Boarhead Farms Superfund Site
Upper Black Eddy, Bucks Co., PA
Vapor Intrusion Investigation Report
January 2016

Prepared for

Boarhead Farms Superfund Site

OU-1 Group

March 2016

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Executive Summary

Sub-slab soil vapor, indoor air, and outdoor ambient air samples were collected at one residence located near the Boarhead Farms Superfund Site (Site) from January 11, 2016 to January 12, 2016 in accordance with the Soil Vapor Intrusion Sampling and Quality Assurance Project Plan dated November 2008. The samples were collected from the residence at [redacted] (b) (6) residential well RW-16. During previous investigations the residence at [redacted] (b) (6) (RW-22), has also been sampled. Following several attempts to contact the resident, Brown and Caldwell was informed that the resident was remodeling and would not provide access for this event. It is believed that access will be granted for future events.

The results from [redacted] (b) (6) (RW-16) are summarized below.

RW-16 Residence

The January 2016 sampling event was the seventh vapor intrusion sampling event conducted at the RW-16 residence. During this event, the following compounds were found to exceed USEPA sub-slab screening level criteria: 1,2,4-trimethylbenzene (up to 13 µg/m^3), chloroform (up to 15 µg/m^3), and ethylbenzene (up to 12.5 µg/m^3). In addition, the following compounds were found to exceed USEPA indoor air screening criteria: 1,2,4-trimethylbenzene (1.8 J µg/m^3)[1], 1,2-dichloroethane (up to 0.467 µg/m^3), 1,2-dibromoethane (0.208 J µg/m^3), benzene (up to 1.14 µg/m^3), carbon tetrachloride (up to 1.34 µg/m^3), and chloroform(up to 0.431 µg/m^3). 1,2-Dichloroethane, benzene, carbon tetrachloride, and chloroform were also detected in the outdoor ambient air sample at similar concentrations. None of these substances have been detected in groundwater samples collected from nearby monitoring wells. Thus, their occurrence is not due to groundwater impacts associated with the nearby Boarhead Farms Site.

TCE, a Site-related compound that does occur in the residence's potable supply well at a concentration less than the MCL, was not detected in either the sub-slab or indoor air at concentrations exceeding screening levels.

[1] A "J" qualifier indicates an estimated concentration.

Section 1

Introduction

A vapor intrusion (VI) investigation was conducted at one residence in the vicinity of the Site on January 11 through January 12, 2016 in accordance with the Soil Vapor Intrusion Sampling and Quality Insurance Project Plan dated November 2008. The investigation included one off-Site residence that is located at [redacted], which is designated by the residential supply well designation, RW-16. During previous investigations an additional residence, [redacted] (RW-22), has also been sampled; however, access to this property wasn't granted during the current sampling event. The house at the property is currently under renovations and Brown and Caldwell (BC) was not able to contact and coordinate with the property owners before sampling was conducted. Therefore, no sample was collected at the RW-22 residence during this sampling event. However, it is anticipated that access will be granted for future events.

Lancaster Laboratories of Lancaster, Pennsylvania conducted the laboratory analyses. Laboratory analytical reports are provided in Appendix A. Chain-of-Custody documentation is provided in Appendix B. The field reconnaissance documentation is provided in Appendix C. The Electronic Data Deliverable (EDD) is provided in Appendix D. Data Quality Evaluation tables are provided in Appendix E. An assessment of data quality and other pertinent information is provided in the event narrative, Section 2, below. Refer to Figure 1 for the locations of residences sampled during this event.

Section 2

Investigation Narrative

2.1 Field Reconnaissance

A field reconnaissance and survey of the residences was conducted prior to the initial 2008 VI investigation on November 13, 2008. Documentation of the surveys is provided in Appendix C. Although no significant changes to the structures have been noted since the 2008 survey, an updated field reconnaissance survey was completed at the (b) (6) [redacted] RW-16) property on January 11, 2016 and is included in Appendix C.

The residence at the location of well RW-16 is a bi-level style home. The residence is built on a concrete slab and does not have a basement or crawl space. The interior of the ground floor is subdivided into an entrance/kennel room, a boiler room, a living room, and an office. The walls of the residence are sheetrock over frame. The floor is tiled in occupied areas of the residence, and concrete in the boiler room. There are numerous dogs kept in the kennel area of the ground floor. Based upon the construction and subdivisions of the house, three locations were selected for sub-slab soil vapor sampling and spaced as evenly as possible across the footprint of the house. Two locations, both on the lower level, were selected for indoor air sampling. Figure 3 presents a layout of the residence, as well as sampling locations.

2.2 Field Sampling

Sampling was conducted in accordance with the methods and procedures established in the Soil Vapor Intrusion Sampling and Quality Assurance Project Plan (Brown and Caldwell, November 2008). The outdoor temperature during the sampling event was in the 16 - 32 degrees Fahrenheit range on January 11th and in the 16 - 39 degree Fahrenheit range on January 12th. Sub-slab soil vapor samples were collected over a 30-minute interval while indoor air and outdoor ambient air samples were collected over a 24-hour interval.

Analytical data for the VI sampling event are summarized in Table 1. Indoor air and soil vapor samples were compared to the November 2014 update to the USEPA Region 3 Regional Residential Screening Levels. Historic TCE concentrations for both residences are provided in Table 2.

2.3 Data Quality Assessment

Field duplicate samples were collected at the locations of indoor air sample IA-05 and soil vapor sample SV-05. A comparison of field duplicate sample results to the primary location results is provided in Appendix E. The results indicate volatile organic compounds associated with those constituents measured in the groundwater plume to be within relative percent differences (RPDs) of less than 25 percent, which is the criterion established in the Quality Assurance Project Plan for precision of volatile organic analyses. The remaining constituents with RPDs exceeding 25 percent consist of compounds were not found within the groundwater plume near the residences.

The analytical laboratory achieved TO-15 analytical detection limits at values less than USEPA screening levels for Site-related parameters with the exception of 1,1,2-trichloroethane (1,1,2 TCA), 1,2-dibromoethane, 1,2-dichloroethane (1,2-DCA), benzene, and vinyl chloride. In these instances, Selective Ion Monitoring (SIM) analysis was performed to achieve the lower detection limits or to improve

result accuracy. SIM analysis was successful in lowering the detection limits for 1,2-dibromoethane (all samples) and 1,1,2-trichloroethane (AA-03, IA-05, and IA-06) below the USEPA screening level. While the analytical detection limit for the SIM methods remained above the screening levels, the detection limits in other samples of the same medium at each residence were at or below the screening levels, thereby providing the necessary information to confirm the presence of a compound above or below the screening level. Furthermore, the compounds with reporting limits above screening levels were either not detected in groundwater near the residences, or they are not a Site-related constituent; therefore, they do not present a concern with regard to data usability.

All samples were received by the laboratory within the required holding times (Appendix E).

In summary, the data quality assessment indicates that the analytical data for the vapor intrusion sampling event are acceptable for plume-related constituents.

2.4 Data Review

The following sections summarize the results of the vapor intrusion sampling event. To evaluate the significance of the measurements obtained, indoor air results were compared to the USEPA Region 3 Human Health Risk Based Concentrations. Sub-slab soil gas results were compared to ten times the USEPA Region 3 Human Health Risk Based Concentrations.

RW-16 Residence

The January 2016 sampling event was the seventh annual event conducted at this residence. The sampling event included the collection of three sub-slab soil vapor samples (SV-04, SV-05, and SV-06), two indoor air samples (IA-05 and IA-06), and a single outdoor ambient sample (AA-03). Two duplicate samples, DUP-011116 and DUP-011216 corresponding to IA-05 and SV-05, respectively, were collected at this residence.

The sub-slab soil vapor samples revealed exceedances of the soil vapor screening levels for ethylbenzene (up to 12.5 µg/m^3), 1,2,4-trimethylbenzene (up to 13 µg/m^3), and chloroform (up to 15 µg/m^3). TCE was detected in soil vapor in samples IA-04, IA-05 and IA-06 at estimated concentrations of 0.211 µg/m^3, 0.172 µg/m^3 , and 0.117µg/m^3, respectively, which do not exceed the applicable soil vapor screening level. Other constituents targeted during the testing were either not detected, or were detected below the soil vapor screening levels.

Comparison of indoor air results to indoor air screening criteria revealed exceedances for 1,2,4-trimethylbenzene (1.8 J µg/m^3), 1,2-dichloroethane (up to 0.467 µg/m^3), benzene (up to 1.1 µg/m^3), carbon tetrachloride (up to 1.34 µg/m^3), and chloroform (up to 0.431 µg/m^3). TCE was detected in indoor air at an estimated concentration (0.17 J µg/m^3) in sample IA-05, which does not exceed the applicable indoor air screening level. During the prior sampling event in February 2015, TCE was detected at a comparable estimated concentration of 0.123 µg/m^3. Other constituents targeted during the testing were either not detected, or were detected below the indoor air screening levels.

The ambient air sample had detections of the following constituents:

- 1,3,5-Trimethylbenzene (1.0 J µg/m^3)
- Acetone (6.3 µg/m^3)
- 1,2-Dichloroethane (0.187 J µg/m^3)
- Benzene (1.14 µg/m^3)
- Carbon tetrachloride (0.891 µg/m^3)
- Chloroform (0.199 J µg/m^3)
- Dichlorodifluoromethane (3.1 J µg/m^3)

- Ethylbenzene (0.321 µg/m^3)
- Heptane (2.3 J µg/m^3)
- Pentane (1.1 J µg/m^3)
- Tetrachloroethene (0.139 J µg/m^3)
- Trichlorofluoromethane (1.6 J µg/m^3)

Section 3

Conclusions

TCE and other constituents detected in groundwater near these residences that are associated with the Boarhead Farms Site were detected at estimated, low level concentrations in samples collected at the RW-16 residence. Although low concentrations of TCE were detected at estimated concentrations in indoor air and soil vapor samples, they did not exceed the applicable screening values. Consistent with prior sampling events, the presence of TCE at the RW-16 residence is intermittent and when detected occurs at concentrations that are usually less than TCE's Practical Quantification Limit (PQL) of 1.1 µg/m^3. The remaining constituents detected at the RW-16 residence above the screening levels have not been detected in groundwater samples collected from nearby monitoring wells; therefore, their occurrence is not due to groundwater impacts associated with the nearby Boarhead Farms Site. All other constituents were detected below their respective screening values.

Access to the RW-22 residence ([redacted]) was not provided for the current vapor intrusion sampling event. However, it is anticipated that access will be granted for future events.

Continued monitoring of indoor air in the RW-16 and RW-22 residences during the heating season is recommended.

Tables

TABLE 1
ANALYTICAL RESULTS
2016 SOIL VAPOR INTRUSION INVESTIGATION

					Soil Vapor								Indoor Air						Ambient Air	
				Sample ID	SV-04		SV-05		SV-05 (DUP)		SV-06		IA-05		IA-05 (DUP)		IA-06		AA-03	
		Screening Criteria		Sample Date	01/12/2016		01/12/2016		01/12/2016		01/12/2016		01/11/2016		01/11/2016		01/11/2016		01/11/2016	
Analytic Method	Constituent	Soil Vapor (1)	Indoor Air (1)	Units																
T015	1,1,1,2-Tetrachloroethane	3.8	0.38	µg/m³	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U
T015	1,1,1-Trichloroethane	5200	520	µg/m³	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
T015	1,1,2,2-Tetrachloroethane	0.48	0.048	µg/m³	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U
T015	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	31000	3100	µg/m³	3.8	U	3.8	U	3.8	U	3.8	U	3.8	U	3.8	U	3.8	U	3.8	U
T015	1,1,2-Trichloroethane	0.21	0.021	µg/m³	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
T015	1,1-Dichloroethane	18	1.8	µg/m³	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U
T015	1,1-Dichloroethene	210	21	µg/m³	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U
T015	1,2,3-Trichloropropane	0.31	0.031	µg/m³	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
T015	1,2,4-Trimethylbenzene	7.3	0.73	µg/m³	7.4		9.1		9.7		13		**1.8**	**J**	**1.5**	**J**	**1**	**J**	0.98	U
T015	1,2-Dibromoethane (EDB)	0.047	0.0047	µg/m³	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
T015	1,2-Dichlorobenzene	210	21	µg/m³	1.2	U	2.1	J	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
T015	1,2-Dichloroethane	1.1	0.11	µg/m³	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U	0.81	U
T015	1,2-Dichloropropane	2.8	0.28	µg/m³	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U
T015	1,2-Dichlorotetrafluoroethane (Freon 114)	--	--	µg/m³	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U
T015	1,2-Dimethylbenzene (o-Xylene)	100	10	µg/m³	4.5		11		3	J	10		2.1	J	1.2	J	0.87	U	0.87	U
T015	1,3,5-Trimethylbenzene (mesitylene)	--	--	µg/m³	3.7	J	5.3		4.3	J	8.5		2.7	J	2.1	J	1.4	J	1	J
T015	1,3-Butadiene	0.94	0.094	µg/m³	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U
T015	1,3-Dichlorobenzene	--	--	µg/m³	1.2	U	2.2	J	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
T015	1,4-Dichlorobenzene	2.6	0.26	µg/m³	1.2	U	2.1	J	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
T015	2,2,4-Trimethylpentane	--	--	µg/m³	23		12		12		1.1	J	1.2	J	0.93	U	0.93	U	0.93	U
T015	2-Butanone (MEK)	5200	520	µg/m³	4.3	J	6.5		10		9.9		3.5	J	2.3	J	1.5	U	1.5	U
T015	2-Hexanone	31	3.1	µg/m³	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
T015	3-Chloropropene (allyl chloride)	1	0.1	µg/m³	0.63	U	0.63	U	0.63	U	0.63	U	0.63	U	0.63	U	0.63	U	0.63	U
T015	4-Ethyltoluene	--	--	µg/m³	4.6	J	4.9		5.1		13		0.98	U	0.98	U	0.98	U	0.98	U
T015	4-Methyl-2-pentanone (MIBK)	3100	310	µg/m³	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
T015	Acetone	32000	3200	µg/m³	19		32		45		56		36		29		22		6.3	
T015	Benzene	3.6	0.36	µg/m³	1.1	J	1.1	J	1	J	1.5	J	**1**	**J**	**1**	**J**	**1**	**J**	**1**	**J**
T015	Bromobenzene	63	6.3	µg/m³	1.3	U	1.4	J	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U
T015	Bromodichloromethane	0.76	0.076	µg/m³	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U
T015	Bromoform	26	2.6	µg/m³	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
T015	Bromomethane	5.2	0.52	µg/m³	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U	0.78	U
T015	Carbon disulfide	730	73	µg/m³	3	J	78		89		120		1.6	U	1.6	U	1.6	U	1.6	U
T015	Carbon tetrachloride	4.7	0.47	µg/m³	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U
T015	Chlorobenzene	52	5.2	µg/m³	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U	0.92	U
T015	Chlorodifluoromethane	52000	5200	µg/m³	0.71	U	0.84	J	0.71	U	0.71	U	0.71	U	0.71	U	0.71	U	0.71	U
T015	Chloroethane	10000	1000	µg/m³	0.53	U	0.53	U	0.53	U	0.53	U	0.53	U	0.53	U	0.53	U	0.53	U
T015	Chloroform	1.2	0.12	µg/m³	12		6.9		6.3		0.98	U	0.98	U	0.98	U	0.98	U	0.98	U
T015	Chloromethane	94	9.4	µg/m³	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U	0.41	U
T015	cis-1,2-Dichloroethene	--	--	µg/m³	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U
T015	cis-1,3-Dichloropropene	--	--	µg/m³	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U
T015	Dibromochloromethane	1	0.1	µg/m³	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
T015	Dibromomethane	4.2	0.42	µg/m³	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U
T015	Dichlorodifluoromethane (Freon 12)	100	10	µg/m³	3.9	J	2.8	J	2.8	J	3	J	3.2	J	3	J	3.2	J	3.1	J
T015	Dichlorofluoromethane	--	--	µg/m³	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U	0.84	U
T015	Ethylbenzene	11	1.1	µg/m³	2.7	J	7.2		1.6	J	7.3		0.87	U	0.87	U	0.87	U	0.87	U
T015	Hexachloroethane	2.6	0.26	µg/m³	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U	1.9	U

TABLE 1
ANALYTICAL RESULTS
2016 SOIL VAPOR INTRUSION INVESTIGATION

					Soil Vapor								Indoor Air						Ambient Air	
				Sample ID	SV-04		SV-05		SV-05 (DUP)		SV-06		IA-05		IA-05 (DUP)		IA-06		AA-03	
		Screening Criteria		Sample Date	01/12/2016		01/12/2016		01/12/2016		01/12/2016		01/11/2016		01/11/2016		01/11/2016		01/11/2016	
Analytic Method	Constituent	Soil Vapor (1)	Indoor Air (1)	Units																
T015	1,1,1,2-Tetrachloroethane	3.8	0.38	µg/m³	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U
T015	Isopropylbenzene (Cumene)	420	42	µg/m³	1.7	J	2.3	J	1.7	J	3.9	J	0.98	U	0.98	U	0.98	U	0.98	U
T015	Methylene chloride	630	63	µg/m³	1	J	0.69	U	0.69	U	0.78	J	0.83	J	0.73	J	1.7	J	0.69	U
T015	n-Heptane	--	--	µg/m³	0.82	U	2.6	J	2.6	J	7.9		6.3		4.5		2.5	J	2.3	J
T015	n-Hexane	730	73	µg/m³	5.8		11		12		19		0.87	J	0.86	J	0.7	U	0.7	U
T015	n-Pentane (C5)	1000	100	µg/m³	3		2.4	J	2.6	J	4.4		1.4	J	1.6	J	2.6	J	1.1	J
T015	Octane	--	--	µg/m³	3	J	5.7		4.3	J	9		3.6	J	2.5	J	1.4	J	0.93	U
T015	Styrene	1000	100	µg/m³	5		4.6		4.2	J	2.2	J	0.85	U	0.85	U	0.85	U	0.85	U
T015	tert-Butyl methyl ether (MTBE)	110	11	µg/m³	0.72	U	0.72	U	0.72	U	0.72	U	0.72	U	0.72	U	0.72	U	0.72	U
T015	Tetrachloroethene (PCE)	42	4.2	µg/m³	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U
T015	Toluene	5200	520	µg/m³	4.3		3.6	J	2.3	J	8.3		2.2	J	1.9	J	1.3	J	0.75	U
T015	trans-1,2-Dichloroethene	--	--	µg/m³	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U	0.79	U
T015	trans-1,3-Dichloropropene	--	--	µg/m³	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U	0.91	U
T015	Trichloroethene (TCE)	2.1	0.21	µg/m³	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U	1.1	U
T015	Trichlorofluoromethane (Freon 11)	730	73	µg/m³	2.3	J	1.9	J	1.7	J	1.7	J	2.2	J	2	J	4.2	J	1.6	J
T015	Vinyl chloride	1.7	0.17	µg/m³	0.51	U	0.51	U	0.51	U	0.51	U	0.51	U	0.51	U	0.51	U	0.51	U
T015	Xylenes, m & p	--	--	µg/m³	8.4		17		4.6		19		2.8	J	2.3	J	1.3	J	0.87	U
T015SIM	1,1,2-Trichloroethane	0.21	0.021	µg/m³	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U	0.109	U
T015SIM	1,1-Dichloroethane	18	1.8	µg/m³	0.0809	U	0.0809	U	0.0809	U	0.0809	U	0.147	J	0.0809	U	0.0809	U	0.0809	U
T015SIM	1,2-Dibromoethane (EDB)	0.047	0.0047	µg/m³	0.154	U	0.154	U	0.154	U	0.154	U	**0.208**	**J**	0.154	U	0.154	U	0.154	U
T015SIM	1,2-Dichloroethane	1.1	0.11	µg/m³	0.0809	U	0.168	J	0.0809	U	0.0809	U	**0.467**		**0.441**		**0.381**		**0.187**	**J**
T015SIM	1,4-Dichlorobenzene	2.6	0.26	µg/m³	0.196	J	0.527		0.136	J	0.619		0.216	J	0.206	J	0.168	J	0.12	U
T015SIM	Benzene	3.6	0.36	µg/m³	1.13		1.33		1.14		1.87		**1.1**		**1.05**		**1.07**		**1.14**	
T015SIM	Carbon tetrachloride	4.7	0.47	µg/m³	0.896		0.73		0.81		0.943		**1.34**		**1.22**		**0.962**		**0.891**	
T015SIM	Chloroform	1.2	0.12	µg/m³	15		8.88		9.3		0.936		**0.431**		**0.315**		**0.42**		**0.199**	**J**
T015SIM	Ethylbenzene	11	1.1	µg/m³	4.38		11		2.05		12.5		0.802		0.8		0.438		0.321	
T015SIM	Tetrachloroethene (PCE)	42	4.2	µg/m³	0.496		0.611		0.315	J	0.458		0.24	J	0.176	J	0.169	J	0.139	J
T015SIM	Trichloroethene (TCE)	2.1	0.21	µg/m³	0.211	J	0.172	J	0.107	U	0.117	J	0.17	J	0.107	U	0.107	U	0.107	U
T015SIM	Vinyl chloride	1.7	0.17	µg/m³	0.0511	U	0.0511	U	0.0511	U	0.0511	U	0.0511	U	0.0511	U	0.0511	U	0.0511	U

Notes:
(1): EPA Region 3 Risk Based Concentrations
Grey background indicates an exceedance of the soil vapor screening level.
Bolded values indicates an exceedance of the indoor air screening level.
U: Parameter is non-detect (RSL shown as value).
J: Parameter concentration estimated
(DUP)- Duplicate sample
--: Not Applicable

TABLE 2
HISTORIC TCE RESULTS
2016 SOIL VAPOR INTRUSION INVESTIGATION

		Soil Vapor			Indoor Air		Ambient Air
Heating Season	Sample Date	SV-01	SV-02	SV-03	IA-03	IA-04	AA-02
RW-22 Residence							
2008/2009	12/16/2008	1.1U	1.1U	1.1U	0.107U	0.107U	0.539
2009/2010	1/20/2010	2.24	0.107U	0.107U	0.111J	0.127J	0.107U
2010/2011	12/14/2010	0.798	1.1U	0.278	**0.439**	**1.1**	N/A
2011/2012	1/11/2012	0.107U	0.107U	1.1U	0.107U	0.107U	0.215U
2012/2013	2/6/2013	0.669	0.269U	5.37U	0.133J	0.188J	0.37
2013/2014	1/7/2014	2.1U	0.458	0.58	**0.524**	0.121J	0.107U
2014/2015	2/3/2015	1.07U	0.107U	0.107U	0.177J	0.177J	0.184 J
2015/2016	No Sample	--	--	--	--	--	--

		Soil Vapor			Indoor Air		Ambient Air
Heating Season	Sample Date	SV-04	SV-05	SV-06	IA-05	IA-06	AA-03
RW-16 Residence							
2009/2010	1/20/2010	0.125J	0.107U	N/A	0.107U	0.107U	0.11J
2010/2011	12/15/2010	1.4J	1.07U	3J	0.107U	**0.475**	0.302
2011/2012	1/11/2012	0.107U	0.107U	11U	0.107U	0.107U	0.143U
2012/2013	1/16/2013	2.69U	0.532	2.69U	**0.854**	**0.508**	**0.751**
2013/2014	1/7/2014	1.1U	11U	1.07U	**0.647**	0.421	0.115
2014/2015	2/3/2015	0.107U	1.07U	1.1U	0.123J	0.107U	0.237J
2015/2016	1/11/2016	0.211J	0.172J	0.117J	0.17J	0.107U	0.107U

Notes:
Results in ug/m^3
TCE Soil Vapor Screening Level - 4.3 ug/m3
TCE Indoor Air Screening LEvel - 0.43 ug/m3

Figures

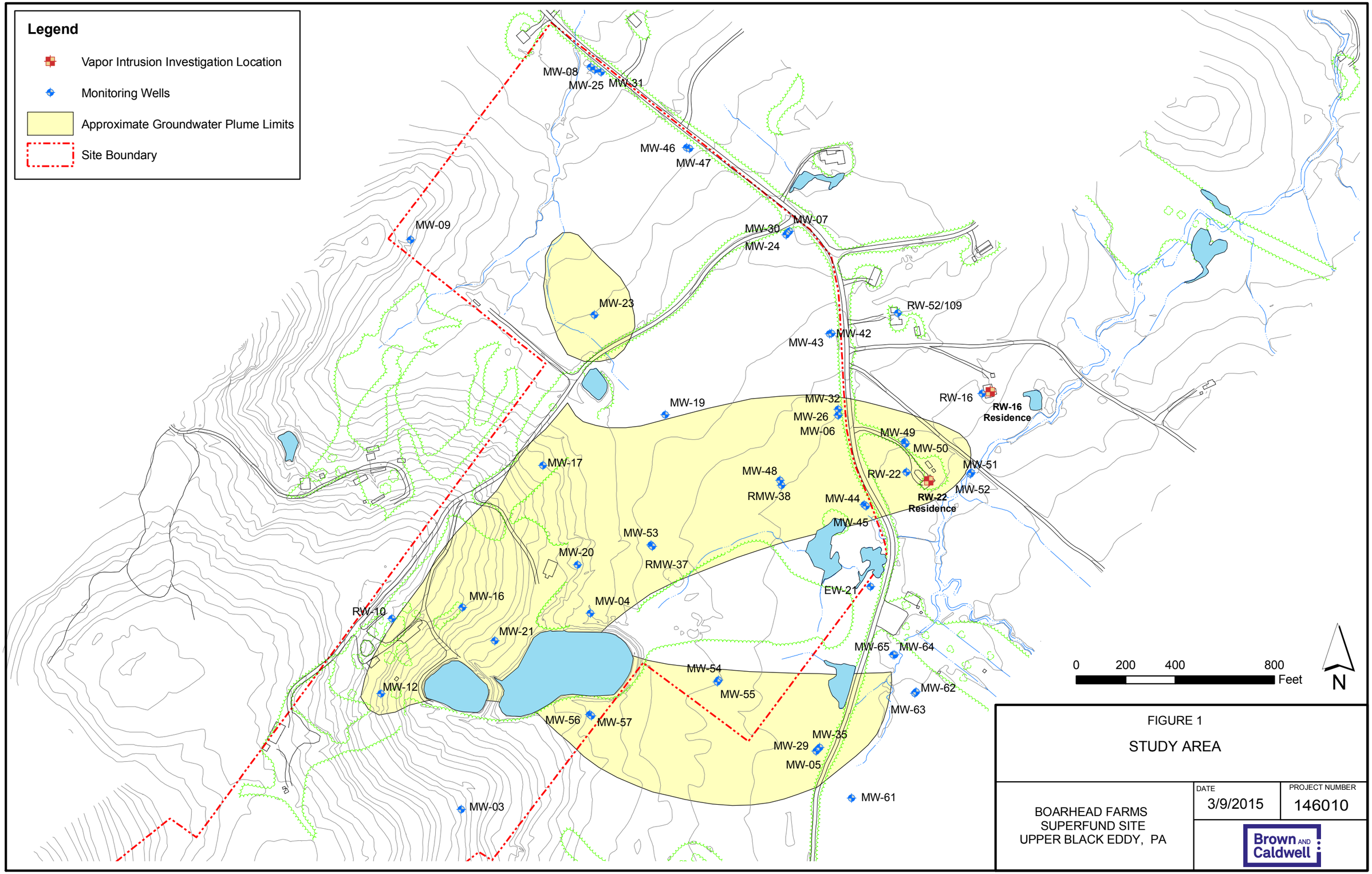


FIGURE 1

STUDY AREA

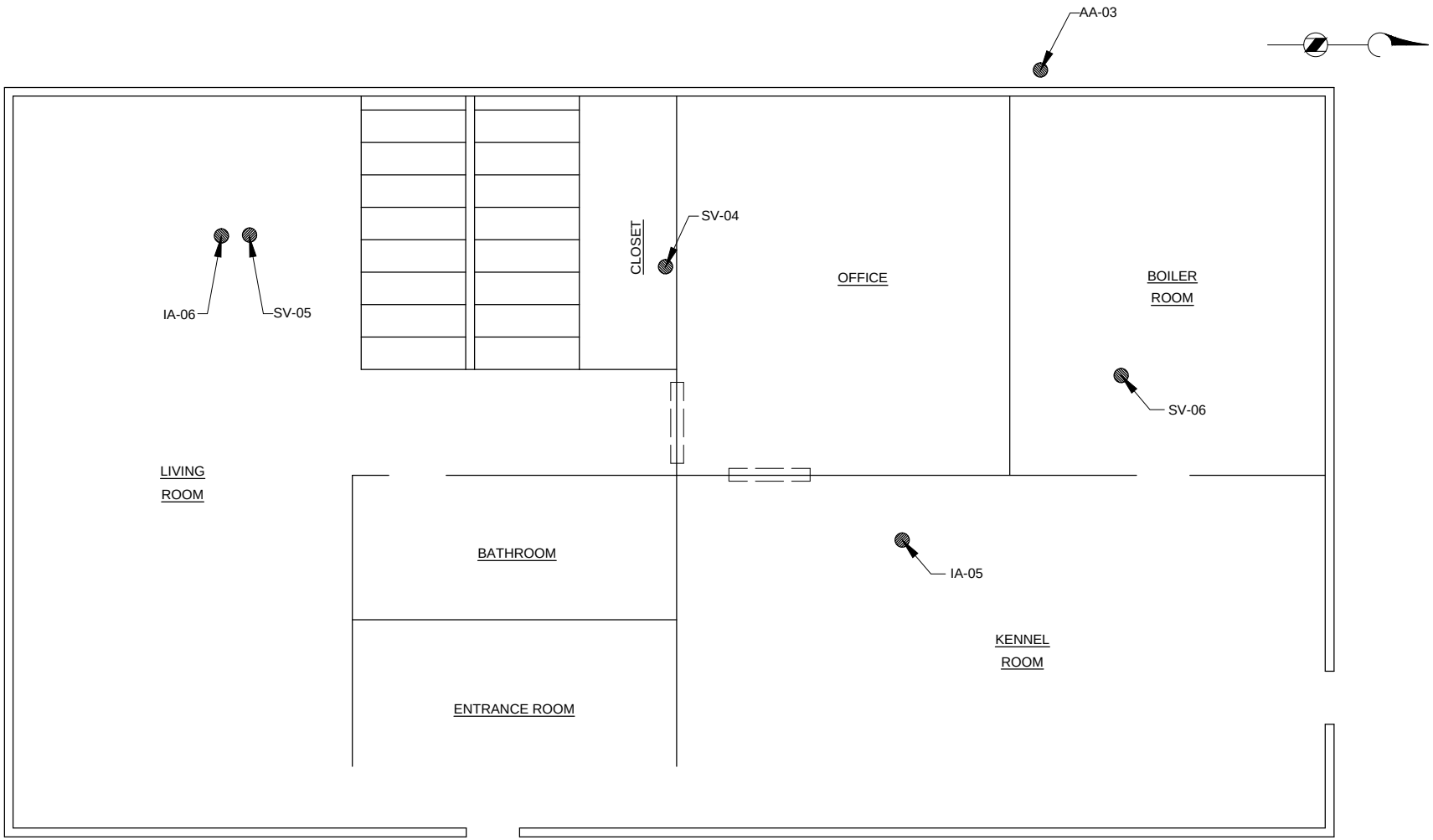
BOARHEAD FARMS
SUPERFUND SITE
UPPER BLACK EDDY, PA

DATE	PROJECT NUMBER
3/9/2015	146010

Brown AND Caldwell

P:GIS/Boarhead/GW_TCE_10-07.mxd

Path: P:\DRAFTING\BOARHEAD\138932.047 File Name: RW-16 RESIDENCE LAYOUT Plot Date: January 20, 2016 2:48 PM Cadd User: Near, Robert



