



January 30, 2012

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

**RE: Air Monitoring Report
Fourth Quarter, 2011
Retail Complex, Active Sub-Slab Depressurization System
Former Gorham Manufacturing Facility
333 Adelaide Avenue, Providence, Rhode Island
AMEC Project No. 3650080114**

Dear Mr. Martella:

This letter report presents the results of quarterly compliance sampling and analysis conducted by AMEC E&I, Inc. (formerly MACTEC Engineering and Consulting, Inc.) at the retail complex located at the Former Gorham Manufacturing Facility, 333 Adelaide Avenue, Providence, Rhode Island (the Site). The reporting period is from October 2011 through December 2011 and includes one quarterly compliance sampling event (December 8, 2011).

The sampling and analysis 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 vapor 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 (Figure 1). The mitigation systems in the small retail spaces consist of one extraction well in each space

connected to an individual radon-type fan, located at the north, or rear, of each small retail space.

Small Retail Spaces

The quarterly monitoring event for the three small retail spaces, consistent with the requirements of the Orders of Approval, was completed on December 8, 2011.

Table 1 summarizes the analytical results at the small retail spaces for the baseline sampling event conducted prior to system start-up and all subsequent 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 (11L0398) associated with the December 8, 2011 quarterly sampling event is provided in Appendix A of this letter report. The analytical laboratory's detection limits are provided in Appendix B.

The sampling event 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 the sampling round. Sub-slab vacuum monitoring (pressure differential measurements) was also conducted at locations VMW-5, VMW-6, and VMW-7 in conjunction with the quarterly 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 quarterly sampling event in two of the small retail spaces (sample locations IA-6 and IA-7). The detections of tetrachloroethylene (PCE) and 1,1,2,2-tetrachloroethane were slightly above the action level at the eastern small retail space (sample location IA-5). The result for PCE in IA-5 seems to be an anomaly not related to conditions in the subsurface nor ambient air. The concentration from IA-5 is at 5.7 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) which is above the target of 5 $\mu\text{g}/\text{m}^3$, but the soil gas concentration in the corresponding vapor extraction well EW-5 was at 3.5 $\mu\text{g}/\text{m}^3$, which is lower than the concentration in the indoor air sample. The vacuum monitoring points measurements indicate that there was vacuum at all points near the retail space suggesting that systems in the small retail spaces were operating effectively. There was PCE detected in the outdoor sample (sample location AA-1) at a concentration of 0.73 $\mu\text{g}/\text{m}^3$. As expected, therefore, PCE were also detected in all of the indoor air samples from the small retail spaces. The outdoor background concentrations appear to be responsible for most of the detections of PCE in the indoor air samples. However, the outdoor air concentration does not explain the 5.7 $\mu\text{g}/\text{m}^3$ concentration in

air sample IA-5. The detection of 1,1,2,2-tetrachloroethane in sample IA-5 at $0.16 \mu\text{g}/\text{m}^3$ which is above the target of $0.14 \mu\text{g}/\text{m}^3$ also seems to be unrelated to the subsurface conditions and vapor intrusion. This compound was not detected in any of the vapor extraction well samples nor in any of the other indoor air samples collected from the other two small retail spaces. Given the circumstances, the detected concentrations of PCE and 1,1,2,2-tetrachloroethane do not warrant any action at this time. The space will be evaluated again upon completion of the next quarterly monitoring event scheduled for March, 2012.

- The eastern small retail space (sample location IA-5) remains unoccupied.
- The center small retail space (sample location IA-6) remains unoccupied.
- The western small retail space (sample location IA-7) is intermittently occupied.
- The mitigation systems are functioning as designed.

Large Retail Space

The quarterly monitoring event for the large retail space, consistent with the requirements of the Orders of Approval, was completed on December 8, 2011. Table 3 summarizes the analytical results for the large retail space for the baseline sampling event conducted prior to system start-up and all subsequent 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 (11L0398) associated with the December 8, 2011 quarterly sampling event is provided in Appendix A of this letter report. The analytical laboratory's detection limits are provided in Appendix B.

The sampling event included collection of samples from each of the indoor air sampling points in the large retail space (locations IA-1 through IA-4), one outdoor air reference sample (location AA-1), and one air sample collected from the manifold where air from the four vapor extraction wells is collected (EW-Combined). The sampling locations are shown in Figure 1. The outdoor reference air sample (AA-1) was located at an upwind location. Sub-slab vacuum monitoring (pressure differential measurements) was also conducted at locations VMW-1 through VMW-4 in conjunction with the air sampling program. The vacuum monitoring results for the large retail space are tabulated in Table 4.

The following conclusions are based on Site observations and the data from Table 3.

- Indoor air sample results were in compliance with action levels for the December 2011 quarterly sampling event in the large retail space (sample locations IA-1 through IA-4).
- The mitigation system is functioning as designed and is achieving desired results with respect to indoor air quality in the large retail space.

ASD System Monitoring

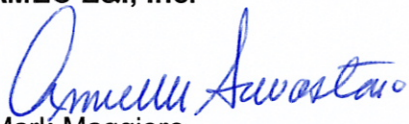
The ASD system performance is monitored monthly by Clean Harbors Environmental Services. There were no mitigation system shutdowns reported during the reporting period.

Next Reporting Period

The next quarterly report (first quarter 2012) will include monitoring from January 2012 through March 2012. The report will be prepared and submitted to the Rhode Island Department of Environmental Management (RIDEM) in April 2012.

Please contact the undersigned at 781-245-6606 if we can provide additional information or answer any questions concerning these monitoring events and system adjustments.

Sincerely,
AMEC E&I, Inc.


for Mark Maggiore
Environmental Scientist *with permission*


Michael Murphy
Principal Scientist

Enclosures: Table 1. Summary of Analytical Results – Air Sampling for Small Retail Spaces
Table 2. Vacuum Monitoring Results – Small Retail Spaces
Table 3. Summary of Analytical Results – Air Sampling for Large Retail Space
Table 4. Vacuum Monitoring Results – Large Retail Space

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
AMEC Project File

[P:\3650080114 - Textron Gorham Vapor Mitigation System\4.0 Project Deliverables\4.1 Reports\Q4 2011 report\QTR4_2011 RPT.doc]

Textron, Inc.
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TABLES

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FIGURES

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APPENDIX A

Laboratory Reports

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APPENDIX B

Analytical Laboratory Detection Limits