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October 5, 2009

Mr. Joseph T. Martella II, Senior Engineer  
Rhode Island Department of Environmental Management  
Office of Waste Management  
Site Remediation Program  
235 Providence Street  
Providence, Rhode Island 02908

**RE: Quarterly Air Monitoring Report  
Retail Complex, Active Sub-Slab Depressurization System  
Former Gorham Manufacturing Facility  
333 Adelaide Avenue, Providence, Rhode Island  
MACTEC Project No. 3650080114**

Dear Mr. Martella:

This letter report presents the results of quarterly compliance sampling conducted by MACTEC Engineering and Consulting, Inc. (MACTEC) at the retail complex located at the Former Gorham Manufacturing Facility, 333 Adelaide Avenue, Providence, Rhode Island (the Site). The reporting period is from June 1, 2009 to August 31, 2009.

The sampling and this reporting were conducted consistent with the Short Term Response Action Order of Approval dated July 24, 2008 and the Addendum to the Order of Approval dated August 7, 2008 (collectively referred to as the Orders of Approval).

### **Background**

The active sub-slab depressurization (ASD) system, also called a mitigation system, in the large retail space consists of four extraction wells connected to a 3 hp Rotron regenerative blower. The blower is located in an enclosure located at the north, or rear, of the large retail space.

The small retail spaces consist of the eastern, central, and western retail spaces. The mitigation systems in the small retail spaces consist of one extraction well in each small retail space connected to individual radon-type fans, located at the north, or rear, of each small retail space.

### **Small Retail Spaces**

The third and final successful monthly monitoring of the three small retail spaces, consistent with the requirements of the Orders of Approval, was completed on June 11, 2009.

Table 1 summarizes the small retail spaces' analytical results for the baseline sampling event conducted prior to system start-up and all eight sampling events conducted after system start-up. Results of the indoor air samples were compared to the Draft Connecticut Industrial/Commercial Indoor Target Air Concentrations (TAC), which were identified as action levels in the Orders of Approval. The laboratory report associated with the June 11, 2009 monthly sampling event is provided in Appendix A of this letter report.

Each of the post-start-up sampling events included an indoor air sample from each of the small retail spaces (locations IA-5, IA-6, and IA-7), one outdoor air reference sample (location AA-1), and one air sample collected from each of the three vapor extraction wells (EW-5, EW-6, and EW-7). The sampling locations are shown in Figure 1. The outdoor reference air sample (AA-1) was located at an upwind location during each of the sampling rounds (dependent on weather conditions). Sub-slab vacuum monitoring (pressure differential measurements) was also conducted at locations VMW-5, VMW-6, and VMW-7 in conjunction with the weekly and monthly air sampling program. The vacuum monitoring results are tabulated in Table 2.

The following conclusions are based on Site observations and the data from Table 1.

- Indoor air sample results are in compliance with action levels for the four most recent weekly sampling events and the three monthly sampling events in the three small retail spaces (sample locations IA-5, IA-6, and IA-7).
- The eastern small retail space (indoor air sample location IA-5) is the only portion of the retail complex that is currently occupied.
- The mitigation systems are functioning as designed and are achieving desired results with respect to indoor quality in the three small retail units. Required compliance monitoring frequency has been decreased from monthly to quarterly.

The first quarterly compliance monitoring of the three small retail spaces, consistent with the requirements of the Orders of Approval, was completed on September 17, 2009. Results will be included in the next quarterly report.

### Large Retail Space

There was no compliance monitoring in the large retail space during this reporting period due to ongoing optimization assessments.

### ASD System Monitoring

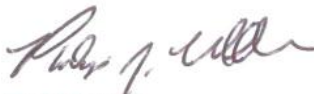
The ASD system performance is monitored biweekly by Clean Harbors Environmental Services. There was one system shutdown to the small retail ASD systems for maintenance activity on July 13, 2009. The system was shut down, for less than one hour, to test the automatic call-out communication system.

### Next Reporting Period

The next quarterly report will cover September, October, and November 2009. The report will be prepared and submitted to the Rhode Island Department of Environmental Management (RIDEM) in December 2009.

Please contact me at 781-213-5603 if I can provide additional information or answer any questions concerning these monitoring events and system adjustments.

Sincerely,  
MACTEC Engineering and Consulting, Inc.

  
Phil Muller  
Project Engineer

  
Michael Murphy  
Sr. Principal Scientist

Enclosures: Table 1 – Summary of Analytical Results – Air Sampling for Small Retail Spaces  
Table 2 – Vacuum Monitoring Results – Small Retail Spaces  
  
Figure 1 – Vapor Mitigation Sample Locations  
  
Appendix A – Laboratory Reports  
Appendix B – Analytical Laboratory Detection Limits

cc: T. Deller, City of Providence  
G. Simpson, Textron, Inc. (Electronic)  
Knight Memorial Library Repository  
G. Wilson, Kimco Realty Corporation (including tenants)  
J. Morgan, The Stop & Shop Supermarket Co. LLC  
MACTEC Project File

## **TABLES**

**Table 1.**  
**Summary of Analytical Results - Air Sampling for Small Retail Spaces**  
**Former Gorham Manufacturing Site**  
**Providence, Rhode Island**

Parameter (ug/m <sup>3</sup> )	Outdoor Air Reference Locations									Extraction Well - Eastern Small Retail Space							
	AA-1 1/16/2009	AA-1- 020309 2/3/2009	AA-1- 021109 2/11/2009	AA-1- 021809 2/18/2009	AA-1- 022609 2/26/2009	AA-1- 030609 3/6/2009	AA-1- 041409 4/14/2009	AA-1- 051509 5/15/2009	AA-1- 061109 6/11/2009	EW-5- 020309 2/3/2009	EW-5- 021109 2/11/2009	EW-5- 021809 2/18/2009	EW-5- 022609 2/26/2009	EW-5- 030609 3/6/2009	EW-5- 041409 4/14/2009	EW-5- 051509 5/15/2009	EW-5- 061109 6/11/2009
1,1,1-Trichloroethane	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.19 U	0.27 U	0.27 U	190000	41000	17000	7100	1800	2600	3100	1900
1,1,1,2,2-Tetrachloroethane	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.24 U	0.34 U	0.34 U	6.8 U	6.8 U	6.8 U	6.8 U	1.7 U	68 U	3.4 U	3.4 U
1,1,1,2-Trichloroethane	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.19 U	0.27 U	0.27 U	5.4 U	5.4 U	5.4 U	5.4 U	1.4 U	54 U	2.7 U	2.7 U
1,1-Dichloroethane	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U	11000	1900	890	770	190	360	450	430
1,1-Dichloroethene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U	2500	290	130	190	61	160	160	160
1,2,4-Trichlorobenzene	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.26 U	0.37 U	0.37 U	7.4 U	7.4 U	7.4 U	7.4 U	1.9 U	74 U	3.7 U	3.7 U
1,2,4-Trimethylbenzene	0.25 U	0.28	0.52	1.8	0.25 U	0.25 U	0.18 U	0.25 U	0.29	5 U	5 U	5 U	5 U	1.3 U	50 U	2.5 U	2.5 U
1,2-Dibromoethane (EDB)	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.27 U	0.38 U	0.38 U	7.6 U	7.6 U	7.6 U	7.6 U	1.9 U	76 U	3.8 U	3.8 U
1,2-Dichlorobenzene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.21 U	0.3 U	0.3 U	6 U	6 U	6 U	6 U	1.5 U	60 U	3 U	3 U
1,2-Dichloroethane	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U	4 U	4 U	4 U	4 U	1 U	40 U	2 U	2 U
1,2-Dichloropropane	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.17 U	0.23 U	0.23 U	4.6 U	4.6 U	4.6 U	4.6 U	1.2 U	46 U	2.3 U	2.3 U
1,2-Dichlorotetrafluoroethane	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.25 U	0.35 U	0.35 U	7 U	7 U	7 U	7 U	1.8 U	70 U	3.5 U	3.5 U
1,3,5-Trimethylbenzene	0.25 U	0.25 U	0.25 U	0.5	0.25 U	0.25 U	0.18 U	0.25 U	0.25 U	5 U	5 U	5 U	5 U	1.3 U	50 U	2.5 U	2.5 U
1,3-Butadiene	0.11 U	0.11 U	0.17	1.3	0.11 U	0.11 U	0.08 U	0.11 U	0.11 U	2.2 U	2.2 U	2.2 U	2.2 U	0.55 U	22 U	1.1 U	1.1 U
1,3-Dichlorobenzene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.21 U	0.3 U	0.3 U	6 U	6 U	6 U	6 U	1.5 U	60 U	3 U	3 U
1,4-Dichlorobenzene	0.3 U	0.3 U	0.3 U	0.53	0.3 U	0.3 U	0.21 U	0.3 U	0.3 U	6 U	6 U	6 U	6 U	1.5 U	60 U	3 U	3 U
2-Butanone	0.58	1.2	2.4	3.2	1.6	0.67	0.11 U	1.6	1.1	6.3	89	75	170	3700	64000	100000	230000
2-Hexanone	0.2 U	0.22	0.57	0.35	0.2 U	0.2 U	0.14 U	0.39	0.2 U	4 U	4 U	4 U	4 U	1 U	40 U	2.7	2 U
4-Ethyltoluene	0.25 U	0.25 U	0.25 U	0.6	0.25 U	0.25 U	0.18 U	0.25 U	0.25 U	5 U	5 U	5 U	5 U	1.3 U	50 U	2.5 U	2.5 U
4-Methyl-2-pentanone	0.2 U	0.2 U	0.27	0.63	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U	4 U	4 U	4 U	4 U	1 U	40 U	2 U	2 U
Acetone	7.3	8	15	22	8.4	5.9	1.1	9.5	10	530	32	52	29	460	5600	14000	6900
Benzene	0.69	0.62	1.3	4.7	0.43	0.69	0.12 U	0.4	0.49	13	12	6.2	4.8	5.6	32 U	11	7.1
Benzyl chloride	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.19 U	0.26 U	0.26 U	5.2 U	5.2 U	5.2 U	5.2 U	1.3 U	52 U	2.6 U	2.6 U
Bromodichloromethane	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.24 U	0.33 U	0.33 U	6.6 U	6.6 U	6.6 U	6.6 U	1.7 U	66 U	3.3 U	3.3 U
Bromofom	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.36 U	0.51 U	0.51 U	11 U	11 U	11 U	11 U	2.6 U	110 U	5.1 U	5.1 U
Bromomethane	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.14 U	0.19 U	0.19 U	3.8 U	3.8 U	3.8 U	3.8 U	0.95 U	38 U	1.9 U	1.9 U
Carbon disulfide	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.12 U	0.16 U	0.16 U	3.2 U	3.2 U	3.2 U	3.2 U	0.8 U	230	4	5.4
Carbon tetrachloride	0.38	0.44	0.52	0.56	0.43	0.61	0.22 U	0.78	0.43	6.2 U	6.2 U	6.2 U	6.2 U	1.6 U	62 U	3.1 U	3.1 U
Chlorobenzene	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.17 U	0.23 U	0.23 U	4.6 U	4.6 U	4.6 U	4.6 U	1.2 U	46 U	2.3 U	2.3 U
Chloroethane	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.1 U	0.13 U	0.13 U	260	23	16	11	4.5	26 U	11	15
Chloroform	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.17 U	0.24 U	0.24 U	83	32	20	16	2.8	48 U	7.2	6.5
Chloromethane	1.1	0.9	1.4	1.5	1.1	1.1	1.1	1.1	1.2	2 U	2 U	2 U	2 U	0.5 U	20 U	1 U	1 U
cis-1,2-Dichloroethene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U	2900	710	400	410	100	150	270	250
cis-1,3-Dichloropropene	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.16 U	0.22 U	0.22 U	4.4 U	4.4 U	4.4 U	4.4 U	1.1 U	44 U	2.2 U	2.2 U

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Cyclohexane	0.17 U	0.17 U	0.35	1.1	0.17 U	0.17 U	0.12 U	0.17 U	0.17 U	3.4 U	3.4 U	3.4 U	3.4 U	0.85 U	34 U	1.7 U	1.7 U	
Dibromochloromethane	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.31 U	0.43 U	0.43 U	8.6 U	8.6 U	8.6 U	8.6 U	2.2 U	86 U	4.3 U	4.3 U	
Dichlorodifluoromethane	2	2.2	2.6	2.7	2.6	2.6	2	2.7	2.6	5 U	5 U	5 U	5 U	2.7	50 U	3	3.2	
Ethanol	4	5.4	10	47	4.3	3.5	0.81	4.8	8.6	320	36	46	33	22	130	30	26	
Ethyl acetate	0.37 U	0.37 U	0.18 U	0.31	0.37 U	0.18 U	0.26 U	0.18 U	0.18 U	7.3 U	3.6 U	3.6 U	7.3 U	0.9 U	73 U	1.8 U	1.8 U	
Ethylbenzene	0.22 U	0.25	0.52	2	0.22 U	0.22 U	0.16 U	0.22 U	0.24	4.4 U	4.4 U	4.4 U	4.4 U	1.1 U	44 U	2.2 U	2.2 U	
Hexachlorobutadiene	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.75 U	1.1 U	1.1 U	22 U	22 U	22 U	22 U	5.4 U	220 U	11 U	11 U	
Hexane	1.5	0.75	1.1	2.9	0.38	2.8	0.13 U	0.37	0.59	5	3.6 U	3.6 U	3.6 U	2.3	36 U	3.3	1.8 U	
Isopropyl alcohol	1.4	1.4	1.8	4.3	1.4	0.67	0.18 U	1	2.5	190	5.1	4.6	5 U	4.6	290	24	57	
m,p-Xylene	0.43 U	0.72	1.4	6.4	0.44	0.43 U	0.31 U	0.49	0.73	8.6 U	8.6 U	8.6 U	8.6 U	2.2 U	86 U	4.3 U	4.3 U	
Methylene chloride	5.5	3.1	0.65	1.5	0.78	7.4	2.1	1.7	1.9	7.8	7 U	9.6	7 U	12	720	21	15	
Methyl-t-butyl ether	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.13 U	0.18 U	0.18 U	3.6 U	3.6 U	3.6 U	3.6 U	0.9 U	36 U	1.8 U	1.8 U	
n-Heptane	0.2 U	0.27	0.92	1.6	0.2 U	0.2 U	0.14 U	0.4	0.23	4 U	4 U	4 U	4 U	1 U	40 U	2 U	2 U	
o-Xylene	0.22 U	0.27	0.53	2.2	0.22 U	0.22 U	0.16 U	0.24	0.27	4.4 U	4.4 U	4.4 U	4.4 U	1.1 U	44 U	2.2 U	2.2 U	
Propylene (Propene)	0.18 U	0.18 U	0.09 U	0.09 U	0.18 U	0.09 U	0.13 U	0.09 U	0.09 U	3.5 U	1.8 U	1.8 U	3.5 U	0.45 U	35 U	0.9 U	0.9 U	
Styrene	0.21 U	0.21 U	0.21 U	0.28	0.21 U	0.21 U	0.15 U	0.21 U	0.21 U	4.2 U	17	4.2 U	4.2 U	1.7	42 U	2.2	2.1 U	
Tetrachloroethene	0.34 U	0.34 U	0.73	0.77	0.34 U	0.34 U	0.24 U	0.34 U	0.34 U	210	310	190	97	8	68 U	21	25	
Tetrahydrofuran	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.11 U	0.15 U	0.15 U	16	110	69	140	2200	42000	61000	150000	
Toluene	0.94	1.5	3.2	14	0.71	0.99	0.14 U	2.6	2.1	13	4.7	3.8 U	3.8 U	0.95 U	38 U	2.2	3.4	
trans-1,2-Dichloroethene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U	26	6.1	4 U	4.7	1 U	40 U	2.6	2.8	
trans-1,3-Dichloropropene	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.16 U	0.22 U	0.22 U	4.4 U	4.4 U	4.4 U	4.4 U	1.1 U	44 U	2.2 U	2.2 U	
Trichloroethene	0.27 U	0.27 U	0.27 U	0.39	0.27 U	0.27 U	0.19 U	0.27 U	0.27 U	51000	20000	14000	8900	2400	3800	4400	2700	
Trichlorofluoromethane	1.3	1.2	1.7	2.4	1.5	2	0.92	1.5	2	3500	200	120	67	16	56 U	27	41	
Trichlorotrifluoroethane	0.68	0.53	0.5	0.47	0.64	0.48	0.27 U	0.67	0.56	7.6 U	7.6 U	7.6 U	7.6 U	1.9 U	76 U	3.8 U	3.8 U	
Vinyl acetate	0.71 U	0.71 U	0.18 U	0.18 U	0.71 U	0.18 U	0.5 U	0.18 U	0.18 U	15 U	3.6 U	3.6 U	3.6 U	15 U	0.9 U	150 U	1.8 U	1.8 U
Vinyl chloride	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.1 U	0.13 U	0.13 U	2.6 U	2.6 U	2.6 U	2.6 U	0.65 U	26 U	1.3 U	5.3	

**Table 1.**  
**Summary of Analytical Results - Air Sampling for Small Retail Spaces**  
**Former Gorham Manufacturing Site**  
**Providence, Rhode Island**

