02-0106	Arsenic	11		0.79	0.15	0.79	34

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SAMPLE NAME	CHEMICAL	RESULT (ppm)	LAB QUALIFIER	REPORTING DETECTION LIMIT	METHOD DETECTION LIMIT	QUANTITATION LIMIT	EPA RML
1411-S02-0106	Barium	150		9.9	0.34	9.9	15000
1411-S02-0106	Beryllium	0.37		0.30	0.074	0.30	160
1411-S02-0106	Cadmium	0.85		0.30	0.014	0.30	70
1411-S02-0106	Calcium	910		50	4.6	50	
1411-S02-0106	Chromium	21		0.50	0.053	0.50	
1411-S02-0106	Cobalt	5.6		2.0	0.29	2.0	23
1411-S02-0106	Copper	130		0.99	0.29	0.99	3100
1411-S02-0106	Iron	15000		5.0	2.0	5.0	55000
1411-S02-0106	**Lead**	**400**		**0.79**	**0.23**	**0.79**	**400**
1411-S02-0106	Magnesium	1300		50	3.6	50	
1411-S02-0106	Manganese	250		0.50	0.075	0.50	1800
1411-S02-0106	Nickel	18		2.0	0.26	2.0	1500
1411-S02-0106	Potassium	370		50	17	50	
1411-S02-0106	Selenium	2.0	U	2.0	0.24	2.0	390
1411-S02-0106	Silver	2.5	U	2.5	0.085	2.5	390
1411-S02-0106	Sodium	100		99	5.5	99	
1411-S02-0106	Thallium	4.0	U	4.0	0.29	4.0	0.78
1411-S02-0106	Tin	47		0.99	0.21	0.99	47000
1411-S02-0106	Vanadium	46		2.0	0.11	2.0	390
1411-S02-0106	Zinc	160		2.0	0.60	2.0	23000
1411-S02-0612	Aluminum	6400		10	4.1	10	77000
1411-S02-0612	Antimony	2.5		2.0	0.12	2.0	31
1411-S02-0612	Arsenic	17		0.80	0.15	0.80	34
1411-S02-0612	Barium	350		10	0.34	10	15000
1411-S02-0612	Beryllium	0.35		0.30	0.074	0.30	160
1411-S02-0612	Cadmium	2.7		0.30	0.014	0.30	70
1411-S02-0612	Calcium	4100		50	4.7	50	
1411-S02-0612	Chromium	20		0.50	0.054	0.50	
1411-S02-0612	Cobalt	7.3		2.0	0.29	2.0	23
1411-S02-0612	Copper	180		1.0	0.29	1.0	3100
1411-S02-0612	Iron	22000		5.0	2.0	5.0	55000
1411-S02-0612	**Lead**	**1100**		**0.80**	**0.23**	**0.80**	**400**
1411-S02-0612	Magnesium	1500		50	3.7	50	
1411-S02-0612	Manganese	280		0.50	0.075	0.50	1800
1411-S02-0612	Nickel	26		2.0	0.27	2.0	1500
1411-S02-0612	Potassium	520		50	17	50	
1411-S02-0612	Selenium	2.0	U	2.0	0.24	2.0	390
1411-S02-0612	Silver	2.0	U	2.0	0.085	2.0	390
1411-S02-0612	Sodium	190		100	5.6	100	
1411-S02-0612	Thallium	4.0	U	4.0	0.29	4.0	0.78
1411-S02-0612	Tin	180		1.0	0.21	1.0	47000
1411-S02-0612	Vanadium	34		2.0	0.11	2.0	390
1411-S02-0612	Zinc	900		2.0	0.60	2.0	23000
1411-S02-1218	Aluminum	6800		9.5	3.9	9.5	77000
1411-S02-1218	Antimony	3.9		1.9	0.12	1.9	31
1411-S02-1218	Arsenic	16		0.76	0.14	0.76	34
1411-S02-1218	Barium	370		9.5	0.33	9.5	15000

