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: 11/12/2015

Subject: Review of Region 5 Data for Tower Standard

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

From: Danielle Kleinmaier, 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 Danielle Kleinmaier 11/12/15

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:

VOA - 8260	VOA - 8260 (MeOH extraction)

Environmental Protection Agency Region5
Chicago Regional Laboratory

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

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-12-15 11:11

ANALYSIS CASE NARRATIVE

General Information

Eight soil samples were received for volatile organic analysis on September 17th, 2015. All holding times were met. The designated analyst for these samples, Danielle Kleinmaier, can be reached at (312) 353-9771.

Sample Analysis and Results

Sample preparation and analysis occurred via the Chicago Regional Laboratory standard operating procedure (CRL SOP) MS001 Revision # 2 (based on EPA Method 8260C) with the deviations outlined in the pen-and-ink change #3245.

In the absence of customer-specified data quality objectives, the CRL defaults to the analytical SOP reporting limits (RLs). The data reported herein meet the limits referenced in the determinative SOP with the exception of 1,2,4-trimethylbenzene. The client request for this project was to report results for a specific list of analytes.

Several target compounds were detected in field samples BH32B (LIMS ID 1509019-04) and BH35 (LIMS ID 1509019-07) above the reporting limits. Sample BH32B was reported from a 4,000x dilution. See the report for further details.

Quality Control

Method Reporting Limit

The target compound 1,2,4-trimethylbenzene in reporting limit check B15I051-MRL1 had a calculated recovery above the SOP acceptance limits. The nominal reporting limit for 1,2,4-trimethylbenzene in all of the low-level soil samples was raised to 5 ug/kg.

Duplicate QC Sample

The target compounds 1,3,5-trimethylbenzene and 1,2,4-trimethylbenzene in the duplicate QC sample B15I053-DUP1 had relative percent differences (RPDs) compared to field sample BH35 (LIMS ID 1509019-07) above the RPD limit that appears in the report. This RPD limit is not used to qualify data, so no data are qualified for exceeding the RPD limit.

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All other quality control audits for the requested analytes were within CRL SOP 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
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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Volatiles by GC/MS, EPA 8260C (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
Benzene	**U**			1.98	ug/kg dry	1	B15I051	Sep-17-15	Sep-25-15
1,2-Dichloroethane	**U**			1.98	"	"	"	"	"
Toluene	**U**			1.98	"	"	"	"	"
1,2-Dibromoethane (EDB)	**U**			1.98	"	"	"	"	"
Ethylbenzene	**U**			1.98	"	"	"	"	"
m+p-Xylene	**U**			3.95	"	"	"	"	"
o-Xylene	**U**			1.98	"	"	"	"	"
1,3,5-Trimethylbenzene	**U**			1.98	"	"	"	"	"
1,2,4-Trimethylbenzene	**U**			4.94	"	"	"	"	"
Naphthalene	**U**			4.94	"	"	"	"	"

Surogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Surrogate: Dibromofluoromethane	9.64	*97.5%*	*70.4-130*	"	"	"
Surrogate: 1,2-Dichloroethane-d4	9.97	*101%*	*69.5-129*	"	"	"
Surrogate: Toluene-d8	9.53	*96.3%*	*72.4-132*	"	"	"
Surrogate: 4-Bromofluorobenzene	9.80	*99.1%*	*72.7-133*	"	"	"

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
Benzene	**U**			1.79	ug/kg dry	1	B15I051	Sep-17-15	Sep-25-15
1,2-Dichloroethane	**U**			1.79	"	"	"	"	"
Toluene	**U**			1.79	"	"	"	"	"
1,2-Dibromoethane (EDB)	**U**			1.79	"	"	"	"	"
Ethylbenzene	**U**			1.79	"	"	"	"	"
m+p-Xylene	**U**			3.58	"	"	"	"	"
o-Xylene	**U**			1.79	"	"	"	"	"
1,3,5-Trimethylbenzene	**U**			1.79	"	"	"	"	"
1,2,4-Trimethylbenzene	**U**			4.47	"	"	"	"	"
Naphthalene	**U**			4.47	"	"	"	"	"

Surogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Surrogate: Dibromofluoromethane	8.93	*99.9%*	*70.4-130*	"	"	"
Surrogate: 1,2-Dichloroethane-d4	8.62	*96.3%*	*69.5-129*	"	"	"
Surrogate: Toluene-d8	9.12	*102%*	*72.4-132*	"	"	"

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77 West Jackson Boulevard	Project Number: [none]	**Reported:**
Chicago IL, 60605	Project Manager: Bob Egan	Nov-12-15 11:11

Volatiles by GC/MS, EPA 8260C (modified)
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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
Surrogate: 4-Bromofluorobenzene	8.87			*99.2%*		*72.7-133*	*B15I051*	*Sep-17-15*	*Sep-25-15*