Parameter (ug/m <sup>3</sup> )	Extraction Well - Center Small Retail Space								Extraction Well - Western Small Retail Space							
	EW-6-020309 2/3/2009	EW-6-021109 2/11/2009	EW-6-021809 2/18/2009	EW-6-022609 2/26/2009	EW-6-030609 3/6/2009	EW-6-041409 4/14/2009	EW-6-051509 5/15/2009	EW-6-061109 6/11/2009	EW-7-020309 2/3/2009	EW-7-021109 2/11/2009	EW-7-021809 2/18/2009	EW-7-022609 2/26/2009	EW-7-030609 3/6/2009	EW-7-041409 4/14/2009	EW-7-051509 5/15/2009	EW-7-061109 6/11/2009
1,1,1-Trichloroethane	69000	32000	21000	16000	16000	5600	8200	5700	5600	8500	7800	8200	8100	1600	3600	2600
1,1,2,2-Tetrachloroethane	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	3.4 U	3.4 U	6.8 U	1.4 U	1.7 U	1.7 U	6.8 U	3.4 U	3.4 U
1,1,2-Trichloroethane	5.4 U	5.4 U	5.4 U	5.4 U	5.4 U	5.4 U	5.4 U	2.7 U	2.7 U	5.4 U	1.1 U	1.4 U	1.4 U	5.4 U	2.7 U	2.7 U
1,1-Dichloroethane	5200	2500	2100	2200	1600	780	1200	1100	1700	1800	1600	2100	1700	590	1000	1100
1,1-Dichloroethene	850	210	100	110	55	74	87	83	14	15	8.5	9.4	6.6	4 U	4.2	4.2
1,2,4-Trichlorobenzene	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	3.7 U	3.7 U	7.4 U	1.5 U	1.9 U	1.9 U	1.9 U	7.4 U	3.7 U	3.7 U
1,2,4-Trimethylbenzene	5 U	5 U	5 U	16	6.2	50 U	2.5 U	2.5 U	5 U	1 U	1.3 U	1.3 U	1.3 U	5 U	2.5 U	2.5 U
1,2-Dibromoethane (EDB)	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	3.8 U	3.8 U	7.6 U	1.6 U	1.9 U	1.9 U	1.9 U	7.6 U	3.8 U	3.8 U
1,2-Dichlorobenzene	6 U	6 U	6 U	6 U	6 U	60 U	3 U	3 U	6 U	1.2 U	1.5 U	1.5 U	1.5 U	6 U	3 U	3 U
1,2-Dichloroethane	4 U	4 U	4 U	4 U	4 U	40 U	2 U	2 U	4 U	0.8 U	1 U	1 U	1 U	4 U	2 U	2 U
1,2-Dichloropropane	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	46 U	2.3 U	2.3 U	4.6 U	0.92 U	1.2 U	1.2 U	1.2 U	4.6 U	2.3 U	2.3 U
1,2-Dichlorotetrafluoroethane	7 U	7 U	7 U	7 U	7 U	70 U	3.5 U	3.5 U	7 U	1.4 U	1.8 U	1.8 U	1.8 U	7 U	3.5 U	3.5 U
1,3,5-Trimethylbenzene	5 U	5 U	5 U	7.3	5 U	50 U	2.5 U	2.5 U	5 U	1 U	1.3 U	1.3 U	1.3 U	5 U	2.5 U	2.5 U
1,3-Butadiene	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	1.1 U	1.1 U	2.2 U	0.44 U	0.55 U	0.55 U	0.55 U	2.2 U	1.1 U	1.1 U
1,3-Dichlorobenzene	6 U	6 U	6 U	6 U	6 U	60 U	3 U	3 U	6 U	1.2 U	1.5 U	1.5 U	1.5 U	6 U	3 U	3 U
1,4-Dichlorobenzene	6 U	6 U	6 U	6 U	6 U	60 U	3 U	3 U	6 U	1.2 U	1.5 U	1.5 U	1.5 U	6 U	3 U	3 U
2-Butanone	120	280	300	130	97	160	37	65	8.7	12	7.3	8.5	5.5	4.5	7.1	16
2-Hexanone	4 U	4 U	4 U	4 U	4 U	40 U	2 U	2 U	4 U	0.8 U	1 U	1 U	1 U	4 U	2 U	2 U
4-Ethyltoluene	5 U	5 U	5 U	5 U	5 U	50 U	2.5 U	2.5 U	5 U	1 U	1.3 U	1.3 U	1.3 U	5 U	2.5 U	2.5 U
4-Methyl-2-pentanone	4 U	4 U	4 U	4 U	4 U	40 U	2 U	2 U	4 U	0.8 U	1 U	1 U	1 U	4 U	2 U	2 U
Acetone	580	64	81	33	22	410	16	20	580	38	58	30	24	15	24	24
Benzene	5.2	5.2	4.1	3.2 U	3.2 U	32 U	1.7	1.6 U	3.2 U	3.9	4.5	1.9	2.3	3.2 U	2.6	2.8
Benzyl chloride	5.2 U	5.2 U	5.2 U	5.2 U	5.2 U	52 U	2.6 U	2.6 U	5.2 U	1.1 U	1.3 U	1.3 U	1.3 U	5.2 U	2.6 U	2.6 U
Bromodichloromethane	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	66 U	3.3 U	3.3 U	6.6 U	1.4 U	1.7 U	1.7 U	1.7 U	6.6 U	3.3 U	3.3 U
Bromoform	11 U	11 U	11 U	11 U	11 U	110 U	5.1 U	5.1 U	11 U	2.1 U	2.6 U	2.6 U	2.6 U	11 U	5.1 U	5.1 U
Bromomethane	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	38 U	1.9 U	1.9 U	3.8 U	0.76 U	0.95 U	0.95 U	0.95 U	3.8 U	1.9 U	1.9 U
Carbon disulfide	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	180	1.6 U	1.6 U	5.7	3.4	2.7	3.7	3.3	3.2 U	3.2	2.7
Carbon tetrachloride	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	62 U	3.1 U	3.1 U	6.2 U	1.3 U	1.6 U	1.6 U	1.6 U	6.2 U	3.1 U	3.1 U
Chlorobenzene	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	46 U	2.3 U	2.3 U	4.6 U	0.92 U	1.2 U	1.2 U	1.2 U	4.6 U	2.3 U	2.3 U
Chloroethane	140	50	34	18	13	26 U	13	14	170	150	88	41	33	7.1	9.6	10
Chloroform	42	24	19	29	21	50	14	12	4.8 U	1	1.2 U	1.3	1.2 U	4.8 U	2.7	2.6
Chloromethane	2 U	2 U	2 U	2 U	2 U	34	1 U	1 U	2 U	0.4 U	0.5 U	0.5 U	0.5 U	2 U	1 U	1 U
cis-1,2-Dichloroethene	700	360	220	250	150	120	190	170	1100	1300	1200	1700	1200	520	1100	1200
cis-1,3-Dichloropropene	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	44 U	2.2 U	2.2 U	4.4 U	0.88 U	1.1 U	1.1 U	1.1 U	4.4 U	2.2 U	2.2 U

**Table 1.**  
**Summary of Analytical Results - Air Sampling for Small Retail Spaces**  
**Former Gorham Manufacturing Site**  
**Providence, Rhode Island**

Parameter (ug/m <sup>3</sup> )	Extraction Well - Center Small Retail Space								Extraction Well - Western Small Retail Space							
	EW-6-020309 2/3/2009	EW-6-021109 2/11/2009	EW-6-021809 2/18/2009	EW-6-022609 2/26/2009	EW-6-030609 3/6/2009	EW-6-041409 4/14/2009	EW-6-051509 5/15/2009	EW-6-061109 6/11/2009	EW-7-020309 2/3/2009	EW-7-021109 2/11/2009	EW-7-021809 2/18/2009	EW-7-022609 2/26/2009	EW-7-030609 3/6/2009	EW-7-041409 4/14/2009	EW-7-051509 5/15/2009	EW-7-061109 6/11/2009
Cyclohexane	3.4 U	5.3	3.4 U	3.4 U	3.4 U	34 U	1.7 U	1.7 U	3.4 U	5.6	5	3.7	2.1	3.4 U	1.7 U	1.7 U
Dibromochloromethane	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	86 U	4.3 U	4.3 U	8.6 U	1.8 U	2.2 U	2.2 U	2.2 U	8.6 U	4.3 U	4.3 U
Dichlorodifluoromethane	5 U	5 U	5 U	5 U	5 U	50 U	3.6	3.9	5 U	2.5	3.2	770	2.6	5 U	2.9	3.3
Ethanol	360	38	73	38	25	110	18	14	350	26	29	17	15	3.8 U	19	18
Ethyl acetate	7.3 U	3.6 U	3.6 U	7.3 U	3.6 U	73 U	1.8 U	1.8 U	7.3 U	0.72 U	0.9 U	1.9 U	0.9 U	7.3 U	1.8 U	1.8 U
Ethylbenzene	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	44 U	2.2 U	2.2 U	4.4 U	0.88 U	1.1 U	1.1 U	1.1 U	4.4 U	2.2 U	2.2 U
Hexachlorobutadiene	22 U	22 U	22 U	22 U	22 U	220 U	11 U	11 U	22 U	4.3 U	5.4 U	5.4 U	5.4 U	22 U	11 U	11 U
Hexane	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	36 U	1.8 U	1.8 U	10	10	7.6	5.5	3.1	3.6 U	4	2.1
Isopropyl alcohol	210	18	33	15	10	230	8.2	11	210	18	21	12	8.5	5 U	12	17
m,p-Xylene	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	120	4.3 U	4.3 U	8.6 U	1.8 U	2.2 U	2.2 U	2.2 U	8.6 U	4.3 U	4.3 U
Methylene chloride	7 U	7 U	7.5	7 U	7 U	780	12	15	9.3	2.6	8	1.8	1.8 U	20	29	16
Methyl-t-butyl ether	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	36 U	1.8 U	1.8 U	3.6 U	3.5	2.9	4.9	3.1	3.6 U	1.8 U	1.8 U
n-Heptane	4 U	4 U	4 U	4 U	4 U	40 U	2 U	2 U	4 U	1.4	1 U	1 U	1 U	4 U	2 U	2 U
o-Xylene	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	44 U	2.2 U	2.2 U	4.4 U	0.88 U	1.1 U	1.1 U	1.1 U	4.4 U	2.2 U	2.2 U
Propylene (Propene)	3.5 U	1.8 U	1.8 U	3.5 U	1.8 U	35 U	0.9 U	0.9 U	3.5 U	160	110	0.87 U	0.45 U	3.5 U	0.9 U	0.9 U
Styrene	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U	42 U	2.1 U	2.1 U	4.2 U	0.84 U	1.1 U	1.1 U	1.1 U	4.2 U	2.1 U	2.1 U
Tetrachloroethene	330	290	130	290	190	300	190	210	66	69	56	84	69	40	140	230
Tetrahydrofuran	75	480	260	730	570	130	110	87	41	23	12	14	7.5	3 U	5.6	15
Toluene	12	3.8 U	3.8 U	3.8 U	3.8 U	38 U	1.9 U	1.9 U	14	2.9	3.6	1.7	0.95 U	3.8 U	1.9 U	1.9 U
trans-1,2-Dichloroethene	12	6.3	4.2	6.4	4 U	40 U	2.6	2.7	150	140	90	90	80	48	120	140
trans-1,3-Dichloropropene	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	44 U	2.2 U	2.2 U	4.4 U	0.88 U	1.1 U	1.1 U	1.1 U	4.4 U	2.2 U	2.2 U
Trichloroethene	12000	6900	4200	4400	4800	3900	5400	4700	230	210	180	180	200	110	330	420
Trichlorofluoromethane	2300	870	630	350	250	150	230	440	1800	1400	900	690	640	190	310	660
Trichlorotrifluoroethane	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	76 U	3.8 U	3.8 U	7.6 U	1.6 U	1.9 U	1.9 U	1.9 U	7.6 U	3.8 U	3.8 U
Vinyl acetate	15 U	3.6 U	3.6 U	15 U	3.6 U	150 U	1.8 U	1.8 U	15 U	0.72 U	0.9 U	3.6 U	0.9 U	15 U	1.8 U	1.8 U
Vinyl chloride	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	26 U	1.3 U	1.3 U	280	370	180	48	21	2.6 U	2.7	3.2



**Table 1.**  
**Summary of Analytical Results - Air Sampling for Small Retail Spaces**  
**Former Gorham Manufacturing Site**  
**Providence, Rhode Island**

Parameter (ug/m <sup>3</sup> )	CT IACTIND 2003 (ug/m <sup>3</sup> )	Indoor Air - Eastern Small Retail Space								
		IA-5 1/16/2009	IA-5- 020309 2/3/2009	IA-5- 021109 2/11/2009	IA-5- 021809 2/18/2009	IA-5- 022609 2/26/2009	IA-5- 030609 3/6/2009	IA-5- 041409 4/14/2009	IA-5- 051509 5/15/2009	IA-5- 061109 6/11/2009
1,1,1-Trichloroethane	500	48	0.92	0.27 U	0.27 U	0.27 U	0.27 U	0.98	0.27 U	0.27 U
1,1,1,2,2-Tetrachloroethane	0.14	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.24 U	0.34 U	0.34 U
1,1,2-Trichloroethane	12	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.19 U	0.27 U	0.27 U
1,1-Dichloroethane	430	1.8	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U
1,1-Dichloroethene	20	0.58	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U
1,2,4-Trichlorobenzene	NA	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.26 U	0.37 U	0.37 U
1,2,4-Trimethylbenzene	52	0.25 U	0.32	0.33	0.36	0.25 U	0.25 U	0.2	0.25 U	0.35
1,2-Dibromoethane (EDB)	0.038	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.27 U	0.38 U	0.38 U
1,2-Dichlorobenzene	410	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.21 U	0.3 U	0.3 U
1,2-Dichloroethane	0.31	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U
1,2-Dichloropropane	0.42	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.17 U	0.23 U	0.23 U
1,2-Dichlorotetrafluoroethane	NA	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.25 U	0.35 U	0.35 U
1,3,5-Trimethylbenzene	52	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.18 U	0.25 U	0.25 U
1,3-Butadiene	NA	0.11 U	0.11 U	0.11 U	0.25	0.11 U	0.11 U	0.08 U	0.11 U	0.11 U
1,3-Dichlorobenzene	410	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.21 U	0.3 U	0.3 U
1,4-Dichlorobenzene	24	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.21 U	0.3 U	0.3 U
2-Butanone	500	7.2	2.4	2.7	2.6	0.75	0.45	3.8	1.9	5.3
2-Hexanone	NA	0.2 U	0.48	0.38	0.27	0.2 U	0.2 U	0.47	0.45	1.1
4-Ethyltoluene	NA	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.18 U	0.25 U	0.25 U
4-Methyl-2-pentanone	200	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.18	0.2 U	0.68
Acetone	500	32	11	21	20	9.5	6.5	14	14	46
Benzene	3.3	0.79	0.6	0.99	1.6	0.41	0.55	0.62	0.49	0.53
Benzyl chloride	NA	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.19 U	0.26 U	0.26 U
Bromodichloromethane	0.46	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.24 U	0.33 U	0.33 U
Bromoform	7.3	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.36 U	0.51 U	0.51 U
Bromomethane	NA	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.14 U	0.23	0.19 U
Carbon disulfide	NA	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.12 U	0.16 U	0.27
Carbon tetrachloride	0.54	0.33	0.44	0.5	0.55 [a]	0.47	0.61 [a]	0.44	0.64 [a]	0.46
Chlorobenzene	200	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.17 U	0.23 U	0.23 U
Chloroethane	500	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.1 U	0.13 U	0.13 U
Chloroform	0.5	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.17 U	0.24 U	0.55
Chloromethane	80	1.1	1	1.5	1.4	1.1	1.1	1.1	1	1.4
cis-1,2-Dichloroethene	100	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U
cis-1,3-Dichloropropene	2.9	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.16 U	0.22 U	0.22 U

**Table 1.**  
**Summary of Analytical Results - Air Sampling for Small Retail Spaces**  
**Former Gorham Manufacturing Site**  
**Providence, Rhode Island**

Parameter (ug/m <sup>3</sup> )	CT IACTIND 2003 (ug/m <sup>3</sup> )	Indoor Air - Eastern Small Retail Space								
		IA-5 1/16/2009	IA-5- 020309 2/3/2009	IA-5- 021109 2/11/2009	IA-5- 021809 2/18/2009	IA-5- 022609 2/26/2009	IA-5- 030609 3/6/2009	IA-5- 041409 4/14/2009	IA-5- 051509 5/15/2009	IA-5- 061109 6/11/2009
Cyclohexane	NA	0.17 U	0.17 U	0.38	0.41	0.17 U	0.17 U	0.12 U	0.17 U	0.4
Dibromochloromethane	NA	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.31 U	0.43 U	0.43 U
Dichlorodifluoromethane	500	2	2.2	2.5	2.7	2.6	2.6	1.9	2.5	2.2
Ethanol	NA	590	12	23	140	85	32	41	180	500
Ethyl acetate	NA	0.75	0.37 U	0.18 U	0.18 U	0.37 U	0.18 U	0.26 U	0.18 U	0.31
Ethylbenzene	290	0.22 U	0.25	0.33	0.43	0.22 U	0.22 U	0.24	0.22 U	0.3
Hexachlorobutadiene	NA	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.75 U	1.1 U	1.1 U
Hexane	NA	0.84	0.54	1.1	0.99	0.39	0.5	0.71	0.58	1
Isopropyl alcohol	NA	3.8	3.5	580	2.9	3	1.3	1.7	2	19
m,p-Xylene	500	0.6	0.74	0.91	1.2	0.43 U	0.43 U	0.68	0.51	0.88
Methylene chloride	17	2	3.6	5.2	1.1	1.2	0.74	2.5	2.9	2
Methyl-t-butyl ether	190	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.13 U	0.18 U	0.18 U
n-Heptane	NA	0.2 U	0.2 U	0.36	0.35	0.2 U	0.2 U	0.23	0.38	0.48
o-Xylene	500	0.23	0.27	0.35	0.47	0.22 U	0.22 U	0.23	0.23	0.32
Propylene (Propene)	NA	0.18 U	0.18 U	0.09 U	0.09 U	0.18 U	0.09 U	0.13 U	0.09 U	0.09 U
Styrene	290	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.15 U	0.21 U	1.5
Tetrachloroethene	5	0.39	0.34 U	0.43	0.43	0.34 U	0.34 U	0.24 U	0.47	0.34 U
Tetrahydrofuran	NA	3.2	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.11 U	0.15 U	0.15 U
Toluene	500	1.3	1.1	3	3.3	0.65	0.51	1.5	2.8	2.8
trans-1,2-Dichloroethene	200	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U
trans-1,3-Dichloropropene	2.9	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.16 U	0.22 U	0.22 U
Trichloroethene	1	5.5	0.39	0.27 U	0.27 U	0.27 U	0.27 U	0.22	0.27 U	0.27 U
Trichlorofluoromethane	500	3	1.3	1.7	1.8	1.5	1.7	1.2	1.3	2
Trichlorotrifluoroethane	NA	0.62	0.54	0.48	0.45	0.64	0.48	0.53	0.61	0.54
Vinyl acetate	NA	0.71 U	0.71 U	0.18 U	0.18 U	0.71 U	0.18 U	0.5 U	0.18 U	0.18 U
Vinyl chloride	1.9	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.1 U	0.13 U	0.13 U

**Table 1.**  
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**Former Gorham Manufacturing Site**  
**Providence, Rhode Island**

Parameter (ug/m <sup>3</sup> )	Indoor Air - Center Small Retail Space								
	IA-6 1/16/2009	IA-6- 020309 2/3/2009	IA-6- 021109 2/11/2009	IA-6- 021809 2/18/2009	IA-6- 022609 2/26/2009	IA-6- 030609 3/6/2009	IA-6- 041409 4/14/2009	IA-6- 051509 5/15/2009	IA-6- 061109 6/11/2009
1,1,1-Trichloroethane	110	3.9	0.27 U	0.29	0.27 U	0.27 U	1.6	0.27 U	0.27 U
1,1,2,2-Tetrachloroethane	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.24 U	0.34 U	0.34 U
1,1,2-Trichloroethane	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.19 U	0.27 U	0.27 U
1,1-Dichloroethane	3.9	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U
1,1-Dichloroethene	1.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U
1,2,4-Trichlorobenzene	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.26 U	0.37 U	0.37 U
1,2,4-Trimethylbenzene	0.75	0.32	0.29	1.5	0.25 U	0.25 U	0.18 U	0.25 U	0.29
1,2-Dibromoethane (EDB)	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.27 U	0.38 U	0.38 U
1,2-Dichlorobenzene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.21 U	0.3 U	0.3 U
1,2-Dichloroethane	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U
1,2-Dichloropropane	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.17 U	0.23 U	0.23 U
1,2-Dichlorotetrafluoroethane	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.25 U	0.35 U	0.35 U
1,3,5-Trimethylbenzene	0.25 U	0.25 U	0.25 U	0.38	0.25 U	0.25 U	0.18 U	0.25 U	0.25 U
1,3-Butadiene	0.11 U	0.11 U	0.11 U	1.1	0.11 U	0.11 U	0.08 U	0.11 U	0.11 U
1,3-Dichlorobenzene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.21 U	0.3 U	0.3 U
1,4-Dichlorobenzene	0.3 U	0.3 U	0.3 U	0.41	0.3 U	0.3 U	0.21 U	0.3 U	0.3 U
2-Butanone	120	10	3.2	2.9	2.4	2.3	1	2.5	4.1
2-Hexanone	0.2 U	0.42	0.37	0.34	0.2 U	0.37	0.14 U	0.62	0.72
4-Ethyltoluene	0.25 U	0.25 U	0.25 U	0.47	0.25 U	0.25 U	0.18 U	0.25 U	0.25 U
4-Methyl-2-pentanone	0.2 U	0.2 U	0.2 U	0.36	0.2 U	0.2 U	0.14 U	0.34	0.7
Acetone	44	14	14	25	11	8.5	6.1	11	28
Benzene	1	0.6	0.98	4.1 [a]	0.41	0.7	0.59	0.47	0.43
Benzyl chloride	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.19 U	0.26 U	0.26 U
Bromodichloromethane	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.24 U	0.33 U	0.33 U
Bromoform	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.36 U	0.51 U	0.51 U
Bromomethane	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.14 U	0.19 U	0.19 U
Carbon disulfide	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.12 U	0.16 U	0.16 U
Carbon tetrachloride	0.39	0.42	0.52	0.59 [a]	0.47	0.6 [a]	0.42	0.77 [a]	0.45
Chlorobenzene	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.17 U	0.23 U	0.23 U
Chloroethane	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.1 U	0.13 U	0.13 U
Chloroform	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.17 U	0.24 U	0.24 U
Chloromethane	1.3	0.9	1.4	1.5	1	1.1	1.1	1.1	1.9
cis-1,2-Dichloroethene	0.4	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U
cis-1,3-Dichloropropene	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.16 U	0.22 U	0.22 U

**Table 1.**  
**Summary of Analytical Results - Air Sampling for Small Retail Spaces**  
**Former Gorham Manufacturing Site**  
**Providence, Rhode Island**

