



## ANALYTICAL REPORT

Lab Number: L1420545

Client: URS Corporation  
12420 Milestone Center Drive  
Suite 150  
Germantown, MD 20876

ATTN: [REDACTED]

Phone: (717) 459-3503

Project Name: CENTERBRIDGE, NEW HOPE, PA

Project Number: 49234152

Report Date: 09/17/14

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**Project Name:** CENTERBRIDGE, NEW HOPE, PA  
**Project Number:** 49234152

**Lab Number:** L1420545  
**Report Date:** 09/17/14

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L1420545-01	BROOK-1-BIO	OTHER - TISSUE	CENTERBRIDGE, NEW HOPE, PA	09/04/14 10:30	09/05/14
L1420545-02	BROOK-2-BIO	OTHER - TISSUE	CENTERBRIDGE, NEW HOPE, PA	09/04/14 13:10	09/05/14

**Project Name:** CENTERBRIDGE, NEW HOPE, PA  
**Project Number:** 49234152

**Lab Number:** L1420545  
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### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

**Project Name:** CENTERBRIDGE, NEW HOPE, PA  
**Project Number:** 49234152

**Lab Number:** L1420545  
**Report Date:** 09/17/14

**Case Narrative (continued)**

PIANO Volatiles

Samples L1420545-01, -02 and the associated method blank were evaluated for the presence of TICs, but none were present.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:



Title: Technical Director/Representative

Date: 09/17/14

# ORGANICS

# VOLATILES

**Project Name:** CENTERBRIDGE, NEW HOPE, PA  
**Project Number:** 49234152

**Lab Number:** L1420545  
**Report Date:** 09/17/14

**SAMPLE RESULTS**

**Lab ID:** L1420545-01  
**Client ID:** BROOK-1-BIO  
**Sample Location:** CENTERBRIDGE, NEW HOPE, PA  
**Matrix:** Other - Tissue  
**Analytical Method:** 1,8260B  
**Analytical Date:** 09/12/14 18:51  
**Analyst:** MR  
**Percent Solids:** Results reported on an 'AS RECEIVED' basis.

**Date Collected:** 09/04/14 10:30  
**Date Received:** 09/05/14  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PIANO Volatile Organics by EPA 5035 High - Mansfield Lab</b>						
3-Methyl-1-butene	ND		ug/kg	85.9	12.8	1
Isopentane	ND		ug/kg	85.9	15.7	1
1-Pentene	ND		ug/kg	85.9	15.7	1
2-Methyl-1-Butene	ND		ug/kg	85.9	13.4	1
Pentane	ND		ug/kg	85.9	26.8	1
trans-2-Pentene	ND		ug/kg	85.9	11.6	1
Isoprene	ND		ug/kg	85.9	15.3	1
cis-2-Pentene	ND		ug/kg	85.9	13.8	1
Tertiary Butanol	ND		ug/kg	1070	139.	1
2,2-Dimethylbutane	ND		ug/kg	85.9	26.5	1
4-Methyl-1-pentene	ND		ug/kg	85.9	13.4	1
Cyclopentane	ND		ug/kg	85.9	22.3	1
2,3-Dimethylbutane	ND		ug/kg	85.9	35.5	1
2-Methylpentane	ND		ug/kg	85.9	23.3	1
Methyl tert butyl ether	ND		ug/kg	85.9	17.7	1
3-Methylpentane	ND		ug/kg	85.9	13.6	1
1-Hexene	ND		ug/kg	85.9	12.1	1
n-Hexane	ND		ug/kg	85.9	14.1	1
Isopropyl Ether	ND		ug/kg	85.9	10.4	1
trans-2-Hexene	ND		ug/kg	85.9	11.2	1
2-Methyl-2-pentene	ND		ug/kg	85.9	13.1	1
cis-2-Hexene	ND		ug/kg	85.9	11.6	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	85.9	13.0	1
2,2-Dimethylpentane	ND		ug/kg	85.9	11.6	1
Methylcyclopentane	ND		ug/kg	85.9	11.5	1
2,4-Dimethylpentane	ND		ug/kg	85.9	10.6	1
2,2,3-Trimethylbutane	ND		ug/kg	85.9	11.6	1
1,2-Dichloroethane	ND		ug/kg	85.9	12.7	1
3,3-Dimethylpentane	ND		ug/kg	85.9	16.0	1
Cyclohexane	ND		ug/kg	85.9	10.6	1

**Project Name:** CENTERBRIDGE, NEW HOPE, PA**Lab Number:** L1420545**Project Number:** 49234152**Report Date:** 09/17/14**SAMPLE RESULTS**

Lab ID: L1420545-01

Date Collected: 09/04/14 10:30

Client ID: BROOK-1-BIO

Date Received: 09/05/14

Sample Location: CENTERBRIDGE, NEW HOPE, PA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PIANO Volatile Organics by EPA 5035 High - Mansfield Lab</b>						
2-Methylhexane	ND		ug/kg	85.9	13.5	1
Benzene	ND		ug/kg	85.9	13.1	1
2,3-Dimethylpentane	ND		ug/kg	85.9	11.4	1
Thiophene	ND		ug/kg	85.9	12.2	1
1,1-Dimethylcyclopentane	ND		ug/kg	85.9	10.3	1
3-Methylhexane	ND		ug/kg	85.9	13.7	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	85.9	10.6	1
1,3-Dimethylcyclopentane (cis)	ND		ug/kg	85.9	12.9	1
3-Ethylpentane	ND		ug/kg	85.9	12.4	1
1,3-DMCP (trans)/2-Methyl-1-hexene	ND		ug/kg	172	30.2	1
1-Heptene/1,2-DMCP (trans)	ND		ug/kg	172	25.1	1
Isooctane	ND		ug/kg	85.9	9.36	1
trans-3-Heptene	ND		ug/kg	85.9	13.4	1
Heptane	ND		ug/kg	85.9	14.9	1
cis-3-Heptene	ND		ug/kg	85.9	12.2	1
trans-2-Heptene	ND		ug/kg	85.9	11.0	1
cis-2-Heptene	ND		ug/kg	85.9	16.6	1
2,2-Dimethylhexane	ND		ug/kg	85.9	12.4	1
Methylcyclohexane	ND		ug/kg	85.9	11.6	1
2,5-Dimethylhexane	ND		ug/kg	85.9	14.9	1
2,4-Dimethylhexane	ND		ug/kg	85.9	10.4	1
Ethylcyclopentane	ND		ug/kg	85.9	11.4	1
2,2,3-Trimethylpentane	ND		ug/kg	85.9	14.9	1
1,2,3-Trimethylcyclopentane (ctc)	ND		ug/kg	85.9	13.1	1
2,3,4-Trimethylpentane	ND		ug/kg	85.9	11.2	1
2,3,3-Trimethylpentane	ND		ug/kg	85.9	17.0	1
2,3-Dimethylhexane	ND		ug/kg	85.9	20.8	1
2-Methylheptane	ND		ug/kg	85.9	14.5	1
4-Methylheptane	ND		ug/kg	85.9	14.8	1
3-Methylheptane	ND		ug/kg	85.9	12.2	1
3-Ethylhexane	ND		ug/kg	85.9	15.4	1
Toluene	ND		ug/kg	85.9	11.6	1
2-Methylthiophene	ND		ug/kg	85.9	7.30	1
1,4-Dimethylcyclohexane (trans)	ND		ug/kg	85.9	11.2	1
3-Methylthiophene	ND		ug/kg	85.9	10.0	1
1-Octene	ND		ug/kg	85.9	13.2	1
Octane	ND		ug/kg	85.9	10.1	1
1,2-Dimethylcyclohexane (trans)	ND		ug/kg	85.9	12.6	1
1,2-Dibromoethane	ND		ug/kg	85.9	13.7	1

