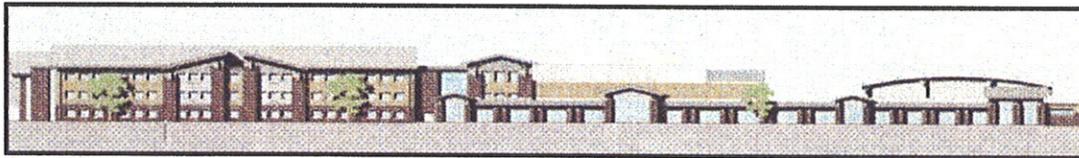




**Sampling Results for the Keith Middle School
Foundation Vent Stack and Indoor Air for
Polychlorinated Biphenyls and Volatile Organic
Compounds**

August 2010 Monitoring Round



Prepared for:

Department of Environmental Stewardship
City of New Bedford
133 William Street
New Bedford, Massachusetts 02740

Prepared by:

TRC Environmental Corporation
Wannalancit Mills
650 Suffolk Street
Lowell, Massachusetts 01854
(978) 970-5600

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TRC Project No. 115058

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EXECUTIVE SUMMARY

TRC Environmental Corporation (TRC) of Lowell, Massachusetts was retained by the City of New Bedford (the City) to provide sampling support in conducting foundation vent stack and indoor air sampling for polychlorinated biphenyls (PCBs) and volatile organic compounds (VOCs) at the Keith Middle School (KMS) in New Bedford, Massachusetts. This report documents the indoor air and vent stack sampling performed by TRC during August 2010.

The sampling and analysis of vent stack and indoor air for KMS is described in the approved *Long-Term Monitoring and Maintenance Plan (LTMMIP)*, revision 4, dated October 20, 2006. The indoor air quality sampling program involved the collection of one indoor air quality sample from the ground floor of each of the three school building sections (Building A, Building B, and Building C). Concurrently with the indoor air quality sampling, air sampling of the sub-slab foundation ventilation system was performed from four selected rooftop vent stacks, including VS-1 and VS-4 which vent building Section A (classrooms), VS-10 which vents building Section B (near the Auditorium), and VS-9 which vents building Section B (near the Auditorium). The passive sub-slab ventilation system was installed to allow any sub-slab soil gases to migrate from beneath the vapor barrier to the vent stacks, installed through the school building roof. Air samples were also collected immediately outside of the school during this round to provide comparative background results.

Following collection, the samples were analyzed for VOCs according to EPA Method TO-15 (VOCs in Air) by Alpha Woods Hole Labs of Westborough, Massachusetts and PCBs according to EPA Method 680 (PCB Homologues) by Northeast Analytical Labs of Schenectady, New York. Though this PCB method was not specified in the LTMMIP, the homologue analytical method is a reliable analytical method to quantify total PCBs. By quantifying PCB homologues, total PCB air data gathered at the KMS are directly comparable to total PCB air data gathered at New Bedford High School.

During the August 2010 sampling round, VOCs were detected in indoor air and vent stack air samples, and PCBs were detected in the three indoor air samples and one of the outdoor air background samples. However, PCBs were not detected in any of the vent stack air samples or in the second outdoor air background sample. It should be noted that PCB vent stack air and outdoor air detection limits were well below applicable criteria. The presence of VOCs in vent stack air samples is an expected finding for a sub-slab ventilation system and indicates that the passive ventilation system is performing as designed. The presence of VOCs in vent stack air may also be indicative of off-gassing from the venting system components in addition to subsurface VOCs entering the venting system.

VOCs are present in indoor air due to off-gassing from building materials and the storage and use of cleaners, adhesives, paints, and other VOC-containing products indoors at the school. Detected concentrations for PCBs in indoor air samples were generally consistent with urban ambient air background levels. Based on the total PCB indoor air results collected between August 2006 and August 2010, it appears that there is variability in indoor air concentrations and the higher concentrations detected in April 2009 and August 2010 relative to previous sampling rounds are not part of a trend. Levels of PCBs and VOCs detected in indoor air demonstrate

fluctuations in measured concentrations over time due to: 1) the degree of building air exchange that occurs during normal school operation (i.e., open conditions) versus vacation periods when the school is not in session (i.e., closed conditions); 2) changes in ambient temperatures that may increase or decrease the off-gassing of VOCs from indoor building materials, as well as fugitive emissions from VOC-containing products in storage; 3) the degree to which activities within the school building (e.g., cleaning and repairs) are contributing to indoor air concentrations of VOCs; and 4) reductions in building material related VOC emission sources over time.

PCB indoor air concentrations and vent stack air detection limits were compared to site-specific outdoor air concentrations and risk-based air concentrations (RBACs). Two PCB RBACs have been developed for the KMS, assuming occupational exposures within the school (8 hours/day, 250 days/year, for 25 years). The first RBAC is the Action Level (AL; 0.05 ug/m^3), which is used as an initial indicator that PCB air concentrations above background levels have been detected. The second RBAC is the Acceptable Long-Term Average Exposure Concentration (ALTAEC; 0.3 ug/m^3), indicative of the maximum acceptable air concentration that should not be exceeded for an extended time period. PCB indoor air concentrations were also compared to EPA's Public Health Level (PHL) (USEPA, 2009; 0.453 ug/m^3) developed to be protective of indoor school air exposures for adult employees and 12 to <15 year-old students. Indoor air PCB concentrations and vent stack air PCB detection limits were lower than RBACs and EPA's PHL.

VOC data were compared to MassDEP Threshold Effects Exposure Limits (TELS) and Allowable Ambient Limits (AALs), published in December 1995, consistent with the LTMMIP. TELS are developed to be applicable to short-term exposure concentrations (average 24-hour levels) while AALs are developed to be protective of long-term exposure concentrations (average annual levels over 30 years). Because TELS and AALs have not been updated since 1995, VOC concentrations in excess of AALs and TELS were discussed relative to EPA screening levels (EPA SLs) developed by Oak Ridge National Laboratory (2010) to be protective of continuous long-term residential exposures and shorter-term commercial exposures, using the most current toxicity information available. Because AALs, TELS, and EPA SLs (after adjustment to correspond to a lower noncancer threshold) are set at risk levels that are only a portion of the MassDEP risk management criteria, concentrations that slightly exceed (i.e., less than 5-fold) one or more comparison criteria are unlikely to be a cause for concern. VOC concentrations in excess of comparison criteria were also compared to MassDEP indoor air background values, used by MassDEP in the development of the Massachusetts Contingency Plan (MCP) numeric standards, and Indoor Air Threshold Values (IATVs), developed by MassDEP considering typical indoor air background concentrations and MassDEP risk management criteria. MassDEP considers investigation of the vapor intrusion pathway to be unnecessary when measured indoor air concentrations are at or below IATVs, assuming that the indoor air results are consistent with other site information and that adequate sampling has been performed.

Among all indoor air samples, three VOCs (benzene, chloroform, and ethylbenzene) exceeded one or more comparison criteria. All three of these compounds were detected at concentrations below their corresponding MassDEP indoor air background value and IATV. The LTMMIP specifies that the LSP-of-Record should submit the indoor air data to a toxicologist/risk assessor

for further assessment if indoor air VOC concentrations exceed TELs, AALs, or 150% of outdoor air background concentrations. Further quantitative assessment of the indoor air data indicated that VOC concentrations were associated with a condition of no significant risk to potentially exposed individuals.

In vent stack air, nine VOCs (2-butanone, acetone, benzene, carbon disulfide, chloroform, ethanol, methylene chloride, tetrachloroethene and trichloroethene) exceeded risk-based comparison criteria. Even though the LTMMIP specifies that both indoor air and vent stack air VOC concentrations are to be compared to comparison criteria, this comparison is not appropriate for vent stack air results. The vent system is designed to capture VOCs potentially migrating from the subsurface beneath the KMS and transport the gases through PVC piping to outdoor air, mitigating migration through the building slab and into indoor air. Little if any human exposure to air within the vent stack system itself takes place. Air from the vent stack is vented to outdoor air on the roof of the building where the VOCs are quickly diluted and dispersed. Therefore, comparison of vent stack air results to comparison criteria developed assuming short-term (24-hour) and long-term exposure is highly conservative, if not conceptually irrelevant.

Temporal trends show that VOC concentrations have been decreasing in indoor air, suggesting that off-gassing from the newly constructed school building is diminishing over time. The sporadic detection of slightly higher VOC concentrations compared to those typically detected when the school is normally occupied is noted during the winter, spring and summer school vacation periods. During the vacation periods, the building is experiencing lower than normal air exchange and the indoor use of VOC-containing cleaning products and repair materials increases. Low-level fluctuations in PCB concentrations in indoor air are representative of background conditions. Measured concentrations of PCBs and VOCs in vent stack air are expected, and indicate that the passive ventilation system is performing as designed. Fluctuations in PCB vent stack air concentrations and decreasing vent stack air VOC concentrations suggest that the range of measured concentrations is representative of typical conditions within the subsurface ventilation system and that off-gassing from the system is diminishing over time. In addition, the human health risk calculations indicate that there is no significant risk associated with the occupancy of KMS.

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1.0 INTRODUCTION

1.1 Overview

TRC Environmental Corporation (TRC) of Lowell, Massachusetts was retained by the City of New Bedford (the City) to provide sampling support in conducting foundation vent stack and indoor air sampling for polychlorinated biphenyls (PCBs) and volatile organic compounds (VOCs) at the Keith Middle School (KMS) in New Bedford, Massachusetts. This report documents the indoor air and vent stack sampling performed by TRC during August 2010.

Soil gas sampling was performed under the location of the KMS building in December 2001. In addition to PCBs present in soil at this location, the primary VOCs detected in the soil gas samples included acetone, 2-butanone, cyclohexane, ethanol, heptane, n-hexane, and toluene. Lesser concentrations of benzene, carbon disulfide, ethylbenzene, methyl tert butyl ether, tetrachloroethene, 1,2,4-trimethylbenzene, and xylenes were also detected in soil gas samples. The results of the December 2001 soil gas sampling event were evaluated for potential adverse impacts on indoor air quality, assuming no vapor barrier was installed. Despite the conclusion that no significant risk to human health is posed by the measured soil gas concentrations, the City and School Department decided to install a vapor barrier on top of the soil beneath the school building concrete floor as an added layer of protection against intrusion of any gases that may accumulate under the building. Passive ventilation has been installed to allow any sub-slab soil gases to migrate from beneath the vapor barrier to the vent stacks, installed through the school building roof. Sampling of indoor air quality and vent stack air is conducted to confirm the proper functioning of the passive ventilation system.

PCBs and VOCs have historically been detected in both indoor air and vent stack air samples. However, concentrations of PCBs and VOCs in indoor air samples are consistently lower than those observed in vent stack air samples. VOCs are present in indoor air due to off-gassing from building materials and the storage and use of cleaners, adhesives, paints, and other VOC-containing products indoors at the school. An inventory of cleaning supplies used at KMS and their ingredients is provided in Appendix A. Concentrations of PCBs detected in indoor air samples are consistent with background levels measured in outdoor air samples collected simultaneously. Levels of PCBs and VOCs detected in indoor air fluctuate and demonstrate noticeable trends in measured concentrations over time due to: 1) the degree of building air exchange that occurs during normal school operation (i.e., open conditions) versus vacation periods when the school is not in session (i.e., closed conditions); 2) changes in ambient temperatures that may increase or decrease the off-gassing from indoor building materials, as well as fugitive emissions from VOC-containing products in storage; 3) the degree to which activities within the school building (e.g., cleaning and repairs) are contributing to indoor air concentrations; and 4) reductions in building material related VOC emission sources over time. The presence of higher levels of VOCs and PCBs in vent stack air samples is an expected finding for a sub-slab ventilation system and indicates that the passive ventilation system is performing as designed. The presence of VOCs in vent stack air may also be indicative of off-gassing from the venting system components in addition to subsurface VOCs.

Although PCBs and VOCs have been measured historically in indoor air and vent stack air samples, the concentrations detected do not pose a significant risk to human health, based on the comparison of concentrations to both background concentrations and applicable risk-based criteria (TRC, 2008a, 2008b, 2008c, 2008d, 2009a, 2009b, 2009c, 2010a and 2010b).

This report presents monitoring data collected during August 2010. The remaining sections of the report include Section 2 (Sampling Locations), Section 3 (Quality Assurance), Section 4 (Summary of Results), Section 5 (Comparison of PCB Results to Risk-Based Air Concentrations), Section 6 (Comparison of VOC Results to Comparison Criteria), Section 7 (Conclusions), and Section 8 (References). Supporting appendices include Appendix A (Summary of Field Sampling Program, Analytical Program and Quality Assurance), Appendix B (Field Sampling Data Sheets), Appendix C (Field Reduced Data), Appendix D (Equipment Calibration Sheets), Appendix E (Laboratory Data Reports), Appendix F (Laboratory Data Validation Memoranda), Appendix G (Discussion of Risk-Based Comparison Criteria) and Appendix H (Indoor Air Risk Calculations – Commercial Worker).

1.2 Scope of Work

Sampling and analysis of vent stack and indoor air is performed as part of United States Environmental Protection Agency (EPA) approved *Long-Term Monitoring and Maintenance Plan* (LTMMIP), revision 4, dated October 20, 2006. The LTMMIP was prepared by The BETA Group, Incorporated (BETA) in accordance with the August 31, 2005 *Approval for Risk-Based PCB Cleanup and Disposal under 40 CFR §761.6(c)* letter issued by EPA to the City. The LTMMIP set forth a vent stack and indoor air sampling schedule consisting of three monitoring events per year for the first year (July/August, December, April 2007), with the understanding that the City may submit a written request to EPA to reduce the indoor air sampling frequency after the first year of monitoring. However, per the order of the Mayor of the City, vent stack and indoor air monitoring took place monthly during the period of September 2006 to July/August 2007. Following the July/August sampling event, monitoring was reduced to once every four months, consistent with the LTMMIP. The August 2010 sampling event was the ninth subsequent event following the July/August 2007 event. Monitoring from September 2006 through February 2007 was conducted by BETA and is reported elsewhere.

The sampling program consisted of the collection of indoor air quality and vent stack samples for the analysis of PCBs and VOCs. Details concerning the sample collection procedures and analytical methods are described in Appendix A. Sampling data sheets are provided in Appendix B and the reduced data are presented in Appendix C. The calibration certifications can be found in Appendix D. Laboratory analytical results are presented in Appendix E.

Field sampling data were validated by the Field Team Leader and/or the Field Quality Control Coordinator based on their review of adherence to each approved sampling protocol and written sample collection procedure. Details concerning quality assurance procedures are described in Appendix A. The laboratory data validation memoranda can be found in Appendix F.

The following sections describe those features of the field sampling program, quality assurance/quality control (QA/QC) program, and data analysis that are specific to the August

2010 event. Generic information on the sampling and QA/QC programs and data analysis procedures can be found in Appendices A and G, respectively.

2.0 SAMPLING LOCATIONS

2.1 Indoor Air Quality Sample Locations

During the sampling event, one indoor air quality sample was collected from the ground floor of each of the three school building sections (Building A, Building B, and Building C). Each sampling location was selected to be representative of portions of the school building normally occupied by students and teachers. The Building A sampling location is located within a hallway in an area of student classrooms. The Building B sampling location is located in the school auditorium. The Building C sampling location is in a faculty dining area. These indoor air quality sampling locations have remained consistent throughout TRC's sampling program, with the exception of the December 2007 Building B sample which was collected in the school cafeteria at the request of the City. One sample and a duplicate were also collected immediately outside of the school to provide comparative background results for ambient air.

Figure 2-1 presents the approximate locations of the indoor air quality sample locations. Table 2-1 summarizes the indoor air quality samples collected during the August 2010 sampling event. Indoor air quality samples collected during the August 2010 sampling event were designated with the letter A, B, or C to identify the building section from which the sample was collected and a unique sample identification suffix, indicating the sampling event number (e.g., A-24).

2.2 Foundation Vent Air Monitoring Sample Locations

The KMS foundation venting system is comprised of six sub-slab vapor collection zones, each vented by two or four vent stacks penetrating the roof. A total of four vent stacks are sampled during each round, including VS-1 and VS-4 which vent from the two collection zones located under building Section A (classrooms), and two other vent stacks which are rotated to cover the remaining collection zones. One air sample is collected immediately outside of the school during each round to provide comparative background results.

Figure 2-2 presents the approximate locations of the vent stack sample locations. Table 2-1 summarizes the vent stack samples collected during the August 2010 sampling event. Vent stack samples collected during the August 2010 sampling event were designated with the vent stack number (e.g., VS-1) and a unique sample identification suffix indicating the sampling event number (e.g., VS-1-24).

3.0 QUALITY ASSURANCE

This section highlights the results of the QA/QC review for the August 2010 sampling event. Please refer to Appendix A for additional QA/QC details.

3.1 Data Validation Summary

In general, the TO-4A data from samples collected August 24, 2010 as well as TO-10A data from samples collected April 25, 2010 appear to be valid as reported and may be used for decision-making purposes.

Potential uncertainty exists for the field duplicate pair, samples BG-24 (PUF) and BG-24-DUP (PUF) exhibited high relative percent differences for diichlorobiphenyl and tetrachlorobiphenyl. Due to these nonconformances the positive results for the analytes aforementioned in samples BG-24 (PUF) and BG-24-DUP (PUF) should be considered estimated (identified in data summary tables presented herein with a “J” qualifier).

The TO-15 data also appear to be valid as reported and may be used for decision-making purposes.

The positive and nondetect results for benzyl chloride in samples VS-9-24, VS-9-24 DUP; VS-10-24, propylene, chloromethane, 1,3-butadiene, 4-methyl-2-pentanone, and 1,2,4-trichlorobenzene in samples C-24, B-24, A-24, BG-24, BG-24 DUP, and TB-24; and vinyl acetate, 1,2-dichloroethane, 1,1,1-trichloroethane, carbon tetrachloride, and 1,1,2-trichloroethane in samples VS-1-24, VS-4-24, VS-BG-24, and VS-TB-24 should be considered estimated (identified in data summary tables presented herein with a “J” or “UJ” qualifier) in all samples due to continuing calibration nonconformances.

Potential uncertainty exists for the field duplicate pair; samples VS-9-24 and VS-9-24-DUP exhibited a high relative percent difference for tetrachloroethene. Due to this nonconformance, the positive results for the tetrachloroethene in samples VS-9-24 and VS-9-24-DUP should be considered estimated (identified in data summary tables presented herein with a “J” qualifier).

In addition, the presence of a few analytes could not be confirmed in samples VS-9-24, VS-9-24-DUP, VS-10-24, C-24, and B-24 due to non-target compound interferences. The nondetect results for chloromethane and Freon-114 in samples VS-9-24, VS-9-24-DUP, and VS-10-24 should be considered estimated (identified in data summary tables presented herein with a “UJ” qualifier). The nondetect results for chloromethane in samples C-24 and B-24 should be considered estimated (identified in data summary tables presented herein with a “UJ” qualifier).

Due to possible co-elution with non-target compounds the presence of acetone, propylene, and chloromethane could not be confirmed in a number of samples. The results for acetone in samples VS-9-24 and VS-9-24 DUP; propylene and chloromethane in samples VS-1-24 and VS-4-24; and chloromethane in sample A-24 should be considered estimated (identified in data summary tables presented herein with a “J” qualifier).

3.2 TO-15 - Persistent Laboratory-Derived Contaminants

Based upon review of quality control data, TRC has determined that the results for four compounds reported throughout this report (acetone, ethanol, isopropanol, and methylene chloride) were influenced by laboratory-derived contamination and hence do not reflect actual vent stack and indoor air concentrations at KMS. This conclusion is supported by: 1) the high concentrations of these compounds in contrast to other VOCs within samples; 2) TRC experience with these same compounds when using EPA Method TO-15A on prior programs; and 3) concentrations over time do not follow trends observed for other VOCs known to be associated with products in storage and use at the KMS.

3.3 Collocated Sampler Precision

The collocated sampler data for the two pairs collected at the KMS during the August 2010 sampling event are summarized in Tables 3-1 and 3-2 for the indoor air and vent stack air samples, respectively. Results are provided for each of the analytes measured in the sampler pair in units of micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). Method precision is expressed as the relative percent difference (RPD) value derived on a parameter specific basis.

EPA Method TO-15 identifies a data quality goal/objective of $\pm 25\%$ RPD for analytes measured in replicate or collocated samples with detected results greater than two times the reporting limit. RPDs were calculated for five compounds detected in the indoor air samples, as shown on Table 3-1. RPDs were not calculated for most of the compounds analyzed since the majority of results were reported as non-detects (i.e., very few compounds were detected) and RPDs are not calculated when one or both of the collocated results are non-detect. The collocated results for all samples were in good agreement and within all acceptance criteria. In the cases where RPDs could not be calculated, the collocated non-detects show good agreement, although values in both samples could not be quantified. RPDs were calculated for eight compounds detected in the vent stack samples, as shown on Table 3-2. The collocated results for benzene (55.3%), tetrachloroethene (56.4%), acetone (37.4%), and tetrahydrofuran (41.6%) exhibited RPDs greater than 25%. However, since concentrations of benzene, acetone, and tetrahydrofuran were within two times the reporting limit (RL), these results did meet the acceptance criteria of the method. RPD data can be used to identify if differences in measured concentrations are attributable to actual concentration differences or if they are within the precision of the sampling and analytical procedure.

EPA Method TO-4A identifies a data quality goal/objective of $\pm 25\%$ RPD for analytes measured in replicate or collocated samples with detected results greater than two times the reporting limit. RPDs were calculated for total PCBs detected in the indoor air samples, as shown on Table 3-1. PCBs were detected in the background (BG) duplicate samples, collected in August 2010. As shown in Appendix F, collocated results for tetrachlorobiphenyl (31.5 RPD) were slightly above the acceptance criteria. The difference in RPDs for select PCB homologues did not affect the RPD of the total PCB concentration in the collocated samples.

4.0 SUMMARY OF RESULTS

The following section describes the findings from the sampling events conducted by TRC at the KMS during August 2010. The August 2010 sampling occurred during the school vacation time period. Table 2-1 provides a summary of the types, numbers, and locations of the samples collected. Appendices E and F contain the laboratory data reports and data validation memoranda, respectively. Along with the samples, TO-4A, TO-15, and TO-10A trip blanks were analyzed as a quality assurance measure. PCBs and VOCs were not detected in the indoor air quality or vent stack trip blanks. Trip blanks are used as a check on shipping and laboratory-related sources of contamination.

TRC believes that the results for four compounds reported throughout this report (acetone, ethanol, methylene chloride and isopropanol) were influenced by laboratory derived contamination and hence do not reflect actual vent stack and indoor air concentrations at the KMS, as previously discussed in more detail in Section 3.2.

A trend analysis of VOC concentrations over time is presented in Section 6.4. VOCs detected in the indoor air samples are believed to be associated with the storage and use of cleaners, adhesives, paint, and other VOC-containing products as well as building construction materials. This finding is based upon sporadic measurements of slightly higher VOC concentrations noted during the winter, spring and summer school vacation periods when the building is experiencing lower than normal air exchange and the indoor use of VOC-containing cleaning products and repair materials increases. Overall, VOC concentrations are decreasing in indoor air suggesting that off-gassing from the newly constructed school building is diminishing over time. Low level fluctuations of PCB concentrations in indoor air are generally consistent with urban indoor background levels. Measured concentrations of PCBs and VOCs in vent stack air are expected, and indicate that the passive ventilation system is performing as designed.

4.1 Indoor Air Quality Results

On August 24, 2010, TRC collected three indoor and two outdoor background (with a duplicate) 24-hour TO-4A and TO-15 air samples at the KMS. Table 4-1 provides a summary of results for all compounds that have been found one or more times within the indoor air quality samples.

PCBs were detected in the three indoor air samples collected, and also in the background outdoor air samples. Total PCB detections ranged from 0.0114 $\mu\text{g}/\text{m}^3$ in the Building C sample to 0.0049 $\mu\text{g}/\text{m}^3$ in the Building B sample. The total PCB concentration in the background outdoor air sample and its duplicate was 0.0029 $\mu\text{g}/\text{m}^3$.

A total of 16 VOCs were detected in the three indoor air quality samples and/or outdoor air background samples collected during August 2010. Four VOCs (acetone, chloromethane, difluorodichloromethane and trichlorofluoromethane) were detected in the three indoor air samples and both of the background location samples. The indoor air concentrations of each of these VOCs were similar to those detected in the outdoor air background samples, except for acetone which was detected at concentrations up to six-fold higher than detected in the outdoor air background samples.

2-Butanone, chloroform, ethanol and isopropanol were detected in the three indoor air samples, but not in the background samples. The highest concentration of 2-butanone and chloroform were observed in the Building B samples and the higher concentrations of ethanol and isopropanol was observed in the Building C sample. Styrene and toluene were detected in the Building B and Building C samples with the highest concentration observed in the Building C sample for styrene and the Building B sample for toluene. Six VOCs were detected in only one of the three indoor air samples. Ethylbenzene, methyl isobutyl ketone, p/m-xylene, o-xylene and trichloroethene were observed in the Building B sample, and benzene was observed in the Building C sample.