Parameter (ug/m <sup>3</sup> )	Indoor Air - Center Small Retail Space								
	IA-6 1/16/2009	IA-6- 020309 2/3/2009	IA-6- 021109 2/11/2009	IA-6- 021809 2/18/2009	IA-6- 022609 2/26/2009	IA-6- 030609 3/6/2009	IA-6- 041409 4/14/2009	IA-6- 051509 5/15/2009	IA-6- 061109 6/11/2009
Cyclohexane	0.17 U	0.17 U	0.25	0.91	0.17 U	0.17 U	0.12 U	0.17 U	0.17 U
Dibromochloromethane	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.31 U	0.43 U	0.43 U
Dichlorodifluoromethane	2	2.1	2.6	2.8	2.6	2.6	2	2.7	2.5
Ethanol	41	23	12	40	13	12	8.6	51	31
Ethyl acetate	0.37 U	0.37 U	0.18 U	0.22	0.37 U	0.18 U	0.26 U	0.18 U	0.18 U
Ethylbenzene	0.29	0.25	0.33	1.6	0.22 U	0.22 U	0.21	0.22 U	0.24
Hexachlorobutadiene	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.75 U	1.1 U	1.1 U
Hexane	1.2	0.78	0.7	2.6	0.33	0.4	0.63	0.38	0.68
Isopropyl alcohol	4.7	6.6	3.2	4.9	1.7	1.6	0.18 U	4.5	22
m,p-Xylene	0.82	0.72	0.84	4.9	0.43 U	0.43 U	0.51	0.43 U	0.67
Methylene chloride	2.5	5.2	0.59	1.6	0.83	0.69	2	2	2.6
Methyl-t-butyl ether	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.13 U	0.18 U	0.18 U
n-Heptane	0.27	0.2 U	0.32	1.3	0.2 U	0.2 U	0.21	0.2 U	0.26
o-Xylene	0.36	0.26	0.34	1.8	0.22 U	0.22 U	0.19	0.22 U	0.25
Propylene (Propene)	0.18 U	0.18 U	0.09 U	0.09 U	0.18 U	0.09 U	0.13 U	0.09 U	0.09 U
Styrene	0.21 U	0.21 U	0.21 U	0.28	0.21 U	0.21 U	0.15 U	0.25	0.21 U
Tetrachloroethene	1.2	0.34 U	0.45	1.2	0.34 U	0.34 U	0.72	0.34 U	0.34 U
Tetrahydrofuran	77	2.8	0.32	0.15 U	0.15 U	0.15 U	0.22	0.15 U	0.15 U
Toluene	1.8	1.3	2.5	11	0.65	0.71	1.3	0.81	2
trans-1,2-Dichloroethene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U
trans-1,3-Dichloropropene	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.16 U	0.22 U	0.22 U
Trichloroethene	13	1.7	0.27 U	0.34	0.27 U	0.27 U	0.6	0.27 U	0.27 U
Trichlorofluoromethane	4.8	1.3	1.7	2.5	1.5	1.7	1.4	1.2	2.2
Trichlorotrifluoroethane	0.64	0.51	0.48	0.45	0.64	0.48	0.53	0.74	0.63
Vinyl acetate	0.71 U	0.71 U	0.18 U	0.18 U	0.71 U	0.18 U	0.5 U	0.18 U	0.18 U
Vinyl chloride	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.1 U	0.13 U	0.13 U

**Table 1.**  
**Summary of Analytical Results - Air Sampling for Small Retail Spaces**  
**Former Gorham Manufacturing Site**  
**Providence, Rhode Island**

Parameter (ug/m <sup>3</sup> )	Indoor Air - Western Small Retail Space								
	IA-7 1/16/2009	IA-7- 020309 2/3/2009	IA-7- 021109 2/11/2009	IA-7- 021809 2/18/2009	IA-7- 022609 2/26/2009	IA-7- 030609 3/6/2009	IA-7- 041409 4/14/2009	IA-7- 051509 5/15/2009	IA-7-061109 6/11/2009
1,1,1-Trichloroethane	44	2.4	0.4	1.3	0.27 U	0.27 U	0.87	0.27 U	0.27 U
1,1,2,2-Tetrachloroethane	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.24 U	0.34 U	0.34 U
1,1,2-Trichloroethane	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.19 U	0.27 U	0.27 U
1,1-Dichloroethane	1.3	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U
1,1-Dichloroethene	0.52	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U
1,2,4-Trichlorobenzene	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.26 U	0.37 U	0.37 U
1,2,4-Trimethylbenzene	0.25 U	0.34	0.34	0.99	0.25 U	0.25 U	0.18 U	0.25 U	0.29
1,2-Dibromoethane (EDB)	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.27 U	0.38 U	0.38 U
1,2-Dichlorobenzene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.21 U	0.3 U	0.3 U
1,2-Dichloroethane	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U
1,2-Dichloropropane	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.17 U	0.23 U	0.23 U
1,2-Dichlorotetrafluoroethane	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.25 U	0.35 U	0.35 U
1,3,5-Trimethylbenzene	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.18 U	0.25 U	0.25 U
1,3-Butadiene	0.11 U	0.11 U	0.14	0.97	0.11 U	0.11 U	0.08 U	0.11 U	0.11 U
1,3-Dichlorobenzene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.21 U	0.3 U	0.3 U
1,4-Dichlorobenzene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.21 U	0.3 U	0.3 U
2-Butanone	70	6.5	3.9	5.2	2.2	1.3	1.3	2.3	7.3
2-Hexanone	0.2 U	0.29	0.2 U	0.91	0.2 U	0.2 U	0.14 U	0.53	1.5
4-Ethyltoluene	0.25 U	0.25 U	0.25 U	0.27	0.25 U	0.25 U	0.18 U	0.25 U	0.25 U
4-Methyl-2-pentanone	0.2 U	0.2 U	0.2 U	0.42	0.2 U	0.2 U	0.14 U	0.22	0.79
Acetone	29	12	13	32	7.8	6.6	6.5	10	31
Benzene	0.95	0.75	1.1	3.2	0.67	0.73	0.42	0.35	0.52
Benzyl chloride	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.19 U	0.26 U	0.26 U
Bromodichloromethane	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	0.24 U	0.33 U	0.33 U
Bromoform	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.36 U	0.51 U	0.51 U
Bromomethane	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.14 U	0.19 U	0.19 U
Carbon disulfide	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.26	0.16 U	0.16 U
Carbon tetrachloride	0.32	0.44	0.52	0.56 [a]	0.48	0.6 [a]	0.43	0.65 [a]	0.43
Chlorobenzene	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.17 U	0.23 U	0.23 U
Chloroethane	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.1 U	0.13 U	0.13 U
Chloroform	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.17 U	0.24 U	0.24 U
Chloromethane	1.7	0.98	1.4	1.5	1	1.2	1.1	0.93	1.8
cis-1,2-Dichloroethene	0.29	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14	0.2 U	0.2 U
cis-1,3-Dichloropropene	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.16 U	0.22 U	0.22 U

**Table 1.**  
**Summary of Analytical Results - Air Sampling for Small Retail Spaces**  
**Former Gorham Manufacturing Site**  
**Providence, Rhode Island**

Parameter (ug/m <sup>3</sup> )	Indoor Air - Western Small Retail Space								
	IA-7 1/16/2009	IA-7- 020309 2/3/2009	IA-7- 021109 2/11/2009	IA-7- 021809 2/18/2009	IA-7- 022609 2/26/2009	IA-7- 030609 3/6/2009	IA-7- 041409 4/14/2009	IA-7- 051509 5/15/2009	IA-7-061109 6/11/2009
Cyclohexane	0.17 U	0.17 U	0.32	0.7	0.17 U	0.17 U	0.12 U	0.17 U	0.17 U
Dibromochloromethane	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.31 U	0.43 U	0.43 U
Dichlorodifluoromethane	2.1	2.2	2.6	2.7	2.6	2.6	2	2.4	2.7
Ethanol	7.3	16	11	26	7.9	8.4	7.1	11	14
Ethyl acetate	0.37 U	0.37 U	0.18 U	0.21	0.37 U	0.18 U	0.26 U	0.18 U	0.24
Ethylbenzene	0.23	0.29	0.36	0.95	0.24	0.22 U	0.16 U	0.22 U	0.25
Hexachlorobutadiene	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.75 U	1.1 U	1.1 U
Hexane	0.9	0.87	0.91	2	1.1	0.6	0.69	0.33	1.5
Isopropyl alcohol	3.7	6.2	3.6	8.3	0.25 U	2.7	0.18 U	7	14
m,p-Xylene	0.61	0.82	0.94	2.8	0.73	0.43 U	0.31 U	0.43 U	0.72
Methylene chloride	1.9	5.7	0.92	1.5	6.3	1.4	4.2	2.3	5.7
Methyl-t-butyl ether	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.13 U	0.18 U	0.18 U
n-Heptane	0.2	0.2 U	0.37	1.2	0.2 U	0.2 U	0.17	0.2 U	0.34
o-Xylene	0.24	0.31	0.39	0.97	0.24	0.22 U	0.16 U	0.22 U	0.25
Propylene (Propene)	0.18 U	0.18 U	0.09 U	0.09 U	0.18 U	0.09 U	0.13 U	0.09 U	0.09 U
Styrene	0.21 U	0.21 U	0.21 U	0.26	0.21 U	0.21 U	0.15 U	0.21 U	0.29
Tetrachloroethene	1.6	0.34 U	0.65	0.63	0.34 U	0.34 U	0.48	0.34 U	0.34 U
Tetrahydrofuran	45	2.1	0.74	0.43	0.15 U	0.15 U	0.27	0.15 U	0.15 U
Toluene	1.5	1.6	2.7	7.5	1.5	0.76	0.48	0.61	2.3
trans-1,2-Dichloroethene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.14 U	0.2 U	0.2 U
trans-1,3-Dichloropropene	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.16 U	0.22 U	0.22 U
Trichloroethene	<b>4.6</b>	<b>1.1</b>	0.28	0.58	0.27 U	0.27 U	0.3	0.27 U	0.27 U
Trichlorofluoromethane	4.7	1.4	1.7	3.1	1.6	1.7	1.3	1.1	1.9
Trichlorotrifluoroethane	0.62	0.57	0.47	0.44	0.66	0.45	0.54	0.69	0.57
Vinyl acetate	0.71 U	0.71 U	0.18 U	0.18 U	0.71 U	0.18 U	0.5 U	0.18 U	0.18 U
Vinyl chloride	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.1 U	0.13 U	0.13 U

[a] Benzene and carbon tetrachloride are above the target air concentration, but are not compliance violations as indoor air concentrations are consistent with outdoor air concentrations that were sampled on the same day.

NA - not available

U - Not detected, value is the detection limit

ug/m<sup>3</sup> - micrograms per cubic meter

**5** Bolded and shaded values are above the CT target indoor air concentration for industrial/commercial scenarios

Prepared by/Date: KJC 09/30/09

Checked by/Date: PJM 10/05/09

**Table 2.**  
**Vacuum Monitoring Results - Small Retail Spaces**  
**Former Gorham Manufacturing Site**  
**Providence, Rhode Island**

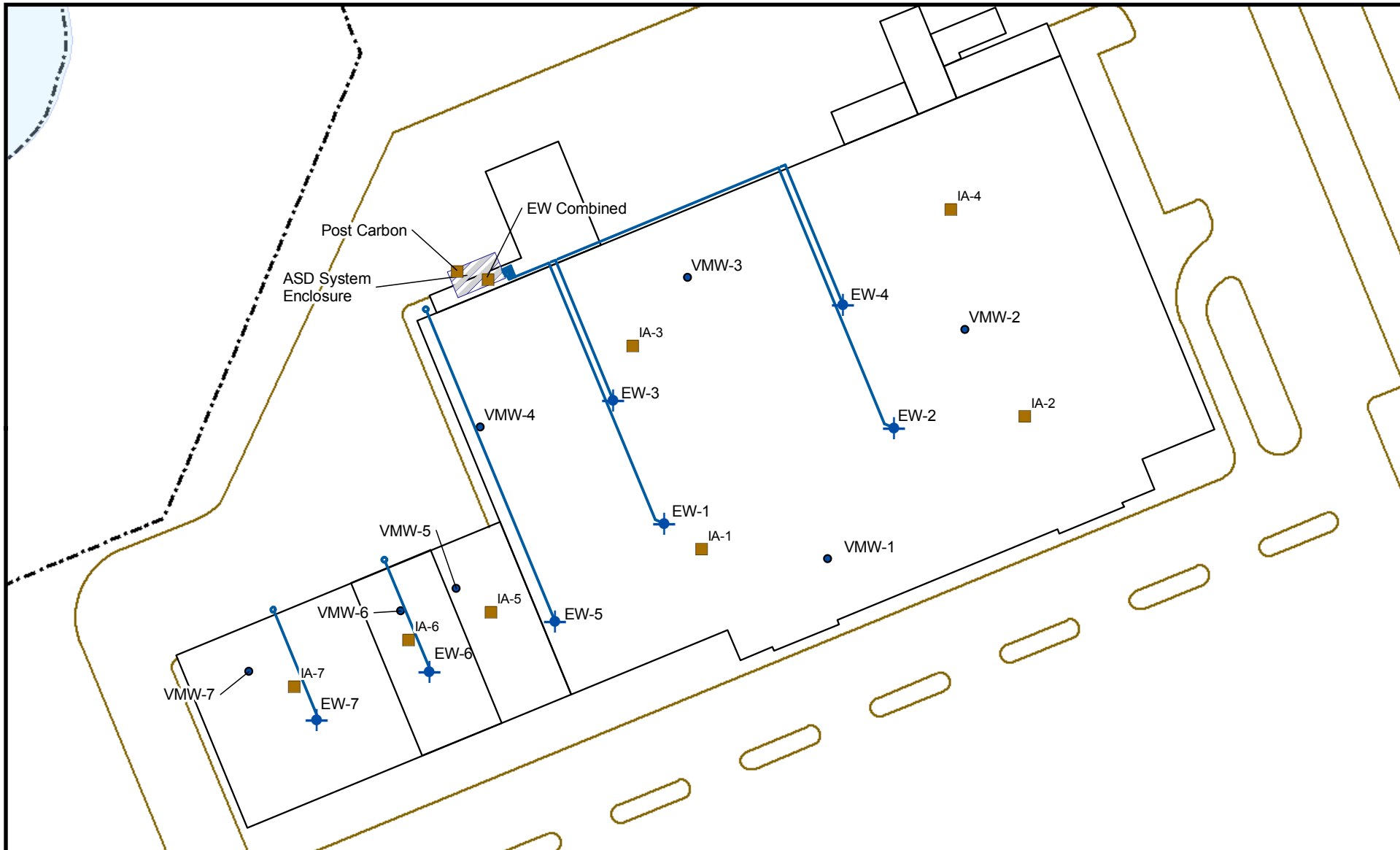
Date	Pressure Differential (inches of water)		
	VMW-5	VMW-6	VMW-7
2/3/2009	-0.25	-0.17	0.00
2/18/2009	-0.212	-0.155	-0.011
2/26/2009	-0.230	-0.120	-0.025
3/6/2009	-0.200	-0.086	-0.012
4/14/2009	-0.108	-0.054	-0.014
5/15/2009	-0.081	-0.073	-0.016
6/11/2009	-0.090	-0.076	-0.098

Prepared by/Date: PJM 09/30/09

Checked by/Date: CAC 09/30/09

## FIGURES





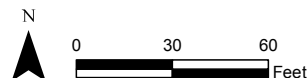
All locations are approximate

**Legend**

- Air Sample Location
- Vacuum Monitoring Well
- ◆ Extraction Well
- Extraction Well Piping
- Current Building
- Pavement Outline
- Effluent Location

Figure 1  
Vapor Mitigation  
Sample Locations

Former Gorham Manufacturing Facility  
333 Adelaide Avenue  
Providence, Rhode Island



Prepared by BJR | Checked by MJM

## APPENDIX A

### Laboratory Reports



39 Spruce Street ° East Longmeadow, MA 01028 ° FAX 413/525-6405 ° TEL. 413/525-2332

REPORT DATE 6/19/2009

MACTEC ENGINEERING & CONSULTING - MA  
107 AUDUBON ROAD, BLDG. 2, SUITE 301  
WAKEFIELD, MA 01880  
ATTN: KELLY CHATTERTON

CONTRACT NUMBER:  
PURCHASE ORDER NUMBER: 200904907

PROJECT NUMBER: 3650080114

ANALYTICAL SUMMARY

LIMS BAT #: LIMIT-25267  
JOB NUMBER: 3650080114

PROJECT LOCATION: GORHAM SITE-PROVIDENCE-RI

FIELD SAMPLE #	LAB ID	MATRIX	SAMPLE DESCRIPTION	TEST	Subcontract Lab (if any) Cert. Nos.
*AA-1-061109	09B14580	AIR	Not Specified	to-15 ppbv	
*AA-1-061109	09B14580	AIR	Not Specified	to-15 ug/m3	
*EW-5-061109	09B14574	AIR	Not Specified	to-15 ppbv	
*EW-5-061109	09B14574	AIR	Not Specified	to-15 ug/m3	
*EW-6-061109	09B14575	AIR	Not Specified	to-15 ppbv	
*EW-6-061109	09B14575	AIR	Not Specified	to-15 ug/m3	
*EW-7-061109	09B14576	AIR	Not Specified	to-15 ppbv	
*EW-7-061109	09B14576	AIR	Not Specified	to-15 ug/m3	
*IA-5-061109	09B14577	AIR	Not Specified	to-15 ppbv	
*IA-5-061109	09B14577	AIR	Not Specified	to-15 ug/m3	
*IA-6-061109	09B14578	AIR	Not Specified	to-15 ppbv	
*IA-6-061109	09B14578	AIR	Not Specified	to-15 ug/m3	
*IA-7-061109	09B14579	AIR	Not Specified	to-15 ppbv	
*IA-7-061109	09B14579	AIR	Not Specified	to-15 ug/m3	

CHECKED FOR COMPLETENESS  
OF PARAMETERS ORDERED BY:



39 Spruce Street ° East Longmeadow, MA 01028 ° FAX 413/525-6405 ° TEL. 413/525-2332

REPORT DATE 6/19/2009

MACTEC ENGINEERING & CONSULTING - MA
107 AUDUBON ROAD, BLDG. 2, SUITE 301
WAKEFIELD, MA 01880
ATTN: KELLY CHATTERTON

CONTRACT NUMBER:
PURCHASE ORDER NUMBER: 200904907

PROJECT NUMBER: 3650080114

ANALYTICAL SUMMARY

LIMS BAT #: LIMIT-25267
JOB NUMBER: 3650080114

Comments :

LIMS BATCH NO. : LIMIT-25267

CASE NARRATIVE SUMMARY

In method TO-15, method blank-132959 contained Acetone at 0.89 ppbv = 2.1 ug/m3, Isopropanol at 0.15 ppbv = 0.38 ug/m3, Ethanol at 0.29 ppbv = 0.56 ug/m3 Propene at 0.08 ppbv = 0.15 ug/m3, Methylene Chloride at 0.23 ppbv = 0.81 ug/m3 and 2-Butanone(MEK) at 0.17 ppbv = 0.52 ug/m3.

In method TO-15, any reported result for Trichlorofluoromethane and Toluene is estimated and likely to be biased on the high side based on continuing calibration bias.

In method TO-15, any reported result for Trichlorofluoromethane, MIBK and Toluene is likely to be biased on the high side based on laboratory fortified blank recovery bias.

In method TO-15 for samples 09B14577 and 09B14577dup, reported result for Ethanol is estimated. Values are reported over the verified linear calibration range.

In method TO-15, reduced precision is anticipated for reported result for Isopropanol and Carbon Disulfide in samples 09B14577 and 09B14577dup based on sample duplicate RPD outside of control limits.

There are no other analytical issues that affect the usability of the data.

METHOD TO-15 - ADDITIONAL DETAILS

All TO-15 samples were analyzed undiluted unless specified below:
If dilutions were performed only one dilution within the linear calibrated region of the curve is reported.

Table with 3 columns: Sample, Dilution, Compound(s). Rows include samples 09B14574, 09B14575, 09B14576, 09B14577, 09B14578, 09B14579, 09B14580, and blank-132959.

The results of analyses performed are based on samples as submitted to the laboratory and relate only to the items collected and tested.

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations. AIHA accreditations only apply to NIOSH methods and Environmental Lead Analyses.

Table with 3 columns: AIHA certification, State certification, and other certification. Rows include AIHA 100033, MASSACHUSETTS MA0100, CONNECTICUT PH-0567, NEW YORK ELAP/NELAP 10899, AIHA ELLAP (LEAD) 100033, NEW HAMPSHIRE NELAP 2516, VERMONT DOH (LEAD) No. LL015036, RHODE ISLAND (LIC. No. 112), NORTH CAROLINA CERT. # 652, NEW JERSEY NELAP NJ MA007 (AIR), FLORIDA DOH E871027 (AIR).