**Project Name:** CENTERBRIDGE, NEW HOPE, PA**Lab Number:** L1420545**Project Number:** 49234152**Report Date:** 09/17/14**SAMPLE RESULTS**

Lab ID: L1420545-01  
 Client ID: BROOK-1-BIO  
 Sample Location: CENTERBRIDGE, NEW HOPE, PA

Date Collected: 09/04/14 10:30  
 Date Received: 09/05/14  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PIANO Volatile Organics by EPA 5035 High - Mansfield Lab</b>						
1,2,3-TMCP (ccc)/2-Octene (trans)	ND		ug/kg	172	24.6	1
cis-2-Octene	ND		ug/kg	85.9	9.84	1
Isopropylcyclopentane	ND		ug/kg	85.9	12.6	1
1,2-Dimethylcyclohexane (cis)	ND		ug/kg	85.9	25.0	1
2,5-Dimethylheptane	ND		ug/kg	85.9	14.4	1
3,5-Dimethylheptane	ND		ug/kg	85.9	12.1	1
3,3-Dimethylheptane	ND		ug/kg	85.9	10.4	1
1,1,4-Trimethylcyclohexane	ND		ug/kg	85.9	8.55	1
2,3-Dimethylheptane	ND		ug/kg	85.9	9.79	1
3,4-Dimethylheptane	ND		ug/kg	85.9	14.6	1
4-Methyloctane	ND		ug/kg	85.9	14.3	1
2-Methyloctane	ND		ug/kg	85.9	22.0	1
Ethylbenzene	ND		ug/kg	85.9	9.28	1
2-Ethylthiophene	ND		ug/kg	85.9	7.56	1
3-Methyloctane	ND		ug/kg	85.9	9.62	1
3,3-Diethylpentane	ND		ug/kg	85.9	10.0	1
p/m-Xylene	ND		ug/kg	172	16.4	1
1-Nonene	ND		ug/kg	215	11.6	1
trans-3-Nonene	ND		ug/kg	85.9	10.2	1
cis-3-Nonene	ND		ug/kg	85.9	16.1	1
Nonane (C9)	ND		ug/kg	85.9	13.4	1
Styrene	ND		ug/kg	85.9	8.68	1
o-Xylene	ND		ug/kg	85.9	8.98	1
2-Nonene	ND		ug/kg	85.9	10.9	1
Isopropylcyclohexane	ND		ug/kg	85.9	9.11	1
Isopropylbenzene	ND		ug/kg	85.9	8.03	1
3,3-Dimethyloctane	ND		ug/kg	85.9	8.68	1
n-Propylbenzene	ND		ug/kg	85.9	7.60	1
2-Methylnonane	ND		ug/kg	85.9	12.2	1
3-Methylnonane	ND		ug/kg	85.9	12.0	1
1-Methyl-3-Ethylbenzene	ND		ug/kg	85.9	13.6	1
1-Methyl-4-Ethylbenzene	ND		ug/kg	85.9	12.1	1
1,3,5-Trimethylbenzene	ND		ug/kg	85.9	9.88	1
1-Decene	ND		ug/kg	85.9	11.2	1
Isobutylcyclohexane	ND		ug/kg	85.9	7.00	1
1-Methyl-2-Ethylbenzene	ND		ug/kg	85.9	7.30	1
Decane (C10)	ND		ug/kg	85.9	11.6	1
tert-Butylbenzene	ND		ug/kg	85.9	9.06	1
1,2,4-Trimethylbenzene	ND		ug/kg	85.9	8.89	1

**Project Name:** CENTERBRIDGE, NEW HOPE, PA**Lab Number:** L1420545**Project Number:** 49234152**Report Date:** 09/17/14**SAMPLE RESULTS**

Lab ID: L1420545-01  
 Client ID: BROOK-1-BIO  
 Sample Location: CENTERBRIDGE, NEW HOPE, PA

Date Collected: 09/04/14 10:30  
 Date Received: 09/05/14  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PIANO Volatile Organics by EPA 5035 High - Mansfield Lab</b>						
Isobutylbenzene	ND		ug/kg	85.9	11.6	1
sec-Butylbenzene	ND		ug/kg	85.9	11.1	1
1-Methyl-3-Isopropylbenzene	ND		ug/kg	85.9	11.1	1
1-Methyl-4-Isopropylbenzene	ND		ug/kg	85.9	9.11	1
1,2,3-Trimethylbenzene	ND		ug/kg	85.9	9.58	1
1-Methyl-2-Isopropylbenzene	ND		ug/kg	85.9	9.32	1
Indane	ND		ug/kg	85.9	5.28	1
1,3-Diethylbenzene	ND		ug/kg	85.9	10.7	1
1-Methyl-3-N-Propylbenzene	ND		ug/kg	85.9	8.68	1
Indene	ND		ug/kg	85.9	4.98	1
1-Methyl-4-N-Propylbenzene	ND		ug/kg	85.9	10.7	1
n-Butylbenzene	ND		ug/kg	85.9	8.46	1
1,2-Dimethyl-4-Ethylbenzene	ND		ug/kg	85.9	10.5	1
1,2-Diethylbenzene	ND		ug/kg	85.9	12.7	1
1-Methyl-2-N-Propylbenzene	ND		ug/kg	85.9	10.7	1
1,4-Dimethyl-2-Ethylbenzene	ND		ug/kg	85.9	8.03	1
Undecane	ND		ug/kg	85.9	9.54	1
1,3-Dimethyl-4-Ethylbenzene	ND		ug/kg	85.9	8.33	1
1,3-Dimethyl-5-Ethylbenzene	ND		ug/kg	85.9	10.1	1
1,3-Dimethyl-2-Ethylbenzene	ND		ug/kg	85.9	6.40	1
1,2-Dimethyl-3-Ethylbenzene	ND		ug/kg	85.9	5.46	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	85.9	6.66	1
1,2,3,5-Tetramethylbenzene	ND		ug/kg	85.9	6.53	1
N-Pentylbenzene	ND		ug/kg	85.9	10.7	1
1,2,3,4-Tetramethylbenzene	ND		ug/kg	85.9	9.19	1
1,3-Dimethyl-5-tert-Butylbenzene	ND		ug/kg	85.9	12.2	1
Dodecane (C12)	ND		ug/kg	85.9	28.2	1
1,3,5-Triethylbenzene	ND		ug/kg	85.9	16.3	1
Naphthalene	ND		ug/kg	85.9	35.9	1
Benzothiophene	ND		ug/kg	85.9	45.4	1
1,2,4-Triethylbenzene	ND		ug/kg	85.9	14.6	1
Hexylbenzene	ND		ug/kg	85.9	16.5	1
MMT	ND		ug/kg	215	55.2	1
Tridecane	ND		ug/kg	215	59.8	1
2-Methylnaphthalene	ND		ug/kg	215	56.8	1
1-Methylnaphthalene	ND		ug/kg	215	63.0	1
Tetradecane (C14)	ND		ug/kg	215	26.3	1
Pentadecane	ND		ug/kg	215	47.9	1

