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: 11/9/2015

Subject: Review of Region 5 Data for Tower Standard

To: LUST, LCD, US EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60605

From: Greg Mitsakopoulos, Chemist
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with EPA's *Guidance on Environmental Data Verification and Data Validation* (Document EPA QA/G-8), CRL verified and validated the data but does not perform data quality assessment based on project plans.

This report was reviewed and the information provided herein accurately represents the analysis performed.

X Greg Mitsakopoulos 11/9/15

Please contact the analyst with any technical report issues, Amanda Wroble at (312)-353-0375 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.

Attached are Results for: Tower Standard

/ /

Data Management Coordinator and DateTransmitted

Analyses included in this report:

Metals full ICP (S)

Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone:(312)353-8370 Fax:(312)886-2591

LUST, LCD, US EPA Region 5 77 West Jackson Boulevard Chicago IL, 60605	Project: Tower Standard Project Number: [none] Project Manager: Bob Egan	**Reported:** Nov-09-15 16:07

Analysis Case Narrative

General Information

work order	logged matrix	sample count	received on
1509014	soil	5	9/15/15
1509015	soil	4	9/16/15
1509019	soil	8	9/17/15

The requested analytes were arsenic, barium, cadmium, chromium, lead and silver by the inductively coupled plasma-atomic emission spectroscopy (ICP-AES) technique. All holding times were met. I, Greg Mitsakopoulos, was the designated analyst for the samples and may be reached at (312) 353-0377. Analyst K. Swan performed the sample preparation steps through digestion.

The data are to be filed under work order 1509014.

process	SOP used
sample digestion	Metals025 v. 2 (EPA Method 200.2)
analysis	Metals004 v. 2 (EPA Method 200.7/SW-846: 6010C)

Sample Analysis and Results
The data reported herein met the data quality objectives in the SOPs listed above.

Quality Control
All quality control (QC) audits for the study analytes were within CRL's limits or did not result in qualification of the data.

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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH5	1509014-01	Soil	Sep-14-15 12:00	Sep-15-15 10:30
BH9	1509014-02	Soil	Sep-14-15 13:55	Sep-15-15 10:30
BH10	1509014-03	Soil	Sep-14-15 14:15	Sep-15-15 10:30
BH11	1509014-04	Soil	Sep-14-15 14:55	Sep-15-15 10:30
BH12	1509014-05	Soil	Sep-14-15 15:10	Sep-15-15 10:30
BH17	1509015-01	Soil	Sep-15-15 08:25	Sep-16-15 10:30
BH21	1509015-02	Soil	Sep-15-15 10:30	Sep-16-15 10:30
BH22B	1509015-03	Soil	Sep-15-15 10:55	Sep-16-15 10:30
BH25	1509015-04	Soil	Sep-15-15 13:40	Sep-16-15 10:30
BH29	1509019-01	Soil	Sep-16-15 08:20	Sep-17-15 10:02
BH31B	1509019-02	Soil	Sep-16-15 10:45	Sep-17-15 10:02
BH31B	1509019-03	Soil	Sep-16-15 10:55	Sep-17-15 10:02
BH32B	1509019-04	Soil	Sep-16-15 11:20	Sep-17-15 10:02
BH33	1509019-05	Soil	Sep-16-15 11:40	Sep-17-15 10:02
BH34	1509019-06	Soil	Sep-16-15 12:20	Sep-17-15 10:02
BH35	1509019-07	Soil	Sep-16-15 12:55	Sep-17-15 10:02
BH36	1509019-08	Soil	Sep-16-15 14:30	Sep-17-15 10:02

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

BH5 (1509014-01) Soil Sampled: Sep-14-15 12:00 Received: Sep-15-15 10:30

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	U			4.2	mg/kg	1	B15I052	Sep-25-15	Nov-04-15
Barium	16			0.32	"	"	"	"	"
Cadmium	U			0.21	"	"	"	"	"
Chromium	12			0.53	"	"	"	"	"
Lead	U			3.2	"	"	"	"	"
Selenium	U			5.3	"	"	"	"	"
Silver	U			1.1	"	"	"	"	"

BH9 (1509014-02) Soil Sampled: Sep-14-15 13:55 Received: Sep-15-15 10:30

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	U			4.5	mg/kg	1	B15I052	Sep-25-15	Nov-04-15
Barium	26			0.33	"	"	"	"	"
Cadmium	U			0.22	"	"	"	"	"
Chromium	28			0.56	"	"	"	"	"
Lead	5.8			3.3	"	"	"	"	"
Selenium	U			5.6	"	"	"	"	"
Silver	U			1.1	"	"	"	"	"

