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March 6, 2009

Mr. Joseph T. Martella II, Senior Engineer
RIDEM Office of Waste Management
Site Remediation Program
235 Providence Street
Providence, RI 02908

**RE: Indoor Air Sampling Results – First Three Weekly Sampling Events After Vapor Mitigation System Start-Up
Former Gorham Manufacturing Facility, Retail Complex
333 Adelaide Avenue, Providence, Rhode Island
MACTEC Project No. 3650080114**

Dear Mr. Martella:

This letter presents the cumulative results of the first three weekly air sampling events conducted by MACTEC Engineering & Consulting, Inc. (MACTEC) at the retail complex located at the Former Gorham Manufacturing Facility, 333 Adelaide Avenue, Providence, Rhode Island (the Site). These sampling events were conducted on February 3, 2009, February 11, 2009, and February 18, 2009 after the start-up of the vapor mitigation systems. The sampling was 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.

The first of the weekly sampling events was conducted on February 3, 2009, one day after start-up of the system. While the initial sampling event indicated the systems were generally operating in start-up mode, subsequent sampling events indicate the systems located in the three small retail spaces are fully operational and the indoor air samples have been in compliance with the established action levels.

The data collected from the large retail space to date indicate this portion of the system remains in start-up mode and system adjustments are being made at this time. This system operates independently from the individual systems in the three smaller retail spaces discussed above. Once this system is fully operational, the weekly compliance monitoring will be initiated per the requirements of the Order of Approval and Addendum to the Order of Approval for this Short-term Response Action.

Table 1 summarizes the analytical results for the baseline sampling event (January 16, 2009) and all three sampling events conducted after system start-up for which analytical data are available. Each of the post-start-up sampling events included seven indoor air samples (results compared to

Draft Connecticut Industrial/Commercial Indoor Target Air Concentrations (TAC)), one outdoor air reference sample, four samples collected from the extraction wells (three samples) or the pre-carbon sampling point (one sample), and one sample collected after the carbon treatment system (portion of the system in the large retail space). The sampling locations are shown in Figure 1. The outdoor reference air sample (AA-1) has been located at an upwind location during each of the sampling rounds (dependent on weather conditions).

The following observations are based on the data included in Table 1.

- The analytical results from the January 16, 2009 sampling represent baseline conditions prior to the start-up of the mitigation system. Comparison to “action levels” has been conducted only for informational purposes, not for compliance purposes with respect to the Order of Approval.
- Indoor air sample results are in compliance with action levels for all three sampling events conducted in the eastern small retail space (IA-5). This space is the only portion of the retail complex that is currently occupied.
- Indoor air sample results are in compliance with action levels for the last two sampling events conducted in the center small retail space (IA-6) and the western small retail space (IA-7). Although the benzene concentration in IA-6 on February 18, 2009 was above the action level, it was below the concentration detected in the outdoor reference sample (AA-1) collected on that same day. This benzene is not site-related, but rather a background condition. These spaces are currently unoccupied.
- Provided the sample results for the February 28 and March 6, 2009 are in compliance with action levels, the three small retail spaces may transition to monthly performance sampling and analysis.
- Indoor air sample results, vapor extraction well sample results, and system performance measurements indicate that the portion of the system in the large retail space is having a positive affect on indoor air concentrations, but remains in start-up mode and some operational adjustments and fine tuning is required. Once the adjustment and tuning are completed for the large retail space, the weekly performance monitoring program will be initiated per the Order of Approval and Addendum to the order of Approval. This large retail space is currently unoccupied. MACTEC will continue to coordinate these activities with RIDEM and provide the schedule for the start of the compliance monitoring.

Please contact me at 781 213-5610 if I can provide additional information or answer any questions concerning this first monitoring event. Thank you.

MACTEC Engineering and Consulting, Inc.



for Charles Collet
Project Manager

with permission



Michael Murphy
Sr. Principal Scientist

Enclosed: Table 1 Analytical Results – Air Monitoring Events through February 18, 2009
Figure 1 Vapor Mitigation Sample locations

cc:

T. Dellar, City of Providence

G. Simpson, Textron, Inc.

Knight Memorial Library Repository

G. Wilson, Kimco Realty Corporation (including tenants)

J. Morgan, The Stop & Shop Supermarket Co. LLC

MACTEC Project File P:\3650080114 - Textron Gorham Vapor Mitigation System\4.0 Project Deliverables\4.8 Monthly Progress Reports\RIDEMLetterMARCH5_2009.doc

Table 1. Analytical Results - Air Monitoring Events Through February 18, 2009
Short Term Response Action
Former Gorham Manufacturing - Retail Complex
Providence, Rhode Island