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
Benzene	**U**			1.91	ug/kg dry	1	B15I051	Sep-17-15	Sep-25-15
1,2-Dichloroethane	**U**			1.91	"	"	"	"	"
Toluene	**U**			1.91	"	"	"	"	"
1,2-Dibromoethane (EDB)	**U**			1.91	"	"	"	"	"
Ethylbenzene	**U**			1.91	"	"	"	"	"
m+p-Xylene	**U**			3.83	"	"	"	"	"
o-Xylene	**U**			1.91	"	"	"	"	"
1,3,5-Trimethylbenzene	**U**			1.91	"	"	"	"	"
1,2,4-Trimethylbenzene	**U**			4.78	"	"	"	"	"
Naphthalene	**U**			4.78	"	"	"	"	"

Surogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Surrogate: Dibromofluoromethane	9.79	*102%*	*70.4-130*	"	"	"
Surrogate: 1,2-Dichloroethane-d4	9.39	*98.1%*	*69.5-129*	"	"	"
Surrogate: Toluene-d8	9.44	*98.6%*	*72.4-132*	"	"	"
Surrogate: 4-Bromofluorobenzene	9.21	*96.2%*	*72.7-133*	"	"	"

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
Benzene	**U**			3590	ug/kg dry	4000	B15I046	Sep-17-15	Sep-23-15
1,2-Dichloroethane	**U**			3590	"	"	"	"	"
Toluene	**48600**			3590	"	"	"	"	"
1,2-Dibromoethane (EDB)	**U**			3590	"	"	"	"	"
Ethylbenzene	**69200**			3590	"	"	"	"	"
m+p-Xylene	**3.11E5**			7180	"	"	"	"	"
o-Xylene	**1.26E5**			3590	"	"	"	"	"
1,3,5-Trimethylbenzene	**79000**			8970	"	"	"	"	"
1,2,4-Trimethylbenzene	**2.66E5**			8970	"	"	"	"	"
Naphthalene	**50000**			8970	"	"	"	"	"

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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

Surogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Surrogate: Dibromofluoromethane	8.85	*98.6%*	*69.4-129*	*B15I046*	*Sep-17-15*	*Sep-23-15*
Surrogate: 1,2-Dichloroethane-d4	8.23	*91.8%*	*75-136*	"	"	"
Surrogate: Toluene-d8	9.04	*101%*	*70-130*	"	"	"
Surrogate: 4-Bromofluorobenzene	8.84	*98.6%*	*67.3-127*	"	"	"

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
Benzene	**U**			1.77	ug/kg dry	1	B15I053	Sep-17-15	Sep-25-15
1,2-Dichloroethane	**U**			1.77	"	"	"	"	"
Toluene	**U**			1.77	"	"	"	"	"
1,2-Dibromoethane (EDB)	**U**			1.77	"	"	"	"	"
Ethylbenzene	**U**			1.77	"	"	"	"	"
m+p-Xylene	**U**			3.53	"	"	"	"	"
o-Xylene	**U**			1.77	"	"	"	"	"
1,3,5-Trimethylbenzene	**U**			1.77	"	"	"	"	"
1,2,4-Trimethylbenzene	**U**			4.42	"	"	"	"	"
Naphthalene	**U**			4.42	"	"	"	"	"

Surogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Surrogate: Dibromofluoromethane	9.27	*105%*	*70.4-130*	"	"	"
Surrogate: 1,2-Dichloroethane-d4	8.99	*102%*	*69.5-129*	"	"	"
Surrogate: Toluene-d8	8.90	*101%*	*72.4-132*	"	"	"
Surrogate: 4-Bromofluorobenzene	8.52	*96.5%*	*72.7-133*	"	"	"

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
Benzene	**U**			1.97	ug/kg dry	1	B15I053	Sep-17-15	Sep-25-15
1,2-Dichloroethane	**U**			1.97	"	"	"	"	"
Toluene	**U**			1.97	"	"	"	"	"
1,2-Dibromoethane (EDB)	**U**			1.97	"	"	"	"	"
Ethylbenzene	**U**			1.97	"	"	"	"	"

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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
m+p-Xylene	**U**			3.95	ug/kg dry	1	B15I053	Sep-17-15	Sep-25-15
o-Xylene	**U**			1.97	"	"	"	"	"
1,3,5-Trimethylbenzene	**U**			1.97	"	"	"	"	"
1,2,4-Trimethylbenzene	**U**			4.93	"	"	"	"	"
Naphthalene	**U**			4.93	"	"	"	"	"

Surogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Surrogate: Dibromofluoromethane	9.56	*96.9%*	*70.4-130*	"	"	"
Surrogate: 1,2-Dichloroethane-d4	9.78	*99.1%*	*69.5-129*	"	"	"
Surrogate: Toluene-d8	9.68	*98.1%*	*72.4-132*	"	"	"
Surrogate: 4-Bromofluorobenzene	10.5	*107%*	*72.7-133*	"	"	"

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
Benzene	**U**			2.11	ug/kg dry	1	B15I053	Sep-17-15	Sep-25-15
1,2-Dichloroethane	**U**			2.11	"	"	"	"	"
Toluene	**U**			2.11	"	"	"	"	"
1,2-Dibromoethane (EDB)	**U**			2.11	"	"	"	"	"
Ethylbenzene	**U**			2.11	"	"	"	"	"
m+p-Xylene	**U**			4.21	"	"	"	"	"
o-Xylene	**U**			2.11	"	"	"	"	"
1,3,5-Trimethylbenzene	**6.79**			2.11	"	"	"	"	"
1,2,4-Trimethylbenzene	**10.7**			5.27	"	"	"	"	"
Naphthalene	**U**			5.27	"	"	"	"	"

Surogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Surrogate: Dibromofluoromethane	11.0	*104%*	*70.4-130*	"	"	"
Surrogate: 1,2-Dichloroethane-d4	11.0	*104%*	*69.5-129*	"	"	"
Surrogate: Toluene-d8	11.3	*107%*	*72.4-132*	"	"	"
Surrogate: 4-Bromofluorobenzene	13.5	*129%*	*72.7-133*	"	"	"

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US EPA Region 5 Chicago Regional Laboratory

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
Benzene	**U**			2.76	ug/kg dry	1	B15I053	Sep-17-15	Sep-25-15
1,2-Dichloroethane	**U**			2.76	"	"	"	"	"
Toluene	**U**			2.76	"	"	"	"	"
1,2-Dibromoethane (EDB)	**U**			2.76	"	"	"	"	"
Ethylbenzene	**U**			2.76	"	"	"	"	"
m+p-Xylene	**U**			5.51	"	"	"	"	"
o-Xylene	**U**			2.76	"	"	"	"	"
1,3,5-Trimethylbenzene	**U**			2.76	"	"	"	"	"
1,2,4-Trimethylbenzene	**U**			6.89	"	"	"	"	"
Naphthalene	**U**			6.89	"	"	"	"	"

Surogate	Result	%REC	%REC Limits	Batch	Prepared	Analyzed
Surrogate: Dibromofluoromethane	13.5	*98.1%*	*70.4-130*	"	"	"
Surrogate: 1,2-Dichloroethane-d4	13.9	*101%*	*69.5-129*	"	"	"
Surrogate: Toluene-d8	13.5	*97.9%*	*72.4-132*	"	"	"
Surrogate: 4-Bromofluorobenzene	13.7	*99.3%*	*72.7-133*	"	"	"

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Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
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Batch B15I046 - Volatiles

Blank (B15I046-BLK1) **Prepared & Analyzed: Sep-23-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	U			1.00	ug/kg						
1,2-Dichloroethane	U			1.00	"						
Toluene	U			1.00	"						
1,2-Dibromoethane (EDB)	U			1.00	"						
Ethylbenzene	U			1.00	"						
m+p-Xylene	U			2.00	"						
o-Xylene	U			1.00	"						
1,3,5-Trimethylbenzene	U			2.50	"						
1,2,4-Trimethylbenzene	U			2.50	"						
Naphthalene	U			2.50	"						
Surrogate: Dibromofluoromethane	*9.47*				*"*	*10.00*		*94.7%*	*69.4-129*		
Surrogate: 1,2-Dichloroethane-d4	*8.41*				*"*	*10.00*		*84.1%*	*75-136*		
Surrogate: Toluene-d8	*10.0*				*"*	*10.00*		*100%*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*9.76*				*"*	*10.00*		*97.6%*	*67.3-127*		

Blank (B15I046-BLK2) **Prepared: Sep-16-15 Analyzed: Sep-23-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	U			0.980	ug/kg						
1,2-Dichloroethane	U			0.980	"						
Toluene	U			0.980	"						
1,2-Dibromoethane (EDB)	U			0.980	"						
Ethylbenzene	U			0.980	"						
m+p-Xylene	U			1.96	"						
o-Xylene	U			0.980	"						
1,3,5-Trimethylbenzene	U			2.45	"						
1,2,4-Trimethylbenzene	U			2.45	"						
Naphthalene	U			2.45	"						
Surrogate: Dibromofluoromethane	*9.15*				*"*	*9.804*		*93.3%*	*69.4-129*		
Surrogate: 1,2-Dichloroethane-d4	*8.22*				*"*	*9.804*		*83.8%*	*75-136*		
Surrogate: Toluene-d8	*9.63*				*"*	*9.804*		*98.2%*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*9.61*				*"*	*9.804*		*98.0%*	*67.3-127*		