BH10 (1509014-03) Soil Sampled: Sep-14-15 14:15 Received: Sep-15-15 10:30

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	U			4.0	mg/kg	1	B15I052	Sep-25-15	Nov-04-15
Barium	17			0.30	"	"	"	"	"
Cadmium	U			0.20	"	"	"	"	"
Chromium	9.5			0.50	"	"	"	"	"
Lead	14			3.0	"	"	"	"	"
Selenium	U			5.0	"	"	"	"	"
Silver	U			1.0	"	"	"	"	"

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LUST, LCD, US EPA Region 5 77 West Jackson Boulevard Chicago IL, 60605	Project: Tower Standard Project Number: [none] Project Manager: Bob Egan	**Reported:** Nov-09-15 16:07

Metals by ICP using EPA 200.7 (modified)
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BH11 (1509014-04) Soil Sampled: Sep-14-15 14:55 Received: Sep-15-15 10:30

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	**U**			4.5	mg/kg	1	B15I052	Sep-25-15	Nov-04-15
Barium	**32**			0.34	"	"	"	"	"
Cadmium	**U**			0.22	"	"	"	"	"
Chromium	**19**			0.56	"	"	"	"	"
Lead	**3.8**			3.4	"	"	"	"	"
Selenium	**U**			5.6	"	"	"	"	"
Silver	**U**			1.1	"	"	"	"	"

BH12 (1509014-05) Soil Sampled: Sep-14-15 15:10 Received: Sep-15-15 10:30

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	**U**			4.3	mg/kg	1	B15I052	Sep-25-15	Nov-04-15
Barium	**27**			0.32	"	"	"	"	"
Cadmium	**U**			0.22	"	"	"	"	"
Chromium	**18**			0.54	"	"	"	"	"
Lead	**U**			3.2	"	"	"	"	"
Selenium	**U**			5.4	"	"	"	"	"
Silver	**U**			1.1	"	"	"	"	"

BH17 (1509015-01) Soil Sampled: Sep-15-15 08:25 Received: Sep-16-15 10:30

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	**U**			4.4	mg/kg	1	B15I052	Sep-25-15	Nov-04-15
Barium	**16**			0.33	"	"	"	"	"
Cadmium	**U**			0.22	"	"	"	"	"
Chromium	**13**			0.55	"	"	"	"	"
Lead	**3.4**			3.3	"	"	"	"	"
Selenium	**U**			5.5	"	"	"	"	"
Silver	**U**			1.1	"	"	"	"	"

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Metals by ICP using EPA 200.7 (modified)
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BH21 (1509015-02) Soil Sampled: Sep-15-15 10:30 Received: Sep-16-15 10:30

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	**U**			4.1	mg/kg	1	B15I052	Sep-25-15	Nov-04-15
Barium	**22**			0.31	"	"	"	"	"
Cadmium	**U**			0.21	"	"	"	"	"
Chromium	**18**			0.52	"	"	"	"	"
Lead	**U**			3.1	"	"	"	"	"
Selenium	**U**			5.2	"	"	"	"	"
Silver	**U**			1.0	"	"	"	"	"

BH22B (1509015-03) Soil Sampled: Sep-15-15 10:55 Received: Sep-16-15 10:30

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	**U**			4.2	mg/kg	1	B15I052	Sep-25-15	Nov-04-15
Barium	**20**			0.31	"	"	"	"	"
Cadmium	**U**			0.21	"	"	"	"	"
Chromium	**16**			0.52	"	"	"	"	"
Lead	**U**			3.1	"	"	"	"	"
Selenium	**U**			5.2	"	"	"	"	"
Silver	**U**			1.0	"	"	"	"	"

BH25 (1509015-04) Soil Sampled: Sep-15-15 13:40 Received: Sep-16-15 10:30

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	**U**			4.5	mg/kg	1	B15I052	Sep-25-15	Nov-04-15
Barium	**33**			0.34	"	"	"	"	"
Cadmium	**U**			0.22	"	"	"	"	"
Chromium	**21**			0.56	"	"	"	"	"
Lead	**3.4**			3.4	"	"	"	"	"
Selenium	**U**			5.6	"	"	"	"	"
Silver	**U**			1.1	"	"	"	"	"

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Metals by ICP using EPA 200.7 (modified)
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BH29 (1509019-01) Soil Sampled: Sep-16-15 08:20 Received: Sep-17-15 10:02

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	**U**			4.3	mg/kg	1	B15I052	Sep-25-15	Nov-04-15
Barium	**24**			0.32	"	"	"	"	"
Cadmium	**U**			0.22	"	"	"	"	"
Chromium	**18**			0.54	"	"	"	"	"
Lead	**U**			3.2	"	"	"	"	"
Selenium	**U**			5.4	"	"	"	"	"
Silver	**U**			1.1	"	"	"	"	"