All concentrations in ug/m ³	AA-1 1/16/2009	AA-1-020309 2/3/2009	AA-1-021109 2/11/2009	AA-1-021809 2/18/2009	EW-5-020309 2/3/2009	EW-5-021109 2/11/2009	EW-5-021809 2/18/2009	EW-6-020309 2/3/2009	EW-6-021109 2/11/2009	EW-6-021809 2/18/2009	EW-7-020309 2/3/2009
1,1,1-Trichloroethane	0.27 U	0.27 U	0.27 U	0.27 U	190000	41000	17000	69000	32000	21000	5600
1,1,2,2-Tetrachloroethane	0.34 U	0.34 U	0.34 U	0.34 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U
1,1,2-Trichloroethane	0.27 U	0.27 U	0.27 U	0.27 U	5.4 U	5.4 U	5.4 U	5.4 U	5.4 U	5.4 U	5.4 U
1,1-Dichloroethane	0.2 U	0.2 U	0.2 U	0.2 U	11000	1900	890	5200	2500	2100	1700
1,1-Dichloroethene	0.2 U	0.2 U	0.2 U	0.2 U	2500	290	130	850	210	100	14
1,2,4-Trichlorobenzene	0.37 U	0.37 U	0.37 U	0.37 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U	7.4 U
1,2,4-Trimethylbenzene	0.25 U	0.28	0.52	1.8	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dibromoethane (EDB)	0.38 U	0.38 U	0.38 U	0.38 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U
1,2-Dichlorobenzene	0.3 U	0.3 U	0.3 U	0.3 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	0.2 U	0.2 U	0.2 U	0.2 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U
1,2-Dichloropropane	0.23 U	0.23 U	0.23 U	0.23 U	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U
1,2-Dichlorotetrafluoroethane	0.35 U	0.35 U	0.35 U	0.35 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U
1,3,5-Trimethylbenzene	0.25 U	0.25 U	0.25 U	0.5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,3-Butadiene	0.11 U	0.11 U	0.17	1.3	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
1,3-Dichlorobenzene	0.3 U	0.3 U	0.3 U	0.3 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,4-Dichlorobenzene	0.3 U	0.3 U	0.3 U	0.53	6 U	6 U	6 U	6 U	6 U	6 U	6 U
2-Butanone	0.58	1.2	2.4	3.2	6.3	89	75	120	280	300	8.7
2-Hexanone	0.2 U	0.22	0.57	0.35	4 U	4 U	4 U	4 U	4 U	4 U	4 U
4-Ethyltoluene	0.25 U	0.25 U	0.25 U	0.6	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone	0.2 U	0.2 U	0.27	0.63	4 U	4 U	4 U	4 U	4 U	4 U	4 U
Acetone	7.3	8	15	22	530	32	52	580	64	81	580
Benzene	0.69	0.62	1.3	4.7	13	12	6.2	5.2	5.2	4.1	3.2 U
Benzyl chloride	0.26 U	0.26 U	0.26 U	0.26 U	5.2 U	5.2 U	5.2 U	5.2 U	5.2 U	5.2 U	5.2 U
Bromodichloromethane	0.33 U	0.33 U	0.33 U	0.33 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U	6.6 U
Bromoform	0.51 U	0.51 U	0.51 U	0.51 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Bromomethane	0.19 U	0.19 U	0.19 U	0.19 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U
Carbon disulfide	0.16 U	0.16 U	0.16 U	0.16 U	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	5.7
Carbon tetrachloride	0.38	0.44	0.52	0.56	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U
Chlorobenzene	0.23 U	0.23 U	0.23 U	0.23 U	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U	4.6 U
Chloroethane	0.13 U	0.13 U	0.13 U	0.13 U	260	23	16	140	50	34	170
Chloroform	0.24 U	0.24 U	0.24 U	0.24 U	83	32	20	42	24	19	4.8 U
Chloromethane	1.1	0.9	1.4	1.5	2 U	2 U	2 U	2 U	2 U	2 U	2 U
cis-1,2-Dichloroethene	0.2 U	0.2 U	0.2 U	0.2 U	2900	710	400	700	360	220	1100
cis-1,3-Dichloropropene	0.22 U	0.22 U	0.22 U	0.22 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U
Cyclohexane	0.17 U	0.17 U	0.35	1.1	3.4 U	3.4 U	3.4 U	3.4 U	5.3	3.4 U	3.4 U
Dibromochloromethane	0.43 U	0.43 U	0.43 U	0.43 U	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U
Dichlorodifluoromethane	2	2.2	2.6	2.7	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethanol	4	5.4	10	47	320	36	46	360	38	73	350
Ethyl acetate	0.37 U	0.37 U	0.18 U	0.31	7.3 U	3.6 U	3.6 U	7.3 U	3.6 U	3.6 U	7.3 U
Ethylbenzene	0.22 U	0.25	0.52	2	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U

U = not detected

ug/m3 = micrograms per cubic meter

Table 1. Analytical Results - Air Monitoring Events Through February 18, 2009
Short Term Response Action
Former Gorham Manufacturing - Retail Complex
Providence, Rhode Island