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1411-S02-1218	Beryllium	0.41		0.29	0.071	0.29	160
1411-S02-1218	Cadmium	1.1		0.29	0.013	0.29	70
1411-S02-1218	Calcium	6400		48	4.5	48	
1411-S02-1218	Chromium	23		0.48	0.051	0.48	
1411-S02-1218	Cobalt	7.9		1.9	0.28	1.9	23
1411-S02-1218	Copper	150		0.95	0.28	0.95	3100
1411-S02-1218	Iron	18000		4.8	2.0	4.8	55000
1411-S02-1218	**Lead**	**920**		**0.76**	**0.22**	**0.76**	**400**
1411-S02-1218	Magnesium	2400		48	3.5	48	
1411-S02-1218	Manganese	300		0.48	0.072	0.48	1800
1411-S02-1218	Nickel	29		1.9	0.25	1.9	1500
1411-S02-1218	Potassium	860		48	16	48	
1411-S02-1218	Selenium	1.9	U	1.9	0.23	1.9	390
1411-S02-1218	Silver	2.9	U	2.9	0.082	2.9	390
1411-S02-1218	Sodium	250		95	5.3	95	
1411-S02-1218	Thallium	3.8	U	3.8	0.28	3.8	0.78
1411-S02-1218	Tin	77		0.95	0.20	0.95	47000
1411-S02-1218	Vanadium	30		1.9	0.10	1.9	390
1411-S02-1218	Zinc	560		1.9	0.58	1.9	23000
1411-S02-1824	Aluminum	7100		10	4.1	10	77000
1411-S02-1824	Antimony	15		2.0	0.12	2.0	31
1411-S02-1824	**Arsenic**	**110**		**0.80**	**0.15**	**0.80**	**34**
1411-S02-1824	Barium	1600		10	0.35	10	15000
1411-S02-1824	Beryllium	0.68		0.30	0.075	0.30	160
1411-S02-1824	Cadmium	3.7		0.30	0.014	0.30	70
1411-S02-1824	Calcium	12000		50	4.7	50	
1411-S02-1824	Chromium	42		0.50	0.054	0.50	
1411-S02-1824	Cobalt	17		2.0	0.29	2.0	23
1411-S02-1824	Copper	320		1.0	0.29	1.0	3100
1411-S02-1824	**Iron**	**87000**		**50**	**21**	**50**	**55000**
1411-S02-1824	**Lead**	**4800**		**0.80**	**0.23**	**0.80**	**400**
1411-S02-1824	Magnesium	1300		50	3.7	50	
1411-S02-1824	Manganese	560		0.50	0.076	0.50	1800
1411-S02-1824	Nickel	45		2.0	0.27	2.0	1500
1411-S02-1824	Potassium	1100		50	17	50	
1411-S02-1824	Selenium	3.3		2.0	0.24	2.0	390
1411-S02-1824	Silver	3.5	U	3.5	0.086	3.5	390
1411-S02-1824	Sodium	1400		100	5.6	100	
1411-S02-1824	Thallium	6.0	U	6.0	0.29	6.0	0.78
1411-S02-1824	Tin	150		1.0	0.21	1.0	47000
1411-S02-1824	Vanadium	37		2.0	0.11	2.0	390
1411-S02-1824	Zinc	1600		2.0	0.61	2.0	23000
1411-S03-0001	Aluminum	9200		12	4.9	12	77000
1411-S03-0001	Antimony	2.4	U	2.4	0.14	2.4	31
1411-S03-0001	Arsenic	6.8		0.95	0.18	0.95	34
1411-S03-0001	Barium	130		12	0.41	12	15000
1411-S03-0001	Beryllium	0.42		0.36	0.088	0.36	160

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SAMPLE NAME	CHEMICAL	RESULT (ppm)	LAB QUALIFIER	REPORTING DETECTION LIMIT	METHOD DETECTION LIMIT	QUANTITATION LIMIT	EPA RML
1411-S03-0001	Cadmium	0.59		0.36	0.017	0.36	70
1411-S03-0001	Calcium	10000		59	5.5	59	
1411-S03-0001	Chromium	41		0.59	0.064	0.59	
1411-S03-0001	Cobalt	7.9		2.4	0.35	2.4	23
1411-S03-0001	Copper	86		1.2	0.34	1.2	3100
1411-S03-0001	Iron	18000		5.9	2.4	5.9	55000
1411-S03-0001	Lead	220		0.95	0.27	0.95	400
1411-S03-0001	Magnesium	5500		59	4.3	59	
1411-S03-0001	Manganese	350		0.59	0.090	0.59	1800
1411-S03-0001	Nickel	30		2.4	0.32	2.4	1500
1411-S03-0001	Potassium	1400		59	20	59	
1411-S03-0001	Selenium	2.4	U	2.4	0.28	2.4	390
1411-S03-0001	Silver	4.1	U	4.1	0.10	4.1	390
1411-S03-0001	Sodium	120	U	120	6.6	120	
1411-S03-0001	Thallium	2.4	U	2.4	0.34	2.4	0.78
1411-S03-0001	Tin	13		1.2	0.25	1.2	47000
1411-S03-0001	Vanadium	35		2.4	0.13	2.4	390
1411-S03-0001	Zinc	240		2.4	0.72	2.4	23000
1411-S03-0106	Aluminum	8500		9.0	3.7	9.0	77000
1411-S03-0106	Antimony	1.8	U	1.8	0.11	1.8	31
1411-S03-0106	Arsenic	8.7		0.72	0.13	0.72	34
1411-S03-0106	Barium	88		9.0	0.31	9.0	15000
1411-S03-0106	Beryllium	0.41		0.27	0.067	0.27	160
1411-S03-0106	Cadmium	0.73		0.27	0.013	0.27	70
1411-S03-0106	Calcium	11000		45	4.2	45	
1411-S03-0106	Chromium	18		0.45	0.049	0.45	
1411-S03-0106	Cobalt	4.6		1.8	0.26	1.8	23
1411-S03-0106	Copper	72		0.90	0.26	0.90	3100
1411-S03-0106	Iron	13000		4.5	1.9	4.5	55000
1411-S03-0106	Lead	140		0.72	0.21	0.72	400
1411-S03-0106	Magnesium	2800		45	3.3	45	
1411-S03-0106	Manganese	200		0.45	0.068	0.45	1800
1411-S03-0106	Nickel	14		1.8	0.24	1.8	1500
1411-S03-0106	Potassium	550		45	15	45	
1411-S03-0106	Selenium	1.8	U	1.8	0.21	1.8	390
1411-S03-0106	Silver	3.6	U	3.6	0.077	3.6	390
1411-S03-0106	Sodium	170		90	5.0	90	
1411-S03-0106	Thallium	3.6	U	3.6	0.26	3.6	0.78
1411-S03-0106	Tin	7.1		0.90	0.19	0.90	47000
1411-S03-0106	Vanadium	24		1.8	0.096	1.8	390
1411-S03-0106	Zinc	230		1.8	0.54	1.8	23000
1411-S03-0612	Aluminum	8300		10	4.1	10	77000
1411-S03-0612	Antimony	2.3		2.0	0.12	2.0	31
1411-S03-0612	Arsenic	15		0.80	0.15	0.80	34
1411-S03-0612	Barium	120		10	0.35	10	15000
1411-S03-0612	Beryllium	0.34		0.30	0.075	0.30	160
1411-S03-0612	Cadmium	1.7		0.30	0.014	0.30	70