**Project Name:** CENTERBRIDGE, NEW HOPE, PA**Lab Number:** L1420545**Project Number:** 49234152**Report Date:** 09/17/14**SAMPLE RESULTS**

Lab ID: L1420545-01

Date Collected: 09/04/14 10:30

Client ID: BROOK-1-BIO

Date Received: 09/05/14

Sample Location: CENTERBRIDGE, NEW HOPE, PA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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PIANO Volatile Organics by EPA 5035 High - Mansfield Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	111		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	101		70-130

**Project Name:** CENTERBRIDGE, NEW HOPE, PA  
**Project Number:** 49234152

**Lab Number:** L1420545  
**Report Date:** 09/17/14

**SAMPLE RESULTS**

**Lab ID:** L1420545-02  
**Client ID:** BROOK-2-BIO  
**Sample Location:** CENTERBRIDGE, NEW HOPE, PA  
**Matrix:** Other - Tissue  
**Analytical Method:** 1,8260B  
**Analytical Date:** 09/12/14 20:07  
**Analyst:** XXXXXXXXXX  
**Percent Solids:** Results reported on an 'AS RECEIVED' basis.

**Date Collected:** 09/04/14 13:10  
**Date Received:** 09/05/14  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PIANO Volatile Organics by EPA 5035 High - Mansfield Lab</b>						
3-Methyl-1-butene	ND		ug/kg	68.2	10.1	1
Isopentane	ND		ug/kg	68.2	12.5	1
1-Pentene	ND		ug/kg	68.2	12.4	1
2-Methyl-1-Butene	ND		ug/kg	68.2	10.6	1
Pentane	ND		ug/kg	68.2	21.3	1
trans-2-Pentene	ND		ug/kg	68.2	9.20	1
Isoprene	ND		ug/kg	68.2	12.2	1
cis-2-Pentene	ND		ug/kg	68.2	11.0	1
Tertiary Butanol	ND		ug/kg	852	110.	1
2,2-Dimethylbutane	ND		ug/kg	68.2	21.0	1
4-Methyl-1-pentene	ND		ug/kg	68.2	10.6	1
Cyclopentane	ND		ug/kg	68.2	17.7	1
2,3-Dimethylbutane	ND		ug/kg	68.2	28.1	1
2-Methylpentane	ND		ug/kg	68.2	18.5	1
Methyl tert butyl ether	ND		ug/kg	68.2	14.0	1
3-Methylpentane	ND		ug/kg	68.2	10.8	1
1-Hexene	ND		ug/kg	68.2	9.58	1
n-Hexane	ND		ug/kg	68.2	11.2	1
Isopropyl Ether	ND		ug/kg	68.2	8.25	1
trans-2-Hexene	ND		ug/kg	68.2	8.89	1
2-Methyl-2-pentene	ND		ug/kg	68.2	10.4	1
cis-2-Hexene	ND		ug/kg	68.2	9.23	1
Ethyl-Tert-Butyl-Ether	ND		ug/kg	68.2	10.3	1
2,2-Dimethylpentane	ND		ug/kg	68.2	9.17	1
Methylcyclopentane	ND		ug/kg	68.2	9.13	1
2,4-Dimethylpentane	ND		ug/kg	68.2	8.42	1
2,2,3-Trimethylbutane	ND		ug/kg	68.2	9.20	1
1,2-Dichloroethane	ND		ug/kg	68.2	10.0	1
3,3-Dimethylpentane	ND		ug/kg	68.2	12.7	1
Cyclohexane	ND		ug/kg	68.2	8.42	1

**Project Name:** CENTERBRIDGE, NEW HOPE, PA**Lab Number:** L1420545**Project Number:** 49234152**Report Date:** 09/17/14**SAMPLE RESULTS**

Lab ID: L1420545-02  
 Client ID: BROOK-2-BIO  
 Sample Location: CENTERBRIDGE, NEW HOPE, PA