LEGEND:

IA: INDOOR AIR SAMPLE
SV: SOIL VAPOR SAMPLE
AA: AMBIENT AIR SAMPLE

Brown AND Caldwell

SCALE:
JOB NUMBER: 147809
DATE: January 20, 2016

RW-16 RESIDENCE LAYOUT
BOARDHEAD FARMS SUPERFUND SITE
UPPER BLACK EDDY, PENNSYLVANIA

FIGURE
2

Appendix A: Laboratory Reports (CD-ROM)

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Brown & Caldwell
2 Park Way
Suite 2A
Upper Saddle River NJ 07458

January 25, 2016

Project: Boarhead Farms

Submittal Date: 01/13/2016
Group Number: 1623263
SDG: BRI11
PO Number: 147809.080
State of Sample Origin: PA

Client Sample Description	Lancaster Labs (LL) #
IA-05-011116 Air	8204799
DUP-011116 Air	8204800
IA-06-011116 Air	8204801
AA-03-011116 Air	8204802
SV-05-011216 Air	8204803
DUP-011216 Air	8204804
SV-04-011216 Air	8204805
SV-06-011216 Air	8204806

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

ELECTRONIC COPY TO	Brown & Caldwell	Attn: Chris Milone
ELECTRONIC COPY TO	Brown & Caldwell	Attn: Charles Meyn

Respectfully Submitted,

Stacy L. Butt
Specialist

(717) 556-7236

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Lancaster Laboratories Environmental
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Analysis Report

Sample Description: IA-05-011116 Air
COC: SummaCan# 1284
Boarhead Farms

LL Sample # AQ 8204799
LL Group # 1623263
Account # 09286

Project Name: Boarhead Farms

Collected: 01/11/2016 11:36 by SD
through 01/12/2016 12:35
Submitted: 01/13/2016 16:15
Reported: 01/25/2016 15:21

Brown & Caldwell
2 Park Way
Suite 2A
Upper Saddle River NJ 07458

IA-05 SDG#: BRI11-01

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	Acetone	67-64-1	36		1.2	15		0.50	1
05298	Benzene	71-43-2	1.0	J	0.64	0.32	J	0.20	1
05298	Bromobenzene	108-86-1	N.D.		1.3	N.D.		0.20	1
05298	Bromodichloromethane	75-27-4	N.D.		1.3	N.D.		0.20	1
05298	Bromoform	75-25-2	N.D.		2.1	N.D.		0.20	1
05298	Bromomethane	74-83-9	N.D.		0.78	N.D.		0.20	1
05298	1,3-Butadiene	106-99-0	N.D.		0.88	N.D.		0.40	1
05298	2-Butanone	78-93-3	3.5	J	1.5	1.2	J	0.50	1
05298	Carbon Disulfide	75-15-0	N.D.		1.6	N.D.		0.50	1
05298	Carbon Tetrachloride	56-23-5	N.D.		1.3	N.D.		0.20	1
05298	Chlorobenzene	108-90-7	N.D.		0.92	N.D.		0.20	1
05298	Chlorodifluoromethane	75-45-6	N.D.		0.71	N.D.		0.20	1
05298	Chloroethane	75-00-3	N.D.		0.53	N.D.		0.20	1
05298	Chloroform	67-66-3	N.D.		0.98	N.D.		0.20	1
05298	Chloromethane	74-87-3	N.D.		0.41	N.D.		0.20	1
05298	3-Chloropropene	107-05-1	N.D.		0.63	N.D.		0.20	1
05298	Cumene	98-82-8	N.D.		0.98	N.D.		0.20	1
05298	Dibromochloromethane	124-48-1	N.D.		1.7	N.D.		0.20	1
05298	1,2-Dibromoethane	106-93-4	N.D.		1.5	N.D.		0.20	1
05298	Dibromomethane	74-95-3	N.D.		1.4	N.D.		0.20	1
05298	1,2-Dichlorobenzene	95-50-1	N.D.		1.2	N.D.		0.20	1
05298	1,3-Dichlorobenzene	541-73-1	N.D.		1.2	N.D.		0.20	1
05298	1,4-Dichlorobenzene	106-46-7	N.D.		1.2	N.D.		0.20	1
05298	Dichlorodifluoromethane	75-71-8	3.2	J	0.99	0.65	J	0.20	1
05298	1,1-Dichloroethane	75-34-3	N.D.		0.81	N.D.		0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.		0.81	N.D.		0.20	1
05298	1,1-Dichloroethene	75-35-4	N.D.		0.79	N.D.		0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.		0.79	N.D.		0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.		0.79	N.D.		0.20	1
05298	Dichlorofluoromethane	75-43-4	N.D.		0.84	N.D.		0.20	1
05298	1,2-Dichloropropane	78-87-5	N.D.		0.92	N.D.		0.20	1
05298	cis-1,3-Dichloropropene	10061-01-5	N.D.		0.91	N.D.		0.20	1
05298	trans-1,3-Dichloropropene	10061-02-6	N.D.		0.91	N.D.		0.20	1
05298	Ethylbenzene	100-41-4	N.D.		0.87	N.D.		0.20	1
05298	4-Ethyltoluene	622-96-8	N.D.		0.98	N.D.		0.20	1
05298	Freon 113	76-13-1	N.D.		3.8	N.D.		0.50	1
05298	Freon 114	76-14-2	N.D.		1.4	N.D.		0.20	1
05298	Heptane	142-82-5	6.3		0.82	1.5		0.20	1
05298	Hexachloroethane	67-72-1	N.D.		1.9	N.D.		0.20	1
05298	Hexane	110-54-3	0.87	J	0.70	0.25	J	0.20	1
05298	2-Hexanone	591-78-6	N.D.		2.0	N.D.		0.50	1
05298	Isooctane	540-84-1	1.2	J	0.93	0.25	J	0.20	1
05298	Methyl t-Butyl Ether	1634-04-4	N.D.		0.72	N.D.		0.20	1
05298	4-Methyl-2-pentanone	108-10-1	N.D.		2.0	N.D.		0.50	1
05298	Methylene Chloride	75-09-2	0.83	J	0.69	0.24	J	0.20	1
05298	Octane	111-65-9	3.6	J	0.93	0.78	J	0.20	1
05298	Pentane	109-66-0	1.4	J	0.59	0.47	J	0.20	1
05298	Styrene	100-42-5	N.D.		0.85	N.D.		0.20	1
05298	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		1.4	N.D.		0.20	1
05298	1,1,2,2-Tetrachloroethane	79-34-5	N.D.		1.4	N.D.		0.20	1
05298	Tetrachloroethene	127-18-4	N.D.		1.4	N.D.		0.20	1

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Analysis Report

Sample Description: IA-05-011116 Air
COC: SummaCan# 1284
Boarhead Farms

LL Sample # AQ 8204799
LL Group # 1623263
Account # 09286

Project Name: Boarhead Farms

Collected: 01/11/2016 11:36 by SD
through 01/12/2016 12:35
Submitted: 01/13/2016 16:15
Reported: 01/25/2016 15:21

Brown & Caldwell
2 Park Way
Suite 2A
Upper Saddle River NJ 07458

IA-05 SDG#: BRI11-01

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air EPA TO-15			ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	Toluene	108-88-3	2.2	J	0.75	0.57	J	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	N.D.		1.1	N.D.		0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.		1.1	N.D.		0.20	1
05298	Trichloroethene	79-01-6	N.D.		1.1	N.D.		0.20	1
05298	Trichlorofluoromethane	75-69-4	2.2	J	1.1	0.39	J	0.20	1
05298	1,2,3-Trichloropropane	96-18-4	N.D.		1.2	N.D.		0.20	1
05298	1,2,4-Trimethylbenzene	95-63-6	1.8	J	0.98	0.37	J	0.20	1
05298	1,3,5-Trimethylbenzene	108-67-8	2.7	J	0.98	0.55	J	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.		0.51	N.D.		0.20	1
05298	m/p-Xylene	179601-23-1	2.8	J	0.87	0.63	J	0.20	1
05298	o-Xylene	95-47-6	2.1	J	0.87	0.49	J	0.20	1
Volatiles in Air EPA TO-15 using SIM			ug/m3		ug/m3	ppb(v)		ppb(v)	
07345	Benzene	71-43-2	1.10		0.0639	0.345		0.0200	1
07345	Carbon Tetrachloride	56-23-5	1.34		0.126	0.213		0.0200	1
07345	Chloroform	67-66-3	0.431		0.0977	0.0882		0.0200	1
07345	1,2-Dibromoethane	106-93-4	0.208	J	0.154	0.0270	J	0.0200	1
07345	1,4-Dichlorobenzene	106-46-7	0.216	J	0.120	0.0359	J	0.0200	1
07345	1,1-Dichloroethane	75-34-3	0.147	J	0.0809	0.0364	J	0.0200	1
07345	1,2-Dichloroethane	107-06-2	0.467		0.0809	0.115		0.0200	1
07345	Ethylbenzene	100-41-4	0.802		0.0868	0.185		0.0200	1
07345	Tetrachloroethene	127-18-4	0.240	J	0.136	0.0353	J	0.0200	1
07345	1,1,2-Trichloroethane	79-00-5	N.D.		0.109	N.D.		0.0200	1
07345	Trichloroethene	79-01-6	0.170	J	0.107	0.0316	J	0.0200	1
07345	Vinyl Chloride	75-01-4	N.D.		0.0511	N.D.		0.0200	1

MDL = Method Detection Limit

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/16.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO-15 VOCs	EPA TO-15	1	E1601330AB	01/14/2016 23:54	Jacob E Bailey	1
07345	TO-15 by SIM	EPA TO-15 using SIM	1	E1601930AA	01/20/2016 10:11	Jacob E Bailey	1

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Analysis Report

Sample Description: DUP-011116 Air
COC: SummaCan# 1121
Boarhead Farms

LL Sample # AQ 8204800
LL Group # 1623263
Account # 09286

Project Name: Boarhead Farms

Collected: 01/11/2016 by SD
through 01/12/2016
Submitted: 01/13/2016 16:15
Reported: 01/25/2016 15:21

Brown & Caldwell
2 Park Way
Suite 2A
Upper Saddle River NJ 07458

FD111 SDG#: BRI11-02FD

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	Acetone	67-64-1	29		1.2	12		0.50	1
05298	Benzene	71-43-2	1.0	J	0.64	0.33	J	0.20	1
05298	Bromobenzene	108-86-1	N.D.		1.3	N.D.		0.20	1
05298	Bromodichloromethane	75-27-4	N.D.		1.3	N.D.		0.20	1
05298	Bromoform	75-25-2	N.D.		2.1	N.D.		0.20	1
05298	Bromomethane	74-83-9	N.D.		0.78	N.D.		0.20	1
05298	1,3-Butadiene	106-99-0	N.D.		0.88	N.D.		0.40	1
05298	2-Butanone	78-93-3	2.3	J	1.5	0.78	J	0.50	1
05298	Carbon Disulfide	75-15-0	N.D.		1.6	N.D.		0.50	1
05298	Carbon Tetrachloride	56-23-5	N.D.		1.3	N.D.		0.20	1
05298	Chlorobenzene	108-90-7	N.D.		0.92	N.D.		0.20	1
05298	Chlorodifluoromethane	75-45-6	N.D.		0.71	N.D.		0.20	1
05298	Chloroethane	75-00-3	N.D.		0.53	N.D.		0.20	1
05298	Chloroform	67-66-3	N.D.		0.98	N.D.		0.20	1
05298	Chloromethane	74-87-3	N.D.		0.41	N.D.		0.20	1
05298	3-Chloropropene	107-05-1	N.D.		0.63	N.D.		0.20	1
05298	Cumene	98-82-8	N.D.		0.98	N.D.		0.20	1
05298	Dibromochloromethane	124-48-1	N.D.		1.7	N.D.		0.20	1
05298	1,2-Dibromoethane	106-93-4	N.D.		1.5	N.D.		0.20	1
05298	Dibromomethane	74-95-3	N.D.		1.4	N.D.		0.20	1
05298	1,2-Dichlorobenzene	95-50-1	N.D.		1.2	N.D.		0.20	1
05298	1,3-Dichlorobenzene	541-73-1	N.D.		1.2	N.D.		0.20	1
05298	1,4-Dichlorobenzene	106-46-7	N.D.		1.2	N.D.		0.20	1
05298	Dichlorodifluoromethane	75-71-8	3.0	J	0.99	0.62	J	0.20	1
05298	1,1-Dichloroethane	75-34-3	N.D.		0.81	N.D.		0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.		0.81	N.D.		0.20	1
05298	1,1-Dichloroethene	75-35-4	N.D.		0.79	N.D.		0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.		0.79	N.D.		0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.		0.79	N.D.		0.20	1
05298	Dichlorofluoromethane	75-43-4	N.D.		0.84	N.D.		0.20	1
05298	1,2-Dichloropropane	78-87-5	N.D.		0.92	N.D.		0.20	1
05298	cis-1,3-Dichloropropene	10061-01-5	N.D.		0.91	N.D.		0.20	1
05298	trans-1,3-Dichloropropene	10061-02-6	N.D.		0.91	N.D.		0.20	1
05298	Ethylbenzene	100-41-4	N.D.		0.87	N.D.		0.20	1
05298	4-Ethyltoluene	622-96-8	N.D.		0.98	N.D.		0.20	1
05298	Freon 113	76-13-1	N.D.		3.8	N.D.		0.50	1
05298	Freon 114	76-14-2	N.D.		1.4	N.D.		0.20	1
05298	Heptane	142-82-5	4.5		0.82	1.1		0.20	1
05298	Hexachloroethane	67-72-1	N.D.		1.9	N.D.		0.20	1
05298	Hexane	110-54-3	0.86	J	0.70	0.24	J	0.20	1
05298	2-Hexanone	591-78-6	N.D.		2.0	N.D.		0.50	1
05298	Isooctane	540-84-1	N.D.		0.93	N.D.		0.20	1
05298	Methyl t-Butyl Ether	1634-04-4	N.D.		0.72	N.D.		0.20	1
05298	4-Methyl-2-pentanone	108-10-1	N.D.		2.0	N.D.		0.50	1
05298	Methylene Chloride	75-09-2	0.73	J	0.69	0.21	J	0.20	1
05298	Octane	111-65-9	2.5	J	0.93	0.53	J	0.20	1
05298	Pentane	109-66-0	1.6	J	0.59	0.53	J	0.20	1
05298	Styrene	100-42-5	N.D.		0.85	N.D.		0.20	1
05298	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		1.4	N.D.		0.20	1
05298	1,1,2,2-Tetrachloroethane	79-34-5	N.D.		1.4	N.D.		0.20	1
05298	Tetrachloroethene	127-18-4	N.D.		1.4	N.D.		0.20	1

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Analysis Report

Sample Description: DUP-011116 Air
COC: SummaCan# 1121
Boarhead Farms

LL Sample # AQ 8204800
LL Group # 1623263
Account # 09286

Project Name: Boarhead Farms

Collected: 01/11/2016 by SD
through 01/12/2016
Submitted: 01/13/2016 16:15
Reported: 01/25/2016 15:21

Brown & Caldwell
2 Park Way
Suite 2A
Upper Saddle River NJ 07458

FD111 SDG#: BRI11-02FD

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air EPA TO-15			ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	Toluene	108-88-3	1.9	J	0.75	0.50	J	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	N.D.		1.1	N.D.		0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.		1.1	N.D.		0.20	1
05298	Trichloroethene	79-01-6	N.D.		1.1	N.D.		0.20	1
05298	Trichlorofluoromethane	75-69-4	2.0	J	1.1	0.35	J	0.20	1
05298	1,2,3-Trichloropropane	96-18-4	N.D.		1.2	N.D.		0.20	1
05298	1,2,4-Trimethylbenzene	95-63-6	1.5	J	0.98	0.31	J	0.20	1
05298	1,3,5-Trimethylbenzene	108-67-8	2.1	J	0.98	0.42	J	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.		0.51	N.D.		0.20	1
05298	m/p-Xylene	179601-23-1	2.3	J	0.87	0.53	J	0.20	1
05298	o-Xylene	95-47-6	1.2	J	0.87	0.29	J	0.20	1
Volatiles in Air EPA TO-15 using SIM			ug/m3		ug/m3	ppb(v)		ppb(v)	
07345	Benzene	71-43-2	1.05		0.0639	0.330		0.0200	1
07345	Carbon Tetrachloride	56-23-5	1.22		0.126	0.193		0.0200	1
07345	Chloroform	67-66-3	0.315		0.0977	0.0645		0.0200	1
07345	1,2-Dibromoethane	106-93-4	N.D.		0.154	N.D.		0.0200	1
07345	1,4-Dichlorobenzene	106-46-7	0.206	J	0.120	0.0343	J	0.0200	1
07345	1,1-Dichloroethane	75-34-3	N.D.		0.0809	N.D.		0.0200	1
07345	1,2-Dichloroethane	107-06-2	0.441		0.0809	0.109		0.0200	1
07345	Ethylbenzene	100-41-4	0.800		0.0868	0.184		0.0200	1
07345	Tetrachloroethene	127-18-4	0.176	J	0.136	0.0259	J	0.0200	1
07345	1,1,2-Trichloroethane	79-00-5	N.D.		0.109	N.D.		0.0200	1
07345	Trichloroethene	79-01-6	N.D.		0.107	N.D.		0.0200	1
07345	Vinyl Chloride	75-01-4	N.D.		0.0511	N.D.		0.0200	1

MDL = Method Detection Limit

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/16.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO-15 VOCs	EPA TO-15	1	E1601330AB	01/15/2016 00:26	Jacob E Bailey	1
07345	TO-15 by SIM	EPA TO-15 using SIM	1	E1601930AA	01/20/2016 10:43	Jacob E Bailey	1

Sample Description: IA-06-011116 Air
COC: SummaCan# 1129
Boarhead Farms

LL Sample # AQ 8204801
LL Group # 1623263
Account # 09286

Project Name: Boarhead Farms

Collected: 01/11/2016 11:40 by SD
through 01/12/2016 12:19
Submitted: 01/13/2016 16:15
Reported: 01/25/2016 15:21

Brown & Caldwell
2 Park Way
Suite 2A
Upper Saddle River NJ 07458

06-IA SDG#: BRI11-03

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	Acetone	67-64-1	22		1.2	9.4		0.50	1
05298	Benzene	71-43-2	1.0	J	0.64	0.32	J	0.20	1
05298	Bromobenzene	108-86-1	N.D.		1.3	N.D.		0.20	1
05298	Bromodichloromethane	75-27-4	N.D.		1.3	N.D.		0.20	1
05298	Bromoform	75-25-2	N.D.		2.1	N.D.		0.20	1
05298	Bromomethane	74-83-9	N.D.		0.78	N.D.		0.20	1
05298	1,3-Butadiene	106-99-0	N.D.		0.88	N.D.		0.40	1
05298	2-Butanone	78-93-3	N.D.		1.5	N.D.		0.50	1
05298	Carbon Disulfide	75-15-0	N.D.		1.6	N.D.		0.50	1
05298	Carbon Tetrachloride	56-23-5	N.D.		1.3	N.D.		0.20	1
05298	Chlorobenzene	108-90-7	N.D.		0.92	N.D.		0.20	1
05298	Chlorodifluoromethane	75-45-6	N.D.		0.71	N.D.		0.20	1
05298	Chloroethane	75-00-3	N.D.		0.53	N.D.		0.20	1
05298	Chloroform	67-66-3	N.D.		0.98	N.D.		0.20	1
05298	Chloromethane	74-87-3	N.D.		0.41	N.D.		0.20	1
05298	3-Chloropropene	107-05-1	N.D.		0.63	N.D.		0.20	1
05298	Cumene	98-82-8	N.D.		0.98	N.D.		0.20	1
05298	Dibromochloromethane	124-48-1	N.D.		1.7	N.D.		0.20	1
05298	1,2-Dibromoethane	106-93-4	N.D.		1.5	N.D.		0.20	1
05298	Dibromomethane	74-95-3	N.D.		1.4	N.D.		0.20	1
05298	1,2-Dichlorobenzene	95-50-1	N.D.		1.2	N.D.		0.20	1
05298	1,3-Dichlorobenzene	541-73-1	N.D.		1.2	N.D.		0.20	1
05298	1,4-Dichlorobenzene	106-46-7	N.D.		1.2	N.D.		0.20	1
05298	Dichlorodifluoromethane	75-71-8	3.2	J	0.99	0.65	J	0.20	1
05298	1,1-Dichloroethane	75-34-3	N.D.		0.81	N.D.		0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.		0.81	N.D.		0.20	1
05298	1,1-Dichloroethene	75-35-4	N.D.		0.79	N.D.		0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.		0.79	N.D.		0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.		0.79	N.D.		0.20	1
05298	Dichlorofluoromethane	75-43-4	N.D.		0.84	N.D.		0.20	1
05298	1,2-Dichloropropane	78-87-5	N.D.		0.92	N.D.		0.20	1
05298	cis-1,3-Dichloropropene	10061-01-5	N.D.		0.91	N.D.		0.20	1
05298	trans-1,3-Dichloropropene	10061-02-6	N.D.		0.91	N.D.		0.20	1
05298	Ethylbenzene	100-41-4	N.D.		0.87	N.D.		0.20	1
05298	4-Ethyltoluene	622-96-8	N.D.		0.98	N.D.		0.20	1
05298	Freon 113	76-13-1	N.D.		3.8	N.D.		0.50	1
05298	Freon 114	76-14-2	N.D.		1.4	N.D.		0.20	1
05298	Heptane	142-82-5	2.5	J	0.82	0.61	J	0.20	1
05298	Hexachloroethane	67-72-1	N.D.		1.9	N.D.		0.20	1
05298	Hexane	110-54-3	N.D.		0.70	N.D.		0.20	1
05298	2-Hexanone	591-78-6	N.D.		2.0	N.D.		0.50	1
05298	Isooctane	540-84-1	N.D.		0.93	N.D.		0.20	1
05298	Methyl t-Butyl Ether	1634-04-4	N.D.		0.72	N.D.		0.20	1
05298	4-Methyl-2-pentanone	108-10-1	N.D.		2.0	N.D.		0.50	1
05298	Methylene Chloride	75-09-2	1.7	J	0.69	0.50	J	0.20	1
05298	Octane	111-65-9	1.4	J	0.93	0.29	J	0.20	1
05298	Pentane	109-66-0	2.6	J	0.59	0.87	J	0.20	1
05298	Styrene	100-42-5	N.D.		0.85	N.D.		0.20	1
05298	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		1.4	N.D.		0.20	1
05298	1,1,2,2-Tetrachloroethane	79-34-5	N.D.		1.4	N.D.		0.20	1
05298	Tetrachloroethene	127-18-4	N.D.		1.4	N.D.		0.20	1

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Analysis Report

Sample Description: IA-06-011116 Air
COC: SummaCan# 1129
Boarhead Farms

LL Sample # AQ 8204801
LL Group # 1623263
Account # 09286

Project Name: Boarhead Farms

Collected: 01/11/2016 11:40 by SD
through 01/12/2016 12:19
Submitted: 01/13/2016 16:15
Reported: 01/25/2016 15:21

Brown & Caldwell
2 Park Way
Suite 2A
Upper Saddle River NJ 07458

06-IA SDG#: BRI11-03

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air EPA TO-15			ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	Toluene	108-88-3	1.3	J	0.75	0.33	J	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	N.D.		1.1	N.D.		0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.		1.1	N.D.		0.20	1
05298	Trichloroethene	79-01-6	N.D.		1.1	N.D.		0.20	1
05298	Trichlorofluoromethane	75-69-4	4.2	J	1.1	0.75	J	0.20	1
05298	1,2,3-Trichloropropane	96-18-4	N.D.		1.2	N.D.		0.20	1
05298	1,2,4-Trimethylbenzene	95-63-6	1.0	J	0.98	0.20	J	0.20	1
05298	1,3,5-Trimethylbenzene	108-67-8	1.4	J	0.98	0.28	J	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.		0.51	N.D.		0.20	1
05298	m/p-Xylene	179601-23-1	1.3	J	0.87	0.29	J	0.20	1
05298	o-Xylene	95-47-6	N.D.		0.87	N.D.		0.20	1
Volatiles in Air EPA TO-15 using SIM			ug/m3		ug/m3	ppb(v)		ppb(v)	
07345	Benzene	71-43-2	1.07		0.0639	0.334		0.0200	1
07345	Carbon Tetrachloride	56-23-5	0.962		0.126	0.153		0.0200	1
07345	Chloroform	67-66-3	0.420		0.0977	0.0861		0.0200	1
07345	1,2-Dibromoethane	106-93-4	N.D.		0.154	N.D.		0.0200	1
07345	1,4-Dichlorobenzene	106-46-7	0.168	J	0.120	0.0280	J	0.0200	1
07345	1,1-Dichloroethane	75-34-3	N.D.		0.0809	N.D.		0.0200	1
07345	1,2-Dichloroethane	107-06-2	0.381		0.0809	0.0941		0.0200	1
07345	Ethylbenzene	100-41-4	0.438		0.0868	0.101		0.0200	1
07345	Tetrachloroethene	127-18-4	0.169	J	0.136	0.0249	J	0.0200	1
07345	1,1,2-Trichloroethane	79-00-5	N.D.		0.109	N.D.		0.0200	1
07345	Trichloroethene	79-01-6	N.D.		0.107	N.D.		0.0200	1
07345	Vinyl Chloride	75-01-4	N.D.		0.0511	N.D.		0.0200	1

MDL = Method Detection Limit

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/16.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO-15 VOCs	EPA TO-15	1	E1601330AB	01/15/2016 00:58	Jacob E Bailey	1
07345	TO-15 by SIM	EPA TO-15 using SIM	1	E1601930AA	01/20/2016 11:15	Jacob E Bailey	1

Sample Description: AA-03-011116 Air
COC: SummaCan# 1301
Boarhead Farms

LL Sample # AQ 8204802
LL Group # 1623263
Account # 09286

Project Name: Boarhead Farms

Collected: 01/11/2016 11:42 by SD
through 01/12/2016 12:20
Submitted: 01/13/2016 16:15
Reported: 01/25/2016 15:21

Brown & Caldwell
2 Park Way
Suite 2A
Upper Saddle River NJ 07458

AA-03 SDG#: BRI11-04

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	Acetone	67-64-1	6.3		1.2	2.7		0.50	1
05298	Benzene	71-43-2	1.0	J	0.64	0.32	J	0.20	1
05298	Bromobenzene	108-86-1	N.D.		1.3	N.D.		0.20	1
05298	Bromodichloromethane	75-27-4	N.D.		1.3	N.D.		0.20	1
05298	Bromoform	75-25-2	N.D.		2.1	N.D.		0.20	1
05298	Bromomethane	74-83-9	N.D.		0.78	N.D.		0.20	1
05298	1,3-Butadiene	106-99-0	N.D.		0.88	N.D.		0.40	1
05298	2-Butanone	78-93-3	N.D.		1.5	N.D.		0.50	1
05298	Carbon Disulfide	75-15-0	N.D.		1.6	N.D.		0.50	1
05298	Carbon Tetrachloride	56-23-5	N.D.		1.3	N.D.		0.20	1
05298	Chlorobenzene	108-90-7	N.D.		0.92	N.D.		0.20	1
05298	Chlorodifluoromethane	75-45-6	N.D.		0.71	N.D.		0.20	1
05298	Chloroethane	75-00-3	N.D.		0.53	N.D.		0.20	1
05298	Chloroform	67-66-3	N.D.		0.98	N.D.		0.20	1
05298	Chloromethane	74-87-3	N.D.		0.41	N.D.		0.20	1
05298	3-Chloropropene	107-05-1	N.D.		0.63	N.D.		0.20	1
05298	Cumene	98-82-8	N.D.		0.98	N.D.		0.20	1
05298	Dibromochloromethane	124-48-1	N.D.		1.7	N.D.		0.20	1
05298	1,2-Dibromoethane	106-93-4	N.D.		1.5	N.D.		0.20	1
05298	Dibromomethane	74-95-3	N.D.		1.4	N.D.		0.20	1
05298	1,2-Dichlorobenzene	95-50-1	N.D.		1.2	N.D.		0.20	1
05298	1,3-Dichlorobenzene	541-73-1	N.D.		1.2	N.D.		0.20	1
05298	1,4-Dichlorobenzene	106-46-7	N.D.		1.2	N.D.		0.20	1
05298	Dichlorodifluoromethane	75-71-8	3.1	J	0.99	0.63	J	0.20	1
05298	1,1-Dichloroethane	75-34-3	N.D.		0.81	N.D.		0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.		0.81	N.D.		0.20	1
05298	1,1-Dichloroethene	75-35-4	N.D.		0.79	N.D.		0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.		0.79	N.D.		0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.		0.79	N.D.		0.20	1
05298	Dichlorofluoromethane	75-43-4	N.D.		0.84	N.D.		0.20	1
05298	1,2-Dichloropropane	78-87-5	N.D.		0.92	N.D.		0.20	1
05298	cis-1,3-Dichloropropene	10061-01-5	N.D.		0.91	N.D.		0.20	1
05298	trans-1,3-Dichloropropene	10061-02-6	N.D.		0.91	N.D.		0.20	1
05298	Ethylbenzene	100-41-4	N.D.		0.87	N.D.		0.20	1
05298	4-Ethyltoluene	622-96-8	N.D.		0.98	N.D.		0.20	1
05298	Freon 113	76-13-1	N.D.		3.8	N.D.		0.50	1
05298	Freon 114	76-14-2	N.D.		1.4	N.D.		0.20	1
05298	Heptane	142-82-5	2.3	J	0.82	0.56	J	0.20	1
05298	Hexachloroethane	67-72-1	N.D.		1.9	N.D.		0.20	1
05298	Hexane	110-54-3	N.D.		0.70	N.D.		0.20	1
05298	2-Hexanone	591-78-6	N.D.		2.0	N.D.		0.50	1
05298	Isooctane	540-84-1	N.D.		0.93	N.D.		0.20	1
05298	Methyl t-Butyl Ether	1634-04-4	N.D.		0.72	N.D.		0.20	1
05298	4-Methyl-2-pentanone	108-10-1	N.D.		2.0	N.D.		0.50	1
05298	Methylene Chloride	75-09-2	N.D.		0.69	N.D.		0.20	1
05298	Octane	111-65-9	N.D.		0.93	N.D.		0.20	1
05298	Pentane	109-66-0	1.1	J	0.59	0.39	J	0.20	1
05298	Styrene	100-42-5	N.D.		0.85	N.D.		0.20	1
05298	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		1.4	N.D.		0.20	1
05298	1,1,2,2-Tetrachloroethane	79-34-5	N.D.		1.4	N.D.		0.20	1
05298	Tetrachloroethene	127-18-4	N.D.		1.4	N.D.		0.20	1