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Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B15I046 - Volatiles

Blank (B15I046-BLK3) **Prepared: Sep-17-15 Analyzed: Sep-23-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	**U**			0.942	ug/kg						
1,2-Dichloroethane	**U**			0.942	"						
Toluene	**U**			0.942	"						
1,2-Dibromoethane (EDB)	**U**			0.942	"						
Ethylbenzene	**U**			0.942	"						
m+p-Xylene	**U**			1.88	"						
o-Xylene	**U**			0.942	"						
1,3,5-Trimethylbenzene	**U**			2.35	"						
1,2,4-Trimethylbenzene	**U**			2.35	"						
Naphthalene	**U**			2.35	"						
Surrogate: Dibromofluoromethane	*9.10*				"	*9.416*		*96.6%*	*69.4-129*		
Surrogate: 1,2-Dichloroethane-d4	*8.25*				"	*9.416*		*87.7%*	*75-136*		
Surrogate: Toluene-d8	*9.39*				"	*9.416*		*99.7%*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*9.07*				"	*9.416*		*96.3%*	*67.3-127*		

LCS (B15I046-BS1) **Prepared & Analyzed: Sep-23-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	**25.5**			1.00	ug/kg	25.00		102%	72.4-132		
1,2-Dichloroethane	**22.4**			1.00	"	25.00		89.8%	75-137		
Toluene	**25.9**			1.00	"	25.00		103%	75-135		
1,2-Dibromoethane (EDB)	**24.9**			1.00	"	25.00		99.7%	69.3-129		
Ethylbenzene	**25.1**			1.00	"	25.00		101%	67.7-128		
m+p-Xylene	**51.8**			2.00	"	50.00		104%	69.2-129		
o-Xylene	**25.6**			1.00	"	25.00		103%	69.4-129		
1,3,5-Trimethylbenzene	**26.1**			2.50	"	25.00		104%	70.1-130		
1,2,4-Trimethylbenzene	**25.6**			2.50	"	25.00		103%	70-130		
Naphthalene	**24.8**			2.50	"	25.00		99.2%	72.1-132		
Surrogate: Dibromofluoromethane	*9.90*				"	*10.00*		*99.0%*	*69.4-129*		
Surrogate: 1,2-Dichloroethane-d4	*8.89*				"	*10.00*		*88.9%*	*75-136*		
Surrogate: Toluene-d8	*10.1*				"	*10.00*		*101%*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*10.0*				"	*10.00*		*100%*	*67.3-127*		

Environmental Protection Agency Region5
Chicago Regional Laboratory

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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-12-15 11:11

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
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Batch B15I046 - Volatiles

LCS Dup (B15I046-BSD1) **Prepared: Sep-23-15 Analyzed: Sep-24-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	**24.0**			1.00	ug/kg	25.00		96.2%	72.4-132	5.82	30
1,2-Dichloroethane	**22.0**			1.00	"	25.00		88.0%	75-137	1.96	30
Toluene	**24.3**			1.00	"	25.00		97.4%	75-135	6.09	30
1,2-Dibromoethane (EDB)	**23.3**			1.00	"	25.00		93.3%	69.3-129	6.64	30
Ethylbenzene	**23.1**			1.00	"	25.00		92.4%	67.7-128	8.43	30
m+p-Xylene	**48.3**			2.00	"	50.00		96.6%	69.2-129	7.06	30
o-Xylene	**23.6**			1.00	"	25.00		94.5%	69.4-129	8.15	30
1,3,5-Trimethylbenzene	**23.7**			2.50	"	25.00		94.8%	70.1-130	9.57	30
1,2,4-Trimethylbenzene	**22.8**			2.50	"	25.00		91.1%	70-130	11.9	30
Naphthalene	**24.0**			2.50	"	25.00		96.1%	72.1-132	3.18	30
Surrogate: Dibromofluoromethane	*10.0*				"	*10.00*		*100%*	*69.4-129*		
Surrogate: 1,2-Dichloroethane-d4	*8.89*				"	*10.00*		*88.9%*	*75-136*		
Surrogate: Toluene-d8	*10.3*				"	*10.00*		*103%*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*10.0*				"	*10.00*		*100%*	*67.3-127*		