39 Spruce Street ° East Longmeadow, MA 01028 ° FAX 413/525-6405 ° TEL. 413/525-2332

REPORT DATE 6/19/2009

MACTEC ENGINEERING & CONSULTING - MA  
107 AUDUBON ROAD, BLDG. 2, SUITE 301  
WAKEFIELD, MA 01880  
ATTN: KELLY CHATTERTON

CONTRACT NUMBER:  
PURCHASE ORDER NUMBER: 200904907

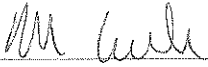
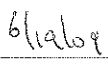
PROJECT NUMBER: 3650080114

**ANALYTICAL SUMMARY**

LIMS BAT #: LIMIT-25267

JOB NUMBER: 3650080114

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

   
SIGNATURE DATE

Tod Kopyscinski  
Air Laboratory Manager

Michael Erickson  
Assistant Laboratory Director

Edward Denson  
Technical Director

Daren Damboragian  
Organics Department Supervisor

\* See end of data tabulation for notes and comments pertaining to this sample

KELLY CHATTERTON  
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 WAKEFIELD, MA 01880

Project Location: GORHAM SITE-PROVIDENCE-RI  
 Date Received: 6/12/2009

Purchase Order No.: 200904907

6/19/2009  
 Page 1 of 30  
 Project Number: 3650080114  
 LIMS-BAT #: LIMIT-25267  
 Job Number: 3650080114

**Field Sample # : AA-1-061109**

**Sample ID :** \*09B14580 ‡Sampled : 6/11/2009  
 Not Specified  
**Sample Matrix:** AIR **Sample Medium :** SUMMA

	Units	Results	RL	Method	Date Analyzed	Analyst
to-15 ppbv				EPA TO-15		
Acetone	PPBv	4.3	0.05		06/18/09	XC
Benzene	PPBv	0.16	0.05		06/18/09	XC
Benzyl Chloride	PPBv	ND	0.05		06/18/09	XC
Bromodichloromethane	PPBv	ND	0.05		06/18/09	XC
Bromoform	PPBv	ND	0.05		06/18/09	XC
Bromomethane	PPBv	ND	0.05		06/18/09	XC
1,3-Butadiene	PPBv	ND	0.05		06/18/09	XC
2-Butanone (MEK)	PPBv	0.38	0.05		06/18/09	XC
Carbon Disulfide	PPBv	ND	0.05		06/18/09	XC
Carbon Tetrachloride	PPBv	0.07	0.05		06/18/09	XC
Chlorobenzene	PPBv	ND	0.05		06/18/09	XC
Chlorodibromomethane	PPBv	ND	0.05		06/18/09	XC
Chloroethane	PPBv	ND	0.05		06/18/09	XC
Chloroform	PPBv	ND	0.05		06/18/09	XC
Chloromethane	PPBv	0.60	0.05		06/18/09	XC
Cyclohexane	PPBv	ND	0.05		06/18/09	XC
1,2-Dibromoethane	PPBv	ND	0.05		06/18/09	XC
1,2-Dichlorobenzene	PPBv	ND	0.05		06/18/09	XC
1,3-Dichlorobenzene	PPBv	ND	0.05		06/18/09	XC
1,4-Dichlorobenzene	PPBv	ND	0.05		06/18/09	XC
Dichlorodifluoromethane	PPBv	0.52	0.05		06/18/09	XC
1,1-Dichloroethane	PPBv	ND	0.05		06/18/09	XC
1,2-Dichloroethane	PPBv	ND	0.05		06/18/09	XC
1,1-Dichloroethylene	PPBv	ND	0.05		06/18/09	XC
cis-1,2-Dichloroethylene	PPBv	ND	0.05		06/18/09	XC
t-1,2-Dichloroethylene	PPBv	ND	0.05		06/18/09	XC
1,2-Dichloropropane	PPBv	ND	0.05		06/18/09	XC
cis-1,3-Dichloropropene	PPBv	ND	0.05		06/18/09	XC
trans-1,3-Dichloropropene	PPBv	ND	0.05		06/18/09	XC
1,2-Dichlorotetrafluoroethane (114)	PPBv	ND	0.05		06/18/09	XC
Ethanol	PPBv	4.6	0.05		06/18/09	XC
Ethyl Acetate	PPBv	ND	0.05		06/18/09	XC
Ethylbenzene	PPBv	0.06	0.05		06/18/09	XC
4-Ethyl Toluene	PPBv	ND	0.05		06/18/09	XC
n-Heptane	PPBv	0.06	0.05		06/18/09	XC

RL = Reporting Limit

ND = Not Detected at or above the Reporting Limit

NM = Not Measured

\* = See end of report for comments and notes applying to this sample

‡ See attached chain-of-custody record for time sampled



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6/19/2009  
Page 2 of 30

Purchase Order No.: 200904907

Project Number: 3650080114

Project Location: GORHAM SITE-PROVIDENCE-RI

LIMS-BAT #: LIMIT-25267

Date Received: 6/12/2009

Job Number: 3650080114

Field Sample # : AA-1-061109

Sample ID : \*09B14580

‡Sampled : 6/11/2009

Not Specified

Sample Matrix: AIR

Sample Medium : SUMMA

	Units	Results	RL	Method	Date Analyzed	Analyst
to-15 ppbv				EPA TO-15		
Hexachlorobutadiene	PPBv	ND	0.10		06/18/09	XC
Hexane	PPBv	0.17	0.05		06/18/09	XC
2-Hexanone	PPBv	ND	0.05		06/18/09	XC
Isopropanol	PPBv	1.0	0.05		06/18/09	XC
Methyl tert-Butyl Ether (MTBE)	PPBv	ND	0.05		06/18/09	XC
Methylene Chloride	PPBv	0.56	0.05		06/18/09	XC
4-Methyl-2-Pentanone (MIBK)	PPBv	ND	0.05		06/18/09	XC
Propene	PPBv	ND	0.05		06/18/09	XC
Styrene	PPBv	ND	0.05		06/18/09	XC
1,1,2,2-Tetrachloroethane	PPBv	ND	0.05		06/18/09	XC
Tetrachloroethylene	PPBv	ND	0.05		06/18/09	XC
Tetrahydrofuran	PPBv	ND	0.05		06/18/09	XC
Toluene	PPBv	0.56	0.05		06/18/09	XC
1,2,4-Trichlorobenzene	PPBv	ND	0.05		06/18/09	XC
1,1,1-Trichloroethane	PPBv	ND	0.05		06/18/09	XC
1,1,2-Trichloroethane	PPBv	ND	0.05		06/18/09	XC
Trichloroethylene	PPBv	ND	0.05		06/18/09	XC
Trichlorofluoromethane (Freon 11)	PPBv	0.36	0.05		06/18/09	XC
1,1,2-Trichloro-1,2,2-Trifluoroethane	PPBv	0.07	0.05		06/18/09	XC
1,2,4-Trimethylbenzene	PPBv	0.06	0.05		06/18/09	XC
1,3,5-Trimethylbenzene	PPBv	ND	0.05		06/18/09	XC
Vinyl Acetate	PPBv	ND	0.05		06/18/09	XC
Vinyl Chloride	PPBv	ND	0.05		06/18/09	XC
m/p-Xylene	PPBv	0.17	0.10		06/18/09	XC
o-Xylene	PPBv	0.06	0.05		06/18/09	XC

to-15 ug/m				EPA TO-15		
Acetone	ug/m3	10	0.12		06/18/09	XC
Benzene	ug/m3	0.49	0.16		06/18/09	XC
Benzyl Chloride	ug/m3	ND	0.26		06/18/09	XC
Bromodichloromethane	ug/m3	ND	0.33		06/18/09	XC
Bromoform	ug/m3	ND	0.51		06/18/09	XC
Bromomethane	ug/m3	ND	0.19		06/18/09	XC
1,3-Butadiene	ug/m3	ND	0.11		06/18/09	XC
2-Butanone (MEK)	ug/m3	1.1	0.15		06/18/09	XC
Carbon Disulfide	ug/m3	ND	0.16		06/18/09	XC

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6/19/2009  
 Page 4 of 30

Project Location: GORHAM SITE-PROVIDENCE-RI  
 Date Received: 6/12/2009

Purchase Order No.: 200904907

Project Number: 3650080114  
 LIMS-BAT #: LIMIT-25267  
 Job Number: 3650080114

**Field Sample # : AA-1-061109**

**Sample ID :** \*09B14580      ‡Sampled : 6/11/2009  
 Not Specified  
**Sample Matrix:** AIR      **Sample Medium :** SUMMA

	Units	Results	RL	Method	Date Analyzed	Analyst
to-15 ug/m				EPA TO-15		
1,1,2,2-Tetrachloroethane	ug/m3	ND	0.34		06/18/09	XC
Tetrachloroethylene	ug/m3	ND	0.34		06/18/09	XC
Tetrahydrofuran	ug/m3	ND	0.15		06/18/09	XC
Toluene	ug/m3	2.1	0.19		06/18/09	XC
1,2,4-Trichlorobenzene	ug/m3	ND	0.37		06/18/09	XC
1,1,1-Trichloroethane	ug/m3	ND	0.27		06/18/09	XC
1,1,2-Trichloroethane	ug/m3	ND	0.27		06/18/09	XC
Trichloroethylene	ug/m3	ND	0.27		06/18/09	XC
Trichlorofluoromethane	ug/m3	2.0	0.28		06/18/09	XC
1,1,2-Trichloro-1,2,2-Trifluoroethane	ug/m3	0.56	0.38		06/18/09	XC
1,2,4-Trimethylbenzene	ug/m3	0.29	0.25		06/18/09	XC
1,3,5-Trimethylbenzene	ug/m3	ND	0.25		06/18/09	XC
Vinyl Acetate	ug/m3	ND	0.18		06/18/09	XC
Vinyl Chloride	ug/m3	ND	0.13		06/18/09	XC
m/p-Xylene	ug/m3	0.73	0.43		06/18/09	XC
o-Xylene	ug/m3	0.27	0.22		06/18/09	XC

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6/19/2009

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Project Location: GORHAM SITE-PROVIDENCE-RI  
Date Received: 6/12/2009

Purchase Order No.: 200904907

Project Number: 3650080114

LIMS-BAT #: LIMIT-25267

Job Number: 3650080114

**Field Sample # : EW-5-061109**

**Sample ID : \*09B14574** ‡Sampled : 6/11/2009  
Not Specified  
Sample Matrix: AIR Sample Medium : SUMMA

	Units	Results	RL	Method	Date Analyzed	Analyst
to-15 ppbv				EPA TO-15		
Acetone	PPBv	2900	0.50		06/18/09	XC
Benzene	PPBv	2.2	0.50		06/18/09	XC
Benzyl Chloride	PPBv	ND	0.50		06/18/09	XC
Bromodichloromethane	PPBv	ND	0.50		06/18/09	XC
Bromoform	PPBv	ND	0.50		06/18/09	XC
Bromomethane	PPBv	ND	0.50		06/18/09	XC
1,3-Butadiene	PPBv	ND	0.50		06/18/09	XC
2-Butanone (MEK)	PPBv	78000	0.50		06/18/09	XC
Carbon Disulfide	PPBv	1.8	0.50		06/18/09	XC
Carbon Tetrachloride	PPBv	ND	0.50		06/18/09	XC
Chlorobenzene	PPBv	ND	0.50		06/18/09	XC
Chlorodibromomethane	PPBv	ND	0.50		06/18/09	XC
Chloroethane	PPBv	5.6	0.50		06/18/09	XC
Chloroform	PPBv	1.3	0.50		06/18/09	XC
Chloromethane	PPBv	ND	0.50		06/18/09	XC
Cyclohexane	PPBv	ND	0.50		06/18/09	XC
1,2-Dibromoethane	PPBv	ND	0.50		06/18/09	XC
1,2-Dichlorobenzene	PPBv	ND	0.50		06/18/09	XC
1,3-Dichlorobenzene	PPBv	ND	0.50		06/18/09	XC
1,4-Dichlorobenzene	PPBv	ND	0.50		06/18/09	XC
Dichlorodifluoromethane	PPBv	0.65	0.50		06/18/09	XC
1,1-Dichloroethane	PPBv	110	0.50		06/18/09	XC
1,2-Dichloroethane	PPBv	ND	0.50		06/18/09	XC
1,1-Dichloroethylene	PPBv	41	0.50		06/18/09	XC
cis-1,2-Dichloroethylene	PPBv	63	0.50		06/18/09	XC
t-1,2-Dichloroethylene	PPBv	0.70	0.50		06/18/09	XC
1,2-Dichloropropane	PPBv	ND	0.50		06/18/09	XC
cis-1,3-Dichloropropene	PPBv	ND	0.50		06/18/09	XC
trans-1,3-Dichloropropene	PPBv	ND	0.50		06/18/09	XC
1,2-Dichlorotetrafluoroethane (114)	PPBv	ND	0.50		06/18/09	XC
Ethanol	PPBv	14	0.50		06/18/09	XC
Ethyl Acetate	PPBv	ND	0.50		06/18/09	XC
Ethylbenzene	PPBv	ND	0.50		06/18/09	XC
4-Ethyl Toluene	PPBv	ND	0.50		06/18/09	XC
n-Heptane	PPBv	ND	0.50		06/18/09	XC

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Purchase Order No.: 200904907

6/19/2009  
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Project Location: GORHAM SITE-PROVIDENCE-RI  
 Date Received: 6/12/2009

Project Number: 3650080114  
 LIMS-BAT #: LIMIT-25267  
 Job Number: 3650080114

**Field Sample # : EW-5-061109**

**Sample ID :** \*09B14574      ‡Sampled : 6/11/2009  
    Not Specified  
**Sample Matrix:** AIR     Sample Medium : SUMMA

	Units	Results	RL	Method	Date Analyzed	Analyst
				EPA TO-15		
to-15 ppbv						
Hexachlorobutadiene	PPBv	ND	1.0		06/18/09	XC
Hexane	PPBv	ND	0.50		06/18/09	XC
2-Hexanone	PPBv	ND	0.50		06/18/09	XC
Isopropanol	PPBv	23	0.50		06/18/09	XC
Methyl tert-Butyl Ether (MTBE)	PPBv	ND	0.50		06/18/09	XC
Methylene Chloride	PPBv	4.4	0.50		06/18/09	XC
4-Methyl-2-Pentanone (MIBK)	PPBv	ND	0.50		06/18/09	XC
Propene	PPBv	ND	0.50		06/18/09	XC
Styrene	PPBv	ND	0.50		06/18/09	XC
1,1,2,2-Tetrachloroethane	PPBv	ND	0.50		06/18/09	XC
Tetrachloroethylene	PPBv	3.7	0.50		06/18/09	XC
Tetrahydrofuran	PPBv	52000	0.50		06/18/09	XC
Toluene	PPBv	0.90	0.50		06/18/09	XC
1,2,4-Trichlorobenzene	PPBv	ND	0.50		06/18/09	XC
1,1,1-Trichloroethane	PPBv	360	0.50		06/18/09	XC
1,1,2-Trichloroethane	PPBv	ND	0.50		06/18/09	XC
Trichloroethylene	PPBv	500	0.50		06/18/09	XC
Trichlorofluoromethane (Freon 11)	PPBv	7.4	0.50		06/18/09	XC
1,1,2-Trichloro-1,2,2-Trifluoroethane	PPBv	ND	0.50		06/18/09	XC
1,2,4-Trimethylbenzene	PPBv	ND	0.50		06/18/09	XC
1,3,5-Trimethylbenzene	PPBv	ND	0.50		06/18/09	XC
Vinyl Acetate	PPBv	ND	0.50		06/18/09	XC
Vinyl Chloride	PPBv	2.1	0.50		06/18/09	XC
m/p-Xylene	PPBv	ND	1.0		06/18/09	XC
o-Xylene	PPBv	ND	0.50		06/18/09	XC
				EPA TO-15		
to-15 ug/m						
Acetone	ug/m3	6900	1.2		06/18/09	XC
Benzene	ug/m3	7.1	1.6		06/18/09	XC
Benzyl Chloride	ug/m3	ND	2.6		06/18/09	XC
Bromodichloromethane	ug/m3	ND	3.3		06/18/09	XC
Bromoform	ug/m3	ND	5.1		06/18/09	XC
Bromomethane	ug/m3	ND	1.9		06/18/09	XC
1,3-Butadiene	ug/m3	ND	1.1		06/18/09	XC
2-Butanone (MEK)	ug/m3	230000	1.5		06/18/09	XC
Carbon Disulfide	ug/m3	5.4	1.6		06/18/09	XC

RL = Reporting Limit  
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 \* = See end of report for comments and notes applying to this sample  
 ‡ See attached chain-of-custody record for time sampled



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6/19/2009  
Page 7 of 30

Project Location: GORHAM SITE-PROVIDENCE-RI  
Date Received: 6/12/2009

Purchase Order No.: 200904907

Project Number: 3650080114  
LIMS-BAT #: LIMIT-25267  
Job Number: 3650080114

**Field Sample # : EW-5-061109**

Sample ID : \*09B14574      ‡Sampled : 6/11/2009  
Not Specified  
Sample Matrix: AIR      Sample Medium : SUMMA

	Units	Results	RL	Method	Date Analyzed	Analyst
to-15 ug/m				EPA TO-15		
Carbon Tetrachloride	ug/m3	ND	3.1		06/18/09	XC
Chlorobenzene	ug/m3	ND	2.3		06/18/09	XC
Chlorodibromomethane	ug/m3	ND	4.3		06/18/09	XC
Chloroethane	ug/m3	15	1.3		06/18/09	XC
Chloroform	ug/m3	6.5	2.4		06/18/09	XC
Chloromethane	ug/m3	ND	1.0		06/18/09	XC
Cyclohexane	ug/m3	ND	1.7		06/18/09	XC
1,2-Dibromoethane	ug/m3	ND	3.8		06/18/09	XC
1,2-Dichlorobenzene	ug/m3	ND	3.0		06/18/09	XC
1,3-Dichlorobenzene	ug/m3	ND	3.0		06/18/09	XC
1,4-Dichlorobenzene	ug/m3	ND	3.0		06/18/09	XC
Dichlorodifluoromethane	ug/m3	3.2	2.5		06/18/09	XC
1,1-Dichloroethane	ug/m3	430	2.0		06/18/09	XC
1,2-Dichloroethane	ug/m3	ND	2.0		06/18/09	XC
1,1-Dichloroethylene	ug/m3	160	2.0		06/18/09	XC
cis-1,2-Dichloroethylene	ug/m3	250	2.0		06/18/09	XC
t-1,2-Dichloroethylene	ug/m3	2.8	2.0		06/18/09	XC
1,2-Dichloropropane	ug/m3	ND	2.3		06/18/09	XC
cis-1,3-Dichloropropene	ug/m3	ND	2.2		06/18/09	XC
trans-1,3-Dichloropropene	ug/m3	ND	2.2		06/18/09	XC
1,2-Dichlorotetrafluoroethane (114)	ug/m3	ND	3.5		06/18/09	XC
Ethanol	ug/m3	26	0.90		06/18/09	XC
Ethyl Acetate	ug/m3	ND	1.8		06/18/09	XC
Ethylbenzene	ug/m3	ND	2.2		06/18/09	XC
4-Ethyl Toluene	ug/m3	ND	2.5		06/18/09	XC
n-Heptane	ug/m3	ND	2.0		06/18/09	XC
Hexachlorobutadiene	ug/m3	ND	11		06/18/09	XC
Hexane	ug/m3	ND	1.8		06/18/09	XC
2-Hexanone	ug/m3	ND	2.0		06/18/09	XC
Isopropanol	ug/m3	57	1.2		06/18/09	XC
Methyl tert-Butyl Ether (MTBE)	ug/m3	ND	1.8		06/18/09	XC
Methylene Chloride	ug/m3	15	1.7		06/18/09	XC
4-Methyl-2-Pentanone (MIBK)	ug/m3	ND	2.0		06/18/09	XC
Propene	ug/m3	ND	0.90		06/18/09	XC
Styrene	ug/m3	ND	2.1		06/18/09	XC

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‡ See attached chain-of-custody record for time sampled

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Purchase Order No.: 200904907

6/19/2009  
 Page 8 of 30

Project Number: 3650080114  
 LIMS-BAT #: LIMIT-25267  
 Job Number: 3650080114

Project Location: GORHAM SITE-PROVIDENCE-RI  
 Date Received: 6/12/2009

**Field Sample # : EW-5-061109**

**Sample ID :** \*09B14574      ‡Sampled : 6/11/2009  
 Not Specified  
**Sample Matrix:** AIR      **Sample Medium :** SUMMA