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Analysis Report

Sample Description: AA-03-011116 Air
COC: SummaCan# 1301
Boarhead Farms

LL Sample # AQ 8204802
LL Group # 1623263
Account # 09286

Project Name: Boarhead Farms

Collected: 01/11/2016 11:42 by SD
through 01/12/2016 12:20
Submitted: 01/13/2016 16:15
Reported: 01/25/2016 15:21

Brown & Caldwell
2 Park Way
Suite 2A
Upper Saddle River NJ 07458

AA-03 SDG#: BRI11-04

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air EPA TO-15			ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	Toluene	108-88-3	N.D.		0.75	N.D.		0.20	1
05298	1,1,1-Trichloroethane	71-55-6	N.D.		1.1	N.D.		0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.		1.1	N.D.		0.20	1
05298	Trichloroethene	79-01-6	N.D.		1.1	N.D.		0.20	1
05298	Trichlorofluoromethane	75-69-4	1.6	J	1.1	0.29	J	0.20	1
05298	1,2,3-Trichloropropane	96-18-4	N.D.		1.2	N.D.		0.20	1
05298	1,2,4-Trimethylbenzene	95-63-6	N.D.		0.98	N.D.		0.20	1
05298	1,3,5-Trimethylbenzene	108-67-8	1.0	J	0.98	0.20	J	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.		0.51	N.D.		0.20	1
05298	m/p-Xylene	179601-23-1	N.D.		0.87	N.D.		0.20	1
05298	o-Xylene	95-47-6	N.D.		0.87	N.D.		0.20	1
Volatiles in Air EPA TO-15 using SIM			ug/m3		ug/m3	ppb(v)		ppb(v)	
07345	Benzene	71-43-2	1.14		0.0639	0.358		0.0200	1
07345	Carbon Tetrachloride	56-23-5	0.891		0.126	0.142		0.0200	1
07345	Chloroform	67-66-3	0.199	J	0.0977	0.0407	J	0.0200	1
07345	1,2-Dibromoethane	106-93-4	N.D.		0.154	N.D.		0.0200	1
07345	1,4-Dichlorobenzene	106-46-7	N.D.		0.120	N.D.		0.0200	1
07345	1,1-Dichloroethane	75-34-3	N.D.		0.0809	N.D.		0.0200	1
07345	1,2-Dichloroethane	107-06-2	0.187	J	0.0809	0.0462	J	0.0200	1
07345	Ethylbenzene	100-41-4	0.321		0.0868	0.0738		0.0200	1
07345	Tetrachloroethene	127-18-4	0.139	J	0.136	0.0205	J	0.0200	1
07345	1,1,2-Trichloroethane	79-00-5	N.D.		0.109	N.D.		0.0200	1
07345	Trichloroethene	79-01-6	N.D.		0.107	N.D.		0.0200	1
07345	Vinyl Chloride	75-01-4	N.D.		0.0511	N.D.		0.0200	1

MDL = Method Detection Limit

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/16.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO-15 VOCs	EPA TO-15	1	E1601330AB	01/15/2016 01:30	Jacob E Bailey	1
07345	TO-15 by SIM	EPA TO-15 using SIM	1	E1601930AA	01/20/2016 11:47	Jacob E Bailey	1

Sample Description: SV-05-011216 Air
COC: SummaCan# 856
Boarhead Farms

LL Sample # AQ 8204803
LL Group # 1623263
Account # 09286

Project Name: Boarhead Farms

Collected: 01/12/2016 13:23 by SD
through 01/12/2016 13:58
Submitted: 01/13/2016 16:15
Reported: 01/25/2016 15:21

Brown & Caldwell
2 Park Way
Suite 2A
Upper Saddle River NJ 07458

SV-05 SDG#: BRI11-05

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	Acetone	67-64-1	32		1.2	13		0.50	1
05298	Benzene	71-43-2	1.1	J	0.64	0.35	J	0.20	1
05298	Bromobenzene	108-86-1	1.4	J	1.3	0.22	J	0.20	1
05298	Bromodichloromethane	75-27-4	N.D.		1.3	N.D.		0.20	1
05298	Bromoform	75-25-2	N.D.		2.1	N.D.		0.20	1
05298	Bromomethane	74-83-9	N.D.		0.78	N.D.		0.20	1
05298	1,3-Butadiene	106-99-0	N.D.		0.88	N.D.		0.40	1
05298	2-Butanone	78-93-3	6.5		1.5	2.2		0.50	1
05298	Carbon Disulfide	75-15-0	78		1.6	25		0.50	1
05298	Carbon Tetrachloride	56-23-5	N.D.		1.3	N.D.		0.20	1
05298	Chlorobenzene	108-90-7	N.D.		0.92	N.D.		0.20	1
05298	Chlorodifluoromethane	75-45-6	0.84	J	0.71	0.24	J	0.20	1
05298	Chloroethane	75-00-3	N.D.		0.53	N.D.		0.20	1
05298	Chloroform	67-66-3	6.9		0.98	1.4		0.20	1
05298	Chloromethane	74-87-3	N.D.		0.41	N.D.		0.20	1
05298	3-Chloropropene	107-05-1	N.D.		0.63	N.D.		0.20	1
05298	Cumene	98-82-8	2.3	J	0.98	0.48	J	0.20	1
05298	Dibromochloromethane	124-48-1	N.D.		1.7	N.D.		0.20	1
05298	1,2-Dibromoethane	106-93-4	N.D.		1.5	N.D.		0.20	1
05298	Dibromomethane	74-95-3	N.D.		1.4	N.D.		0.20	1
05298	1,2-Dichlorobenzene	95-50-1	2.1	J	1.2	0.34	J	0.20	1
05298	1,3-Dichlorobenzene	541-73-1	2.2	J	1.2	0.37	J	0.20	1
05298	1,4-Dichlorobenzene	106-46-7	2.1	J	1.2	0.35	J	0.20	1
05298	Dichlorodifluoromethane	75-71-8	2.8	J	0.99	0.56	J	0.20	1
05298	1,1-Dichloroethane	75-34-3	N.D.		0.81	N.D.		0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.		0.81	N.D.		0.20	1
05298	1,1-Dichloroethene	75-35-4	N.D.		0.79	N.D.		0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.		0.79	N.D.		0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.		0.79	N.D.		0.20	1
05298	Dichlorofluoromethane	75-43-4	N.D.		0.84	N.D.		0.20	1
05298	1,2-Dichloropropane	78-87-5	N.D.		0.92	N.D.		0.20	1
05298	cis-1,3-Dichloropropene	10061-01-5	N.D.		0.91	N.D.		0.20	1
05298	trans-1,3-Dichloropropene	10061-02-6	N.D.		0.91	N.D.		0.20	1
05298	Ethylbenzene	100-41-4	7.2		0.87	1.7		0.20	1
05298	4-Ethyltoluene	622-96-8	4.9	J	0.98	1.0	J	0.20	1
05298	Freon 113	76-13-1	N.D.		3.8	N.D.		0.50	1
05298	Freon 114	76-14-2	N.D.		1.4	N.D.		0.20	1
05298	Heptane	142-82-5	2.6	J	0.82	0.65	J	0.20	1
05298	Hexachloroethane	67-72-1	N.D.		1.9	N.D.		0.20	1
05298	Hexane	110-54-3	11		0.70	3.2		0.20	1
05298	2-Hexanone	591-78-6	N.D.		2.0	N.D.		0.50	1
05298	Isooctane	540-84-1	12		0.93	2.6		0.20	1
05298	Methyl t-Butyl Ether	1634-04-4	N.D.		0.72	N.D.		0.20	1
05298	4-Methyl-2-pentanone	108-10-1	N.D.		2.0	N.D.		0.50	1
05298	Methylene Chloride	75-09-2	N.D.		0.69	N.D.		0.20	1
05298	Octane	111-65-9	5.7		0.93	1.2		0.20	1
05298	Pentane	109-66-0	2.4	J	0.59	0.80	J	0.20	1
05298	Styrene	100-42-5	4.6		0.85	1.1		0.20	1
05298	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		1.4	N.D.		0.20	1
05298	1,1,2,2-Tetrachloroethane	79-34-5	N.D.		1.4	N.D.		0.20	1
05298	Tetrachloroethene	127-18-4	N.D.		1.4	N.D.		0.20	1

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Analysis Report

Sample Description: SV-05-011216 Air
COC: SummaCan# 856
Boarhead Farms

LL Sample # AQ 8204803
LL Group # 1623263
Account # 09286

Project Name: Boarhead Farms

Collected: 01/12/2016 13:23 by SD
through 01/12/2016 13:58
Submitted: 01/13/2016 16:15
Reported: 01/25/2016 15:21

Brown & Caldwell
2 Park Way
Suite 2A
Upper Saddle River NJ 07458

SV-05 SDG#: BRI11-05

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air EPA TO-15			ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	Toluene	108-88-3	3.6	J	0.75	0.95	J	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	N.D.		1.1	N.D.		0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.		1.1	N.D.		0.20	1
05298	Trichloroethene	79-01-6	N.D.		1.1	N.D.		0.20	1
05298	Trichlorofluoromethane	75-69-4	1.9	J	1.1	0.34	J	0.20	1
05298	1,2,3-Trichloropropane	96-18-4	N.D.		1.2	N.D.		0.20	1
05298	1,2,4-Trimethylbenzene	95-63-6	9.1		0.98	1.8		0.20	1
05298	1,3,5-Trimethylbenzene	108-67-8	5.3		0.98	1.1		0.20	1
05298	Vinyl Chloride	75-01-4	N.D.		0.51	N.D.		0.20	1
05298	m/p-Xylene	179601-23-1	17		0.87	3.8		0.20	1
05298	o-Xylene	95-47-6	11		0.87	2.6		0.20	1
Volatiles in Air EPA TO-15 using SIM			ug/m3		ug/m3	ppb(v)		ppb(v)	
07345	Benzene	71-43-2	1.33		0.0639	0.415		0.0200	1
07345	Carbon Tetrachloride	56-23-5	0.730		0.126	0.116		0.0200	1
07345	Chloroform	67-66-3	8.88		0.977	1.82		0.200	10
07345	1,2-Dibromoethane	106-93-4	N.D.		0.154	N.D.		0.0200	1
07345	1,4-Dichlorobenzene	106-46-7	0.527		0.120	0.0877		0.0200	1
07345	1,1-Dichloroethane	75-34-3	N.D.		0.0809	N.D.		0.0200	1
07345	1,2-Dichloroethane	107-06-2	0.168	J	0.0809	0.0416	J	0.0200	1
07345	Ethylbenzene	100-41-4	11.0		0.868	2.53		0.200	10
07345	Tetrachloroethene	127-18-4	0.611		0.136	0.0901		0.0200	1
07345	1,1,2-Trichloroethane	79-00-5	N.D.		0.109	N.D.		0.0200	1
07345	Trichloroethene	79-01-6	0.172	J	0.107	0.0320	J	0.0200	1
07345	Vinyl Chloride	75-01-4	N.D.		0.0511	N.D.		0.0200	1

MDL = Method Detection Limit

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/16.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO-15 VOCs	EPA TO-15	1	D1602030AA	01/20/2016 19:56	Jacob E Bailey	1
07345	TO-15 by SIM	EPA TO-15 using SIM	1	E1601930AA	01/20/2016 12:19	Jacob E Bailey	1
07345	TO-15 by SIM	EPA TO-15 using SIM	1	E1601930AA	01/20/2016 14:33	Jacob E Bailey	10

Sample Description: DUP-011216 Air
COC: SummaCan# 1251
Boarhead Farms

LL Sample # AQ 8204804
LL Group # 1623263
Account # 09286

Project Name: Boarhead Farms

Collected: 01/12/2016 by SD
through 01/12/2016
Submitted: 01/13/2016 16:15
Reported: 01/25/2016 15:21

Brown & Caldwell
2 Park Way
Suite 2A
Upper Saddle River NJ 07458

FD112 SDG#: BRI11-06FD

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air EPA TO-15			ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	Acetone	67-64-1	45		1.2	19		0.50	1
05298	Benzene	71-43-2	1.0	J	0.64	0.32	J	0.20	1
05298	Bromobenzene	108-86-1	N.D.		1.3	N.D.		0.20	1
05298	Bromodichloromethane	75-27-4	N.D.		1.3	N.D.		0.20	1
05298	Bromoform	75-25-2	N.D.		2.1	N.D.		0.20	1
05298	Bromomethane	74-83-9	N.D.		0.78	N.D.		0.20	1
05298	1,3-Butadiene	106-99-0	N.D.		0.88	N.D.		0.40	1
05298	2-Butanone	78-93-3	10		1.5	3.6		0.50	1
05298	Carbon Disulfide	75-15-0	89		1.6	28		0.50	1
05298	Carbon Tetrachloride	56-23-5	N.D.		1.3	N.D.		0.20	1
05298	Chlorobenzene	108-90-7	N.D.		0.92	N.D.		0.20	1
05298	Chlorodifluoromethane	75-45-6	N.D.		0.71	N.D.		0.20	1
05298	Chloroethane	75-00-3	N.D.		0.53	N.D.		0.20	1
05298	Chloroform	67-66-3	6.3		0.98	1.3		0.20	1
05298	Chloromethane	74-87-3	N.D.		0.41	N.D.		0.20	1
05298	3-Chloropropene	107-05-1	N.D.		0.63	N.D.		0.20	1
05298	Cumene	98-82-8	1.7	J	0.98	0.35	J	0.20	1
05298	Dibromochloromethane	124-48-1	N.D.		1.7	N.D.		0.20	1
05298	1,2-Dibromoethane	106-93-4	N.D.		1.5	N.D.		0.20	1
05298	Dibromomethane	74-95-3	N.D.		1.4	N.D.		0.20	1
05298	1,2-Dichlorobenzene	95-50-1	N.D.		1.2	N.D.		0.20	1
05298	1,3-Dichlorobenzene	541-73-1	N.D.		1.2	N.D.		0.20	1
05298	1,4-Dichlorobenzene	106-46-7	N.D.		1.2	N.D.		0.20	1
05298	Dichlorodifluoromethane	75-71-8	2.8	J	0.99	0.56	J	0.20	1
05298	1,1-Dichloroethane	75-34-3	N.D.		0.81	N.D.		0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.		0.81	N.D.		0.20	1
05298	1,1-Dichloroethene	75-35-4	N.D.		0.79	N.D.		0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.		0.79	N.D.		0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.		0.79	N.D.		0.20	1
05298	Dichlorofluoromethane	75-43-4	N.D.		0.84	N.D.		0.20	1
05298	1,2-Dichloropropane	78-87-5	N.D.		0.92	N.D.		0.20	1
05298	cis-1,3-Dichloropropene	10061-01-5	N.D.		0.91	N.D.		0.20	1
05298	trans-1,3-Dichloropropene	10061-02-6	N.D.		0.91	N.D.		0.20	1
05298	Ethylbenzene	100-41-4	1.6	J	0.87	0.37	J	0.20	1
05298	4-Ethyltoluene	622-96-8	5.1		0.98	1.0		0.20	1
05298	Freon 113	76-13-1	N.D.		3.8	N.D.		0.50	1
05298	Freon 114	76-14-2	N.D.		1.4	N.D.		0.20	1
05298	Heptane	142-82-5	2.6	J	0.82	0.64	J	0.20	1
05298	Hexachloroethane	67-72-1	N.D.		1.9	N.D.		0.20	1
05298	Hexane	110-54-3	12		0.70	3.4		0.20	1
05298	2-Hexanone	591-78-6	N.D.		2.0	N.D.		0.50	1
05298	Isooctane	540-84-1	12		0.93	2.7		0.20	1
05298	Methyl t-Butyl Ether	1634-04-4	N.D.		0.72	N.D.		0.20	1
05298	4-Methyl-2-pentanone	108-10-1	N.D.		2.0	N.D.		0.50	1
05298	Methylene Chloride	75-09-2	N.D.		0.69	N.D.		0.20	1
05298	Octane	111-65-9	4.3	J	0.93	0.91	J	0.20	1
05298	Pentane	109-66-0	2.6	J	0.59	0.90	J	0.20	1
05298	Styrene	100-42-5	4.2	J	0.85	0.99	J	0.20	1
05298	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		1.4	N.D.		0.20	1
05298	1,1,2,2-Tetrachloroethane	79-34-5	N.D.		1.4	N.D.		0.20	1
05298	Tetrachloroethene	127-18-4	N.D.		1.4	N.D.		0.20	1

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Analysis Report

Sample Description: DUP-011216 Air
COC: SummaCan# 1251
Boarhead Farms

LL Sample # AQ 8204804
LL Group # 1623263
Account # 09286

Project Name: Boarhead Farms

Collected: 01/12/2016 by SD
through 01/12/2016
Submitted: 01/13/2016 16:15
Reported: 01/25/2016 15:21

Brown & Caldwell
2 Park Way
Suite 2A
Upper Saddle River NJ 07458

FD112 SDG#: BRI11-06FD

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air EPA TO-15			ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	Toluene	108-88-3	2.3	J	0.75	0.60	J	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	N.D.		1.1	N.D.		0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.		1.1	N.D.		0.20	1
05298	Trichloroethene	79-01-6	N.D.		1.1	N.D.		0.20	1
05298	Trichlorofluoromethane	75-69-4	1.7	J	1.1	0.30	J	0.20	1
05298	1,2,3-Trichloropropane	96-18-4	N.D.		1.2	N.D.		0.20	1
05298	1,2,4-Trimethylbenzene	95-63-6	9.7		0.98	2.0		0.20	1
05298	1,3,5-Trimethylbenzene	108-67-8	4.3	J	0.98	0.88	J	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.		0.51	N.D.		0.20	1
05298	m/p-Xylene	179601-23-1	4.6		0.87	1.1		0.20	1
05298	o-Xylene	95-47-6	3.0	J	0.87	0.68	J	0.20	1
Volatiles in Air EPA TO-15 using SIM			ug/m3		ug/m3	ppb(v)		ppb(v)	
07345	Benzene	71-43-2	1.14		0.0639	0.357		0.0200	1
07345	Carbon Tetrachloride	56-23-5	0.810		0.126	0.129		0.0200	1
07345	Chloroform	67-66-3	9.30		0.977	1.90		0.200	10
07345	1,2-Dibromoethane	106-93-4	N.D.		0.154	N.D.		0.0200	1
07345	1,4-Dichlorobenzene	106-46-7	0.136	J	0.120	0.0227	J	0.0200	1
07345	1,1-Dichloroethane	75-34-3	N.D.		0.0809	N.D.		0.0200	1
07345	1,2-Dichloroethane	107-06-2	N.D.		0.0809	N.D.		0.0200	1
07345	Ethylbenzene	100-41-4	2.05		0.0868	0.471		0.0200	1
07345	Tetrachloroethene	127-18-4	0.315	J	0.136	0.0464	J	0.0200	1
07345	1,1,2-Trichloroethane	79-00-5	N.D.		0.109	N.D.		0.0200	1
07345	Trichloroethene	79-01-6	N.D.		0.107	N.D.		0.0200	1
07345	Vinyl Chloride	75-01-4	N.D.		0.0511	N.D.		0.0200	1

MDL = Method Detection Limit

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/16.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO-15 VOCs	EPA TO-15	1	D1602030AA	01/20/2016 20:47	Jacob E Bailey	1
07345	TO-15 by SIM	EPA TO-15 using SIM	1	E1601930AA	01/20/2016 12:51	Jacob E Bailey	1
07345	TO-15 by SIM	EPA TO-15 using SIM	1	E1601930AA	01/20/2016 15:04	Jacob E Bailey	10

Sample Description: SV-04-011216 Air
COC: SummaCan# 1133
Boarhead Farms

LL Sample # AQ 8204805
LL Group # 1623263
Account # 09286

Project Name: Boarhead Farms

Collected: 01/12/2016 13:39 by SD
through 01/12/2016 14:26
Submitted: 01/13/2016 16:15
Reported: 01/25/2016 15:21

Brown & Caldwell
2 Park Way
Suite 2A
Upper Saddle River NJ 07458

SV-04 SDG#: BRI11-07

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	Acetone	67-64-1	19		1.2	8.2		0.50	1
05298	Benzene	71-43-2	1.1	J	0.64	0.35	J	0.20	1
05298	Bromobenzene	108-86-1	N.D.		1.3	N.D.		0.20	1
05298	Bromodichloromethane	75-27-4	N.D.		1.3	N.D.		0.20	1
05298	Bromoform	75-25-2	N.D.		2.1	N.D.		0.20	1
05298	Bromomethane	74-83-9	N.D.		0.78	N.D.		0.20	1
05298	1,3-Butadiene	106-99-0	N.D.		0.88	N.D.		0.40	1
05298	2-Butanone	78-93-3	4.3	J	1.5	1.5	J	0.50	1
05298	Carbon Disulfide	75-15-0	3.0	J	1.6	0.95	J	0.50	1
05298	Carbon Tetrachloride	56-23-5	N.D.		1.3	N.D.		0.20	1
05298	Chlorobenzene	108-90-7	N.D.		0.92	N.D.		0.20	1
05298	Chlorodifluoromethane	75-45-6	N.D.		0.71	N.D.		0.20	1
05298	Chloroethane	75-00-3	N.D.		0.53	N.D.		0.20	1
05298	Chloroform	67-66-3	12		0.98	2.5		0.20	1
05298	Chloromethane	74-87-3	N.D.		0.41	N.D.		0.20	1
05298	3-Chloropropene	107-05-1	N.D.		0.63	N.D.		0.20	1
05298	Cumene	98-82-8	1.7	J	0.98	0.35	J	0.20	1
05298	Dibromochloromethane	124-48-1	N.D.		1.7	N.D.		0.20	1
05298	1,2-Dibromoethane	106-93-4	N.D.		1.5	N.D.		0.20	1
05298	Dibromomethane	74-95-3	N.D.		1.4	N.D.		0.20	1
05298	1,2-Dichlorobenzene	95-50-1	N.D.		1.2	N.D.		0.20	1
05298	1,3-Dichlorobenzene	541-73-1	N.D.		1.2	N.D.		0.20	1
05298	1,4-Dichlorobenzene	106-46-7	N.D.		1.2	N.D.		0.20	1
05298	Dichlorodifluoromethane	75-71-8	3.9	J	0.99	0.79	J	0.20	1
05298	1,1-Dichloroethane	75-34-3	N.D.		0.81	N.D.		0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.		0.81	N.D.		0.20	1
05298	1,1-Dichloroethene	75-35-4	N.D.		0.79	N.D.		0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.		0.79	N.D.		0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.		0.79	N.D.		0.20	1
05298	Dichlorofluoromethane	75-43-4	N.D.		0.84	N.D.		0.20	1
05298	1,2-Dichloropropane	78-87-5	N.D.		0.92	N.D.		0.20	1
05298	cis-1,3-Dichloropropene	10061-01-5	N.D.		0.91	N.D.		0.20	1
05298	trans-1,3-Dichloropropene	10061-02-6	N.D.		0.91	N.D.		0.20	1
05298	Ethylbenzene	100-41-4	2.7	J	0.87	0.63	J	0.20	1
05298	4-Ethyltoluene	622-96-8	4.6	J	0.98	0.94	J	0.20	1
05298	Freon 113	76-13-1	N.D.		3.8	N.D.		0.50	1
05298	Freon 114	76-14-2	N.D.		1.4	N.D.		0.20	1
05298	Heptane	142-82-5	N.D.		0.82	N.D.		0.20	1
05298	Hexachloroethane	67-72-1	N.D.		1.9	N.D.		0.20	1
05298	Hexane	110-54-3	5.8		0.70	1.7		0.20	1
05298	2-Hexanone	591-78-6	N.D.		2.0	N.D.		0.50	1
05298	Isooctane	540-84-1	23		0.93	4.9		0.20	1
05298	Methyl t-Butyl Ether	1634-04-4	N.D.		0.72	N.D.		0.20	1
05298	4-Methyl-2-pentanone	108-10-1	N.D.		2.0	N.D.		0.50	1
05298	Methylene Chloride	75-09-2	1.0	J	0.69	0.29	J	0.20	1
05298	Octane	111-65-9	3.0	J	0.93	0.63	J	0.20	1
05298	Pentane	109-66-0	3.0		0.59	1.0		0.20	1
05298	Styrene	100-42-5	5.0		0.85	1.2		0.20	1
05298	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		1.4	N.D.		0.20	1
05298	1,1,2,2-Tetrachloroethane	79-34-5	N.D.		1.4	N.D.		0.20	1
05298	Tetrachloroethene	127-18-4	N.D.		1.4	N.D.		0.20	1

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Analysis Report

Sample Description: SV-04-011216 Air
COC: SummaCan# 1133
Boarhead Farms

LL Sample # AQ 8204805
LL Group # 1623263
Account # 09286

Project Name: Boarhead Farms

Collected: 01/12/2016 13:39 by SD
through 01/12/2016 14:26
Submitted: 01/13/2016 16:15
Reported: 01/25/2016 15:21

Brown & Caldwell
2 Park Way
Suite 2A
Upper Saddle River NJ 07458

SV-04 SDG#: BRI11-07

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air EPA TO-15			ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	Toluene	108-88-3	4.3		0.75	1.1		0.20	1
05298	1,1,1-Trichloroethane	71-55-6	N.D.		1.1	N.D.		0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.		1.1	N.D.		0.20	1
05298	Trichloroethene	79-01-6	N.D.		1.1	N.D.		0.20	1
05298	Trichlorofluoromethane	75-69-4	2.3	J	1.1	0.40	J	0.20	1
05298	1,2,3-Trichloropropane	96-18-4	N.D.		1.2	N.D.		0.20	1
05298	1,2,4-Trimethylbenzene	95-63-6	7.4		0.98	1.5		0.20	1
05298	1,3,5-Trimethylbenzene	108-67-8	3.7	J	0.98	0.74	J	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.		0.51	N.D.		0.20	1
05298	m/p-Xylene	179601-23-1	8.4		0.87	1.9		0.20	1
05298	o-Xylene	95-47-6	4.5		0.87	1.0		0.20	1
Volatiles in Air EPA TO-15 using SIM			ug/m3		ug/m3	ppb(v)		ppb(v)	
07345	Benzene	71-43-2	1.13		0.0639	0.354		0.0200	1
07345	Carbon Tetrachloride	56-23-5	0.896		0.126	0.142		0.0200	1
07345	Chloroform	67-66-3	15.0		0.977	3.08		0.200	10
07345	1,2-Dibromoethane	106-93-4	N.D.		0.154	N.D.		0.0200	1
07345	1,4-Dichlorobenzene	106-46-7	0.196	J	0.120	0.0327	J	0.0200	1
07345	1,1-Dichloroethane	75-34-3	N.D.		0.0809	N.D.		0.0200	1
07345	1,2-Dichloroethane	107-06-2	N.D.		0.0809	N.D.		0.0200	1
07345	Ethylbenzene	100-41-4	4.38		0.0868	1.01		0.0200	1
07345	Tetrachloroethene	127-18-4	0.496		0.136	0.0731		0.0200	1
07345	1,1,2-Trichloroethane	79-00-5	N.D.		0.109	N.D.		0.0200	1
07345	Trichloroethene	79-01-6	0.211	J	0.107	0.0393	J	0.0200	1
07345	Vinyl Chloride	75-01-4	N.D.		0.0511	N.D.		0.0200	1

MDL = Method Detection Limit

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/16.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO-15 VOCs	EPA TO-15	1	E1602030AA	01/21/2016 09:45	Jacob E Bailey	1
07345	TO-15 by SIM	EPA TO-15 using SIM	1	E1601930AA	01/20/2016 13:23	Jacob E Bailey	1
07345	TO-15 by SIM	EPA TO-15 using SIM	1	E1601930AA	01/20/2016 15:35	Jacob E Bailey	10

Sample Description: SV-06-011216 Air
COC: SummaCan# 808
Boarhead Farms

LL Sample # AQ 8204806
LL Group # 1623263
Account # 09286

Project Name: Boarhead Farms

Collected: 01/12/2016 13:59 by SD
through 01/12/2016 14:19
Submitted: 01/13/2016 16:15
Reported: 01/25/2016 15:21