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1411-S03-0612	Calcium	7600		50	4.7	50	
1411-S03-0612	Chromium	22		0.50	0.054	0.50	
1411-S03-0612	Cobalt	4.9		2.0	0.29	2.0	23
1411-S03-0612	Copper	74		1.0	0.29	1.0	3100
1411-S03-0612	Iron	12000		5.0	2.1	5.0	55000
1411-S03-0612	Lead	230		0.80	0.23	0.80	400
1411-S03-0612	Magnesium	2000		50	3.7	50	
1411-S03-0612	Manganese	310		0.50	0.076	0.50	1800
1411-S03-0612	Nickel	19		2.0	0.27	2.0	1500
1411-S03-0612	Potassium	410		50	17	50	
1411-S03-0612	Selenium	2.0	U	2.0	0.24	2.0	390
1411-S03-0612	Silver	3.5	U	3.5	0.086	3.5	390
1411-S03-0612	Sodium	180		100	5.6	100	
1411-S03-0612	Thallium	4.0	U	4.0	0.29	4.0	0.78
1411-S03-0612	Tin	16		1.0	0.21	1.0	47000
1411-S03-0612	Vanadium	37		2.0	0.11	2.0	390
1411-S03-0612	Zinc	280		2.0	0.60	2.0	23000
1411-S03-1218	Aluminum	11000		9.5	3.9	9.5	77000
1411-S03-1218	Antimony	1.9		1.9	0.12	1.9	31
1411-S03-1218	Arsenic	5.7		0.76	0.14	0.76	34
1411-S03-1218	Barium	69		9.5	0.33	9.5	15000
1411-S03-1218	Beryllium	0.47		0.29	0.071	0.29	160
1411-S03-1218	Cadmium	0.29	U	0.29	0.013	0.29	70
1411-S03-1218	Calcium	950		48	4.5	48	
1411-S03-1218	Chromium	47		0.48	0.051	0.48	
1411-S03-1218	Cobalt	5.1		1.9	0.28	1.9	23
1411-S03-1218	Copper	27		0.95	0.28	0.95	3100
1411-S03-1218	Iron	13000		4.8	2.0	4.8	55000
1411-S03-1218	Lead	68		0.76	0.22	0.76	400
1411-S03-1218	Magnesium	1700		48	3.5	48	
1411-S03-1218	Manganese	340		0.48	0.072	0.48	1800
1411-S03-1218	Nickel	12		1.9	0.25	1.9	1500
1411-S03-1218	Potassium	380		48	16	48	
1411-S03-1218	Selenium	1.9	U	1.9	0.23	1.9	390
1411-S03-1218	Silver	3.8	U	3.8	0.081	3.8	390
1411-S03-1218	Sodium	220		95	5.3	95	
1411-S03-1218	Thallium	3.8	U	3.8	0.27	3.8	0.78
1411-S03-1218	Tin	3.4		0.95	0.20	0.95	47000
1411-S03-1218	Vanadium	30		1.9	0.10	1.9	390
1411-S03-1218	Zinc	54		1.9	0.57	1.9	23000
1411-S03-1824	Aluminum	7300		9.2	3.8	9.2	77000
1411-S03-1824	Antimony	1.8	U	1.8	0.11	1.8	31
1411-S03-1824	Arsenic	7.2		0.74	0.14	0.74	34
1411-S03-1824	Barium	150		9.2	0.32	9.2	15000
1411-S03-1824	Beryllium	0.37		0.28	0.069	0.28	160
1411-S03-1824	Cadmium	1.1		0.28	0.013	0.28	70
1411-S03-1824	Calcium	3600		46	4.3	46	