MRL Check (B15I046-MRL1) **Prepared & Analyzed: Sep-22-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	**0.978**			1.00	ug/kg	1.000		97.8%	70-130		
1,2-Dichloroethane	**0.998**			1.00	"	1.000		99.8%	70-130		
Toluene	**0.974**			1.00	"	1.000		97.4%	70-130		
1,2-Dibromoethane (EDB)	**1.07**			1.00	"	1.000		107%	70-130		
Ethylbenzene	**1.14**			1.00	"	1.000		114%	70-130		
m+p-Xylene	**1.91**			2.00	"	2.000		95.6%	70-130		
o-Xylene	**0.960**			1.00	"	1.000		96.0%	70-130		
1,3,5-Trimethylbenzene	**0.926**			2.50	"	1.000		92.6%	70-130		
1,2,4-Trimethylbenzene	**1.05**			2.50	"	1.000		105%	70-130		
Naphthalene	**1.02**			2.50	"	1.000		102%	70-130		
Surrogate: Dibromofluoromethane	*9.95*				"	*10.00*		*99.5%*	*69.4-129*		
Surrogate: 1,2-Dichloroethane-d4	*9.76*				"	*10.00*		*97.6%*	*75-136*		
Surrogate: Toluene-d8	*9.97*				"	*10.00*		*99.7%*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*9.71*				"	*10.00*		*97.1%*	*67.3-127*		

Environmental Protection Agency Region5
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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-12-15 11:11

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
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Batch B15I046 - Volatiles

MRL Check (B15I046-MRL2) **Prepared & Analyzed: Sep-22-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	**2.45**			1.00	ug/kg	2.500		98.0%	70-130		
1,2-Dichloroethane	**2.48**			1.00	"	2.500		99.2%	70-130		
Toluene	**2.43**			1.00	"	2.500		97.4%	70-130		
1,2-Dibromoethane (EDB)	**2.41**			1.00	"	2.500		96.4%	70-130		
Ethylbenzene	**2.25**			1.00	"	2.500		89.9%	70-130		
m+p-Xylene	**4.73**			2.00	"	5.000		94.6%	70-130		
o-Xylene	**2.48**			1.00	"	2.500		99.2%	70-130		
1,3,5-Trimethylbenzene	**2.45**			2.50	"	2.500		98.0%	70-130		
1,2,4-Trimethylbenzene	**2.36**			2.50	"	2.500		94.5%	70-130		
Naphthalene	**2.36**			2.50	"	2.500		94.2%	70-130		
Surrogate: Dibromofluoromethane	*10.3*				"	*10.00*		*103%*	*69.4-129*		
Surrogate: 1,2-Dichloroethane-d4	*10.2*				"	*10.00*		*102%*	*75-136*		
Surrogate: Toluene-d8	*10.3*				"	*10.00*		*103%*	*70-130*		
Surrogate: 4-Bromofluorobenzene	*10.2*				"	*10.00*		*102%*	*67.3-127*		

Batch B15I051 - Volatiles

Blank (B15I051-BLK1) **Prepared & Analyzed: Sep-24-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	**U**			1.86	ug/kg						
1,2-Dichloroethane	**U**			1.86	"						
Toluene	**U**			1.86	"						
1,2-Dibromoethane (EDB)	**U**			1.86	"						
Ethylbenzene	**U**			1.86	"						
m+p-Xylene	**U**			3.72	"						
o-Xylene	**U**			1.86	"						
1,3,5-Trimethylbenzene	**U**			1.86	"						
1,2,4-Trimethylbenzene	**U**			4.66	"						
Naphthalene	**U**			4.66	"						
Surrogate: Dibromofluoromethane	*8.59*				"	*9.311*		*92.3%*	*70.4-130*		
Surrogate: 1,2-Dichloroethane-d4	*8.90*				"	*9.311*		*95.6%*	*69.5-129*		
Surrogate: Toluene-d8	*9.19*				"	*9.311*		*98.7%*	*72.4-132*		

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Chicago IL, 60605	Project Manager: Bob Egan	Nov-12-15 11:11

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B15I051 - Volatiles

Blank (B15I051-BLK1) **Prepared & Analyzed: Sep-24-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Surrogate: 4-Bromofluorobenzene	*9.36*				*ug/kg*	*9.311*		*100%*	*72.7-133*		

Blank (B15I051-BLK2) **Prepared: Sep-16-15 Analyzed: Sep-24-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	**U**			1.92	ug/kg						
1,2-Dichloroethane	**U**			1.92	"						
Toluene	**U**			1.92	"						
1,2-Dibromoethane (EDB)	**U**			1.92	"						
Ethylbenzene	**U**			1.92	"						
m+p-Xylene	**U**			3.83	"						
o-Xylene	**U**			1.92	"						
1,3,5-Trimethylbenzene	**U**			1.92	"						
1,2,4-Trimethylbenzene	**U**			4.79	"						
Naphthalene	**U**			4.79	"						
Surrogate: Dibromofluoromethane	*9.25*				*"*	*9.579*		*96.6%*	*70.4-130*		
Surrogate: 1,2-Dichloroethane-d4	*9.78*				*"*	*9.579*		*102%*	*69.5-129*		
Surrogate: Toluene-d8	*9.52*				*"*	*9.579*		*99.3%*	*72.4-132*		
Surrogate: 4-Bromofluorobenzene	*9.43*				*"*	*9.579*		*98.5%*	*72.7-133*		