	Units	Results	RL	Method	Date Analyzed	Analyst
to-15 ug/m				EPA TO-15		
1,1,2,2-Tetrachloroethane	ug/m3	ND	3.4		06/18/09	XC
Tetrachloroethylene	ug/m3	25	3.4		06/18/09	XC
Tetrahydrofuran	ug/m3	150000	1.5		06/18/09	XC
Toluene	ug/m3	3.4	1.9		06/18/09	XC
1,2,4-Trichlorobenzene	ug/m3	ND	3.7		06/18/09	XC
1,1,1-Trichloroethane	ug/m3	1900	2.7		06/18/09	XC
1,1,2-Trichloroethane	ug/m3	ND	2.7		06/18/09	XC
Trichloroethylene	ug/m3	2700	2.7		06/18/09	XC
Trichlorofluoromethane	ug/m3	41	2.8		06/18/09	XC
1,1,2-Trichloro-1,2,2-Trifluoroethane	ug/m3	ND	3.8		06/18/09	XC
1,2,4-Trimethylbenzene	ug/m3	ND	2.5		06/18/09	XC
1,3,5-Trimethylbenzene	ug/m3	ND	2.5		06/18/09	XC
Vinyl Acetate	ug/m3	ND	1.8		06/18/09	XC
Vinyl Chloride	ug/m3	5.3	1.3		06/18/09	XC
m/p-Xylene	ug/m3	ND	4.3		06/18/09	XC
o-Xylene	ug/m3	ND	2.2		06/18/09	XC

RL = Reporting Limit

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NM = Not Measured

\* = See end of report for comments and notes applying to this sample

‡ See attached chain-of-custody record for time sampled

KELLY CHATTERTON  
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 WAKEFIELD, MA 01880

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Purchase Order No.: 200904907

Project Number: 3650080114

Project Location: GORHAM SITE-PROVIDENCE-RI  
 Date Received: 6/12/2009

LIMS-BAT #: LIMIT-25267

Job Number: 3650080114

**Field Sample # : EW-6-061109**

**Sample ID :** \*09B14575 ‡Sampled : 6/11/2009  
 Not Specified  
**Sample Matrix:** AIR **Sample Medium :** SUMMA

	Units	Results	RL	Method	Date Analyzed	Analyst
to-15 ppbv				EPA TO-15		
Acetone	PPBv	8.3	0.50		06/18/09	XC
Benzene	PPBv	ND	0.50		06/18/09	XC
Benzyl Chloride	PPBv	ND	0.50		06/18/09	XC
Bromodichloromethane	PPBv	ND	0.50		06/18/09	XC
Bromoform	PPBv	ND	0.50		06/18/09	XC
Bromomethane	PPBv	ND	0.50		06/18/09	XC
1,3-Butadiene	PPBv	ND	0.50		06/18/09	XC
2-Butanone (MEK)	PPBv	22	0.50		06/18/09	XC
Carbon Disulfide	PPBv	ND	0.50		06/18/09	XC
Carbon Tetrachloride	PPBv	ND	0.50		06/18/09	XC
Chlorobenzene	PPBv	ND	0.50		06/18/09	XC
Chlorodibromomethane	PPBv	ND	0.50		06/18/09	XC
Chloroethane	PPBv	5.4	0.50		06/18/09	XC
Chloroform	PPBv	2.4	0.50		06/18/09	XC
Chloromethane	PPBv	ND	0.50		06/18/09	XC
Cyclohexane	PPBv	ND	0.50		06/18/09	XC
1,2-Dibromoethane	PPBv	ND	0.50		06/18/09	XC
1,2-Dichlorobenzene	PPBv	ND	0.50		06/18/09	XC
1,3-Dichlorobenzene	PPBv	ND	0.50		06/18/09	XC
1,4-Dichlorobenzene	PPBv	ND	0.50		06/18/09	XC
Dichlorodifluoromethane	PPBv	0.79	0.50		06/18/09	XC
1,1-Dichloroethane	PPBv	270	0.50		06/18/09	XC
1,2-Dichloroethane	PPBv	ND	0.50		06/18/09	XC
1,1-Dichloroethylene	PPBv	21	0.50		06/18/09	XC
cis-1,2-Dichloroethylene	PPBv	42	0.50		06/18/09	XC
t-1,2-Dichloroethylene	PPBv	0.67	0.50		06/18/09	XC
1,2-Dichloropropane	PPBv	ND	0.50		06/18/09	XC
cis-1,3-Dichloropropene	PPBv	ND	0.50		06/18/09	XC
trans-1,3-Dichloropropene	PPBv	ND	0.50		06/18/09	XC
1,2-Dichlorotetrafluoroethane (114)	PPBv	ND	0.50		06/18/09	XC
Ethanol	PPBv	7.3	0.50		06/18/09	XC
Ethyl Acetate	PPBv	ND	0.50		06/18/09	XC
Ethylbenzene	PPBv	ND	0.50		06/18/09	XC
4-Ethyl Toluene	PPBv	ND	0.50		06/18/09	XC
n-Heptane	PPBv	ND	0.50		06/18/09	XC

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Purchase Order No.: 200904907  
Project Location: GORHAM SITE-PROVIDENCE-RI  
Date Received: 6/12/2009

Project Number: 3650080114  
LIMS-BAT #: LIMIT-25267  
Job Number: 3650080114

**Field Sample # : EW-6-061109**

**Sample ID :** \*09B14575      ‡Sampled : 6/11/2009  
Not Specified  
**Sample Matrix:** AIR      **Sample Medium :** SUMMA

	Units	Results	RL	Method	Date Analyzed	Analyst
				EPA TO-15		
to-15 ppbv						
Hexachlorobutadiene	PPBv	ND	1.0		06/18/09	XC
Hexane	PPBv	ND	0.50		06/18/09	XC
2-Hexanone	PPBv	ND	0.50		06/18/09	XC
Isopropanol	PPBv	4.6	0.50		06/18/09	XC
Methyl tert-Butyl Ether (MTBE)	PPBv	ND	0.50		06/18/09	XC
Methylene Chloride	PPBv	4.4	0.50		06/18/09	XC
4-Methyl-2-Pentanone (MIBK)	PPBv	ND	0.50		06/18/09	XC
Propene	PPBv	ND	0.50		06/18/09	XC
Styrene	PPBv	ND	0.50		06/18/09	XC
1,1,2,2-Tetrachloroethane	PPBv	ND	0.50		06/18/09	XC
Tetrachloroethylene	PPBv	31	0.50		06/18/09	XC
Tetrahydrofuran	PPBv	29	0.50		06/18/09	XC
Toluene	PPBv	ND	0.50		06/18/09	XC
1,2,4-Trichlorobenzene	PPBv	ND	0.50		06/18/09	XC
1,1,1-Trichloroethane	PPBv	1000	0.50		06/18/09	XC
1,1,2-Trichloroethane	PPBv	ND	0.50		06/18/09	XC
Trichloroethylene	PPBv	870	0.50		06/18/09	XC
Trichlorofluoromethane (Freon 11)	PPBv	78	0.50		06/18/09	XC
1,1,2-Trichloro-1,2,2-Trifluoroethane	PPBv	ND	0.50		06/18/09	XC
1,2,4-Trimethylbenzene	PPBv	ND	0.50		06/18/09	XC
1,3,5-Trimethylbenzene	PPBv	ND	0.50		06/18/09	XC
Vinyl Acetate	PPBv	ND	0.50		06/18/09	XC
Vinyl Chloride	PPBv	ND	0.50		06/18/09	XC
m/p-Xylene	PPBv	ND	1.0		06/18/09	XC
o-Xylene	PPBv	ND	0.50		06/18/09	XC
				EPA TO-15		
to-15 ug/m						
Acetone	ug/m3	20	1.2		06/18/09	XC
Benzene	ug/m3	ND	1.6		06/18/09	XC
Benzyl Chloride	ug/m3	ND	2.6		06/18/09	XC
Bromodichloromethane	ug/m3	ND	3.3		06/18/09	XC
Bromoform	ug/m3	ND	5.1		06/18/09	XC
Bromomethane	ug/m3	ND	1.9		06/18/09	XC
1,3-Butadiene	ug/m3	ND	1.1		06/18/09	XC
2-Butanone (MEK)	ug/m3	65	1.5		06/18/09	XC
Carbon Disulfide	ug/m3	ND	1.6		06/18/09	XC

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‡ See attached chain-of-custody record for time sampled



39 Spruce Street ° East Longmeadow, MA 01028 ° FAX 413/525-6405 ° TEL. 413/525-2332

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WAKEFIELD, MA 01880

6/19/2009  
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Project Location: GORHAM SITE-PROVIDENCE-RI  
Date Received: 6/12/2009

Purchase Order No.: 200904907

Project Number: 3650080114  
LIMS-BAT #: LIMIT-25267  
Job Number: 3650080114

**Field Sample # : EW-6-061109**

**Sample ID :** \*09B14575      ‡Sampled : 6/11/2009  
Not Specified  
**Sample Matrix:** AIR      **Sample Medium :** SUMMA

	Units	Results	RL	Method	Date Analyzed	Analyst
to-15 ug/m				EPA TO-15		
Carbon Tetrachloride	ug/m3	ND	3.1		06/18/09	XC
Chlorobenzene	ug/m3	ND	2.3		06/18/09	XC
Chlorodibromomethane	ug/m3	ND	4.3		06/18/09	XC
Chloroethane	ug/m3	14	1.3		06/18/09	XC
Chloroform	ug/m3	12	2.4		06/18/09	XC
Chloromethane	ug/m3	ND	1.0		06/18/09	XC
Cyclohexane	ug/m3	ND	1.7		06/18/09	XC
1,2-Dibromoethane	ug/m3	ND	3.8		06/18/09	XC
1,2-Dichlorobenzene	ug/m3	ND	3.0		06/18/09	XC
1,3-Dichlorobenzene	ug/m3	ND	3.0		06/18/09	XC
1,4-Dichlorobenzene	ug/m3	ND	3.0		06/18/09	XC
Dichlorodifluoromethane	ug/m3	3.9	2.5		06/18/09	XC
1,1-Dichloroethane	ug/m3	1100	2.0		06/18/09	XC
1,2-Dichloroethane	ug/m3	ND	2.0		06/18/09	XC
1,1-Dichloroethylene	ug/m3	83	2.0		06/18/09	XC
cis-1,2-Dichloroethylene	ug/m3	170	2.0		06/18/09	XC
t-1,2-Dichloroethylene	ug/m3	2.7	2.0		06/18/09	XC
1,2-Dichloropropane	ug/m3	ND	2.3		06/18/09	XC
cis-1,3-Dichloropropene	ug/m3	ND	2.2		06/18/09	XC
trans-1,3-Dichloropropene	ug/m3	ND	2.2		06/18/09	XC
1,2-Dichlorotetrafluoroethane (114)	ug/m3	ND	3.5		06/18/09	XC
Ethanol	ug/m3	14	0.90		06/18/09	XC
Ethyl Acetate	ug/m3	ND	1.8		06/18/09	XC
Ethylbenzene	ug/m3	ND	2.2		06/18/09	XC
4-Ethyl Toluene	ug/m3	ND	2.5		06/18/09	XC
n-Heptane	ug/m3	ND	2.0		06/18/09	XC
Hexachlorobutadiene	ug/m3	ND	11		06/18/09	XC
Hexane	ug/m3	ND	1.8		06/18/09	XC
2-Hexanone	ug/m3	ND	2.0		06/18/09	XC
Isopropanol	ug/m3	11	1.2		06/18/09	XC
Methyl tert-Butyl Ether (MTBE)	ug/m3	ND	1.8		06/18/09	XC
Methylene Chloride	ug/m3	15	1.7		06/18/09	XC
4-Methyl-2-Pentanone (MIBK)	ug/m3	ND	2.0		06/18/09	XC
Propene	ug/m3	ND	0.90		06/18/09	XC
Styrene	ug/m3	ND	2.1		06/18/09	XC

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KELLY CHATTERTON  
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 107 AUDUBON ROAD, BLDG. 2, SUITE 301  
 WAKEFIELD, MA 01880

6/19/2009  
 Page 12 of 30

Project Location: GORHAM SITE-PROVIDENCE-RI  
 Date Received: 6/12/2009

Purchase Order No.: 200904907

Project Number: 3650080114  
 LIMS-BAT #: LIMIT-25267  
 Job Number: 3650080114

**Field Sample # : EW-6-061109**

**Sample ID :** \*09B14575      ‡Sampled : 6/11/2009  
 Not Specified  
**Sample Matrix:** AIR      **Sample Medium :** SUMMA

	Units	Results	RL	Method	Date Analyzed	Analyst
to-15 ug/m				EPA TO-15		
1,1,2,2-Tetrachloroethane	ug/m3	ND	3.4		06/18/09	XC
Tetrachloroethylene	ug/m3	210	3.4		06/18/09	XC
Tetrahydrofuran	ug/m3	87	1.5		06/18/09	XC
Toluene	ug/m3	ND	1.9		06/18/09	XC
1,2,4-Trichlorobenzene	ug/m3	ND	3.7		06/18/09	XC
1,1,1-Trichloroethane	ug/m3	5700	2.7		06/18/09	XC
1,1,2-Trichloroethane	ug/m3	ND	2.7		06/18/09	XC
Trichloroethylene	ug/m3	4700	2.7		06/18/09	XC
Trichlorofluoromethane	ug/m3	440	2.8		06/18/09	XC
1,1,2-Trichloro-1,2,2-Trifluoroethane	ug/m3	ND	3.8		06/18/09	XC
1,2,4-Trimethylbenzene	ug/m3	ND	2.5		06/18/09	XC
1,3,5-Trimethylbenzene	ug/m3	ND	2.5		06/18/09	XC
Vinyl Acetate	ug/m3	ND	1.8		06/18/09	XC
Vinyl Chloride	ug/m3	ND	1.3		06/18/09	XC
m/p-Xylene	ug/m3	ND	4.3		06/18/09	XC
o-Xylene	ug/m3	ND	2.2		06/18/09	XC

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 107 AUDUBON ROAD, BLDG. 2, SUITE 301  
 WAKEFIELD, MA 01880

Purchase Order No.: 200904907

6/19/2009  
 Page 13 of 30  
 Project Number: 3650080114  
 LIMS-BAT #: LIMIT-25267  
 Job Number: 3650080114

Project Location: GORHAM SITE-PROVIDENCE-RI  
 Date Received: 6/12/2009

**Field Sample # : EW-7-061109**

**Sample ID :** \*09B14576 ‡Sampled : 6/11/2009  
 Not Specified  
**Sample Matrix:** AIR Sample Medium : SUMMA

	Units	Results	RL	Method	Date Analyzed	Analyst
to-15 ppbv				EPA TO-15		
Acetone	PPBv	10	0.50		06/18/09	XC
Benzene	PPBv	0.87	0.50		06/18/09	XC
Benzyl Chloride	PPBv	ND	0.50		06/18/09	XC
Bromodichloromethane	PPBv	ND	0.50		06/18/09	XC
Bromoform	PPBv	ND	0.50		06/18/09	XC
Bromomethane	PPBv	ND	0.50		06/18/09	XC
1,3-Butadiene	PPBv	ND	0.50		06/18/09	XC
2-Butanone (MEK)	PPBv	5.3	0.50		06/18/09	XC
Carbon Disulfide	PPBv	0.87	0.50		06/18/09	XC
Carbon Tetrachloride	PPBv	ND	0.50		06/18/09	XC
Chlorobenzene	PPBv	ND	0.50		06/18/09	XC
Chlorodibromomethane	PPBv	ND	0.50		06/18/09	XC
Chloroethane	PPBv	3.8	0.50		06/18/09	XC
Chloroform	PPBv	0.54	0.50		06/18/09	XC
Chloromethane	PPBv	ND	0.50		06/18/09	XC
Cyclohexane	PPBv	ND	0.50		06/18/09	XC
1,2-Dibromoethane	PPBv	ND	0.50		06/18/09	XC
1,2-Dichlorobenzene	PPBv	ND	0.50		06/18/09	XC
1,3-Dichlorobenzene	PPBv	ND	0.50		06/18/09	XC
1,4-Dichlorobenzene	PPBv	ND	0.50		06/18/09	XC
Dichlorodifluoromethane	PPBv	0.67	0.50		06/18/09	XC
1,1-Dichloroethane	PPBv	260	0.50		06/18/09	XC
1,2-Dichloroethane	PPBv	ND	0.50		06/18/09	XC
1,1-Dichloroethylene	PPBv	1.0	0.50		06/18/09	XC
cis-1,2-Dichloroethylene	PPBv	310	0.50		06/18/09	XC
t-1,2-Dichloroethylene	PPBv	36	0.50		06/18/09	XC
1,2-Dichloropropane	PPBv	ND	0.50		06/18/09	XC
cis-1,3-Dichloropropene	PPBv	ND	0.50		06/18/09	XC
trans-1,3-Dichloropropene	PPBv	ND	0.50		06/18/09	XC
1,2-Dichlorotetrafluoroethane (114)	PPBv	ND	0.50		06/18/09	XC
Ethanol	PPBv	9.8	0.50		06/18/09	XC
Ethyl Acetate	PPBv	ND	0.50		06/18/09	XC
Ethylbenzene	PPBv	ND	0.50		06/18/09	XC
4-Ethyl Toluene	PPBv	ND	0.50		06/18/09	XC
n-Heptane	PPBv	ND	0.50		06/18/09	XC

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MACTEC ENGINEERING &amp; CONSULTING - MA

107 AUDUBON ROAD, BLDG. 2, SUITE 301

WAKEFIELD, MA 01880

Purchase Order No.: 200904907

Project Location: GORHAM SITE-PROVIDENCE-RI

Date Received: 6/12/2009

6/19/2009

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Project Number: 3650080114

LIMS-BAT #: LIMIT-25267

Job Number: 3650080114

**Field Sample # : EW-7-061109**
**Sample ID : \*09B14576**

‡Sampled : 6/11/2009

Not Specified

Sample Matrix: AIR

Sample Medium : SUMMA

	Units	Results	RL	Method	Date Analyzed	Analyst
to-15 ppbv				EPA TO-15		
Hexachlorobutadiene	PPBv	ND	1.0		06/18/09	XC
Hexane	PPBv	0.59	0.50		06/18/09	XC
2-Hexanone	PPBv	ND	0.50		06/18/09	XC
Isopropanol	PPBv	6.9	0.50		06/18/09	XC
Methyl tert-Butyl Ether (MTBE)	PPBv	ND	0.50		06/18/09	XC
Methylene Chloride	PPBv	4.6	0.50		06/18/09	XC
4-Methyl-2-Pentanone (MIBK)	PPBv	ND	0.50		06/18/09	XC
Propene	PPBv	ND	0.50		06/18/09	XC
Styrene	PPBv	ND	0.50		06/18/09	XC
1,1,2,2-Tetrachloroethane	PPBv	ND	0.50		06/18/09	XC
Tetrachloroethylene	PPBv	33	0.50		06/18/09	XC
Tetrahydrofuran	PPBv	5.1	0.50		06/18/09	XC
Toluene	PPBv	ND	0.50		06/18/09	XC
1,2,4-Trichlorobenzene	PPBv	ND	0.50		06/18/09	XC
1,1,1-Trichloroethane	PPBv	470	0.50		06/18/09	XC
1,1,2-Trichloroethane	PPBv	ND	0.50		06/18/09	XC
Trichloroethylene	PPBv	79	0.50		06/18/09	XC
Trichlorofluoromethane (Freon 11)	PPBv	120	0.50		06/18/09	XC
1,1,2-Trichloro-1,2,2-Trifluoroethane	PPBv	ND	0.50		06/18/09	XC
1,2,4-Trimethylbenzene	PPBv	ND	0.50		06/18/09	XC
1,3,5-Trimethylbenzene	PPBv	ND	0.50		06/18/09	XC
Vinyl Acetate	PPBv	ND	0.50		06/18/09	XC
Vinyl Chloride	PPBv	1.2	0.50		06/18/09	XC
m/p-Xylene	PPBv	ND	1.0		06/18/09	XC
o-Xylene	PPBv	ND	0.50		06/18/09	XC

to-15 ug/m				EPA TO-15		
Acetone	ug/m3	24	1.2		06/18/09	XC
Benzene	ug/m3	2.8	1.6		06/18/09	XC
Benzyl Chloride	ug/m3	ND	2.6		06/18/09	XC
Bromodichloromethane	ug/m3	ND	3.3		06/18/09	XC
Bromoform	ug/m3	ND	5.1		06/18/09	XC
Bromomethane	ug/m3	ND	1.9		06/18/09	XC
1,3-Butadiene	ug/m3	ND	1.1		06/18/09	XC
2-Butanone (MEK)	ug/m3	16	1.5		06/18/09	XC
Carbon Disulfide	ug/m3	2.7	1.6		06/18/09	XC

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KELLY CHATTERTON  
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6/19/2009  
 Page 15 of 30