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1411-S03-1824	Chromium	17		0.46	0.050	0.46	
1411-S03-1824	Cobalt	6.8		1.8	0.27	1.8	23
1411-S03-1824	Copper	120		0.92	0.27	0.92	3100
1411-S03-1824	Iron	16000		4.6	1.9	4.6	55000
1411-S03-1824	**Lead**	**490**		**0.74**	**0.21**	**0.74**	**400**
1411-S03-1824	Magnesium	3000		46	3.4	46	
1411-S03-1824	Manganese	350		0.46	0.070	0.46	1800
1411-S03-1824	Nickel	29		1.8	0.25	1.8	1500
1411-S03-1824	Potassium	810		46	16	46	
1411-S03-1824	Selenium	1.8	U	1.8	0.22	1.8	390
1411-S03-1824	Silver	4.1	U	4.1	0.079	4.1	390
1411-S03-1824	Sodium	210		92	5.2	92	
1411-S03-1824	Thallium	3.7	U	3.7	0.27	3.7	0.78
1411-S03-1824	Tin	31		0.92	0.19	0.92	47000
1411-S03-1824	Vanadium	23		1.8	0.098	1.8	390
1411-S03-1824	Zinc	480		1.8	0.56	1.8	23000
1411-S15-0001	Aluminum	8300		12	4.9	12	77000
1411-S15-0001	Antimony	2.4	U	2.4	0.15	2.4	31
1411-S15-0001	Arsenic	10		0.96	0.18	0.96	34
1411-S15-0001	Barium	100		12	0.41	12	15000
1411-S15-0001	Beryllium	0.42		0.36	0.089	0.36	160
1411-S15-0001	Cadmium	0.79		0.36	0.017	0.36	70
1411-S15-0001	Calcium	5500		60	5.6	60	
1411-S15-0001	Chromium	42		0.60	0.064	0.60	
1411-S15-0001	Cobalt	5.1		2.4	0.35	2.4	23
1411-S15-0001	Copper	78		1.2	0.35	1.2	3100
1411-S15-0001	Iron	17000		6.0	2.5	6.0	55000
1411-S15-0001	Lead	170		0.96	0.27	0.96	400
1411-S15-0001	Magnesium	2400		60	4.4	60	
1411-S15-0001	Manganese	350		0.60	0.090	0.60	1800
1411-S15-0001	Nickel	16		2.4	0.32	2.4	1500
1411-S15-0001	Potassium	780		60	20	60	
1411-S15-0001	Selenium	2.4	U	2.4	0.28	2.4	390
1411-S15-0001	Silver	2.4	U	2.4	0.10	2.4	390
1411-S15-0001	Sodium	120	U	120	6.7	120	
1411-S15-0001	Thallium	2.4	U	2.4	0.35	2.4	0.78
1411-S15-0001	Tin	17		1.2	0.25	1.2	47000
1411-S15-0001	Vanadium	30		2.4	0.13	2.4	390
1411-S15-0001	Zinc	230		2.4	0.72	2.4	23000
1411-S15-0106	Aluminum	8100		9.1	3.7	9.1	77000
1411-S15-0106	Antimony	1.8	U	1.8	0.11	1.8	31
1411-S15-0106	Arsenic	11		0.72	0.13	0.72	34
1411-S15-0106	Barium	77		9.1	0.31	9.1	15000
1411-S15-0106	Beryllium	0.27	U	0.27	0.068	0.27	160
1411-S15-0106	Cadmium	0.38		0.27	0.013	0.27	70
1411-S15-0106	Calcium	2200		45	4.2	45	
1411-S15-0106	Chromium	26		0.45	0.049	0.45	