Blank (B15I051-BLK3) **Prepared: Sep-17-15 Analyzed: Sep-24-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	**U**			2.00	ug/kg						
1,2-Dichloroethane	**U**			2.00	"						
Toluene	**U**			2.00	"						
1,2-Dibromoethane (EDB)	**U**			2.00	"						
Ethylbenzene	**U**			2.00	"						
m+p-Xylene	**U**			4.01	"						
o-Xylene	**U**			2.00	"						
1,3,5-Trimethylbenzene	**U**			2.00	"						
1,2,4-Trimethylbenzene	**U**			5.01	"						
Naphthalene	**U**			5.01	"						

Environmental Protection Agency Region5
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LUST, LCD, US EPA Region 5	Project: Tower Standard	
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Chicago IL, 60605	Project Manager: Bob Egan	Nov-12-15 11:11

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
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Batch B15I051 - Volatiles

Blank (B15I051-BLK3) **Prepared: Sep-17-15 Analyzed: Sep-24-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Surrogate: Dibromofluoromethane	*9.06*				*ug/kg*	*10.02*		*90.4%*	*70.4-130*		
Surrogate: 1,2-Dichloroethane-d4	*9.12*				*"*	*10.02*		*91.0%*	*69.5-129*		
Surrogate: Toluene-d8	*9.66*				*"*	*10.02*		*96.4%*	*72.4-132*		
Surrogate: 4-Bromofluorobenzene	*9.75*				*"*	*10.02*		*97.3%*	*72.7-133*		

LCS (B15I051-BS1) **Prepared & Analyzed: Sep-24-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	**49.3**			1.97	ug/kg	49.31		99.9%	74.2-134		
1,2-Dichloroethane	**49.7**			1.97	"	49.31		101%	75-135		
Toluene	**49.7**			1.97	"	49.31		101%	74.4-134		
1,2-Dibromoethane (EDB)	**49.7**			1.97	"	49.31		101%	73.3-133		
Ethylbenzene	**49.0**			1.97	"	49.31		99.4%	73.3-133		
m+p-Xylene	**97.9**			3.94	"	98.62		99.3%	73.2-133		
o-Xylene	**49.2**			1.97	"	49.31		99.7%	75-136		
1,3,5-Trimethylbenzene	**49.0**			1.97	"	49.31		99.4%	73.9-134		
1,2,4-Trimethylbenzene	**46.9**			4.93	"	49.31		95.1%	72-132		
Naphthalene	**48.6**			4.93	"	49.31		98.6%	71.5-132		
Surrogate: Dibromofluoromethane	*9.79*				*"*	*9.862*		*99.3%*	*70.4-130*		
Surrogate: 1,2-Dichloroethane-d4	*10.0*				*"*	*9.862*		*101%*	*69.5-129*		
Surrogate: Toluene-d8	*9.99*				*"*	*9.862*		*101%*	*72.4-132*		
Surrogate: 4-Bromofluorobenzene	*10.1*				*"*	*9.862*		*103%*	*72.7-133*		

LCS Dup (B15I051-BSD1) **Prepared: Sep-24-15 Analyzed: Sep-25-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	**43.1**			1.85	ug/kg	46.30		93.1%	74.2-134	13.3	30
1,2-Dichloroethane	**45.6**			1.85	"	46.30		98.5%	75-135	8.70	30
Toluene	**42.4**			1.85	"	46.30		91.7%	74.4-134	15.8	30
1,2-Dibromoethane (EDB)	**45.8**			1.85	"	46.30		99.0%	73.3-133	8.08	30
Ethylbenzene	**42.2**			1.85	"	46.30		91.1%	73.3-133	14.9	30
m+p-Xylene	**83.2**			3.70	"	92.59		89.9%	73.2-133	16.2	30
o-Xylene	**43.6**			1.85	"	46.30		94.2%	75-136	12.0	30

Environmental Protection Agency Region5
Chicago Regional Laboratory

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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-12-15 11:11

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B15I051 - Volatiles

LCS Dup (B15I051-BSD1) **Prepared: Sep-24-15 Analyzed: Sep-25-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
1,3,5-Trimethylbenzene	**41.8**			1.85	ug/kg	46.30		90.3%	73.9-134	15.9	30
1,2,4-Trimethylbenzene	**39.3**			4.63	"	46.30		84.9%	72-132	17.5	30
Naphthalene	**42.2**			4.63	"	46.30		91.2%	71.5-132	14.1	30
Surrogate: Dibromofluoromethane	*9.40*				"	*9.259*		*102%*	*70.4-130*		
Surrogate: 1,2-Dichloroethane-d4	*9.13*				"	*9.259*		*98.6%*	*69.5-129*		
Surrogate: Toluene-d8	*9.11*				"	*9.259*		*98.3%*	*72.4-132*		
Surrogate: 4-Bromofluorobenzene	*9.73*				"	*9.259*		*105%*	*72.7-133*		