All concentrations in ug/m ³	AA-1 1/16/2009	AA-1-020309 2/3/2009	AA-1-021109 2/11/2009	AA-1-021809 2/18/2009	EW-5-020309 2/3/2009	EW-5-021109 2/11/2009	EW-5-021809 2/18/2009	EW-6-020309 2/3/2009	EW-6-021109 2/11/2009	EW-6-021809 2/18/2009	EW-7-020309 2/3/2009
Hexachlorobutadiene	1.1 U	1.1 U	1.1 U	1.1 U	22 U	22 U	22 U	22 U	22 U	22 U	22 U
Hexane	1.5	0.75	1.1	2.9	5	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	10
Isopropyl alcohol	1.4	1.4	1.8	4.3	190	5.1	4.6	210	18	33	210
m,p-Xylene	0.43 U	0.72	1.4	6.4	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U
Methylene chloride	5.5	3.1	0.65	1.5	7.8	7 U	9.6	7 U	7 U	7.5	9.3
Methyl-t-butyl ether	0.18 U	0.18 U	0.18 U	0.18 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U	3.6 U
n-Heptane	0.2 U	0.27	0.92	1.6	4 U	4 U	4 U	4 U	4 U	4 U	4 U
o-Xylene	0.22 U	0.27	0.53	2.2	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U
Propylene (Propene)	0.18 U	0.18 U	0.09 U	0.09 U	3.5 U	1.8 U	1.8 U	3.5 U	1.8 U	1.8 U	3.5 U
Styrene	0.21 U	0.21 U	0.21 U	0.28	4.2 U	17	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U
Tetrachloroethene	0.34 U	0.34 U	0.73	0.77	210	310	190	330	290	130	66
Tetrahydrofuran	0.15 U	0.15 U	0.15 U	0.15 U	16	110	69	75	480	260	41
Toluene	0.94	1.5	3.2	14	13	4.7	3.8 U	12	3.8 U	3.8 U	14
trans-1,2-Dichloroethene	0.2 U	0.2 U	0.2 U	0.2 U	26	6.1	4 U	12	6.3	4.2	150
trans-1,3-Dichloropropene	0.22 U	0.22 U	0.22 U	0.22 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U
Trichloroethene	0.27 U	0.27 U	0.27 U	0.39	51000	20000	14000	12000	6900	4200	230
Trichlorofluoromethane	1.3	1.2	1.7	2.4	3500	200	120	2300	870	630	1800
Trichlorotrifluoroethane	0.68	0.53	0.5	0.47	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U	7.6 U
Vinyl acetate	0.71 U	0.71 U	0.18 U	0.18 U	15 U	3.6 U	3.6 U	15 U	3.6 U	3.6 U	15 U
Vinyl chloride	0.13 U	0.13 U	0.13 U	0.13 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	280

NA = not available

Bolded and shaded values are above CT target air concentration for industrial/commercial scenario

methylene chloride concentrations in four indoor air samples from LARGE retail space appear to be unrelated to subsurface conditions

IA-1 through IA-4 from large retail space

IA-5 from eastern small retail space

IA-6 from center small retail space

IA-7 from western small retail space

AA-1 is the outdoor air reference sample

EW -COMBINED is the combined sample from the vapor extraction wells EW-1 through EW-4 in the large retail space prior to treatment

POST-CARBON is from the treated air stream from the large retail space

EW-5 is from the western perimeter of the large retail space

EW-6 is from the center small retail space

EW-7 is from the western small retail space

Results for January 16, 2009 represent baseline conditions before mitigation system start-up

Prepared by:	mjm
Checked By:	kjc

U = not detected

ug/m3 = micrograms per cubic meter

Table 1. Analytical Results - Air Monitoring Events Through February 18, 2009
Short Term Response Action
Former Gorham Manufacturing - Retail Complex
Providence, Rhode Island

