



EA Engineering, Science, and Technology, Inc.

Airport Professional Park  
2350 Post Road  
Warwick, Rhode Island 02886  
Telephone: 401-736-3440  
Fax: 401-736-3423  
www.eaest.com

6 April 2007

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

RE: Initial Air Sampling Event/Order of Approval Compliance Follow-Up Letter  
Former Gorham Manufacturing Facility,  
Parcel B, 333 Adelaide Avenue, Providence, Rhode Island  
Case No. 2005-029  
EA Project No. 61965.01

Dear Mr. Martella:

On behalf of the Providence Department of Public Property (City), EA Engineering, Science, and Technology, Inc. (EA) is providing this letter in accordance with Item 6(e)(vi) of the Department's Order of Approval (OA) issued in June 2006 and amended in February 2007 for the referenced site.

As communicated via telephone message to the Rhode Island Department of Environmental Management (the Department) at approximately 5:45 pm on Friday, 30 March 2007, several volatile organic compounds (VOCs) were identified in indoor air at the site in concentrations that exceed the applicable Indoor Air Action Levels during the sampling event completed on 15 March 2007. Included in the voice message was a verbal request that you contact us on Monday, 2 April 2007 to discuss the data and relevant observations or conclusions that could be drawn from the results and/or to schedule a meeting to accomplish the same. At the time this letter was finalized, EA had not yet been contacted by the Department. Therefore, we have attached a table summarizing the pertinent data, a figure illustrating the indoor sampling locations, and a copy of the laboratory analytical report for your reference. Please note that the attached table only includes the VOC compounds that exceeded the applicable Indoor Air Action Level in at least one sample.

Based upon our preliminary review of the data, we offer the following observations:

- The 15 March 2007 laboratory data was collected (per Department Ordered deadline) during a time when VOC-emitting construction activities were ongoing, as such, multiple VOCs related to construction activities and/or building materials were detected within indoor air. These indoor air concentrations are expected to decrease over time as the VOC-emitting construction activities cease and as dissipation of the VOCs occurs.
- The sub-slab depressurization system (SSD) installed at the site in accordance with the Department-approved Remedial Action Work Plan (RAWP), was by design, not yet in operation at the site. The SSD System was turned on-line on 16 March 2007. Therefore, assuming that VOC-emitting construction activities are completed or minimized in the near future and assuming that the SSD System continues to operate in accordance with the approved design, the 15 March 2007 indoor air data represents "worst case" indoor air concentrations for the site.