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1411-S15-0106	Cobalt	4.5		1.8	0.26	1.8	23
1411-S15-0106	Copper	41		0.91	0.26	0.91	3100
1411-S15-0106	Iron	15000		4.5	1.9	4.5	55000
1411-S15-0106	Lead	110		0.72	0.21	0.72	400
1411-S15-0106	Magnesium	1700		45	3.3	45	
1411-S15-0106	Manganese	220		0.45	0.069	0.45	1800
1411-S15-0106	Nickel	10		1.8	0.24	1.8	1500
1411-S15-0106	Potassium	460		45	16	45	
1411-S15-0106	Selenium	1.8	U	1.8	0.22	1.8	390
1411-S15-0106	Silver	0.45	U	0.45	0.078	0.45	390
1411-S15-0106	Sodium	91	U	91	5.1	91	
1411-S15-0106	Thallium	1.8	U	1.8	0.26	1.8	0.78
1411-S15-0106	Tin	5.6		0.91	0.19	0.91	47000
1411-S15-0106	Vanadium	24		1.8	0.097	1.8	390
1411-S15-0106	Zinc	120		1.8	0.55	1.8	23000
1411-S15-0612	Aluminum	12000		10	4.2	10	77000
1411-S15-0612	Antimony	2.0	U	2.0	0.12	2.0	31
1411-S15-0612	Arsenic	9.7		0.82	0.15	0.82	34
1411-S15-0612	Barium	48		10	0.35	10	15000
1411-S15-0612	Beryllium	0.31	U	0.31	0.076	0.31	160
1411-S15-0612	Cadmium	0.32		0.31	0.014	0.31	70
1411-S15-0612	Calcium	1100		51	4.8	51	
1411-S15-0612	Chromium	17		0.51	0.055	0.51	
1411-S15-0612	Cobalt	4.9		2.0	0.30	2.0	23
1411-S15-0612	Copper	27		1.0	0.30	1.0	3100
1411-S15-0612	Iron	15000		5.1	2.1	5.1	55000
1411-S15-0612	Lead	120		0.82	0.24	0.82	400
1411-S15-0612	Magnesium	1800		51	3.7	51	
1411-S15-0612	Manganese	160		0.51	0.077	0.51	1800
1411-S15-0612	Nickel	9.7		2.0	0.27	2.0	1500
1411-S15-0612	Potassium	470		51	17	51	
1411-S15-0612	Selenium	2.0	U	2.0	0.24	2.0	390
1411-S15-0612	Silver	0.51	U	0.51	0.087	0.51	390
1411-S15-0612	Sodium	100	U	100	5.7	100	
1411-S15-0612	Thallium	2.0	U	2.0	0.30	2.0	0.78
1411-S15-0612	Tin	5.3		1.0	0.21	1.0	47000
1411-S15-0612	Vanadium	29		2.0	0.11	2.0	390
1411-S15-0612	Zinc	81		2.0	0.62	2.0	23000
1411-S15-1218	Aluminum	5000		9.0	3.7	9.0	77000
1411-S15-1218	Antimony	2.5		1.8	0.11	1.8	31
1411-S15-1218	Arsenic	22		0.72	0.13	0.72	34
1411-S15-1218	Barium	270		9.0	0.31	9.0	15000
1411-S15-1218	Beryllium	0.27	U	0.27	0.067	0.27	160
1411-S15-1218	Cadmium	0.72		0.27	0.013	0.27	70
1411-S15-1218	Calcium	2500		45	4.2	45	
1411-S15-1218	Chromium	16		0.45	0.049	0.45	
1411-S15-1218	Cobalt	6.2		1.8	0.26	1.8	23

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Collection depths in inches below ground surface are specified by the last four digits in the sample name, i.e. "0001" indicates 0 to 1 inch below the surface and "0106" indicates 1 to 6 inches below ground surface.

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EPA Soil Sampling Results for Red Hook East Houses, Collected October 15, 2014
Columbia Smelting and Refining Works Site Investigation

SAMPLE NAME	CHEMICAL	RESULT (ppm)	LAB QUALIFIER	REPORTING DETECTION LIMIT	METHOD DETECTION LIMIT	QUANTITATION LIMIT	EPA RML
1411-S15-1218	Copper	210		0.90	0.26	0.90	3100
1411-S15-1218	Iron	17000		4.5	1.9	4.5	55000
1411-S15-1218	**Lead**	**650**		**0.72**	**0.21**	**0.72**	**400**
1411-S15-1218	Magnesium	2100		45	3.3	45	
1411-S15-1218	Manganese	260		0.45	0.068	0.45	1800
1411-S15-1218	Nickel	23		1.8	0.24	1.8	1500
1411-S15-1218	Potassium	760		45	15	45	
1411-S15-1218	Selenium	1.8	U	1.8	0.22	1.8	390
1411-S15-1218	Silver	0.45	U	0.45	0.077	0.45	390
1411-S15-1218	Sodium	140		90	5.1	90	
1411-S15-1218	Thallium	1.8	U	1.8	0.26	1.8	0.78
1411-S15-1218	Tin	110		0.90	0.19	0.90	47000
1411-S15-1218	Vanadium	31		1.8	0.096	1.8	390
1411-S15-1218	Zinc	350		1.8	0.55	1.8	23000
1411-S15-1824	Aluminum	5600		10	4.2	10	77000
1411-S15-1824	Antimony	6.9	L	2.1	0.13	2.1	31
1411-S15-1824	**Arsenic**	**65**		**0.83**	**0.15**	**0.83**	**34**
1411-S15-1824	Barium	240		10	0.36	10	15000
1411-S15-1824	Beryllium	0.31	U	0.31	0.077	0.31	160
1411-S15-1824	Cadmium	0.62		0.31	0.014	0.31	70
1411-S15-1824	Calcium	2000		52	4.8	52	
1411-S15-1824	Chromium	20		0.52	0.056	0.52	
1411-S15-1824	Cobalt	7.0		2.1	0.30	2.1	23
1411-S15-1824	Copper	170		1.0	0.30	1.0	3100
1411-S15-1824	Iron	17000		5.2	2.1	5.2	55000
1411-S15-1824	**Lead**	**670**		**0.83**	**0.24**	**0.83**	**400**
1411-S15-1824	Magnesium	2100		52	3.8	52	
1411-S15-1824	Manganese	270		0.52	0.078	0.52	1800
1411-S15-1824	Nickel	26		2.1	0.28	2.1	1500
1411-S15-1824	Potassium	980		52	18	52	
1411-S15-1824	Selenium	2.1	U	2.1	0.25	2.1	390
1411-S15-1824	Silver	0.52	U	0.52	0.088	0.52	390
1411-S15-1824	Sodium	150		100	5.8	100	
1411-S15-1824	Thallium	2.1	U	2.1	0.30	2.1	0.78
1411-S15-1824	Tin	130		1.0	0.21	1.0	47000
1411-S15-1824	Vanadium	27		2.1	0.11	2.1	390
1411-S15-1824	Zinc	330		2.1	0.62	2.1	23000
1411-S16-0001	Aluminum	11000		14	5.8	14	77000
1411-S16-0001	Antimony	2.8	U	2.8	0.17	2.8	31
1411-S16-0001	Arsenic	13		1.1	0.21	1.1	34
1411-S16-0001	Barium	88		14	0.48	14	15000
1411-S16-0001	Beryllium	0.47		0.42	0.10	0.42	160
1411-S16-0001	Cadmium	0.89		0.42	0.020	0.42	70
1411-S16-0001	Calcium	7100		70	6.6	70	
1411-S16-0001	Chromium	43		0.70	0.076	0.70	
1411-S16-0001	Cobalt	5.9		2.8	0.41	2.8	23
1411-S16-0001	Copper	96		1.4	0.41	1.4	3100