All concentrations in ug/m ³	EW-7-021109 2/11/2009	EW-7-021809 2/18/2009	EW- COMBINED- 020309 2/3/2009	EW- COMBINED- 021109 2/11/2009	EW- COMBINED- 021809 2/18/2009	CT IA TARGET 2003 (ug/m3)	IA-1 1/16/2009	IA-1-020309 2/3/2009	IA-1-021109 2/11/2009	IA-1-021809 2/18/2009	IA-2 1/16/2009
1,1,1-Trichloroethane	8500	7800	190000	91000	73000	500	10	0.56	1.1	0.99	9.9
1,1,2,2-Tetrachloroethane	1.4 U	1.7 U	6.8 U	6.8 U	14 U	0.14	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U
1,1,2-Trichloroethane	1.1 U	1.4 U	5.4 U	5.4 U	11 U	12	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,1-Dichloroethane	1800	1600	19000	7800	5300	430	0.71	0.2 U	0.2 U	0.2 U	0.72
1,1-Dichloroethene	15	8.5	7800	1800	1000	20	0.38	0.2 U	0.2 U	0.2 U	0.41
1,2,4-Trichlorobenzene	1.5 U	1.9 U	7.4 U	7.4 U	15 U	NA	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
1,2,4-Trimethylbenzene	1 U	1.3 U	5 U	5 U	10 U	52	0.25 U	0.36	0.7	0.77	0.25 U
1,2-Dibromoethane (EDB)	1.6 U	1.9 U	7.6 U	7.6 U	16 U	0.038	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
1,2-Dichlorobenzene	1.2 U	1.5 U	6 U	6 U	12 U	410	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,2-Dichloroethane	0.8 U	1 U	4 U	4 U	8 U	0.31	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dichloropropane	0.92 U	1.2 U	4.6 U	4.6 U	9.2 U	0.42	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
1,2-Dichlorotetrafluoroethane	1.4 U	1.8 U	7 U	7 U	14 U	NA	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
1,3,5-Trimethylbenzene	1 U	1.3 U	5 U	5 U	10 U	52	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,3-Butadiene	0.44 U	0.55 U	2.2 U	2.2 U	4.4 U	NA	0.11 U	0.11 U	0.34	0.84	0.11 U
1,3-Dichlorobenzene	1.2 U	1.5 U	6 U	6 U	12 U	410	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,4-Dichlorobenzene	1.2 U	1.5 U	6 U	6 U	12 U	24	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
2-Butanone	12	7.3	37	32	48	500	20	3.1	5.8	3.4	21
2-Hexanone	0.8 U	1 U	4 U	4 U	8 U	NA	0.2 U	0.2 U	0.6	0.42	0.2 U
4-Ethyltoluene	1 U	1.3 U	5 U	5 U	10 U	NA	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
4-Methyl-2-pentanone	0.8 U	1 U	4 U	4 U	8 U	200	0.2 U	0.2 U	0.43	0.3	0.2 U
Acetone	38	58	1600	31	75	500	18	7.7	19	21	17
Benzene	3.9	4.5	14	7.3	8.4	3.3	1	0.68	1.9	3	1
Benzyl chloride	1.1 U	1.3 U	5.2 U	5.2 U	11 U	NA	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U
Bromodichloromethane	1.4 U	1.7 U	6.6 U	6.6 U	14 U	0.46	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
Bromoform	2.1 U	2.6 U	11 U	11 U	21 U	7.3	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U
Bromomethane	0.76 U	0.95 U	3.8 U	3.8 U	7.6 U	NA	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Carbon disulfide	3.4	2.7	3.2 U	63	32	NA	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Carbon tetrachloride	1.3 U	1.6 U	6.2 U	6.2 U	13 U	0.54	0.35	0.41	0.52	0.55	0.33
Chlorobenzene	0.92 U	1.2 U	4.6 U	4.6 U	9.2 U	200	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
Chloroethane	150	88	3400	1700	1200	500	0.13 U	0.13 U	0.42	0.13 U	0.13 U
Chloroform	1	1.2 U	27	17	20	0.5	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Chloromethane	0.4 U	0.5 U	2 U	2 U	4 U	80	1.1	1	1.4	1.5	1.1
cis-1,2-Dichloroethene	1300	1200	14000	4700	6300	100	2	0.2 U	1	1.1	2.1
cis-1,3-Dichloropropene	0.88 U	1.1 U	4.4 U	4.4 U	8.8 U	NA	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Cyclohexane	5.6	5	3.4 U	3.4 U	6.8 U	NA	0.17 U	0.17 U	0.49	0.61	0.17 U
Dibromochloromethane	1.8 U	2.2 U	8.6 U	8.6 U	18 U	NA	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
Dichlorodifluoromethane	2.5	3.2	5 U	5 U	10 U	500	1.8	2.1	2.6	2.8	1.8
Ethanol	26	29	960	81	120	NA	5.7	8.3	14	20	5.5
Ethyl acetate	0.72 U	0.9 U	7.3 U	3.6 U	7.2 U	NA	0.37 U	0.37 U	0.18 U	0.18 U	0.37 U
Ethylbenzene	0.88 U	1.1 U	9.4	4.4 U	8.8 U	290	0.26	0.28	0.66	0.85	0.26