Date Collected: 09/04/14 13:10  
 Date Received: 09/05/14  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PIANO Volatile Organics by EPA 5035 High - Mansfield Lab</b>						
2-Methylhexane	ND		ug/kg	68.2	10.7	1
Benzene	ND		ug/kg	68.2	10.4	1
2,3-Dimethylpentane	ND		ug/kg	68.2	9.03	1
Thiophene	ND		ug/kg	68.2	9.68	1
1,1-Dimethylcyclopentane	ND		ug/kg	68.2	8.18	1
3-Methylhexane	ND		ug/kg	68.2	10.9	1
Tertiary-Amyl Methyl Ether	ND		ug/kg	68.2	8.38	1
1,3-Dimethylcyclopentane (cis)	ND		ug/kg	68.2	10.2	1
3-Ethylpentane	ND		ug/kg	68.2	9.85	1
1,3-DMCP (trans)/2-Methyl-1-hexene	ND		ug/kg	136	23.9	1
1-Heptene/1,2-DMCP (trans)	ND		ug/kg	136	19.9	1
Isooctane	ND		ug/kg	68.2	7.43	1
trans-3-Heptene	ND		ug/kg	68.2	10.6	1
Heptane	ND		ug/kg	68.2	11.8	1
cis-3-Heptene	ND		ug/kg	68.2	9.71	1
trans-2-Heptene	ND		ug/kg	68.2	8.72	1
cis-2-Heptene	ND		ug/kg	68.2	13.2	1
2,2-Dimethylhexane	ND		ug/kg	68.2	9.88	1
Methylcyclohexane	ND		ug/kg	68.2	9.20	1
2,5-Dimethylhexane	ND		ug/kg	68.2	11.8	1
2,4-Dimethylhexane	ND		ug/kg	68.2	8.28	1
Ethylcyclopentane	ND		ug/kg	68.2	9.03	1
2,2,3-Trimethylpentane	ND		ug/kg	68.2	11.8	1
1,2,3-Trimethylcyclopentane (ctc)	ND		ug/kg	68.2	10.4	1
2,3,4-Trimethylpentane	ND		ug/kg	68.2	8.89	1
2,3,3-Trimethylpentane	ND		ug/kg	68.2	13.5	1
2,3-Dimethylhexane	ND		ug/kg	68.2	16.5	1
2-Methylheptane	ND		ug/kg	68.2	11.5	1
4-Methylheptane	ND		ug/kg	68.2	11.7	1
3-Methylheptane	ND		ug/kg	68.2	9.71	1
3-Ethylhexane	ND		ug/kg	68.2	12.2	1
Toluene	ND		ug/kg	68.2	9.23	1
2-Methylthiophene	ND		ug/kg	68.2	5.79	1
1,4-Dimethylcyclohexane (trans)	ND		ug/kg	68.2	8.86	1
3-Methylthiophene	ND		ug/kg	68.2	7.97	1
1-Octene	ND		ug/kg	68.2	10.5	1
Octane	ND		ug/kg	68.2	8.01	1
1,2-Dimethylcyclohexane (trans)	ND		ug/kg	68.2	10.0	1
1,2-Dibromoethane	ND		ug/kg	68.2	10.9	1

**Project Name:** CENTERBRIDGE, NEW HOPE, PA**Lab Number:** L1420545**Project Number:** 49234152**Report Date:** 09/17/14**SAMPLE RESULTS**

Lab ID: L1420545-02  
 Client ID: BROOK-2-BIO  
 Sample Location: CENTERBRIDGE, NEW HOPE, PA

Date Collected: 09/04/14 13:10  
 Date Received: 09/05/14  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PIANO Volatile Organics by EPA 5035 High - Mansfield Lab</b>						
1,2,3-TMCP (ccc)/2-Octene (trans)	ND		ug/kg	136	19.5	1
cis-2-Octene	ND		ug/kg	68.2	7.80	1
Isopropylcyclopentane	ND		ug/kg	68.2	9.98	1
1,2-Dimethylcyclohexane (cis)	ND		ug/kg	68.2	19.8	1
2,5-Dimethylheptane	ND		ug/kg	68.2	11.4	1
3,5-Dimethylheptane	ND		ug/kg	68.2	9.61	1
3,3-Dimethylheptane	ND		ug/kg	68.2	8.25	1
1,1,4-Trimethylcyclohexane	ND		ug/kg	68.2	6.78	1
2,3-Dimethylheptane	ND		ug/kg	68.2	7.77	1
3,4-Dimethylheptane	ND		ug/kg	68.2	11.6	1
4-Methyloctane	ND		ug/kg	68.2	11.4	1
2-Methyloctane	ND		ug/kg	68.2	17.4	1
Ethylbenzene	ND		ug/kg	68.2	7.36	1
2-Ethylthiophene	ND		ug/kg	68.2	6.00	1
3-Methyloctane	ND		ug/kg	68.2	7.63	1
3,3-Diethylpentane	ND		ug/kg	68.2	7.94	1
p/m-Xylene	ND		ug/kg	136	13.0	1
1-Nonene	ND		ug/kg	170	9.20	1
trans-3-Nonene	ND		ug/kg	68.2	8.08	1
cis-3-Nonene	ND		ug/kg	68.2	12.7	1
Nonane (C9)	ND		ug/kg	68.2	10.6	1
Styrene	ND		ug/kg	68.2	6.88	1
o-Xylene	ND		ug/kg	68.2	7.12	1
2-Nonene	ND		ug/kg	68.2	8.66	1
Isopropylcyclohexane	ND		ug/kg	68.2	7.22	1
Isopropylbenzene	ND		ug/kg	68.2	6.37	1
3,3-Dimethyloctane	ND		ug/kg	68.2	6.88	1
n-Propylbenzene	ND		ug/kg	68.2	6.03	1
2-Methylnonane	ND		ug/kg	68.2	9.64	1
3-Methylnonane	ND		ug/kg	68.2	9.51	1
1-Methyl-3-Ethylbenzene	ND		ug/kg	68.2	10.8	1
1-Methyl-4-Ethylbenzene	ND		ug/kg	68.2	9.61	1
1,3,5-Trimethylbenzene	ND		ug/kg	68.2	7.84	1
1-Decene	ND		ug/kg	68.2	8.86	1
Isobutylcyclohexane	ND		ug/kg	68.2	5.55	1
1-Methyl-2-Ethylbenzene	ND		ug/kg	68.2	5.79	1
Decane (C10)	ND		ug/kg	68.2	9.23	1
tert-Butylbenzene	ND		ug/kg	68.2	7.19	1
1,2,4-Trimethylbenzene	ND		ug/kg	68.2	7.05	1

**Project Name:** CENTERBRIDGE, NEW HOPE, PA**Lab Number:** L1420545**Project Number:** 49234152**Report Date:** 09/17/14**SAMPLE RESULTS**

Lab ID: L1420545-02  
 Client ID: BROOK-2-BIO  
 Sample Location: CENTERBRIDGE, NEW HOPE, PA