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Columbia Smelting and Refining Works Site Investigation

SAMPLE NAME	CHEMICAL	RESULT (ppm)	LAB QUALIFIER	REPORTING DETECTION LIMIT	METHOD DETECTION LIMIT	QUANTITATION LIMIT	EPA RML
1411-S16-0001	Iron	19000		7.0	2.9	7.0	55000
1411-S16-0001	Lead	150		1.1	0.32	1.1	400
1411-S16-0001	Magnesium	3500		70	5.2	70	
1411-S16-0001	Manganese	360		0.70	0.11	0.70	1800
1411-S16-0001	Nickel	16		2.8	0.38	2.8	1500
1411-S16-0001	Potassium	1500		70	24	70	
1411-S16-0001	Selenium	2.8	U	2.8	0.33	2.8	390
1411-S16-0001	Silver	2.8	U	2.8	0.12	2.8	390
1411-S16-0001	Sodium	150		140	7.8	140	
1411-S16-0001	Thallium	2.8	U	2.8	0.41	2.8	0.78
1411-S16-0001	Tin	7.8		1.4	0.29	1.4	47000
1411-S16-0001	Vanadium	38		2.8	0.15	2.8	390
1411-S16-0001	Zinc	710		2.8	0.85	2.8	23000
1411-S16-0106	Aluminum	8400		11	4.6	11	77000
1411-S16-0106	Antimony	2.2	U	2.2	0.14	2.2	31
1411-S16-0106	Arsenic	6.8		0.89	0.16	0.89	34
1411-S16-0106	Barium	40		11	0.39	11	15000
1411-S16-0106	Beryllium	0.33	U	0.33	0.083	0.33	160
1411-S16-0106	Cadmium	0.39		0.33	0.016	0.33	70
1411-S16-0106	Calcium	2500		56	5.2	56	
1411-S16-0106	Chromium	21		0.56	0.060	0.56	
1411-S16-0106	Cobalt	3.9		2.2	0.33	2.2	23
1411-S16-0106	Copper	34		1.1	0.32	1.1	3100
1411-S16-0106	Iron	12000		11	2.3	11	55000
1411-S16-0106	Lead	120		0.89	0.26	0.89	400
1411-S16-0106	Magnesium	2000		56	4.1	56	
1411-S16-0106	Manganese	180		0.56	0.084	0.56	1800
1411-S16-0106	Nickel	10		2.2	0.30	2.2	1500
1411-S16-0106	Potassium	570		56	19	56	
1411-S16-0106	Selenium	2.2	U	2.2	0.27	2.2	390
1411-S16-0106	Silver	0.56	U	0.56	0.096	0.56	390
1411-S16-0106	Sodium	360		110	6.2	110	
1411-S16-0106	Thallium	2.2	U	2.2	0.32	2.2	0.78
1411-S16-0106	Tin	3.0		1.1	0.23	1.1	47000
1411-S16-0106	Vanadium	22		2.2	0.12	2.2	390
1411-S16-0106	Zinc	96		2.2	0.67	2.2	23000
1411-S16-0612	Aluminum	7400		11	4.4	11	77000
1411-S16-0612	Antimony	2.2	U	2.2	0.13	2.2	31
1411-S16-0612	Arsenic	6.2		0.87	0.16	0.87	34
1411-S16-0612	Barium	49		11	0.37	11	15000
1411-S16-0612	Beryllium	0.33	U	0.33	0.081	0.33	160
1411-S16-0612	Cadmium	0.56		0.33	0.015	0.33	70
1411-S16-0612	Calcium	2300		54	5.1	54	
1411-S16-0612	Chromium	15		0.54	0.058	0.54	
1411-S16-0612	Cobalt	4.6		2.2	0.32	2.2	23
1411-S16-0612	Copper	53		1.1	0.31	1.1	3100
1411-S16-0612	Iron	13000		11	2.2	11	55000