U = not detected

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Hexachlorobutadiene	4.3 U	5.4 U	22 U	22 U	43 U	NA	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Hexane	10	7.6	16	4.9	270	NA	0.92	0.74	1.2	1.6	0.88
Isopropyl alcohol	18	21	610	2.4 U	15	NA	3.4	3.1	5.3	5.8	3.7
m,p-Xylene	1.8 U	2.2 U	25	8.6 U	18 U	NA	0.76	0.87	2.1	2.8	0.76
Methylene chloride	2.6	8	12	7 U	14 U	17	2.3	33	2.3	1.8	2
Methyl-t-butyl ether	3.5	2.9	3.6 U	3.6 U	7.2 U	190	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
n-Heptane	1.4	1 U	4 U	4 U	8 U	NA	0.23	0.2 U	0.59	0.75	0.23
o-Xylene	0.88 U	1.1 U	8.4	4.4 U	8.8 U	NA	0.26	0.33	0.76	0.99	0.3
Propylene (Propene)	160	110	3.5 U	100	3.6 U	NA	0.18 U	0.18 U	0.09 U	0.09 U	0.18 U
Styrene	0.84 U	1.1 U	4.2 U	4.2 U	8.4 U	290	0.21 U	0.21 U	0.21	0.28	0.21 U
Tetrachloroethene	69	56	140	60	430	5	6.6	0.57	4.2	3.2	7.5
Tetrahydrofuran	23	12	77	77	150	NA	12	1.2	1.3	0.48	12
Toluene	2.9	3.6	36	3.8 U	7.6 U	500	1.7	1.4	4	5.7	1.7
trans-1,2-Dichloroethene	140	90	110	61	47	200	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
trans-1,3-Dichloropropene	0.88 U	1.1 U	4.4 U	4.4 U	8.8 U	NA	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Trichloroethene	210	180	36000	17000	26000	1	4.2	0.46	1.6	1.4	4.4
Trichlorofluoromethane	1400	900	9900	2300	1800	500	2.1	1.4	1.7	3.1	2
Trichlorotrifluoroethane	1.6 U	1.9 U	7.6 U	7.6 U	16 U	NA	0.65	0.64	0.47	0.46	0.69
Vinyl acetate	0.72 U	0.9 U	15 U	3.6 U	7.2 U	NA	0.71 U	0.71 U	0.18 U	0.18 U	0.71 U
Vinyl chloride	370	180	110	20	10	1.9	0.26	0.13 U	0.22	0.21	0.27

Table 1. Analytical Results - Air Monitoring Events Through February 18, 2009
Short Term Response Action
Former Gorham Manufacturing - Retail Complex
Providence, Rhode Island

All concentrations in ug/m ³	IA-2-020309 2/3/2009	IA-2-021109 2/11/2009	IA-2-021809 2/18/2009	IA-3 1/16/2009	IA-3-020309 2/3/2009	IA-3-021109 2/11/2009	IA-3-021809 2/18/2009	IA-4 1/16/2009	IA-4-020309 2/3/2009	IA-4-021109 2/11/2009	IA-4-021809 2/18/2009	IA-5 1/16/2009
1,1,1-Trichloroethane	0.63	1.1	1.1	9.8	0.57	1.1	1.1	10	0.62	1.1	1.1	48
1,1,2,2-Tetrachloroethane	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 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	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,1-Dichloroethane	0.2 U	0.2 U	0.2 U	0.68	0.2 U	0.2 U	0.2 U	0.73	0.2 U	0.2 U	0.2 U	1.8
1,1-Dichloroethene	0.2 U	0.2 U	0.2 U	0.35	0.2 U	0.2 U	0.2 U	0.42	0.2 U	0.2 U	0.2 U	0.58
1,2,4-Trichlorobenzene	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
1,2,4-Trimethylbenzene	0.37	0.7	0.65	0.25 U	0.36	0.68	0.61	0.26	0.37	0.74	0.65	0.25 U
1,2-Dibromoethane (EDB)	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 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	0.3 U	0.3 U	0.3 U	0.3 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	0.2 U	0.2 U	0.2 U	0.2 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	0.23 U	0.23 U	0.23 U	0.23 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	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
1,3,5-Trimethylbenzene	0.25 U	0.25	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,3-Butadiene	0.11 U	0.3	0.66	0.11 U	0.11 U	0.3	0.77	0.11 U	0.11 U	0.33	0.77	0.11 U
1,3-Dichlorobenzene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 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	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
2-Butanone	4.1	4.6	3	20	4.2	4.6	4	21	4.4	6	3.2	7.2
2-Hexanone	0.2 U	0.35	0.26	0.2 U	0.26	0.33	0.3	0.2 U	0.33	0.73	0.39	0.2 U
4-Ethyltoluene	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
4-Methyl-2-pentanone	0.2 U	0.35	0.2 U	0.2 U	0.2 U	0.29	0.34	0.2 U	0.2 U	0.43	0.28	0.2 U
Acetone	9.6	14	18	18	12	17	24	17	10	15	20	32
Benzene	0.67	1.8	3	1	0.71	1.9	3.1	1.1	0.68	1.8	3	0.79
Benzyl chloride	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 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	0.33 U	0.33 U	0.33 U	0.33 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	0.51 U	0.51 U	0.51 U	0.51 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	0.19 U	0.19 U	0.19 U	0.19 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	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Carbon tetrachloride	0.41	0.55	0.57	0.34	0.45	0.52	0.6	0.4	0.43	0.5	0.58	0.33
Chlorobenzene	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
Chloroethane	0.13 U	0.42	0.13 U	0.13 U	0.13 U	0.43	0.13 U	0.13 U	0.13 U	0.41	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	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Chloromethane	1	1.3	1.3	1.1	0.98	1.2	1.4	1.2	0.99	1.4	1.3	1.1
cis-1,2-Dichloroethene	0.24	1.1	1.1	1.9	0.2 U	1.1	1.1	2.4	0.2 U	1.1	1.1	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	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Cyclohexane	0.17 U	0.44	0.61	0.17 U	0.17 U	0.46	0.6	0.17 U	0.17 U	0.44	0.64	0.17 U
Dibromochloromethane	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
Dichlorodifluoromethane	2.2	2.6	2.9	1.9	2.3	2.5	2.9	1.9	2.2	2.5	2.8	2
Ethanol	8.8	12	17	5.5	9.2	13	18	5.3	8.9	12	18	590
Ethyl acetate	0.37 U	0.18 U	0.18 U	0.37 U	0.37 U	0.18 U	0.18 U	0.37 U	0.37 U	0.18 U	0.19	0.75
Ethylbenzene	0.28	0.65	0.79	0.25	0.29	0.64	0.77	0.25	0.29	0.65	0.78	0.22 U