Brown & Caldwell
2 Park Way
Suite 2A
Upper Saddle River NJ 07458

SV-06 SDG#: BRI11-08

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	Acetone	67-64-1	56		1.2	23		0.50	1
05298	Benzene	71-43-2	1.5	J	0.64	0.47	J	0.20	1
05298	Bromobenzene	108-86-1	N.D.		1.3	N.D.		0.20	1
05298	Bromodichloromethane	75-27-4	N.D.		1.3	N.D.		0.20	1
05298	Bromoform	75-25-2	N.D.		2.1	N.D.		0.20	1
05298	Bromomethane	74-83-9	N.D.		0.78	N.D.		0.20	1
05298	1,3-Butadiene	106-99-0	N.D.		0.88	N.D.		0.40	1
05298	2-Butanone	78-93-3	9.9		1.5	3.4		0.50	1
05298	Carbon Disulfide	75-15-0	120		1.6	38		0.50	1
05298	Carbon Tetrachloride	56-23-5	N.D.		1.3	N.D.		0.20	1
05298	Chlorobenzene	108-90-7	N.D.		0.92	N.D.		0.20	1
05298	Chlorodifluoromethane	75-45-6	N.D.		0.71	N.D.		0.20	1
05298	Chloroethane	75-00-3	N.D.		0.53	N.D.		0.20	1
05298	Chloroform	67-66-3	N.D.		0.98	N.D.		0.20	1
05298	Chloromethane	74-87-3	N.D.		0.41	N.D.		0.20	1
05298	3-Chloropropene	107-05-1	N.D.		0.63	N.D.		0.20	1
05298	Cumene	98-82-8	3.9	J	0.98	0.78	J	0.20	1
05298	Dibromochloromethane	124-48-1	N.D.		1.7	N.D.		0.20	1
05298	1,2-Dibromoethane	106-93-4	N.D.		1.5	N.D.		0.20	1
05298	Dibromomethane	74-95-3	N.D.		1.4	N.D.		0.20	1
05298	1,2-Dichlorobenzene	95-50-1	N.D.		1.2	N.D.		0.20	1
05298	1,3-Dichlorobenzene	541-73-1	N.D.		1.2	N.D.		0.20	1
05298	1,4-Dichlorobenzene	106-46-7	N.D.		1.2	N.D.		0.20	1
05298	Dichlorodifluoromethane	75-71-8	3.0	J	0.99	0.61	J	0.20	1
05298	1,1-Dichloroethane	75-34-3	N.D.		0.81	N.D.		0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.		0.81	N.D.		0.20	1
05298	1,1-Dichloroethene	75-35-4	N.D.		0.79	N.D.		0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.		0.79	N.D.		0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.		0.79	N.D.		0.20	1
05298	Dichlorofluoromethane	75-43-4	N.D.		0.84	N.D.		0.20	1
05298	1,2-Dichloropropane	78-87-5	N.D.		0.92	N.D.		0.20	1
05298	cis-1,3-Dichloropropene	10061-01-5	N.D.		0.91	N.D.		0.20	1
05298	trans-1,3-Dichloropropene	10061-02-6	N.D.		0.91	N.D.		0.20	1
05298	Ethylbenzene	100-41-4	7.3		0.87	1.7		0.20	1
05298	4-Ethyltoluene	622-96-8	13		0.98	2.5		0.20	1
05298	Freon 113	76-13-1	N.D.		3.8	N.D.		0.50	1
05298	Freon 114	76-14-2	N.D.		1.4	N.D.		0.20	1
05298	Heptane	142-82-5	7.9		0.82	1.9		0.20	1
05298	Hexachloroethane	67-72-1	N.D.		1.9	N.D.		0.20	1
05298	Hexane	110-54-3	19		0.70	5.3		0.20	1
05298	2-Hexanone	591-78-6	N.D.		2.0	N.D.		0.50	1
05298	Isooctane	540-84-1	1.1	J	0.93	0.25	J	0.20	1
05298	Methyl t-Butyl Ether	1634-04-4	N.D.		0.72	N.D.		0.20	1
05298	4-Methyl-2-pentanone	108-10-1	N.D.		2.0	N.D.		0.50	1
05298	Methylene Chloride	75-09-2	0.78	J	0.69	0.22	J	0.20	1
05298	Octane	111-65-9	9.0		0.93	1.9		0.20	1
05298	Pentane	109-66-0	4.4		0.59	1.5		0.20	1
05298	Styrene	100-42-5	2.2	J	0.85	0.50	J	0.20	1
05298	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		1.4	N.D.		0.20	1
05298	1,1,2,2-Tetrachloroethane	79-34-5	N.D.		1.4	N.D.		0.20	1
05298	Tetrachloroethene	127-18-4	N.D.		1.4	N.D.		0.20	1

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Analysis Report

Sample Description: SV-06-011216 Air
COC: SummaCan# 808
Boarhead Farms

LL Sample # AQ 8204806
LL Group # 1623263
Account # 09286

Project Name: Boarhead Farms

Collected: 01/12/2016 13:59 by SD
through 01/12/2016 14:19
Submitted: 01/13/2016 16:15
Reported: 01/25/2016 15:21

Brown & Caldwell
2 Park Way
Suite 2A
Upper Saddle River NJ 07458

SV-06 SDG#: BRI11-08

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volatiles in Air EPA TO-15			ug/m3	ug/m3	ppb(v)	ppb(v)	
05298	Toluene	108-88-3	8.3	0.75	2.2	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	N.D.	1.1	N.D.	0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	1.1	N.D.	0.20	1
05298	Trichloroethene	79-01-6	N.D.	1.1	N.D.	0.20	1
05298	Trichlorofluoromethane	75-69-4	1.7 J	1.1	0.30 J	0.20	1
05298	1,2,3-Trichloropropane	96-18-4	N.D.	1.2	N.D.	0.20	1
05298	1,2,4-Trimethylbenzene	95-63-6	13	0.98	2.7	0.20	1
05298	1,3,5-Trimethylbenzene	108-67-8	8.5	0.98	1.7	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.	0.51	N.D.	0.20	1
05298	m/p-Xylene	179601-23-1	19	0.87	4.3	0.20	1
05298	o-Xylene	95-47-6	10	0.87	2.4	0.20	1
Volatiles in Air EPA TO-15 using SIM			ug/m3	ug/m3	ppb(v)	ppb(v)	
07345	Benzene	71-43-2	1.87	0.0639	0.585	0.0200	1
07345	Carbon Tetrachloride	56-23-5	0.943	0.126	0.150	0.0200	1
07345	Chloroform	67-66-3	0.936	0.0977	0.192	0.0200	1
07345	1,2-Dibromoethane	106-93-4	N.D.	0.154	N.D.	0.0200	1
07345	1,4-Dichlorobenzene	106-46-7	0.619	0.120	0.103	0.0200	1
07345	1,1-Dichloroethane	75-34-3	N.D.	0.0809	N.D.	0.0200	1
07345	1,2-Dichloroethane	107-06-2	N.D.	0.0809	N.D.	0.0200	1
07345	Ethylbenzene	100-41-4	12.5	0.868	2.88	0.200	10
07345	Tetrachloroethene	127-18-4	0.458	0.136	0.0676	0.0200	1
07345	1,1,2-Trichloroethane	79-00-5	N.D.	0.109	N.D.	0.0200	1
07345	Trichloroethene	79-01-6	0.117 J	0.107	0.0217 J	0.0200	1
07345	Vinyl Chloride	75-01-4	N.D.	0.0511	N.D.	0.0200	1

MDL = Method Detection Limit

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/16.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO-15 VOCs	EPA TO-15	1	E1602030AA	01/21/2016 10:17	Jacob E Bailey	1
07345	TO-15 by SIM	EPA TO-15 using SIM	1	E1601930AA	01/20/2016 13:55	Jacob E Bailey	1
07345	TO-15 by SIM	EPA TO-15 using SIM	1	E1601930AA	01/20/2016 16:06	Jacob E Bailey	10

Quality Control Summary

Client Name: Brown & Caldwell
Reported: 01/25/2016 15:21

Group Number: 1623263

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL
	ug/m3	ug/m3
Batch number: D1602030AA	Sample number(s): 8204803-8204804	
Acetone	N.D.	1.2
Benzene	N.D.	0.64
Bromobenzene	N.D.	1.3
Bromodichloromethane	N.D.	1.3
Bromoform	N.D.	2.1
Bromomethane	N.D.	0.78
1,3-Butadiene	N.D.	0.88
2-Butanone	N.D.	1.5
Carbon Disulfide	N.D.	1.6
Carbon Tetrachloride	N.D.	1.3
Chlorobenzene	N.D.	0.92
Chlorodifluoromethane	N.D.	0.71
Chloroethane	N.D.	0.53
Chloroform	N.D.	0.98
Chloromethane	N.D.	0.41
3-Chloropropene	N.D.	0.63
Cumene	N.D.	0.98
Dibromochloromethane	N.D.	1.7
1,2-Dibromoethane	N.D.	1.5
Dibromomethane	N.D.	1.4
1,2-Dichlorobenzene	N.D.	1.2
1,3-Dichlorobenzene	N.D.	1.2
1,4-Dichlorobenzene	N.D.	1.2
Dichlorodifluoromethane	N.D.	0.99
1,1-Dichloroethane	N.D.	0.81
1,2-Dichloroethane	N.D.	0.81
1,1-Dichloroethene	N.D.	0.79
cis-1,2-Dichloroethene	N.D.	0.79
trans-1,2-Dichloroethene	N.D.	0.79
Dichlorofluoromethane	N.D.	0.84
1,2-Dichloropropane	N.D.	0.92
cis-1,3-Dichloropropene	N.D.	0.91
trans-1,3-Dichloropropene	N.D.	0.91
Ethylbenzene	N.D.	0.87
4-Ethyltoluene	N.D.	0.98
Freon 113	N.D.	3.8
Freon 114	N.D.	1.4
Heptane	N.D.	2.0
Hexachloroethane	N.D.	4.8
Hexane	N.D.	0.70
2-Hexanone	N.D.	2.0
Isooctane	N.D.	0.93
Methyl t-Butyl Ether	N.D.	0.72

*- Outside of specification
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Quality Control Summary

Client Name: Brown & Caldwell
Reported: 01/25/2016 15:21

Group Number: 1623263

Analysis Name	Result	MDL
	ug/m3	ug/m3
4-Methyl-2-pentanone	N.D.	2.0
Methylene Chloride	N.D.	0.69
Octane	N.D.	2.3
Pentane	N.D.	1.5
Styrene	N.D.	0.85
1,1,1,2-Tetrachloroethane	N.D.	1.4
1,1,2,2-Tetrachloroethane	N.D.	1.4
Tetrachloroethene	N.D.	1.4
Toluene	N.D.	0.75
1,1,1-Trichloroethane	N.D.	1.1
1,1,2-Trichloroethane	N.D.	1.1
Trichloroethene	N.D.	1.1
Trichlorofluoromethane	N.D.	1.1
1,2,3-Trichloropropane	N.D.	1.2
1,2,4-Trimethylbenzene	N.D.	0.98
1,3,5-Trimethylbenzene	N.D.	0.98
Vinyl Chloride	N.D.	0.51
m/p-Xylene	N.D.	0.87
o-Xylene	N.D.	0.87
Batch number: E1601330AB	Sample number(s): 8204799-8204802	
Acetone	N.D.	1.2
Benzene	N.D.	0.64
Bromobenzene	N.D.	1.3
Bromodichloromethane	N.D.	1.3
Bromoform	N.D.	2.1
Bromomethane	N.D.	1.9
1,3-Butadiene	N.D.	0.88
2-Butanone	N.D.	1.5
Carbon Disulfide	N.D.	1.6
Carbon Tetrachloride	N.D.	1.3
Chlorobenzene	N.D.	0.92
Chlorodifluoromethane	N.D.	0.71
Chloroethane	N.D.	0.53
Chloroform	N.D.	0.98
Chloromethane	N.D.	0.41
3-Chloropropene	N.D.	0.63
Cumene	N.D.	0.98
Dibromochloromethane	N.D.	1.7
1,2-Dibromoethane	N.D.	1.5
Dibromomethane	N.D.	1.4
1,2-Dichlorobenzene	N.D.	1.2
1,3-Dichlorobenzene	N.D.	1.2
1,4-Dichlorobenzene	N.D.	1.2
Dichlorodifluoromethane	N.D.	0.99
1,1-Dichloroethane	N.D.	0.81
1,2-Dichloroethane	N.D.	0.81
1,1-Dichloroethene	N.D.	0.79
cis-1,2-Dichloroethene	N.D.	0.79
trans-1,2-Dichloroethene	N.D.	0.79
Dichlorofluoromethane	N.D.	0.84
1,2-Dichloropropane	N.D.	0.92
cis-1,3-Dichloropropene	N.D.	0.91
trans-1,3-Dichloropropene	N.D.	0.91
Ethylbenzene	N.D.	0.87

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Quality Control Summary

Client Name: Brown & Caldwell
Reported: 01/25/2016 15:21

Group Number: 1623263

Analysis Name	Result	MDL
	ug/m3	ug/m3
4-Ethyltoluene	N.D.	0.98
Freon 113	N.D.	3.8
Freon 114	N.D.	1.4
Heptane	N.D.	2.0
Hexachloroethane	N.D.	4.8
Hexane	N.D.	0.70
2-Hexanone	N.D.	2.0
Isooctane	N.D.	0.93
Methyl t-Butyl Ether	N.D.	0.72
4-Methyl-2-pentanone	N.D.	2.0
Methylene Chloride	N.D.	0.69
Octane	N.D.	2.3
Pentane	N.D.	1.5
Styrene	N.D.	0.85
1,1,1,2-Tetrachloroethane	N.D.	1.4
1,1,2,2-Tetrachloroethane	N.D.	1.4
Tetrachloroethene	N.D.	1.4
Toluene	N.D.	0.75
1,1,1-Trichloroethane	N.D.	1.1
1,1,2-Trichloroethane	N.D.	1.1
Trichloroethene	N.D.	1.1
Trichlorofluoromethane	N.D.	1.1
1,2,3-Trichloropropane	N.D.	1.2
1,2,4-Trimethylbenzene	N.D.	0.98
1,3,5-Trimethylbenzene	N.D.	0.98
Vinyl Chloride	N.D.	0.51
m/p-Xylene	N.D.	0.87
o-Xylene	N.D.	0.87
Batch number: E1601930AA	Sample number(s): 8204799-8204806	
Benzene	N.D.	0.0639
Carbon Tetrachloride	N.D.	0.126
Chloroform	N.D.	0.0977
1,2-Dibromoethane	N.D.	0.154
1,4-Dichlorobenzene	N.D.	0.120
1,1-Dichloroethane	N.D.	0.0809
1,2-Dichloroethane	N.D.	0.0809
Ethylbenzene	N.D.	0.0868
Tetrachloroethene	N.D.	0.136
1,1,2-Trichloroethane	N.D.	0.109
Trichloroethene	N.D.	0.107
Vinyl Chloride	N.D.	0.0511
Batch number: E1602030AA	Sample number(s): 8204805-8204806	
Acetone	N.D.	1.2
Benzene	N.D.	0.64
Bromobenzene	N.D.	1.3
Bromodichloromethane	N.D.	1.3
Bromoform	N.D.	2.1
Bromomethane	N.D.	1.9
1,3-Butadiene	N.D.	0.88
2-Butanone	N.D.	1.5
Carbon Disulfide	N.D.	1.6
Carbon Tetrachloride	N.D.	1.3
Chlorobenzene	N.D.	0.92

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Quality Control Summary

Client Name: Brown & Caldwell
Reported: 01/25/2016 15:21

Group Number: 1623263

Analysis Name	Result ug/m3	MDL ug/m3
Chlorodifluoromethane	N.D.	0.71
Chloroethane	N.D.	0.53
Chloroform	N.D.	0.98
Chloromethane	N.D.	0.41
3-Chloropropene	N.D.	0.63
Cumene	N.D.	0.98
Dibromochloromethane	N.D.	1.7
1,2-Dibromoethane	N.D.	1.5
Dibromomethane	N.D.	1.4
1,2-Dichlorobenzene	N.D.	1.2
1,3-Dichlorobenzene	N.D.	1.2
1,4-Dichlorobenzene	N.D.	1.2
Dichlorodifluoromethane	N.D.	0.99
1,1-Dichloroethane	N.D.	0.81
1,2-Dichloroethane	N.D.	0.81
1,1-Dichloroethene	N.D.	0.79
cis-1,2-Dichloroethene	N.D.	0.79
trans-1,2-Dichloroethene	N.D.	0.79
Dichlorofluoromethane	N.D.	0.84
1,2-Dichloropropane	N.D.	0.92
cis-1,3-Dichloropropene	N.D.	0.91
trans-1,3-Dichloropropene	N.D.	0.91
Ethylbenzene	N.D.	0.87
4-Ethyltoluene	N.D.	0.98
Freon 113	N.D.	3.8
Freon 114	N.D.	1.4
Heptane	N.D.	2.0
Hexachloroethane	N.D.	4.8
Hexane	N.D.	0.70
2-Hexanone	N.D.	2.0
Isooctane	N.D.	0.93
Methyl t-Butyl Ether	N.D.	0.72
4-Methyl-2-pentanone	N.D.	2.0
Methylene Chloride	N.D.	0.69
Octane	N.D.	2.3
Pentane	N.D.	1.5
Styrene	N.D.	0.85
1,1,1,2-Tetrachloroethane	N.D.	1.4
1,1,2,2-Tetrachloroethane	N.D.	1.4
Tetrachloroethene	N.D.	1.4
Toluene	N.D.	0.75
1,1,1-Trichloroethane	N.D.	1.1
1,1,2-Trichloroethane	N.D.	1.1
Trichloroethene	N.D.	1.1
Trichlorofluoromethane	N.D.	1.1
1,2,3-Trichloropropane	N.D.	1.2
1,2,4-Trimethylbenzene	N.D.	0.98
1,3,5-Trimethylbenzene	N.D.	0.98
Vinyl Chloride	N.D.	0.51
m/p-Xylene	N.D.	0.87
o-Xylene	N.D.	0.87

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Quality Control Summary

Client Name: Brown & Caldwell
Reported: 01/25/2016 15:21

Group Number: 1623263

LCS/LCSD

Analysis Name	LCS Spike Added ug/m3	LCS Conc ug/m3	LCSD Spike Added ug/m3	LCSD Conc ug/m3	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: D1602030AA	Sample number(s): 8204803-8204804								
Acetone	25.42	25.39	25.42	25.99	100	102	61-134	2	25
Benzene	33.86	32.47	33.86	32.34	96	96	70-130	0	25
Bromobenzene	68.07	67.1	68.07	69.08	99	101	70-130	3	25
Bromodichloromethane	69.02	80	69.02	80.79	116	117	62-129	1	25
Bromoform	103.37	111.77	103.37	112.48	108	109	64-141	1	25
Bromomethane	38.05	37.41	38.05	37.48	98	98	70-130	0	25
1,3-Butadiene	22.57	20.12	22.57	20.93	89	93	57-138	4	25
2-Butanone	30.67	34.58	30.67	34.89	113	114	60-135	1	25
Carbon Disulfide	31.14	30.1	31.14	29.81	97	96	55-121	1	25
Carbon Tetrachloride	65.43	76.56	65.43	74.47	117	114	70-130	3	25
Chlorobenzene	48.8	43.77	48.8	45.34	90	93	70-130	4	25
Chlorodifluoromethane	37.84	38.36	37.84	38.58	101	102	70-130	1	25
Chloroethane	25.59	23.42	25.59	24.05	92	94	63-119	3	25
Chloroform	49.31	53.89	49.31	53.62	109	109	70-130	0	25
Chloromethane	21.27	19.8	21.27	20.8	93	98	54-118	5	25
3-Chloropropene	34.43	33.25	34.43	34.3	97	100	70-130	3	25
Cumene	51.12	49.54	51.12	50.84	97	99	70-130	3	25
Dibromochloromethane	83.49	88.08	83.49	88.01	106	105	65-127	0	25
1,2-Dibromoethane	76.83	70.51	76.83	71.66	92	93	65-126	2	25
Dibromomethane	74.65	75.05	74.65	77.15	101	103	70-130	3	25
1,2-Dichlorobenzene	60.72	69.39	60.72	70.89	114	117	62-132	2	25
1,3-Dichlorobenzene	63.13	72.25	63.13	73.12	114	116	63-125	1	25
1,4-Dichlorobenzene	61.33	68.72	61.33	69.7	112	114	63-127	1	25
Dichlorodifluoromethane	49.95	58.6	49.95	56.82	117	114	61-149	3	25
1,1-Dichloroethane	40.88	40.78	40.88	41.11	100	101	67-124	1	25
1,2-Dichloroethane	42.09	48.16	42.09	47.14	114	112	70-130	2	25
1,1-Dichloroethene	39.65	40.79	39.65	41.03	103	103	61-128	1	25
cis-1,2-Dichloroethene	41.63	42.79	41.63	42.75	103	103	65-121	0	25
trans-1,2-Dichloroethene	39.65	40.68	39.65	40.61	103	102	66-121	0	25
Dichlorofluoromethane	44.2	46.36	44.2	47.14	105	107	50-141	2	25
1,2-Dichloropropane	47.6	47.45	47.6	48.09	100	101	70-130	1	25
cis-1,3-Dichloropropene	43.12	42	43.12	42.8	97	99	60-165	2	25
trans-1,3-Dichloropropene	45.84	45.77	45.84	45.22	100	99	61-126	1	25
Ethylbenzene	46.03	44.36	46.03	46.11	96	100	70-130	4	25
4-Ethyltoluene	49.65	51.28	49.65	52.33	103	105	59-126	2	25
Freon 113	74.34	75.38	74.34	76.05	101	102	63-114	1	25
Freon 114	72	66.52	72	67.43	92	94	63-123	1	25
Heptane	43.03	38.18	43.03	39.09	89	91	56-123	2	25
Hexachloroethane	105.54	111.35	105.54	110.3	106	105	70-130	1	25
Hexane	35.95	31.02	35.95	31.6	86	88	63-117	2	25
2-Hexanone	44.65	54.04	44.65	56.23	121	126	47-150	4	25
Isooctane	49.06	45.63	49.06	46.04	93	94	70-130	1	25
Methyl t-Butyl Ether	36.77	38.4	36.77	39.56	104	108	52-129	3	25
4-Methyl-2-pentanone	41.78	43.67	41.78	45.59	105	109	53-140	4	25
Methylene Chloride	38.21	34.45	38.21	34.68	90	91	70-130	1	25
Octane	48.12	39.93	48.12	40.81	83	85	70-130	2	25
Pentane	30.98	25.65	30.98	26.47	83	85	70-130	3	25
Styrene	44.3	43.24	44.3	44.89	98	101	64-130	4	25
1,1,1,2-Tetrachloroethane	72.77	68.71	72.77	69.32	94	95	70-130	1	25

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Quality Control Summary

Client Name: Brown & Caldwell
Reported: 01/25/2016 15:21

Group Number: 1623263

Analysis Name	LCS Spike Added ug/m3	LCS Conc ug/m3	LCSD Spike Added ug/m3	LCSD Conc ug/m3	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,1,2,2-Tetrachloroethane	73.46	72.5	73.46	74.76	99	102	58-133	3	25
Tetrachloroethene	72.57	63.47	72.57	64	87	88	70-130	1	25
Toluene	39.95	36.07	39.95	36.3	90	91	70-130	1	25
1,1,1-Trichloroethane	56.2	63.19	56.2	61.11	112	109	70-130	3	25
1,1,2-Trichloroethane	57.83	53.67	57.83	54.28	93	94	59-131	1	25
Trichloroethene	55.35	51.9	55.35	53.04	94	96	70-130	2	25
Trichlorofluoromethane	56.75	68.52	56.75	68.18	121	120	70-130	1	25
1,2,3-Trichloropropane	61.5	64.86	61.5	64.78	105	105	70-130	0	25
1,2,4-Trimethylbenzene	50.14	55.58	50.14	56.07	111	112	60-128	1	25
1,3,5-Trimethylbenzene	50.63	52.2	50.63	53.06	103	105	61-132	2	25
Vinyl Chloride	25.82	24.48	25.82	24.58	95	95	70-130	0	25
m/p-Xylene	42.55	41.94	42.55	43.03	99	101	70-130	3	25
o-Xylene	46.46	46.36	46.46	47.92	100	103	70-130	3	25
Batch number: E1601330AB	Sample number(s): 8204799-8204802								
Acetone	25.42	25.81	25.42	26.08	102	103	61-134	1	25
Benzene	33.86	34.54	33.86	34.54	102	102	70-130	0	25
Bromobenzene	68.07	69.26	68.07	67.2	102	99	70-130	3	25
Bromodichloromethane	69.02	71.13	69.02	70.38	103	102	62-129	1	25
Bromoform	103.37	99.95	103.37	101.07	97	98	64-141	1	25
Bromomethane	38.05	39.27	38.05	39.82	103	105	70-130	1	25
1,3-Butadiene	22.57	23.32	22.57	22.98	103	102	57-138	1	25
2-Butanone	30.67	31.98	30.67	31.64	104	103	60-135	1	25
Carbon Disulfide	31.14	33.15	31.14	32.82	106	105	55-121	1	25
Carbon Tetrachloride	65.43	66.83	65.43	66.27	102	101	70-130	1	25
Chlorobenzene	48.8	49.92	48.8	50.04	102	103	70-130	0	25
Chlorodifluoromethane	37.84	38.25	37.84	38.45	101	102	70-130	1	25
Chloroethane	25.59	26.66	25.59	25.96	104	101	63-119	3	25
Chloroform	49.31	51.69	49.31	51.73	105	105	70-130	0	25
Chloromethane	21.27	18.5	21.27	18.15	87	85	54-118	2	25
3-Chloropropene	34.43	35.63	34.43	35.41	103	103	70-130	1	25
Cumene	51.12	51.38	51.12	51.2	101	100	70-130	0	25
Dibromochloromethane	83.49	86.4	83.49	87.34	103	105	65-127	1	25
1,2-Dibromoethane	76.83	76.72	76.83	76.64	100	100	65-126	0	25
Dibromomethane	74.65	76.95	74.65	75.77	103	102	70-130	2	25
1,2-Dichlorobenzene	60.72	62.93	60.72	62.91	104	104	62-132	0	25
1,3-Dichlorobenzene	63.13	67.13	63.13	66.55	106	105	63-125	1	25
1,4-Dichlorobenzene	61.33	61.57	61.33	61.43	100	100	63-127	0	25
Dichlorodifluoromethane	49.95	52.98	49.95	53	106	106	61-149	0	25
1,1-Dichloroethane	40.88	43.97	40.88	43.47	108	106	67-124	1	25
1,2-Dichloroethane	42.09	43.7	42.09	43.51	104	103	70-130	0	25
1,1-Dichloroethene	39.65	42.04	39.65	41.59	106	105	61-128	1	25
cis-1,2-Dichloroethene	41.63	44.21	41.63	44.41	106	107	65-121	0	25
trans-1,2-Dichloroethene	39.65	41.72	39.65	41.86	105	106	66-121	0	25
Dichlorofluoromethane	44.2	47.36	44.2	46.85	107	106	50-141	1	25
1,2-Dichloropropane	47.6	49.75	47.6	49.37	105	104	70-130	1	25
cis-1,3-Dichloropropene	43.12	39.31	43.12	39.28	91	91	60-165	0	25
trans-1,3-Dichloropropene	45.84	43.46	45.84	44.2	95	96	61-126	2	25
Ethylbenzene	46.03	45.85	46.03	45.6	100	99	70-130	1	25
4-Ethyltoluene	49.65	50.88	49.65	50.55	102	102	59-126	1	25
Freon 113	74.34	73.8	74.34	72.8	99	98	63-114	1	25
Freon 114	72	65.8	72	65.12	91	90	63-123	1	25
Heptane	43.03	41.73	43.03	41.81	97	97	56-123	0	25
Hexachloroethane	105.54	102.75	105.54	104.04	97	99	70-130	1	25

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Quality Control Summary

Client Name: Brown & Caldwell
Reported: 01/25/2016 15:21

Group Number: 1623263

Analysis Name	LCS Spike Added ug/m3	LCS Conc ug/m3	LCSD Spike Added ug/m3	LCSD Conc ug/m3	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Hexane	35.95	35.68	35.95	34.95	99	97	63-117	2	25
2-Hexanone	44.65	50.53	44.65	51.25	113	115	47-150	1	25
Isooctane	49.06	51.03	49.06	50.39	104	103	70-130	1	25
Methyl t-Butyl Ether	36.77	37.75	36.77	37.47	103	102	52-129	1	25
4-Methyl-2-pentanone	41.78	42.94	41.78	43.13	103	103	53-140	0	25
Methylene Chloride	38.21	37.65	38.21	37.63	99	98	70-130	0	25
Octane	48.12	47.38	48.12	47.34	98	98	70-130	0	25
Pentane	30.98	32.14	30.98	31.78	104	103	70-130	1	25
Styrene	44.3	43.78	44.3	44.33	99	100	64-130	1	25
1,1,1,2-Tetrachloroethane	72.77	71.49	72.77	71.65	98	98	70-130	0	25
1,1,2,2-Tetrachloroethane	73.46	77.63	73.46	71.7	106	98	58-133	8	25
Tetrachloroethene	72.57	66.93	72.57	66.66	92	92	70-130	0	25
Toluene	39.95	40.08	39.95	40.45	100	101	70-130	1	25
1,1,1-Trichloroethane	56.2	56.85	56.2	56.36	101	100	70-130	1	25
1,1,2-Trichloroethane	57.83	59.83	57.83	59.75	103	103	59-131	0	25
Trichloroethene	55.35	56.04	55.35	57.24	101	103	70-130	2	25
Trichlorofluoromethane	56.75	60.76	56.75	61.04	107	108	70-130	0	25
1,2,3-Trichloropropane	61.5	65.16	61.5	61.94	106	101	70-130	5	25
1,2,4-Trimethylbenzene	50.14	52.57	50.14	52.08	105	104	60-128	1	25
1,3,5-Trimethylbenzene	50.63	52.34	50.63	51.13	103	101	61-132	2	25
Vinyl Chloride	25.82	27.12	25.82	27.01	105	105	70-130	0	25
m/p-Xylene	42.55	43.12	42.55	42.98	101	101	70-130	0	25
o-Xylene	46.46	47.41	46.46	47.65	102	103	70-130	1	25
Batch number: E1601930AA	Sample number(s): 8204799-8204806								
Benzene	0.847	0.801	0.847	0.773	95	91	70-130	4	25
Carbon Tetrachloride	1.64	1.53	1.64	1.56	94	95	70-130	2	25
Chloroform	1.24	1.19	1.24	1.17	97	95	70-130	2	25
1,2-Dibromoethane	1.92	1.75	1.92	1.69	91	88	48-177	3	25
1,4-Dichlorobenzene	1.53	1.44	1.53	1.38	94	90	31-176	4	25
1,1-Dichloroethane	1.02	0.972	1.02	0.957	95	93	70-130	2	25
1,2-Dichloroethane	1.05	1.03	1.05	1.00	98	95	61-154	3	25
Ethylbenzene	1.15	0.963	1.15	0.936	84	81	52-140	3	25
Tetrachloroethene	1.82	1.48	1.82	1.45	81	80	48-130	2	25
1,1,2-Trichloroethane	1.45	1.29	1.45	1.25	89	87	53-152	3	25
Trichloroethene	1.39	1.22	1.39	1.17	88	84	70-130	5	25
Vinyl Chloride	0.647	0.610	0.647	0.584	94	90	64-119	4	25
Batch number: E1602030AA	Sample number(s): 8204805-8204806								
Acetone	25.42	25.37	25.42	25.71	100	101	61-134	1	25
Benzene	33.86	32.97	33.86	33.06	97	98	70-130	0	25
Bromobenzene	68.07	66.84	68.07	65.72	98	97	70-130	2	25
Bromodichloromethane	69.02	70.29	69.02	69.95	102	101	62-129	0	25
Bromoform	103.37	102.88	103.37	102.54	100	99	64-141	0	25
Bromomethane	38.05	38.12	38.05	37.98	100	100	70-130	0	25
1,3-Butadiene	22.57	23.1	22.57	23.03	102	102	57-138	0	25
2-Butanone	30.67	31.44	30.67	31.51	103	103	60-135	0	25
Carbon Disulfide	31.14	32.21	31.14	31.94	103	103	55-121	1	25
Carbon Tetrachloride	65.43	65.81	65.43	64.42	101	98	70-130	2	25
Chlorobenzene	48.8	48.13	48.8	47.63	99	98	70-130	1	25
Chlorodifluoromethane	37.84	36.94	37.84	36.95	98	98	70-130	0	25
Chloroethane	25.59	25.99	25.59	26.08	102	102	63-119	0	25
Chloroform	49.31	51.4	49.31	50.8	104	103	70-130	1	25
Chloromethane	21.27	19.74	21.27	19.47	93	92	54-118	1	25