Date Collected: 09/04/14 13:10  
 Date Received: 09/05/14  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PIANO Volatile Organics by EPA 5035 High - Mansfield Lab</b>						
Isobutylbenzene	ND		ug/kg	68.2	9.20	1
sec-Butylbenzene	ND		ug/kg	68.2	8.82	1
1-Methyl-3-Isopropylbenzene	ND		ug/kg	68.2	8.79	1
1-Methyl-4-Isopropylbenzene	ND		ug/kg	68.2	7.22	1
1,2,3-Trimethylbenzene	ND		ug/kg	68.2	7.60	1
1-Methyl-2-Isopropylbenzene	ND		ug/kg	68.2	7.39	1
Indane	ND		ug/kg	68.2	4.19	1
1,3-Diethylbenzene	ND		ug/kg	68.2	8.48	1
1-Methyl-3-N-Propylbenzene	ND		ug/kg	68.2	6.88	1
Indene	ND		ug/kg	68.2	3.95	1
1-Methyl-4-N-Propylbenzene	ND		ug/kg	68.2	8.52	1
n-Butylbenzene	ND		ug/kg	68.2	6.71	1
1,2-Dimethyl-4-Ethylbenzene	ND		ug/kg	68.2	8.35	1
1,2-Diethylbenzene	ND		ug/kg	68.2	10.1	1
1-Methyl-2-N-Propylbenzene	ND		ug/kg	68.2	8.48	1
1,4-Dimethyl-2-Ethylbenzene	ND		ug/kg	68.2	6.37	1
Undecane	ND		ug/kg	68.2	7.56	1
1,3-Dimethyl-4-Ethylbenzene	ND		ug/kg	68.2	6.61	1
1,3-Dimethyl-5-Ethylbenzene	ND		ug/kg	68.2	8.04	1
1,3-Dimethyl-2-Ethylbenzene	ND		ug/kg	68.2	5.08	1
1,2-Dimethyl-3-Ethylbenzene	ND		ug/kg	68.2	4.33	1
1,2,4,5-Tetramethylbenzene	ND		ug/kg	68.2	5.28	1
1,2,3,5-Tetramethylbenzene	ND		ug/kg	68.2	5.18	1
N-Pentylbenzene	ND		ug/kg	68.2	8.48	1
1,2,3,4-Tetramethylbenzene	ND		ug/kg	68.2	7.29	1
1,3-Dimethyl-5-tert-Butylbenzene	ND		ug/kg	68.2	9.71	1
Dodecane (C12)	ND		ug/kg	68.2	22.4	1
1,3,5-Triethylbenzene	ND		ug/kg	68.2	12.9	1
Naphthalene	ND		ug/kg	68.2	28.4	1
Benzothiophene	ND		ug/kg	68.2	36.0	1
1,2,4-Triethylbenzene	ND		ug/kg	68.2	11.6	1
Hexylbenzene	ND		ug/kg	68.2	13.1	1
MMT	ND		ug/kg	170	43.8	1
Tridecane	ND		ug/kg	170	47.5	1
2-Methylnaphthalene	ND		ug/kg	170	45.0	1
1-Methylnaphthalene	ND		ug/kg	170	50.0	1
Tetradecane (C14)	ND		ug/kg	170	20.8	1
Pentadecane	ND		ug/kg	170	38.0	1

**Project Name:** CENTERBRIDGE, NEW HOPE, PA**Lab Number:** L1420545**Project Number:** 49234152**Report Date:** 09/17/14**SAMPLE RESULTS**

Lab ID: L1420545-02

Date Collected: 09/04/14 13:10

Client ID: BROOK-2-BIO

Date Received: 09/05/14

Sample Location: CENTERBRIDGE, NEW HOPE, PA

Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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PIANO Volatile Organics by EPA 5035 High - Mansfield Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	112		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	101		70-130

**Project Name:** CENTERBRIDGE, NEW HOPE, PA  
**Project Number:** 49234152

**Lab Number:** L1420545  
**Report Date:** 09/17/14

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8260B  
Analytical Date: 09/12/14 17:34  
Analyst: XXXXXXXXXX

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by EPA 5035 High - Mansfield Lab for sample(s): 01-02 Batch: WG722329-6					
3-Methyl-1-butene	ND		ug/kg	75.0	11.1
Isopentane	ND		ug/kg	75.0	13.7
1-Pentene	ND		ug/kg	75.0	13.7
2-Methyl-1-Butene	ND		ug/kg	75.0	11.7
Pentane	ND		ug/kg	75.0	23.4
trans-2-Pentene	ND		ug/kg	75.0	10.1
Isoprene	ND		ug/kg	75.0	13.4
cis-2-Pentene	ND		ug/kg	75.0	12.1
Tertiary Butanol	ND		ug/kg	938	122.
2,2-Dimethylbutane	ND		ug/kg	75.0	23.1
4-Methyl-1-pentene	ND		ug/kg	75.0	11.7
Cyclopentane	ND		ug/kg	75.0	19.5
2,3-Dimethylbutane	ND		ug/kg	75.0	31.0
2-Methylpentane	ND		ug/kg	75.0	20.3
Methyl tert butyl ether	ND		ug/kg	75.0	15.4
3-Methylpentane	ND		ug/kg	75.0	11.9
1-Hexene	ND		ug/kg	75.0	10.5
n-Hexane	ND		ug/kg	75.0	12.3
Isopropyl Ether	ND		ug/kg	75.0	9.08
trans-2-Hexene	ND		ug/kg	75.0	9.79
2-Methyl-2-pentene	ND		ug/kg	75.0	11.5
cis-2-Hexene	ND		ug/kg	75.0	10.2
Ethyl-Tert-Butyl-Ether	ND		ug/kg	75.0	11.4
2,2-Dimethylpentane	ND		ug/kg	75.0	10.1
Methylcyclopentane	ND		ug/kg	75.0	10.0
2,4-Dimethylpentane	ND		ug/kg	75.0	9.26
2,2,3-Trimethylbutane	ND		ug/kg	75.0	10.1
1,2-Dichloroethane	ND		ug/kg	75.0	11.1
3,3-Dimethylpentane	ND		ug/kg	75.0	14.0

**Project Name:** CENTERBRIDGE, NEW HOPE, PA  
**Project Number:** 49234152

**Lab Number:** L1420545  
**Report Date:** 09/17/14

**Method Blank Analysis**  
**Batch Quality Control**

**Analytical Method:** 1,8260B  
**Analytical Date:** 09/12/14 17:34  
**Analyst:** ■■■

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by EPA 5035 High - Mansfield Lab for sample(s): 01-02 Batch: WG722329-6					
Cyclohexane	ND		ug/kg	75.0	9.26
2-Methylhexane	ND		ug/kg	75.0	11.8
Benzene	ND		ug/kg	75.0	11.4
2,3-Dimethylpentane	ND		ug/kg	75.0	9.94
Thiophene	ND		ug/kg	75.0	10.6
1,1-Dimethylcyclopentane	ND		ug/kg	75.0	9.00
3-Methylhexane	ND		ug/kg	75.0	12.0
Tertiary-Amyl Methyl Ether	ND		ug/kg	75.0	9.22
1,3-Dimethylcyclopentane (cis)	ND		ug/kg	75.0	11.3
3-Ethylpentane	ND		ug/kg	75.0	10.8
1,3-DMCP (trans)/2-Methyl-1-hexene	ND		ug/kg	150	26.3
1-Heptene/1,2-DMCP (trans)	ND		ug/kg	150	21.9
Isooctane	ND		ug/kg	75.0	8.18
trans-3-Heptene	ND		ug/kg	75.0	11.7
Heptane	ND		ug/kg	75.0	13.0
cis-3-Heptene	ND		ug/kg	75.0	10.7
trans-2-Heptene	ND		ug/kg	75.0	9.60
cis-2-Heptene	ND		ug/kg	75.0	14.5
2,2-Dimethylhexane	ND		ug/kg	75.0	10.9
Methylcyclohexane	ND		ug/kg	75.0	10.1
2,5-Dimethylhexane	ND		ug/kg	75.0	13.0
2,4-Dimethylhexane	ND		ug/kg	75.0	9.11
Ethylcyclopentane	ND		ug/kg	75.0	9.94
2,2,3-Trimethylpentane	ND		ug/kg	75.0	13.0
1,2,3-Trimethylcyclopentane (ctc)	ND		ug/kg	75.0	11.4
2,3,4-Trimethylpentane	ND		ug/kg	75.0	9.79
2,3,3-Trimethylpentane	ND		ug/kg	75.0	14.9
2,3-Dimethylhexane	ND		ug/kg	75.0	18.2
2-Methylheptane	ND		ug/kg	75.0	12.7