U = not detected

ug/m3 = micrograms per cubic meter

Table 1. Analytical Results - Air Monitoring Events Through February 18, 2009
Short Term Response Action
Former Gorham Manufacturing - Retail Complex
Providence, Rhode Island

All concentrations in ug/m ³	IA-2-020309 2/3/2009	IA-2-021109 2/11/2009	IA-2-021809 2/18/2009	IA-3 1/16/2009	IA-3-020309 2/3/2009	IA-3-021109 2/11/2009	IA-3-021809 2/18/2009	IA-4 1/16/2009	IA-4-020309 2/3/2009	IA-4-021109 2/11/2009	IA-4-021809 2/18/2009	IA-5 1/16/2009
Hexachlorobutadiene	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Hexane	0.57	1.3	1.6	0.94	0.87	1.3	1.9	0.9	0.66	1.2	1.7	0.84
Isopropyl alcohol	3.1	4.5	4.5	3.5	4.1	5.5	4.9	3.5	3.3	4.7	4.8	3.8
m,p-Xylene	0.88	2	2.6	0.75	0.9	2	2.6	0.76	0.89	2.1	2.6	0.6
Methylene chloride	30	4	1.6	2.2	31	3.1	3.5	2.3	29	1.7	2.5	2
Methyl-t-butyl ether	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
n-Heptane	0.2 U	0.58	0.73	0.22	0.2 U	0.61	0.77	0.23	0.2 U	0.58	0.79	0.2 U
o-Xylene	0.34	0.76	0.89	0.28	0.33	0.79	0.86	0.27	0.33	0.78	0.87	0.23
Propylene (Propene)	0.18 U	0.09 U	0.09 U	0.18 U	0.18 U	0.09 U	0.09 U	0.18 U	0.18 U	0.09 U	0.09 U	0.18 U
Styrene	0.21 U	0.21 U	0.23	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.22	0.23	0.21 U
Tetrachloroethene	0.64	4.2	3.2	6.1	0.56	4.3	3.3	7.3	0.58	4.4	3.4	0.39
Tetrahydrofuran	1.2	1.2	0.49	12	1.1	1.3	0.49	13	1.2	1.3	0.47	3.2
Toluene	1.3	4	5.5	1.7	1.5	4.7	5.8	1.8	1.3	4.3	5.8	1.3
trans-1,2-Dichloroethene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 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	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Trichloroethene	0.56	1.6	1.4	3.9	0.49	1.7	1.5	4.7	0.48	1.7	1.5	5.5
Trichlorofluoromethane	1.2	1.7	2.8	1.9	1.3	1.8	2.8	2	1.3	1.6	3	3
Trichlorotrifluoroethane	0.58	0.49	0.46	0.6	0.58	0.49	0.44	0.72	0.59	0.51	0.45	0.62
Vinyl acetate	0.71 U	0.18 U	0.18 U	0.71 U	0.71 U	0.18 U	0.18 U	0.71 U	0.71 U	0.18 U	0.18 U	0.71 U
Vinyl chloride	0.13 U	0.18	0.2	0.23	0.13 U	0.19	0.21	0.29	0.13 U	0.2	0.22	0.13 U