Project Location: GORHAM SITE-PROVIDENCE-RI  
 Date Received: 6/12/2009

Purchase Order No.: 200904907

Project Number: 3650080114  
 LIMS-BAT #: LIMIT-25267  
 Job Number: 3650080114

**Field Sample # : EW-7-061109**

**Sample ID :** \*09B14576      ‡Sampled : 6/11/2009  
 Not Specified  
**Sample Matrix:** AIR      **Sample Medium :** SUMMA

	Units	Results	RL	Method	Date Analyzed	Analyst
to-15 ug/m				EPA TO-15		
Carbon Tetrachloride	ug/m3	ND	3.1		06/18/09	XC
Chlorobenzene	ug/m3	ND	2.3		06/18/09	XC
Chlorodibromomethane	ug/m3	ND	4.3		06/18/09	XC
Chloroethane	ug/m3	10.0	1.3		06/18/09	XC
Chloroform	ug/m3	2.6	2.4		06/18/09	XC
Chloromethane	ug/m3	ND	1.0		06/18/09	XC
Cyclohexane	ug/m3	ND	1.7		06/18/09	XC
1,2-Dibromoethane	ug/m3	ND	3.8		06/18/09	XC
1,2-Dichlorobenzene	ug/m3	ND	3.0		06/18/09	XC
1,3-Dichlorobenzene	ug/m3	ND	3.0		06/18/09	XC
1,4-Dichlorobenzene	ug/m3	ND	3.0		06/18/09	XC
Dichlorodifluoromethane	ug/m3	3.3	2.5		06/18/09	XC
1,1-Dichloroethane	ug/m3	1100	2.0		06/18/09	XC
1,2-Dichloroethane	ug/m3	ND	2.0		06/18/09	XC
1,1-Dichloroethylene	ug/m3	4.2	2.0		06/18/09	XC
cis-1,2-Dichloroethylene	ug/m3	1200	2.0		06/18/09	XC
t-1,2-Dichloroethylene	ug/m3	140	2.0		06/18/09	XC
1,2-Dichloropropane	ug/m3	ND	2.3		06/18/09	XC
cis-1,3-Dichloropropene	ug/m3	ND	2.2		06/18/09	XC
trans-1,3-Dichloropropene	ug/m3	ND	2.2		06/18/09	XC
1,2-Dichlorotetrafluoroethane (114)	ug/m3	ND	3.5		06/18/09	XC
Ethanol	ug/m3	18	0.90		06/18/09	XC
Ethyl Acetate	ug/m3	ND	1.8		06/18/09	XC
Ethylbenzene	ug/m3	ND	2.2		06/18/09	XC
4-Ethyl Toluene	ug/m3	ND	2.5		06/18/09	XC
n-Heptane	ug/m3	ND	2.0		06/18/09	XC
Hexachlorobutadiene	ug/m3	ND	11		06/18/09	XC
Hexane	ug/m3	2.1	1.8		06/18/09	XC
2-Hexanone	ug/m3	ND	2.0		06/18/09	XC
Isopropanol	ug/m3	17	1.2		06/18/09	XC
Methyl tert-Butyl Ether (MTBE)	ug/m3	ND	1.8		06/18/09	XC
Methylene Chloride	ug/m3	16	1.7		06/18/09	XC
4-Methyl-2-Pentanone (MIBK)	ug/m3	ND	2.0		06/18/09	XC
Propene	ug/m3	ND	0.90		06/18/09	XC
Styrene	ug/m3	ND	2.1		06/18/09	XC

RL = Reporting Limit

ND = Not Detected at or above the Reporting Limit

NM = Not Measured

\* = See end of report for comments and notes applying to this sample

‡ See attached chain-of-custody record for time sampled



39 Spruce Street ° East Longmeadow, MA 01028 ° FAX 413/525-6405 ° TEL. 413/525-2332

KELLY CHATTERTON  
MACTEC ENGINEERING & CONSULTING - MA  
107 AUDUBON ROAD, BLDG. 2, SUITE 301  
WAKEFIELD, MA 01880

Purchase Order No.: 200904907

6/19/2009  
Page 16 of 30

Project Location: GORHAM SITE-PROVIDENCE-RI  
Date Received: 6/12/2009

Project Number: 3650080114  
LIMS-BAT #: LIMIT-25267  
Job Number: 3650080114

**Field Sample # : EW-7-061109**

**Sample ID :** \*09B14576 ‡Sampled : 6/11/2009  
Not Specified  
**Sample Matrix:** AIR **Sample Medium :** SUMMA

	Units	Results	RL	Method	Date Analyzed	Analyst
to-15 ug/m				EPA TO-15		
1,1,2,2-Tetrachloroethane	ug/m3	ND	3.4		06/18/09	XC
Tetrachloroethylene	ug/m3	230	3.4		06/18/09	XC
Tetrahydrofuran	ug/m3	15	1.5		06/18/09	XC
Toluene	ug/m3	ND	1.9		06/18/09	XC
1,2,4-Trichlorobenzene	ug/m3	ND	3.7		06/18/09	XC
1,1,1-Trichloroethane	ug/m3	2600	2.7		06/18/09	XC
1,1,2-Trichloroethane	ug/m3	ND	2.7		06/18/09	XC
Trichloroethylene	ug/m3	420	2.7		06/18/09	XC
Trichlorofluoromethane	ug/m3	660	2.8		06/18/09	XC
1,1,2-Trichloro-1,2,2-Trifluoroethane	ug/m3	ND	3.8		06/18/09	XC
1,2,4-Trimethylbenzene	ug/m3	ND	2.5		06/18/09	XC
1,3,5-Trimethylbenzene	ug/m3	ND	2.5		06/18/09	XC
Vinyl Acetate	ug/m3	ND	1.8		06/18/09	XC
Vinyl Chloride	ug/m3	3.2	1.3		06/18/09	XC
m/p-Xylene	ug/m3	ND	4.3		06/18/09	XC
o-Xylene	ug/m3	ND	2.2		06/18/09	XC

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 107 AUDUBON ROAD, BLDG. 2, SUITE 301  
 WAKEFIELD, MA 01880

Purchase Order No.: 200904907

6/19/2009

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Project Location: GORHAM SITE-PROVIDENCE-RI  
 Date Received: 6/12/2009

Project Number: 3650080114  
 LIMS-BAT #: LIMIT-25267  
 Job Number: 3650080114

**Field Sample # : IA-5-061109**

**Sample ID : \*09B14577**

‡Sampled : 6/11/2009

Not Specified

Sample Matrix: AIR

Sample Medium : SUMMA

	Units	Results	RL	Method	Date Analyzed	Analyst
to-15 ppbv				EPA TO-15		
Acetone	PPBv	19	0.05		06/17/09	XC
Benzene	PPBv	0.17	0.05		06/17/09	XC
Benzyl Chloride	PPBv	ND	0.05		06/17/09	XC
Bromodichloromethane	PPBv	ND	0.05		06/17/09	XC
Bromoform	PPBv	ND	0.05		06/17/09	XC
Bromomethane	PPBv	ND	0.05		06/17/09	XC
1,3-Butadiene	PPBv	ND	0.05		06/17/09	XC
2-Butanone (MEK)	PPBv	1.8	0.05		06/17/09	XC
Carbon Disulfide	PPBv	0.09	0.05		06/17/09	XC
Carbon Tetrachloride	PPBv	0.07	0.05		06/17/09	XC
Chlorobenzene	PPBv	ND	0.05		06/17/09	XC
Chlorodibromomethane	PPBv	ND	0.05		06/17/09	XC
Chloroethane	PPBv	ND	0.05		06/17/09	XC
Chloroform	PPBv	0.11	0.05		06/17/09	XC
Chloromethane	PPBv	0.70	0.05		06/17/09	XC
Cyclohexane	PPBv	0.12	0.05		06/17/09	XC
1,2-Dibromoethane	PPBv	ND	0.05		06/17/09	XC
1,2-Dichlorobenzene	PPBv	ND	0.05		06/17/09	XC
1,3-Dichlorobenzene	PPBv	ND	0.05		06/17/09	XC
1,4-Dichlorobenzene	PPBv	ND	0.05		06/17/09	XC
Dichlorodifluoromethane	PPBv	0.44	0.05		06/17/09	XC
1,1-Dichloroethane	PPBv	ND	0.05		06/17/09	XC
1,2-Dichloroethane	PPBv	ND	0.05		06/17/09	XC
1,1-Dichloroethylene	PPBv	ND	0.05		06/17/09	XC
cis-1,2-Dichloroethylene	PPBv	ND	0.05		06/17/09	XC
t-1,2-Dichloroethylene	PPBv	ND	0.05		06/17/09	XC
1,2-Dichloropropane	PPBv	ND	0.05		06/17/09	XC
cis-1,3-Dichloropropene	PPBv	ND	0.05		06/17/09	XC
trans-1,3-Dichloropropene	PPBv	ND	0.05		06/17/09	XC
1,2-Dichlorotetrafluoroethane (114)	PPBv	ND	0.05		06/17/09	XC
Ethanol	PPBv	270	0.05		06/17/09	XC
Ethyl Acetate	PPBv	0.09	0.05		06/17/09	XC
Ethylbenzene	PPBv	0.07	0.05		06/17/09	XC
4-Ethyl Toluene	PPBv	ND	0.05		06/17/09	XC
n-Heptane	PPBv	0.12	0.05		06/17/09	XC

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‡ See attached chain-of-custody record for time sampled

KELLY CHATTERTON  
 MACTEC ENGINEERING & CONSULTING - MA  
 107 AUDUBON ROAD, BLDG. 2, SUITE 301  
 WAKEFIELD, MA 01880

Purchase Order No.: 200904907

6/19/2009  
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Project Location: GORHAM SITE-PROVIDENCE-RI  
 Date Received: 6/12/2009

Project Number: 3650080114  
 LIMS-BAT #: LIMIT-25267  
 Job Number: 3650080114

**Field Sample # : IA-5-061109**

Sample ID : \*09B14577 ‡Sampled : 6/11/2009  
 Not Specified  
 Sample Matrix: AIR Sample Medium : SUMMA

	Units	Results	RL	Method	Date Analyzed	Analyst
				EPA TO-15		
to-15 ppbv						
Hexachlorobutadiene	PPBv	ND	0.10		06/17/09	XC
Hexane	PPBv	0.29	0.05		06/17/09	XC
2-Hexanone	PPBv	0.27	0.05		06/17/09	XC
Isopropanol	PPBv	7.8	0.05		06/17/09	XC
Methyl tert-Butyl Ether (MTBE)	PPBv	ND	0.05		06/17/09	XC
Methylene Chloride	PPBv	0.58	0.05		06/17/09	XC
4-Methyl-2-Pentanone (MIBK)	PPBv	0.17	0.05		06/17/09	XC
Propene	PPBv	ND	0.05		06/17/09	XC
Styrene	PPBv	0.35	0.05		06/17/09	XC
1,1,2,2-Tetrachloroethane	PPBv	ND	0.05		06/17/09	XC
Tetrachloroethylene	PPBv	ND	0.05		06/17/09	XC
Tetrahydrofuran	PPBv	ND	0.05		06/17/09	XC
Toluene	PPBv	0.73	0.05		06/17/09	XC
1,2,4-Trichlorobenzene	PPBv	ND	0.05		06/17/09	XC
1,1,1-Trichloroethane	PPBv	ND	0.05		06/17/09	XC
1,1,2-Trichloroethane	PPBv	ND	0.05		06/17/09	XC
Trichloroethylene	PPBv	ND	0.05		06/17/09	XC
Trichlorofluoromethane (Freon 11)	PPBv	0.36	0.05		06/17/09	XC
1,1,2-Trichloro-1,2,2-Trifluoroethane	PPBv	0.07	0.05		06/17/09	XC
1,2,4-Trimethylbenzene	PPBv	0.07	0.05		06/17/09	XC
1,3,5-Trimethylbenzene	PPBv	ND	0.05		06/17/09	XC
Vinyl Acetate	PPBv	ND	0.05		06/17/09	XC
Vinyl Chloride	PPBv	ND	0.05		06/17/09	XC
m/p-Xylene	PPBv	0.20	0.10		06/17/09	XC
o-Xylene	PPBv	0.07	0.05		06/17/09	XC
				EPA TO-15		
to-15 ug/m						
Acetone	ug/m3	46	0.12		06/17/09	XC
Benzene	ug/m3	0.53	0.16		06/17/09	XC
Benzyl Chloride	ug/m3	ND	0.26		06/17/09	XC
Bromodichloromethane	ug/m3	ND	0.33		06/17/09	XC
Bromoform	ug/m3	ND	0.51		06/17/09	XC
Bromomethane	ug/m3	ND	0.19		06/17/09	XC
1,3-Butadiene	ug/m3	ND	0.11		06/17/09	XC
2-Butanone (MEK)	ug/m3	5.3	0.15		06/17/09	XC
Carbon Disulfide	ug/m3	0.27	0.16		06/17/09	XC

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‡ See attached chain-of-custody record for time sampled

KELLY CHATTERTON  
 MACTEC ENGINEERING & CONSULTING - MA  
 107 AUDUBON ROAD, BLDG. 2, SUITE 301  
 WAKEFIELD, MA 01880

6/19/2009  
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Purchase Order No.: 200904907  
 Project Location: GORHAM SITE-PROVIDENCE-RI  
 Date Received: 6/12/2009

Project Number: 3650080114  
 LIMS-BAT #: LIMIT-25267  
 Job Number: 3650080114

**Field Sample # : IA-5-061109**

**Sample ID :** \*09B14577      ‡Sampled : 6/11/2009  
 Not Specified  
**Sample Matrix:** AIR      **Sample Medium :** SUMMA

	Units	Results	RL	Method	Date Analyzed	Analyst
to-15 ug/m				EPA TO-15		
Carbon Tetrachloride	ug/m3	0.46	0.31		06/17/09	XC
Chlorobenzene	ug/m3	ND	0.23		06/17/09	XC
Chlorodibromomethane	ug/m3	ND	0.43		06/17/09	XC
Chloroethane	ug/m3	ND	0.13		06/17/09	XC
Chloroform	ug/m3	0.55	0.24		06/17/09	XC
Chloromethane	ug/m3	1.4	0.10		06/17/09	XC
Cyclohexane	ug/m3	0.40	0.17		06/17/09	XC
1,2-Dibromoethane	ug/m3	ND	0.38		06/17/09	XC
1,2-Dichlorobenzene	ug/m3	ND	0.30		06/17/09	XC
1,3-Dichlorobenzene	ug/m3	ND	0.30		06/17/09	XC
1,4-Dichlorobenzene	ug/m3	ND	0.30		06/17/09	XC
Dichlorodifluoromethane	ug/m3	2.2	0.25		06/17/09	XC
1,1-Dichloroethane	ug/m3	ND	0.20		06/17/09	XC
1,2-Dichloroethane	ug/m3	ND	0.20		06/17/09	XC
1,1-Dichloroethylene	ug/m3	ND	0.20		06/17/09	XC
cis-1,2-Dichloroethylene	ug/m3	ND	0.20		06/17/09	XC
t-1,2-Dichloroethylene	ug/m3	ND	0.20		06/17/09	XC
1,2-Dichloropropane	ug/m3	ND	0.23		06/17/09	XC
cis-1,3-Dichloropropene	ug/m3	ND	0.22		06/17/09	XC
trans-1,3-Dichloropropene	ug/m3	ND	0.22		06/17/09	XC
1,2-Dichlorotetrafluoroethane (114)	ug/m3	ND	0.35		06/17/09	XC
Ethanol	ug/m3	500	0.09		06/17/09	XC
Ethyl Acetate	ug/m3	0.31	0.18		06/17/09	XC
Ethylbenzene	ug/m3	0.30	0.22		06/17/09	XC
4-Ethyl Toluene	ug/m3	ND	0.25		06/17/09	XC
n-Heptane	ug/m3	0.48	0.20		06/17/09	XC
Hexachlorobutadiene	ug/m3	ND	1.1		06/17/09	XC
Hexane	ug/m3	1.0	0.18		06/17/09	XC
2-Hexanone	ug/m3	1.1	0.20		06/17/09	XC
Isopropanol	ug/m3	19	0.12		06/17/09	XC
Methyl tert-Butyl Ether (MTBE)	ug/m3	ND	0.18		06/17/09	XC
Methylene Chloride	ug/m3	2.0	0.17		06/17/09	XC
4-Methyl-2-Pentanone (MIBK)	ug/m3	0.68	0.20		06/17/09	XC
Propene	ug/m3	ND	0.09		06/17/09	XC
Styrene	ug/m3	1.5	0.21		06/17/09	XC

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‡ See attached chain-of-custody record for time sampled























KELLY CHATTERTON  
 MACTEC ENGINEERING & CONSULTING - MA  
 107 AUDUBON ROAD, BLDG. 2, SUITE 301  
 WAKEFIELD, MA 01880

Purchase Order No.: 200904907

6/19/2009  
 Page 29 of 30

Project Location: GORHAM SITE-PROVIDENCE-RI  
 Date Received: 6/12/2009

Project Number: 3650080114  
 LIMS-BAT #: LIMIT-25267  
 Job Number: 3650080114

The following notes were attached to the reported analysis :

Sample ID: \* 09B14574

Analysis: to-15 ug/m3

Analyte	Reporting Limit		Sample Results	
	PPBv	ug/m3	PPBv	ug/m3
1,1,1,2-Tetrachloroethane	0.91	6.3	N.D.	N.D.

Blank-132959

1,1,1,2-Tetrachloroethane	0.091	0.63	N.D.	N.D.
---------------------------	-------	------	------	------

Lfblank-95285	True Value		Sample Results		Recovery %
	PPBv	ug/m3	PPBv	ug/m3	
1,1,1,2-Tetrachloroethane	1.8	13	1.4	9.7	77

Sample ID: \* 09B14575

Analysis: to-15 ug/m3

Analyte	Reporting Limit		Sample Results	
	PPBv	ug/m3	PPBv	ug/m3
1,1,1,2-Tetrachloroethane	0.91	6.3	N.D.	N.D.

Sample ID: \* 09B14576

Analysis: to-15 ug/m3

Analyte	Reporting Limit		Sample Results	
	PPBv	ug/m3	PPBv	ug/m3
1,1,1,2-Tetrachloroethane	0.91	6.3	N.D.	N.D.

Sample ID: \* 09B14577

Analysis: to-15 ug/m3

Analyte	Reporting Limit		Sample Results	
	PPBv	ug/m3	PPBv	ug/m3
1,1,1,2-Tetrachloroethane	0.091	0.63	N.D.	N.D.

Sample ID: \* 09B14577

Analysis: Carbon Disulfide

DUPLICATE RPD IS OUTSIDE OF CONTROL LIMITS. REDUCED PRECISION IS ANTICIPATED FOR REPORTED RESULT. SEE QC SUMMARY REPORT.

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NM = Not Measured

\* = See end of report for comments and notes applying to this sample

‡ See attached chain-of-custody record for time sampled

KELLY CHATTERTON  
 MACTEC ENGINEERING & CONSULTING - MA  
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 WAKEFIELD, MA 01880

Purchase Order No.: 200904907

6/19/2009  
 Page 30 of 30

Project Location: GORHAM SITE-PROVIDENCE-RI  
 Date Received: 6/12/2009

Project Number: 3650080114  
 LIMS-BAT #: LIMIT-25267  
 Job Number: 3650080114

Sample ID: \* 09B14577  
 Analysis: Ethanol

REPORTED RESULT IS ESTIMATED. VALUE REPORTED OVER VERIFIED CALIBRATION RANGE.

Sample ID: \* 09B14577  
 Analysis: Isopropanol

DUPLICATE RPD IS OUTSIDE OF CONTROL LIMITS. REDUCED PRECISION IS ANTICIPATED FOR REPORTED RESULT. SEE QC SUMMARY REPORT.

Sample ID: \* 09B14578  
 Analysis: to-15 ug/m3

Analyte	Reporting Limit		Sample Results	
	PPBv	ug/m3	PPBv	ug/m3
1,1,1,2-Tetrachloroethane	0.091	0.63	N.D.	N.D.

Sample ID: \* 09B14579  
 Analysis: to-15 ug/m3

Analyte	Reporting Limit		Sample Results	
	PPBv	ug/m3	PPBv	ug/m3
1,1,1,2-Tetrachloroethane	0.091	0.63	N.D.	N.D.

Sample ID: \* 09B14580  
 Analysis: to-15 ug/m3

Analyte	Reporting Limit		Sample Results	
	PPBv	ug/m3	PPBv	ug/m3
1,1,1,2-Tetrachloroethane	0.091	0.63	N.D.	N.D.