**Project Name:** CENTERBRIDGE, NEW HOPE, PA  
**Project Number:** 49234152

**Lab Number:** L1420545  
**Report Date:** 09/17/14

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8260B  
Analytical Date: 09/12/14 17:34  
Analyst: ■

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by EPA 5035 High - Mansfield Lab for sample(s): 01-02 Batch: WG722329-6					
4-Methylheptane	ND		ug/kg	75.0	12.9
3-Methylheptane	ND		ug/kg	75.0	10.7
3-Ethylhexane	ND		ug/kg	75.0	13.4
Toluene	ND		ug/kg	75.0	10.2
2-Methylthiophene	ND		ug/kg	75.0	6.38
1,4-Dimethylcyclohexane (trans)	ND		ug/kg	75.0	9.75
3-Methylthiophene	ND		ug/kg	75.0	8.78
1-Octene	ND		ug/kg	75.0	11.5
Octane	ND		ug/kg	75.0	8.81
1,2-Dimethylcyclohexane (trans)	ND		ug/kg	75.0	11.0
1,2-Dibromoethane	ND		ug/kg	75.0	12.0
1,2,3-TMCP (ccc)/2-Octene (trans)	ND		ug/kg	150	21.5
cis-2-Octene	ND		ug/kg	75.0	8.59
Isopropylcyclopentane	ND		ug/kg	75.0	11.0
1,2-Dimethylcyclohexane (cis)	ND		ug/kg	75.0	21.8
2,5-Dimethylheptane	ND		ug/kg	75.0	12.6
3,5-Dimethylheptane	ND		ug/kg	75.0	10.6
3,3-Dimethylheptane	ND		ug/kg	75.0	9.08
1,1,4-Trimethylcyclohexane	ND		ug/kg	75.0	7.46
2,3-Dimethylheptane	ND		ug/kg	75.0	8.55
3,4-Dimethylheptane	ND		ug/kg	75.0	12.8
4-Methyloctane	ND		ug/kg	75.0	12.5
2-Methyloctane	ND		ug/kg	75.0	19.2
Ethylbenzene	ND		ug/kg	75.0	8.10
2-Ethylthiophene	ND		ug/kg	75.0	6.60
3-Methyloctane	ND		ug/kg	75.0	8.40
3,3-Diethylpentane	ND		ug/kg	75.0	8.74
p/m-Xylene	ND		ug/kg	150	14.3
1-Nonene	ND		ug/kg	188	10.1

**Project Name:** CENTERBRIDGE, NEW HOPE, PA  
**Project Number:** 49234152

**Lab Number:** L1420545  
**Report Date:** 09/17/14

**Method Blank Analysis**  
**Batch Quality Control**

**Analytical Method:** 1,8260B  
**Analytical Date:** 09/12/14 17:34  
**Analyst:** ■■■

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by EPA 5035 High - Mansfield Lab for sample(s): 01-02 Batch: WG722329-6					
trans-3-Nonene	ND		ug/kg	75.0	8.89
cis-3-Nonene	ND		ug/kg	75.0	14.0
Nonane (C9)	ND		ug/kg	75.0	11.7
Styrene	ND		ug/kg	75.0	7.58
o-Xylene	ND		ug/kg	75.0	7.84
2-Nonene	ND		ug/kg	75.0	9.52
Isopropylcyclohexane	ND		ug/kg	75.0	7.95
Isopropylbenzene	ND		ug/kg	75.0	7.01
3,3-Dimethyloctane	ND		ug/kg	75.0	7.58
n-Propylbenzene	ND		ug/kg	75.0	6.64
2-Methylnonane	ND		ug/kg	75.0	10.6
3-Methylnonane	ND		ug/kg	75.0	10.5
1-Methyl-3-Ethylbenzene	ND		ug/kg	75.0	11.8
1-Methyl-4-Ethylbenzene	ND		ug/kg	75.0	10.6
1,3,5-Trimethylbenzene	ND		ug/kg	75.0	8.62
1-Decene	ND		ug/kg	75.0	9.75
Isobutylcyclohexane	ND		ug/kg	75.0	6.11
1-Methyl-2-Ethylbenzene	ND		ug/kg	75.0	6.38
Decane (C10)	ND		ug/kg	75.0	10.2
tert-Butylbenzene	ND		ug/kg	75.0	7.91
1,2,4-Trimethylbenzene	ND		ug/kg	75.0	7.76
Isobutylbenzene	ND		ug/kg	75.0	10.1
sec-Butylbenzene	ND		ug/kg	75.0	9.71
1-Methyl-3-Isopropylbenzene	ND		ug/kg	75.0	9.68
1-Methyl-4-Isopropylbenzene	ND		ug/kg	75.0	7.95
1,2,3-Trimethylbenzene	ND		ug/kg	75.0	8.36
1-Methyl-2-Isopropylbenzene	ND		ug/kg	75.0	8.14
Indane	ND		ug/kg	75.0	4.61
1,3-Diethylbenzene	ND		ug/kg	75.0	9.34