MRL Check (B15I051-MRL1) **Prepared & Analyzed: Sep-24-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	**2.30**			2.00	ug/kg	2.004		115%	70-130		
1,2-Dichloroethane	**2.21**			2.00	"	2.004		110%	70-130		
Toluene	**2.21**			2.00	"	2.004		110%	70-130		
1,2-Dibromoethane (EDB)	**2.34**			2.00	"	2.004		117%	70-130		
Ethylbenzene	**2.49**			2.00	"	2.004		124%	70-130		
m+p-Xylene	**4.92**			4.01	"	4.008		123%	70-130		
o-Xylene	**2.31**			2.00	"	2.004		115%	70-130		
1,3,5-Trimethylbenzene	**2.46**			2.00	"	2.004		123%	70-130		
1,2,4-Trimethylbenzene	**2.65**			5.01	"	2.004		132%	70-130		
Naphthalene	**2.57**			5.01	"	2.004		128%	70-130		
Surrogate: Dibromofluoromethane	*9.22*				"	*10.02*		*92.0%*	*70.4-130*		
Surrogate: 1,2-Dichloroethane-d4	*9.75*				"	*10.02*		*97.3%*	*69.5-129*		
Surrogate: Toluene-d8	*9.75*				"	*10.02*		*97.3%*	*72.4-132*		
Surrogate: 4-Bromofluorobenzene	*9.89*				"	*10.02*		*98.7%*	*72.7-133*		

MRL Check (B15I051-MRL2) **Prepared & Analyzed: Sep-24-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	**4.77**			1.94	ug/kg	4.854		98.2%	70-130		
1,2-Dichloroethane	**4.63**			1.94	"	4.854		95.5%	70-130		
Toluene	**4.75**			1.94	"	4.854		97.8%	70-130		
1,2-Dibromoethane (EDB)	**4.80**			1.94	"	4.854		98.9%	70-130		

Environmental Protection Agency Region5
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LUST, LCD, US EPA Region 5	Project: Tower Standard	
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Chicago IL, 60605	Project Manager: Bob Egan	Nov-12-15 11:11

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
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Batch B15I051 - Volatiles

MRL Check (B15I051-MRL2) **Prepared & Analyzed: Sep-24-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Ethylbenzene	**4.67**			1.94	ug/kg	4.854		96.2%	70-130		
m+p-Xylene	**9.19**			3.88	"	9.709		94.7%	70-130		
o-Xylene	**4.73**			1.94	"	4.854		97.4%	70-130		
1,3,5-Trimethylbenzene	**4.74**			1.94	"	4.854		97.7%	70-130		
1,2,4-Trimethylbenzene	**4.71**			4.85	"	4.854		97.1%	70-130		
Naphthalene	**4.69**			4.85	"	4.854		96.5%	70-130		
Surrogate: Dibromofluoromethane	*9.23*				"	*9.709*		*95.1%*	*70.4-130*		
Surrogate: 1,2-Dichloroethane-d4	*9.14*				"	*9.709*		*94.2%*	*69.5-129*		
Surrogate: Toluene-d8	*9.44*				"	*9.709*		*97.3%*	*72.4-132*		
Surrogate: 4-Bromofluorobenzene	*9.64*				"	*9.709*		*99.3%*	*72.7-133*		

Batch B15I053 - Volatiles

Blank (B15I053-BLK1) **Prepared: Sep-24-15 Analyzed: Sep-25-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	**U**			2.00	ug/kg						
1,2-Dichloroethane	**U**			2.00	"						
Toluene	**U**			2.00	"						
1,2-Dibromoethane (EDB)	**U**			2.00	"						
Ethylbenzene	**U**			2.00	"						
m+p-Xylene	**U**			3.99	"						
o-Xylene	**U**			2.00	"						
1,3,5-Trimethylbenzene	**U**			2.00	"						
1,2,4-Trimethylbenzene	**U**			4.99	"						
Naphthalene	**U**			4.99	"						
Surrogate: Dibromofluoromethane	*9.68*				"	*9.980*		*97.0%*	*70.4-130*		
Surrogate: 1,2-Dichloroethane-d4	*9.83*				"	*9.980*		*98.5%*	*69.5-129*		
Surrogate: Toluene-d8	*10.0*				"	*9.980*		*100%*	*72.4-132*		
Surrogate: 4-Bromofluorobenzene	*9.58*				"	*9.980*		*96.0%*	*72.7-133*		

Environmental Protection Agency Region5
Chicago Regional Laboratory

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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-12-15 11:11