Acetone, isopropanol, and ethanol are common laboratory contaminants while all of the other VOCs detected in the indoor air samples are found in cleaning products, adhesives, paints and other VOC-containing products, and as components of building materials. Their presence in indoor air may not be representative of site conditions (i.e., soil, groundwater), but rather a result of off-gassing from building materials, the use of VOC-containing materials within the school, or partially contributed by ambient concentrations in the vicinity of the school.

4.2 Vent Stack Air Results

On August 25, 2010, TRC collected four (plus one duplicate) vent stack and one ground level outdoor background 4-hour TO-10A and TO-15 samples at the KMS. Table 4-2 provides a summary of results for the vent stack samples.

In August 2010, PCBs were not detected in the vent stack samples or in the outdoor air background sample.

A total of 18 VOCs were detected in the vent stack air samples and/or background sample, including the common laboratory contaminants acetone, isopropanol, ethanol and methylene chloride. Five of the detected VOCs (2-butanone, acetone, chloromethane, difluorodichloromethane and trichlorofluoromethane) were detected in one or more of the vent stack air samples and at the outdoor air background sampling location. For these five VOCs, similar concentrations (i.e., less than 2-fold different) were observed in the vent stack air and outdoor air samples, except for 2-butanone and acetone which displayed concentrations 5 to 125-fold the background concentration in the four vent stack air samples.

Benzene, carbon disulfide, chloroform, ethanol, isopropanol, methylene chloride, methyl tert butyl ether, heptane, n-hexane, propylene, tetrachloroethene, tetrahydrofuran, and trichloroethene were detected in one or more of the subsurface collection zones and not at the outdoor air background sampling location, indicating the localized presence of these compounds in the ventilation system or in the subsurface vented by the system.

5.0 COMPARISON OF PCB RESULTS TO RISK-BASED AIR CONCENTRATIONS

This section of the report discusses the PCB indoor air and vent stack air sampling results, relative to site-specific outdoor air concentrations and risk-based air concentrations (RBACs). Air sampling results, background outdoor air results, and RBACs are presented in Tables 5-1 and 5-2 for the August 2010 sampling event. Compound-specific results exceeding RBACs are highlighted on these tables. Measured concentrations of compounds exceeding RBACs are discussed in Sections 5.1 and 5.2 for indoor air and vent stack air, respectively. A detailed discussion of the RBACs can be found in Appendix G.

Two PCB RBACs have been developed for the KMS. The first RBAC is the Action Level (AL; 0.05 ug/m^3) used as an initial indicator that PCB air concentrations above background levels have been detected. The second RBAC is the Acceptable Long-Term Average Exposure Concentration (ALTAEC; 0.3 ug/m^3), indicative of the maximum acceptable air concentration that should not be exceeded for an extended time period. The ALTAEC could be exceeded over the short-term and still result in acceptable risk levels. In September 2009, EPA published Public Health Levels (PHLs) which are calculated indoor air concentrations that maintain PCB exposures below a level that EPA believes does not cause harm (USEPA, 2009). PHLs were calculated for all ages of children from toddlers in day care to adolescents in high school as well as for adult school employees. In this report, indoor air PCB concentrations are also compared to the PHL for adult school employees and children 12 to <15 years old, representative of the middle school age range.

The LTMMIP specifies that both indoor air and vent stack air total PCB concentrations are to be compared to RBACs. This comparison is appropriate for indoor air results since exposures to indoor air at the KMS are occurring over a similar duration and frequency as that assumed for RBAC development. However, this comparison is less appropriate for vent stack air results since little if any human exposure to air within the vent stack system itself is taking place. Air from the vent stack is vented to outdoor air where the PCBs are quickly diluted and dispersed. Therefore, comparison of vent stack air results to RBACs is highly conservative, if not conceptually irrelevant. The results of the comparison of vent stack air results to RBACs should be interpreted with caution due to the significantly reduced degree of exposure to vent stack air that can be experienced by individuals in comparison to indoor air.

5.1 Indoor Air

Indoor air sampling results, outdoor air background results, and RBACs are presented in Table 5-1. PCBs were detected at all three of the indoor air sampling locations (Buildings A, B, and C). PCBs were also detected in both the outdoor air background samples, but at concentrations lower than detected in the indoor air samples. The highest indoor air total PCB concentration (Building C sample) was approximately 5-fold lower than the PCB AL and roughly 25-fold lower than the ALTAEC; the Building A and Building B samples displayed concentrations of PCBs between 8- and 10-fold lower than the AL and between 50- and 60-fold lower than the ALTAEC. Because the PCB AL is used as an initial indicator that PCB air concentrations above background levels for indoor air have been detected and the detected concentrations of PCBs are significantly less

than the AL, concentrations of PCBs in indoor air are consistent with levels associated with ambient conditions. The indoor air samples were also between 40- and 90-fold lower than the EPA PHL. Because there are no indoor air PCB concentrations in excess of the RBACs, no specific follow-up actions are recommended at this time.

Temporal trends for total PCB indoor air concentrations at the sampling locations in Building A (classrooms), Building B (auditorium), and Building C (faculty dining area) are shown in Figure 5-1. Figure 5-1 also shows concentration trends at the outdoor air background sampling location. Data included on this figure are for the time period August 2006 to August 2010. The highest indoor air total PCB concentration was detected during the April 2009 sampling event when the school was likely experiencing lower than normal air exchange (school vacation) and the potential for volatilization of PCBs from outdoor ambient sources is greater due to the warmer weather. The lowest indoor air total PCB concentration was detected during the November 2006 sampling event.

No clear trends are noted for total PCB concentrations in indoor air. Measured concentrations fluctuate over time, with slightly higher concentrations noted during the summer school vacation period when the building is experiencing lower than normal air exchange and the potential for volatilization of PCBs from outdoor ambient sources is greatest due to warmer weather. The low level PCB indoor air concentrations are generally consistent with urban ambient background conditions. Based on the total PCB indoor air results collected between August 2006 and August 2010, it appears that there is variability in indoor air concentrations and the higher concentrations detected in April 2009 and August 2010 relative to previous sampling rounds are not part of a trend.

5.2 Vent Stack Air

Vent stack air sampling results, outdoor air background results, and RBACs are presented in Table 5-2. PCBs were not detected in the four vent stack samples. PCBs were also not detected in the outdoor air background sample. Because there are no exceedances of the RBACs, no specific follow-up actions are recommended at this time.

Vent stack air reporting limits, ranging from 0.019 ug/m³ to 0.0227 ug/m³, were higher than the detected indoor air total PCB concentrations. However, reporting limits were approximately 2-fold below the AL indicating that PCBs, even if not detected by the analytical method, were present at concentrations less than the RBACs.

Temporal trends for total PCB vent stack air concentrations are shown in Figure 5-2. Two vent stack locations were consistently sampled on a monthly basis so as to establish concentration trends. The vents selected were VS-1 and VS-4 which were chosen because Building A consists of classrooms where children spend most of the day and both vent from the Building A vapor collection zone. Figure 5-2 also shows concentration trends at the outdoor air background sampling location. Data included on this figure are for the time period August 2006 to August 2010. Total PCB concentrations in VS-1 and VS-4 are consistent over time and similar to levels present at the outdoor air background location. The low level fluctuations in PCB vent stack air

concentrations suggest that the range of measured concentrations is representative of typical conditions within the subsurface ventilation system.

6.0 COMPARISON OF VOC RESULTS TO COMPARISON CRITERIA

This section of the report discusses the VOC indoor air and vent stack air sampling results, relative to site-specific outdoor air and generic indoor air background concentrations and available comparison criteria. Air sampling data, background data, and comparison criteria are presented in Tables 6-1 and 6-2. Compound-specific results exceeding comparison criteria are highlighted on these tables. The detected concentrations of compounds exceeding comparison criteria are discussed in Section 6.1 for indoor air quality samples and Section 6.2 for vent stack air samples, followed by a discussion in Section 6.3 of the findings of a risk characterization conducted to evaluate the significance of the comparison criteria exceedances. Risk-based comparison criteria are discussed below, with greater detail provided in Appendix G. Section 6.4 presents the observed trends in contaminant concentrations over time.

Comparison criteria for VOC data include MassDEP Threshold Effects Exposure Limits (TELs) and Allowable Ambient Limits (AALs), published in December 1995, consistent with the LTMMIP. TELs are developed to be applicable to short-term exposure concentrations (average 24-hour levels), while AALs are developed to be protective of long-term exposure concentrations (average annual levels over 30 years). Indoor air and vent stack air VOC concentrations are conservatively compared to both criteria even though it is unlikely that actual exposures to measured air concentrations would occur for either an entire 24-hour day or continually for 30 years.

VOC concentrations in excess of AALs and TELs are discussed relative to alternate comparison criteria because TELs and AALs have not been revised since 1995 and may not include the most up-to-date toxicity information available. The alternate comparison criteria are primarily residential and commercial EPA screening levels (EPA SLs) developed by Oak Ridge National Laboratory (November 2010; USEPA, 2010) using the most current toxicity information available. Similar to AALs, residential EPA SLs are applicable to continuous long-term exposures. Commercial EPA SLs are more applicable to the actual exposures occurring at the KMS. In interpreting concentrations in excess of residential EPA SLs, it is important to consider how the frequency and duration of actual exposures may differ from continuous long-term exposures assumed for residential EPA SL development.

Because AALs, TELs, and EPA SLs (after adjustment to correspond to a lower noncancer threshold) are set at risk levels that are only a portion of the MassDEP risk management criteria (see Appendix G for additional information on this), concentrations that slightly exceed (i.e., less than 5-fold) one or more comparison criteria may not be cause for concern, especially considering that actual exposures may be of lesser duration and frequency than assumed in comparison criteria development.

For compounds lacking comparison criteria, detected concentrations are discussed relative to available comparison criteria for a surrogate compound, selected based on similarities in chemical structure and/or known toxicity. Surrogate assignments are identified in footnotes on Tables 6-1 and 6-2.

To account for anticipated background conditions at the KMS, VOC concentrations in excess of comparison criteria are framed relative to site-specific outdoor air background concentrations, indicating ambient conditions in the vicinity of the site. To provide additional perspective, VOC concentrations in excess of comparison criteria are also discussed relative to MassDEP indoor air background values, used by MassDEP in the development of the Massachusetts Contingency Plan (MCP) numeric standards (MassDEP, 2008a) and Indoor Air Threshold Values (IATVs; June 2008b) developed by MassDEP considering typical indoor air background concentrations and MassDEP risk management criteria. MassDEP considers investigation of the vapor intrusion pathway to be unnecessary when measured indoor air concentrations are at or below IATVs, assuming that the indoor air results are consistent with other site information and that adequate sampling has been performed. Therefore, the presence of one or more VOCs at concentrations that exceed comparison criteria should be interpreted with caution and may not indicate the need for immediate action.

The LTMMIP specifies that both indoor air and vent stack air VOC concentrations are to be compared to comparison criteria. This comparison is appropriate for indoor air results since exposures to indoor air at the KMS are occurring over a similar though lesser duration and frequency as that assumed for comparison criteria development. However, this comparison is less appropriate for vent stack air results since little if any human exposure to air within the vent stack system itself is taking place. Air from the vent stack is vented to outdoor air where the VOCs are quickly diluted and dispersed. Therefore, comparison of vent stack air results to comparison criteria is highly conservative, if not conceptually irrelevant. The results of the comparison of vent stack air results to comparison criteria should be interpreted with caution due to the significantly reduced degree of exposure to vent stack air that can be experienced by individuals in comparison to indoor air.

6.1 Indoor Air

As presented in Table 6-1, concentrations of three VOCs in the indoor air samples exceeded one or more comparison criteria. The compounds are benzene, chloroform, and ethylbenzene. All three compounds were detected at concentrations below MassDEP indoor air background concentrations and IATVs, indicating that the presence of these compounds in indoor air is not a site-related finding.

Benzene and chloroform concentrations detected in the three indoor air samples exceed comparison criteria developed assuming long-term continuous exposure. However, the concentrations do not exceed the TEL and commercial EPA SL, which are more applicable to actual exposures occurring at the KMS than the AAL or residential EPA SL, despite the “commercial” label. Therefore, the benzene and chloroform concentrations in the indoor air samples are unlikely to be of concern. This conclusion is supported by the risk characterization presented in Section 6.3.

The ethylbenzene concentration detected in one of the three indoor air samples exceeds its residential EPA SL. However, the concentration does not exceed the TEL, AAL and commercial EPA SL, which is based on more recent toxicity information and more applicable to actual exposures occurring at the KMS. Therefore, the ethylbenzene concentration in the indoor air

sample is unlikely to be of concern, as supported by the risk characterization presented in Section 6.3.

6.2 Vent Stack Air

As indicated on Table 6-2, concentrations of nine VOCs in vent stack air samples exceeded one or more comparison criteria. The compounds include 2-butanone, acetone, benzene, carbon disulfide, chloroform, ethanol, methylene chloride, tetrachloroethene and trichloroethene. Comparison of vent stack air results to risk-based comparison criteria assumes that exposures to the air within the vent system are occurring at the same duration and intensity as indoor air, which is unlikely as previously noted. Therefore, VOC concentrations measured in excess of comparison criteria for VOCs in the vent stack system are unlikely to be indicative of a health concern since individuals are experiencing little, if any exposure to vent stack air.

2-Butanone, benzene, and trichloroethene concentrations detected in vent stack air samples only exceed comparison criteria developed assuming continuous exposure (i.e., AALs and/or residential EPA SLs). Because the concentrations of these compounds do not exceed TELs and commercial EPA SLs, these concentrations in the vent stack air samples are unlikely to be of concern.

The chloroform and tetrachloroethene vent stack air concentrations do not exceed the TELs, applicable to short-term exposures, though the detected concentrations do exceed the AALs and residential/commercial EPA SLs. Acetone and carbon disulfide vent stack air concentrations exceed AALs and TELs based on outdated toxicity information, but do not exceed either residential or commercial EPA SLs based on the most current toxicity information available. Therefore, these concentrations in the vent stack air samples are unlikely to be of concern. Though ethanol concentrations in one of the vent stack air samples slightly exceeded its AAL and TEL, no EPA SLs are available for this compound.

The methylene chloride concentration in one of the three indoor air samples exceeds its AAL, TEL and residential/commercial EPA SLs. However, the detected concentration only exceeds the commercial EPA SLs, most applicable to exposures occurring at the KMS, by approximately 10 percent. Therefore, this concentration in the vent stack air sample is unlikely to be of concern.

Nine of the 18 compounds present in vent stack air were detected in the December 2001 subsurface soil gas sampling event conducted by BETA, including 2-butanone, acetone, benzene, carbon disulfide, ethanol, methyl tert butyl ether, heptane, n-hexane, and tetrachloroethene. The presence of these compounds in vent stack air indicates that the passive foundation venting system is performing as designed and limiting or preventing the migration of subsurface VOCs to indoor air.

6.3 Risk Characterization for Indoor Air

The LTMMIP specifies that the LSP-of-Record should submit the indoor air data to a toxicologist/risk assessor for further assessment if indoor air VOC concentrations exceed TELs,

AALs, or 150% of outdoor air background concentrations. Therefore, non-carcinogenic hazards and excess lifetime cancer risks have been estimated to determine whether a condition of no significant risk exists within the school. All compounds detected in indoor air samples between March 2007 and August 2010 were included in the risk characterization. Exposure point concentrations are either maximum detected concentrations or 95 percent upper confidence limits (95% UCLs) on the arithmetic mean, using sampling data for Buildings A through C combined. Because the indoor air sampling locations were selected to provide representative VOC and total PCB data for the three buildings, students, faculty and staff move throughout the buildings, and VOC and total PCB concentrations vary throughout the buildings with no one building displaying consistently elevated concentrations relative to the other buildings, the use of maximum detected concentrations or 95% UCLs for all sampling data combined as exposure point concentrations provides a reasonable upper bound of the contaminant concentrations an individual may be exposed to, over the specified time period. A commercial worker scenario was used which assumed exposures for 8 hours/day, 250 days/year for 25 years, consistent with the assumptions used in the development of the site-specific PCB action levels. Appendix H contains a data summary table detailing the derivation of the exposure point concentrations and a calculation spreadsheet presenting the exposure assumptions and toxicity values used in the assessment.

The results presented in Appendix H document that a condition of no significant risk exists associated with commercial worker indoor air exposures at the KMS. Because workers are the most highly exposed individuals at the KMS, exposures of school children and staff would also be associated with a condition of no significant risk. VOC concentrations associated with off-gassing from building materials have been demonstrated to be trending downward (see discussion in Section 6.4).

The LTMMIP also specified that the LSP-of-Record should submit the vent stack air data to a toxicologist/risk assessor for further assessment if vent stack air VOC results exceed TELs and AALs. Because exposures to vent stack air are negligible or non-existent, further quantitative assessment of the vent stack air VOC results was not conducted.

6.4 Trend Analysis for VOCs

Temporal trends for VOC indoor air concentrations at the sampling location in Building A (classrooms), Building B (auditorium), and Building C (faculty dining area) are shown in Figures 6-1 through 6-3, respectively. Five VOCs were selected for data presentation including 2-butanone, methyl tert butyl ether, tetrahydrofuran, toluene, and total xylenes (the sum of m/p-xylene and o-xylene isomers). These VOCs were selected because they are not common laboratory contaminants, were frequently detected in indoor air samples, and were noted as exceeding one or more comparison criteria. Data included on these figures are for the time period August 2006 to August 2010. Bars on the figures outlined in black indicate that the compound was not detected during the specific sampling event, and the value presented on the figure is half the analytical detection limit.

Although some degree of temporal fluctuation is observed, there are clearly decreasing concentration trends for 2-butanone, toluene, and total xylenes over time in the Building B and C

indoor air quality samples. The other two indicator compounds, tetrahydrofuran and methyl tert butyl ether, were only detected once in the samples collected from the Building B and C samples, respectively. For the Building A samples, most concentrations for the selected compounds have been consistently low, with the sporadic detection of slightly higher VOC concentrations noted during the spring and summer school vacation periods when the building is experiencing lower than normal air exchange and the indoor use of VOC-containing cleaning products and repair materials increases. These sporadic higher concentrations were also observed within the Building B and C samples. Overall, the decreasing trends in Buildings B and C suggest that off-gassing from the newly constructed school building is diminishing. The trend is less apparent in Building A since concentrations have been consistently low over time with some fluctuations.

Temporal trends for VOC vent stack air concentrations are shown in Figures 6-4 and 6-5 for VS-1 and VS-4, respectively. The same five VOCs selected for trend analysis in indoor air were also used for vent stack air. Data included on these figures are for the time period August 2006 to August 2010. All five indicator VOCs display clearly decreasing trends over time at both vent stack air sampling locations. Though some degree of temporal fluctuation is observed, the sporadic presence of slightly higher vent stack air VOC concentrations is noted during times of warmer ambient temperatures, potentially associated with the subsurface migration of VOCs or the off-gassing of VOCs from the ventilation system. For example, increases in concentrations of 2-butanone and tetrahydrofuran in VS-1 and VS-4 were observed in April 2010.

6.5 Recommended Modifications to the LTMMIP

The LTMMIP specifies follow-up actions to be taken if VOC air data exceed the comparison criteria. However, the response actions set forth in the LTMMIP are excessive and unnecessary for the August 2010 data set for the following reasons:

- Risk calculations presented herein and in prior TRC reports (encompassing twelve sampling events of monitoring data collected over 35 months) show that the maximum or 95% UCL on the arithmetic mean concentrations of detected VOCs do not pose a significant risk to human health and further that VOC concentrations are trending downward;
- Most of the VOCs detected in indoor air are associated with the storage and use of cleaners, adhesives, paints, and other VOC-containing products within the KMS; and
- The comparison of vent stack air to comparison criteria (e.g., TELs and AALs) is inappropriate because human exposure to air within the vent stack is highly unlikely, rendering the comparison to such criteria conceptually irrelevant.

The LTMMIP is under revision to reflect TRC's detailed understanding of the site conceptual model (e.g., impacts from indoor use of commercially available cleaners, paints, adhesives, etc.), the relationship between vent measurements and historical soil gas measurements that illustrate the proper functioning of the passive sub-slab ventilation system, and long-term downward trends for indoor air and passive vent system concentrations for VOCs originating from building materials. The revised LTMMIP will also include revised response actions and response action schedules that reflect TRC's comprehensive understanding of human health risk, sources, and air measurements. In addition, a new methodology for evaluation of vent stack air concentrations is

recommended for the proposed revised LTMMIP, that is more appropriate than the presently called for review against comparison criteria. A draft revision to the LTMMIP is planned for regulatory review in early 2011.

7.0 CONCLUSIONS

Indoor air quality and vent stack air sampling was conducted at the KMS during August 2010 for total PCBs and VOCs. Data were evaluated for quality and reliability, discussed relative to risk-based air concentrations, and analyzed for concentration trends over the period of sampling from August 2006 to August 2010. The following summarizes the conclusions of the air sampling data evaluation.

In general, all TO-10A and TO-15 data collected during August 2010 were determined to be valid as reported and usable for decision-making purposes.

PCBs were detected in the three indoor air samples collected in August 2010. The detected PCB concentrations for these samples were below risk-based action levels. Detected concentrations of benzene, chloroform and ethylbenzene in indoor air samples exceeded one or more risk-based comparison criteria. However, further assessment of the indoor air data indicated that the 95% UCL on the arithmetic mean or maximum VOC concentrations measured between March 2007 and August 2010 were associated with a condition of no significant risk to exposed individuals at the KMS.

PCBs were not detected in the four vent stack air samples collected in August 2010. There were more VOC exceedances of comparison criteria in vent stack samples as compared to indoor air samples. However, the comparison to risk-based criteria is not appropriate for vent stack air results. The vent system is designed to capture VOCs from the subsurface beneath the KMS and convey the gases through PVC piping to outdoor air, preventing migration through the building slab and into indoor air. Little if any human exposure to air within the vent stack system itself is taking place. Air from the vent stack is vented to outdoor air on the roof of KMS where the VOCs are quickly diluted and dispersed. Therefore, comparison of vent stack air results to comparison criteria developed assuming short-term (24-hour) and long-term exposure is highly conservative, if not conceptually irrelevant.

Some VOCs are likely present in indoor air due to off-gassing from building materials and the storage and use of cleaners, adhesives, paints, and other VOC-containing products indoors at the school. Levels of PCBs and VOCs in indoor air were found to fluctuate overtime likely due to: 1) the degree of building air exchange that occurs during normal school operation (i.e., open conditions) versus vacation periods when the school is not in session (i.e., closed conditions); 2) changes in ambient temperatures that may increase or decrease the off-gassing from indoor building materials; 3) the degree to which activities within the school building (e.g., cleaning and repairs) are contributing to indoor air concentrations of VOCs, and 4) reductions in building material related VOC emission sources over time. The low level fluctuations of PCB indoor air concentrations are generally consistent with concentrations found in urban ambient air background. Based on the total PCB indoor air results collected between August 2006 and August 2010, it appears that there is variability in indoor air concentrations and the higher concentrations detected in April 2009 and August 2010 relative to previous sampling rounds are not part of a trend. Overall, VOC concentrations are decreasing in indoor air suggesting that off-gassing from the aggregate of sources within the newly constructed school building is diminishing. The sporadic presence of slightly higher VOC concentrations noted during the

spring and summer school vacation periods is likely attributable to the building experiencing lower than normal air exchange in combination with increased use of VOC-containing cleaning products and repair materials indoors.

VOCs are consistently detected in the sub-slab passive vent stacks, while PCBs are sporadically detected in the vent stacks. The presence of PCBs and VOCs in vent stack air is expected, and indicates that the passive ventilation system is performing as designed. VOCs detected in vent stack air samples may also have been emitted by the ventilation system itself. The low PCB vent stack air concentrations and decreasing vent stack air VOC concentrations are likely representative of typical conditions within the subsurface ventilation system and indicate that off-gassing from the system is diminishing overtime.

It is recommended that the LTMMIP be revised to reflect TRC's detailed understanding of the site conceptual model (e.g., impacts from indoor use of commercially available cleaners, paints, adhesives, etc.), the relationship between vent measurements and historical soil gas measurements that illustrate the proper functioning of the passive sub-slab ventilation system, and long-term downward trends for indoor air and passive vent system concentrations for VOCs originating from building materials. The revised LTMMIP will also include more appropriate response actions and response action schedules that reflect TRC's comprehensive understanding of human health risk, sources, and air measurements. In addition, a new methodology for evaluation of vent stack air concentrations is recommended for the proposed revised LTMMIP, which will be more appropriate than the presently called for review against comparison criteria. A draft revision to the LTMMIP is planned for regulatory review in early 2011.

April 2011 is the date for the next sampling event.