\*\* END OF REPORT \*\*

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NM = Not Measured

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‡ See attached chain-of-custody record for time sampled



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**QC SUMMARY REPORT**

SAMPLE QC: Sample Results with Duplicates

BATCH QC: Lab fortified Blanks and Duplicates

Sample Matrix Spikes and Matrix Spike Duplicates

Standard Reference Materials and Duplicates

Method Blanks

Report Date: 6/19/2009

Lims Bat # : LIMIT-25267

Page 1 of 10

QC Batch Number: BATCH-16652

Sample Id	Analysis	QC Analysis	Values	Units	Limits
09B14574	4-Bromofluorobenzene	Surrogate Recovery	98.12	%	70-130
09B14575	4-Bromofluorobenzene	Surrogate Recovery	98.37	%	70-130
09B14576	4-Bromofluorobenzene	Surrogate Recovery	99.37	%	70-130
09B14577	Acetone	Sample Amount	46.30	ug/m3	
		Duplicate Value	36.99	ug/m3	
		Duplicate RPD	22.35	%	
	Benzene	Sample Amount	0.52	ug/m3	
		Duplicate Value	0.50	ug/m3	
		Duplicate RPD	4.93	%	
	Carbon Tetrachloride	Sample Amount	0.45	ug/m3	
		Duplicate Value	0.42	ug/m3	
		Duplicate RPD	8.57	%	
	Chloroform	Sample Amount	0.55	ug/m3	
		Duplicate Value	0.54	ug/m3	
		Duplicate RPD	0.88	%	
	Ethyl Acetate	Sample Amount	0.31	ug/m3	
		Duplicate Value	0.30	ug/m3	
		Duplicate RPD	1.15	%	
	Ethylbenzene	Sample Amount	0.30	ug/m3	
		Duplicate Value	0.29	ug/m3	
		Duplicate RPD	2.89	%	
	Hexane	Sample Amount	1.01	ug/m3	
		Duplicate Value	1.02	ug/m3	
		Duplicate RPD	1.03	%	
	Isopropanol	Sample Amount	19.09	ug/m3	
		Duplicate Value	11.55	ug/m3	
		Duplicate RPD	49.22	%	
	2-Butanone (MEK)	Sample Amount	5.26	ug/m3	
		Duplicate Value	5.26	ug/m3	
		Duplicate RPD	0.00	%	
	4-Methyl-2-Pentanone (MIBK)	Sample Amount	0.68	ug/m3	
		Duplicate Value	0.64	ug/m3	
		Duplicate RPD	5.57	%	
	Styrene	Sample Amount	1.48	ug/m3	
		Duplicate Value	1.46	ug/m3	
		Duplicate RPD	1.43	%	
	Toluene	Sample Amount	2.75	ug/m3	
		Duplicate Value	2.57	ug/m3	
		Duplicate RPD	6.64	%	
	1,1,2-Trichloro-1,2,2-Trifluoroethane	Sample Amount	0.53	ug/m3	



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Sample Id	Analysis	QC Analysis	Values	Units	Limits
09B14577	1,1,2-Trichloro-1,2,2-Trifluoroethane	Duplicate Value	0.52	ug/m3	
		Duplicate RPD	1.43	%	
	Trichlorofluoromethane	Sample Amount	2.01	ug/m3	
		Duplicate Value	1.96	ug/m3	
		Duplicate RPD	2.53	%	
	o-Xylene	Sample Amount	0.32	ug/m3	
		Duplicate Value	0.33	ug/m3	
		Duplicate RPD	3.97	%	
	m/p-Xylene	Sample Amount	0.87	ug/m3	
		Duplicate Value	0.86	ug/m3	
		Duplicate RPD	0.99	%	
	Ethanol	Sample Amount	503.74	ug/m3	
		Duplicate Value	509.68	ug/m3	
		Duplicate RPD	1.17	%	
	Methylene Chloride	Sample Amount	2.02	ug/m3	
		Duplicate Value	2.02	ug/m3	
		Duplicate RPD	0.34	%	
	Chloromethane	Sample Amount	1.43	ug/m3	
		Duplicate Value	1.34	ug/m3	
		Duplicate RPD	6.23	%	
	1,2,4-Trimethylbenzene	Sample Amount	0.35	ug/m3	
		Duplicate Value	0.33	ug/m3	
		Duplicate RPD	4.25	%	
	Cyclohexane	Sample Amount	0.39	ug/m3	
		Duplicate Value	0.38	ug/m3	
		Duplicate RPD	2.62	%	
	Dichlorodifluoromethane	Sample Amount	2.18	ug/m3	
		Duplicate Value	2.01	ug/m3	
		Duplicate RPD	8.01	%	
	Carbon Disulfide	Sample Amount	0.27	ug/m3	
		Duplicate Value	0.18	ug/m3	
		Duplicate RPD	38.35	%	
	2-Hexanone	Sample Amount	1.10	ug/m3	
		Duplicate Value	1.04	ug/m3	
		Duplicate RPD	5.71	%	
	4-Bromofluorobenzene	Surrogate Recovery	100.62	%	70-130
	n-Heptane	Sample Amount	0.47	ug/m3	
		Duplicate Value	0.45	ug/m3	
		Duplicate RPD	4.36	%	
09B14578	4-Bromofluorobenzene	Surrogate Recovery	99.87	%	70-130
09B14579	4-Bromofluorobenzene	Surrogate Recovery	98.87	%	70-130



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Sample Id	Analysis	QC Analysis	Values	Units	Limits
09B14580	4-Bromofluorobenzene	Surrogate Recovery	97.62	%	70-130
BLANK-132959	Acetone	Blank	2.13	ug/m3	
	Benzene	Blank	<0.08	ug/m3	
	Carbon Tetrachloride	Blank	<0.16	ug/m3	
	Chloroform	Blank	<0.12	ug/m3	
	1,2-Dichloroethane	Blank	<0.10	ug/m3	
	1,4-Dichlorobenzene	Blank	<0.15	ug/m3	
	Ethyl Acetate	Blank	<0.09	ug/m3	
	Ethylbenzene	Blank	<0.11	ug/m3	
	Hexane	Blank	<0.09	ug/m3	
	Isopropanol	Blank	0.38	ug/m3	
	2-Butanone (MEK)	Blank	0.52	ug/m3	
	4-Methyl-2-Pentanone (MIBK)	Blank	<0.10	ug/m3	
	Styrene	Blank	<0.11	ug/m3	
	Tetrachloroethylene	Blank	<0.17	ug/m3	
	Toluene	Blank	<0.10	ug/m3	
	1,1,1-Trichloroethane	Blank	<0.14	ug/m3	
	Trichloroethylene	Blank	<0.14	ug/m3	
	1,1,2-Trichloro-1,2,2-Trifluoroethane	Blank	<0.19	ug/m3	
	Trichlorofluoromethane	Blank	<0.14	ug/m3	
	o-Xylene	Blank	<0.11	ug/m3	
	m/p-Xylene	Blank	<0.22	ug/m3	
	1,2-Dichlorobenzene	Blank	<0.15	ug/m3	
	1,3-Dichlorobenzene	Blank	<0.15	ug/m3	
	1,1-Dichloroethane	Blank	<0.10	ug/m3	
	1,1-Dichloroethylene	Blank	<0.10	ug/m3	
	Ethanol	Blank	0.56	ug/m3	
	4-Ethyl Toluene	Blank	<0.13	ug/m3	
	Methyl tert-Butyl Ether (MTBE)	Blank	<0.09	ug/m3	
	t-1,2-Dichloroethylene	Blank	<0.10	ug/m3	
	Vinyl Chloride	Blank	<0.07	ug/m3	
	Methylene Chloride	Blank	0.81	ug/m3	
	Chlorobenzene	Blank	<0.12	ug/m3	
	Chloromethane	Blank	<0.05	ug/m3	
	Bromomethane	Blank	<0.10	ug/m3	
	Chloroethane	Blank	<0.07	ug/m3	
	cis-1,3-Dichloropropene	Blank	<0.11	ug/m3	
	trans-1,3-Dichloropropene	Blank	<0.11	ug/m3	
	Chlorodibromomethane	Blank	<0.22	ug/m3	
	1,1,2-Trichloroethane	Blank	<0.14	ug/m3	
	Bromoform	Blank	<0.26	ug/m3	
	1,1,2,2-Tetrachloroethane	Blank	<0.17	ug/m3	



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Sample Id	Analysis	QC Analysis	Values	Units	Limits
<b>BLANK-132959</b>					
	Hexachlorobutadiene	Blank	<0.54	ug/m3	
	1,2,4-Trichlorobenzene	Blank	<0.19	ug/m3	
	1,2,4-Trimethylbenzene	Blank	<0.13	ug/m3	
	1,3,5-Trimethylbenzene	Blank	<0.13	ug/m3	
	Cyclohexane	Blank	<0.09	ug/m3	
	cis-1,2-Dichloroethylene	Blank	<0.10	ug/m3	
	1,2-Dichloropropane	Blank	<0.12	ug/m3	
	Dichlorodifluoromethane	Blank	<0.13	ug/m3	
	Benzyl Chloride	Blank	<0.13	ug/m3	
	Carbon Disulfide	Blank	<0.08	ug/m3	
	Vinyl Acetate	Blank	<0.09	ug/m3	
	2-Hexanone	Blank	<0.10	ug/m3	
	Bromodichloromethane	Blank	<0.17	ug/m3	
	1,2-Dibromoethane	Blank	<0.19	ug/m3	
	n-Heptane	Blank	<0.10	ug/m3	
	1,2-Dichlorotetrafluoroethane (114)	Blank	<0.18	ug/m3	
	Tetrahydrofuran	Blank	<0.08	ug/m3	
	Propene	Blank	0.15	ug/m3	
	1,3-Butadiene	Blank	<0.06	ug/m3	
<b>LFBLANK-95285</b>					
	Acetone	Lab Fort Blank Amt.	11.87	ug/m3	
		Lab Fort Blk. Found	13.14	ug/m3	
		Lab Fort Blk. % Rec.	110.66	%	50-150
	Benzene	Lab Fort Blank Amt.	15.95	ug/m3	
		Lab Fort Blk. Found	17.48	ug/m3	
		Lab Fort Blk. % Rec.	109.60	%	70-130
	Carbon Tetrachloride	Lab Fort Blank Amt.	31.45	ug/m3	
		Lab Fort Blk. Found	34.31	ug/m3	
		Lab Fort Blk. % Rec.	109.10	%	70-130
	Chloroform	Lab Fort Blank Amt.	24.33	ug/m3	
		Lab Fort Blk. Found	25.52	ug/m3	
		Lab Fort Blk. % Rec.	104.88	%	70-130
	1,2-Dichloroethane	Lab Fort Blank Amt.	20.24	ug/m3	
		Lab Fort Blk. Found	23.12	ug/m3	
		Lab Fort Blk. % Rec.	114.24	%	70-130
	1,4-Dichlorobenzene	Lab Fort Blank Amt.	30.06	ug/m3	
		Lab Fort Blk. Found	38.02	ug/m3	
		Lab Fort Blk. % Rec.	126.50	%	70-130
	Ethyl Acetate	Lab Fort Blank Amt.	18.01	ug/m3	
		Lab Fort Blk. Found	18.98	ug/m3	
		Lab Fort Blk. % Rec.	105.36	%	50-150
	Ethylbenzene	Lab Fort Blank Amt.	21.67	ug/m3	
		Lab Fort Blk. Found	23.56	ug/m3	



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LFBLANK-95285	Ethylbenzene	Lab Fort Blk. % Rec.	108.70	%	70-130
	Hexane	Lab Fort Blank Amt.	17.62	ug/m3	
		Lab Fort Blk. Found	19.41	ug/m3	
	Isopropanol	Lab Fort Blk. % Rec.	110.16	%	70-130
		Lab Fort Blank Amt.	12.28	ug/m3	
		Lab Fort Blk. Found	16.31	ug/m3	
	2-Butanone (MEK)	Lab Fort Blk. % Rec.	132.74	%	50-150
		Lab Fort Blank Amt.	14.74	ug/m3	
		Lab Fort Blk. Found	15.64	ug/m3	
	4-Methyl-2-Pentanone (MIBK)	Lab Fort Blk. % Rec.	106.08	%	70-130
		Lab Fort Blank Amt.	20.48	ug/m3	
		Lab Fort Blk. Found	27.02	ug/m3	
	Styrene	Lab Fort Blk. % Rec.	131.96	%	70-130
		Lab Fort Blank Amt.	21.26	ug/m3	
		Lab Fort Blk. Found	24.07	ug/m3	
	Tetrachloroethylene	Lab Fort Blk. % Rec.	113.22	%	70-130
		Lab Fort Blank Amt.	33.90	ug/m3	
		Lab Fort Blk. Found	34.37	ug/m3	
	Toluene	Lab Fort Blk. % Rec.	101.38	%	70-130
		Lab Fort Blank Amt.	18.81	ug/m3	
		Lab Fort Blk. Found	30.84	ug/m3	
	1,1,1-Trichloroethane	Lab Fort Blk. % Rec.	163.94	%	70-130
		Lab Fort Blank Amt.	27.28	ug/m3	
		Lab Fort Blk. Found	30.01	ug/m3	
	Trichloroethylene	Lab Fort Blk. % Rec.	110.02	%	70-130
		Lab Fort Blank Amt.	26.87	ug/m3	
		Lab Fort Blk. Found	29.01	ug/m3	
	1,1,2-Trichloro-1,2,2-Trifluoroethane	Lab Fort Blk. % Rec.	107.96	%	70-130
		Lab Fort Blank Amt.	38.31	ug/m3	
		Lab Fort Blk. Found	37.12	ug/m3	
	Trichlorofluoromethane	Lab Fort Blk. % Rec.	96.87	%	70-130
		Lab Fort Blank Amt.	28.09	ug/m3	
		Lab Fort Blk. Found	42.53	ug/m3	
	o-Xylene	Lab Fort Blk. % Rec.	151.40	%	70-130
		Lab Fort Blank Amt.	21.71	ug/m3	
		Lab Fort Blk. Found	25.72	ug/m3	
	m/p-Xylene	Lab Fort Blk. % Rec.	118.44	%	70-130
		Lab Fort Blank Amt.	43.43	ug/m3	
		Lab Fort Blk. Found	50.43	ug/m3	
	1,2-Dichlorobenzene	Lab Fort Blk. % Rec.	116.12	%	70-130
		Lab Fort Blank Amt.	30.06	ug/m3	
		Lab Fort Blk. Found	37.91	ug/m3	
		Lab Fort Blk. % Rec.	126.12	%	70-130





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Sample Id	Analysis	QC Analysis	Values	Units	Limits
LFBLANK-95285	1,3-Dichlorobenzene	Lab Fort Blank Amt.	30.06	ug/m3	
		Lab Fort Blk. Found	37.97	ug/m3	
		Lab Fort Blk. % Rec.	126.32	%	70-130
	1,1-Dichloroethane	Lab Fort Blank Amt.	20.24	ug/m3	
		Lab Fort Blk. Found	20.36	ug/m3	
		Lab Fort Blk. % Rec.	100.58	%	70-130
	1,1-Dichloroethylene	Lab Fort Blank Amt.	19.83	ug/m3	
		Lab Fort Blk. Found	20.62	ug/m3	
		Lab Fort Blk. % Rec.	103.98	%	70-130
Ethanol		Lab Fort Blank Amt.	9.42	ug/m3	
		Lab Fort Blk. Found	11.85	ug/m3	
		Lab Fort Blk. % Rec.	125.82	%	50-150
4-Ethyl Toluene		Lab Fort Blank Amt.	24.58	ug/m3	
		Lab Fort Blk. Found	31.09	ug/m3	
		Lab Fort Blk. % Rec.	126.52	%	50-150
Methyl tert-Butyl Ether (MTBE)		Lab Fort Blank Amt.	18.02	ug/m3	
		Lab Fort Blk. Found	17.61	ug/m3	
		Lab Fort Blk. % Rec.	97.74	%	70-130
t-1,2-Dichloroethylene		Lab Fort Blank Amt.	19.82	ug/m3	
		Lab Fort Blk. Found	20.08	ug/m3	
		Lab Fort Blk. % Rec.	101.34	%	70-130
Vinyl Chloride		Lab Fort Blank Amt.	12.78	ug/m3	
		Lab Fort Blk. Found	16.19	ug/m3	
		Lab Fort Blk. % Rec.	126.74	%	70-130
Methylene Chloride		Lab Fort Blank Amt.	17.36	ug/m3	
		Lab Fort Blk. Found	19.48	ug/m3	
		Lab Fort Blk. % Rec.	112.22	%	70-130
Chlorobenzene		Lab Fort Blank Amt.	23.02	ug/m3	
		Lab Fort Blk. Found	24.00	ug/m3	
		Lab Fort Blk. % Rec.	104.24	%	70-130
Chloromethane		Lab Fort Blank Amt.	10.32	ug/m3	
		Lab Fort Blk. Found	12.29	ug/m3	
		Lab Fort Blk. % Rec.	119.12	%	70-130
Bromomethane		Lab Fort Blank Amt.	19.40	ug/m3	
		Lab Fort Blk. Found	23.86	ug/m3	
		Lab Fort Blk. % Rec.	122.96	%	70-130
Chloroethane		Lab Fort Blank Amt.	13.19	ug/m3	
		Lab Fort Blk. Found	17.04	ug/m3	
		Lab Fort Blk. % Rec.	129.24	%	70-130
cis-1,3-Dichloropropene		Lab Fort Blank Amt.	22.69	ug/m3	
		Lab Fort Blk. Found	24.07	ug/m3	
		Lab Fort Blk. % Rec.	106.08	%	70-130
trans-1,3-Dichloropropene		Lab Fort Blank Amt.	22.69	ug/m3	



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Sample Id	Analysis	QC Analysis	Values	Units	Limits
LFBLANK-95285					
	trans-1,3-Dichloropropene	Lab Fort Blk. Found	24.77	ug/m3	
		Lab Fort Blk. % Rec.	109.16	%	70-130
	Chlorodibromomethane	Lab Fort Blank Amt.	42.59	ug/m3	
		Lab Fort Blk. Found	49.60	ug/m3	
		Lab Fort Blk. % Rec.	116.46	%	70-130
	1,1,2-Trichloroethane	Lab Fort Blank Amt.	27.28	ug/m3	
		Lab Fort Blk. Found	28.45	ug/m3	
		Lab Fort Blk. % Rec.	104.32	%	70-130
	Bromoform	Lab Fort Blank Amt.	51.69	ug/m3	
		Lab Fort Blk. Found	64.56	ug/m3	
		Lab Fort Blk. % Rec.	124.90	%	70-130
	1,1,2,2-Tetrachloroethane	Lab Fort Blank Amt.	34.33	ug/m3	
		Lab Fort Blk. Found	43.12	ug/m3	
		Lab Fort Blk. % Rec.	125.60	%	70-130
	Hexachlorobutadiene	Lab Fort Blank Amt.	53.33	ug/m3	
		Lab Fort Blk. Found	61.34	ug/m3	
		Lab Fort Blk. % Rec.	115.02	%	70-130
	1,2,4-Trichlorobenzene	Lab Fort Blank Amt.	37.10	ug/m3	
		Lab Fort Blk. Found	46.94	ug/m3	
		Lab Fort Blk. % Rec.	126.52	%	70-130
	1,2,4-Trimethylbenzene	Lab Fort Blank Amt.	24.58	ug/m3	
		Lab Fort Blk. Found	31.02	ug/m3	
		Lab Fort Blk. % Rec.	126.20	%	70-130
	1,3,5-Trimethylbenzene	Lab Fort Blank Amt.	24.58	ug/m3	
		Lab Fort Blk. Found	30.77	ug/m3	
		Lab Fort Blk. % Rec.	125.20	%	70-130
	Cyclohexane	Lab Fort Blank Amt.	17.21	ug/m3	
		Lab Fort Blk. Found	16.49	ug/m3	
		Lab Fort Blk. % Rec.	95.85	%	50-150
	cis-1,2-Dichloroethylene	Lab Fort Blank Amt.	19.82	ug/m3	
		Lab Fort Blk. Found	20.95	ug/m3	
		Lab Fort Blk. % Rec.	105.68	%	70-130
	1,2-Dichloropropane	Lab Fort Blank Amt.	23.10	ug/m3	
		Lab Fort Blk. Found	20.97	ug/m3	
		Lab Fort Blk. % Rec.	90.75	%	70-130
	Dichlorodifluoromethane	Lab Fort Blank Amt.	24.72	ug/m3	
		Lab Fort Blk. Found	31.52	ug/m3	
		Lab Fort Blk. % Rec.	127.48	%	70-130
	Benzyl Chloride	Lab Fort Blank Amt.	25.88	ug/m3	
		Lab Fort Blk. Found	32.44	ug/m3	
		Lab Fort Blk. % Rec.	125.34	%	70-130
	Carbon Disulfide	Lab Fort Blank Amt.	15.57	ug/m3	
		Lab Fort Blk. Found	14.52	ug/m3	