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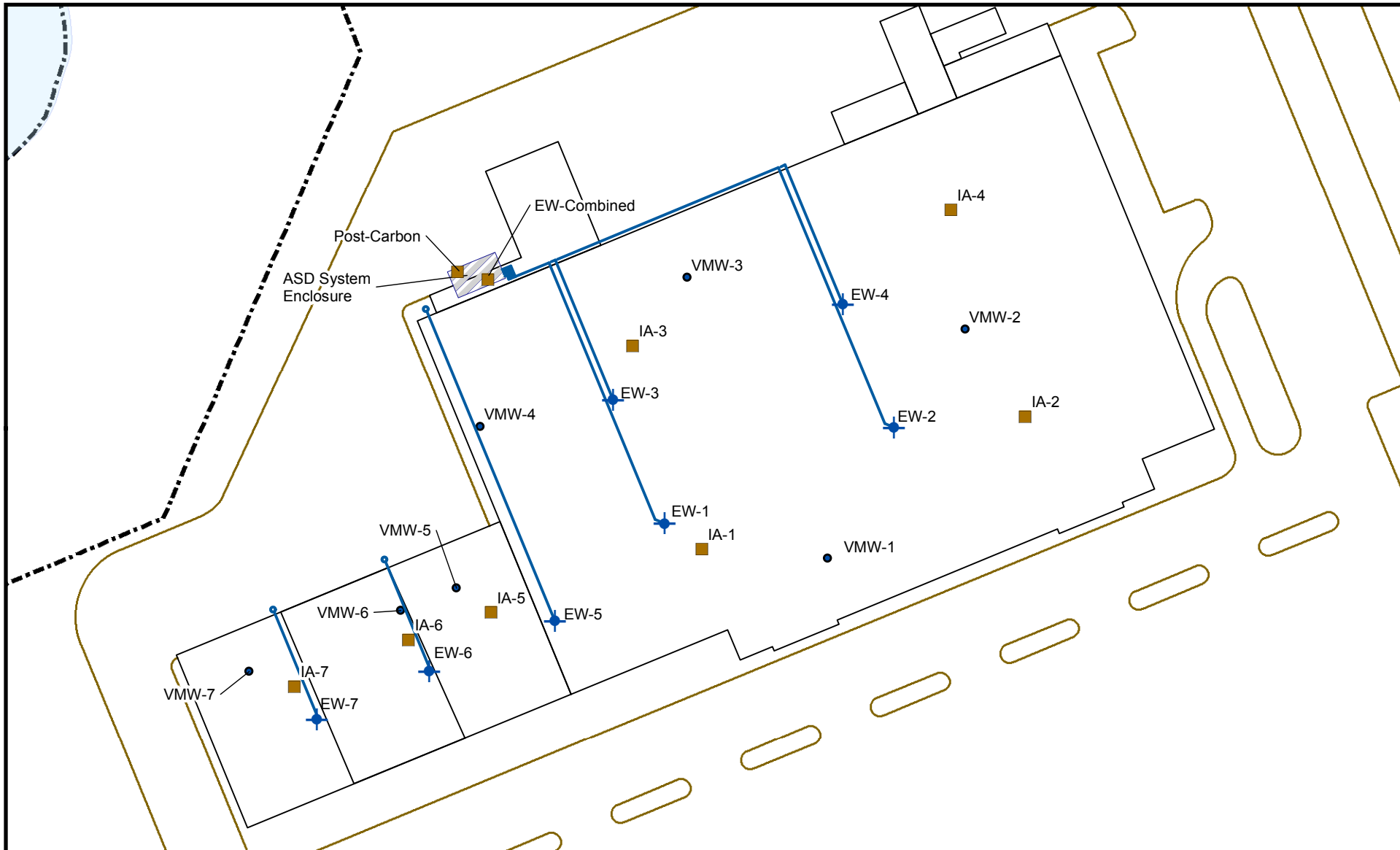
All concentrations in ug/m ³	IA-5-020309 2/3/2009	IA-5-021109 2/11/2009	IA-5-021809 2/18/2009	IA-6 1/16/2009	IA-6-020309 2/3/2009	IA-6-021109 2/11/2009	IA-6-021809 2/18/2009	IA-7 1/16/2009	IA-7-020309 2/3/2009	IA-7-021109 2/11/2009	IA-7-021809 2/18/2009	POST CARBON- 020309 2/3/2009
1,1,1-Trichloroethane	0.92	0.27 U	0.27 U	110	3.9	0.27 U	0.29	44	2.4	0.4	1.3	1
1,1,2,2-Tetrachloroethane	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 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	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,1-Dichloroethane	0.2 U	0.2 U	0.2 U	3.9	0.2 U	0.2 U	0.2 U	1.3	0.2 U	0.2 U	0.2 U	0.2 U
1,1-Dichloroethene	0.2 U	0.2 U	0.2 U	1.2	0.2 U	0.2 U	0.2 U	0.52	0.2 U	0.2 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	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
1,2,4-Trimethylbenzene	0.32	0.33	0.36	0.75	0.32	0.29	1.5	0.25 U	0.34	0.34	0.99	0.25 U
1,2-Dibromoethane (EDB)	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 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	0.3 U	0.3 U	0.3 U	0.3 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	0.2 U	0.2 U	0.2 U	0.2 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	0.23 U	0.23 U	0.23 U	0.23 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	0.35 U	0.35 U	0.35 U	0.35 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	0.38	0.25 U	0.25 U	0.25 U	0.25 U	2.1
1,3-Butadiene	0.11 U	0.11 U	0.25	0.11 U	0.11 U	0.11 U	1.1	0.11 U	0.11 U	0.14	0.97	0.11 U
1,3-Dichlorobenzene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	2.9
1,4-Dichlorobenzene	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.41	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
2-Butanone	2.4	2.7	2.6	120	10	3.2	2.9	70	6.5	3.9	5.2	10
2-Hexanone	0.48	0.38	0.27	0.2 U	0.42	0.37	0.34	0.2 U	0.29	0.2 U	0.91	0.2 U
4-Ethyltoluene	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.47	0.25 U	0.25 U	0.25 U	0.27	2.1
4-Methyl-2-pentanone	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.36	0.2 U	0.2 U	0.2 U	0.42	5
Acetone	11	21	20	44	14	14	25	29	12	13	32	1200
Benzene	0.6	0.99	1.6	1	0.6	0.98	4.1	0.95	0.75	1.1	3.2	1.3
Benzyl chloride	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 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	0.33 U	0.33 U	0.33 U	0.33 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	0.51 U	0.51 U	0.51 U	0.51 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	0.19 U	0.19 U	0.19 U	0.19 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	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Carbon tetrachloride	0.44	0.5	0.55	0.39	0.42	0.52	0.59	0.32	0.44	0.52	0.56	0.38
Chlorobenzene	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 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	0.13 U	0.13 U	0.13 U	0.13 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	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
Chloromethane	1	1.5	1.4	1.3	0.9	1.4	1.5	1.7	0.98	1.4	1.5	0.59
cis-1,2-Dichloroethene	0.2 U	0.2 U	0.2 U	0.4	0.2 U	0.2 U	0.2 U	0.29	0.2 U	0.2 U	0.2 U	0.27
cis-1,3-Dichloropropene	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Cyclohexane	0.17 U	0.38	0.41	0.17 U	0.17 U	0.25	0.91	0.17 U	0.17 U	0.32	0.7	0.93
Dibromochloromethane	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
Dichlorodifluoromethane	2.2	2.5	2.7	2	2.1	2.6	2.8	2.1	2.2	2.6	2.7	0.76
Ethanol	12	23	140	41	23	12	40	7.3	16	11	26	740
Ethyl acetate	0.37 U	0.18 U	0.18 U	0.37 U	0.37 U	0.18 U	0.22	0.37 U	0.37 U	0.18 U	0.21	0.37 U
Ethylbenzene	0.25	0.33	0.43	0.29	0.25	0.33	1.6	0.23	0.29	0.36	0.95	10