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Columbia Smelting and Refining Works Site Investigation

SAMPLE NAME	CHEMICAL	RESULT (ppm)	LAB QUALIFIER	REPORTING DETECTION LIMIT	METHOD DETECTION LIMIT	QUANTITATION LIMIT	EPA RML
1411-S16-0612	Lead	240		0.87	0.25	0.87	400
1411-S16-0612	Magnesium	2000		54	4.0	54	
1411-S16-0612	Manganese	180		0.54	0.082	0.54	1800
1411-S16-0612	Nickel	16		2.2	0.29	2.2	1500
1411-S16-0612	Potassium	510		54	19	54	
1411-S16-0612	Selenium	2.2	U	2.2	0.26	2.2	390
1411-S16-0612	Silver	0.54	U	0.54	0.093	0.54	390
1411-S16-0612	Sodium	330		110	6.1	110	
1411-S16-0612	Thallium	2.2	U	2.2	0.31	2.2	0.78
1411-S16-0612	Tin	18		1.1	0.23	1.1	47000
1411-S16-0612	Vanadium	30		2.2	0.12	2.2	390
1411-S16-0612	Zinc	170		2.2	0.65	2.2	23000
1411-S16-1218	Aluminum	4600		10	4.2	10	77000
1411-S16-1218	Antimony	2.1	U	2.1	0.13	2.1	31
1411-S16-1218	Arsenic	5.5		0.83	0.15	0.83	34
1411-S16-1218	Barium	120		10	0.36	10	15000
1411-S16-1218	Beryllium	0.31	U	0.31	0.077	0.31	160
1411-S16-1218	Cadmium	0.84		0.31	0.015	0.31	70
1411-S16-1218	Calcium	3800		52	4.9	52	
1411-S16-1218	Chromium	12		0.52	0.056	0.52	
1411-S16-1218	Cobalt	4.9		2.1	0.30	2.1	23
1411-S16-1218	Copper	92		1.0	0.30	1.0	3100
1411-S16-1218	Iron	10000		5.2	2.1	5.2	55000
1411-S16-1218	Lead	320		0.83	0.24	0.83	400
1411-S16-1218	Magnesium	2400		52	3.8	52	
1411-S16-1218	Manganese	210		0.52	0.078	0.52	1800
1411-S16-1218	Nickel	21		2.1	0.28	2.1	1500
1411-S16-1218	Potassium	520	K	52	18	52	
1411-S16-1218	Selenium	2.1	U	2.1	0.25	2.1	390
1411-S16-1218	Silver	0.52	U	0.52	0.089	0.52	390
1411-S16-1218	Sodium	240		100	5.8	100	
1411-S16-1218	Thallium	2.1	U	2.1	0.30	2.1	0.78
1411-S16-1218	Tin	22		1.0	0.22	1.0	47000
1411-S16-1218	Vanadium	23		2.1	0.11	2.1	390
1411-S16-1218	Zinc	220		2.1	0.63	2.1	23000
1411-S16-1824	Aluminum	5000		10	4.3	10	77000
1411-S16-1824	Antimony	2.1	U	2.1	0.13	2.1	31
1411-S16-1824	Arsenic	6.7		0.84	0.15	0.84	34
1411-S16-1824	Barium	200		10	0.36	10	15000
1411-S16-1824	Beryllium	0.62		0.31	0.078	0.31	160
1411-S16-1824	Cadmium	1.2		0.31	0.015	0.31	70
1411-S16-1824	Calcium	5400		52	4.9	52	
1411-S16-1824	Chromium	19		0.52	0.056	0.52	
1411-S16-1824	Cobalt	5.9		2.1	0.31	2.1	23
1411-S16-1824	Copper	170		1.0	0.30	1.0	3100
1411-S16-1824	Iron	14000		10	2.1	10	55000
1411-S16-1824	Lead	370		0.84	0.24	0.84	400