**Project Name:** CENTERBRIDGE, NEW HOPE, PA  
**Project Number:** 49234152

**Lab Number:** L1420545  
**Report Date:** 09/17/14

**Method Blank Analysis**  
**Batch Quality Control**

**Analytical Method:** 1,8260B  
**Analytical Date:** 09/12/14 17:34  
**Analyst:** ■■■

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by EPA 5035 High - Mansfield Lab for sample(s): 01-02 Batch: WG722329-6					
1-Methyl-3-N-Propylbenzene	ND		ug/kg	75.0	7.58
Indene	ND		ug/kg	75.0	4.35
1-Methyl-4-N-Propylbenzene	ND		ug/kg	75.0	9.38
n-Butylbenzene	ND		ug/kg	75.0	7.39
1,2-Dimethyl-4-Ethylbenzene	ND		ug/kg	75.0	9.19
1,2-Diethylbenzene	ND		ug/kg	75.0	11.1
1-Methyl-2-N-Propylbenzene	ND		ug/kg	75.0	9.34
1,4-Dimethyl-2-Ethylbenzene	ND		ug/kg	75.0	7.01
Undecane	ND		ug/kg	75.0	8.32
1,3-Dimethyl-4-Ethylbenzene	ND		ug/kg	75.0	7.28
1,3-Dimethyl-5-Ethylbenzene	ND		ug/kg	75.0	8.85
1,3-Dimethyl-2-Ethylbenzene	ND		ug/kg	75.0	5.59
1,2-Dimethyl-3-Ethylbenzene	ND		ug/kg	75.0	4.76
1,2,4,5-Tetramethylbenzene	ND		ug/kg	75.0	5.81
1,2,3,5-Tetramethylbenzene	ND		ug/kg	75.0	5.70
N-Pentylbenzene	ND		ug/kg	75.0	9.34
1,2,3,4-Tetramethylbenzene	ND		ug/kg	75.0	8.02
1,3-Dimethyl-5-tert-Butylbenzene	ND		ug/kg	75.0	10.7
Dodecane (C12)	ND		ug/kg	75.0	24.6
1,3,5-Triethylbenzene	ND		ug/kg	75.0	14.2
Naphthalene	ND		ug/kg	75.0	31.3
Benzothiophene	ND		ug/kg	75.0	39.6
1,2,4-Triethylbenzene	ND		ug/kg	75.0	12.8
Hexylbenzene	ND		ug/kg	75.0	14.4
MMT	ND		ug/kg	188	48.2
Tridecane	ND		ug/kg	188	52.2
2-Methylnaphthalene	ND		ug/kg	188	49.6
1-Methylnaphthalene	ND		ug/kg	188	55.0
Tetradecane (C14)	ND		ug/kg	188	23.0

**Project Name:** CENTERBRIDGE, NEW HOPE, PA  
**Project Number:** 49234152

**Lab Number:** L1420545  
**Report Date:** 09/17/14

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8260B  
 Analytical Date: 09/12/14 17:34  
 Analyst: ■

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by EPA 5035 High - Mansfield Lab for sample(s): 01-02 Batch: WG722329-6					
Pentadecane	ND		ug/kg	188	41.8

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	104		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	101		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** CENTERBRIDGE, NEW HOPE, PA

**Lab Number:** L1420545

**Project Number:** 49234152

**Report Date:** 09/17/14

Parameter	LCS		LCSD		%Recovery		RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	RPD	Qual	Limits
PIANO Volatile Organics by EPA 5035 High - Mansfield Lab Associated sample(s): 01-02 Batch: WG722329-4 WG722329-5								
1-Pentene	89		91		50-130	2		30
Pentane	94		95		50-130	1		30
Tertiary Butanol	100		107		50-130	7		30
Cyclopentane	91		93		50-130	2		30
2-Methylpentane	97		101		50-130	4		30
Methyl tert butyl ether	102		105		50-130	3		30
3-Methylpentane	101		104		50-130	3		30
1-Hexene	97		101		50-130	4		30
n-Hexane	96		99		50-130	3		30
Isopropyl Ether	91		96		50-130	5		30
Ethyl-Tert-Butyl-Ether	99		102		50-130	3		30
Methylcyclopentane	97		99		50-130	2		30
2,4-Dimethylpentane	96		100		50-130	4		30
Cyclohexane	98		100		50-130	2		30
2-Methylhexane	94		98		50-130	4		30
Benzene	100		99		50-130	1		30
2,3-Dimethylpentane	98		101		50-130	3		30
3-Methylhexane	87		93		50-130	7		30
Tertiary-Amyl Methyl Ether	93		96		50-130	3		30
Isooctane	95		98		50-130	3		30
Heptane	90		92		50-130	2		30

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** CENTERBRIDGE, NEW HOPE, PA

**Project Number:** 49234152

**Lab Number:** L1420545

**Report Date:** 09/17/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PIANO Volatile Organics by EPA 5035 High - Mansfield Lab Associated sample(s): 01-02 Batch: WG722329-4 WG722329-5								
Methylcyclohexane	97		99		50-130	2		30
2-Methylheptane	96		98		50-130	2		30
3-Methylheptane	92		92		50-130	0		30
Toluene	100		101		50-130	1		30
Octane	91		92		50-130	1		30
Ethylbenzene	97		99		50-130	2		30
p/m-Xylene	103		104		50-130	1		30
Nonane (C9)	84		84		50-130	0		30
o-Xylene	103		104		50-130	1		30
Isopropylbenzene	104		104		50-130	0		30
n-Propylbenzene	101		103		50-130	2		30
1-Methyl-3-Ethylbenzene	104		103		50-130	1		30
1-Methyl-4-Ethylbenzene	102		104		50-130	2		30
1,3,5-Trimethylbenzene	109		110		50-130	1		30
1-Decene	103		104		50-130	1		30
1-Methyl-2-Ethylbenzene	107		106		50-130	1		30
Decane (C10)	98		101		50-130	3		30
1,2,4-Trimethylbenzene	106		106		50-130	0		30
sec-Butylbenzene	103		102		50-130	1		30
1-Methyl-4-N-Propylbenzene	107		107		50-130	0		30
n-Butylbenzene	107		106		50-130	1		30

## Lab Control Sample Analysis

Batch Quality Control

**Project Name:** CENTERBRIDGE, NEW HOPE, PA  
**Project Number:** 49234152

**Lab Number:** L1420545  
**Report Date:** 09/17/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PIANO Volatile Organics by EPA 5035 High - Mansfield Lab Associated sample(s): 01-02 Batch: WG722329-4 WG722329-5								
1,2-Diethylbenzene	101		102		50-130	1		30
Undecane	103		107		50-130	4		30
N-Pentylbenzene	106		105		50-130	1		30
Dodecane (C12)	103		112		50-130	8		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Dibromofluoromethane	104		104		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	105		104		70-130

**Project Name:** CENTERBRIDGE, NEW HOPE, PA**Lab Number:** L1420545**Project Number:** 49234152**Report Date:** 09/17/14**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

**Cooler Information Custody Seal****Cooler**

A Absent

**Container Information**

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1420545-01A	Vial MeOH preserved	A	NA	4.6	Y	Absent	A2-PIANO8260H(14)
L1420545-02A	Vial MeOH preserved	A	NA	4.6	Y	Absent	A2-PIANO8260H(14)

\*Values in parentheses indicate holding time in days

**Project Name:** CENTERBRIDGE, NEW HOPE, PA  
**Project Number:** 49234152

**Lab Number:** L1420545  
**Report Date:** 09/17/14

## GLOSSARY

### Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	- Not Ignitable.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### Terms

**Total:** With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

### Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

**Report Format:** DU Report with 'J' Qualifiers



**Project Name:** CENTERBRIDGE, NEW HOPE, PA  
**Project Number:** 49234152

**Lab Number:** L1420545  
**Report Date:** 09/17/14

#### Data Qualifiers

- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

**Project Name:** CENTERBRIDGE, NEW HOPE, PA  
**Project Number:** 49234152

**Lab Number:** L1420545  
**Report Date:** 09/17/14

## REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certification Information

Last revised April 15, 2014

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**The following analytes are not included in our NELAP Scope of Accreditation:**

### Westborough Facility

**EPA 524.2:** Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.

**EPA 8260C:** 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.

**EPA 8330A/B:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.

**EPA 8270D:** 1-Methylnaphthalene, Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**EPA 625:** 4-Chloroaniline, 4-Methylphenol.