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Brown & Caldwell
Reported: 01/25/2016 15:21

Group Number: 1623263

Analysis Name	LCS Spike Added ug/m3	LCS Conc ug/m3	LCSD Spike Added ug/m3	LCSD Conc ug/m3	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
3-Chloropropene	34.43	37.07	34.43	36.68	108	107	70-130	1	25
Cumene	51.12	52.98	51.12	52.66	104	103	70-130	1	25
Dibromochloromethane	83.49	85.97	83.49	87.72	103	105	65-127	2	25
1,2-Dibromoethane	76.83	75.62	76.83	74.05	98	96	65-126	2	25
Dibromomethane	74.65	74.75	74.65	73.86	100	99	70-130	1	25
1,2-Dichlorobenzene	60.72	58.03	60.72	58	96	96	62-132	0	25
1,3-Dichlorobenzene	63.13	62.94	63.13	61.67	100	98	63-125	2	25
1,4-Dichlorobenzene	61.33	58.84	61.33	57.64	96	94	63-127	2	25
Dichlorodifluoromethane	49.95	51.38	49.95	51.31	103	103	61-149	0	25
1,1-Dichloroethane	40.88	43.44	40.88	42.23	106	103	67-124	3	25
1,2-Dichloroethane	42.09	42.78	42.09	42.27	102	100	70-130	1	25
1,1-Dichloroethene	39.65	40.19	39.65	40.85	101	103	61-128	2	25
cis-1,2-Dichloroethene	41.63	42.87	41.63	43.37	103	104	65-121	1	25
trans-1,2-Dichloroethene	39.65	41.58	39.65	41.14	105	104	66-121	1	25
Dichlorofluoromethane	44.2	46.52	44.2	46.38	105	105	50-141	0	25
1,2-Dichloropropane	47.6	46.41	47.6	47.07	97	99	70-130	1	25
cis-1,3-Dichloropropene	43.12	38.25	43.12	38.62	89	90	60-165	1	25
trans-1,3-Dichloropropene	45.84	43.17	45.84	42.25	94	92	61-126	2	25
Ethylbenzene	46.03	45.42	46.03	45.48	99	99	70-130	0	25
4-Ethyltoluene	49.65	52.01	49.65	51.99	105	105	59-126	0	25
Freon 113	74.34	70.09	74.34	70.44	94	95	63-114	0	25
Freon 114	72	62.67	72	62	87	86	63-123	1	25
Heptane	43.03	41.92	43.03	42.35	97	98	56-123	1	25
Hexachloroethane	105.54	102.51	105.54	103.12	97	98	70-130	1	25
Hexane	35.95	34.94	35.95	35.06	97	98	63-117	0	25
2-Hexanone	44.65	37.98	44.65	37.87	85	85	47-150	0	25
Isooctane	49.06	48.91	49.06	50.99	100	104	70-130	4	25
Methyl t-Butyl Ether	36.77	36.62	36.77	36.72	100	100	52-129	0	25
4-Methyl-2-pentanone	41.78	37.13	41.78	37.51	89	90	53-140	1	25
Methylene Chloride	38.21	37.49	38.21	37.9	98	99	70-130	1	25
Octane	48.12	48.32	48.12	47.92	100	100	70-130	1	25
Pentane	30.98	31.57	30.98	32.03	102	103	70-130	1	25
Styrene	44.3	47.8	44.3	48.07	108	109	64-130	1	25
1,1,1,2-Tetrachloroethane	72.77	70.74	72.77	71.43	97	98	70-130	1	25
1,1,2,2-Tetrachloroethane	73.46	71.35	73.46	69.55	97	95	58-133	3	25
Tetrachloroethene	72.57	64.47	72.57	65.35	89	90	70-130	1	25
Toluene	39.95	39.07	39.95	39.04	98	98	70-130	0	25
1,1,1-Trichloroethane	56.2	54.59	56.2	54.04	97	96	70-130	1	25
1,1,2-Trichloroethane	57.83	57.63	57.83	57.43	100	99	59-131	0	25
Trichloroethene	55.35	54.17	55.35	54.54	98	99	70-130	1	25
Trichlorofluoromethane	56.75	58.29	56.75	58.19	103	103	70-130	0	25
1,2,3-Trichloropropane	61.5	58.46	61.5	57.85	95	94	70-130	1	25
1,2,4-Trimethylbenzene	50.14	53.5	50.14	53.44	107	107	60-128	0	25
1,3,5-Trimethylbenzene	50.63	52.33	50.63	52.37	103	103	61-132	0	25
Vinyl Chloride	25.82	26.28	25.82	26.17	102	101	70-130	0	25
m/p-Xylene	42.55	43.52	42.55	43.16	102	101	70-130	1	25
o-Xylene	46.46	47.39	46.46	47.3	102	102	70-130	0	25

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: Brown & Caldwell
Reported: 01/25/2016 15:21

Group Number: 1623263

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Summa Canister Field Test Data/Chain of Custody

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Acct. # 9286 Group # 1623263 Sample # 8204799-806 Bottle Order (SCR) # _____

For Eurofins Lancaster Laboratories Environmental use only
Instructions on reverse side correspond with circled numbers.

(1) Client Information

Client: Brown + Caldwell
Account #:
Project Name/#: Boarhead VI
Project Manager: Chris Milone
P.O. #: 147809
Sampler: Sarah Doliber, Beth Miller
Quote #:
Name of state where samples were collected: PA

(3) Turnaround Time Requested (TAT) (circle one)

Standard Rush (specify) _____

(4) Data Package Required?

Yes No

(5) EDD Required?

Yes No

	Temperature (F)		Pressure ("Hg)	
	Start	Stop	Start	Stop
Ambient	26.9	36.0	~~29.5~~ 29.99	30
Maximum	72	74	~~30~~ 30.12	~~29.74~~ 30.11
Minimum	26.9	36.0	~~28~~ 29.99	29.74

(6) Analyses Requested

(2)

Sample Identification	Start Date/Time (24-hour clock)	Stop Date/Time (24-hour clock)	Canister Pressure in Field ("Hg) (Start)	Canister Pressure in Field ("Hg) (Stop)	Interior Temp. (F) (Start)	Interior Temp. (F) (Stop)	Flow Reg. ID	Can ID	Can Size (L)	Controller Flowrate (mL/min)	EPA TO - 15	EPA 18 ☐ MTBE ☐ BTEX	EPA 25 (select range below)	Helium as tracer	O2/CO2	Library Search
IA-05-011116	01/11/16/1136	01/12/16/1235	30	8	72	74.8	710586	1284	6	3.5	X					
DUP-011116	01/11/16/9999	01/12/16/9999	30	8	72	74.8	342379	1121	6	3.5	X					
IA-06-011116	01/11/16/1140	01/12/16/1219	28	5	72	74.5	239314	1129	6	3.5	X					
AA-03-011116	01/11/16/1142	01/12/16/1220	29.5	6	26.9	36.0	675038	1301	6	3.5	X					
SV-05-011216	01/12/16/1323	01/12/16/1358	30	2.5	74	74	339179	856	6	1.62	X					
DUP-011216	01/12/16/9999	01/12/16/9999	29	2.5	74	74	710628	1251	6	1.62	X					
SV-04-011216	01/12/16/1339	01/12/16/1426	29	5	74	74	336825	1133	6	1.66	X					
SV-06-011216	01/12/16/1359	01/12/16/1419	29.5	4	74	74	710594	808	6	1.65	X					

(7) Instructions/QC Requirements & Comments

EPA 25 (check one)
☐ C1 - C4 ☐ C2 - C10
☐ C1 - C10 ☐ C4 - C10 (GRO)
☐ C2 - C4

(8)

Canisters Shipped by:	Date/Time:	Canisters Received by:	Date/Time:	Relinquished by:	Date/Time:	Received by:	Date/Time:
EUROFINS	1/7/16	[signature]	1/8/16	[signature]	1/13/16 1410	[signature]	1/13/16 1410
Relinquished by: [signature]	Date/Time: 1/13/16	Received by:	Date/Time:	Relinquished by:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by: [signature]	Date/Time:	Relinquished by:	Date/Time:	Received by: [signature]	Date/Time: 1/13/16 16

15

Eurofins Lancaster Laboratories Environmental, LLC • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300
The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

7056 0415

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Sample Administration Receipt Documentation Log

Doc Log ID: 133585

Group Number(s): 1623263

Client: Brown & Caldwell

Delivery and Receipt Information

Delivery Method:	ELLE Courier	Arrival Timestamp:	01/13/2016 16:15
Number of Packages:	6	Number of Projects:	1
State/Province of Origin:	PA		

Arrival Condition Summary

Shipping Container Sealed:	No	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	N/A	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	0
Samples Intact:	Yes	Air Quality Samples Present:	Yes
Missing Samples:	No	Air Quality Flow Controllers Present:	Yes
Extra Samples:	No	Flow Controller Quantity:	16
Discrepancy in Container Qty on COC:	No	Air Quality Returns:	Yes
		Summa Canisters:	See Below

Summa Canister Returns: 1291,1283,1122,1225,842,546,1299,530

Unpacked by Katherine Metzger (2241) at 16:39 on 01/13/2016

General Comments: Returned flow controllers not on COC: 338070, 336709, 710597, 329537, 336714, 339240, 710552, 338031

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.cor

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Appendix B: Chain-of-Custody Documentation

Summa Canister Field Test Data/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only
Acct. # _____ Group # _____ Sample # _____ Bottle Order (SCR) # _____
Instructions on reverse side correspond with circled numbers.

(1) Client Information

Client: Brown + Caldwell
Account #:
Project Name/#: Boarhead VI
Project Manager: Chris Milone
P.O. #: 147809
Sampler: Sarah Doliber, Beth Miller
Quote #:
Name of state where samples were collected: PA

(3) Turnaround Time Requested (TAT) (circle one): Standard | Rush (specify) _____

(4) Data Package Required? Yes | No

(5) EDD Required? Yes | No

	Temperature (F) Start	Temperature (F) Stop	Pressure ("Hg) Start	Pressure ("Hg) Stop
Ambient	26.4	26.0	~~24.5~~ 29.49	30
Maximum	72*	74	30 30.12	~~29.44~~ 30
Minimum	26.4	26.0	~~28~~ 29.99	29.74

(2) Sample Identification

Sample Identification	Start Date/Time (24-hour clock)	Stop Date/Time (24-hour clock)	Canister Pressure in Field ("Hg) (Start)	Canister Pressure in Field ("Hg) (Stop)	Interior Temp. (F) (Start)	Interior Temp. (F) (Stop)	Flow Reg. ID	Can ID	Can Size (L)	Controller Flowrate (mL/min)	EPA TO - 15	EPA 18 / MTBE	EPA 25 (select range below) / BTEX	Helium as tracer	O2/CO2	Library Search
IA-05-011116	01/11/16/1136	01/12/16/1235	30	8	72	74.8	710586	1284	6	3.5	X					
DUP-011116	01/11/16/9999	01/12/16/9999	30	8	72	74.8	342379	1121	6	3.5	X					
IA-06-011116	01/11/16/1140	01/12/16/1219	28	5	72	74.5	239314	1129	6	3.5	X					
AA-03-011116	01/11/16/1142	01/12/16/1220	29.5	6	26.9	36.0	675038	1301	6	3.5	X					
SV-05-011216	01/12/16/1323	01/12/16/1358	30	2.5	74	74	339179	856	6	1.62	X					
DUP-011216	01/12/16/9999	01/12/16/9999	29	2.5	74	74	710628	1251	6	1.62	X					
SV-04-011216	01/12/16/1339	01/12/16/1426	29	5	74	74	336825	1133	6	1.66	X					
SV-06-011216	01/12/16/1359	01/12/16/1419	29.5	4	74	74	710594	808	6	1.65	X					

(6) Analyses Requested

(7) Instructions/QC Requirements & Comments

EPA 25 (check one): ☐ C1 - C4 ☐ C2 - C10 ☐ C1 - C10 ☐ C4 - C10 (GRO) ☐ C2 - C4

(8)

Canisters Shipped by:	Date/Time:	Canisters Received by:	Date/Time:	Relinquished by:	Date/Time:	Received by:	Date/Time:
EUROFINS	1/7/16	[signature]	1/8/16	[signature]	1/13/16 1410	[signature]	1/13/16 1415
Relinquished by:	Date/Time:	Received by:	Date/Time:	Relinquished by:	Date/Time:	Received by:	Date/Time:
Relinquished by:	Date/Time:	Received by:	Date/Time:	Relinquished by:	Date/Time:	Received by:	Date/Time:

Appendix C: Field Survey Sheets

OSR – 3

RW-16

INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY

This form must be completed for each residence involved in indoor air testing.

Preparer's Name Sarah Dolibar Date/Time Prepared 1/11/16

Preparer's Affiliation Brown + Caldwell Phone No. 856-330-9325

Purpose of Investigation Vapor Intrusion Investigation - Boarhead Farms

1. OCCUPANT:

(b) (6)

[redacted]

2. OWNER OR LANDLORD: (Check if same as occupant ✓)

Interviewed: Y / N

Last Name: _____ First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

Residential	School	Commercial/Multi-use
Industrial	Church	Other: _____

If the property is residential, type? (Circle appropriate response)

Ranch	2-Family	3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other:_____

If multiple units, how many? NA

If the property is commercial, type?

Business Type(s) Kennel

Does it include residences (i.e., multi-use)? Y / N If yes, how many? _____

Other characteristics:

Number of floors 3 Building age built mid 1970's

Is the building insulated? Y / N How air tight? Tight / Average / Not Tight

4. AIRFLOW

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow between floors

Airflow near source

Outdoor air infiltration

Infiltration into air ducts

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)

a. Above grade construction:	wood frame	foundation concrete	stone	brick
b. Basement type:	full	crawlspace	slab	other _____
c. Basement floor:	concrete	dirt	stone	other _____
d. Basement floor:	uncovered	covered	covered with tile	
e. Concrete floor:	unsealed	sealed	sealed with owner unsure	
f. Foundation walls:	poured	block	stone	other *owner was unsure, but believes it is block.
g. Foundation walls:	unsealed	sealed	sealed with _____	
h. The basement is:	wet	damp	dry	moldy
i. The basement is:	finished	unfinished	partially finished	
j. Sump present?	Y / N			
k. Water in sump?	Y / N / not applicable			

Basement/Lowest level depth below grade: 0 (feet) at grade

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

no visible cracks or entry points

6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard	
Space Heaters	Stream radiation	Radiant floor	
Electric baseboard	Wood stove	Outdoor wood boiler	Other oil, baseboard

The primary type of fuel used is:

Natural Gas	Fuel Oil	Kerosene
Electric	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by: oil

Boiler/furnace located in:	Basement	Outdoors	Main Floor	Other_____
Air conditioning:	Central Air	Window units	Open Windows	None

1st, 2nd floors

* 3rd floor has oil heat pump

Are there air distribution ducts present? Y / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

_____

_____

_____

_____

7. OCCUPANCY

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

Level	**General Use of Each Floor (e.g., familyroom, bedroom, laundry, workshop, storage)**
Basement	Kennel/ office/family room
1st Floor	living room/dining room/kitchen
2nd Floor	bedrooms
3rd Floor	—
4th Floor	—

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a. Is there an attached garage? Y / N

b. Does the garage have a separate heating unit? Y / N / NA

c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car) Y / N / NA Please specify _____

d. Has the building ever had a fire? Y / N When? _____

e. Is a kerosene or unvented gas space heater present? Y / N Where? _____

f. Is there a workshop or hobby/craft area? Y / N Where & Type? in boiler room

g. Is there smoking in the building? Y / N How frequently? _____

h. Have cleaning products been used recently? Y / N When & Type? vinegar, bleach, simple green ~ 3x/wk

i. Have cosmetic products been used recently? Y / N When & Type? hairspray, deodorant, body/face soap daily

j. Has painting/staining been done in the last 6 months? Y / N Where & When? _____

k. Is there new carpet, drapes or other textiles? Y / N Where & When? _____

l. Have air fresheners been used recently? Y / N When & Type? _____

m. Is there a kitchen exhaust fan? Y / N If yes, where vented? in kitchen to outside

n. Is there a bathroom exhaust fan? Y / N If yes, where vented? in bathroom to outside

o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y / N

p. Has there been a pesticide application? Y / N When & Type? _____

Are there odors in the building? Y / N
If yes, please describe: Kennel related animal odors

Do any of the building occupants use solvents at work? Y / N
(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist

If yes, what types of solvents are used? works on car @ home - outside - oil, greasers

If yes, are their clothes washed at work? Y / N

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) — No
Yes, use dry-cleaning infrequently (monthly or less) — Unknown
Yes, work at a dry-cleaning service

Dry cleaning is kept upstairs, not in sample area

Is there a radon mitigation system for the building/structure? Y / N Date of Installation: _____
Is the system active or passive? Active/Passive

9. WATER AND SEWAGE

Water Supply:	Public Water	Drilled Well	Driven Well	Dug Well	Other: _____
Sewage Disposal:	Public Sewer	Septic Tank	Leach Field	Dry Well	Other: _____

10. RELOCATION INFORMATION (for oil spill residential emergency)

NA

a. Provide reasons why relocation is recommended: _____

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

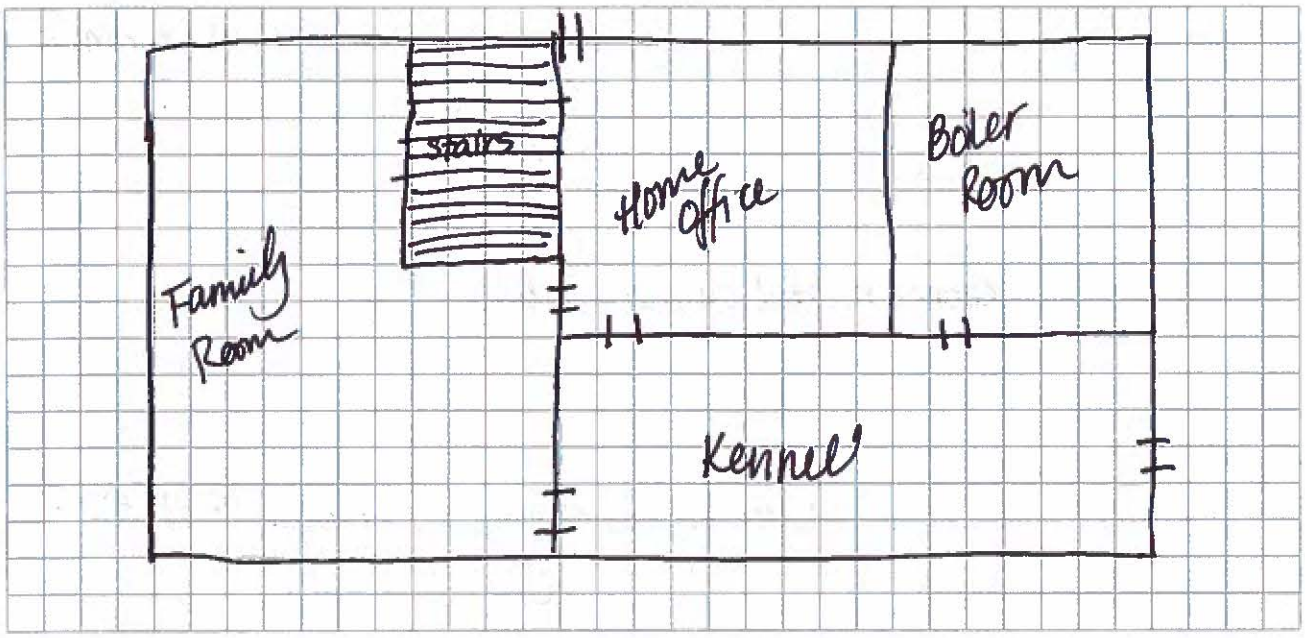
c. Responsibility for costs associated with reimbursement explained? Y / N

d. Relocation package provided and explained to residents? Y / N

11. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:

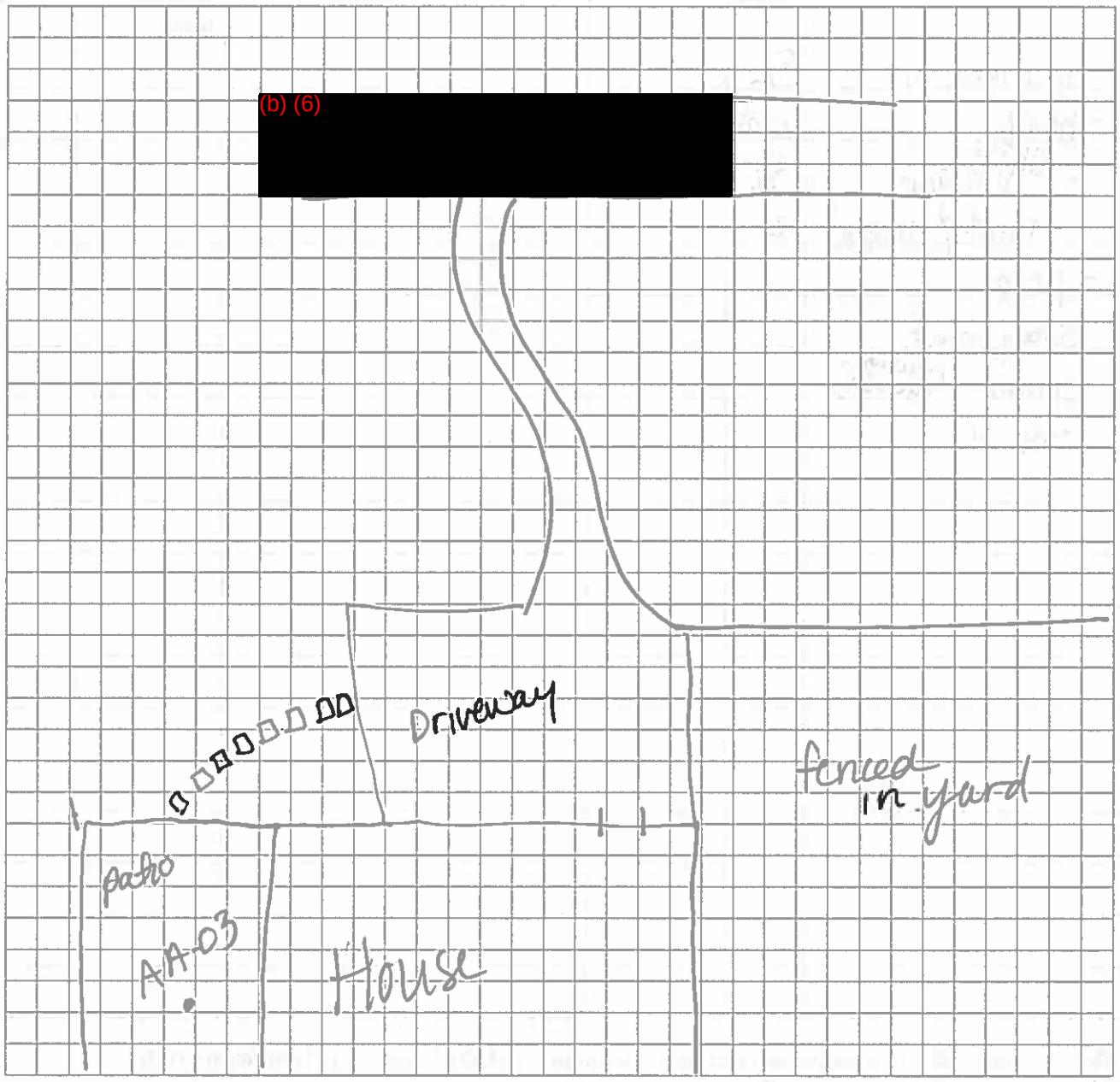


First Floor: NA

12. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



13. PRODUCT INVENTORY FORM

Make & Model of field instrument used: _____

List specific products found in the residence that have the potential to affect indoor air quality.

Location	Product Description	Size (units)	Condition*	Chemical Ingredients	Field Instrument Reading (units)	Photo** Y / N
	- vegetable oil	5L				
	- bleach	12 1 oz				
	- White vinegar	5L				
	- laundry detergent	5L				
	- pledge					
	- spray paint					
	- primer (painting cabinets)					
	- WD-40					

* Describe the condition of the product containers as **Unopened (UO), Used (U),** or **Deteriorated (D)**
** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

Brown AND Caldwell

INDOOR AIR SAMPLING RECORD

Project No.

Site: Boarhead

SAMPLE ID: IA-05	STATION TYPE:	
SUMMA CANISTER #: 1284 ✓	FLOW RESTRICTOR #: 710 586 ✓	MATRIX: - Indoor Air
SAMPLE DATE: 01/11/16	SAMPLE HEIGHT: 3'	SCREEN LENGTH: Not Applicable (NA)
CANISTER SIZE: 6 liter	EASTING: NA	NORTHING: NA

LEAK TESTING (HELIUM)

HELIUM IN BUCKET (ppm or %):	HELIUM IN SG (ppm or %):	NOTES: Leak testing not applicable for indoor air setup.
1) NA	NA	
2) NA	NA	

PURGE DATA

PURGE METHOD/EQUIPMENT: NA	PURGE VOLUME: NA		
START TIME: NA	END TIME: NA	MAX PID (PPM): NA	STABILIZED PID (PPM): NA

Notes: Purging not applicable for indoor air setup.

SAMPLE DATA

	TIME	SUMMA PRESSURE ("Hg)	TEMP (°F)	RELATIVE HUMIDITY (%)	DEW POINT (°F)	HEAT INDEX (°F)	BAROMETRIC PRESSURE ("Hg)
START SAMPLE	1136	30	72	47	9	70	29.91
END SAMPLE	1235	8	74.8	70	19	64	~~28~~ 29.82

Notes: Background PID = 0.3

SAMPLER(S) SIGNATURE:	DATE:
[signature]	1/11/16

Brown AND Caldwell

INDOOR AIR SAMPLING RECORD

Project No.

Site: Boarhead

SAMPLE ID: IA-005 (DUP)	STATION TYPE:	
SUMMA CANISTER #: 1121 ✓	FLOW RESTRICTOR #: 342379 ✓	MATRIX: Indoor Air
SAMPLE DATE: 01/11/16	SAMPLE HEIGHT: 3'	SCREEN LENGTH: Not Applicable (NA)
CANISTER SIZE: 6 liter	EASTING: NA	NORTHING: NA

LEAK TESTING (HELIUM)

HELIUM IN BUCKET (ppm or %):	HELIUM IN SG (ppm or %):	NOTES: Leak testing not applicable for indoor air setup.
1) NA	NA	
2) NA	NA	

PURGE DATA

PURGE METHOD/EQUIPMENT: NA	PURGE VOLUME: NA		
START TIME: NA	END TIME: NA	MAX PID (PPM): NA	STABILIZED PID (PPM): NA

Notes: Purging not applicable for indoor air setup.

SAMPLE DATA

	TIME	SUMMA PRESSURE ("Hg)	TEMP (°F)	RELATIVE HUMIDITY (%)	DEW POINT (°F)	HEAT INDEX (°F)	BAROMETRIC PRESSURE ("Hg)
START SAMPLE	1136	30	72°	47	9	70	29.91
END SAMPLE	1235	8	74.8	70	19	64	29.82

Notes: Background PID = 0.3 ppm

SAMPLER(S) SIGNATURE:	DATE:
	1/11/16

Brown AND Caldwell

INDOOR AIR SAMPLING RECORD

Project No.

Site: Boarhead

SAMPLE ID: IA-06	STATION TYPE:	
SUMMA CANISTER #: 1129 ✓	FLOW RESTRICTOR #: 239314 ✓	MATRIX: Indoor Air
SAMPLE DATE: 01/11/16	SAMPLE HEIGHT: 4'	SCREEN LENGTH: Not Applicable (NA)
CANISTER SIZE: 6 liter	EASTING: NA	NORTHING: NA

LEAK TESTING (HELIUM)

HELIUM IN BUCKET (ppm or %):	HELIUM IN SG (ppm or %):	NOTES: Leak testing not applicable for indoor air setup.
1) NA	NA	
2) NA	NA	

PURGE DATA

PURGE METHOD/EQUIPMENT: NA	PURGE VOLUME: NA		
START TIME: NA	END TIME: NA	MAX PID (PPM): NA	STABILIZED PID (PPM): NA

Notes: Purging not applicable for indoor air setup.

SAMPLE DATA

	TIME	SUMMA PRESSURE ("Hg)	TEMP (°F)	RELATIVE HUMIDITY (%)	DEW POINT (°F)	HEAT INDEX (°F)	BAROMETRIC PRESSURE ("Hg)
START SAMPLE	1140	28	72°	47	9	70	29.91
END SAMPLE	1219	5	74.5	70	19	64	29.82

Notes: Background PID = 0.2 ppm

SAMPLER(S) SIGNATURE:	DATE: 1/11/16

Brown AND Caldwell

INDOOR AIR SAMPLING RECORD

Project No.

Site: Boarhead

SAMPLE ID: AA-03	STATION TYPE:	
SUMMA CANISTER #: ~~1310~~ 1301 ✓	FLOW RESTRICTOR #: 675038 ✓	MATRIX: Ambient Air
SAMPLE DATE: 1/11/16	SAMPLE HEIGHT: 1'	SCREEN LENGTH: Not Applicable (NA)
CANISTER SIZE: 6 liter	EASTING: NA	NORTHING: NA

LEAK TESTING (HELIUM)

HELIUM IN BUCKET (ppm or %):	HELIUM IN SG (ppm or %):	NOTES: Leak testing not applicable for indoor air setup.
1) NA	NA	
2) NA	NA	

PURGE DATA

PURGE METHOD/EQUIPMENT: NA	PURGE VOLUME: NA		
START TIME: NA	END TIME: NA	MAX PID (PPM): NA	STABILIZED PID (PPM): NA

Notes: Purging not applicable for indoor air setup.