- The usefulness of VOC data obtained from sub-slab air sampling ports installed beneath the building floor in accordance with the Department-approved RAWP is limited since two VOC compounds (Acetone and 2-Butanone) were found to be present at high concentrations within each sub-slab sampling location (MP-1 through MP-8). These two VOCs are primary components of PVC primer and solvent cement used to connect sections of PVC piping during installation of the sub-slab sampling ports and SSD System piping components. The presence of these two compounds at these concentrations necessitated sample dilutions at the laboratory which, in turn, elevated the reporting limits for all the VOCs being analyzed. Therefore, although all other VOCs in the sub-slab air were reported to be “Not Detected” by the laboratory, the reporting limits are greater than the Indoor Air Action Levels (applicable to indoor air only), and said compounds may or may not be present in the sub-slab air at concentrations less than the 15 March 2007 reporting limits. As the VOCs resultant from the sub-slab piping construction and installation process dissipate over time and the SSD system continues to operate in accordance with the approved-design, the concentrations of Acetone and 2-Butanone are expected to decrease and more useful evaluations of the sub-slab and indoor air data will be possible. With respect to compliance with OA Provision 6(e)(v), indoor air samples from locations that correspond to the sub-slab sampling locations (i.e., are located above the sub-slab locations) were collected at the same time as the sub-slab samples on 15 March 2007. Additionally, a second set of indoor air samples at these same corresponding sample locations was collected on 22 March 2007. Therefore, compliance with OA Provision 6(e)(v) has been achieved.
- One compound detected in indoor air at concentrations that slightly exceed the applicable Indoor Air Action Level, Carbon Tetrachloride, was also detected at approximately the same concentration in outdoor ambient air in the vicinity of the school building. Therefore, Carbon Tetrachloride within the indoor air is considered to be a background concentration at the site.
- Bromodichloromethane, a known by-product of potable water chlorination processes, was detected in two of the eight indoor air samples at concentrations that exceed the applicable Indoor Air Action Level for this compound. However, chlorination of the water supply to the school was in progress at the site within bathrooms, locker rooms, and corridors (water fountains) during the time of sample collection. Additional, scheduled indoor air and sub-slab air sampling will provide more data to better evaluate this compound.
- Concentrations of several VOCs known to be resultant from smoking tobacco products or from building construction activities in progress at the time of, or noted to occur prior to the sampling event (e.g., smoking, painting, cleaning, carpeting, etc.), were found in the majority of indoor samples collected during this sampling event at concentrations that exceed the applicable Indoor Air Action Levels. These compounds, Acetone, Methylene Chloride, Ethylbenzene, total Xylenes, Styrene, 1,2-Dichloroethane, 1,3,5-Trimethylbenzene, and 1,2,4-Trimethylbenzene, were either not detected during historical soil vapor studies at the site or were detected at concentrations far lower than those found during this sampling event. Additional, scheduled indoor air and sub-slab air sampling will provide more data to better evaluate these compounds.
- Concentrations of 1,2-Dichloropropane and 1,1,2,2-Tetrachloroethane, known to be found in varnishes and adhesives, were detected within the central portion of the school building (Elevator Hallway Area) and Room 118 (West Wing Area) at concentrations that exceed the applicable Indoor Air Action Level. These compounds were either not detected or detected infrequently in previous soil vapor samples collected at the site. Varnishes and adhesives were being applied within the building at various locations prior to and during the 15 March 2007 sampling event. Additional, scheduled indoor air and sub-slab air sampling will provide more data to better evaluate these compounds.



No SSD System modifications or other actions to address current site conditions are warranted or proposed at this time based upon these preliminary evaluations and in light of the following:

- Considering historical soil vapor sampling data, VOCs with the highest potential to be present in indoor air were not detected in the school building above the applicable Indoor Air Action Levels.
- No building occupancy is scheduled until September 2007.
- The SSD System has been operating uninterrupted since 16 March 2007.
- Weekly field monitoring of sub-slab vacuum and VOCs at the site has demonstrated proper SSD System depressurization of the sub-slab region and the expected downward trend with respect to total VOCs both inside and beneath the building, respectively.
- A second complete round of indoor air and sub-slab air samples has already been collected on 22 March 2007 (results have not yet been provided by the laboratory).

In conclusion, we are encouraged by the initial round of data for indoor air, and we are confident that additional, scheduled air monitoring and sampling events will provide the additional data necessary to continue to evaluate VOCs at the site.

We trust that this correspondence satisfies the OA Provision 6(e)(iv). However, if you have any questions or require additional information, please do not hesitate to contact me at 401-736-3440, Ext. 216.

Sincerely,

EA ENGINEERING, SCIENCE,  
AND TECHNOLOGY, INC.

A handwritten signature in black ink that reads 'Peter M. Grivers'.

Peter M. Grivers, P.E., LSP  
Project Manager

Attachments

cc: J. Simmons, City of Providence  
A. Sepe, Providence Department of Public Property  
S. Rapport, City of Providence Law Department  
J. Boehnert, Partridge, Snow, & Hahn  
J. Ryan, Partridge, Snow, & Hahn  
T. Deller, Providence Redevelopment Agency  
J. Langlois, RIDEM Legal Services  
L. Hellested, RIDEM Office of Waste Management  
K. Owens, RIDEM Office of Waste Management  
C. Walusiak, RIDEM Office of Waste Management  
S. Fischbach, RI Legal Services  
Former Gorham Site, Parcel B – Knight Memorial Library Repository