U = not detected

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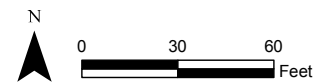
All concentrations in ug/m ³	IA-5-020309 2/3/2009	IA-5-021109 2/11/2009	IA-5-021809 2/18/2009	IA-6 1/16/2009	IA-6-020309 2/3/2009	IA-6-021109 2/11/2009	IA-6-021809 2/18/2009	IA-7 1/16/2009	IA-7-020309 2/3/2009	IA-7-021109 2/11/2009	IA-7-021809 2/18/2009	POST CARBON- 020309 2/3/2009
Hexachlorobutadiene	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Hexane	0.54	1.1	0.99	1.2	0.78	0.7	2.6	0.9	0.87	0.91	2	3
Isopropyl alcohol	3.5	580	2.9	4.7	6.6	3.2	4.9	3.7	6.2	3.6	8.3	450
m,p-Xylene	0.74	0.91	1.2	0.82	0.72	0.84	4.9	0.61	0.82	0.94	2.8	27
Methylene chloride	3.6	5.2	1.1	2.5	5.2	0.59	1.6	1.9	5.7	0.92	1.5	20
Methyl-t-butyl ether	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
n-Heptane	0.2 U	0.36	0.35	0.27	0.2 U	0.32	1.3	0.2	0.2 U	0.37	1.2	1.8
o-Xylene	0.27	0.35	0.47	0.36	0.26	0.34	1.8	0.24	0.31	0.39	0.97	9.5
Propylene (Propene)	0.18 U	0.09 U	0.09 U	0.18 U	0.18 U	0.09 U	0.09 U	0.18 U	0.18 U	0.09 U	0.09 U	0.18 U
Styrene	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.28	0.21 U	0.21 U	0.21 U	0.26	3.4
Tetrachloroethene	0.34 U	0.43	0.43	1.2	0.34 U	0.45	1.2	1.6	0.34 U	0.65	0.63	0.72
Tetrahydrofuran	0.15 U	0.15 U	0.15 U	77	2.8	0.32	0.15 U	45	2.1	0.74	0.43	6.8
Toluene	1.1	3	3.3	1.8	1.3	2.5	11	1.5	1.6	2.7	7.5	29
trans-1,2-Dichloroethene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 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	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
Trichloroethene	0.39	0.27 U	0.27 U	13	1.7	0.27 U	0.34	4.6	1.1	0.28	0.58	2
Trichlorofluoromethane	1.3	1.7	1.8	4.8	1.3	1.7	2.5	4.7	1.4	1.7	3.1	0.71
Trichlorotrifluoroethane	0.54	0.48	0.45	0.64	0.51	0.48	0.45	0.62	0.57	0.47	0.44	1.3
Vinyl acetate	0.71 U	0.18 U	0.18 U	0.71 U	0.71 U	0.18 U	0.18 U	0.71 U	0.71 U	0.18 U	0.18 U	0.71 U
Vinyl chloride	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U



All locations are approximate

Legend

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



Prepared by BJR | Checked by MJM

Figure 1
Vapor Mitigation
Sample Locations

Former Gorham Manufacturing Facility
333 Adelaide Avenue
Providence, Rhode Island