8.0 REFERENCES

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TABLES

**Table 2-1. August 2010 Sample Summary
Keith Middle School
New Bedford, Massachusetts**

Sample ID	Sample Location	Sample Collected	Sample Type
A	Building A, center of west hallway	X	IAQ
B	Building B, Auditorium	X	IAQ
C	Building C, Faculty Dining Room	X	IAQ
BG	Background, flagpole area outside main entrance to Building A	XX	IAQ
VS-1	Building A, vent stack 1	X	Vent Stack
VS-4	Building A, vent stack 4	X	Vent Stack
VS-5	Building B, vent stack 5		Vent Stack
VS-7	Building B, vent stack 7		Vent Stack
VS-8	Building B, vent stack 8		Vent Stack
VS-9	Building B, vent stack 9	XX	Vent Stack
VS-10	Building B, vent stack 10	X	Vent Stack
VS-11	Gymnasium , vent stack 11		Vent Stack
VS-12	Gymnasium, vent stack 12		Vent Stack
VS-13	Gymnasium, vent stack 13		Vent Stack
VS-14	Gymnasium, vent stack 14		Vent Stack
VS-16	Building A , vent stack 16		Vent Stack
VS-BG	On the ground at main entrance to Building A	X	Vent Stack

X - Sample collected at this location during this sampling round.

XX - Sample and duplicate collected at this location during this sampling round.

**Table 3-1. Comparison of VOC Indoor Air Sample Results - Collocated Sampler Precision
Keith Middle School
New Bedford, Massachusetts**

Analysis	Analyte	Aug-10		
		BG-24	BG-24 Dup	RPD (%)
VOCs ($\mu\text{g}/\text{m}^3$)	1,2,4-trichlorobenzene	< 1.48	< 1.48	NC
	1,2,4-trimethylbenzene	< 0.982	< 0.982	NC
	1,2-dichloroethane	< 0.809	< 0.809	NC
	1,3-dichlorobenzene	< 1.20	< 1.20	NC
	1,4-dioxane	< 0.720	< 0.720	NC
	2,2,4-trimethylpentane	< 0.934	< 0.934	NC
	2-butanone	< 0.589	< 0.589	NC
	2-hexanone	< 0.819	< 0.819	NC
	acetone ⁽¹⁾	3.50	3.21	8.64%
	benzene	< 0.319	< 0.319	NC
	carbon disulfide	< 0.622	< 0.622	NC
	chloroform	< 0.098	< 0.098	NC
	chloromethane	1.04	1.09	4.69%
	cis-1,2-dichloroethene	< 0.792	< 0.792	NC
	cyclohexane	< 0.688	< 0.688	NC
	difluorodichloromethane	2.62	2.55	2.71%
	ethanol ⁽¹⁾	< 4.71	< 4.71	NC
	ethylbenzene	< 0.868	< 0.868	NC
	ethyl acetate	< 1.80	< 1.80	NC
	freon-113	< 1.53	< 1.53	NC
	isopropanol ⁽¹⁾	< 1.23	< 1.23	NC
	methylene chloride ⁽¹⁾	< 4.86	< 4.86	NC
	methyl isobutyl ketone (MIBK)	< 0.819	< 0.819	NC
	methyl tert butyl ether	< 0.720	< 0.720	NC
	p/m-xylene	< 1.74	< 1.74	NC
	o-xylene	< 0.868	< 0.868	NC
	heptane	< 0.819	< 0.819	NC
	n-hexane	< 0.704	< 0.704	NC
	propylene	< 0.344	< 0.344	NC
	styrene	< 0.851	< 0.851	NC
tetrachloroethene	< 0.136	< 0.136	NC	
tetrahydrofuran	< 0.589	< 0.589	NC	
toluene	< 0.753	< 0.753	NC	
trichloroethene	< 0.107	< 0.107	NC	
trichlorofluoromethane	1.56	1.46	6.62%	
PCBs ($\mu\text{g}/\text{m}^3$)	Total PCBs	0.0029	0.0029	0.00%

Notes:

RPD - Relative Percent Difference = $\text{ABS}(\text{Dup-Sample})/((\text{Dup}+\text{Sample})/2)*100$

NC - Not Calculated; RPD could not be calculated due to a non-detect in one or both of the collocated samples

Detected values are shown in bold

⁽¹⁾ Compound is a common laboratory contaminant as discussed in Section 3.

**Table 3-2. Comparison of VOC Vent Stack Air Sample Results - Collocated Sampler Precision
Keith Middle School
New Bedford, Massachusetts**

Analysis	Analyte	Aug-10		
		VS-9-24	VS-9-24 DUP	RPD (%)
VOCs (ug/m ³)	1,2,4-trichlorobenzene	< 14.8	< 14.8	NC
	1,2,4-trimethylbenzene	< 9.82	< 9.82	NC
	1,2-dichloroethane	< 8.09	< 8.09	NC
	1,3-dichlorobenzene	< 12.0	< 12.0	NC
	1,4-dioxane	< 7.20	< 7.20	NC
	2,2,4-trimethylpentane	< 9.34	< 9.34	NC
	2-butanone	10.5	8.25	24.00%
	2-hexanone	< 8.19	< 8.19	NC
	acetone ⁽¹⁾	52.1	35.7	37.36%
	benzene	0.635	1.12	55.27%
	carbon disulfide	< 6.22	< 6.22	NC
	chloroform	8.77	10.4	17.01%
	chloromethane	< 4.13	< 4.13	NC
	cis-1,2-dichloroethene	< 7.92	< 7.92	NC
	cyclohexane	< 6.88	< 6.88	NC
	difluorodichloromethane	< 9.88	< 9.88	NC
	ethanol ⁽¹⁾	< 47.1	< 47.1	NC
	ethylbenzene	< 8.68	< 8.68	NC
	ethyl acetate	< 18.0	< 18.0	NC
	freon-113	< 15.3	< 15.3	NC
	isopropanol ⁽¹⁾	< 12.3	< 12.3	NC
	methylene chloride ⁽¹⁾	< 48.6	< 48.6	NC
	methyl isobutyl ketone (MIBK)	< 8.19	< 8.19	NC
	methyl tert butyl ether	8.61	7.64	11.94%
	p/m-xylene	<17.4	<17.4	NC
	o-xylene	< 8.68	< 8.68	NC
	heptane	< 8.19	< 8.19	NC
	n-hexane	< 7.04	< 7.04	NC
	propylene	< 3.44	< 3.44	NC
	styrene	< 8.51	< 8.51	NC
tetrachloroethene	3.73	6.66	56.40%	
tetrahydrofuran	8.13	12.4	41.60%	
toluene	< 7.53	< 7.53	NC	
trichloroethene	0.209	0.231	10.00%	
trichlorofluoromethane	< 11.2	< 11.2	NC	
PCBs (ug/m ³)	Total PCBs	< 0.021	< 0.021	NC

Notes:

RPD - Relative Percent Difference = $ABS(Dup-Sample)/((Dup+Sample)/2)*100$

NC - Not Calculated; RPD could not be calculated due to a non-detect in one or both of the collocated samples

Detected values are shown in bold

⁽¹⁾ Compound is a common laboratory contaminant as discussed in Section 3.

Table 4-1. Indoor Air Quality Sample Results - August 2010
Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	Sample Locations			Background Locations		QA/QC Trip Blank
		A-24	B-24	C-24	BG-24	BG-24 Dup	
VOCs ($\mu\text{g}/\text{m}^3$)	1,2,4-trichlorobenzene	< 1.48	< 1.48	< 1.48	< 1.48	< 1.48	< 1.48
	1,2,4-trimethylbenzene	< 0.982	< 0.982	< 0.982	< 0.982	< 0.982	< 0.982
	1,2-dichloroethane	< 0.809	< 0.809	< 0.809	< 0.809	< 0.809	< 0.809
	1,3-dichlorobenzene	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20
	1,4-dioxane	< 0.720	< 0.720	< 0.720	< 0.720	< 0.720	< 0.720
	2,2,4-trimethylpentane	< 0.934	< 0.934	< 0.934	< 0.934	< 0.934	< 0.934
	2-butanone	0.669	2.92	2.10	< 0.589	< 0.589	< 0.589
	2-hexanone	< 0.819	< 0.819	< 0.819	< 0.819	< 0.819	< 0.819
	acetone ⁽¹⁾	8.25	20.8	17.6	3.50	3.21	< 2.37
	benzene	< 0.319	< 0.319	0.338	< 0.319	< 0.319	< 0.319
	carbon disulfide	< 0.622	< 0.622	< 0.622	< 0.622	< 0.622	< 0.622
	chloroform	0.112	0.141	0.132	< 0.098	< 0.098	< 0.098
	chloromethane	0.572	< 0.413	< 0.413	1.04	1.09	< 0.413
	cis-1,2-dichloroethene	< 0.792	< 0.792	< 0.792	< 0.792	< 0.792	< 0.792
	cyclohexane	< 0.688	< 0.688	< 0.688	< 0.688	< 0.688	< 0.688
	difluorodichloromethane	2.86	3.01	3.10	2.62	2.55	< 0.988
	ethanol ⁽¹⁾	22.3	18.8	25.4	< 4.71	< 4.71	< 4.71
	ethylbenzene	< 0.868	2.36	< 0.868	< 0.868	< 0.868	< 0.868
	ethyl acetate	< 1.80	< 1.80	< 1.80	< 1.80	< 1.80	< 1.80
	freon-113	< 1.53	< 1.53	< 1.53	< 1.53	< 1.53	< 1.53
	isopropanol ⁽¹⁾	1.25	1.99	2.17	< 1.23	< 1.23	< 1.23
	methylene chloride ⁽¹⁾	< 4.86	< 4.86	< 4.86	< 4.86	< 4.86	< 4.86
	methyl isobutyl ketone (MIBK)	< 0.819	1.37	< 0.819	< 0.819	< 0.819	< 0.819
	methyl tert butyl ether	< 0.720	< 0.720	< 0.720	< 0.720	< 0.720	< 0.720
	p/m-xylene	< 1.74	8.79	< 1.74	< 1.74	< 1.74	< 1.74
	o-xylene	< 0.868	3.44	< 0.868	< 0.868	< 0.868	< 0.868
	heptane	< 0.819	< 0.819	< 0.819	< 0.819	< 0.819	< 0.819
	n-hexane	< 0.704	< 0.704	< 0.704	< 0.704	< 0.704	< 0.704
	propylene	< 0.344	< 0.344	< 0.344	< 0.344	< 0.344	< 0.344
	styrene	< 0.851	0.915	0.962	< 0.851	< 0.851	< 0.851
tetrachloroethene	< 0.136	< 0.136	< 0.136	< 0.136	< 0.136	< 0.136	
tetrahydrofuran	< 0.589	< 0.589	< 0.589	< 0.589	< 0.589	< 0.589	
toluene	< 0.753	1.91	0.851	< 0.753	< 0.753	< 0.753	
trichloroethene	< 0.107	0.188	< 0.107	< 0.107	< 0.107	< 0.107	
trichlorofluoromethane	1.67	1.96	1.82	1.56	1.46	< 1.12	
PCBs ($\mu\text{g}/\text{m}^3$)	Total PCBs	0.0064	0.0049	0.0114	0.0029	0.0029	< 0.0250 μg

Notes:

$\mu\text{g}/\text{m}^3$ - micrograms per cubic meter

VOCs - volatile organic compounds

PCBs - polychlorinated biphenyls

μg - micrograms; trip blank results are presented in micrograms (μg) due to no air volume being collected during analysis.

⁽¹⁾ Compound is a common laboratory contaminant as discussed in Section 3.

Reporting Limit for Total PCBs is the highest individual homolog PQL (practical quantitation limit) per sample.

Values in **Bold** indicate the compound was detected.

< - less than laboratory reporting limit

J - Detected result reported is estimated

UJ - Non-Detect result reported is estimated

Table 4-2. Vent Stack Sample Results - August 2010
Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	Sample Locations					Background	QA/QC
		VS-1-24	VS-4-24	VS-10-24	VS-9-24	VS-9-24 DUP	VS-BG-24	Trip Blank-VS
VOCs ($\mu\text{g}/\text{m}^3$)	1,2,4-trichlorobenzene	< 1.48	< 1.48	< 14.8	< 14.8	< 14.8	< 1.48	< 1.48
	1,2,4-trimethylbenzene	< 0.982	< 0.982	< 9.82	< 9.82	< 9.82	< 0.982	< 0.982
	1,2-dichloroethane	< 0.809	< 0.809	< 8.09	< 8.09	< 8.09	< 0.809	< 0.809
	1,3-dichlorobenzene	< 1.20	< 1.20	< 12.0	< 12.0	< 12.0	< 1.20	< 1.20
	1,4-dioxane	< 0.720	< 0.720	< 7.20	< 7.20	< 7.20	< 0.720	< 0.720
	2,2,4-trimethylpentane	< 0.934	< 0.934	< 9.34	< 9.34	< 9.34	< 0.934	< 0.934
	2-butanone	82.5	10.4	7.75	10.5	8.25	0.654	< 0.589
	2-hexanone	< 0.819	< 0.819	< 8.19	< 8.19	< 8.19	< 0.819	< 0.819
	acetone ⁽¹⁾	306	81.2	31.5	52.1	35.7	6.08	< 2.37
	benzene	1.18	1.09	0.361	0.635	1.12	< 0.319	< 0.319
	carbon disulfide	1.57	< 0.622	< 6.22	< 6.22	< 6.22	< 0.622	< 0.622
	chloroform	0.151	0.132	0.810	8.77	10.4	< 0.098	< 0.098
	chloromethane	0.852	0.728	< 4.13	< 4.13	< 4.13	1.33	< 0.413
	cis-1,2-dichloroethene	< 4.13	< 0.792	< 7.92	< 7.92	< 7.92	< 0.792	< 0.792
	cyclohexane	< 0.688	< 0.688	< 6.88	< 6.88	< 6.88	< 0.688	< 0.688
	difluorodichloromethane	2.79	2.76	< 9.88	< 9.88	< 9.88	2.66	< 0.988
	ethanol ⁽¹⁾	63.2	17.2	< 47.1	< 47.1	< 47.1	< 4.71	< 4.71
	ethylbenzene	< 0.868	< 0.868	< 8.68	< 8.68	< 8.68	< 0.868	< 0.868
	ethyl acetate	< 1.80	< 1.80	< 18.0	< 18.0	< 18.0	< 1.80	< 1.80
	freon-113	< 1.53	< 1.53	< 15.3	< 15.3	< 15.3	< 1.53	< 1.53
	isopropanol ⁽¹⁾	4.04	1.30	< 12.3	< 12.3	< 12.3	< 1.23	< 1.23
	methylene chloride ⁽¹⁾	29.4	< 4.86	< 48.6	< 48.6	< 48.6	< 4.86	< 4.86
	methyl isobutyl ketone (MIBK)	< 0.819	< 0.819	< 8.19	< 8.19	< 8.19	< 0.819	< 0.819
	methyl tert butyl ether	< 0.720	< 0.720	< 7.20	8.61	7.64	< 0.720	< 0.720
	p/m-xylene	< 1.74	< 1.74	< 17.4	< 17.4	< 17.4	< 1.74	< 1.74
	o-xylene	< 0.868	< 0.868	< 8.68	< 8.68	< 8.68	< 0.868	< 0.868
	heptane	1.64	1.33	< 8.19	< 8.19	< 8.19	< 0.819	< 0.819
	n-hexane	1.70	< 0.704	< 7.04	< 7.04	< 7.04	< 0.704	< 0.704
propylene	20.4	1.50	< 3.44	< 3.44	< 3.44	< 0.344	< 0.344	
styrene	< 0.851	< 0.851	< 8.51	< 8.51	< 8.51	< 0.851	< 0.851	
tetrachloroethene	< 0.136	< 0.136	0.745	3.73	6.66	< 0.136	< 0.136	
tetrahydrofuran	0.937	< 0.589	8.87	8.13	12.4	< 0.589	< 0.589	
toluene	< 0.753	< 0.753	< 7.53	< 7.53	< 7.53	< 0.753	< 0.753	
trichloroethene	< 0.107	< 0.107	0.843	0.209	0.231	< 0.107	< 0.107	
trichlorofluoromethane	1.75	1.59	< 11.2	< 11.2	< 11.2	1.56	< 1.12	
PCBs ($\mu\text{g}/\text{m}^3$)	Total PCBs	< 0.0227	< 0.023	< 0.019	< 0.021	< 0.021	< 0.021	< 0.0250 μg

Notes:

$\mu\text{g}/\text{m}^3$ - micrograms per cubic meter

VOCs - volatile organic compounds

PCBs - polychlorinated biphenyls

μg - micrograms; trip blank results are presented in micrograms (μg) due to no air volume being collected during analysis.

⁽¹⁾ Compound is a common laboratory contaminant as discussed in Section 3.

Reporting Limit for Total PCBs is the highest individual homolog PQL (practical quantitation limit) per sample.

Values in **Bold** indicate the compound was detected.

< - less than laboratory reporting limit

J - Detected result reported is estimated

UJ - Non-Detect result reported is estimated

FP - Reported result is a false positive as a result of data validation

Table 5-1. Comparison of PCB Indoor Air Quality Sample Results to Risk-Based Air Concentrations - August 2010
Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	Sample Locations			Background Locations		QA/QC Trip Blank	MassDEP Background	Comparison Values		
		A-24	B-24	C-24	BG-24	BG-24 Dup			AL*	ALTAEC*	PHL**
PCBs ($\mu\text{g}/\text{m}^3$)									AL*	ALTAEC*	PHL**
	Total PCBs	0.0064	0.004900	0.011400	0.0029	0.002900	< 0.025 ug	--	0.05	0.3	0.453

Notes:

$\mu\text{g}/\text{m}^3$ - micrograms per cubic meter

PCBs - polychlorinated biphenyls

NA - not analyzed

ug - micrograms; trip blank results are presented in micrograms (ug) since no air volume is collected for the trip blank

PCB results for indoor air are compared to contemporary outdoor air (background) sample and MassDEP indoor air background values.

* PCBs are compared to the EPA site specific Action Level (AL) and the Acceptable Long-Term Average Exposure Concentration (ALTAEC).

** PCBs are compared to the lowest of the EPA Public Health Level for PCBs in School Indoor Air (September 2009) for adult employees and children 12-<19 year olds (<http://www.epa.gov/pbcsincaulk/>)

Reporting Limit for Total PCBs is the highest individual homolog PQL (practical quantitation limit) per sample.

Table 5-2. Comparison of PCB Vent Stack Sample Results to Risk-Based Air Concentrations - August 2010
Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	Sample Locations					Background	QA/QC	Comparison Values		
		VS-1-24	VS-4-24	VS-10-24	VS-9-24	VS-9-24 Dup	VS-BG-24	Trip Blank-VS			
PCBs ($\mu\text{g}/\text{m}^3$)	Total PCBs	< 0.0227	< 0.023	< 0.019	< 0.021	< 0.021	< 0.021	< 0.025 ug	AL*	ALTAEC*	PHL**
									0.05	0.3	0.453

Notes:

$\mu\text{g}/\text{m}^3$ - micrograms per cubic meter

PCBs - polychlorinated biphenyls

ug - micrograms; trip blank results are presented in micrograms (ug) since no air volume is collected for the trip blank

PCB results for vent stack air are compared to contemporary outdoor air (background) sample.

* PCBs are compared to the EPA site specific Action Level (AL) and the Acceptable Long-Term Average Exposure Concentration (ALTAEC).

** PCBs are compared to the lowest of the EPA Public Health Level for PCBs in School Indoor Air (September 2009) for adult employees and children 12-<19 year olds (<http://www.epa.gov/pcbsincaulk/>)
 Reporting Limit for Total PCBs is the highest individual homolog PQL (practical quantitation limit) per sample.

Table 6-1. Comparison of VOC Indoor Air Quality Sample Results to Comparison Criteria - August 2010
Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	Sample Locations			Background Locations		QA/QC Trip Blank	MassDEP Background	MassDEP IATV	Comparison Values				
		A-24	B-24	C-24	BG-24	BG-24 Dup				TEL*	AAL*	EPA SL (residential)	EPA SL (commercial)	
VOCs (µg/m ³)	1,2,4-trichlorobenzene	< 1.48	< 1.48	< 1.48	< 1.48	< 1.48	< 1.48	0.59	3.4	--	--	0.42 (a)	1.76 (a)	
	1,2,4-trimethylbenzene	< 0.982	< 0.982	< 0.982	< 0.982	< 0.982	< 0.982	--	--	--	--	1.46 (a)	6.2 (a)	
	1,2-dichloroethane	< 0.809	< 0.809	< 0.809	< 0.809	< 0.809	< 0.809	--	0.09	11.01	0.04	0.094 (a)	0.47 (a)	
	1,3-dichlorobenzene	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20	--	0.6	--	--	0.22 (e)	1.1 (e)	
	1,4-dioxane	< 0.720	< 0.720	< 0.720	< 0.720	< 0.720	< 0.720	--	0.59	24.49	0.24	0.32 (a)	1.6 (a)	
	2,2,4-trimethylpentane	< 0.934	< 0.934	< 0.934	< 0.934	< 0.934	< 0.934	--	--	--	--	146 (b)	620 (b)	
	2-butanone	0.669	2.92	2.10	< 0.589	< 0.589	< 0.589	< 0.589	42.18	12	200	10	1040 (a)	4400 (a)
	2-hexanone	< 0.819	< 0.819	< 0.819	< 0.819	< 0.819	< 0.819	< 0.819	--	--	10.88	10.88	6.2 (a)	26 (a)
	acetone ⁽¹⁾	8.25	20.8	17.6	3.50	3.21	< 2.37	< 2.37	27.04	91	160.54	160.54	6400 (a)	28000 (a)
	benzene	< 0.319	< 0.319	0.338	< 0.319	< 0.319	< 0.319	< 0.319	21	2.3	1.74	0.12	0.31 (a)	1.6 (a)
	carbon disulfide	< 0.622	< 0.622	< 0.622	< 0.622	< 0.622	< 0.622	< 0.622	--	--	0.1	0.1	146 (a)	620 (a)
	chloroform	0.112	0.141	0.132	< 0.098	< 0.098	< 0.098	< 0.098	3.36	1.9	132.76	0.04	0.11 (a)	0.53 (a)
	chloromethane	0.572	< 0.413	< 0.413	1.04	1.09	< 0.413	< 0.413	--	--	--	--	18.8 (a)	78 (a)
	cis-1,2-dichloroethene	< 0.792	< 0.792	< 0.792	< 0.792	< 0.792	< 0.792	< 0.792	--	0.8	215.62	107.81	12.6 (f)	52 (f)
	cyclohexane	< 0.688	< 0.688	< 0.688	< 0.688	< 0.688	< 0.688	< 0.688	--	--	280.82	280.82	1260 (a)	5200 (a)
	difluorodichloromethane	2.86	3.01	3.10	2.62	2.55	< 0.988	< 0.988	--	--	--	--	42 (a)	176 (a)
	ethanol ⁽¹⁾	22.3	18.8	25.4	< 4.71	< 4.71	< 4.71	< 4.71	--	--	51.24	51.24	--	--
	ethylbenzene	< 0.868	2.36	< 0.868	< 0.868	< 0.868	< 0.868	< 0.868	9.62	7.4	300	300	0.97 (a)	4.9 (a)
	ethyl acetate	< 1.80	< 1.80	< 1.80	< 1.80	< 1.80	< 1.80	< 1.80	--	--	391.84	391.84	--	--
	freon-113	< 1.53	< 1.53	< 1.53	< 1.53	< 1.53	< 1.53	< 1.53	--	--	--	--	6200 (a)	26000 (a)
	isopropanol ⁽¹⁾	1.25	1.99	2.17	< 1.23	< 1.23	< 1.23	< 1.23	--	--	--	--	41.22 (c)	41.22 (c)
	methylene chloride ⁽¹⁾	< 4.86	< 4.86	< 4.86	< 4.86	< 4.86	< 4.86	< 4.86	600	5.0	9.45	0.24	5.2 (a)	26 (a)
	methyl isobutyl ketone (MIBK)	< 0.819	1.37	< 0.819	< 0.819	< 0.819	< 0.819	< 0.819	--	2.2	55.7	55.7	620 (a)	2600 (a)
	methyl tert butyl ether	< 0.720	< 0.720	< 0.720	< 0.720	< 0.720	< 0.720	< 0.720	--	39	--	--	9.4 (a)	47 (a)
	p/m-xylene	< 1.74	8.79	< 1.74	< 1.74	< 1.74	< 1.74	< 1.74	72.41**	20	11.8**	11.8**	146 (a)	620 (a)
	o-xylene	< 0.868	3.44	< 0.868	< 0.868	< 0.868	< 0.868	< 0.868	72.41**	20	11.8**	11.8**	146 (a)	620 (a)
	heptane	< 0.819	< 0.819	< 0.819	< 0.819	< 0.819	< 0.819	< 0.819	--	--	--	--	146 (d)	620 (d)
	n-hexane	< 0.704	< 0.704	< 0.704	< 0.704	< 0.704	< 0.704	< 0.704	--	--	--	--	146 (a)	620 (a)
	propylene	< 0.344	< 0.344	< 0.344	< 0.344	< 0.344	< 0.344	< 0.344	--	--	--	--	95.24 (g)	47.62 (g)
	styrene	< 0.851	0.915	0.962	< 0.851	< 0.851	< 0.851	< 0.851	2.79	1.4	200	2	200 (a)	880 (a)
	tetrachloroethene	< 0.136	< 0.136	< 0.136	< 0.136	< 0.136	< 0.136	< 0.136	11.01	1.4	922.18	0.02	0.41 (a)	2.1 (a)
	tetrahydrofuran	< 0.589	< 0.589	< 0.589	< 0.589	< 0.589	< 0.589	< 0.589	--	--	160.35	80.18	--	--
toluene	< 0.753	1.91	0.851	< 0.753	< 0.753	< 0.753	< 0.753	28.65	54	80	20	1040 (a)	4400 (a)	
trichloroethene	< 0.107	0.188	< 0.107	< 0.107	< 0.107	< 0.107	< 0.107	4.49	0.8	36.52	0.61	1.2 (a)	6.1 (a)	
trichlorofluoromethane	1.67	1.96	1.82	1.56	1.46	< 1.12	< 1.12	--	--	--	--	146 (a)	620 (a)	

Notes:

µg/m³ - micrograms per cubic meter

VOCs - volatile organic compounds

IATV - Indoor Air Threshold Value; Mass DEP review draft June 2009

EPA SL - EPA Screening Level; November 2010

- (a) EPA Screening Level (ELCR of 1E-06 for carcinogens; hazard of 0.2 for noncarcinogens)
- (b) EPA SL for n-hexane used as surrogate for 2,2,4-trimethylpentane
- (c) AAL/TEL for isobutyl alcohol used as surrogate for isopropanol
- (d) EPA SL for n-hexane used as surrogate for heptane
- (e) EPA SL for 1,4-dichlorobenzene used as surrogate for 1,3-dichlorobenzene
- (f) EPA SL for trans-1,2-dichloroethene used as surrogate for cis-1,2-dichloroethene
- (g) AAL/TEL for alkanes/alkenes used as surrogate for propylene

Highlighted values show exceedances of comparison values and the value which was exceeded

⁽¹⁾ Compound is a common laboratory contaminant as discussed in Section 3.