SAMPLE DATA

	TIME	SUMMA PRESSURE ("Hg)	TEMP (°F)	RELATIVE HUMIDITY (%)	DEW POINT (°F)	HEAT INDEX (°F)	BAROMETRIC PRESSURE ("Hg)
START SAMPLE	1142	29.5	26.9	47	90F	~~61~~ 27°	29.91
END SAMPLE	1220	6	36.0	~~41~~ 70 SRD	~~16.1°F~~ 19 SRD	64	29.99

Notes:

Background PID = 0.0 ppm

SAMPLER(S) SIGNATURE:	DATE:
[signature]	~~1/11/16~~ SRD 1/11/16

Brown AND Caldwell

~~INDOOR AIR~~ Soil gas SAMPLING RECORD

Project No. Boarhead

Site:

SAMPLE ID: SV-05 (and Dup)	STATION TYPE: Soil vapor	
SUMMA CANISTER #: 856 / 129	FLOW RESTRICTOR #: 339179 / 710628	MATRIX: Soil vapor
SAMPLE DATE: 1/12/16	SAMPLE HEIGHT: sub slab	SCREEN LENGTH: Not Applicable (NA)
CANISTER SIZE: 6 liter	EASTING: NA	NORTHING: NA

LEAK TESTING (HELIUM)

HELIUM IN BUCKET (ppm or %):	HELIUM IN SG (ppm or %):	NOTES: ~~Leak testing not applicable for indoor air setup.~~
1) ~~NA~~ 52.1%	0ppm ~~NA~~	Background PPM 0.3 (PID)
2) NA	NA	Background helium 0ppm

PURGE DATA

PURGE METHOD/EQUIPMENT: NA	PURGE VOLUME: NA		
gilian pump 200mL/m			
START TIME: NA	END TIME: NA	MAX PID (PPM): ~~NA~~	STABILIZED PID (PPM): ~~NA~~
1317	1321	0.6 ppm	0.6 ppm

Notes: ~~Purging not applicable for indoor air setup.~~ SED

SAMPLE DATA

	TIME	SUMMA PRESSURE ("Hg)	TEMP (°F)	RELATIVE HUMIDITY (%)	DEW POINT (°F)	HEAT INDEX (°F)	BAROMETRIC PRESSURE ("Hg)
START SAMPLE	1323	30/29	74	70	19	64	29.99
END SAMPLE	13:58	2.5/2.5	73	70	19	64	29.99

Notes: Background PID = 0.3ppm

SAMPLER(S) SIGNATURE:	DATE:
[signature]	1/12/16

Brown AND Caldwell

INDOOR AIR SAMPLING RECORD

SOIL GAS

Project No.

Site: Boarhead

SAMPLE ID: SV-04	STATION TYPE:	
SUMMA CANISTER #: 1133	FLOW RESTRICTOR #: 336825	MATRIX:
SAMPLE DATE: 01/12/16	SAMPLE HEIGHT:	SCREEN LENGTH: Not Applicable (NA)
CANISTER SIZE: 6 liter	EASTING: NA	NORTHING: NA

LEAK TESTING (HELIUM)

HELIUM IN BUCKET (ppm or %):	HELIUM IN SG (ppm or %):	NOTES: ~~Leak testing not applicable~~ for ~~indoor air~~ setup.
1) ~~NA~~ 53.1%	~~NA~~ 75ppm	Background PID: 0.2
2) ~~NA~~	~~NA~~	Background Helium: 0ppm

PURGE DATA

PURGE METHOD/EQUIPMENT: ~~NA~~	PURGE VOLUME: ~~NA~~
gilian pump 200ml/min	

START TIME: ~~NA~~	END TIME: ~~NA~~	MAX PID (PPM): ~~NA~~	STABILIZED PID (PPM): ~~NA~~
1328	1337	0.3	0.2

Notes: ~~Purging not applicable for indoor air setup.~~

SAMPLE DATA

	TIME	SUMMA PRESSURE ("Hg)	TEMP (°F)	RELATIVE HUMIDITY (%)	DEW POINT (°F)	HEAT INDEX (°F)	BAROMETRIC PRESSURE ("Hg)
START SAMPLE	1339	29	74	70	19	64	29.99
END SAMPLE	1426	5	73	70	19	64	29.99

Notes:

SAMPLER(S) SIGNATURE:	DATE:
[signature]	1/12/16

Brown AND Caldwell

INDOOR AIR SAMPLING RECORD

Project No.

Site: Boarhead

SAMPLE ID: SV-06	STATION TYPE:	
SUMMA CANISTER #: ~~1299~~ 808	FLOW RESTRICTOR #: ~~338 070~~ 710594	MATRIX: Soil Vapor
SAMPLE DATE: 01/12/16	SAMPLE HEIGHT: sub slab	SCREEN LENGTH: Not Applicable (NA)
CANISTER SIZE: 6 liter	EASTING: NA	NORTHING: NA

LEAK TESTING (HELIUM)

HELIUM IN BUCKET (ppm or %):	HELIUM IN SG (ppm or %):	NOTES: ~~Leak testing not applicable for indoor air setup.~~
1) ~~NA~~ 50.3 %	~~NA~~ 700ppm	background helium 350ppm
2) ~~NA~~	~~NA~~	background PID 0.2ppm

PURGE DATA

PURGE METHOD/EQUIPMENT: ~~NA~~ giliar pump 200 ml/m	PURGE VOLUME: ~~NA~~		
START TIME: ~~NA~~ 1237	END TIME: ~~NA~~ 1243	MAX PID (PPM): ~~NA~~ 0.8	STABILIZED PID (PPM): ~~NA~~ 0.2

Notes: ~~Purging not applicable for indoor air setup.~~

SAMPLE DATA

	TIME	SUMMA PRESSURE ("Hg)	TEMP (°F)	RELATIVE HUMIDITY (%)	DEW POINT (°F)	HEAT INDEX (°F)	BAROMETRIC PRESSURE ("Hg)
START SAMPLE	~~1259~~ ~~1259~~ 1359	~~29~~ 29.5	74°	70	19	64	29.99
END SAMPLE	1419	4	73	70	19	64	29.99

Notes: Backround PPM 0.4 ppm

SAMPLER(S) SIGNATURE:	DATE:
[signature]	1/12/16

Appendix D: Electronic Data Deliverable (CD-ROM)

Appendix E: Data Quality Evaluation

APPENDIX E-1
DUPLICATE SAMPLE COMPARISON
2016 SOIL VAPOR INTRUSION INVESTIGATION

Analytical Method	Constituent	Sample ID Units	SV-05		SV-05(DUP)		Relative Percent Difference	IA-05		IA-05(DUP)		Relative Percent Difference
TO15	1,1,1,2-Tetrachloroethane	µg/m³	1.4	U	1.4	U	0%	1.4	U	1.4	U	0%
TO15	1,1,1-Trichloroethane	µg/m³	1.1	U	1.1	U	0%	1.1	U	1.1	U	0%
TO15	1,1,2,2-Tetrachloroethane	µg/m³	1.4	U	1.4	U	0%	1.4	U	1.4	U	0%
TO15	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	µg/m³	3.8	U	3.8	U	0%	3.8	U	3.8	U	0%
TO15	1,1,2-Trichloroethane	µg/m³	1.1	U	1.1	U	0%	1.1	U	1.1	U	0%
TO15	1,1-Dichloroethane	µg/m³	0.81	U	0.81	U	0%	0.81	U	0.81	U	0%
TO15	1,1-Dichloroethene	µg/m³	0.79	U	0.79	U	0%	0.79	U	0.79	U	0%
TO15	1,2,3-Trichloropropane	µg/m³	1.2	U	1.2	U	0%	1.2	U	1.2	U	0%
TO15	1,2,4-Trimethylbenzene	µg/m³	1.8	J	1.5	J	18%	1.8	J	1.5	J	18%
TO15	1,2-Dibromoethane (EDB)	µg/m³	1.5	U	1.5	U	0%	1.5	U	1.5	U	0%
TO15	1,2-Dichlorobenzene	µg/m³	1.2	U	1.2	U	0%	1.2	U	1.2	U	0%
TO15	1,2-Dichloroethane	µg/m³	0.81	U	0.81	U	0%	0.81	U	0.81	U	0%
TO15	1,2-Dichloropropane	µg/m³	0.92	U	0.92	U	0%	0.92	U	0.92	U	0%
TO15	1,2-Dichlorotetrafluoroethane (Freon 114)	µg/m³	1.4	U	1.4	U	0%	1.4	U	1.4	U	0%
TO15	1,2-Dimethylbenzene (o-Xylene)	µg/m³	2.1	J	1.2	J	**55%**	2.1	J	1.2	J	**55%**
TO15	1,3,5-Trimethylbenzene (mesitylene)	µg/m³	2.7	J	2.1	J	**25%**	2.7	J	2.1	J	**25%**
TO15	1,3-Butadiene	µg/m³	0.88	U	0.88	U	0%	0.88	U	0.88	U	0%
TO15	1,3-Dichlorobenzene	µg/m³	1.2	U	1.2	U	0%	1.2	U	1.2	U	0%
TO15	1,4-Dichlorobenzene	µg/m³	1.2	U	1.2	U	0%	1.2	U	1.2	U	0%
TO15	2,2,4-Trimethylpentane	µg/m³	1.2	J	0.93	U	**25%**	1.2	J	0.93	U	**25%**
TO15	2-Butanone (MEK)	µg/m³	3.5	J	2.3	J	**41%**	3.5	J	2.3	J	**41%**
TO15	2-Hexanone	µg/m³	2	U	2	U	0%	2	U	2	U	0%
TO15	3-Chloropropene (allyl chloride)	µg/m³	0.63	U	0.63	U	0%	0.63	U	0.63	U	0%
TO15	4-Ethyltoluene	µg/m³	0.98	U	0.98	U	0%	0.98	U	0.98	U	0%
TO15	4-Methyl-2-pentanone (MIBK)	µg/m³	2	U	2	U	0%	2	U	2	U	0%
TO15	Acetone	µg/m³	36		29		22%	36		29		22%
TO15	Benzene	µg/m³	1	J	1	J	0%	1	J	1	J	0%
TO15	Bromobenzene	µg/m³	1.3	U	1.3	U	0%	1.3	U	1.3	U	0%
TO15	Bromodichloromethane	µg/m³	1.3	U	1.3	U	0%	1.3	U	1.3	U	0%
TO15	Bromoform	µg/m³	2.1	U	2.1	U	0%	2.1	U	2.1	U	0%
TO15	Bromomethane	µg/m³	0.78	U	0.78	U	0%	0.78	U	0.78	U	0%
TO15	Carbon disulfide	µg/m³	1.6	U	1.6	U	0%	1.6	U	1.6	U	0%

APPENDIX E-1
DUPLICATE SAMPLE COMPARISON
2016 SOIL VAPOR INTRUSION INVESTIGATION

Analytical Method	Constituent	Sample ID / Units	SV-05		SV-05(DUP)		Relative Percent Difference	IA-05		IA-05(DUP)		Relative Percent Difference
TO15	Carbon tetrachloride	µg/m³	1.3	U	1.3	U	0%	1.3	U	1.3	U	0%
TO15	Chlorobenzene	µg/m³	0.92	U	0.92	U	0%	0.92	U	0.92	U	0%
TO15	Chlorodifluoromethane	µg/m³	0.71	U	0.71	U	0%	0.71	U	0.71	U	0%
TO15	Chloroethane	µg/m³	0.53	U	0.53	U	0%	0.53	U	0.53	U	0%
TO15	Chloroform	µg/m³	0.98	U	0.98	U	0%	0.98	U	0.98	U	0%
TO15	Chloromethane	µg/m³	0.41	U	0.41	U	0%	0.41	U	0.41	U	0%
TO15	cis-1,2-Dichloroethene	µg/m³	0.79	U	0.79	U	0%	0.79	U	0.79	U	0%
TO15	cis-1,3-Dichloropropene	µg/m³	0.91	U	0.91	U	0%	0.91	U	0.91	U	0%
TO15	Dibromochloromethane	µg/m³	1.7	U	1.7	U	0%	1.7	U	1.7	U	0%
TO15	Dibromomethane	µg/m³	1.4	U	1.4	U	0%	1.4	U	1.4	U	0%
TO15	Dichlorodifluoromethane (Freon 12)	µg/m³	3.2	J	3	J	6%	3.2	J	3	J	6%
TO15	Dichlorofluoromethane	µg/m³	0.84	U	0.84	U	0%	0.84	U	0.84	U	0%
TO15	Ethylbenzene	µg/m³	0.87	U	0.87	U	0%	0.87	U	0.87	U	0%
TO15	Hexachloroethane	µg/m³	1.9	U	1.9	U	0%	1.9	U	1.9	U	0%
TO15	Isopropylbenzene (Cumene)	µg/m³	0.98	U	0.98	U	0%	0.98	U	0.98	U	0%
TO15	Methylene chloride	µg/m³	0.83	J	0.73	J	13%	0.83	J	0.73	J	13%
TO15	n-Heptane	µg/m³	6.3		4.5		**33%**	6.3		4.5		**33%**
TO15	n-Hexane	µg/m³	0.87	J	0.86	J	1%	0.87	J	0.86	J	1%
TO15	n-Pentane (C5)	µg/m³	1.4	J	1.6	J	13%	1.4	J	1.6	J	13%
TO15	Octane	µg/m³	3.6	J	2.5	J	**36%**	3.6	J	2.5	J	**36%**
TO15	Styrene	µg/m³	0.85	U	0.85	U	0%	0.85	U	0.85	U	0%
TO15	tert-Butyl methyl ether (MTBE)	µg/m³	0.72	U	0.72	U	0%	0.72	U	0.72	U	0%
TO15	Tetrachloroethene (PCE)	µg/m³	1.4	U	1.4	U	0%	1.4	U	1.4	U	0%
TO15	Toluene	µg/m³	2.2	J	1.9	J	15%	2.2	J	1.9	J	15%
TO15	trans-1,2-Dichloroethene	µg/m³	0.79	U	0.79	U	0%	0.79	U	0.79	U	0%
TO15	trans-1,3-Dichloropropene	µg/m³	0.91	U	0.91	U	0%	0.91	U	0.91	U	0%
TO15	Trichloroethene (TCE)	µg/m³	1.1	U	1.1	U	0%	1.1	U	1.1	U	0%
TO15	Trichlorofluoromethane (Freon 11)	µg/m³	2.2	J	2	J	10%	2.2	J	2	J	10%
TO15	Vinyl chloride	µg/m³	0.51	U	0.51	U	0%	0.51	U	0.51	U	0%
TO15	Xylenes, m & p	µg/m³	2.8	J	2.3	J	20%	2.8	J	2.3	J	20%

APPENDIX E-1
DUPLICATE SAMPLE COMPARISON
2016 SOIL VAPOR INTRUSION INVESTIGATION

Analytical Method	Constituent	Sample ID / Units	SV-05		SV-05(DUP)		Relative Percent Difference	IA-05		IA-05(DUP)		Relative Percent Difference
TO15SIM	1,1,2-Trichloroethane	µg/m³	0.109	U	0.109	U	0%	0.109	U	0.109	U	0%
TO15SIM	1,1-Dichloroethane	µg/m³	0.147	J	0.0809	U	**58%**	0.147	J	0.0809	U	**58%**
TO15SIM	1,2-Dibromoethane (EDB)	µg/m³	0.208	J	0.154	U	**30%**	0.208	J	0.154	U	**30%**
TO15SIM	1,2-Dichloroethane	µg/m³	0.467		0.441		6%	0.467		0.441		6%
TO15SIM	1,4-Dichlorobenzene	µg/m³	0.216	J	0.206	J	5%	0.216	J	0.206	J	5%
TO15SIM	Benzene	µg/m³	1.1		1.05		5%	1.1		1.05		5%
TO15SIM	Carbon tetrachloride	µg/m³	1.34		1.22		9%	1.34		1.22		9%
TO15SIM	Chloroform	µg/m³	0.431		0.315		**31%**	0.431		0.315		**31%**
TO15SIM	Ethylbenzene	µg/m³	0.802		0.8		0%	0.802		0.8		0%
TO15SIM	Tetrachloroethene (PCE)	µg/m³	0.24	J	0.176	J	**31%**	0.24	J	0.176	J	**31%**
TO15SIM	Trichloroethene (TCE)	µg/m³	0.17	J	0.107	U	**45%**	0.17	J	0.107	U	**45%**
TO15SIM	Vinyl chloride	µg/m³	0.0511	U	0.0511	U	0%	0.0511	U	0.0511	U	0%

Notes:
(1): EPA Region 3 Risk Based Concentrations
U: Parameter is non-detect (RSL shown as value).
J: Parameter concentration estimated
(DUP)- Duplicate sample
--: Not Applicable

APPENDIX E-2
COMPARISON OF DATA QUALITY OBJECTIVES
2016 SOIL VAPOR INTRUSION INVESTIGATION

Sample Name	Sample Date	Sample Type	Parameter	Method	Result	QC Flag	Detection Flag	Reporting Limit	Units	Screening Level
Soil Vapor										
SV-04	1/12/2016	N	1,1,1,2-Tetrachloroethane	TO15	1.4	U	N	1.4	µg/m³	3.8
SV-04	1/12/2016	N	1,1,1-Trichloroethane	TO15	1.1	U	N	1.1	µg/m³	5200
SV-04	1/12/2016	N	1,1,2,2-Tetrachloroethane	TO15	1.4	U	N	1.4	µg/m³	0.48
SV-04	1/12/2016	N	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TO15	3.8	U	N	3.8	µg/m³	31000
SV-04	1/12/2016	N	1,1,2-Trichloroethane	TO15SIM	0.109	U	N	0.109	µg/m³	0.21
SV-04	1/12/2016	N	1,1,2-Trichloroethane	TO15	1.1	U	N	1.1	µg/m³	0.21
SV-04	1/12/2016	N	1,1-Dichloroethane	TO15SIM	0.0809	U	N	0.0809	µg/m³	18
SV-04	1/12/2016	N	1,1-Dichloroethane	TO15	0.81	U	N	0.81	µg/m³	18
SV-04	1/12/2016	N	1,1-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	210
SV-04	1/12/2016	N	1,2,3-Trichloropropane	TO15	1.2	U	N	1.2	µg/m³	0.31
SV-04	1/12/2016	N	1,2,4-Trimethylbenzene	TO15	7.4		Y	0.98	µg/m³	7.3
SV-04	1/12/2016	N	1,2-Dibromoethane (EDB)	TO15SIM	0.154	U	N	0.154	µg/m³	0.047
SV-04	1/12/2016	N	1,2-Dibromoethane (EDB)	TO15	1.5	U	N	1.5	µg/m³	0.047
SV-04	1/12/2016	N	1,2-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	210
SV-04	1/12/2016	N	1,2-Dichloroethane	TO15SIM	0.0809	U	N	0.0809	µg/m³	1.1
SV-04	1/12/2016	N	1,2-Dichloroethane	TO15	0.81	U	N	0.81	µg/m³	1.1
SV-04	1/12/2016	N	1,2-Dichloropropane	TO15	0.92	U	N	0.92	µg/m³	2.8
SV-04	1/12/2016	N	1,2-Dichlorotetrafluoroethane (Freon 114)	TO15	1.4	U	N	1.4	µg/m³	--
SV-04	1/12/2016	N	1,2-Dimethylbenzene (o-Xylene)	TO15	4.5		Y	0.87	µg/m³	100
SV-04	1/12/2016	N	1,3,5-Trimethylbenzene (mesitylene)	TO15	3.7	J	Y	0.98	µg/m³	--
SV-04	1/12/2016	N	1,3-Butadiene	TO15	0.88	U	N	0.88	µg/m³	0.94
SV-04	1/12/2016	N	1,3-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	--
SV-04	1/12/2016	N	1,4-Dichlorobenzene	TO15SIM	0.196	J	Y	0.12	µg/m³	2.6
SV-04	1/12/2016	N	1,4-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	2.6
SV-04	1/12/2016	N	2,2,4-Trimethylpentane	TO15	23		Y	0.93	µg/m³	--
SV-04	1/12/2016	N	2-Butanone (MEK)	TO15	4.3	J	Y	1.5	µg/m³	5200
SV-04	1/12/2016	N	2-Hexanone	TO15	2	U	N	2	µg/m³	31
SV-04	1/12/2016	N	3-Chloropropene (allyl chloride)	TO15	0.63	U	N	0.63	µg/m³	1
SV-04	1/12/2016	N	4-Ethyltoluene	TO15	4.6	J	Y	0.98	µg/m³	--
SV-04	1/12/2016	N	4-Methyl-2-pentanone (MIBK)	TO15	2	U	N	2	µg/m³	3100
SV-04	1/12/2016	N	Acetone	TO15	19		Y	1.2	µg/m³	32000

APPENDIX E-2
COMPARISON OF DATA QUALITY OBJECTIVES
2016 SOIL VAPOR INTRUSION INVESTIGATION

Sample Name	Sample Date	Sample Type	Parameter	Method	Result	QC Flag	Detection Flag	Reporting Limit	Units	Screening Level
SV-04	1/12/2016	N	Benzene	TO15SIM	1.13		Y	0.0639	µg/m³	3.6
SV-04	1/12/2016	N	Benzene	TO15	1.1	J	Y	0.64	µg/m³	3.6
SV-04	1/12/2016	N	Bromobenzene	TO15	1.3	U	N	1.3	µg/m³	63
SV-04	1/12/2016	N	Bromodichloromethane	TO15	1.3	U	N	1.3	µg/m³	0.76
SV-04	1/12/2016	N	Bromoform	TO15	2.1	U	N	2.1	µg/m³	26
SV-04	1/12/2016	N	Bromomethane	TO15	0.78	U	N	0.78	µg/m³	5.2
SV-04	1/12/2016	N	Carbon disulfide	TO15	3	J	Y	1.6	µg/m³	730
SV-04	1/12/2016	N	Carbon tetrachloride	TO15SIM	0.896		Y	0.126	µg/m³	4.7
SV-04	1/12/2016	N	Carbon tetrachloride	TO15	1.3	U	N	1.3	µg/m³	4.7
SV-04	1/12/2016	N	Chlorobenzene	TO15	0.92	U	N	0.92	µg/m³	52
SV-04	1/12/2016	N	CHLORODIFLUOROMETHANE	TO15	0.71	U	N	0.71	µg/m³	52000
SV-04	1/12/2016	N	Chloroethane	TO15	0.53	U	N	0.53	µg/m³	10000
SV-04	1/12/2016	N	Chloroform	TO15	12		Y	0.98	µg/m³	1.2
SV-04	1/12/2016	N	Chloroform	TO15SIM	15		Y	0.977	µg/m³	1.2
SV-04	1/12/2016	N	Chloromethane	TO15	0.41	U	N	0.41	µg/m³	94
SV-04	1/12/2016	N	cis-1,2-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	--
SV-04	1/12/2016	N	cis-1,3-Dichloropropene	TO15	0.91	U	N	0.91	µg/m³	--
SV-04	1/12/2016	N	Dibromochloromethane	TO15	1.7	U	N	1.7	µg/m³	1
SV-04	1/12/2016	N	Dibromomethane	TO15	1.4	U	N	1.4	µg/m³	4.2
SV-04	1/12/2016	N	Dichlorodifluoromethane (Freon 12)	TO15	3.9	J	Y	0.99	µg/m³	100
SV-04	1/12/2016	N	Dichlorofluoromethane	TO15	0.84	U	N	0.84	µg/m³	--
SV-04	1/12/2016	N	Ethylbenzene	TO15	2.7	J	Y	0.87	µg/m³	11
SV-04	1/12/2016	N	Ethylbenzene	TO15SIM	4.38		Y	0.0868	µg/m³	11
SV-04	1/12/2016	N	Hexachloroethane	TO15	1.9	U	N	1.9	µg/m³	2.6
SV-04	1/12/2016	N	Isopropylbenzene (Cumene)	TO15	1.7	J	Y	0.98	µg/m³	420
SV-04	1/12/2016	N	Methylene chloride	TO15	1	J	Y	0.69	µg/m³	630
SV-04	1/12/2016	N	n-Heptane	TO15	0.82	U	N	0.82	µg/m³	--
SV-04	1/12/2016	N	n-Hexane	TO15	5.8		Y	0.7	µg/m³	730
SV-04	1/12/2016	N	n-Pentane (C5)	TO15	3		Y	0.59	µg/m³	1000
SV-04	1/12/2016	N	Octane	TO15	3	J	Y	0.93	µg/m³	--
SV-04	1/12/2016	N	Styrene	TO15	5		Y	0.85	µg/m³	1000
SV-04	1/12/2016	N	tert-Butyl methyl ether (MTBE)	TO15	0.72	U	N	0.72	µg/m³	110

APPENDIX E-2
COMPARISON OF DATA QUALITY OBJECTIVES
2016 SOIL VAPOR INTRUSION INVESTIGATION

Sample Name	Sample Date	Sample Type	Parameter	Method	Result	QC Flag	Detection Flag	Reporting Limit	Units	Screening Level
SV-04	1/12/2016	N	Tetrachloroethene (PCE)	TO15	1.4	U	N	1.4	µg/m³	42
SV-04	1/12/2016	N	Tetrachloroethene (PCE)	TO15SIM	0.496		Y	0.136	µg/m³	42
SV-04	1/12/2016	N	Toluene	TO15	4.3		Y	0.75	µg/m³	5200
SV-04	1/12/2016	N	trans-1,2-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	--
SV-04	1/12/2016	N	trans-1,3-Dichloropropene	TO15	0.91	U	N	0.91	µg/m³	--
SV-04	1/12/2016	N	Trichloroethene (TCE)	TO15	1.1	U	N	1.1	µg/m³	2.1
SV-04	1/12/2016	N	Trichloroethene (TCE)	TO15SIM	0.211	J	Y	0.107	µg/m³	2.1
SV-04	1/12/2016	N	Trichlorofluoromethane (Freon 11)	TO15	2.3	J	Y	1.1	µg/m³	730
SV-04	1/12/2016	N	Vinyl chloride	TO15	0.51	U	N	0.51	µg/m³	1.7
SV-04	1/12/2016	N	Vinyl chloride	TO15SIM	0.0511	U	N	0.0511	µg/m³	1.7
SV-04	1/12/2016	N	Xylenes, m & p	TO15	8.4		Y	0.87	µg/m³	--
SV-05	1/12/2016	N	1,1,1,2-Tetrachloroethane	TO15	1.4	U	N	1.4	µg/m³	3.8
SV-05	1/12/2016	N	1,1,1-Trichloroethane	TO15	1.1	U	N	1.1	µg/m³	5200
SV-05	1/12/2016	N	1,1,2,2-Tetrachloroethane	TO15	1.4	U	N	1.4	µg/m³	0.48
SV-05	1/12/2016	N	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TO15	3.8	U	N	3.8	µg/m³	31000
SV-05	1/12/2016	N	1,1,2-Trichloroethane	TO15SIM	0.109	U	N	0.109	µg/m³	0.21
SV-05	1/12/2016	N	1,1,2-Trichloroethane	TO15	1.1	U	N	1.1	µg/m³	0.21
SV-05	1/12/2016	N	1,1-Dichloroethane	TO15SIM	0.0809	U	N	0.0809	µg/m³	18
SV-05	1/12/2016	N	1,1-Dichloroethane	TO15	0.81	U	N	0.81	µg/m³	18
SV-05	1/12/2016	N	1,1-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	210
SV-05	1/12/2016	N	1,2,3-Trichloropropane	TO15	1.2	U	N	1.2	µg/m³	0.31
SV-05	1/12/2016	N	1,2,4-Trimethylbenzene	TO15	9.1		Y	0.98	µg/m³	7.3
SV-05	1/12/2016	N	1,2-Dibromoethane (EDB)	TO15SIM	0.154	U	N	0.154	µg/m³	0.047
SV-05	1/12/2016	N	1,2-Dibromoethane (EDB)	TO15	1.5	U	N	1.5	µg/m³	0.047
SV-05	1/12/2016	N	1,2-Dichlorobenzene	TO15	2.1	J	Y	1.2	µg/m³	210
SV-05	1/12/2016	N	1,2-Dichloroethane	TO15SIM	0.168	J	Y	0.0809	µg/m³	1.1
SV-05	1/12/2016	N	1,2-Dichloroethane	TO15	0.81	U	N	0.81	µg/m³	1.1
SV-05	1/12/2016	N	1,2-Dichloropropane	TO15	0.92	U	N	0.92	µg/m³	2.8
SV-05	1/12/2016	N	1,2-Dichlorotetrafluoroethane (Freon 114)	TO15	1.4	U	N	1.4	µg/m³	--
SV-05	1/12/2016	N	1,2-Dimethylbenzene (o-Xylene)	TO15	11		Y	0.87	µg/m³	100
SV-05	1/12/2016	N	1,3,5-Trimethylbenzene (mesitylene)	TO15	5.3		Y	0.98	µg/m³	--
SV-05	1/12/2016	N	1,3-Butadiene	TO15	0.88	U	N	0.88	µg/m³	0.94

APPENDIX E-2
COMPARISON OF DATA QUALITY OBJECTIVES
2016 SOIL VAPOR INTRUSION INVESTIGATION

Sample Name	Sample Date	Sample Type	Parameter	Method	Result	QC Flag	Detection Flag	Reporting Limit	Units	Screening Level
SV-05	1/12/2016	N	1,3-Dichlorobenzene	TO15	2.2	J	Y	1.2	µg/m³	--
SV-05	1/12/2016	N	1,4-Dichlorobenzene	TO15SIM	0.527		Y	0.12	µg/m³	2.6
SV-05	1/12/2016	N	1,4-Dichlorobenzene	TO15	2.1	J	Y	1.2	µg/m³	2.6
SV-05	1/12/2016	N	2,2,4-Trimethylpentane	TO15	12		Y	0.93	µg/m³	--
SV-05	1/12/2016	N	2-Butanone (MEK)	TO15	6.5		Y	1.5	µg/m³	5200
SV-05	1/12/2016	N	2-Hexanone	TO15	2	U	N	2	µg/m³	31
SV-05	1/12/2016	N	3-Chloropropene (allyl chloride)	TO15	0.63	U	N	0.63	µg/m³	1
SV-05	1/12/2016	N	4-Ethyltoluene	TO15	4.9		Y	0.98	µg/m³	--
SV-05	1/12/2016	N	4-Methyl-2-pentanone (MIBK)	TO15	2	U	N	2	µg/m³	3100
SV-05	1/12/2016	N	Acetone	TO15	32		Y	1.2	µg/m³	32000
SV-05	1/12/2016	N	Benzene	TO15SIM	1.33		Y	0.0639	µg/m³	3.6
SV-05	1/12/2016	N	Benzene	TO15	1.1	J	Y	0.64	µg/m³	3.6
SV-05	1/12/2016	N	Bromobenzene	TO15	1.4	J	Y	1.3	µg/m³	63
SV-05	1/12/2016	N	Bromodichloromethane	TO15	1.3	U	N	1.3	µg/m³	0.76
SV-05	1/12/2016	N	Bromoform	TO15	2.1	U	N	2.1	µg/m³	26
SV-05	1/12/2016	N	Bromomethane	TO15	0.78	U	N	0.78	µg/m³	5.2
SV-05	1/12/2016	N	Carbon disulfide	TO15	78		Y	1.6	µg/m³	730
SV-05	1/12/2016	N	Carbon tetrachloride	TO15SIM	0.73		Y	0.126	µg/m³	4.7
SV-05	1/12/2016	N	Carbon tetrachloride	TO15	1.3	U	N	1.3	µg/m³	4.7
SV-05	1/12/2016	N	Chlorobenzene	TO15	0.92	U	N	0.92	µg/m³	52
SV-05	1/12/2016	N	CHLORODIFLUOROMETHANE	TO15	0.84	J	Y	0.71	µg/m³	52000
SV-05	1/12/2016	N	Chloroethane	TO15	0.53	U	N	0.53	µg/m³	10000
SV-05	1/12/2016	N	Chloroform	TO15SIM	8.88		Y	0.977	µg/m³	1.2
SV-05	1/12/2016	N	Chloroform	TO15	6.9		Y	0.98	µg/m³	1.2
SV-05	1/12/2016	N	Chloromethane	TO15	0.41	U	N	0.41	µg/m³	94
SV-05	1/12/2016	N	cis-1,2-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	--
SV-05	1/12/2016	N	cis-1,3-Dichloropropene	TO15	0.91	U	N	0.91	µg/m³	--
SV-05	1/12/2016	N	Dibromochloromethane	TO15	1.7	U	N	1.7	µg/m³	1
SV-05	1/12/2016	N	Dibromomethane	TO15	1.4	U	N	1.4	µg/m³	4.2
SV-05	1/12/2016	N	Dichlorodifluoromethane (Freon 12)	TO15	2.8	J	Y	0.99	µg/m³	100
SV-05	1/12/2016	N	Dichlorofluoromethane	TO15	0.84	U	N	0.84	µg/m³	--
SV-05	1/12/2016	N	Ethylbenzene	TO15	7.2		Y	0.87	µg/m³	11