BH31B (1509019-02) Soil Sampled: Sep-16-15 10:45 Received: Sep-17-15 10:02

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	**U**			4.3	mg/kg	1	B15I052	Sep-25-15	Nov-04-15
Barium	**25**			0.32	"	"	"	"	"
Cadmium	**U**			0.22	"	"	"	"	"
Chromium	**15**			0.54	"	"	"	"	"
Lead	**5.2**			3.2	"	"	"	"	"
Selenium	**U**			5.4	"	"	"	"	"
Silver	**U**			1.1	"	"	"	"	"

BH31B (1509019-03) Soil Sampled: Sep-16-15 10:55 Received: Sep-17-15 10:02

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	**U**			4.3	mg/kg	1	B15I052	Sep-25-15	Nov-04-15
Barium	**23**			0.32	"	"	"	"	"
Cadmium	**U**			0.22	"	"	"	"	"
Chromium	**17**			0.54	"	"	"	"	"
Lead	**U**			3.2	"	"	"	"	"
Selenium	**U**			5.4	"	"	"	"	"
Silver	**U**			1.1	"	"	"	"	"

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LUST, LCD, US EPA Region 5 77 West Jackson Boulevard Chicago IL, 60605	Project: Tower Standard Project Number: [none] Project Manager: Bob Egan	**Reported:** Nov-09-15 16:07

Metals by ICP using EPA 200.7 (modified)
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BH32B (1509019-04) Soil Sampled: Sep-16-15 11:20 Received: Sep-17-15 10:02

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	**U**			4.3	mg/kg	1	B15I052	Sep-25-15	Nov-04-15
Barium	**32**			0.32	"	"	"	"	"
Cadmium	**U**			0.22	"	"	"	"	"
Chromium	**26**			0.54	"	"	"	"	"
Lead	**3.5**			3.2	"	"	"	"	"
Selenium	**U**			5.4	"	"	"	"	"
Silver	**U**			1.1	"	"	"	"	"

BH33 (1509019-05) Soil Sampled: Sep-16-15 11:40 Received: Sep-17-15 10:02

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	**U**			4.0	mg/kg	1	B15I052	Sep-25-15	Nov-04-15
Barium	**28**			0.30	"	"	"	"	"
Cadmium	**U**			0.20	"	"	"	"	"
Chromium	**22**			0.50	"	"	"	"	"
Lead	**U**			3.0	"	"	"	"	"
Selenium	**U**			5.0	"	"	"	"	"
Silver	**U**			1.0	"	"	"	"	"

BH34 (1509019-06) Soil Sampled: Sep-16-15 12:20 Received: Sep-17-15 10:02

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	**U**			4.4	mg/kg	1	B15I052	Sep-25-15	Nov-04-15
Barium	**17**			0.33	"	"	"	"	"
Cadmium	**U**			0.22	"	"	"	"	"
Chromium	**11**			0.55	"	"	"	"	"
Lead	**U**			3.3	"	"	"	"	"
Selenium	**U**			5.5	"	"	"	"	"
Silver	**U**			1.1	"	"	"	"	"

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LUST, LCD, US EPA Region 5 77 West Jackson Boulevard Chicago IL, 60605	Project: Tower Standard Project Number: [none] Project Manager: Bob Egan	**Reported:** Nov-09-15 16:07

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

BH35 (1509019-07) Soil Sampled: Sep-16-15 12:55 Received: Sep-17-15 10:02

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	**U**			4.4	mg/kg	1	B15I052	Sep-25-15	Nov-04-15
Barium	**23**			0.33	"	"	"	"	"
Cadmium	**U**			0.22	"	"	"	"	"
Chromium	**13**			0.55	"	"	"	"	"
Lead	**9.3**			3.3	"	"	"	"	"
Selenium	**U**			5.5	"	"	"	"	"
Silver	**U**			1.1	"	"	"	"	"

BH36 (1509019-08) Soil Sampled: Sep-16-15 14:30 Received: Sep-17-15 10:02

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Arsenic	**U**			4.2	mg/kg	1	B15I052	Sep-25-15	Nov-04-15
Barium	**24**			0.31	"	"	"	"	"
Cadmium	**U**			0.21	"	"	"	"	"
Chromium	**13**			0.52	"	"	"	"	"
Lead	**6.8**			3.1	"	"	"	"	"
Selenium	**U**			5.2	"	"	"	"	"
Silver	**U**			1.0	"	"	"	"	"

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LUST, LCD, US EPA Region 5	Project: Tower Standard	
77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60605	Project Manager: Bob Egan	Nov-09-15 16:07

Notes and Definitions

U	Not Detected
NR	Not Reported