VOC results for indoor air are compared to contemporary outdoor air (background) sample and MassDEP indoor air background values.

* Threshold Effects Exposure Limits (TEELs) and Allowable Ambient Limits (AALs) for ambient air currently in effect (December, 1995)

** - Value for xylenes (m-, o-, and p-isomers)

-- - No corresponding comparison criterion.

J - Concentration should be considered estimated.

R - Result rejected due to calibration non-conformances.

UJ - Non-detect concentration should be considered estimated.

Table 6-2. Comparison of VOC Vent Stack Sample Results to Comparison Criteria - August 2010
Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	Sample Locations					Background VS-BG-24	QA/QC Trip Blank-VS	Comparison Values				
		VS-1-24	VS-4-24	VS-10-24	VS-9-24	VS-9-24 Dup			TEL*	AAL*	EPA SL (residential)	EPA SL (commercial)	
VOCs (µg/m ³)	1,2,4-trichlorobenzene	< 1.48	< 1.48	< 14.8	< 14.8	< 14.8	< 1.48	< 1.48	--	--	0.42 (a)	1.76 (a)	
	1,2,4-trimethylbenzene	< 0.982	< 0.982	< 9.82	< 9.82	< 9.82	< 0.982	< 0.982	--	--	1.46 (a)	6.2 (a)	
	1,2-dichloroethane	< 0.809	< 0.809	< 8.09	< 8.09	< 8.09	< 0.809	< 0.809	11.01	0.04	0.094 (a)	0.47 (a)	
	1,3-dichlorobenzene	< 1.20	< 1.20	< 12.0	< 12.0	< 12.0	< 1.20	< 1.20	24.49	0.24	0.32 (a)	1.6 (a)	
	1,4-dioxane	< 0.720	< 0.720	< 7.20	< 7.20	< 7.20	< 0.720	< 0.720	--	0.59	24.49	0.24	
	2,2,4-trimethylpentane	< 0.934	< 0.934	< 9.34	< 9.34	< 9.34	< 0.934	< 0.934	--	--	146 (b)	620 (b)	
	2-butanone	82.5	10.4	7.75	10.5	8.25	0.654	0.654	< 0.589	200	10	1040 (a)	4400 (a)
	2-hexanone	< 0.819	< 0.819	< 8.19	< 8.19	< 8.19	< 0.819	< 0.819	10.88	10.88	6.2 (a)	26 (a)	
	acetone ⁽¹⁾	306	81.2	31.5	52.1	35.7	6.08	6.08	< 2.37	160.54	160.54	6400 (a)	28000 (a)
	benzene	1.18	1.09	0.361	0.635	1.12	< 0.319	< 0.319	1.74	0.12	0.31 (a)	1.6 (a)	
	carbon disulfide	1.57	< 0.622	< 6.22	< 6.22	< 6.22	< 0.622	< 0.622	0.1	0.1	146 (a)	620 (a)	
	chloroform	0.151	0.132	0.810	8.77	10.4	< 0.098	< 0.098	132.76	0.04	0.11 (a)	0.53 (a)	
	chloromethane	0.852	0.728	< 4.13	< 4.13	< 4.13	1.33	< 0.413	--	--	18.8 (a)	78 (a)	
	cis-1,2-dichloroethene	< 4.13	< 0.792	< 7.92	< 7.92	< 7.92	< 0.792	< 0.792	215.62	107.81	12.6 (f)	52 (f)	
	cyclohexane	< 0.688	< 0.688	< 6.88	< 6.88	< 6.88	< 0.688	< 0.688	280.82	280.82	1260 (a)	5200 (a)	
	difluorodichloromethane	2.79	2.76	< 9.88	< 9.88	< 9.88	2.66	< 0.988	--	--	42 (a)	176 (a)	
	ethanol ⁽¹⁾	63.2	17.2	< 47.1	< 47.1	< 47.1	< 4.71	< 4.71	51.24	51.24	--	--	
	ethylbenzene	< 0.868	< 0.868	< 8.68	< 8.68	< 8.68	< 0.868	< 0.868	300	300	0.97 (a)	4.9 (a)	
	ethyl acetate	< 1.80	< 1.80	< 18.0	< 18.0	< 18.0	< 1.80	< 1.80	391.84	391.84	--	--	
	freon-113	< 1.53	< 1.53	< 15.3	< 15.3	< 15.3	< 1.53	< 1.53	--	--	6200 (a)	26000 (a)	
	isopropanol ⁽¹⁾	4.04	1.30	< 12.3	< 12.3	< 12.3	< 1.23	< 1.23	--	--	41.22 (c)	41.22 (c)	
	methylene chloride ⁽¹⁾	29.4	< 4.86	< 48.6	< 48.6	< 48.6	< 4.86	< 4.86	9.45	0.24	5.2 (a)	26 (a)	
	methyl isobutyl ketone (MIBK)	< 0.819	< 0.819	< 8.19	< 8.19	< 8.19	< 0.819	< 0.819	55.7	55.7	620 (a)	2600 (a)	
	methyl tert butyl ether	< 0.720	< 0.720	< 7.20	8.61	7.64	< 0.720	< 0.720	--	--	9.4 (a)	47 (a)	
	p/m-xylene	< 1.74	< 1.74	< 17.4	< 17.4	< 17.4	< 1.74	< 1.74	11.8**	11.8**	146 (a)	620 (a)	
	o-xylene	< 0.868	< 0.868	< 8.68	< 8.68	< 8.68	< 0.868	< 0.868	11.8**	11.8**	146 (a)	620 (a)	
	heptane	1.64	1.33	< 8.19	< 8.19	< 8.19	< 0.819	< 0.819	--	--	146 (d)	620 (d)	
	n-hexane	1.70	< 0.704	< 7.04	< 7.04	< 7.04	< 0.704	< 0.704	UJ	--	146 (a)	620 (a)	
	propylene	20.4	1.50	< 3.44	< 3.44	< 3.44	< 0.344	< 0.344	--	--	95.24 (g)	47.62 (g)	
	styrene	< 0.851	< 0.851	< 8.51	< 8.51	< 8.51	< 0.851	< 0.851	UJ	200	2	200 (a)	880 (a)
	tetrachloroethene	< 0.136	< 0.136	0.745	3.73	6.66	< 0.136	< 0.136	922.18	0.02	0.41 (a)	2.1 (a)	
	tetrahydrofuran	0.937	< 0.589	8.87	8.13	12.4	< 0.589	< 0.589	160.35	80.18	--	--	
	toluene	< 0.753	< 0.753	< 7.53	< 7.53	< 7.53	< 0.753	< 0.753	80	20	1040 (a)	4400 (a)	
trichloroethene	< 0.107	< 0.107	0.843	0.209	0.231	< 0.107	< 0.107	36.52	0.61	1.2 (a)	6.1 (a)		
trichlorofluoromethane	1.75	1.59	< 11.2	< 11.2	< 11.2	1.56	< 1.12	--	--	146 (a)	620 (a)		

Notes:

µg/m³ - micrograms per cubic meter

VOCs - volatile organic compounds

EPA SL - EPA Screening Level; November 2010

(a) EPA Screening Level (ELCR of 1E-06 for carcinogens; hazard of 0.2 for noncarcinogens)

(b) EPA SL for n-hexane used as surrogate for 2,2,4-trimethylpentane

(c) AAL/TEL for isobutyl alcohol used as surrogate for isopropanol

(d) EPA SL for n-hexane used as surrogate for heptane

(e) EPA SL for 1,4-dichlorobenzene used as surrogate for 1,3-dichlorobenzene

(f) EPA SL for trans-1,2-dichloroethene used as surrogate for cis-1,2-dichloroethene

(g) AAL/TEL for alkanes/alkenes used as surrogate for propylene

Highlighted values show exceedances of comparison values and the value which was exceeded

⁽¹⁾ Compound is a common laboratory contaminant as discussed in Section 3.

VOC results for vent stack air are compared to contemporary outdoor air (background) sample.

* Threshold Effects Exposure Limits (TEELs) and Allowable Ambient Limits (AALs) for ambient air currently in effect (December, 1995)

** - Value for xylenes (m-, o- and p-isomers)

-- - No corresponding comparison criterion.

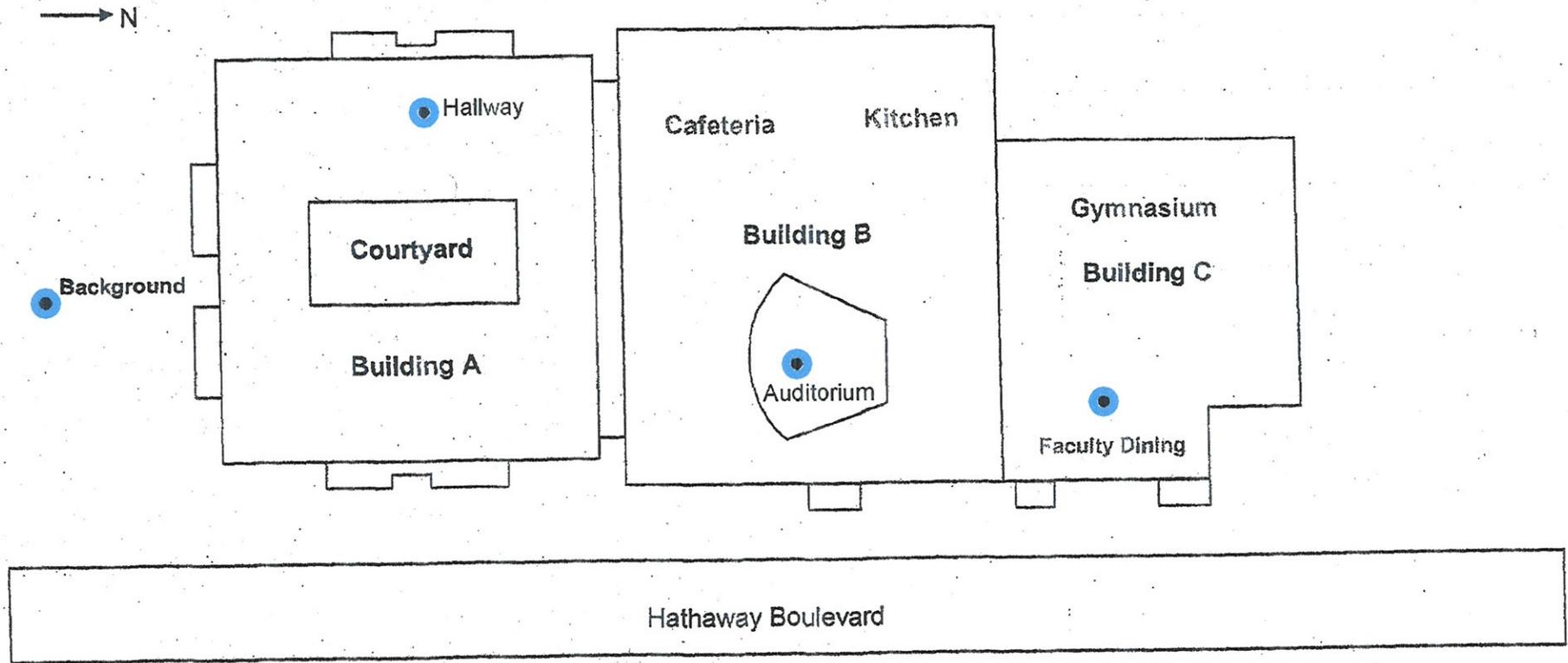
J - Concentration should be considered estimated.

R - Result rejected due to calibration non-conformances.

UJ - Non-detect concentration should be considered estimated.

FIGURES

Keith Middle School Indoor Air Sampling Locations



● = Indoor Air Sampling Point

● = Sample Locations

**KEITH MIDDLE SCHOOL
NEW BEDFORD, MASSACHUSETTS**

INDOOR AIR SAMPLING LOCATIONS



Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
(978) 970-5600

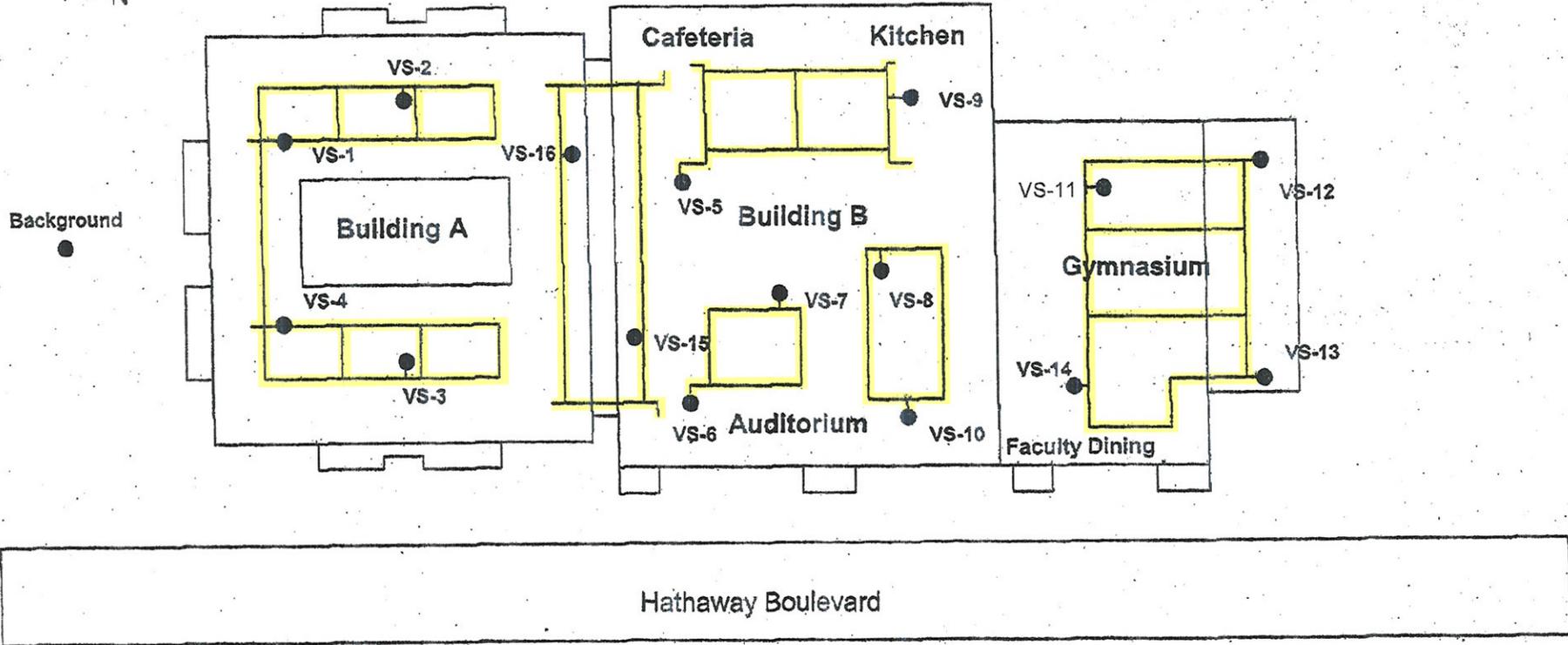
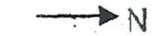
FIGURE

2-1

DRAWN BY: ---
CHECKED BY: DMS

DATE:
MAY 2008

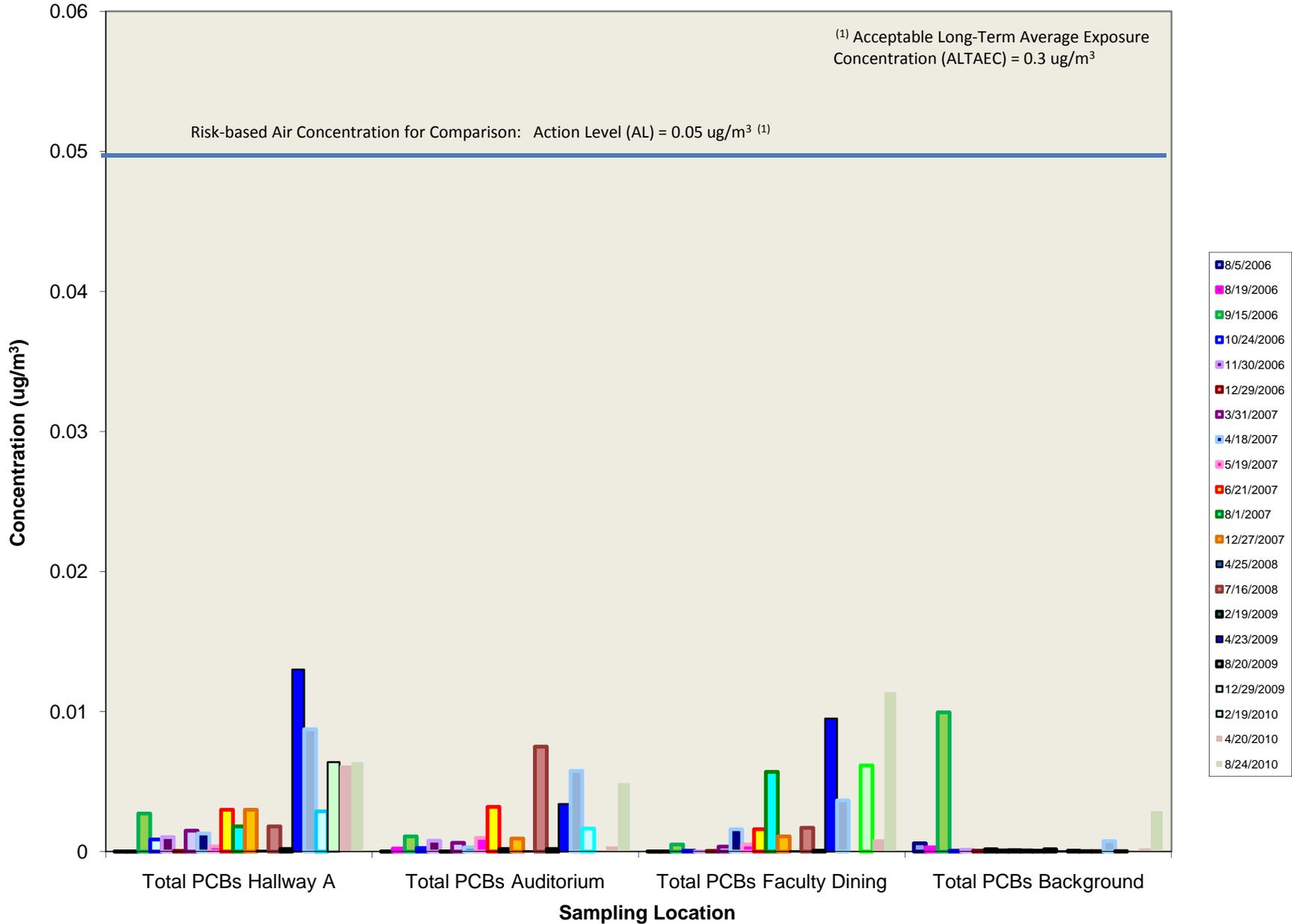
Keith Middle School Foundation Venting System



- = Vent Riser / Vent Stack Sampling location
- = Passive Venting and Collection System

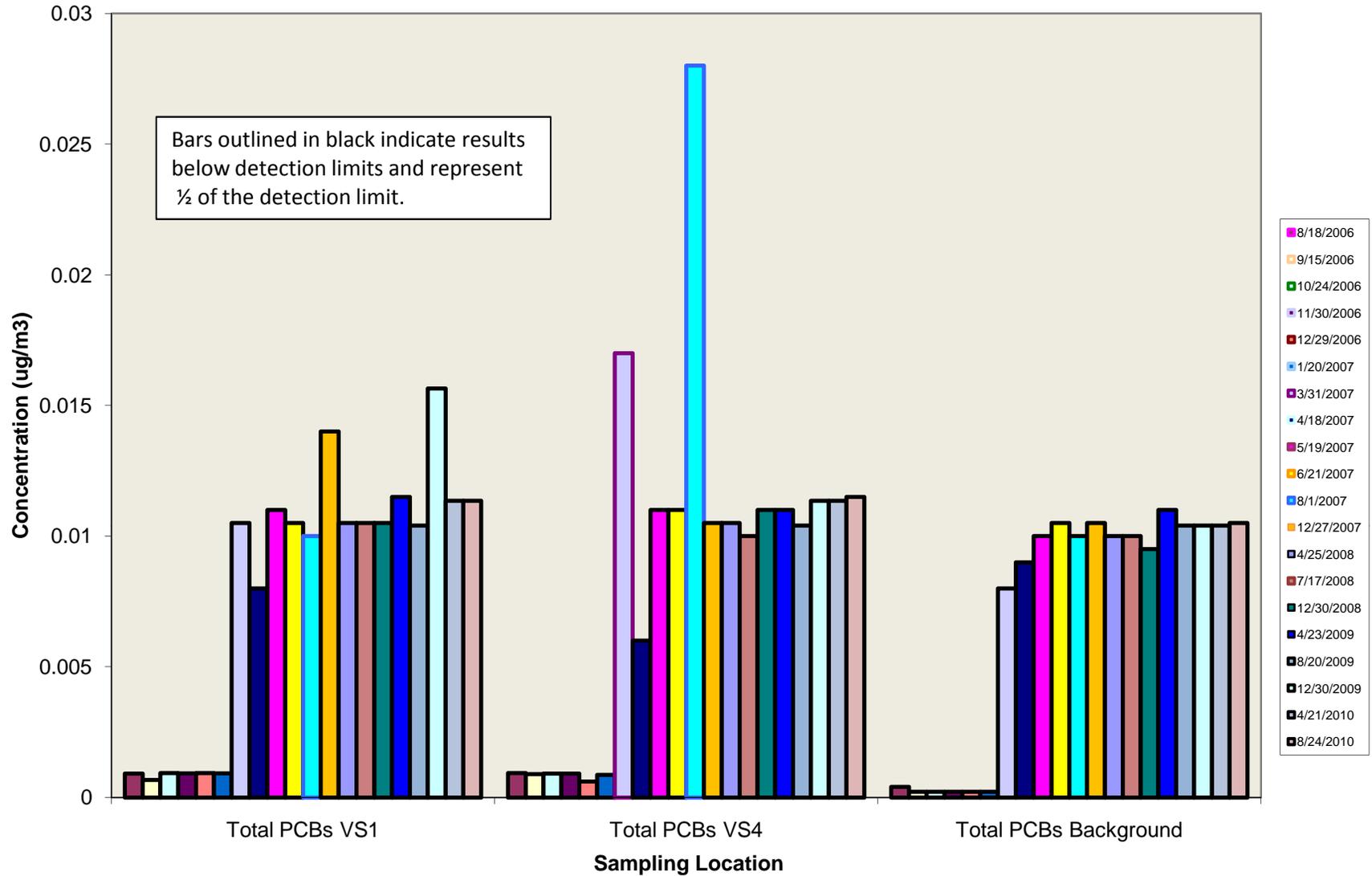
KEITH MIDDLE SCHOOL NEW BEDFORD, MASSACHUSETTS	
VENT STACK SAMPLE LOCATIONS	
	Wannancit Mills 650 Suffolk Street Lowell, MA 01854 (978) 970-5600
DRAWN BY: ---	DATE:
CHECKED BY: DMS	MAY 2008
FIGURE 2-2	