APPENDIX E-2
COMPARISON OF DATA QUALITY OBJECTIVES
2016 SOIL VAPOR INTRUSION INVESTIGATION

Sample Name	Sample Date	Sample Type	Parameter	Method	Result	QC Flag	Detection Flag	Reporting Limit	Units	Screening Level
SV-05	1/12/2016	N	Ethylbenzene	TO15SIM	11		Y	0.868	µg/m³	11
SV-05	1/12/2016	N	Hexachloroethane	TO15	1.9	U	N	1.9	µg/m³	2.6
SV-05	1/12/2016	N	Isopropylbenzene (Cumene)	TO15	2.3	J	Y	0.98	µg/m³	420
SV-05	1/12/2016	N	Methylene chloride	TO15	0.69	U	N	0.69	µg/m³	630
SV-05	1/12/2016	N	n-Heptane	TO15	2.6	J	Y	0.82	µg/m³	--
SV-05	1/12/2016	N	n-Hexane	TO15	11		Y	0.7	µg/m³	730
SV-05	1/12/2016	N	n-Pentane (C5)	TO15	2.4	J	Y	0.59	µg/m³	1000
SV-05	1/12/2016	N	Octane	TO15	5.7		Y	0.93	µg/m³	--
SV-05	1/12/2016	N	Styrene	TO15	4.6		Y	0.85	µg/m³	1000
SV-05	1/12/2016	N	tert-Butyl methyl ether (MTBE)	TO15	0.72	U	N	0.72	µg/m³	110
SV-05	1/12/2016	N	Tetrachloroethene (PCE)	TO15	1.4	U	N	1.4	µg/m³	42
SV-05	1/12/2016	N	Tetrachloroethene (PCE)	TO15SIM	0.611		Y	0.136	µg/m³	42
SV-05	1/12/2016	N	Toluene	TO15	3.6	J	Y	0.75	µg/m³	5200
SV-05	1/12/2016	N	trans-1,2-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	--
SV-05	1/12/2016	N	trans-1,3-Dichloropropene	TO15	0.91	U	N	0.91	µg/m³	--
SV-05	1/12/2016	N	Trichloroethene (TCE)	TO15	1.1	U	N	1.1	µg/m³	2.1
SV-05	1/12/2016	N	Trichloroethene (TCE)	TO15SIM	0.172	J	Y	0.107	µg/m³	2.1
SV-05	1/12/2016	N	Trichlorofluoromethane (Freon 11)	TO15	1.9	J	Y	1.1	µg/m³	730
SV-05	1/12/2016	N	Vinyl chloride	TO15	0.51	U	N	0.51	µg/m³	1.7
SV-05	1/12/2016	N	Vinyl chloride	TO15SIM	0.0511	U	N	0.0511	µg/m³	1.7
SV-05	1/12/2016	N	Xylenes, m & p	TO15	17		Y	0.87	µg/m³	--
SV-05	1/12/2016	FD	1,1,1,2-Tetrachloroethane	TO15	1.4	U	N	1.4	µg/m³	3.8
SV-05	1/12/2016	FD	1,1,1-Trichloroethane	TO15	1.1	U	N	1.1	µg/m³	5200
SV-05	1/12/2016	FD	1,1,2,2-Tetrachloroethane	TO15	1.4	U	N	1.4	µg/m³	0.48
SV-05	1/12/2016	FD	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TO15	3.8	U	N	3.8	µg/m³	31000
SV-05	1/12/2016	FD	1,1,2-Trichloroethane	TO15SIM	0.109	U	N	0.109	µg/m³	0.21
SV-05	1/12/2016	FD	1,1,2-Trichloroethane	TO15	1.1	U	N	1.1	µg/m³	0.21
SV-05	1/12/2016	FD	1,1-Dichloroethane	TO15SIM	0.0809	U	N	0.0809	µg/m³	18
SV-05	1/12/2016	FD	1,1-Dichloroethane	TO15	0.81	U	N	0.81	µg/m³	18
SV-05	1/12/2016	FD	1,1-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	210
SV-05	1/12/2016	FD	1,2,3-Trichloropropane	TO15	1.2	U	N	1.2	µg/m³	0.31
SV-05	1/12/2016	FD	1,2,4-Trimethylbenzene	TO15	9.7		Y	0.98	µg/m³	7.3

Sample Name	Sample Date	Sample Type	Parameter	Method	Result	QC Flag	Detection Flag	Reporting Limit	Units	Screening Level
SV-05	1/12/2016	FD	1,2-Dibromoethane (EDB)	TO15SIM	0.154	U	N	0.154	µg/m³	0.047
SV-05	1/12/2016	FD	1,2-Dibromoethane (EDB)	TO15	1.5	U	N	1.5	µg/m³	0.047
SV-05	1/12/2016	FD	1,2-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	210
SV-05	1/12/2016	FD	1,2-Dichloroethane	TO15SIM	0.0809	U	N	0.0809	µg/m³	1.1
SV-05	1/12/2016	FD	1,2-Dichloroethane	TO15	0.81	U	N	0.81	µg/m³	1.1
SV-05	1/12/2016	FD	1,2-Dichloropropane	TO15	0.92	U	N	0.92	µg/m³	2.8
SV-05	1/12/2016	FD	1,2-Dichlorotetrafluoroethane (Freon 114)	TO15	1.4	U	N	1.4	µg/m³	--
SV-05	1/12/2016	FD	1,2-Dimethylbenzene (o-Xylene)	TO15	3	J	Y	0.87	µg/m³	100
SV-05	1/12/2016	FD	1,3,5-Trimethylbenzene (mesitylene)	TO15	4.3	J	Y	0.98	µg/m³	--
SV-05	1/12/2016	FD	1,3-Butadiene	TO15	0.88	U	N	0.88	µg/m³	0.94
SV-05	1/12/2016	FD	1,3-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	--
SV-05	1/12/2016	FD	1,4-Dichlorobenzene	TO15SIM	0.136	J	Y	0.12	µg/m³	2.6
SV-05	1/12/2016	FD	1,4-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	2.6
SV-05	1/12/2016	FD	2,2,4-Trimethylpentane	TO15	12		Y	0.93	µg/m³	--
SV-05	1/12/2016	FD	2-Butanone (MEK)	TO15	10		Y	1.5	µg/m³	5200
SV-05	1/12/2016	FD	2-Hexanone	TO15	2	U	N	2	µg/m³	31
SV-05	1/12/2016	FD	3-Chloropropene (allyl chloride)	TO15	0.63	U	N	0.63	µg/m³	1
SV-05	1/12/2016	FD	4-Ethyltoluene	TO15	5.1		Y	0.98	µg/m³	--
SV-05	1/12/2016	FD	4-Methyl-2-pentanone (MIBK)	TO15	2	U	N	2	µg/m³	3100
SV-05	1/12/2016	FD	Acetone	TO15	45		Y	1.2	µg/m³	32000
SV-05	1/12/2016	FD	Benzene	TO15SIM	1.14		Y	0.0639	µg/m³	3.6
SV-05	1/12/2016	FD	Benzene	TO15	1	J	Y	0.64	µg/m³	3.6
SV-05	1/12/2016	FD	Bromobenzene	TO15	1.3	U	N	1.3	µg/m³	63
SV-05	1/12/2016	FD	Bromodichloromethane	TO15	1.3	U	N	1.3	µg/m³	0.76
SV-05	1/12/2016	FD	Bromoform	TO15	2.1	U	N	2.1	µg/m³	26
SV-05	1/12/2016	FD	Bromomethane	TO15	0.78	U	N	0.78	µg/m³	5.2
SV-05	1/12/2016	FD	Carbon disulfide	TO15	89		Y	1.6	µg/m³	730
SV-05	1/12/2016	FD	Carbon tetrachloride	TO15SIM	0.81		Y	0.126	µg/m³	4.7
SV-05	1/12/2016	FD	Carbon tetrachloride	TO15	1.3	U	N	1.3	µg/m³	4.7
SV-05	1/12/2016	FD	Chlorobenzene	TO15	0.92	U	N	0.92	µg/m³	52
SV-05	1/12/2016	FD	CHLORODIFLUOROMETHANE	TO15	0.71	U	N	0.71	µg/m³	52000
SV-05	1/12/2016	FD	Chloroethane	TO15	0.53	U	N	0.53	µg/m³	10000

APPENDIX E-2
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Sample Name	Sample Date	Sample Type	Parameter	Method	Result	QC Flag	Detection Flag	Reporting Limit	Units	Screening Level
SV-05	1/12/2016	FD	Chloroform	TO15SIM	9.3		Y	0.977	µg/m³	1.2
SV-05	1/12/2016	FD	Chloroform	TO15	6.3		Y	0.98	µg/m³	1.2
SV-05	1/12/2016	FD	Chloromethane	TO15	0.41	U	N	0.41	µg/m³	94
SV-05	1/12/2016	FD	cis-1,2-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	--
SV-05	1/12/2016	FD	cis-1,3-Dichloropropene	TO15	0.91	U	N	0.91	µg/m³	--
SV-05	1/12/2016	FD	Dibromochloromethane	TO15	1.7	U	N	1.7	µg/m³	1
SV-05	1/12/2016	FD	Dibromomethane	TO15	1.4	U	N	1.4	µg/m³	4.2
SV-05	1/12/2016	FD	Dichlorodifluoromethane (Freon 12)	TO15	2.8	J	Y	0.99	µg/m³	100
SV-05	1/12/2016	FD	Dichlorofluoromethane	TO15	0.84	U	N	0.84	µg/m³	--
SV-05	1/12/2016	FD	Ethylbenzene	TO15SIM	2.05		Y	0.0868	µg/m³	11
SV-05	1/12/2016	FD	Ethylbenzene	TO15	1.6	J	Y	0.87	µg/m³	11
SV-05	1/12/2016	FD	Hexachloroethane	TO15	1.9	U	N	1.9	µg/m³	2.6
SV-05	1/12/2016	FD	Isopropylbenzene (Cumene)	TO15	1.7	J	Y	0.98	µg/m³	420
SV-05	1/12/2016	FD	Methylene chloride	TO15	0.69	U	N	0.69	µg/m³	630
SV-05	1/12/2016	FD	n-Heptane	TO15	2.6	J	Y	0.82	µg/m³	--
SV-05	1/12/2016	FD	n-Hexane	TO15	12		Y	0.7	µg/m³	730
SV-05	1/12/2016	FD	n-Pentane (C5)	TO15	2.6	J	Y	0.59	µg/m³	1000
SV-05	1/12/2016	FD	Octane	TO15	4.3	J	Y	0.93	µg/m³	--
SV-05	1/12/2016	FD	Styrene	TO15	4.2	J	Y	0.85	µg/m³	1000
SV-05	1/12/2016	FD	tert-Butyl methyl ether (MTBE)	TO15	0.72	U	N	0.72	µg/m³	110
SV-05	1/12/2016	FD	Tetrachloroethene (PCE)	TO15SIM	0.315	J	Y	0.136	µg/m³	42
SV-05	1/12/2016	FD	Tetrachloroethene (PCE)	TO15	1.4	U	N	1.4	µg/m³	42
SV-05	1/12/2016	FD	Toluene	TO15	2.3	J	Y	0.75	µg/m³	5200
SV-05	1/12/2016	FD	trans-1,2-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	--
SV-05	1/12/2016	FD	trans-1,3-Dichloropropene	TO15	0.91	U	N	0.91	µg/m³	--
SV-05	1/12/2016	FD	Trichloroethene (TCE)	TO15	1.1	U	N	1.1	µg/m³	2.1
SV-05	1/12/2016	FD	Trichloroethene (TCE)	TO15SIM	0.107	U	N	0.107	µg/m³	2.1
SV-05	1/12/2016	FD	Trichlorofluoromethane (Freon 11)	TO15	1.7	J	Y	1.1	µg/m³	730
SV-05	1/12/2016	FD	Vinyl chloride	TO15	0.51	U	N	0.51	µg/m³	1.7
SV-05	1/12/2016	FD	Vinyl chloride	TO15SIM	0.0511	U	N	0.0511	µg/m³	1.7
SV-05	1/12/2016	FD	Xylenes, m & p	TO15	4.6		Y	0.87	µg/m³	--
SV-06	1/12/2016	N	1,1,1,2-Tetrachloroethane	TO15	1.4	U	N	1.4	µg/m³	3.8

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COMPARISON OF DATA QUALITY OBJECTIVES
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Sample Name	Sample Date	Sample Type	Parameter	Method	Result	QC Flag	Detection Flag	Reporting Limit	Units	Screening Level
SV-06	1/12/2016	N	1,1,1-Trichloroethane	TO15	1.1	U	N	1.1	µg/m³	5200
SV-06	1/12/2016	N	1,1,2,2-Tetrachloroethane	TO15	1.4	U	N	1.4	µg/m³	0.48
SV-06	1/12/2016	N	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TO15	3.8	U	N	3.8	µg/m³	31000
SV-06	1/12/2016	N	1,1,2-Trichloroethane	TO15SIM	0.109	U	N	0.109	µg/m³	0.21
SV-06	1/12/2016	N	1,1,2-Trichloroethane	TO15	1.1	U	N	1.1	µg/m³	0.21
SV-06	1/12/2016	N	1,1-Dichloroethane	TO15SIM	0.0809	U	N	0.0809	µg/m³	18
SV-06	1/12/2016	N	1,1-Dichloroethane	TO15	0.81	U	N	0.81	µg/m³	18
SV-06	1/12/2016	N	1,1-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	210
SV-06	1/12/2016	N	1,2,3-Trichloropropane	TO15	1.2	U	N	1.2	µg/m³	0.31
SV-06	1/12/2016	N	1,2,4-Trimethylbenzene	TO15	13		Y	0.98	µg/m³	7.3
SV-06	1/12/2016	N	1,2-Dibromoethane (EDB)	TO15SIM	0.154	U	N	0.154	µg/m³	0.047
SV-06	1/12/2016	N	1,2-Dibromoethane (EDB)	TO15	1.5	U	N	1.5	µg/m³	0.047
SV-06	1/12/2016	N	1,2-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	210
SV-06	1/12/2016	N	1,2-Dichloroethane	TO15SIM	0.0809	U	N	0.0809	µg/m³	1.1
SV-06	1/12/2016	N	1,2-Dichloroethane	TO15	0.81	U	N	0.81	µg/m³	1.1
SV-06	1/12/2016	N	1,2-Dichloropropane	TO15	0.92	U	N	0.92	µg/m³	2.8
SV-06	1/12/2016	N	1,2-Dichlorotetrafluoroethane (Freon 114)	TO15	1.4	U	N	1.4	µg/m³	--
SV-06	1/12/2016	N	1,2-Dimethylbenzene (o-Xylene)	TO15	10		Y	0.87	µg/m³	100
SV-06	1/12/2016	N	1,3,5-Trimethylbenzene (mesitylene)	TO15	8.5		Y	0.98	µg/m³	--
SV-06	1/12/2016	N	1,3-Butadiene	TO15	0.88	U	N	0.88	µg/m³	0.94
SV-06	1/12/2016	N	1,3-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	--
SV-06	1/12/2016	N	1,4-Dichlorobenzene	TO15SIM	0.619		Y	0.12	µg/m³	2.6
SV-06	1/12/2016	N	1,4-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	2.6
SV-06	1/12/2016	N	2,2,4-Trimethylpentane	TO15	1.1	J	Y	0.93	µg/m³	--
SV-06	1/12/2016	N	2-Butanone (MEK)	TO15	9.9		Y	1.5	µg/m³	5200
SV-06	1/12/2016	N	2-Hexanone	TO15	2	U	N	2	µg/m³	31
SV-06	1/12/2016	N	3-Chloropropene (allyl chloride)	TO15	0.63	U	N	0.63	µg/m³	1
SV-06	1/12/2016	N	4-Ethyltoluene	TO15	13		Y	0.98	µg/m³	--
SV-06	1/12/2016	N	4-Methyl-2-pentanone (MIBK)	TO15	2	U	N	2	µg/m³	3100
SV-06	1/12/2016	N	Acetone	TO15	56		Y	1.2	µg/m³	32000
SV-06	1/12/2016	N	Benzene	TO15SIM	1.87		Y	0.0639	µg/m³	3.6
SV-06	1/12/2016	N	Benzene	TO15	1.5	J	Y	0.64	µg/m³	3.6

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COMPARISON OF DATA QUALITY OBJECTIVES
2016 SOIL VAPOR INTRUSION INVESTIGATION

Sample Name	Sample Date	Sample Type	Parameter	Method	Result	QC Flag	Detection Flag	Reporting Limit	Units	Screening Level
SV-06	1/12/2016	N	Bromobenzene	TO15	1.3	U	N	1.3	µg/m³	63
SV-06	1/12/2016	N	Bromodichloromethane	TO15	1.3	U	N	1.3	µg/m³	0.76
SV-06	1/12/2016	N	Bromoform	TO15	2.1	U	N	2.1	µg/m³	26
SV-06	1/12/2016	N	Bromomethane	TO15	0.78	U	N	0.78	µg/m³	5.2
SV-06	1/12/2016	N	Carbon disulfide	TO15	120		Y	1.6	µg/m³	730
SV-06	1/12/2016	N	Carbon tetrachloride	TO15SIM	0.943		Y	0.126	µg/m³	4.7
SV-06	1/12/2016	N	Carbon tetrachloride	TO15	1.3	U	N	1.3	µg/m³	4.7
SV-06	1/12/2016	N	Chlorobenzene	TO15	0.92	U	N	0.92	µg/m³	52
SV-06	1/12/2016	N	CHLORODIFLUOROMETHANE	TO15	0.71	U	N	0.71	µg/m³	52000
SV-06	1/12/2016	N	Chloroethane	TO15	0.53	U	N	0.53	µg/m³	10000
SV-06	1/12/2016	N	Chloroform	TO15SIM	0.936		Y	0.0977	µg/m³	1.2
SV-06	1/12/2016	N	Chloroform	TO15	0.98	U	N	0.98	µg/m³	1.2
SV-06	1/12/2016	N	Chloromethane	TO15	0.41	U	N	0.41	µg/m³	94
SV-06	1/12/2016	N	cis-1,2-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	--
SV-06	1/12/2016	N	cis-1,3-Dichloropropene	TO15	0.91	U	N	0.91	µg/m³	--
SV-06	1/12/2016	N	Dibromochloromethane	TO15	1.7	U	N	1.7	µg/m³	1
SV-06	1/12/2016	N	Dibromomethane	TO15	1.4	U	N	1.4	µg/m³	4.2
SV-06	1/12/2016	N	Dichlorodifluoromethane (Freon 12)	TO15	3	J	Y	0.99	µg/m³	100
SV-06	1/12/2016	N	Dichlorofluoromethane	TO15	0.84	U	N	0.84	µg/m³	--
SV-06	1/12/2016	N	Ethylbenzene	TO15SIM	12.5		Y	0.868	µg/m³	11
SV-06	1/12/2016	N	Ethylbenzene	TO15	7.3		Y	0.87	µg/m³	11
SV-06	1/12/2016	N	Hexachloroethane	TO15	1.9	U	N	1.9	µg/m³	2.6
SV-06	1/12/2016	N	Isopropylbenzene (Cumene)	TO15	3.9	J	Y	0.98	µg/m³	420
SV-06	1/12/2016	N	Methylene chloride	TO15	0.78	J	Y	0.69	µg/m³	630
SV-06	1/12/2016	N	n-Heptane	TO15	7.9		Y	0.82	µg/m³	--
SV-06	1/12/2016	N	n-Hexane	TO15	19		Y	0.7	µg/m³	730
SV-06	1/12/2016	N	n-Pentane (C5)	TO15	4.4		Y	0.59	µg/m³	1000
SV-06	1/12/2016	N	Octane	TO15	9		Y	0.93	µg/m³	--
SV-06	1/12/2016	N	Styrene	TO15	2.2	J	Y	0.85	µg/m³	1000
SV-06	1/12/2016	N	tert-Butyl methyl ether (MTBE)	TO15	0.72	U	N	0.72	µg/m³	110
SV-06	1/12/2016	N	Tetrachloroethene (PCE)	TO15SIM	0.458		Y	0.136	µg/m³	42
SV-06	1/12/2016	N	Tetrachloroethene (PCE)	TO15	1.4	U	N	1.4	µg/m³	42

Sample Name	Sample Date	Sample Type	Parameter	Method	Result	QC Flag	Detection Flag	Reporting Limit	Units	Screening Level
SV-06	1/12/2016	N	Toluene	TO15	8.3		Y	0.75	µg/m³	5200
SV-06	1/12/2016	N	trans-1,2-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	--
SV-06	1/12/2016	N	trans-1,3-Dichloropropene	TO15	0.91	U	N	0.91	µg/m³	--
SV-06	1/12/2016	N	Trichloroethene (TCE)	TO15SIM	0.117	J	Y	0.107	µg/m³	2.1
SV-06	1/12/2016	N	Trichloroethene (TCE)	TO15	1.1	U	N	1.1	µg/m³	2.1
SV-06	1/12/2016	N	Trichlorofluoromethane (Freon 11)	TO15	1.7	J	Y	1.1	µg/m³	730
SV-06	1/12/2016	N	Vinyl chloride	TO15	0.51	U	N	0.51	µg/m³	1.7
SV-06	1/12/2016	N	Vinyl chloride	TO15SIM	0.0511	U	N	0.0511	µg/m³	1.7
SV-06	1/12/2016	N	Xylenes, m & p	TO15	19		Y	0.87	µg/m³	--
Indoor Air										
IA-05	1/11/2016	N	1,1,1,2-Tetrachloroethane	TO15	1.4	U	N	1.4	µg/m³	0.38
IA-05	1/11/2016	N	1,1,1-Trichloroethane	TO15	1.1	U	N	1.1	µg/m³	520
IA-05	1/11/2016	N	1,1,2,2-Tetrachloroethane	TO15	1.4	U	N	1.4	µg/m³	0.048
IA-05	1/11/2016	N	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TO15	3.8	U	N	3.8	µg/m³	3100
IA-05	1/11/2016	N	1,1,2-Trichloroethane	TO15SIM	0.109	U	N	0.109	µg/m³	0.021
IA-05	1/11/2016	N	1,1,2-Trichloroethane	TO15	1.1	U	N	1.1	µg/m³	0.021
IA-05	1/11/2016	N	1,1,2-Trichloroethane	TO15	1.1	U	N	1.1	µg/m³	0.021
IA-05	1/11/2016	N	1,1-Dichloroethane	TO15SIM	0.147	J	Y	0.0809	µg/m³	1.8
IA-05	1/11/2016	N	1,1-Dichloroethane	TO15	0.81	U	N	0.81	µg/m³	1.8
IA-05	1/11/2016	N	1,1-Dichloroethane	TO15	0.81	U	N	0.81	µg/m³	1.8
IA-05	1/11/2016	N	1,1-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	21
IA-05	1/11/2016	N	1,2,3-Trichloropropane	TO15	1.2	U	N	1.2	µg/m³	0.031
IA-05	1/11/2016	N	1,2,4-Trimethylbenzene	TO15	1.8	J	Y	0.98	µg/m³	0.73
IA-05	1/11/2016	N	1,2-Dibromoethane (EDB)	TO15	1.5	U	N	1.5	µg/m³	0.0047
IA-05	1/11/2016	N	1,2-Dibromoethane (EDB)	TO15SIM	0.208	J	Y	0.154	µg/m³	0.0047
IA-05	1/11/2016	N	1,2-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	21
IA-05	1/11/2016	N	1,2-Dichloroethane	TO15	0.81	U	N	0.81	µg/m³	0.11
IA-05	1/11/2016	N	1,2-Dichloroethane	TO15SIM	0.467		Y	0.0809	µg/m³	0.11
IA-05	1/11/2016	N	1,2-Dichloropropane	TO15	0.92	U	N	0.92	µg/m³	0.28
IA-05	1/11/2016	N	1,2-Dichlorotetrafluoroethane (Freon 114)	TO15	1.4	U	N	1.4	µg/m³	--
IA-05	1/11/2016	N	1,2-Dimethylbenzene (o-Xylene)	TO15	2.1	J	Y	0.87	µg/m³	10
IA-05	1/11/2016	N	1,3,5-Trimethylbenzene (mesitylene)	TO15	2.7	J	Y	0.98	µg/m³	--

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Sample Name	Sample Date	Sample Type	Parameter	Method	Result	QC Flag	Detection Flag	Reporting Limit	Units	Screening Level
IA-05	1/11/2016	N	1,3-Butadiene	TO15	0.88	U	N	0.88	µg/m³	0.094
IA-05	1/11/2016	N	1,3-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	--
IA-05	1/11/2016	N	1,4-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	0.26
IA-05	1/11/2016	N	1,4-Dichlorobenzene	TO15SIM	0.216	J	Y	0.12	µg/m³	0.26
IA-05	1/11/2016	N	2,2,4-Trimethylpentane	TO15	1.2	J	Y	0.93	µg/m³	--
IA-05	1/11/2016	N	2-Butanone (MEK)	TO15	3.5	J	Y	1.5	µg/m³	520
IA-05	1/11/2016	N	2-Hexanone	TO15	2	U	N	2	µg/m³	3.1
IA-05	1/11/2016	N	3-Chloropropene (allyl chloride)	TO15	0.63	U	N	0.63	µg/m³	0.1
IA-05	1/11/2016	N	4-Ethyltoluene	TO15	0.98	U	N	0.98	µg/m³	--
IA-05	1/11/2016	N	4-Methyl-2-pentanone (MIBK)	TO15	2	U	N	2	µg/m³	310
IA-05	1/11/2016	N	Acetone	TO15	36		Y	1.2	µg/m³	3200
IA-05	1/11/2016	N	Benzene	TO15	1	J	Y	0.64	µg/m³	0.36
IA-05	1/11/2016	N	Benzene	TO15SIM	1.1		Y	0.0639	µg/m³	0.36
IA-05	1/11/2016	N	Bromobenzene	TO15	1.3	U	N	1.3	µg/m³	6.3
IA-05	1/11/2016	N	Bromodichloromethane	TO15	1.3	U	N	1.3	µg/m³	0.076
IA-05	1/11/2016	N	Bromoform	TO15	2.1	U	N	2.1	µg/m³	2.6
IA-05	1/11/2016	N	Bromomethane	TO15	0.78	U	N	0.78	µg/m³	0.52
IA-05	1/11/2016	N	Carbon disulfide	TO15	1.6	U	N	1.6	µg/m³	73
IA-05	1/11/2016	N	Carbon tetrachloride	TO15	1.3	U	N	1.3	µg/m³	0.47
IA-05	1/11/2016	N	Carbon tetrachloride	TO15SIM	1.34		Y	0.126	µg/m³	0.47
IA-05	1/11/2016	N	Chlorobenzene	TO15	0.92	U	N	0.92	µg/m³	5.2
IA-05	1/11/2016	N	CHLORODIFLUOROMETHANE	TO15	0.71	U	N	0.71	µg/m³	5200
IA-05	1/11/2016	N	Chloroethane	TO15	0.53	U	N	0.53	µg/m³	1000
IA-05	1/11/2016	N	Chloroform	TO15	0.98	U	N	0.98	µg/m³	0.12
IA-05	1/11/2016	N	Chloroform	TO15SIM	0.431		Y	0.0977	µg/m³	0.12
IA-05	1/11/2016	N	Chloromethane	TO15	0.41	U	N	0.41	µg/m³	9.4
IA-05	1/11/2016	N	cis-1,2-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	--
IA-05	1/11/2016	N	cis-1,3-Dichloropropene	TO15	0.91	U	N	0.91	µg/m³	--
IA-05	1/11/2016	N	Dibromochloromethane	TO15	1.7	U	N	1.7	µg/m³	0.1
IA-05	1/11/2016	N	Dibromomethane	TO15	1.4	U	N	1.4	µg/m³	0.42
IA-05	1/11/2016	N	Dichlorodifluoromethane (Freon 12)	TO15	3.2	J	Y	0.99	µg/m³	10
IA-05	1/11/2016	N	Dichlorofluoromethane	TO15	0.84	U	N	0.84	µg/m³	--