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SAMPLE NAME	CHEMICAL	RESULT (ppm)	LAB QUALIFIER	REPORTING DETECTION LIMIT	METHOD DETECTION LIMIT	QUANTITATION LIMIT	EPA RML
1411-S16-1824	Magnesium	2300		52	3.8	52	
1411-S16-1824	Manganese	210		0.52	0.079	0.52	1800
1411-S16-1824	Nickel	28		2.1	0.28	2.1	1500
1411-S16-1824	Potassium	550		52	18	52	
1411-S16-1824	Selenium	2.1	U	2.1	0.25	2.1	390
1411-S16-1824	Silver	0.52	U	0.52	0.090	0.52	390
1411-S16-1824	Sodium	240		100	5.9	100	
1411-S16-1824	Thallium	2.1	U	2.1	0.30	2.1	0.78
1411-S16-1824	Tin	36		1.0	0.22	1.0	47000
1411-S16-1824	Vanadium	29		2.1	0.11	2.1	390
1411-S16-1824	Zinc	620		2.1	0.63	2.1	23000
1411-S17-0001	Aluminum	8400		13	5.2	13	77000
1411-S17-0001	Antimony	2.5	U	2.5	0.15	2.5	31
1411-S17-0001	Arsenic	10		1.0	0.19	1.0	34
1411-S17-0001	Barium	99		13	0.44	13	15000
1411-S17-0001	Beryllium	0.40		0.38	0.094	0.38	160
1411-S17-0001	Cadmium	0.78		0.38	0.018	0.38	70
1411-S17-0001	Calcium	5600		63	5.9	63	
1411-S17-0001	Chromium	43		0.63	0.068	0.63	
1411-S17-0001	Cobalt	5.3		2.5	0.37	2.5	23
1411-S17-0001	Copper	78		1.3	0.37	1.3	3100
1411-S17-0001	Iron	17000		6.3	2.6	6.3	55000
1411-S17-0001	Lead	180		1.0	0.29	1.0	400
1411-S17-0001	Magnesium	2400		63	4.6	63	
1411-S17-0001	Manganese	340		0.63	0.096	0.63	1800
1411-S17-0001	Nickel	16		2.5	0.34	2.5	1500
1411-S17-0001	Potassium	790		63	22	63	
1411-S17-0001	Selenium	2.5	U	2.5	0.30	2.5	390
1411-S17-0001	Silver	2.5	U	2.5	0.11	2.5	390
1411-S17-0001	Sodium	130	U	130	7.1	130	
1411-S17-0001	Thallium	2.5	U	2.5	0.37	2.5	0.78
1411-S17-0001	Tin	18		1.3	0.26	1.3	47000
1411-S17-0001	Vanadium	30		2.5	0.13	2.5	390
1411-S17-0001	Zinc	230		2.5	0.76	2.5	23000
1411-S17-0106	Aluminum	7600		11	4.3	11	77000
1411-S17-0106	Antimony	2.1	U	2.1	0.13	2.1	31
1411-S17-0106	Arsenic	7.9		0.84	0.16	0.84	34
1411-S17-0106	Barium	78		11	0.36	11	15000
1411-S17-0106	Beryllium	0.32	U	0.32	0.078	0.32	160
1411-S17-0106	Cadmium	0.71		0.32	0.015	0.32	70
1411-S17-0106	Calcium	12000		53	4.9	53	
1411-S17-0106	Chromium	20		0.53	0.057	0.53	
1411-S17-0106	Cobalt	4.4		2.1	0.31	2.1	23
1411-S17-0106	Copper	57		1.1	0.30	1.1	3100

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1411-S17-0001 is a duplicate of 1411-S15-0001, collected for Quality Assurance/Quality Control purposes.
1411-S17-0106 is a duplicate of 1411-S03-0106, collected for Quality Assurance/Quality Control purposes.

Collection depths in inches below ground surface are specified by the last four digits in the sample name, i.e. "0001" indicates 0 to 1 inch below the surface and "0106" indicates 1 to 6 inches below ground surface.
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SAMPLE NAME	CHEMICAL	RESULT (ppm)	LAB QUALIFIER	REPORTING DETECTION LIMIT	METHOD DETECTION LIMIT	QUANTITATION LIMIT	EPA RML
1411-S17-0106	Iron	11000		11	2.2	11	55000
1411-S17-0106	Lead	140		0.84	0.24	0.84	400
1411-S17-0106	Magnesium	4100		53	3.9	53	
1411-S17-0106	Manganese	190		0.53	0.080	0.53	1800
1411-S17-0106	Nickel	14		2.1	0.28	2.1	1500
1411-S17-0106	Potassium	510		53	18	53	
1411-S17-0106	Selenium	2.1	U	2.1	0.25	2.1	390
1411-S17-0106	Silver	0.53	U	0.53	0.090	0.53	390
1411-S17-0106	Sodium	140		110	5.9	110	
1411-S17-0106	Thallium	2.1	U	2.1	0.30	2.1	0.78
1411-S17-0106	Tin	19		1.1	0.22	1.1	47000
1411-S17-0106	Vanadium	24		2.1	0.11	2.1	390
1411-S17-0106	Zinc	200		2.1	0.63	2.1	23000

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1411-S17-0106 is a duplicate of 1411-S03-0106, collected for Quality Assurance/Quality Control purposes.

Collection depths in inches below ground surface are specified by the last four digits in the sample name, i.e. "0001" indicates 0 to 1 inch below the surface and "0106" indicates 1 to 6 inches below ground surface.
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