Figure 5-1. Total PCB Trends in KMS Indoor Air Quality (IAQ) Samples - August 2006 through August 2010



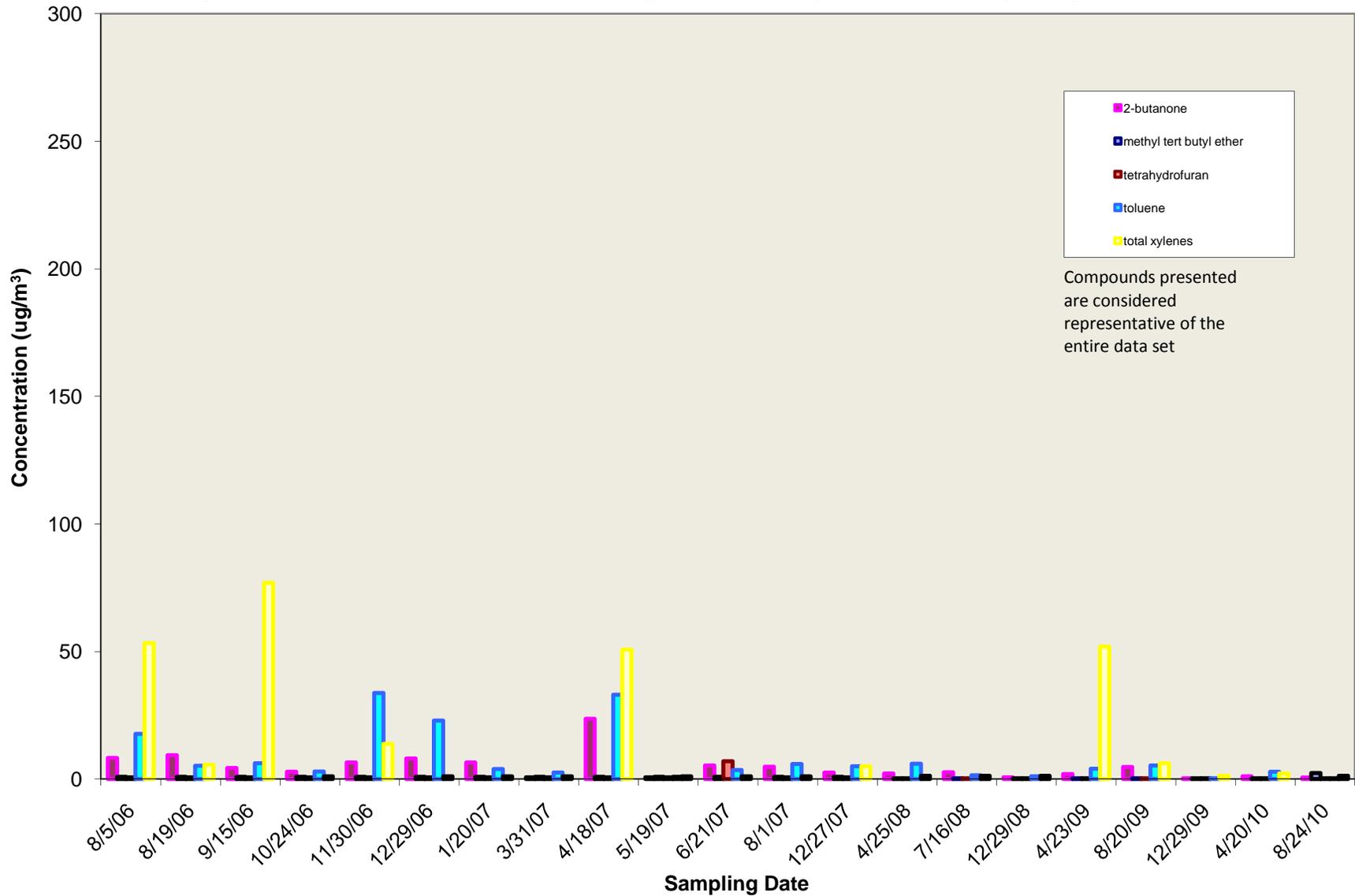
Each bar represents a single measurement. Bars outlined in black represent values reported by the laboratory as nondetect. For charting purposes these nondetect values are plotted as one half the reporting limit.

Figure 5-2. KMS Vent Stack PCB Trends - August 2006 through August 2010



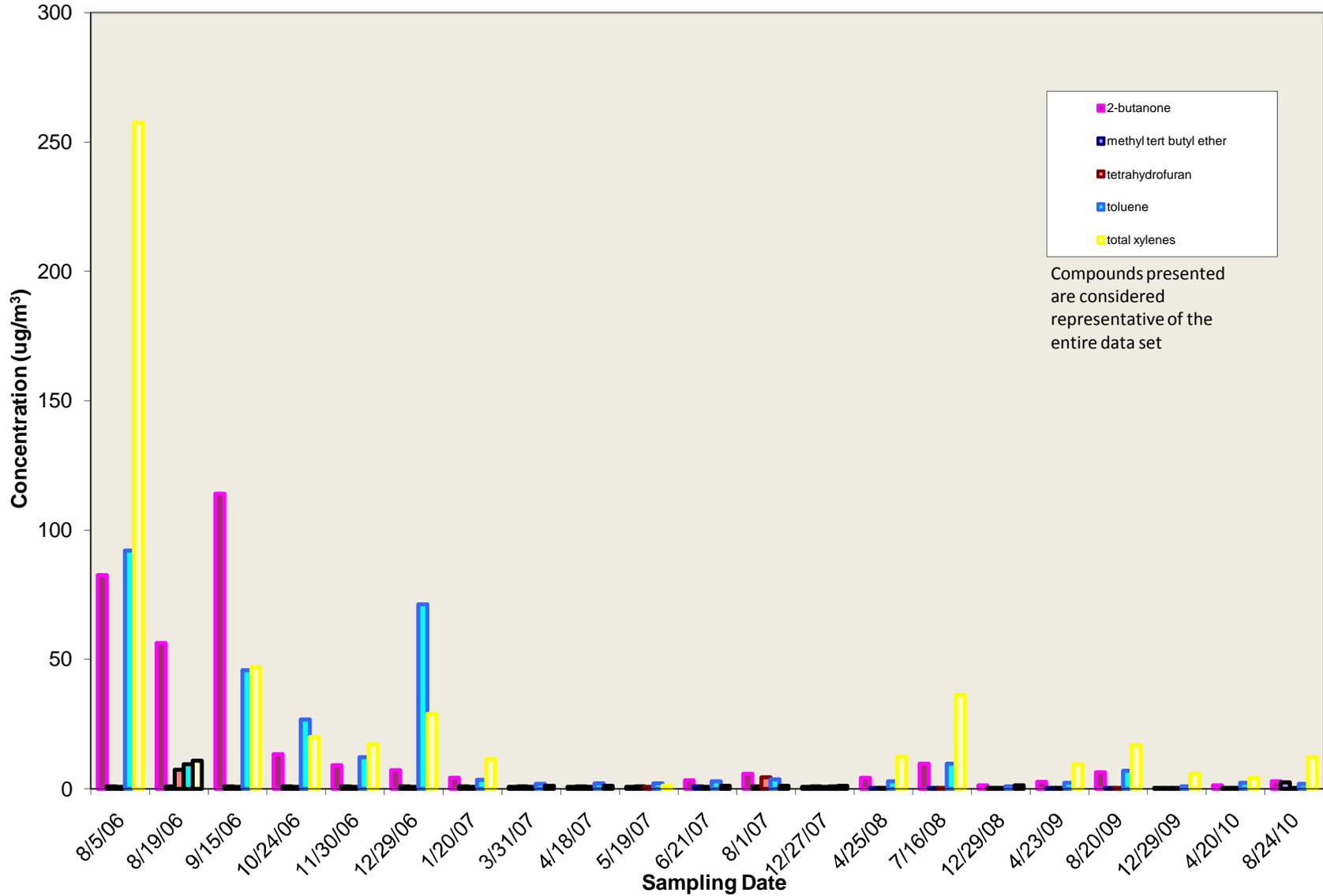
Each bar represents a single measurement. Bars outlined in black represent values reported by the laboratory as nondetect. For charting purposes these nondetect values are plotted as one half the reporting limit.

Figure 6-1. VOC Trends in KMS Building A (IAQ) - August 2006 through August 2010



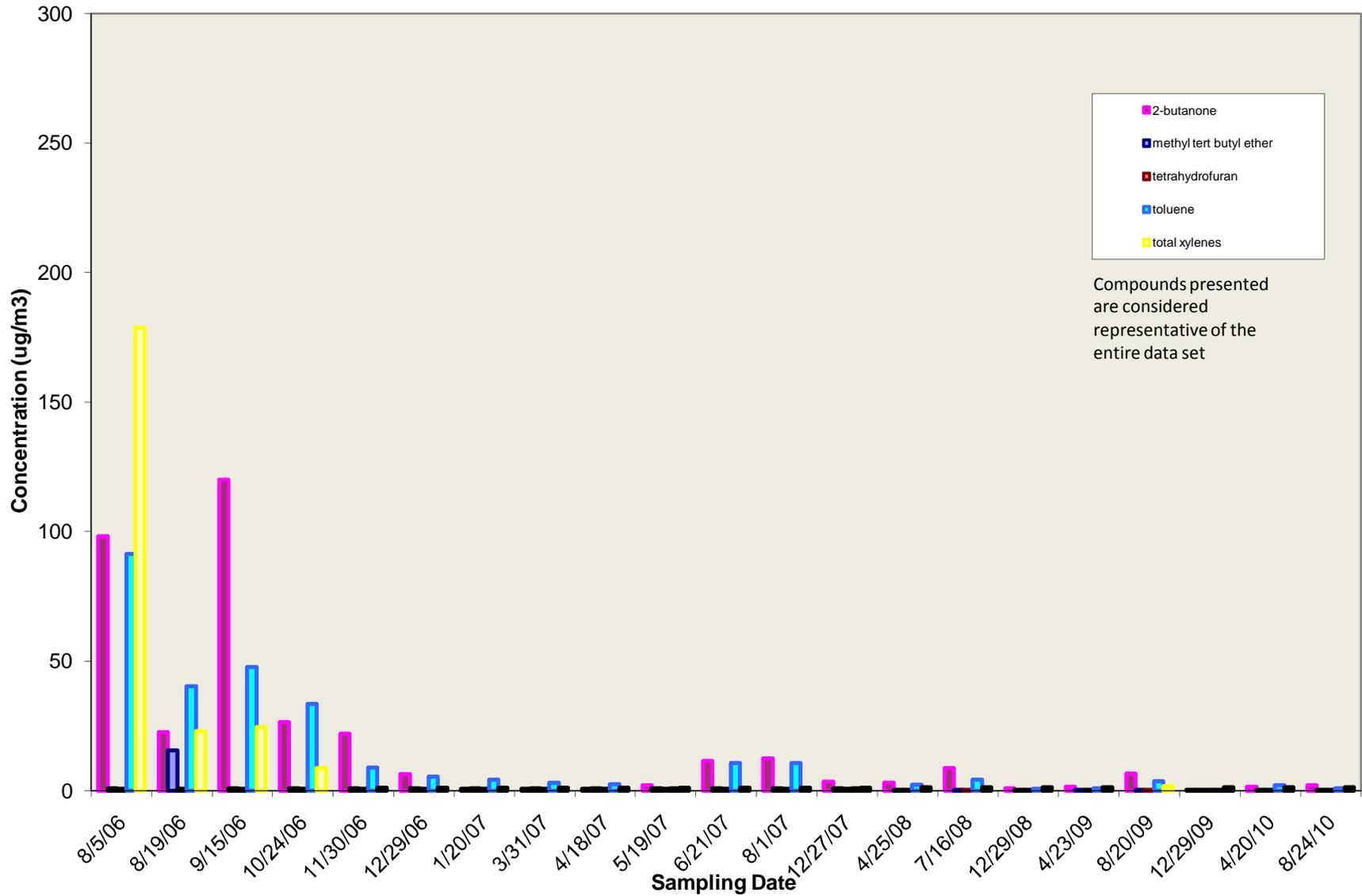
Each bar represents a single measurement. Bars outlined in black represent values reported by the laboratory as nondetect. For charting purposes these nondetect values are plotted as one half the reporting limit.

Figure 6-2. VOC Trends in KMS Building B (IAQ) - August 2006 through August 2010



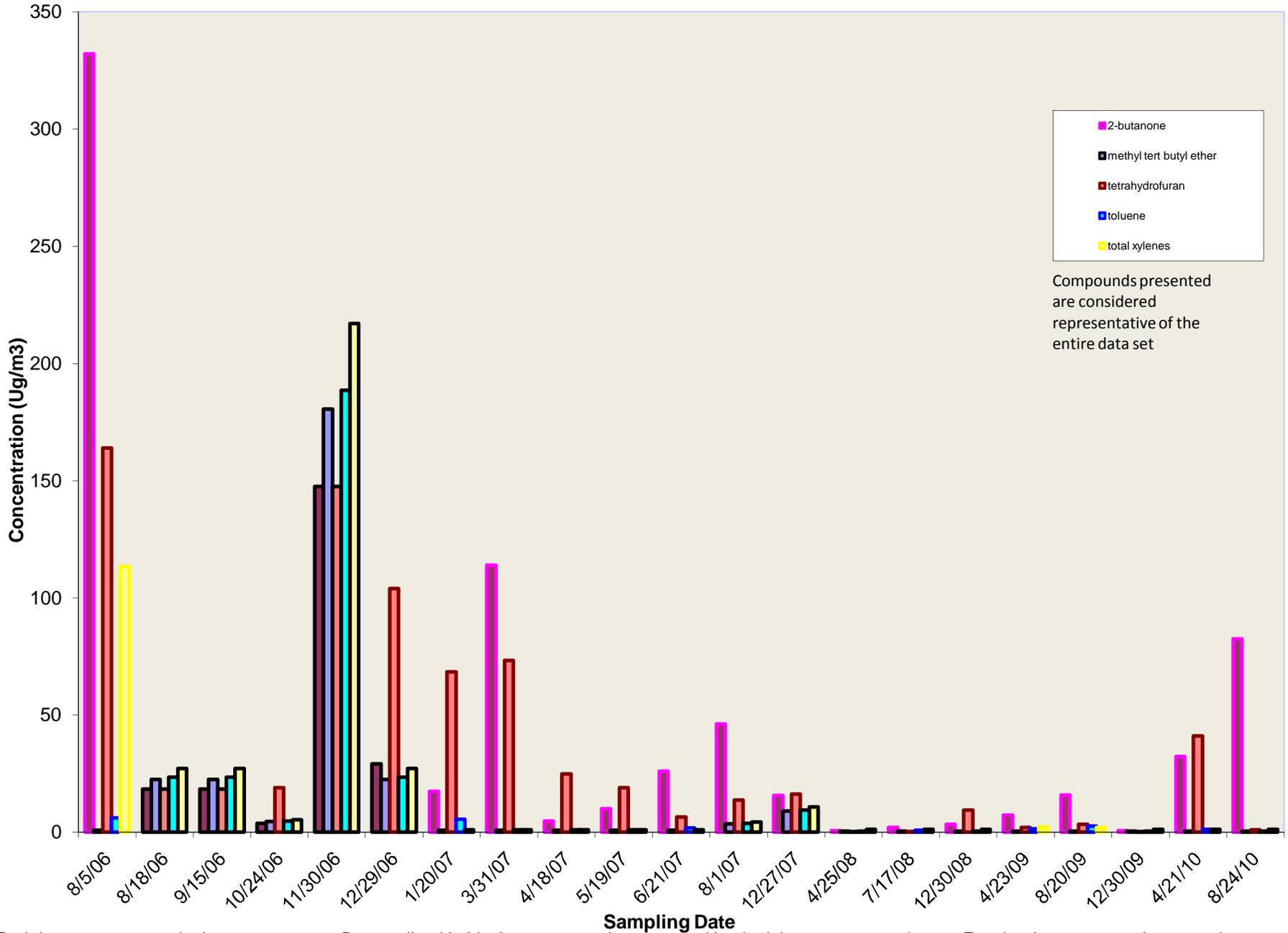
Each bar represents a single measurement. Bars outlined in black represent values reported by the laboratory as nondetect. For charting purposes these nondetect values are plotted as one half the reporting limit.

Figure 6-3. VOC Trends in KMS Building C (IAQ) - August 2006 through August 2010



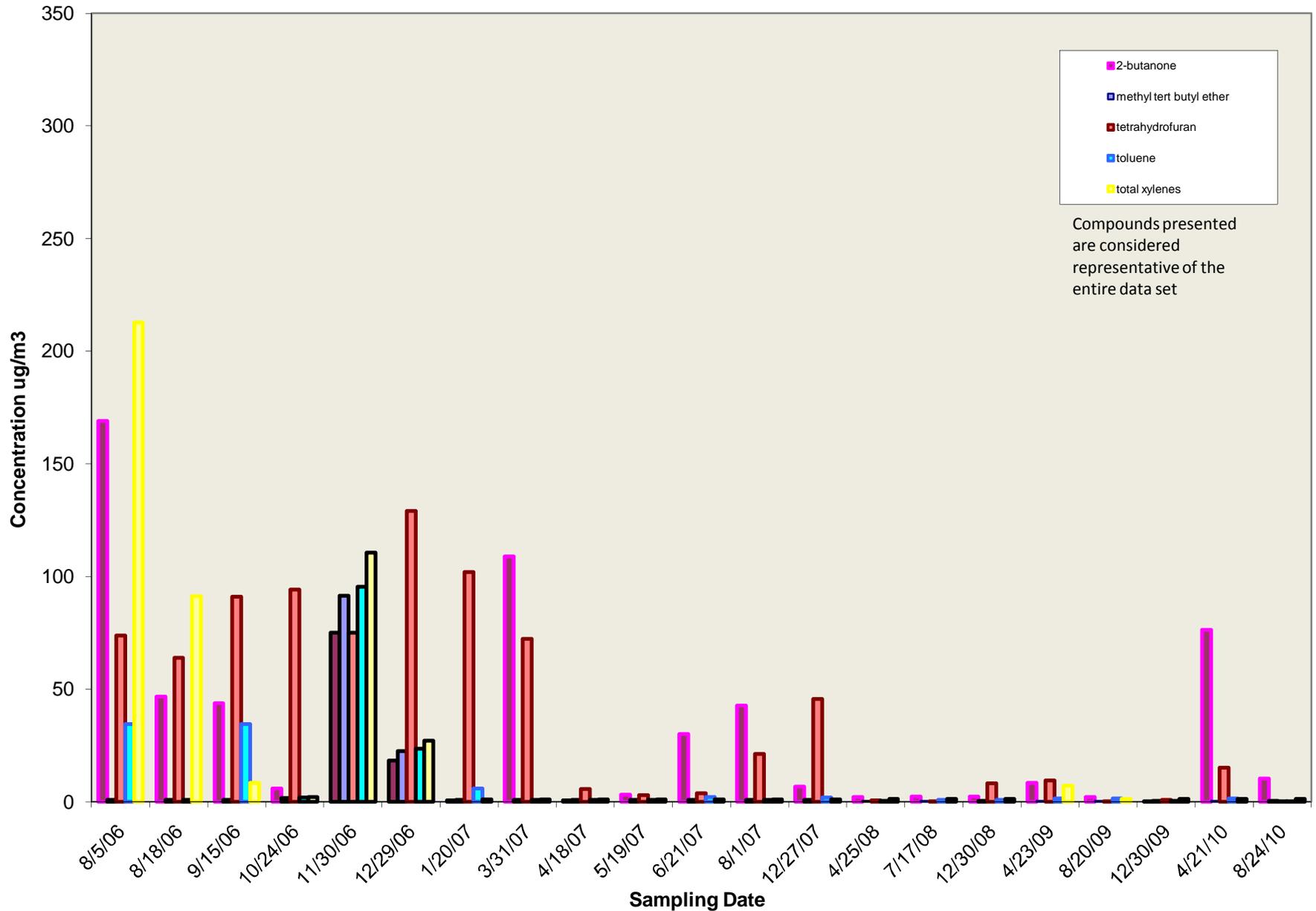
Each bar represents a single measurement. Bars outlined in black represent values reported by the laboratory as nondetect. For charting purposes these nondetect values are plotted as one half the reporting limit.

Figure 6-4. VOC Trends in KMS Vent Stack VS-1 - August 2006 through August 2010



Each bar represents a single measurement. Bars outlined in black represent values reported by the laboratory as nondetect. For charting purposes these nondetect values are plotted as one half the reporting limit.

Figure 6-5. VOC Trends in KMS Vent Stack VS-4 - August 2006 through August 2010



Each bar represents a single measurement. Bars outlined in black represent values reported by the laboratory as nondetect. For charting purposes these nondetect values are plotted as one half the reporting limit.

APPENDIX A

SUMMARY OF FIELD SAMPLING PROGRAM, ANALYTICAL PROGRAM, AND QUALITY ASSURANCE

1.0 FIELD SAMPLING PROGRAM

1.1 Overview

This section describes the procedures that TRC followed during the field sampling program.

1.2 Indoor Air Quality Sampling

Each of the indoor air quality field samples was collected by TRC over the course of one 24-hour test period. Indoor air quality samples were collected for analysis of PCBs by EPA Method TO-4A and VOCs by EPA Method TO-15.

1.2.1 Method TO-4A

Indoor air quality (IAQ) samples were collected for PCBs following the procedures described in the EPA Compendium Method TO-4A, *Determination of Pesticides and Polychlorinated Biphenyls in Ambient Air Using High Volume Polyurethane Foam (PUF) Sampling followed by Gas Chromatographic/Multi-Detector Detection (GC/MD)*, *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition*, USEPA, January 1999.

TRC placed a high volume sampler at each PCB indoor air sampling location. A multi-point calibration was performed on each high volume sampler prior to sample collection using a calibrated orifice. A polyurethane foam (PUF) sampling cartridge was then unsealed and inserted into the high volume sampler and the sampler turned on. The start time, elapsed hours counter reading, and flow rate (magnehelic reading) were then recorded on a data sheet. After 24 hours of sampling, the elapsed hours counter reading and flow rate (magnehelic reading) were recorded on a data sheet along with the stop time. The PUF cartridge was then removed from the sampler, sealed, and labeled. A single-point post sampling calibration audit was performed to document that the high volume sampler remained calibrated.

Following the collection of the TO-4A samples, the total volume of ambient air sampled for each cartridge was calculated based on the duration of sampling and the average flow rate, as determined from the initial and final flow rates.

The data sheets are provided in Appendix B and the reduced data are presented in Appendix C. The calibration certifications of the critical orifice can be found in Appendix D.

1.2.2 Method TO-15

IAQ samples were collected for VOCs following the procedures described in the EPA Compendium Method TO-15, *Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially-Prepared Canisters And Analyzed By Gas Chromatography/Mass Spectrometry (GC/MS)*, *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition*, USEPA, January 1999.

At each sampling location a six-liter evacuated SUMMA™ canister was set up with a flow-controller set to collect a sample over a 24-hour sampling period, and the canister valve opened. The flow controllers are pre-set by the laboratory performing the VOC analysis. The start time, SUMMA™ canister and flow-controller serial numbers, and SUMMA™ canister initial vacuum are then recorded on a data sheet. After 24 hours of sampling, the SUMMA™ canister valve was closed and the final SUMMA™ canister vacuum and stop time recorded.

The data sheets can be found in Appendix B and the reduced data can be found in Appendix C.

1.3 Foundation Vent Air Sampling

Each of the vent air field samples was collected by TRC over the course of a 4-hour test period. Vent air samples were collected for analysis of PCBs by EPA Method TO-10A and VOCs by EPA Method TO-15. Prior to sampling, all of the foundation vents were temporarily capped for approximately 24 hours. Just prior to sampling, TRC removed the caps from all vent stacks that were not being sampled to allow for the inflow of air. This approach is a modification to the procedure outlined in the LTMMIP to improve representativeness by allowing sample air to be drawn from the entire vent stack zone without potential stagnation of flow impacted by capped vent stacks.

1.3.1 Method TO-10A

Vent stack air samples were collected for PCBs following the procedures described in the EPA Compendium Method TO-10A, *Determination of Pesticides and Polychlorinated Biphenyls in Ambient Air Using High Volume Polyurethane Foam (PUF) Sampling followed by Gas Chromatographic/Multi-Detector Detection (GC/MD)*, Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition, USEPA, January 1999.