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LFBLANK-95285	Carbon Disulfide	Lab Fort Blk. % Rec.	93.25	%	70-130
	Vinyl Acetate	Lab Fort Blank Amt.	17.60	ug/m3	
		Lab Fort Blk. Found	19.58	ug/m3	
	2-Hexanone	Lab Fort Blk. % Rec.	111.26	%	70-130
		Lab Fort Blank Amt.	20.48	ug/m3	
		Lab Fort Blk. Found	26.34	ug/m3	
	Bromodichloromethane	Lab Fort Blk. % Rec.	128.62	%	50-150
		Lab Fort Blank Amt.	33.50	ug/m3	
		Lab Fort Blk. Found	41.17	ug/m3	
	1,2-Dibromoethane	Lab Fort Blk. % Rec.	122.90	%	70-130
		Lab Fort Blank Amt.	38.42	ug/m3	
		Lab Fort Blk. Found	41.50	ug/m3	
	n-Heptane	Lab Fort Blk. % Rec.	108.02	%	70-130
		Lab Fort Blank Amt.	20.49	ug/m3	
		Lab Fort Blk. Found	23.05	ug/m3	
	1,2-Dichlorotetrafluoroethane (114)	Lab Fort Blk. % Rec.	112.52	%	50-150
		Lab Fort Blank Amt.	34.95	ug/m3	
		Lab Fort Blk. Found	43.86	ug/m3	
	Tetrahydrofuran	Lab Fort Blk. % Rec.	125.48	%	70-130
		Lab Fort Blank Amt.	14.74	ug/m3	
		Lab Fort Blk. Found	16.03	ug/m3	
	Propene	Lab Fort Blk. % Rec.	108.76	%	50-150
		Lab Fort Blank Amt.	8.60	ug/m3	
		Lab Fort Blk. Found	10.41	ug/m3	
	1,3-Butadiene	Lab Fort Blk. % Rec.	121.04	%	50-150
		Lab Fort Blank Amt.	11.06	ug/m3	
		Lab Fort Blk. Found	13.81	ug/m3	
		Lab Fort Blk. % Rec.	124.92	%	70-130





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**QUALITY CONTROL DEFINITIONS AND ABBREVIATIONS**

QC BATCH NUMBER	This is the number assigned to all samples analyzed together that would be subject to comparison with a particular set of Quality Control Data.
LIMITS	Upper and Lower Control Limits for the QC ANALYSIS Reported. All values normally would fall within these statistically determined limits, unless there is an unusual circumstance that would be documented in a NOTE appearing on the last page of the QC SUMMARY REPORT. Not all QC results will have Limits defined.
Sample Amount	Amount of analyte found in a sample.
Blank	Method Blank that has been taken though all the steps of the analysis.
LFBLANK	Laboratory Fortified Blank (a control sample)
STDADD	Standard Added (a laboratory control sample)
Matrix Spk Amt Added	Amount of analyte spiked into a sample
MS Amt Measured	Amount of analyte found including amount that was spiked
Matrix Spike % Rec.	% Recovery of spiked amount in sample.
Duplicate Value	The result from the Duplicate analysis of the sample.
Duplicate RPD	The Relative Percent Difference between two Duplicate Analyses.
Surrogate Recovery	The % Recovery for non-environmental compounds (surrogates) spiked into samples to determine the performance of the analytical methods.
Sur. Recovery (ELCD)	Surrogate Recovery on the Electrolytic Conductivity Detector.
Sur. Recovery (PID)	Surrogate Recovery on the Photoionization Detector.
Standard Measured	Amount measured for a laboratory control sample
Standard Amt Added	Known value for a laboratory control sample
Standard % Recovery	% recovered for a laboratory control sample with a known value.
Lab Fort Blank Amt	Laboratory Fortified Blank Amount Added
Lab Fort Blk. Found	Laboratory Fortified Blank Amount Found
Lab Fort Blk % Rec	Laboratory Fortified Blank % Recovered
Dup Lab Fort Bl Amt	Duplicate Laboratory Fortified Blank Amount Added
Dup Lab Fort Bl Fnd	Duplicate Laboratory Fortified Blank Amount Found
Dup Lab Fort Bl % Rec	Duplicate Laboratory Fortified Blank % Recovery
Lab Fort Blank Range	Laboratory Fortified Blank Range (Absolute value of difference between recoveries for Lab Fortified Blank and Lab Fortified Blank Duplicate).
Lab Fort Bl. Av. Rec.	Laboratory Fortified Blank Average Recovery
Duplicate Sample Amt	Sample Value for Duplicate used with Matrix Spike Duplicate
MSD Amount Added	Matrix Spike Duplicate Amount Added (Spiked)
MSD Amt Measured	Matrix Spike Duplicate Amount Measured
MSD % Recovery	Matrix Spike Duplicate % Recovery
MSD Range	Absolute difference between Matrix Spike and Matrix Spike Duplicate Recoveries



Phone: 413-525-2392  
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**AIR SAMPLE CHAIN OF CUSTODY RECORD**

39 SPRUCE ST  
 EAST LONGMEADOW, MA 01028

Page 1 of 1

Company Name: MACTEC Engineering  
 Address: 107 Audubon Rd  
Wakefield, MA 01880  
 Attention: Kelly Chatterton  
 Project Location: Graham Site, Providence, RI  
 Sampled By: PSM

Telephone: (781) 245-6606  
 Project # 365008014  
 Client PO # 200904907

Proposal Provided? (For Billing purposes)  
 Yes 3.3.09 proposal date

DATA DELIVERY (check one):  
 FAX  EMAIL  WEBSITE CLIENT  
 Fax # 413-525-6405  
 Email: Kjchatterton@mactec.com  
 Format:  EXCEL  PDF  GIS KEY  OTHER

Field ID	Sample Description	Media Lab #	Start		Stop		Total Minutes Sampled	Flow Rate M <sup>3</sup> /Min. or C/Min	Volume Liters or M <sup>3</sup>	Matrix Code*	Hg	Pb	Cd	Cr	Cu	Fe	Mn	Ni	Se	Zn	Summa Canister ID	Flow Controller ID	
			Date Time	Date Time	Date Time	Date Time																	
EW-5-061109	S	D9814574	6-11-09 11:04	6-11-09 11:34	30	0.2	6	SG	X	-30	-5											1340	4106
EW-6-061109	S		6-11-09 10:48	6-11-09 11:18	30	0.2	6	SG	X	-29	-4											1073	4076
EW-7-061109	S		6-11-09 10:57	6-11-09 11:27	30	0.2	6	SG	X	-29	-4											1612	4083
IA-5-061109	S		6-11-09 09:43	6-11-09 10:13	30	0.2	6	IA	X	-25	-45											1456	4085
IA-6-061109	S		6-11-09 09:46	6-11-09 10:16	30	0.2	6	IA	X	-25	-4											1801	4067
IA-7-061109	S		6-11-09 09:52	6-11-09 10:22	30	0.2	6	IA	X	-29	-25											1625	4072
AA-1-061109	S		6-11-09 09:57	6-11-09 10:27	30	0.2	6	AMB	X	-30	-2											1045	4107

Laboratory Comments: EW-5-061109, EW-6-061109, and EW-7-061109 were sampled from same area soil gas.

Relinquished by: (signature) [Signature] Date/Time: 6-12-09/1300

Received by: (signature) [Signature] Date/Time: 6-12-09 1300

Relinquished by: (signature) [Signature] Date/Time: 6-12-09 1750

Received by: (signature) [Signature] Date/Time: 6-11-09 1750

Turnaround \*\*  
 7-Day  
 10-Day  
 Other 5  
 RUSH \* day

Regulations: CT Target Indoor Air (room)  
 Data Enhancement/RCP?  Y  N  
 Enhanced Data Package  Y  N  
 (Surcharge Applies)  
 Required Detection Limits: CT Target  
 Other: Indoor Air (room)

Matrix Code: SG = SOIL GAS  
 IA = INDOOR AIR  
 AMB = AMBIENT  
 SS = SUB SLAB  
 D = DUP  
 BL = BLANK  
 O = other

Media Codes: S = summa can  
 TB = tedar bag  
 P = PUF  
 T = tube  
 F = filter  
 C = cassette  
 O = Other

Approval Required  \*24-Hr  \*48-Hr  \*72-Hr  \*4-Day

TURNAROUND TIME STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY OUR CLIENT.

AHHA, NELAC & WBE/DBE Certified



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East Longmeadow, MA  
Phone: 1-413-525-2332  
Fax: 1-413-525-6405

**AIR ONLY RECEIPT CHECKLIST**

CLIENT NAME: MACTEE  
RECEIVED BY: KM DATE: 06/12/09

- 1. Was chain of custody relinquished and signed? **YES** NO
- 2. Does Chain agree with samples? **YES** NO

If not, explain:

- 3. All Samples in good condition? **YES** NO

If not, explain:

4. Are there any on hold samples? YES **NO** STORED WHERE:

5. ARE THERE ANY RUSH OR SHORT HOLDING TIME SAMPLES? WHO WAS NOTIFIED? \_\_\_\_\_ DATE \_\_\_\_\_ TIME \_\_\_\_\_

Location where samples are stored: AIR

Permission to sub-contract samples? Yes No (circle)  
(Walk in clients only) if not already approved.  
Client Signature \_\_\_\_\_

CONTAINERS SENT TO CON-TEST	# of containers
Summa cans	7
Tedlar Bags	
Regulators	
Restrictors	7
Tubes	
Other	

- 1. Was all media (used & unused) checked into the WASP asset management program?
- 2. Were all returned summa cans, restrictors, & regulators documented as returned in the AIR Lab Outbound excel sheet?
- 3. Were the Lab ID's documented in the Air Lab Outbound excel sheet?
- 4. Was the job documented in the Air Lab Log-In Access Database?

Laboratory comments:

## **APPENDIX B**

### **Analytical Laboratory Detection Limits**





39 Spruce Street, 2nd Floor  
 East Longmeadow, MA 01028  
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**Analyte:**

TO-14 / TO-15	PPBv	UG/M3	PPBv	UG/M3	MW NIST	UG/M3	PPBv
1,1,1-Trichloroethane	ND	ND	0.050	<b>0.27</b>	<b>133.40</b>	1	0.18
1,1,2,2-Tetrachloroethane	ND	ND	0.050	0.34	167.85	1	0.15
1,1,2-Trichloroethane	ND	ND	0.050	0.27	133.40	1	0.18
1,1,2-Trichlorotrifluoroethane (freon 113)	ND	ND	0.050	0.38	<b>187.37</b>	1	0.13
1,1-Dichloroethane	ND	ND	0.050	0.20	98.96	1	0.25
1,1-Dichloroethene	ND	ND	0.050	0.20	<b>96.94</b>	1	0.25
1,2,4-Trichlorobenzene	ND	ND	0.050	0.37	181.45	1	0.13
1,2,4-Trimethylbenzene	ND	ND	0.050	0.25	<b>120.19</b>	1	0.20
1,2-Dibromoethane	ND	ND	0.050	0.38	187.86	1	0.13
1,2-Dichlorobenzene	ND	ND	0.050	0.30	<b>147.00</b>	1	0.17
1,2-Dichloroethane	ND	ND	0.050	0.20	98.96	1	0.25
1,2-Dichloropropane	ND	ND	0.050	0.23	<b>112.99</b>	1	0.22
1,2-Dichlorotetrafluoroethane (freon 114)	ND	ND	0.050	0.35	170.92	1	0.14
1,3 - Butadiene	ND	ND	0.050	0.11	54.09	1	0.45
1,3,5-Trimethylbenzene	ND	ND	0.050	0.25	<b>120.19</b>	1	0.20
1,3-Dichlorobenzene	ND	ND	0.050	0.30	147.00	1	0.17
1,4-Dichlorobenzene	ND	ND	0.050	0.30	147.00	1	0.17
1,4-Dioxane	ND	ND	0.050	0.18	88.11	1	0.28
2-Butanone (MEK)	ND	ND	0.050	0.15	<b>72.11</b>	1	0.34
2-Hexanone (MBK)	ND	ND	0.050	0.20	100.16	1	0.24
4-Ethyltoluene	ND	ND	0.050	0.25	120.19	1	0.20
4-Methyl-2-pentanone(MIBK)	ND	ND	0.050	0.20	<b>100.16</b>	1	0.24
Acetone	ND	ND	0.050	0.12	58.08	1	0.42
Acrolein	ND	ND	0.050	0.11	<b>56.06</b>	1	0.44
Benzene	ND	ND	0.050	0.16	78.11	1	0.31
Benzyl Chloride	ND	ND	0.050	0.26	<b>126.58</b>	1	0.19
Bromodichloromethane	ND	ND	0.050	0.34	163.83	1	0.15
Bromoform	ND	ND	0.050	0.52	252.73	1	0.10
Bromomethane	ND	ND	0.050	0.19	<b>94.94</b>	1	0.26
Carbon Disulfide	ND	ND	0.050	0.16	76.14	1	0.32
Carbon Tetrachloride	ND	ND	0.050	<b>0.31</b>	<b>153.82</b>	1	0.16



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Chlorobenzene	ND	ND	0.050	0.23	112.56	1	0.22
Chloroethane	ND	ND	0.050	0.13	64.51	1	0.38
Chloroform	ND	ND	0.050	0.24	119.38	1	0.20
Chloromethane	ND	ND	0.050	0.10	50.49	1	0.48
cis-1,2-Dichloroethene	ND	ND	0.050	0.20	96.94	1	0.25
cis-1,3-Dichloropropene	ND	ND	0.050	0.23	110.97	1	0.22
Cyclohexane	ND	ND	0.050	0.17	84.16	1	0.29
Dibromochloromethane	ND	ND	0.050	0.43	208.28	1	0.12
Dichlorodifluoromethane (freon 12)	ND	ND	0.050	0.25	120.91	1	0.20
Ethanol	ND	ND	0.050	0.09	46.07	1	0.53
Ethyl Acetate	ND	ND	0.050	0.18	88.11	1	0.28
Ethylbenzene	ND	ND	0.050	0.22	106.17	1	0.23
Heptane	ND	ND	0.050	0.20	100.20	1	0.24
Hexachlorobutadiene	ND	ND	0.050	0.53	260.76	1	0.09
Hexane	ND	ND	0.050	0.18	86.18	1	0.28
Isopropyl Alcohol	ND	ND	0.050	0.12	60.10	1	0.41
M/P Xylenes	ND	ND	0.050	0.22	106.17	1	0.23
Methylene Chloride	ND	ND	0.050	0.17	84.93	1	0.29
Methylmethacrylate	ND	ND	0.050	0.20	100.12	1	0.24
MTBE	ND	ND	0.050	0.18	88.15	1	0.28
O-Xylene	ND	ND	0.050	0.22	106.17	1	0.23
Propene	ND	ND	0.050	0.09	42.08	1	0.58
Styrene	ND	ND	0.050	0.21	104.15	1	0.23
Tetrachloroethene	ND	ND	0.050	0.34	165.83	1	0.15
Tetrahydrofuran	ND	ND	0.050	0.15	72.11	1	0.34
Toluene	ND	ND	0.050	0.19	92.14	1	0.27
trans-1,2-Dichloroethene	ND	ND	0.050	0.20	96.94	1	0.25
trans-1,3-Dichloropropene	ND	ND	0.050	0.23	110.97	1	0.22
Trichloroethene	ND	ND	0.050	0.27	131.39	1	0.19
Trichlorofluoromethane (freon 11)	ND	ND	0.050	0.28	137.37	1	0.18
Vinyl Acetate	ND	ND	0.050	0.18	86.09	1	0.28
Vinyl Chloride	ND	ND	0.050	0.13	62.50	1	0.39



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## APH COMPOUNDS

1,2,3-Trimethylbenzene	ND	ND	0.94	4.62	120.19	1	0.20
1,3 Butadiene	ND	ND	0.94	2.08	54.09	1	0.45
1,3,5-Trimethylbenzene	ND	ND	0.94	4.62	120.19	1	0.20
1-Ethyl-3-Methylbenzene	ND	ND	0.94	4.62	120.19	1	0.20
1-Methylnaphthalene	ND	ND	0.94	5.47	142.20	1	0.17
2,3-Dimethylheptane	ND	ND	0.94	4.93	128.26	1	0.19
2,3-Dimethylpentane	ND	ND	0.94	3.85	100.20	1	0.24
2-Methylnaphthalene	ND	ND	0.94	5.47	142.20	1	0.17
Benzene	ND	ND	0.94	3.00	78.11	1	0.31
Butyl Cyclohexane	ND	ND	0.94	5.39	140.27	1	0.17
Cyclohexane	ND	ND	0.94	3.24	84.16	1	0.29
Decane	ND	ND	0.94	5.47	142.28	1	0.17
Dodecane	ND	ND	0.94	6.55	170.33	1	0.14
Ethylbenzene	ND	ND	0.94	4.08	106.17	1	0.23
Heptane	ND	ND	0.94	3.85	100.20	1	0.24
Hexane	ND	ND	0.94	3.31	86.18	1	0.28
Hexyl Cyclohexane	ND	ND	0.94	6.47	168.32	1	0.15
Indene	ND	ND	0.94	4.47	116.16	1	0.21
Isopentane	ND	ND	0.94	2.77	72.15	1	0.34
Isopropylbenzene(Cumene)	ND	ND	0.94	4.62	120.19	1	0.20
m/p -Xylenes	ND	ND	0.94	4.08	106.17	1	0.23
Methyl-tert-butylether	ND	ND	0.94	3.39	88.15	1	0.28
Naphthalene	ND	ND	0.94	4.93	128.17	1	0.19
Nonane	ND	ND	0.94	4.93	128.26	1	0.19
Octane	ND	ND	0.94	4.39	114.23	1	0.21
o-Xylene	ND	ND	0.94	4.08	106.17	1	0.23
P-Iso-Propyl Toluene	ND	ND	0.94	5.16	134.22	1	0.18
Toluene	ND	ND	0.94	3.54	92.14	1	0.27
Toluene-D8	ND	ND	0.94	3.85	100.19	1	0.24
Undecane	ND	ND	0.94	6.01	156.31	1	0.16



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### EXTRA COMPOUNDS

1,1,1,2-tetrachloroethane	ND	ND	0.091	0.6247	167.85	1	0.15
1,2-Dibromo-3-chloropropane	ND	ND	0.065	0.6283	236.33	1	0.10
1,3-Dichloropropane	ND	ND	0.135	0.6238	112.99	1	0.22
1-Methylnaphthalene	ND	ND	0.107	0.6223	142.20	1	0.17
2,2,4-Trimethylpentane	ND	ND	0.134	0.6260	114.23	1	0.21
2-Methylnaphthalene	ND	ND	0.107	0.6223	142.20	1	0.17
Acrylonitrile	ND	ND	0.288	0.6250	53.06	1	0.46
Butylbenzene	ND	ND	0.114	0.6258	134.22	1	0.18
Cumene	ND	ND	0.127	0.6243	120.19	1	0.20
Hexylcyclohexane	ND	ND	0.091	0.6265	168.32	1	0.15
Indane	ND	ND	0.129	0.6235	118.18	1	0.21
Indene	ND	ND	0.132	0.6271	116.16	1	0.21
Methyl Acetate	ND	ND	0.206	0.6241	74.08	1	0.33
Methylcyclohexane	ND	ND	0.156	0.6265	98.19	1	0.25
Naphthalene	ND	ND	0.119	0.6238	128.17	1	0.19
P-cymene	ND	ND	0.114	0.6258	134.22	1	0.18
Propylbenzene	ND	ND	0.127	0.6243	120.19	1	0.20
Sec-butylbenzene	ND	ND	0.114	0.6258	134.22	1	0.18
Tert-butylbenzene	ND	ND	0.114	0.6258	134.22	1	0.18
Thiophene	ND	ND	0.182	0.6263	84.14	1	0.29

### OTHER COMPOUNDS

2-Chloro-pyridine	ND	ND	0.20	0.93	113.54	1	0.22
2,6-Dichloro-pyridine	ND	ND	0.20	1.19	144.97	1	0.17
tert-Butyl Alcohol	ND	ND	0.20	0.61	74.10	1	0.33