**SM4500:** Soil: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

**EPA 9071:** Total Petroleum Hydrocarbons, Oil & Grease.

### Mansfield Facility

**EPA 8270D:** Biphenyl.

**EPA 2540D:** TSS

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

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**The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:**

### Drinking Water

**EPA 200.8:** Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl; **EPA 200.7:** Ba,Be,Ca,Cd,Cr,Cu,Na; **EPA 245.1:** Mercury;

**EPA 300.0:** Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**

**EPA 332:** Perchlorate.

**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, Enterolert-QT.**

### Non-Potable Water

**EPA 200.8:** Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn;

**EPA 200.7:** Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn;

**EPA 245.1, SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH3-BH, EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F,**

**EPA 353.2:** Nitrate-N, **SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.**

**EPA 624:** Volatile Halocarbons & Aromatics,

**EPA 608:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF.**

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For a complete listing of analytes and methods, please contact your Alpha Project Manager.

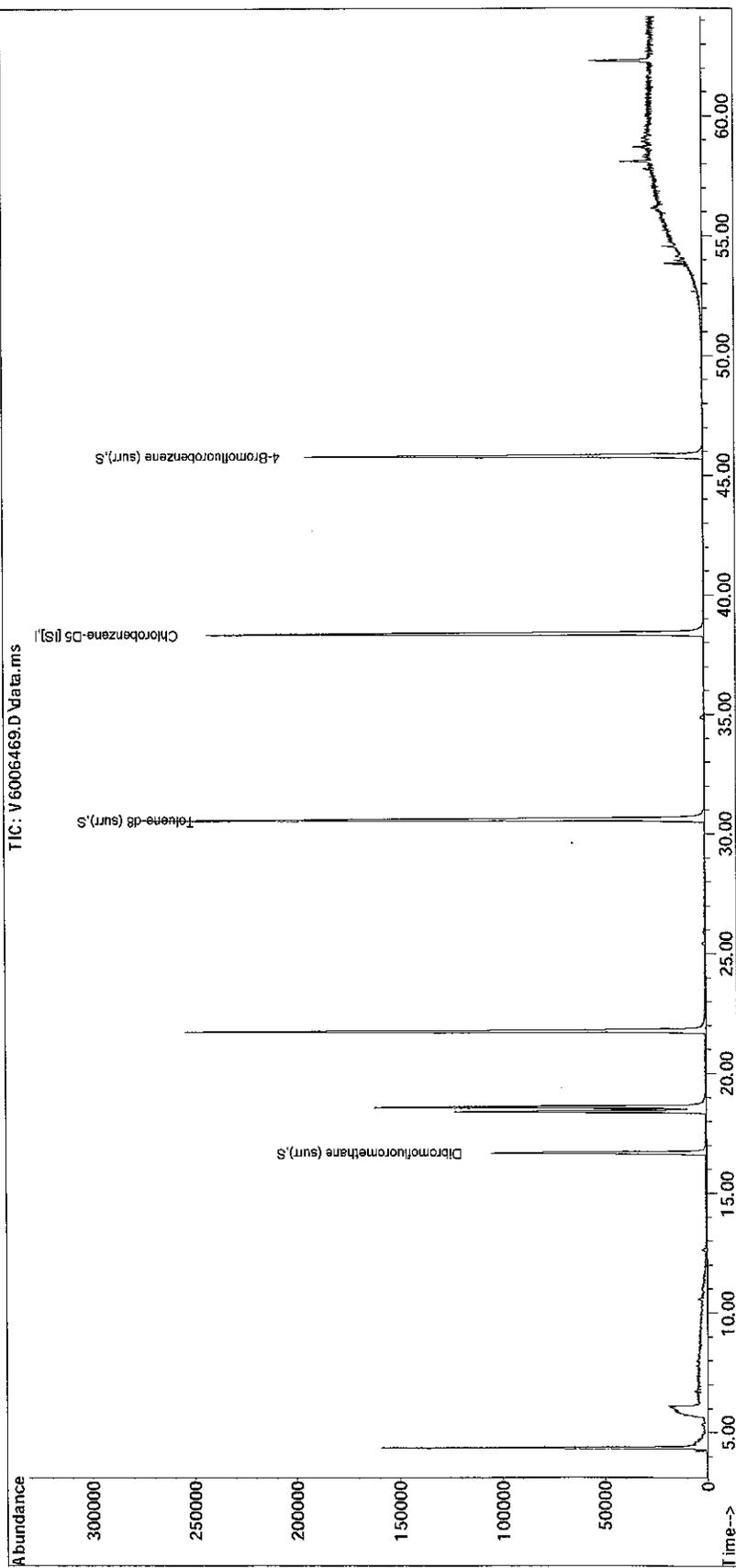


## Quantitation Report (QT Reviewed)

Data Path : O:\Organics\DATA\VOA6\2014\140912\  
Data File : V6006469.D  
Acq On : 12 Sep 2014 6:51 pm  
Operator : VOA6  
Sample : L1420545-01,31H,17.46,15,0.1  
Misc : WG722329,ICAL8670  
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Sep 15 10:43:37 2014  
Quant Method : O:\Organics\DATA\VOA6\2014\140912\P6101513W.M  
Quant Title : PIANO VOLATILES  
QLast Update : Tue Nov 26 11:16:04 2013  
Response via : Initial Calibration

Sub List : Default - All compounds listed



Quantitation Report (QT Reviewed)

Data Path : O:\Organics\DATA\VOA6\2014\140912\  
 Data File : V6006470.D  
 Acq On : 12 Sep 2014 8:07 pm  
 Operator : VOA6: [REDACTED]  
 Sample : L1420545-02,31H,22.01,15,0.1  
 Misc : WG722329,ICAL8670  
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Sep 15 10:46:13 2014  
 Quant Method : O:\Organics\DATA\VOA6\2014\140912\P6101513W.M  
 Quant Title : PIANO VOLATILES  
 QLast Update : Tue Nov 26 11:16:04 2013  
 Response via : Initial Calibration

Sub List : Default - All compounds listed