In order to sample each vent stack without collecting ambient air, a cap with Teflon™ tubing penetrating through it was placed over the vent stack. Prior to capping the stack, a PUF sampling cartridge was unsealed and connected to the length of tubing that would extend inside the vent stack. The tubing on the opposite side of the cap (that would be outside of the vent stack after the cap was installed) was attached to a Dawson® vacuum pump. A vacuum was applied to the tubing and cartridge using the pump and the vacuum was adjusted so that a flow rate of five liters per minute (LPM) of air was flowing through the PUF. The flow rate was confirmed using a Bios Defender™ 520 primary gas flow calibrator. The cap was then placed over the vent stack with the PUF cartridge suspended in the stack. The start time and flow rate was then recorded on a data sheet. After 4 hours of sampling, the flow rate was confirmed using the bubble meter. The final flow rate and stop time are then recorded on the data sheet. The PUF cartridge was then disconnected from the tubing, sealed with the supplied end caps, placed into a sample jar and labeled.

Following the collection of all the TO-10A samples, the total volume of ambient air sampled for each cartridge was calculated based on the duration of sampling and the average flow rate, as determined from the initial and final flow rates.

The data sheets can be found in Appendix B and the reduced data can be found in Appendix C. The calibration certifications of the Bios Defender™ 520 primary gas flow calibrator can be found in Appendix D.

1.3.2 Method TO-15

Foundation vent stack samples were collected for VOCs following the procedures described in the EPA Compendium Method TO-15, ***Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially-Prepared Canisters And Analyzed By Gas Chromatography/Mass Spectrometry (GC/MS)***, *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition*, USEPA, January 1999.

At each sampling location a 2.75-liter evacuated SUMMA™ canister was set up (connected to the vent stack air space via Teflon™ tubing) with a flow-controller set to collect a sample over a 4-hour sampling period, and the canister valve opened. The flow controllers are pre-set by the laboratory performing the VOC analysis. The start time, SUMMA™ canister and flow-controller serial numbers, and SUMMA™ canister initial vacuum are then recorded on a data sheet. After 4 hours of sampling, the SUMMA™ canister valve was closed and the final SUMMA™ canister vacuum and stop time recorded.

The data sheets can be found in Appendix B and the reduced data can be found in Appendix C.

2.0 ANALYTICAL PROGRAM

Samples collected by EPA Method TO-10A and TO-4A were prepared by the Soxhlet Extraction Method (EPA Method 3540C/TO-4A) and analyzed by gas chromatography/mass spectroscopy (EPA Method 680) for PCB Homologue distribution. Though the LTMMIP specified that PCBs were to be analyzed by the congener analytical method, the homologue analytical method is as reliable as the congener analytical method in quantifying total PCBs which is the basis for the EPA Action Level ($0.05 \mu\text{g}/\text{m}^3$) and Acceptable Long-Term Average Exposure Concentration ($0.3 \mu\text{g}/\text{m}^3$) described in Section 5 and Appendix G. In addition, by quantifying PCB homologues, total PCB air data gathered at the KMS are directly comparable to total PCB air data gathered at the high school since both are based on homologues rather than congeners, which greatly facilitates communication and discussion with the general public on the results of analyses.

Samples collected by EPA Method TO-15 were analyzed by gas chromatography/mass spectroscopy (EPA Method TO-15) for volatile organic compounds. Laboratory analytical results are presented in Appendix E.

3.0 QUALITY ASSURANCE

3.1 Overview

TRC management is fully committed to an effective Quality Assurance/Quality Control (QA/QC) Program whose objective is the delivery of a quality product. For much of TRC's work, that product is data developed from field measurements, sampling and analysis activities, engineering assessments, and the analysis of gathered data for planning purposes. TRC's QA/QC Program works to provide complete, precise, accurate, representative data in a timely manner for each project, considering both the project's needs and budget.

This section highlights the specific QA/QC procedures that were followed during this sampling and analysis program.

3.2 Field Quality Control Summary

Calibrations of the field sampling equipment were performed prior to the field sampling effort. Copies of the calibration sheets were submitted to the Field Team Leader to take onsite and placed in the project file. Calibrations were performed as described in the EPA 40 CFR Part 50 Appendix B. All calibrations were available for review during the test program. Copies of the equipment calibration forms can be found in Appendix D. All instrument calibrations met the performance criteria defined in 40 CFR 50 Appendix B.

3.3 Data Reduction and Validation

Specific QC measures were used to ensure the generation of reliable data from sampling and analysis activities. Proper collection and organization of accurate information followed by clear and concise reporting of the data is a primary goal in all projects.

3.3.1 Field Data Reduction

Appendix B of this document presents the standardized forms that were used to record field sampling data. The data collected was reviewed in the field by the Field Team Leader and at least one other field crewmember. Errors or discrepancies were noted in the field book.

3.3.2 Data Validation

TRC supervisory and QC personnel used validation methods and criteria appropriate to the type of data and the purpose of the measurement. Records of all data were maintained, including that judged as an "outlying" or spurious value. The persons validating the data have sufficient knowledge of the technical work to identify questionable values.

Field sampling data was validated by the Field Team Leader and/or the Field QC Coordinator based on their review of adherence to each approved sampling protocol and written sample collection procedure.

The following criteria were used to evaluate the field sampling data:

- Use of approved test procedures;
- Proper operation of the process being tested;
- Use of properly operating and calibrated equipment;
- Proper chain-of-custody maintained.

Laboratory analytical data was validated by TRC chemists. The sample results were assessed using the EPA New England Data Validation Functional Guidelines for Evaluating Environmental Analyses, revised December 1996. Modification of these guidelines was performed to accommodate the non-CLP methodology.

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with TRC requests
- Holding times and sample preservation
- Gas chromatography/mass spectrometry (GC/MS) tunes
- Initial and continuing calibrations
- Method blanks
- System Monitoring Compound recoveries
- Laboratory control sample (LCS) and LCS Duplicate (LCSD) results
- Internal standard performance
- Field duplicate results
- Quantitation limits and sample results

The laboratory data validation memoranda can be found in Appendix F. All data are reported in standard units depending on the measurement and the ultimate use of the data.

3.4 Collocated Sampler Precision

Single collocated sampler pairs were included for both indoor and vent stack air (PCBs and VOCs) during each sampling event. Collocated samplers were operated for the same duration at near identical flow rates and were in close proximity to each other so as to represent near identical air space. The data resulting from the analyses of the collocated sampler pairs were used to define the precision of the combined sample collection and analyses scheme.

Precision was determined by the collection and analysis of replicate samples and is expressed as the relative percent difference (RPD), which is determined according to the following equation:

$$RPD = \left[\frac{X_1 - X_2}{\frac{X_1 + X_2}{2}} \right] \times 100$$

where X_1 and X_2 are the measurement results of each replicate sample expressed as an absolute value (always positive).

4.0 INVENTORY OF CLEANING SUPPLIES AND INGREDIENTS

The following bulleted list provides an inventory of cleaning supplies and their ingredients which are likely contributing to the detection of VOCs in the indoor air quality samples:

- Butchers Heptagon Disinfectant Spray
 - Active ingredients:
 - n-alkyl(60% C₁₄, 30% C₁₆, 5% C₁₂, 5% C₁₈)dimethylbenzyl ammonium chlorides
 - n-alkyl(68% C₁₂, 32% C₁₄)dimethylbenzyl ammonium chlorides
- Eclipse Neutral All Purpose Cleaner
 - Water
 - modified amine condensate
 - tetrapotassium
 - pyrophosphate
- Rebound Cleaner/Enhancer
 - Water
 - Polyethylene glycol
 - Nonionic surfactant
 - Monoethanol amine
- Concentrate 117 – oxidizing multipurpose cleaner
 - Active ingredient:
 - Hydrogen Peroxide – 3.95%
- Misco Disinfectant cleaner -- mint -- HI-Con 64
 - Active ingredients:
 - Didecyldimethyl ammonium chloride (2.54%)
 - N-alkyl(C₁₄ 50%, C₁₂ 40%, C₁₆ 10%)dimethyldibenzyl ammonium chloride
- Butchers Command Center Breakdown
 - Water
 - Alcohol ethoilate
 - Sodium xylene sulfonate
 - Bacillus spores
- Butchers Command Center Look
 - “see MSDS MS040015”
- Butchers Major Max Spray Buff
 - Water
 - Triethylene glycol
 - Dipropylene glycol

- First Step Sealer Acrylic Floor Sealer
 - Water
 - Aqueous acrylic emulsion
 - Ethanol 2-(2-methoxy ethoxy)
 - Ethanol 2-(2-ethoxy ethoxy)
 - Tributoxo ethyl phosphate
- Simplex Shine Up
 - Water
 - Petroleum distillates
 - Isobutene/propane blend
 - Petroleum solvent

APPENDIX B

SAMPLING DATA

Keith Middle School Sampling Data Sheet

Vent Air Sampling

Setup Date: 8/25/10
 Recovery Date: 8/25/10

Sampler(s): ML/BH
 Sampler(s): ML/BH

TO-15						
Location	Time		Vacuum (in Hg)		SUMMA Serial No.:	Flow Controller Serial No.:
	Start	Stop	Start	Finish		
VS-9	817 817 ^{ML}	12.19	>30	11	252	476
VS-9 DUP	817	12.19	29	5	138	27
VS-10	827	12.27	30	6	450	70
VS-1	1242	12:10:44	29	4	2310	7 472
VS-4	1246	12:41:0	>30	7	198	
VS-BG	1258	1709	>30	6	148	261

TO-10A				
Location	Time		Flow Rate (LPM)	
	Start	Stop	Start	Finish
VS-9	817	12.19	5.01	4.62
VS-9 DUP	817	12.19	4.99	4.85
VS-10	827	12.27	5.10	3.35
VS-1	1242	12:10:44	4.97	4.84
VS-4	1246	12:41:0	5.08	4.19
VS-BG	1258	1709	5.08	4.94

* moisture on PUF

Keith Middle School Sampling Data Sheet Ambient Air Sampling

Setup Date: 8/24
Recovery Date: 8/25

Sampler(s): BH/ML
Sampler(s): BH/ML

DUP →

TO-15						
Location	Time		Vacuum (in Hg)		SUMMA Serial No.:	Flow Controller Serial No.:
	Start	Stop	Start	Finish		
Fac (C)	1328	1328	-29	2	7281	0120
Aud. (B)	1345	1346	(7)30	4	7531	0011
Hall (A)	1358	1358	(7)30	3	2531	0433
BG1	1425	1425	-30	4	8058	0122
BG2	1425	1425	-27	0	0695	0125

DUP →

TO-4A								
Location	Time		PUF Number	Serial Number	Sampler		Flow Rate (Mag Reading)	
	Start	Stop			Counter (Hrs)		Initial	Final
					Start	Finish		
Fac (C)	1329	1329	5	825	458.75	482.72	52	50
Aud. (B)	1345	1346	1	820	48.57	72.58	6250	48
Hall (A)	1359	1358	2B	822	461.82	485.81	62	40
BG1	1427	1428	3	821	439.09	463.00	50	46
BG2	1427	1428	3B	823	438.77	462.77	50	46



APPENDIX C

FIELD REDUCED DATA

INDOOR SAMPLING LOCATIONS

Average Temp (oF/ K): **40.6** 277.8

Average Baro. Press ("Hg / mmHg): **29.72** 754.9

Wednesday, August 25, 2010

Location	Serial #	m _s	b _s	Start Reading ("H2O)	Start Reading (lpm)	Stop Reading ("H2O)	Stop Reading (lpm)	Avg. Reading ("H2O)	RPD of Start and Stop Readings	Avg. Flow (lpm)	Start time (hr)	Stop Time (hr)	Total Sample Time (min)	Total Actual Sample Volume (m ³)
B-24 (Auditorium)	TO-4A 820	0.035	-1.057	50		48		49	4.08	224	48.57	72.58	1441	322.3
C-24 (faculty lounge)	TO-4A 825	0.039	-2.392	52		50		51	3.92	237	458.75	482.72	1438	340.5
A-24, Hallway outside rm A-119	TO-4A 822	0.035	-1.156	48		40		44	18.18	214	461.82	485.81	1439	308.2

Note:

OUTDOOR SAMPLING LOCATIONS

Average Temp (oF/ K): **38.2** 276.4

Average Baro. Press ("Hg / mmHg): **29.72** 754.9

Wednesday, August 25, 2010

Location	Serial #	m _s	b _s	Start Reading ("H2O)	Start Reading (lpm)	Stop Reading ("H2O)	Stop Reading (lpm)	Avg. Reading ("H2O)	RPD of Start and Stop Readings	Avg. Flow (lpm)	Start time (hr)	Stop Time (hr)	Total Sample Time (min)	Total Actual Sample Volume (m ³)
BG-23	TO-4A	821	0.035	-1.195	50	46	48	8.33	8.33	221	439	463	1440	317.9
BG-23-Dup	TO-4A	823	0.035	-1.173	50	46	48	8.33	8.33	221	438.77	462.77	1440	317.9
VS-4-23	TO-10A				5.08		4.19	19.20		4.64	12:46	16:46	240	1.1
VS-1-23	TO-10A				4.97		4.84	2.65		4.91	12:42	16:44	242	1.2
VS-10-24	TO-10A				5.1		3.35	41.42		4.23	8:27	12:27	240	1.0
VS-9-24	TO-10A				5.01		4.62	8.10		4.82	8:17	12:17	240	1.2
VS-9-24-DUP	TO-10A				4.99		4.85	2.85		4.92	8:17	12:17	240	1.2
VS-BG-23	TO-10A				5.06		4.86	4.03		4.96	10:30	14:30	240	1.2

APPENDIX D

EQUIPMENT CALIBRATION SHEETS

PS1 Calibration Data Sheet

Network: Keith Middle School

Site: New Bedford, MA

Serial #: 0825

Station # Fac Din

Technician: BH & ML

Date: 8/24/10

Calibration Orifice

S/N: 1125

Orif. Cal. Data: 1/7/10

Reason for Calibration (Circle One):

New Instrument

Brush Change

Motor Change

Quarterly Recal.

Amb. Temp, T1 (°C): ~~69.1°F~~ ⁽³⁴⁾ 37.28°C

Bar.press (in Hg): 29.85

Thermometer Serial #: TRC-271V5

ΔH₀ ("H₂O) Calibration Orifice

Left	Right	Total	I ("H ₂ O) Magnahelic
3.9	3.9	7.8	80.00
3.5	3.5	7	70.00
3.1	3.1	6.2	60.00
2.7	2.7	5.4	50.00
2.3	2.3	4.6	40.00

PS1 Post-Sampling Flow Audit

Network: Keith Middle School

Site: New Bedford, MA

Serial #: 825

Station # Fac (C)

Technician: BH/ML

Date: 8/25/10

Calibration Orifice

S/N: 1125

Orif. Cal. Data: 1/7/10

Amb. Temp, T1 (°C): 75.3°F = 41.83°C

Bar. press (in Hg): 29.54

Thermometer Serial #: TRC-271V5

ΔH_0 ("H2O) Calibration Orifice

Left	Right	Total	I ("H2O) Magnahelic
2.6	2.6	5.2	50.00

PS1 Calibration Data Sheet

Network: Keith Middle School

Site: New Bedford, MA

Serial #: 922

Station # Hall A

Technician: BH/ML

Date: 8/24/10

Calibration Orifice S/N: 1125

Orif. Cal. Data: 1/7/10

Reason for Calibration (Circle One):

New Instrument

Brush Change

Motor Change

Quarterly Recal

Amb. Temp, T1 (°C): 40.00°C

Bar.press (in Hg): 29.85

Thermometer Serial #: TRC-271V5

ΔH_0 ("H₂O) Calibration Orifice

Left	Right	Total	I ("H ₂ O) Magnahelic
3.4	3.5	7.4	80.00
3.6	3.1	6.7	70.00
3.1	2.7	5.8	60.00
2.7	2.3	5.0	50.00
2.2	1.8	4.0	40.00

PS1 Post-Sampling Flow Audit

Network: Keith Middle School

Site: New Bedford, MA

Serial #: 822

Station # HALL A

Technician: BH/ML

Date: 8/25/10

Calibration Orifice
S/N: 1125

Orif. Cal. Data: 1/7/10

Amb. Temp, T1 (°C): 74.6° F = 41.44° C

Bar. press (in Hg): 29.59

Thermometer Serial #: TRC-271V5

ΔH_0 ("H2O) Calibration Orifice

Left	Right	Total	I ("H2O) Magnahelic
2.6	2.6	5.2	50.00

PS1 Calibration Data Sheet

Network: Keith Middle School

Site: New Bedford, MA

Serial #: 820

Station # And

Technician: BH/ML

Date: 8/24/10

Calibration Office
S/N: 1125

Orif. Cal. Data: 1/7/10

Reason for Calibration (Circle One):

New Instrument

Brush Change

Motor Change

Quarterly Recal

Amb. Temp, T1 (°C): 40.84°C

Bar. press (in Hg): 29.85

Thermometer Serial #: TRC-271V5

ΔH_o ("H2O) Calibration Orifice

Left	Right	Total	I ("H2O) Magnahelic
3.8	3.6	7.4	80.00
3.4	3.3	6.7	70.00
(BH) 3.0 3.1	(BH) 3.2 2.9	(BH) 6.2 6.0	60.00
2.6	2.4	5.0	50.00
2.1	1.9	4.0	40.00

PS1 Post-Sampling Flow Audit

Network: Keith Middle School

Site: New Bedford, MA

Serial #: 820

Station # Aud

Technician: BH/ML

Date: 8/25/10

Calibration Orifice
S/N: 1125

Orif. Cal. Data: 1/7/10

Amb. Temp, T1 (°C): 75.4° F
~~78.4° F~~ = 41.89° C
Thermometer Serial #: JRC-271V5

Bar. press (in Hg): 29.59

ΔH_0 ("H2O) Calibration Orifice

Left	Right	Total	I ("H2O) Magnahelic
2.5	2.5	5.0	50.00

calibration

PS1 Post-Sampling Flow Audit

Network: Keith Middle School

Site: New Bedford, MA

Serial #: 821

Station # BG1

Technician: BA + ML

Date: 8/24/10

Calibration Orifice S/N: 1125

Orif. Cal. Data: 1/7/10

Amb. Temp, T1 (°C): 35.4°C

Bar. press (in Hg): 29.85

Thermometer Serial #: TRC-271V5

ΔH_o ("H2O) Calibration Orifice

Left	Right	Total	I ("H2O) Magnahelec
3.9	3.4	7.3	80 50.00
3.6	3.0	6.6	70
3.3	2.6	5.9	60
2.7	2.2	4.9	50
2.2	1.8	4.0	40



PS1 Post-Sampling Flow Audit

Network: Keith Middle School

Site: New Bedford, MA

Serial #: 821

Station # B6

Technician: BH/ML

Date: 8/25/10

Calibration Orifice

S/N: 1125

Orif. Cal. Data: 1/7/10

Amb. Temp, T1 (°C): 473.8°F = 41°C

Bar. press (in Hg): 29.59

Thermometer Serial #: TRC-271V5

ΔH_o ("H2O) Calibration Orifice

Left	Right	Total	I ("H2O) Magnahelic
2.5	2.4		50.00

Calibration

PS1 Post-Sampling Flow Audit

Network: Keith Middle School Site: New Bedford, MA Serial #: 823 Station # 1362
 Technician: BH + ML Date: 8/24/10 Calibration Orifice S/N: 1125 Orif. Cal. Data: 1/7/10

Amb. Temp, T1 (°C): 35.4° Bar. press (in Hg): 29.85
 Thermometer Serial #: TRCIVS

ΔH_o ("H₂O) Calibration Orifice

Left	Right	Total	I ("H ₂ O) Magnahelic
3.9	3.4	7.3	50.00 80
3.6	3.0	6.6	60 70
3.3	2.6	5.9	60
2.7	2.2	4.9	50
2.2	1.8	4.0	40

PS1 Post-Sampling Flow Audit

Network: Keith Middle School

Site: New Bedford, MA

Serial #: 823

Station # B6-dup

Technician: BH/ML

Date: 8/25/10

Calibration Orifice

S/N: 1125

Orif. Cal. Data: 1/7/10

Amb. Temp, T1 (°C): 73.8 °F = 41°C

Bar.press (in Hg): 29.59

Thermometer Serial #: TRC-271V5

ΔH_o ("H2O) Calibration Orifice

Left	Right	Total	I ("H2O) Magnahelic
2.6	2.6	5.2	50.00

APPENDIX E

LABORATORY DATA REPORTS (ON CD)

CHAIN OF CUSTODY RECORD

Project Name: Keith Middle School
Project No.: 115058
Sampling Date(s): 8/25/10
Laboratory: NEA
Laboratory P.O.: _____
Shipping Date(s): 08/26/10
Shipper's Name: TRC

<10080261P1>



Sample Code	Sampled Date	Container		MATRIX	Description	ANALYSIS	Comments (volume m ³)
		Size	G/P				
VS-9-24	08/25/10		G	PUF	vent stack air	TO-10A	AN11714 1.2
VS-9-24-DUP	08/25/10		G	PUF	vent stack air	TO-10A	AN11715 1.2
VS-10-24	08/25/10		G	PUF	vent stack air	TO-10A	AN11716 1.3
VS-1-24	08/25/10		G	PUF	vent stack air	TO-10A	AN11717 1.1
VS-4-24	08/25/10		G	PUF	vent stack air	TO-10A	AN11718 1.2
VS-TB-24	08/25/10		G	PUF	trip blank	TO-10A	AN11719 N/A
VS-BG-24	08/25/10		G	PUF	background	TO-10A	AN11720 1.2
C-24	08/25/10		G	PUF	ambient air , Faculty Lounge	TO-4A	AN11721 352.4
B-24	08/25/10		G	PUF	ambient air , Auditorium	TO-4A	AN11722 348.9
A-24	08/25/10		G	PUF	ambient air , Hallway	TO-4A	AN11723 324.1
BG-24	08/25/10		G	PUF	ambient air	TO-4A	AN11724 326.8
BG-24-DUP	08/25/10		G	PUF	ambient air	TO-4A	AN11725 340.8
TRIP BLANK - 24	08/25/10		G	PUF	trip blank	TO-4A	AN11726 N/A

Relinquished by: Melinda Chynoweth **Date/Time:** 8/26/10 11:37 **Relinquished by:** _____
Received by: J. Annunzio **Date/Time:** 8/21/10 10:26 **Received by:** _____

Remarks (*): Do not analyze VS-14-21 sample void. Temp: 0.7°C



CERTIFICATE OF ANALYSIS
09/13/2010
TRC ENVIRONMENTAL
WANNALANCIT MILLS
650 SUFFOLK ST
LOWELL, MA 01854
CONTACT: DAVID SULLIVAN



CUSTOMER ID: VS-9-24-DUP **NEA ID:** AN11715 **NEA LRF:** 10080261-02
MATRIX: POLYURETHANE FOAM **DATE SAMPLED:** 08/25/2010 **TIME:** N/A
DATE RECEIVED: 08/27/2010 **TIME:** 10:26 **PROJECT:** 115058 KEITH MIDDLE SCHOOL
SAMPLED BY: M. LIHZIS **LOCATION:** NEW BEDFORD, MA
CUSTOMER PO: N/A **LAB ELAP#:** 11078
METHOD: PCBs by EPA Method TO-10A/680 **DATE ANALYZED:** 09/01/2010

HOMOLOG GROUP	CAS NUMBER	AMOUNT	FLAGS	RL	UNITS	WEIGHT PERCENT
Monochlorobiphenyl	27323-18-8	ND	U	0.00417	ug/m ³	ND
Dichlorobiphenyl	25512-42-9	ND	U	0.00417	ug/m ³	ND
Trichlorobiphenyl	25323-68-6	ND	U	0.00417	ug/m ³	ND
Tetrachlorobiphenyl	26914-33-0	ND	U	0.00833	ug/m ³	ND
Pentachlorobiphenyl	25429-29-2	ND	U	0.00833	ug/m ³	ND
Hexachlorobiphenyl	26601-64-9	ND	U	0.00833	ug/m ³	ND
Heptachlorobiphenyl	28655-71-2	ND	U	0.0125	ug/m ³	ND
Octachlorobiphenyl	55722-26-4	ND	U	0.0125	ug/m ³	ND
Nonachlorobiphenyl	53742-07-7	ND	U	0.0208	ug/m ³	ND
Decachlorobiphenyl	2051-24-3	ND	U	0.0208	ug/m ³	ND
Total PCB	1336-36-3	ND	U			ND

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

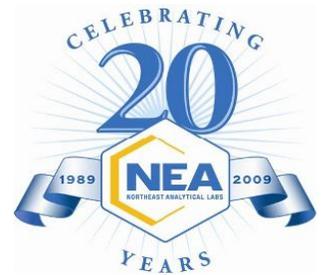
AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative

Robert E. Wagner
Laboratory Director



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WANNALANCIT MILLS
650 SUFFOLK ST
LOWELL, MA 01854
CONTACT: DAVID SULLIVAN



CUSTOMER ID: VS-10-24 **NEA ID:** AN11716 **NEA LRF:** 10080261-03
MATRIX: POLYURETHANE FOAM **DATE SAMPLED:** 08/25/2010 **TIME:** N/A
DATE RECEIVED: 08/27/2010 **TIME:** 10:26 **PROJECT:** 115058 KEITH MIDDLE SCHOOL
SAMPLED BY: M. LIHZIS **LOCATION:** NEW BEDFORD, MA
CUSTOMER PO: N/A **LAB ELAP#:** 11078
METHOD: PCBs by EPA Method TO-10A/680 **DATE ANALYZED:** 09/01/2010