APPENDIX E-2
COMPARISON OF DATA QUALITY OBJECTIVES
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Sample Name	Sample Date	Sample Type	Parameter	Method	Result	QC Flag	Detection Flag	Reporting Limit	Units	Screening Level
IA-05	1/11/2016	N	Ethylbenzene	TO15	0.87	U	N	0.87	µg/m³	1.1
IA-05	1/11/2016	N	Ethylbenzene	TO15SIM	0.802		Y	0.0868	µg/m³	1.1
IA-05	1/11/2016	N	Hexachloroethane	TO15	1.9	U	N	1.9	µg/m³	0.26
IA-05	1/11/2016	N	Isopropylbenzene (Cumene)	TO15	0.98	U	N	0.98	µg/m³	42
IA-05	1/11/2016	N	Methylene chloride	TO15	0.83	J	Y	0.69	µg/m³	63
IA-05	1/11/2016	N	n-Heptane	TO15	6.3		Y	0.82	µg/m³	--
IA-05	1/11/2016	N	n-Hexane	TO15	0.87	J	Y	0.7	µg/m³	73
IA-05	1/11/2016	N	n-Pentane (C5)	TO15	1.4	J	Y	0.59	µg/m³	100
IA-05	1/11/2016	N	Octane	TO15	3.6	J	Y	0.93	µg/m³	--
IA-05	1/11/2016	N	Styrene	TO15	0.85	U	N	0.85	µg/m³	100
IA-05	1/11/2016	N	tert-Butyl methyl ether (MTBE)	TO15	0.72	U	N	0.72	µg/m³	11
IA-05	1/11/2016	N	Tetrachloroethene (PCE)	TO15	1.4	U	N	1.4	µg/m³	4.2
IA-05	1/11/2016	N	Tetrachloroethene (PCE)	TO15SIM	0.24	J	Y	0.136	µg/m³	4.2
IA-05	1/11/2016	N	Toluene	TO15	2.2	J	Y	0.75	µg/m³	520
IA-05	1/11/2016	N	trans-1,2-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	--
IA-05	1/11/2016	N	trans-1,3-Dichloropropene	TO15	0.91	U	N	0.91	µg/m³	--
IA-05	1/11/2016	N	Trichloroethene (TCE)	TO15	1.1	U	N	1.1	µg/m³	0.21
IA-05	1/11/2016	N	Trichloroethene (TCE)	TO15SIM	0.17	J	Y	0.107	µg/m³	0.21
IA-05	1/11/2016	N	Trichlorofluoromethane (Freon 11)	TO15	2.2	J	Y	1.1	µg/m³	73
IA-05	1/11/2016	N	Vinyl chloride	TO15	0.51	U	N	0.51	µg/m³	0.17
IA-05	1/11/2016	N	Vinyl chloride	TO15SIM	0.0511	U	N	0.0511	µg/m³	0.17
IA-05	1/11/2016	N	Xylenes, m & p	TO15	2.8	J	Y	0.87	µg/m³	--
IA-05	1/11/2016	FD	1,1,1,2-Tetrachloroethane	TO15	1.4	U	N	1.4	µg/m³	0.38
IA-05	1/11/2016	FD	1,1,1-Trichloroethane	TO15	1.1	U	N	1.1	µg/m³	520
IA-05	1/11/2016	FD	1,1,2,2-Tetrachloroethane	TO15	1.4	U	N	1.4	µg/m³	0.048
IA-05	1/11/2016	FD	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TO15	3.8	U	N	3.8	µg/m³	3100
IA-05	1/11/2016	FD	1,1,2-Trichloroethane	TO15SIM	0.109	U	N	0.109	µg/m³	0.021
IA-05	1/11/2016	FD	1,1-Dichloroethane	TO15SIM	0.0809	U	N	0.0809	µg/m³	1.8
IA-05	1/11/2016	FD	1,1-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	21
IA-05	1/11/2016	FD	1,2,3-Trichloropropane	TO15	1.2	U	N	1.2	µg/m³	0.031
IA-05	1/11/2016	FD	1,2,4-Trimethylbenzene	TO15	1.5	J	Y	0.98	µg/m³	0.73
IA-05	1/11/2016	FD	1,2-Dibromoethane (EDB)	TO15SIM	0.154	U	N	0.154	µg/m³	0.0047

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Sample Name	Sample Date	Sample Type	Parameter	Method	Result	QC Flag	Detection Flag	Reporting Limit	Units	Screening Level
IA-05	1/11/2016	FD	1,2-Dibromoethane (EDB)	TO15	1.5	U	N	1.5	µg/m³	0.0047
IA-05	1/11/2016	FD	1,2-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	21
IA-05	1/11/2016	FD	1,2-Dichloroethane	TO15SIM	0.441		Y	0.0809	µg/m³	0.11
IA-05	1/11/2016	FD	1,2-Dichloroethane	TO15	0.81	U	N	0.81	µg/m³	0.11
IA-05	1/11/2016	FD	1,2-Dichloropropane	TO15	0.92	U	N	0.92	µg/m³	0.28
IA-05	1/11/2016	FD	1,2-Dichlorotetrafluoroethane (Freon 114)	TO15	1.4	U	N	1.4	µg/m³	--
IA-05	1/11/2016	FD	1,2-Dimethylbenzene (o-Xylene)	TO15	1.2	J	Y	0.87	µg/m³	10
IA-05	1/11/2016	FD	1,3,5-Trimethylbenzene (mesitylene)	TO15	2.1	J	Y	0.98	µg/m³	--
IA-05	1/11/2016	FD	1,3-Butadiene	TO15	0.88	U	N	0.88	µg/m³	0.094
IA-05	1/11/2016	FD	1,3-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	--
IA-05	1/11/2016	FD	1,4-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	0.26
IA-05	1/11/2016	FD	1,4-Dichlorobenzene	TO15SIM	0.206	J	Y	0.12	µg/m³	0.26
IA-05	1/11/2016	FD	2,2,4-Trimethylpentane	TO15	0.93	U	N	0.93	µg/m³	--
IA-05	1/11/2016	FD	2-Butanone (MEK)	TO15	2.3	J	Y	1.5	µg/m³	520
IA-05	1/11/2016	FD	2-Hexanone	TO15	2	U	N	2	µg/m³	3.1
IA-05	1/11/2016	FD	3-Chloropropene (allyl chloride)	TO15	0.63	U	N	0.63	µg/m³	0.1
IA-05	1/11/2016	FD	4-Ethyltoluene	TO15	0.98	U	N	0.98	µg/m³	--
IA-05	1/11/2016	FD	4-Methyl-2-pentanone (MIBK)	TO15	2	U	N	2	µg/m³	310
IA-05	1/11/2016	FD	Acetone	TO15	29		Y	1.2	µg/m³	3200
IA-05	1/11/2016	FD	Benzene	TO15	1	J	Y	0.64	µg/m³	0.36
IA-05	1/11/2016	FD	Benzene	TO15SIM	1.05		Y	0.0639	µg/m³	0.36
IA-05	1/11/2016	FD	Bromobenzene	TO15	1.3	U	N	1.3	µg/m³	6.3
IA-05	1/11/2016	FD	Bromodichloromethane	TO15	1.3	U	N	1.3	µg/m³	0.076
IA-05	1/11/2016	FD	Bromoform	TO15	2.1	U	N	2.1	µg/m³	2.6
IA-05	1/11/2016	FD	Bromomethane	TO15	0.78	U	N	0.78	µg/m³	0.52
IA-05	1/11/2016	FD	Carbon disulfide	TO15	1.6	U	N	1.6	µg/m³	73
IA-05	1/11/2016	FD	Carbon tetrachloride	TO15	1.3	U	N	1.3	µg/m³	0.47
IA-05	1/11/2016	FD	Carbon tetrachloride	TO15SIM	1.22		Y	0.126	µg/m³	0.47
IA-05	1/11/2016	FD	Chlorobenzene	TO15	0.92	U	N	0.92	µg/m³	5.2
IA-05	1/11/2016	FD	CHLORODIFLUOROMETHANE	TO15	0.71	U	N	0.71	µg/m³	5200
IA-05	1/11/2016	FD	Chloroethane	TO15	0.53	U	N	0.53	µg/m³	1000
IA-05	1/11/2016	FD	Chloroform	TO15	0.98	U	N	0.98	µg/m³	0.12

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Sample Name	Sample Date	Sample Type	Parameter	Method	Result	QC Flag	Detection Flag	Reporting Limit	Units	Screening Level
IA-05	1/11/2016	FD	Chloroform	TO15SIM	0.315		Y	0.0977	µg/m³	0.12
IA-05	1/11/2016	FD	Chloromethane	TO15	0.41	U	N	0.41	µg/m³	9.4
IA-05	1/11/2016	FD	cis-1,2-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	--
IA-05	1/11/2016	FD	cis-1,3-Dichloropropene	TO15	0.91	U	N	0.91	µg/m³	--
IA-05	1/11/2016	FD	Dibromochloromethane	TO15	1.7	U	N	1.7	µg/m³	0.1
IA-05	1/11/2016	FD	Dibromomethane	TO15	1.4	U	N	1.4	µg/m³	0.42
IA-05	1/11/2016	FD	Dichlorodifluoromethane (Freon 12)	TO15	3	J	Y	0.99	µg/m³	10
IA-05	1/11/2016	FD	Dichlorofluoromethane	TO15	0.84	U	N	0.84	µg/m³	--
IA-05	1/11/2016	FD	Ethylbenzene	TO15	0.87	U	N	0.87	µg/m³	1.1
IA-05	1/11/2016	FD	Ethylbenzene	TO15SIM	0.8		Y	0.0868	µg/m³	1.1
IA-05	1/11/2016	FD	Hexachloroethane	TO15	1.9	U	N	1.9	µg/m³	0.26
IA-05	1/11/2016	FD	Isopropylbenzene (Cumene)	TO15	0.98	U	N	0.98	µg/m³	42
IA-05	1/11/2016	FD	Methylene chloride	TO15	0.73	J	Y	0.69	µg/m³	63
IA-05	1/11/2016	FD	n-Heptane	TO15	4.5		Y	0.82	µg/m³	--
IA-05	1/11/2016	FD	n-Hexane	TO15	0.86	J	Y	0.7	µg/m³	73
IA-05	1/11/2016	FD	n-Pentane (C5)	TO15	1.6	J	Y	0.59	µg/m³	100
IA-05	1/11/2016	FD	Octane	TO15	2.5	J	Y	0.93	µg/m³	--
IA-05	1/11/2016	FD	Styrene	TO15	0.85	U	N	0.85	µg/m³	100
IA-05	1/11/2016	FD	tert-Butyl methyl ether (MTBE)	TO15	0.72	U	N	0.72	µg/m³	11
IA-05	1/11/2016	FD	Tetrachloroethene (PCE)	TO15	1.4	U	N	1.4	µg/m³	4.2
IA-05	1/11/2016	FD	Tetrachloroethene (PCE)	TO15SIM	0.176	J	Y	0.136	µg/m³	4.2
IA-05	1/11/2016	FD	Toluene	TO15	1.9	J	Y	0.75	µg/m³	520
IA-05	1/11/2016	FD	trans-1,2-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	--
IA-05	1/11/2016	FD	trans-1,3-Dichloropropene	TO15	0.91	U	N	0.91	µg/m³	--
IA-05	1/11/2016	FD	Trichloroethene (TCE)	TO15	1.1	U	N	1.1	µg/m³	0.21
IA-05	1/11/2016	FD	Trichloroethene (TCE)	TO15SIM	0.107	U	N	0.107	µg/m³	0.21
IA-05	1/11/2016	FD	Trichlorofluoromethane (Freon 11)	TO15	2	J	Y	1.1	µg/m³	73
IA-05	1/11/2016	FD	Vinyl chloride	TO15	0.51	U	N	0.51	µg/m³	0.17
IA-05	1/11/2016	FD	Vinyl chloride	TO15SIM	0.0511	U	N	0.0511	µg/m³	0.17
IA-05	1/11/2016	FD	Xylenes, m & p	TO15	2.3	J	Y	0.87	µg/m³	--
IA-06	1/11/2016	N	1,1,1,2-Tetrachloroethane	TO15	1.4	U	N	1.4	µg/m³	0.38
IA-06	1/11/2016	N	1,1,1-Trichloroethane	TO15	1.1	U	N	1.1	µg/m³	520

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Sample Name	Sample Date	Sample Type	Parameter	Method	Result	QC Flag	Detection Flag	Reporting Limit	Units	Screening Level
IA-06	1/11/2016	N	1,1,2,2-Tetrachloroethane	TO15	1.4	U	N	1.4	µg/m³	0.048
IA-06	1/11/2016	N	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TO15	3.8	U	N	3.8	µg/m³	3100
IA-06	1/11/2016	N	1,1,2-Trichloroethane	TO15SIM	0.109	U	N	0.109	µg/m³	0.021
IA-06	1/11/2016	N	1,1,2-Trichloroethane	TO15	1.1	U	N	1.1	µg/m³	0.021
IA-06	1/11/2016	N	1,1-Dichloroethane	TO15SIM	0.0809	U	N	0.0809	µg/m³	1.8
IA-06	1/11/2016	N	1,1-Dichloroethane	TO15	0.81	U	N	0.81	µg/m³	1.8
IA-06	1/11/2016	N	1,1-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	21
IA-06	1/11/2016	N	1,2,3-Trichloropropane	TO15	1.2	U	N	1.2	µg/m³	0.031
IA-06	1/11/2016	N	1,2,4-Trimethylbenzene	TO15	1	J	Y	0.98	µg/m³	0.73
IA-06	1/11/2016	N	1,2-Dibromoethane (EDB)	TO15SIM	0.154	U	N	0.154	µg/m³	0.0047
IA-06	1/11/2016	N	1,2-Dibromoethane (EDB)	TO15	1.5	U	N	1.5	µg/m³	0.0047
IA-06	1/11/2016	N	1,2-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	21
IA-06	1/11/2016	N	1,2-Dichloroethane	TO15SIM	0.381		Y	0.0809	µg/m³	0.11
IA-06	1/11/2016	N	1,2-Dichloroethane	TO15	0.81	U	N	0.81	µg/m³	0.11
IA-06	1/11/2016	N	1,2-Dichloropropane	TO15	0.92	U	N	0.92	µg/m³	0.28
IA-06	1/11/2016	N	1,2-Dichlorotetrafluoroethane (Freon 114)	TO15	1.4	U	N	1.4	µg/m³	--
IA-06	1/11/2016	N	1,2-Dimethylbenzene (o-Xylene)	TO15	0.87	U	N	0.87	µg/m³	10
IA-06	1/11/2016	N	1,3,5-Trimethylbenzene (mesitylene)	TO15	1.4	J	Y	0.98	µg/m³	--
IA-06	1/11/2016	N	1,3-Butadiene	TO15	0.88	U	N	0.88	µg/m³	0.094
IA-06	1/11/2016	N	1,3-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	--
IA-06	1/11/2016	N	1,4-Dichlorobenzene	TO15SIM	0.168	J	Y	0.12	µg/m³	0.26
IA-06	1/11/2016	N	1,4-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	0.26
IA-06	1/11/2016	N	2,2,4-Trimethylpentane	TO15	0.93	U	N	0.93	µg/m³	--
IA-06	1/11/2016	N	2-Butanone (MEK)	TO15	1.5	U	N	1.5	µg/m³	520
IA-06	1/11/2016	N	2-Hexanone	TO15	2	U	N	2	µg/m³	3.1
IA-06	1/11/2016	N	3-Chloropropene (allyl chloride)	TO15	0.63	U	N	0.63	µg/m³	0.1
IA-06	1/11/2016	N	4-Ethyltoluene	TO15	0.98	U	N	0.98	µg/m³	--
IA-06	1/11/2016	N	4-Methyl-2-pentanone (MIBK)	TO15	2	U	N	2	µg/m³	310
IA-06	1/11/2016	N	Acetone	TO15	22		Y	1.2	µg/m³	3200
IA-06	1/11/2016	N	Benzene	TO15	1	J	Y	0.64	µg/m³	0.36
IA-06	1/11/2016	N	Benzene	TO15SIM	1.07		Y	0.0639	µg/m³	0.36
IA-06	1/11/2016	N	Bromobenzene	TO15	1.3	U	N	1.3	µg/m³	6.3

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Sample Name	Sample Date	Sample Type	Parameter	Method	Result	QC Flag	Detection Flag	Reporting Limit	Units	Screening Level
IA-06	1/11/2016	N	Bromodichloromethane	TO15	1.3	U	N	1.3	µg/m³	0.076
IA-06	1/11/2016	N	Bromoform	TO15	2.1	U	N	2.1	µg/m³	2.6
IA-06	1/11/2016	N	Bromomethane	TO15	0.78	U	N	0.78	µg/m³	0.52
IA-06	1/11/2016	N	Carbon disulfide	TO15	1.6	U	N	1.6	µg/m³	73
IA-06	1/11/2016	N	Carbon tetrachloride	TO15	1.3	U	N	1.3	µg/m³	0.47
IA-06	1/11/2016	N	Carbon tetrachloride	TO15SIM	0.962		Y	0.126	µg/m³	0.47
IA-06	1/11/2016	N	Chlorobenzene	TO15	0.92	U	N	0.92	µg/m³	5.2
IA-06	1/11/2016	N	CHLORODIFLUOROMETHANE	TO15	0.71	U	N	0.71	µg/m³	5200
IA-06	1/11/2016	N	Chloroethane	TO15	0.53	U	N	0.53	µg/m³	1000
IA-06	1/11/2016	N	Chloroform	TO15	0.98	U	N	0.98	µg/m³	0.12
IA-06	1/11/2016	N	Chloroform	TO15SIM	0.42		Y	0.0977	µg/m³	0.12
IA-06	1/11/2016	N	Chloromethane	TO15	0.41	U	N	0.41	µg/m³	9.4
IA-06	1/11/2016	N	cis-1,2-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	--
IA-06	1/11/2016	N	cis-1,3-Dichloropropene	TO15	0.91	U	N	0.91	µg/m³	--
IA-06	1/11/2016	N	Dibromochloromethane	TO15	1.7	U	N	1.7	µg/m³	0.1
IA-06	1/11/2016	N	Dibromomethane	TO15	1.4	U	N	1.4	µg/m³	0.42
IA-06	1/11/2016	N	Dichlorodifluoromethane (Freon 12)	TO15	3.2	J	Y	0.99	µg/m³	10
IA-06	1/11/2016	N	Dichlorofluoromethane	TO15	0.84	U	N	0.84	µg/m³	--
IA-06	1/11/2016	N	Ethylbenzene	TO15	0.87	U	N	0.87	µg/m³	1.1
IA-06	1/11/2016	N	Ethylbenzene	TO15SIM	0.438		Y	0.0868	µg/m³	1.1
IA-06	1/11/2016	N	Hexachloroethane	TO15	1.9	U	N	1.9	µg/m³	0.26
IA-06	1/11/2016	N	Isopropylbenzene (Cumene)	TO15	0.98	U	N	0.98	µg/m³	42
IA-06	1/11/2016	N	Methylene chloride	TO15	1.7	J	Y	0.69	µg/m³	63
IA-06	1/11/2016	N	n-Heptane	TO15	2.5	J	Y	0.82	µg/m³	--
IA-06	1/11/2016	N	n-Hexane	TO15	0.7	U	N	0.7	µg/m³	73
IA-06	1/11/2016	N	n-Pentane (C5)	TO15	2.6	J	Y	0.59	µg/m³	100
IA-06	1/11/2016	N	Octane	TO15	1.4	J	Y	0.93	µg/m³	--
IA-06	1/11/2016	N	Styrene	TO15	0.85	U	N	0.85	µg/m³	100
IA-06	1/11/2016	N	tert-Butyl methyl ether (MTBE)	TO15	0.72	U	N	0.72	µg/m³	11
IA-06	1/11/2016	N	Tetrachloroethene (PCE)	TO15	1.4	U	N	1.4	µg/m³	4.2
IA-06	1/11/2016	N	Tetrachloroethene (PCE)	TO15SIM	0.169	J	Y	0.136	µg/m³	4.2
IA-06	1/11/2016	N	Toluene	TO15	1.3	J	Y	0.75	µg/m³	520

Sample Name	Sample Date	Sample Type	Parameter	Method	Result	QC Flag	Detection Flag	Reporting Limit	Units	Screening Level
IA-06	1/11/2016	N	trans-1,2-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	--
IA-06	1/11/2016	N	trans-1,3-Dichloropropene	TO15	0.91	U	N	0.91	µg/m³	--
IA-06	1/11/2016	N	Trichloroethene (TCE)	TO15	1.1	U	N	1.1	µg/m³	0.21
IA-06	1/11/2016	N	Trichloroethene (TCE)	TO15SIM	0.107	U	N	0.107	µg/m³	0.21
IA-06	1/11/2016	N	Trichlorofluoromethane (Freon 11)	TO15	4.2	J	Y	1.1	µg/m³	73
IA-06	1/11/2016	N	Vinyl chloride	TO15	0.51	U	N	0.51	µg/m³	0.17
IA-06	1/11/2016	N	Vinyl chloride	TO15SIM	0.0511	U	N	0.0511	µg/m³	0.17
IA-06	1/11/2016	N	Xylenes, m & p	TO15	1.3	J	Y	0.87	µg/m³	--
Ambient Air										
AA-03	1/11/2016	N	1,1,1,2-Tetrachloroethane	TO15	1.4	U	N	1.4	µg/m³	0.38
AA-03	1/11/2016	N	1,1,1-Trichloroethane	TO15	1.1	U	N	1.1	µg/m³	520
AA-03	1/11/2016	N	1,1,2,2-Tetrachloroethane	TO15	1.4	U	N	1.4	µg/m³	0.048
AA-03	1/11/2016	N	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	TO15	3.8	U	N	3.8	µg/m³	3100
AA-03	1/11/2016	N	1,1,2-Trichloroethane	TO15	1.1	U	N	1.1	µg/m³	0.021
AA-03	1/11/2016	N	1,1,2-Trichloroethane	TO15SIM	0.109	U	N	0.109	µg/m³	0.021
AA-03	1/11/2016	N	1,1-Dichloroethane	TO15	0.81	U	N	0.81	µg/m³	1.8
AA-03	1/11/2016	N	1,1-Dichloroethane	TO15SIM	0.0809	U	N	0.0809	µg/m³	1.8
AA-03	1/11/2016	N	1,1-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	21
AA-03	1/11/2016	N	1,2,3-Trichloropropane	TO15	1.2	U	N	1.2	µg/m³	0.031
AA-03	1/11/2016	N	1,2,4-Trimethylbenzene	TO15	0.98	U	N	0.98	µg/m³	0.73
AA-03	1/11/2016	N	1,2-Dibromoethane (EDB)	TO15	1.5	U	N	1.5	µg/m³	0.0047
AA-03	1/11/2016	N	1,2-Dibromoethane (EDB)	TO15SIM	0.154	U	N	0.154	µg/m³	0.0047
AA-03	1/11/2016	N	1,2-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	21
AA-03	1/11/2016	N	1,2-Dichloroethane	TO15	0.81	U	N	0.81	µg/m³	0.11
AA-03	1/11/2016	N	1,2-Dichloroethane	TO15SIM	0.187	J	Y	0.0809	µg/m³	0.11
AA-03	1/11/2016	N	1,2-Dichloropropane	TO15	0.92	U	N	0.92	µg/m³	0.28
AA-03	1/11/2016	N	1,2-Dichlorotetrafluoroethane (Freon 114)	TO15	1.4	U	N	1.4	µg/m³	--
AA-03	1/11/2016	N	1,2-Dimethylbenzene (o-Xylene)	TO15	0.87	U	N	0.87	µg/m³	10
AA-03	1/11/2016	N	1,3,5-Trimethylbenzene (mesitylene)	TO15	1	J	Y	0.98	µg/m³	--
AA-03	1/11/2016	N	1,3-Butadiene	TO15	0.88	U	N	0.88	µg/m³	0.094
AA-03	1/11/2016	N	1,3-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	--
AA-03	1/11/2016	N	1,4-Dichlorobenzene	TO15	1.2	U	N	1.2	µg/m³	0.26

APPENDIX E-2
COMPARISON OF DATA QUALITY OBJECTIVES
2016 SOIL VAPOR INTRUSION INVESTIGATION

Sample Name	Sample Date	Sample Type	Parameter	Method	Result	QC Flag	Detection Flag	Reporting Limit	Units	Screening Level
AA-03	1/11/2016	N	1,4-Dichlorobenzene	TO15SIM	0.12	U	N	0.12	µg/m³	0.26
AA-03	1/11/2016	N	2,2,4-Trimethylpentane	TO15	0.93	U	N	0.93	µg/m³	--
AA-03	1/11/2016	N	2-Butanone (MEK)	TO15	1.5	U	N	1.5	µg/m³	520
AA-03	1/11/2016	N	2-Hexanone	TO15	2	U	N	2	µg/m³	3.1
AA-03	1/11/2016	N	3-Chloropropene (allyl chloride)	TO15	0.63	U	N	0.63	µg/m³	0.1
AA-03	1/11/2016	N	4-Ethyltoluene	TO15	0.98	U	N	0.98	µg/m³	--
AA-03	1/11/2016	N	4-Methyl-2-pentanone (MIBK)	TO15	2	U	N	2	µg/m³	310
AA-03	1/11/2016	N	Acetone	TO15	6.3		Y	1.2	µg/m³	3200
AA-03	1/11/2016	N	Benzene	TO15	1	J	Y	0.64	µg/m³	0.36
AA-03	1/11/2016	N	Benzene	TO15SIM	1.14		Y	0.0639	µg/m³	0.36
AA-03	1/11/2016	N	Bromobenzene	TO15	1.3	U	N	1.3	µg/m³	6.3
AA-03	1/11/2016	N	Bromodichloromethane	TO15	1.3	U	N	1.3	µg/m³	0.076
AA-03	1/11/2016	N	Bromoform	TO15	2.1	U	N	2.1	µg/m³	2.6
AA-03	1/11/2016	N	Bromomethane	TO15	0.78	U	N	0.78	µg/m³	0.52
AA-03	1/11/2016	N	Carbon disulfide	TO15	1.6	U	N	1.6	µg/m³	73
AA-03	1/11/2016	N	Carbon tetrachloride	TO15	1.3	U	N	1.3	µg/m³	0.47
AA-03	1/11/2016	N	Carbon tetrachloride	TO15SIM	0.891		Y	0.126	µg/m³	0.47
AA-03	1/11/2016	N	Chlorobenzene	TO15	0.92	U	N	0.92	µg/m³	5.2
AA-03	1/11/2016	N	CHLORODIFLUOROMETHANE	TO15	0.71	U	N	0.71	µg/m³	5200
AA-03	1/11/2016	N	Chloroethane	TO15	0.53	U	N	0.53	µg/m³	1000
AA-03	1/11/2016	N	Chloroform	TO15	0.98	U	N	0.98	µg/m³	0.12
AA-03	1/11/2016	N	Chloroform	TO15SIM	0.199	J	Y	0.0977	µg/m³	0.12
AA-03	1/11/2016	N	Chloromethane	TO15	0.41	U	N	0.41	µg/m³	9.4
AA-03	1/11/2016	N	cis-1,2-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	--
AA-03	1/11/2016	N	cis-1,3-Dichloropropene	TO15	0.91	U	N	0.91	µg/m³	--
AA-03	1/11/2016	N	Dibromochloromethane	TO15	1.7	U	N	1.7	µg/m³	0.1
AA-03	1/11/2016	N	Dibromomethane	TO15	1.4	U	N	1.4	µg/m³	0.42
AA-03	1/11/2016	N	Dichlorodifluoromethane (Freon 12)	TO15	3.1	J	Y	0.99	µg/m³	10
AA-03	1/11/2016	N	Dichlorofluoromethane	TO15	0.84	U	N	0.84	µg/m³	--
AA-03	1/11/2016	N	Ethylbenzene	TO15	0.87	U	N	0.87	µg/m³	1.1
AA-03	1/11/2016	N	Ethylbenzene	TO15SIM	0.321		Y	0.0868	µg/m³	1.1
AA-03	1/11/2016	N	Hexachloroethane	TO15	1.9	U	N	1.9	µg/m³	0.26

APPENDIX E-2
COMPARISON OF DATA QUALITY OBJECTIVES
2016 SOIL VAPOR INTRUSION INVESTIGATION

Sample Name	Sample Date	Sample Type	Parameter	Method	Result	QC Flag	Detection Flag	Reporting Limit	Units	Screening Level
AA-03	1/11/2016	N	Isopropylbenzene (Cumene)	TO15	0.98	U	N	0.98	µg/m³	42
AA-03	1/11/2016	N	Methylene chloride	TO15	0.69	U	N	0.69	µg/m³	63
AA-03	1/11/2016	N	n-Heptane	TO15	2.3	J	Y	0.82	µg/m³	--
AA-03	1/11/2016	N	n-Hexane	TO15	0.7	U	N	0.7	µg/m³	73
AA-03	1/11/2016	N	n-Pentane (C5)	TO15	1.1	J	Y	0.59	µg/m³	100
AA-03	1/11/2016	N	Octane	TO15	0.93	U	N	0.93	µg/m³	--
AA-03	1/11/2016	N	Styrene	TO15	0.85	U	N	0.85	µg/m³	100
AA-03	1/11/2016	N	tert-Butyl methyl ether (MTBE)	TO15	0.72	U	N	0.72	µg/m³	11
AA-03	1/11/2016	N	Tetrachloroethene (PCE)	TO15	1.4	U	N	1.4	µg/m³	4.2
AA-03	1/11/2016	N	Tetrachloroethene (PCE)	TO15SIM	0.139	J	Y	0.136	µg/m³	4.2
AA-03	1/11/2016	N	Toluene	TO15	0.75	U	N	0.75	µg/m³	520
AA-03	1/11/2016	N	trans-1,2-Dichloroethene	TO15	0.79	U	N	0.79	µg/m³	--
AA-03	1/11/2016	N	trans-1,3-Dichloropropene	TO15	0.91	U	N	0.91	µg/m³	--
AA-03	1/11/2016	N	Trichloroethene (TCE)	TO15	1.1	U	N	1.1	µg/m³	0.21
AA-03	1/11/2016	N	Trichloroethene (TCE)	TO15SIM	0.107	U	N	0.107	µg/m³	0.21
AA-03	1/11/2016	N	Trichlorofluoromethane (Freon 11)	TO15	1.6	J	Y	1.1	µg/m³	73
AA-03	1/11/2016	N	Vinyl chloride	TO15	0.51	U	N	0.51	µg/m³	0.17
AA-03	1/11/2016	N	Vinyl chloride	TO15SIM	0.0511	U	N	0.0511	µg/m³	0.17
AA-03	1/11/2016	N	Xylenes, m & p	TO15	0.87	U	N	0.87	µg/m³	--

APPENDIX E-3
HOLDING TIME REVIEW
2016 SOIL VAPOR INTRUSION INVESTIGATION

Well Name	Sample Date	Sample Type	Received Date	No. of Days
Outdoor Air				
AA-03	1/11/16	N	1/13/16	2
Indoor Air				
IA-05	1/11/16	N	1/13/16	2
IA-06	1/11/16	N	1/13/16	2
DUP-011116	1/11/16	FD	1/13/16	2
Sub-Slab Soil Vapor				
SV-04	1/12/16	N	1/13/16	1
SV-05	1/12/16	N	1/13/16	1
SV-06	1/12/16	N	1/13/16	1
DUP-011216	1/12/16	FD	1/13/16	1

Notes:
Sample type: N = primary sample;
FD = duplicate; FB = field blank