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B15I053 - Volatiles

LCS (B15I053-BS1) **Prepared: Sep-24-15 Analyzed: Sep-25-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	**45.0**			1.95	ug/kg	48.73		92.3%	74.2-134		
1,2-Dichloroethane	**46.7**			1.95	"	48.73		95.7%	75-135		
Toluene	**44.2**			1.95	"	48.73		90.7%	74.4-134		
1,2-Dibromoethane (EDB)	**46.4**			1.95	"	48.73		95.1%	73.3-133		
Ethylbenzene	**42.3**			1.95	"	48.73		86.7%	73.3-133		
m+p-Xylene	**85.6**			3.90	"	97.47		87.8%	73.2-133		
o-Xylene	**44.0**			1.95	"	48.73		90.3%	75-136		
1,3,5-Trimethylbenzene	**42.0**			1.95	"	48.73		86.2%	73.9-134		
1,2,4-Trimethylbenzene	**40.7**			4.87	"	48.73		83.4%	72-132		
Naphthalene	**43.7**			4.87	"	48.73		89.7%	71.5-132		
Surrogate: Dibromofluoromethane	*9.87*				"	*9.747*		*101%*	*70.4-130*		
Surrogate: 1,2-Dichloroethane-d4	*9.54*				"	*9.747*		*97.9%*	*69.5-129*		
Surrogate: Toluene-d8	*9.66*				"	*9.747*		*99.1%*	*72.4-132*		
Surrogate: 4-Bromofluorobenzene	*9.56*				"	*9.747*		*98.1%*	*72.7-133*		

LCS Dup (B15I053-BSD1) **Prepared: Sep-24-15 Analyzed: Sep-25-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	**43.8**			1.88	ug/kg	47.08		93.1%	74.2-134	2.65	30
1,2-Dichloroethane	**45.4**			1.88	"	47.08		96.4%	75-135	2.74	30
Toluene	**43.5**			1.88	"	47.08		92.4%	74.4-134	1.59	30
1,2-Dibromoethane (EDB)	**44.9**			1.88	"	47.08		95.4%	73.3-133	3.14	30
Ethylbenzene	**41.9**			1.88	"	47.08		88.9%	73.3-133	1.01	30
m+p-Xylene	**82.1**			3.77	"	94.16		87.2%	73.2-133	4.20	30
o-Xylene	**43.0**			1.88	"	47.08		91.4%	75-136	2.31	30
1,3,5-Trimethylbenzene	**40.3**			1.88	"	47.08		85.7%	73.9-134	4.00	30
1,2,4-Trimethylbenzene	**38.5**			4.71	"	47.08		81.7%	72-132	5.51	30
Naphthalene	**41.8**			4.71	"	47.08		88.8%	71.5-132	4.39	30
Surrogate: Dibromofluoromethane	*9.38*				"	*9.416*		*99.7%*	*70.4-130*		
Surrogate: 1,2-Dichloroethane-d4	*9.44*				"	*9.416*		*100%*	*69.5-129*		
Surrogate: Toluene-d8	*9.37*				"	*9.416*		*99.5%*	*72.4-132*		
Surrogate: 4-Bromofluorobenzene	*9.66*				"	*9.416*		*103%*	*72.7-133*		

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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-12-15 11:11

Volatiles by GC/MS, EPA 8260C (modified) - Quality Control
US EPA Region 5 Chicago Regional Laboratory

Batch B15I053 - Volatiles

Duplicate (B15I053-DUP1) **Source: 1509019-07** **Prepared: Sep-17-15 Analyzed: Sep-25-15**

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Benzene	**U**			1.96	ug/kg dry		U				30
1,2-Dichloroethane	**U**			1.96	"		U				30
Toluene	**U**			1.96	"		U				30
1,2-Dibromoethane (EDB)	**U**			1.96	"		U				30
Ethylbenzene	**U**			1.96	"		U				30
m+p-Xylene	**U**			3.91	"		U				30
o-Xylene	**U**			1.96	"		U				30
1,3,5-Trimethylbenzene	**29.3**			1.96	"		6.79			125	30
1,2,4-Trimethylbenzene	**46.2**			4.89	"		10.7			125	30
Naphthalene	**3.22**			4.89	"		U				30
Surrogate: Dibromofluoromethane	*9.87*				*"*	*9.786*		*101%*	*70.4-130*		
Surrogate: 1,2-Dichloroethane-d4	*10.4*				*"*	*9.786*		*106%*	*69.5-129*		
Surrogate: Toluene-d8	*11.4*				*"*	*9.786*		*117%*	*72.4-132*		
Surrogate: 4-Bromofluorobenzene	*16.4*				*"*	*9.786*		*167%*	*72.7-133*		

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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-12-15 11:11

Notes and Definitions

U	Not Detected
NR	Not Reported