HOMOLOG GROUP	CAS NUMBER	AMOUNT	FLAGS	RL	UNITS	WEIGHT PERCENT
Monochlorobiphenyl	27323-18-8	ND	U	0.00385	ug/m ³	ND
Dichlorobiphenyl	25512-42-9	ND	U	0.00385	ug/m ³	ND
Trichlorobiphenyl	25323-68-6	ND	U	0.00385	ug/m ³	ND
Tetrachlorobiphenyl	26914-33-0	ND	U	0.00769	ug/m ³	ND
Pentachlorobiphenyl	25429-29-2	ND	U	0.00769	ug/m ³	ND
Hexachlorobiphenyl	26601-64-9	ND	U	0.00769	ug/m ³	ND
Heptachlorobiphenyl	28655-71-2	ND	U	0.0115	ug/m ³	ND
Octachlorobiphenyl	55722-26-4	ND	U	0.0115	ug/m ³	ND
Nonachlorobiphenyl	53742-07-7	ND	U	0.0192	ug/m ³	ND
Decachlorobiphenyl	2051-24-3	ND	U	0.0192	ug/m ³	ND
Total PCB	1336-36-3	ND	U			ND

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

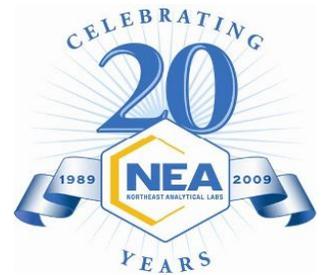
AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative

Robert E. Wagner
Laboratory Director



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09/13/2010
TRC ENVIRONMENTAL
WANNALANCIT MILLS
650 SUFFOLK ST
LOWELL, MA 01854
CONTACT: DAVID SULLIVAN



CUSTOMER ID: VS-1-24 **NEA ID:** AN11717 **NEA LRF:** 10080261-04
MATRIX: POLYURETHANE FOAM **DATE SAMPLED:** 08/25/2010 **TIME:** N/A
DATE RECEIVED: 08/27/2010 **TIME:** 10:26 **PROJECT:** 115058 KEITH MIDDLE SCHOOL
SAMPLED BY: M. LIHZIS **LOCATION:** NEW BEDFORD, MA
CUSTOMER PO: N/A **LAB ELAP#:** 11078
METHOD: PCBs by EPA Method TO-10A/680 **DATE ANALYZED:** 09/02/2010

HOMOLOG GROUP	CAS NUMBER	AMOUNT	FLAGS	RL	UNITS	WEIGHT PERCENT
Monochlorobiphenyl	27323-18-8	ND	U	0.00455	ug/m ³	ND
Dichlorobiphenyl	25512-42-9	ND	U	0.00455	ug/m ³	ND
Trichlorobiphenyl	25323-68-6	ND	U	0.00455	ug/m ³	ND
Tetrachlorobiphenyl	26914-33-0	ND	U	0.00909	ug/m ³	ND
Pentachlorobiphenyl	25429-29-2	ND	U	0.00909	ug/m ³	ND
Hexachlorobiphenyl	26601-64-9	ND	U	0.00909	ug/m ³	ND
Heptachlorobiphenyl	28655-71-2	ND	U	0.0136	ug/m ³	ND
Octachlorobiphenyl	55722-26-4	ND	U	0.0136	ug/m ³	ND
Nonachlorobiphenyl	53742-07-7	ND	U	0.0227	ug/m ³	ND
Decachlorobiphenyl	2051-24-3	ND	U	0.0227	ug/m ³	ND
Total PCB	1336-36-3	ND	U			ND

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative

Robert E. Wagner
Laboratory Director



CERTIFICATE OF ANALYSIS
09/13/2010
TRC ENVIRONMENTAL
WANNALANCIT MILLS
650 SUFFOLK ST
LOWELL, MA 01854
CONTACT: DAVID SULLIVAN



CUSTOMER ID: VS-4-24 **NEA ID:** AN11718 **NEA LRF:** 10080261-05
MATRIX: POLYURETHANE FOAM **DATE SAMPLED:** 08/25/2010 **TIME:** N/A
DATE RECEIVED: 08/27/2010 **TIME:** 10:26 **PROJECT:** 115058 KEITH MIDDLE SCHOOL
SAMPLED BY: M. LIHZIS **LOCATION:** NEW BEDFORD, MA
CUSTOMER PO: N/A **LAB ELAP#:** 11078
METHOD: PCBs by EPA Method TO-10A/680 **DATE ANALYZED:** 09/01/2010

HOMOLOG GROUP	CAS NUMBER	AMOUNT	FLAGS	RL	UNITS	WEIGHT PERCENT
Monochlorobiphenyl	27323-18-8	ND	U	0.00417	ug/m ³	ND
Dichlorobiphenyl	25512-42-9	ND	U	0.00417	ug/m ³	ND
Trichlorobiphenyl	25323-68-6	ND	U	0.00417	ug/m ³	ND
Tetrachlorobiphenyl	26914-33-0	ND	U	0.00833	ug/m ³	ND
Pentachlorobiphenyl	25429-29-2	ND	U	0.00833	ug/m ³	ND
Hexachlorobiphenyl	26601-64-9	ND	U	0.00833	ug/m ³	ND
Heptachlorobiphenyl	28655-71-2	ND	U	0.0125	ug/m ³	ND
Octachlorobiphenyl	55722-26-4	ND	U	0.0125	ug/m ³	ND
Nonachlorobiphenyl	53742-07-7	ND	U	0.0208	ug/m ³	ND
Decachlorobiphenyl	2051-24-3	ND	U	0.0208	ug/m ³	ND
Total PCB	1336-36-3	ND	U			ND

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative

Robert E. Wagner
Laboratory Director



CERTIFICATE OF ANALYSIS
09/13/2010
TRC ENVIRONMENTAL
WANNALANCIT MILLS
650 SUFFOLK ST
LOWELL, MA 01854
CONTACT: DAVID SULLIVAN



CUSTOMER ID: VS-BG-24 **NEA ID:** AN11720 **NEA LRF:** 10080261-07
MATRIX: POLYURETHANE FOAM **DATE SAMPLED:** 08/25/2010 **TIME:** N/A
DATE RECEIVED: 08/27/2010 **TIME:** 10:26 **PROJECT:** 115058 KEITH MIDDLE SCHOOL
SAMPLED BY: M. LIHZIS **LOCATION:** NEW BEDFORD, MA
CUSTOMER PO: N/A **LAB ELAP#:** 11078
METHOD: PCBs by EPA Method TO-10A/680 **DATE ANALYZED:** 09/01/2010

HOMOLOG GROUP	CAS NUMBER	AMOUNT	FLAGS	RL	UNITS	WEIGHT PERCENT
Monochlorobiphenyl	27323-18-8	ND	U	0.00417	ug/m ³	ND
Dichlorobiphenyl	25512-42-9	ND	U	0.00417	ug/m ³	ND
Trichlorobiphenyl	25323-68-6	ND	U	0.00417	ug/m ³	ND
Tetrachlorobiphenyl	26914-33-0	ND	U	0.00833	ug/m ³	ND
Pentachlorobiphenyl	25429-29-2	ND	U	0.00833	ug/m ³	ND
Hexachlorobiphenyl	26601-64-9	ND	U	0.00833	ug/m ³	ND
Heptachlorobiphenyl	28655-71-2	ND	U	0.0125	ug/m ³	ND
Octachlorobiphenyl	55722-26-4	ND	U	0.0125	ug/m ³	ND
Nonachlorobiphenyl	53742-07-7	ND	U	0.0208	ug/m ³	ND
Decachlorobiphenyl	2051-24-3	ND	U	0.0208	ug/m ³	ND
Total PCB	1336-36-3	ND	U			ND

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative

Robert E. Wagner
Laboratory Director



CERTIFICATE OF ANALYSIS
09/13/2010
TRC ENVIRONMENTAL
WANNALANCIT MILLS
650 SUFFOLK ST
LOWELL, MA 01854
CONTACT: DAVID SULLIVAN



CUSTOMER ID: VS-TB-24 **NEA ID:** AN11719 **NEA LRF:** 10080261-06
MATRIX: POLYURETHANE FOAM **DATE SAMPLED:** 08/25/2010 **TIME:** N/A
DATE RECEIVED: 08/27/2010 **TIME:** 10:26 **PROJECT:** 115058 KEITH MIDDLE SCHOOL
SAMPLED BY: M. LIHZIS **LOCATION:** NEW BEDFORD, MA
CUSTOMER PO: N/A **LAB ELAP#:** 11078
METHOD: PCBs by EPA Method TO-10A/680 **DATE ANALYZED:** 09/01/2010

HOMOLOG GROUP	CAS NUMBER	AMOUNT	FLAGS	RL	UNITS	WEIGHT PERCENT
Monochlorobiphenyl	27323-18-8	ND	U	0.00500	ug	ND
Dichlorobiphenyl	25512-42-9	ND	U	0.00500	ug	ND
Trichlorobiphenyl	25323-68-6	ND	U	0.00500	ug	ND
Tetrachlorobiphenyl	26914-33-0	ND	U	0.0100	ug	ND
Pentachlorobiphenyl	25429-29-2	ND	U	0.0100	ug	ND
Hexachlorobiphenyl	26601-64-9	ND	U	0.0100	ug	ND
Heptachlorobiphenyl	28655-71-2	ND	U	0.0150	ug	ND
Octachlorobiphenyl	55722-26-4	ND	U	0.0150	ug	ND
Nonachlorobiphenyl	53742-07-7	ND	U	0.0250	ug	ND
Decachlorobiphenyl	2051-24-3	ND	U	0.0250	ug	ND
Total PCB	1336-36-3	ND	U			ND

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

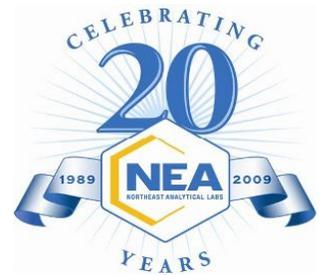
AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative

Robert E. Wagner
Laboratory Director



CERTIFICATE OF ANALYSIS
09/13/2010
TRC ENVIRONMENTAL
WANNALANCIT MILLS
650 SUFFOLK ST
LOWELL, MA 01854
CONTACT: DAVID SULLIVAN



CUSTOMER ID: BG-24-DUP **NEA ID:** AN11725 **NEA LRF:** 10080261-12
MATRIX: POLYURETHANE FOAM **DATE SAMPLED:** 08/25/2010 **TIME:** N/A
DATE RECEIVED: 08/27/2010 **TIME:** 10:26 **PROJECT:** 115058 KEITH MIDDLE SCHOOL
SAMPLED BY: M. LIHZIS **LOCATION:** NEW BEDFORD, MA
CUSTOMER PO: N/A **LAB ELAP#:** 11078
METHOD: PCBs by EPA Method TO-4A/680 **DATE ANALYZED:** 09/03/2010

HOMOLOG GROUP	CAS NUMBER	AMOUNT	FLAGS	RL	UNITS	WEIGHT PERCENT
Monochlorobiphenyl	27323-18-8	ND	U	0.0000150	ug/m ³	ND
Dichlorobiphenyl	25512-42-9	0.000357		0.0000150	ug/m ³	12.3
Trichlorobiphenyl	25323-68-6	0.00182		0.0000150	ug/m ³	62.5
Tetrachlorobiphenyl	26914-33-0	0.000734		0.0000290	ug/m ³	25.2
Pentachlorobiphenyl	25429-29-2	ND	U	0.0000290	ug/m ³	ND
Hexachlorobiphenyl	26601-64-9	ND	U	0.0000290	ug/m ³	ND
Heptachlorobiphenyl	28655-71-2	ND	U	0.0000440	ug/m ³	ND
Octachlorobiphenyl	55722-26-4	ND	U	0.0000440	ug/m ³	ND
Nonachlorobiphenyl	53742-07-7	ND	U	0.0000730	ug/m ³	ND
Decachlorobiphenyl	2051-24-3	ND	U	0.0000730	ug/m ³	ND
Total PCB	1336-36-3	0.00291				

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative

Robert E. Wagner
Laboratory Director



CERTIFICATE OF ANALYSIS
09/13/2010
TRC ENVIRONMENTAL
WANNALANCIT MILLS
650 SUFFOLK ST
LOWELL, MA 01854
CONTACT: DAVID SULLIVAN



CUSTOMER ID: TRIP BLANK-24 **NEA ID:** AN11726 **NEA LRF:** 10080261-13
MATRIX: POLYURETHANE FOAM **DATE SAMPLED:** 08/25/2010 **TIME:** N/A
DATE RECEIVED: 08/27/2010 **TIME:** 10:26 **PROJECT:** 115058 KEITH MIDDLE SCHOOL
SAMPLED BY: M. LIHZIS **LOCATION:** NEW BEDFORD, MA
CUSTOMER PO: N/A **LAB ELAP#:** 11078
METHOD: PCBs by EPA Method TO-4A/680 **DATE ANALYZED:** 09/03/2010

HOMOLOG GROUP	CAS NUMBER	AMOUNT	FLAGS	RL	UNITS	WEIGHT PERCENT
Monochlorobiphenyl	27323-18-8	ND	U	0.00500	ug	ND
Dichlorobiphenyl	25512-42-9	ND	U	0.00500	ug	ND
Trichlorobiphenyl	25323-68-6	ND	U	0.00500	ug	ND
Tetrachlorobiphenyl	26914-33-0	ND	U	0.0100	ug	ND
Pentachlorobiphenyl	25429-29-2	ND	U	0.0100	ug	ND
Hexachlorobiphenyl	26601-64-9	ND	U	0.0100	ug	ND
Heptachlorobiphenyl	28655-71-2	ND	U	0.0150	ug	ND
Octachlorobiphenyl	55722-26-4	ND	U	0.0150	ug	ND
Nonachlorobiphenyl	53742-07-7	ND	U	0.0250	ug	ND
Decachlorobiphenyl	2051-24-3	ND	U	0.0250	ug	ND
Total PCB	1336-36-3	ND	U			ND

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

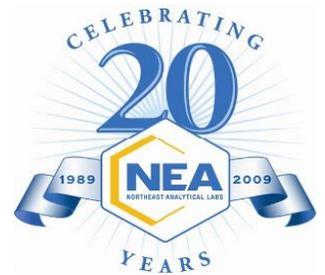
AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative

Robert E. Wagner
Laboratory Director



CERTIFICATE OF ANALYSIS
09/13/2010
TRC ENVIRONMENTAL
WANNALANCIT MILLS
650 SUFFOLK ST
LOWELL, MA 01854
CONTACT: DAVID SULLIVAN



CUSTOMER ID: BG-24-DUP **NEA ID:** AN11731 **NEA LRF:** 10080262-05
MATRIX: FILTER **DATE SAMPLED:** 08/25/2010 **TIME:** N/A
DATE RECEIVED: 08/27/2010 **TIME:** 10:26 **PROJECT:** 115058 KEITH MIDDLE SCHOOL
SAMPLED BY: M. LIHZIS **LOCATION:** NEW BEDFORD, MA
CUSTOMER PO: N/A **LAB ELAP#:** 11078
METHOD: PCBs by EPA Method TO-4A/680 **DATE ANALYZED:** 09/03/2010

HOMOLOG GROUP	CAS NUMBER	AMOUNT	FLAGS	RL	UNITS	WEIGHT PERCENT
Monochlorobiphenyl	27323-18-8	ND	U	0.0000150	ug/m ³	ND
Dichlorobiphenyl	25512-42-9	ND	U	0.0000150	ug/m ³	ND
Trichlorobiphenyl	25323-68-6	ND	U	0.0000150	ug/m ³	ND
Tetrachlorobiphenyl	26914-33-0	ND	U	0.0000290	ug/m ³	ND
Pentachlorobiphenyl	25429-29-2	ND	U	0.0000290	ug/m ³	ND
Hexachlorobiphenyl	26601-64-9	ND	U	0.0000290	ug/m ³	ND
Heptachlorobiphenyl	28655-71-2	ND	U	0.0000440	ug/m ³	ND
Octachlorobiphenyl	55722-26-4	ND	U	0.0000440	ug/m ³	ND
Nonachlorobiphenyl	53742-07-7	ND	U	0.0000730	ug/m ³	ND
Decachlorobiphenyl	2051-24-3	ND	U	0.0000730	ug/m ³	ND
Total PCB	1336-36-3	ND	U			ND

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative

Robert E. Wagner
Laboratory Director



CERTIFICATE OF ANALYSIS
09/13/2010
TRC ENVIRONMENTAL
WANNALANCIT MILLS
650 SUFFOLK ST
LOWELL, MA 01854
CONTACT: DAVID SULLIVAN



CUSTOMER ID: TRIP BLANK-24 **NEA ID:** AN11732 **NEA LRF:** 10080262-06
MATRIX: FILTER **DATE SAMPLED:** 08/25/2010 **TIME:** N/A
DATE RECEIVED: 08/27/2010 **TIME:** 10:26 **PROJECT:** 115058 KEITH MIDDLE SCHOOL
SAMPLED BY: M. LIHZIS **LOCATION:** NEW BEDFORD, MA
CUSTOMER PO: N/A **LAB ELAP#:** 11078
METHOD: PCBs by EPA Method TO-4A/680 **DATE ANALYZED:** 09/03/2010

HOMOLOG GROUP	CAS NUMBER	AMOUNT	FLAGS	RL	UNITS	WEIGHT PERCENT
Monochlorobiphenyl	27323-18-8	ND	U	0.00500	ug	ND
Dichlorobiphenyl	25512-42-9	ND	U	0.00500	ug	ND
Trichlorobiphenyl	25323-68-6	ND	U	0.00500	ug	ND
Tetrachlorobiphenyl	26914-33-0	ND	U	0.0100	ug	ND
Pentachlorobiphenyl	25429-29-2	ND	U	0.0100	ug	ND
Hexachlorobiphenyl	26601-64-9	ND	U	0.0100	ug	ND
Heptachlorobiphenyl	28655-71-2	ND	U	0.0150	ug	ND
Octachlorobiphenyl	55722-26-4	ND	U	0.0150	ug	ND
Nonachlorobiphenyl	53742-07-7	ND	U	0.0250	ug	ND
Decachlorobiphenyl	2051-24-3	ND	U	0.0250	ug	ND
Total PCB	1336-36-3	ND	U			ND

Notes: ND (Not Detected). Denotes analyte not detected at a concentration greater than the RL.
RL: Denotes the reporting limit for the sample.

AUTHORIZED SIGNATURE:

William A. Kotas
Sr. Laboratory Representative

Robert E. Wagner
Laboratory Director



ANALYTICAL REPORT

Lab Number:	L1013397
Client:	TRC Environmental Consultants Wannalancit Mills 650 Suffolk Street Lowell, MA 01854
ATTN:	David Sullivan
Phone:	(978) 656-3600
Project Name:	KEITH MIDDLE SCHOOL
Project Number:	115058
Report Date:	09/17/10

Certifications & Approvals: MA (M-MA030), NY (11627), CT (PH-0141), NH (2206), NJ (MA015), RI (LAO00299), ME (MA0030), PA (Registration #68-02089), LA NELAC (03090), FL NELAC (E87814), US Army Corps of Engineers.

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com



Project Name: KEITH MIDDLE SCHOOL
Project Number: 115058

Lab Number: L1013397
Report Date: 09/17/10

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1013397-01	VS-9-24	Not Specified	08/25/10 00:00
L1013397-02	VS-9-24-DUP	Not Specified	08/25/10 00:00
L1013397-03	VS-10-24	Not Specified	08/25/10 00:00
L1013397-04	VS-1-24	Not Specified	08/25/10 00:00
L1013397-05	VS-4-24	Not Specified	08/25/10 00:00
L1013397-06	VS-BG-24	Not Specified	08/25/10 00:00
L1013397-07	VS-TB-24	Not Specified	08/25/10 00:00
L1013397-08	CAN 364	Not Specified	

Project Name: KEITH MIDDLE SCHOOL

Lab Number: L1013397

Project Number: 115058

Report Date: 09/17/10

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	N/A
E b	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	NO
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	YES
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.



Project Name: KEITH MIDDLE SCHOOL
Project Number: 115058

Lab Number: L1013397
Report Date: 09/17/10

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

For additional information, please contact Client Services at 800-624-9220.

MCP Related Narratives

Canisters were released from the laboratory on August 13, 2010.

The canister certification data is provided as an addendum.

No flow controller to sample association could be made. The RPD of all the pre- and post-flow controller calibration checks were within acceptable limits.

MCP Volatile Organics in Air

L1013397-01, 02, and 03 have elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

Project Name: KEITH MIDDLE SCHOOL
Project Number: 115058

Lab Number: L1013397
Report Date: 09/17/10

Case Narrative (continued)

L1013397-01,-02, -03, WG430773-5: The presence of Chloromethane and Freon 114 could not be determined in this sample due to non-target compounds interfering with the identification and quantification of this compound.

L1013397-01 and -02 results for Acetone should be considered estimated due to co-elution with a non-target peak.

L1013397-04 and 05 results for Propylene and Chloromethane should be considered estimated due to co-elution with a non-target peak.

L1013397-04 was re-analyzed on dilution in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The re-analysis was performed only for the compound that exceeded the calibration range.

MCP Volatile Organics in Air (SIM)

In reference to questions E b/l:

All samples were analyzed for a subset of the MCP compounds per the project.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:



Andy Rezendes

Title: Technical Director/Representative

Date: 09/17/10

AIR

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-01
Client ID: VS-9-24
Sample Location:
Matrix: Soil_Vapor
Anaytical Method: 101,TO15-SIM
Analytical Date: 09/02/10 23:17
Analyst: RY

Date Collected: 08/25/10 00:00
Date Received: 08/27/10
Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Benzene	0.199	0.100	--	0.635	0.319	--		1
Chloroform	1.80	0.020	--	8.77	0.098	--		1
Tetrachloroethene	0.551	0.020	--	3.73	0.136	--		1
Trichloroethene	0.039	0.020	--	0.209	0.107	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	93		60-140
bromochloromethane	94		60-140
chlorobenzene-d5	91		60-140



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-01 D
 Client ID: VS-9-24
 Sample Location:
 Matrix: Soil_Vapor
 Analytical Method: 101,TO-15
 Analytical Date: 09/15/10 13:32
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Propylene	ND	2.00	--	ND	3.44	--		10
Dichlorodifluoromethane	ND	2.00	--	ND	9.88	--		10
Chloromethane	ND	2.00	--	ND	4.13	--		10
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	2.00	--	ND	14.0	--		10
Vinyl chloride	ND	2.00	--	ND	5.11	--		10
1,3-Butadiene	ND	2.00	--	ND	4.42	--		10
Bromomethane	ND	2.00	--	ND	7.76	--		10
Chloroethane	ND	2.00	--	ND	5.27	--		10
Ethyl Alcohol	ND	25.0	--	ND	47.1	--		10
Vinyl bromide	ND	2.00	--	ND	8.74	--		10
Acetone	22.0	10.0	--	52.1	23.7	--		10
Trichlorofluoromethane	ND	2.00	--	ND	11.2	--		10
iso-Propyl Alcohol	ND	5.00	--	ND	12.3	--		10
1,1-Dichloroethene	ND	2.00	--	ND	7.92	--		10
Methylene chloride	ND	14.0	--	ND	48.6	--		10
3-Chloropropene	ND	2.00	--	ND	6.26	--		10
Carbon disulfide	ND	2.00	--	ND	6.22	--		10
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	2.00	--	ND	15.3	--		10
trans-1,2-Dichloroethene	ND	2.00	--	ND	7.92	--		10
1,1-Dichloroethane	ND	2.00	--	ND	8.09	--		10
Methyl tert butyl ether	2.39	2.00	--	8.61	7.20	--		10
Vinyl acetate	ND	2.00	--	ND	7.04	--		10
2-Butanone	3.57	2.00	--	10.5	5.89	--		10
cis-1,2-Dichloroethene	ND	2.00	--	ND	7.92	--		10
Ethyl Acetate	ND	5.00	--	ND	18.0	--		10



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-01 D

Date Collected: 08/25/10 00:00

Client ID: VS-9-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Chloroform	ND	2.00	--	ND	9.76	--		10
Tetrahydrofuran	2.76	2.00	--	8.13	5.89	--		10
1,2-Dichloroethane	ND	2.00	--	ND	8.09	--		10
n-Hexane	ND	2.00	--	ND	7.04	--		10
1,1,1-Trichloroethane	ND	2.00	--	ND	10.9	--		10
Benzene	ND	2.00	--	ND	6.38	--		10
Carbon tetrachloride	ND	2.00	--	ND	12.6	--		10
Cyclohexane	ND	2.00	--	ND	6.88	--		10
1,2-Dichloropropane	ND	2.00	--	ND	9.24	--		10
Bromodichloromethane	ND	2.00	--	ND	13.4	--		10
1,4-Dioxane	ND	2.00	--	ND	7.20	--		10
Trichloroethene	ND	2.00	--	ND	10.7	--		10
2,2,4-Trimethylpentane	ND	2.00	--	ND	9.34	--		10
Heptane	ND	2.00	--	ND	8.19	--		10
cis-1,3-Dichloropropene	ND	2.00	--	ND	9.07	--		10
4-Methyl-2-pentanone	ND	2.00	--	ND	8.19	--		10
trans-1,3-Dichloropropene	ND	2.00	--	ND	9.07	--		10
1,1,2-Trichloroethane	ND	2.00	--	ND	10.9	--		10
Toluene	ND	2.00	--	ND	7.53	--		10
2-Hexanone	ND	2.00	--	ND	8.19	--		10
Dibromochloromethane	ND	2.00	--	ND	17.0	--		10
1,2-Dibromoethane	ND	2.00	--	ND	15.4	--		10
Tetrachloroethene	ND	2.00	--	ND	13.6	--		10
Chlorobenzene	ND	2.00	--	ND	9.20	--		10
Ethylbenzene	ND	2.00	--	ND	8.68	--		10
p/m-Xylene	ND	4.00	--	ND	17.4	--		10
Bromoform	ND	2.00	--	ND	20.6	--		10
Styrene	ND	2.00	--	ND	8.51	--		10



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-01 D

Date Collected: 08/25/10 00:00

Client ID: VS-9-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
1,1,2,2-Tetrachloroethane	ND	2.00	--	ND	13.7	--		10
o-Xylene	ND	2.00	--	ND	8.68	--		10
4-Ethyltoluene	ND	2.00	--	ND	9.82	--		10
1,3,5-Trimethylbenzene	ND	2.00	--	ND	9.82	--		10
1,2,4-Trimethylbenzene	ND	2.00	--	ND	9.82	--		10
Benzyl chloride	ND	2.00	--	ND	10.3	--		10
1,3-Dichlorobenzene	ND	2.00	--	ND	12.0	--		10
1,4-Dichlorobenzene	ND	2.00	--	ND	12.0	--		10
1,2-Dichlorobenzene	ND	2.00	--	ND	12.0	--		10
1,2,4-Trichlorobenzene	ND	2.00	--	ND	14.8	--		10
Hexachlorobutadiene	ND	2.00	--	ND	21.3	--		10

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	74		60-140
Bromochloromethane	85		60-140
chlorobenzene-d5	76		60-140

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-02
 Client ID: VS-9-24-DUP
 Sample Location:
 Matrix: Soil_Vapor
 Analytical Method: 101,TO15-SIM
 Analytical Date: 09/02/10 23:57
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Benzene	0.350	0.100	--	1.12	0.319	--		1
Chloroform	2.13	0.020	--	10.4	0.098	--		1
Tetrachloroethene	0.983	0.020	--	6.66	0.136	--		1
Trichloroethene	0.043	0.020	--	0.231	0.107	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	89		60-140
bromochloromethane	84		60-140
chlorobenzene-d5	87		60-140

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-02 D
 Client ID: VS-9-24-DUP
 Sample Location:
 Matrix: Soil_Vapor
 Analytical Method: 101,TO-15
 Analytical Date: 09/15/10 14:06
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Propylene	ND	2.00	--	ND	3.44	--		10
Dichlorodifluoromethane	ND	2.00	--	ND	9.88	--		10
Chloromethane	ND	2.00	--	ND	4.13	--		10
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	2.00	--	ND	14.0	--		10
Vinyl chloride	ND	2.00	--	ND	5.11	--		10
1,3-Butadiene	ND	2.00	--	ND	4.42	--		10
Bromomethane	ND	2.00	--	ND	7.76	--		10
Chloroethane	ND	2.00	--	ND	5.27	--		10
Ethyl Alcohol	ND	25.0	--	ND	47.1	--		10
Vinyl bromide	ND	2.00	--	ND	8.74	--		10
Acetone	15.0	10.0	--	35.7	23.7	--		10
Trichlorofluoromethane	ND	2.00	--	ND	11.2	--		10
iso-Propyl Alcohol	ND	5.00	--	ND	12.3	--		10
1,1-Dichloroethene	ND	2.00	--	ND	7.92	--		10
Methylene chloride	ND	14.0	--	ND	48.6	--		10
3-Chloropropene	ND	2.00	--	ND	6.26	--		10
Carbon disulfide	ND	2.00	--	ND	6.22	--		10
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	2.00	--	ND	15.3	--		10
trans-1,2-Dichloroethene	ND	2.00	--	ND	7.92	--		10
1,1-Dichloroethane	ND	2.00	--	ND	8.09	--		10
Methyl tert butyl ether	2.12	2.00	--	7.64	7.20	--		10
Vinyl acetate	ND	2.00	--	ND	7.04	--		10
2-Butanone	2.80	2.00	--	8.25	5.89	--		10
cis-1,2-Dichloroethene	ND	2.00	--	ND	7.92	--		10
Ethyl Acetate	ND	5.00	--	ND	18.0	--		10



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-02 D

Date Collected: 08/25/10 00:00

Client ID: VS-9-24-DUP

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Chloroform	ND	2.00	--	ND	9.76	--		10
Tetrahydrofuran	4.22	2.00	--	12.4	5.89	--		10
1,2-Dichloroethane	ND	2.00	--	ND	8.09	--		10
n-Hexane	ND	2.00	--	ND	7.04	--		10
1,1,1-Trichloroethane	ND	2.00	--	ND	10.9	--		10
Benzene	ND	2.00	--	ND	6.38	--		10
Carbon tetrachloride	ND	2.00	--	ND	12.6	--		10
Cyclohexane	ND	2.00	--	ND	6.88	--		10
1,2-Dichloropropane	ND	2.00	--	ND	9.24	--		10
Bromodichloromethane	ND	2.00	--	ND	13.4	--		10
1,4-Dioxane	ND	2.00	--	ND	7.20	--		10
Trichloroethene	ND	2.00	--	ND	10.7	--		10
2,2,4-Trimethylpentane	ND	2.00	--	ND	9.34	--		10
Heptane	ND	2.00	--	ND	8.19	--		10
cis-1,3-Dichloropropene	ND	2.00	--	ND	9.07	--		10
4-Methyl-2-pentanone	ND	2.00	--	ND	8.19	--		10
trans-1,3-Dichloropropene	ND	2.00	--	ND	9.07	--		10
1,1,2-Trichloroethane	ND	2.00	--	ND	10.9	--		10
Toluene	ND	2.00	--	ND	7.53	--		10
2-Hexanone	ND	2.00	--	ND	8.19	--		10
Dibromochloromethane	ND	2.00	--	ND	17.0	--		10
1,2-Dibromoethane	ND	2.00	--	ND	15.4	--		10
Tetrachloroethene	ND	2.00	--	ND	13.6	--		10
Chlorobenzene	ND	2.00	--	ND	9.20	--		10
Ethylbenzene	ND	2.00	--	ND	8.68	--		10
p/m-Xylene	ND	4.00	--	ND	17.4	--		10
Bromoform	ND	2.00	--	ND	20.6	--		10
Styrene	ND	2.00	--	ND	8.51	--		10

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-02 D

Date Collected: 08/25/10 00:00

Client ID: VS-9-24-DUP

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
1,1,2,2-Tetrachloroethane	ND	2.00	--	ND	13.7	--		10
o-Xylene	ND	2.00	--	ND	8.68	--		10
4-Ethyltoluene	ND	2.00	--	ND	9.82	--		10
1,3,5-Trimethylbenzene	ND	2.00	--	ND	9.82	--		10
1,2,4-Trimethylbenzene	ND	2.00	--	ND	9.82	--		10
Benzyl chloride	ND	2.00	--	ND	10.3	--		10
1,3-Dichlorobenzene	ND	2.00	--	ND	12.0	--		10
1,4-Dichlorobenzene	ND	2.00	--	ND	12.0	--		10
1,2-Dichlorobenzene	ND	2.00	--	ND	12.0	--		10
1,2,4-Trichlorobenzene	ND	2.00	--	ND	14.8	--		10
Hexachlorobutadiene	ND	2.00	--	ND	21.3	--		10

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	79		60-140
Bromochloromethane	86		60-140
chlorobenzene-d5	79		60-140

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-03
Client ID: VS-10-24
Sample Location:
Matrix: Soil_Vapor
Anaytical Method: 101,TO15-SIM
Analytical Date: 09/03/10 00:35
Analyst: RY

Date Collected: 08/25/10 00:00
Date Received: 08/27/10
Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Benzene	0.113	0.100	--	0.361	0.319	--		1
Chloroform	0.166	0.020	--	0.810	0.098	--		1
Tetrachloroethene	0.110	0.020	--	0.745	0.136	--		1
Trichloroethene	0.157	0.020	--	0.843	0.107	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	98		60-140
bromochloromethane	87		60-140
chlorobenzene-d5	99		60-140

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-03 D
 Client ID: VS-10-24
 Sample Location:
 Matrix: Soil_Vapor
 Analytical Method: 101,TO-15
 Analytical Date: 09/15/10 14:39
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Propylene	ND	2.00	--	ND	3.44	--		10
Dichlorodifluoromethane	ND	2.00	--	ND	9.88	--		10
Chloromethane	ND	2.00	--	ND	4.13	--		10
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	2.00	--	ND	14.0	--		10
Vinyl chloride	ND	2.00	--	ND	5.11	--		10
1,3-Butadiene	ND	2.00	--	ND	4.42	--		10
Bromomethane	ND	2.00	--	ND	7.76	--		10
Chloroethane	ND	2.00	--	ND	5.27	--		10
Ethyl Alcohol	ND	25.0	--	ND	47.1	--		10
Vinyl bromide	ND	2.00	--	ND	8.74	--		10
Acetone	13.3	10.0	--	31.5	23.7	--		10
Trichlorofluoromethane	ND	2.00	--	ND	11.2	--		10
iso-Propyl Alcohol	ND	5.00	--	ND	12.3	--		10
1,1-Dichloroethene	ND	2.00	--	ND	7.92	--		10
Methylene chloride	ND	14.0	--	ND	48.6	--		10
3-Chloropropene	ND	2.00	--	ND	6.26	--		10
Carbon disulfide	ND	2.00	--	ND	6.22	--		10
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	2.00	--	ND	15.3	--		10
trans-1,2-Dichloroethene	ND	2.00	--	ND	7.92	--		10
1,1-Dichloroethane	ND	2.00	--	ND	8.09	--		10
Methyl tert butyl ether	ND	2.00	--	ND	7.20	--		10
Vinyl acetate	ND	2.00	--	ND	7.04	--		10
2-Butanone	2.63	2.00	--	7.75	5.89	--		10
cis-1,2-Dichloroethene	ND	2.00	--	ND	7.92	--		10
Ethyl Acetate	ND	5.00	--	ND	18.0	--		10



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-03 D

Date Collected: 08/25/10 00:00

Client ID: VS-10-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Chloroform	ND	2.00	--	ND	9.76	--		10
Tetrahydrofuran	3.01	2.00	--	8.87	5.89	--		10
1,2-Dichloroethane	ND	2.00	--	ND	8.09	--		10
n-Hexane	ND	2.00	--	ND	7.04	--		10
1,1,1-Trichloroethane	ND	2.00	--	ND	10.9	--		10
Benzene	ND	2.00	--	ND	6.38	--		10
Carbon tetrachloride	ND	2.00	--	ND	12.6	--		10
Cyclohexane	ND	2.00	--	ND	6.88	--		10
1,2-Dichloropropane	ND	2.00	--	ND	9.24	--		10
Bromodichloromethane	ND	2.00	--	ND	13.4	--		10
1,4-Dioxane	ND	2.00	--	ND	7.20	--		10
Trichloroethene	ND	2.00	--	ND	10.7	--		10
2,2,4-Trimethylpentane	ND	2.00	--	ND	9.34	--		10
Heptane	ND	2.00	--	ND	8.19	--		10
cis-1,3-Dichloropropene	ND	2.00	--	ND	9.07	--		10
4-Methyl-2-pentanone	ND	2.00	--	ND	8.19	--		10
trans-1,3-Dichloropropene	ND	2.00	--	ND	9.07	--		10
1,1,2-Trichloroethane	ND	2.00	--	ND	10.9	--		10
Toluene	ND	2.00	--	ND	7.53	--		10
2-Hexanone	ND	2.00	--	ND	8.19	--		10
Dibromochloromethane	ND	2.00	--	ND	17.0	--		10
1,2-Dibromoethane	ND	2.00	--	ND	15.4	--		10
Tetrachloroethene	ND	2.00	--	ND	13.6	--		10
Chlorobenzene	ND	2.00	--	ND	9.20	--		10
Ethylbenzene	ND	2.00	--	ND	8.68	--		10
p/m-Xylene	ND	4.00	--	ND	17.4	--		10
Bromoform	ND	2.00	--	ND	20.6	--		10
Styrene	ND	2.00	--	ND	8.51	--		10

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-03 D

Date Collected: 08/25/10 00:00

Client ID: VS-10-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
1,1,2,2-Tetrachloroethane	ND	2.00	--	ND	13.7	--		10
o-Xylene	ND	2.00	--	ND	8.68	--		10
4-Ethyltoluene	ND	2.00	--	ND	9.82	--		10
1,3,5-Trimethylbenzene	ND	2.00	--	ND	9.82	--		10
1,2,4-Trimethylbenzene	ND	2.00	--	ND	9.82	--		10
Benzyl chloride	ND	2.00	--	ND	10.3	--		10
1,3-Dichlorobenzene	ND	2.00	--	ND	12.0	--		10
1,4-Dichlorobenzene	ND	2.00	--	ND	12.0	--		10
1,2-Dichlorobenzene	ND	2.00	--	ND	12.0	--		10
1,2,4-Trichlorobenzene	ND	2.00	--	ND	14.8	--		10
Hexachlorobutadiene	ND	2.00	--	ND	21.3	--		10

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	81		60-140
Bromochloromethane	85		60-140
chlorobenzene-d5	78		60-140



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-04
 Client ID: VS-1-24
 Sample Location:
 Matrix: Soil_Vapor
 Analytical Method: 101,TO-15
 Analytical Date: 09/03/10 01:53
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Propylene	11.9	0.200	--	20.4	0.344	--		1
Dichlorodifluoromethane	0.564	0.200	--	2.79	0.988	--		1
Chloromethane	0.413	0.200	--	0.852	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.776	--		1
Chloroethane	ND	0.200	--	ND	0.527	--		1
Ethyl Alcohol	33.6	2.50	--	63.2	4.71	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	129	1.00	--	306	2.37	--	E	1
Trichlorofluoromethane	0.312	0.200	--	1.75	1.12	--		1
iso-Propyl Alcohol	1.65	0.500	--	4.04	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Methylene chloride	8.46	1.40	--	29.4	4.86	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	0.505	0.200	--	1.57	0.622	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.720	--		1
Vinyl acetate	ND	0.200	--	ND	0.704	--		1
2-Butanone	28.0	0.200	--	82.5	0.589	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-04

Date Collected: 08/25/10 00:00

Client ID: VS-1-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Chloroform	ND	0.200	--	ND	0.976	--		1
Tetrahydrofuran	0.318	0.200	--	0.937	0.589	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	0.483	0.200	--	1.70	0.704	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	0.403	0.200	--	1.29	0.638	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.720	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	0.400	0.200	--	1.64	0.819	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.819	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.753	--		1
2-Hexanone	ND	0.200	--	ND	0.819	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.920	--		1
Ethylbenzene	ND	0.200	--	ND	0.868	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.06	--		1
Styrene	ND	0.200	--	ND	0.851	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-04

Date Collected: 08/25/10 00:00

Client ID: VS-1-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.868	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.982	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
Benzyl chloride	ND	0.200	--	ND	1.03	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	95		60-140
Bromochloromethane	92		60-140
chlorobenzene-d5	92		60-140

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-04

Date Collected: 08/25/10 00:00

Client ID: VS-1-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Matrix: Soil_Vapor

Analytical Method: 101,TO15-SIM

Analytical Date: 09/03/10 01:53

Analyst: RY

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Benzene	0.369	0.100	--	1.18	0.319	--		1
Chloroform	0.031	0.020	--	0.151	0.098	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	88		60-140
bromochloromethane	80		60-140
chlorobenzene-d5	91		60-140

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-04 D

Date Collected: 08/25/10 00:00

Client ID: VS-1-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Matrix: Soil_Vapor

Analytical Method: 101,TO-15

Analytical Date: 09/03/10 10:27

Analyst: RY

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Acetone	116	2.50	--	274	5.93	--		2.5

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	111		60-140
Bromochloromethane	116		60-140
chlorobenzene-d5	108		60-140

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-05
 Client ID: VS-4-24
 Sample Location:
 Matrix: Soil_Vapor
 Analytical Method: 101,TO-15
 Analytical Date: 09/03/10 02:33
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Propylene	0.870	0.200	--	1.50	0.344	--		1
Dichlorodifluoromethane	0.558	0.200	--	2.76	0.988	--		1
Chloromethane	0.353	0.200	--	0.728	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.776	--		1
Chloroethane	ND	0.200	--	ND	0.527	--		1
Ethyl Alcohol	9.12	2.50	--	17.2	4.71	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	34.2	1.00	--	81.2	2.37	--		1
Trichlorofluoromethane	0.284	0.200	--	1.59	1.12	--		1
iso-Propyl Alcohol	0.528	0.500	--	1.30	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Methylene chloride	ND	1.40	--	ND	4.86	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.622	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.720	--		1
Vinyl acetate	ND	0.200	--	ND	0.704	--		1
2-Butanone	3.52	0.200	--	10.4	0.589	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-05

Date Collected: 08/25/10 00:00

Client ID: VS-4-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Chloroform	ND	0.200	--	ND	0.976	--		1
Tetrahydrofuran	ND	0.200	--	ND	0.589	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.704	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	0.375	0.200	--	1.20	0.638	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.720	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	0.325	0.200	--	1.33	0.819	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.819	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.753	--		1
2-Hexanone	ND	0.200	--	ND	0.819	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.920	--		1
Ethylbenzene	ND	0.200	--	ND	0.868	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.06	--		1
Styrene	ND	0.200	--	ND	0.851	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-05

Date Collected: 08/25/10 00:00

Client ID: VS-4-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.868	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.982	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
Benzyl chloride	ND	0.200	--	ND	1.03	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	91		60-140
Bromochloromethane	93		60-140
chlorobenzene-d5	87		60-140

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-05
 Client ID: VS-4-24
 Sample Location:
 Matrix: Soil_Vapor
 Analytical Method: 101,TO15-SIM
 Analytical Date: 09/03/10 02:33
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Benzene	0.342	0.100	--	1.09	0.319	--		1
Chloroform	0.027	0.020	--	0.132	0.098	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	85		60-140
bromochloromethane	78		60-140
chlorobenzene-d5	86		60-140



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-06
 Client ID: VS-BG-24
 Sample Location:
 Matrix: Soil_Vapor
 Analytical Method: 101,TO-15
 Analytical Date: 09/03/10 09:50
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Propylene	ND	0.200	--	ND	0.344	--		1
Dichlorodifluoromethane	0.539	0.200	--	2.66	0.988	--		1
Chloromethane	0.643	0.200	--	1.33	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.776	--		1
Chloroethane	ND	0.200	--	ND	0.527	--		1
Ethyl Alcohol	ND	2.50	--	ND	4.71	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	2.56	1.00	--	6.08	2.37	--		1
Trichlorofluoromethane	0.278	0.200	--	1.56	1.12	--		1
iso-Propyl Alcohol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Methylene chloride	ND	1.40	--	ND	4.86	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.622	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.720	--		1
Vinyl acetate	ND	0.200	--	ND	0.704	--		1
2-Butanone	0.222	0.200	--	0.654	0.589	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-06

Date Collected: 08/25/10 00:00

Client ID: VS-BG-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Chloroform	ND	0.200	--	ND	0.976	--		1
Tetrahydrofuran	ND	0.200	--	ND	0.589	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.704	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.638	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.720	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.819	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.819	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.753	--		1
2-Hexanone	ND	0.200	--	ND	0.819	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.920	--		1
Ethylbenzene	ND	0.200	--	ND	0.868	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.06	--		1
Styrene	ND	0.200	--	ND	0.851	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-06

Date Collected: 08/25/10 00:00

Client ID: VS-BG-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.868	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.982	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
Benzyl chloride	ND	0.200	--	ND	1.03	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	114		60-140
Bromochloromethane	115		60-140
chlorobenzene-d5	115		60-140

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-06
 Client ID: VS-BG-24
 Sample Location:
 Matrix: Soil_Vapor
 Analytical Method: 101,TO15-SIM
 Analytical Date: 09/03/10 09:50
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Benzene	ND	0.100	--	ND	0.319	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	105		60-140
bromochloromethane	98		60-140
chlorobenzene-d5	112		60-140



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-07
 Client ID: VS-TB-24
 Sample Location:
 Matrix: Soil_Vapor
 Analytical Method: 101,TO-15
 Analytical Date: 09/02/10 22:35
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Propylene	ND	0.200	--	ND	0.344	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.988	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.776	--		1
Chloroethane	ND	0.200	--	ND	0.527	--		1
Ethyl Alcohol	ND	2.50	--	ND	4.71	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	ND	1.00	--	ND	2.37	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
iso-Propyl Alcohol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Methylene chloride	ND	1.40	--	ND	4.86	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.622	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.720	--		1
Vinyl acetate	ND	0.200	--	ND	0.704	--		1
2-Butanone	ND	0.200	--	ND	0.589	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-07

Date Collected: 08/25/10 00:00

Client ID: VS-TB-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Chloroform	ND	0.200	--	ND	0.976	--		1
Tetrahydrofuran	ND	0.200	--	ND	0.589	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.704	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.638	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.720	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.819	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.819	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.753	--		1
2-Hexanone	ND	0.200	--	ND	0.819	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.920	--		1
Ethylbenzene	ND	0.200	--	ND	0.868	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.06	--		1
Styrene	ND	0.200	--	ND	0.851	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-07

Date Collected: 08/25/10 00:00

Client ID: VS-TB-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.868	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.982	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
Benzyl chloride	ND	0.200	--	ND	1.03	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	93		60-140
Bromochloromethane	102		60-140
chlorobenzene-d5	95		60-140

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013397**Project Number:** 115058**Report Date:** 09/17/10**SAMPLE RESULTS**

Lab ID: L1013397-07

Date Collected: 08/25/10 00:00

Client ID: VS-TB-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Matrix: Soil_Vapor

Analytical Method: 101,TO15-SIM

Analytical Date: 09/02/10 22:35

Analyst: RY

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Benzene	ND	0.100	--	ND	0.319	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	85		60-140
bromochloromethane	89		60-140
chlorobenzene-d5	92		60-140



Project Name: KEITH MIDDLE SCHOOL

Lab Number: L1013397

Project Number: 115058

Report Date: 09/17/10

Method Blank Analysis Batch Quality Control

Analytical Method: 101,TO15-SIM

Analytical Date: 09/02/10 15:07

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-07 Batch: WG430772-4								
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Acetone	ND	1.00	--	ND	2.37	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
Bromoform	ND	0.020	--	ND	0.206	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
Chlorobenzene	ND	0.020	--	ND	0.092	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1



Project Name: KEITH MIDDLE SCHOOL

Lab Number: L1013397

Project Number: 115058

Report Date: 09/17/10

Method Blank Analysis Batch Quality Control

Analytical Method: 101,TO15-SIM

Analytical Date: 09/02/10 15:07

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-07 Batch: WG430772-4								
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1
2-Butanone	ND	0.200	--	ND	0.589	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.819	--		1
Methylene chloride	ND	1.40	--	ND	4.86	--		1
Methyl tert butyl ether	ND	0.020	--	ND	0.072	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
Toluene	ND	0.020	--	ND	0.075	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1

Project Name: KEITH MIDDLE SCHOOL

Lab Number: L1013397

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Report Date: 09/17/10

Method Blank Analysis Batch Quality Control

Analytical Method: 101,TO-15

Analytical Date: 09/02/10 15:07

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab for sample(s): 04-07 Batch: WG430773-4								
Propylene	ND	0.200	--	ND	0.344	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.988	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.776	--		1
Chloroethane	ND	0.200	--	ND	0.527	--		1
Ethyl Alcohol	ND	2.50	--	ND	4.71	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	ND	1.00	--	ND	2.37	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
iso-Propyl Alcohol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Methylene chloride	ND	1.40	--	ND	4.86	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.622	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.720	--		1
Vinyl acetate	ND	0.200	--	ND	0.704	--		1
2-Butanone	ND	0.200	--	ND	0.589	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1

Project Name: KEITH MIDDLE SCHOOL

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Project Number: 115058

Report Date: 09/17/10

Method Blank Analysis Batch Quality Control

Analytical Method: 101,TO-15

Analytical Date: 09/02/10 15:07

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab for sample(s): 04-07 Batch: WG430773-4								
Chloroform	ND	0.200	--	ND	0.976	--		1
Tetrahydrofuran	ND	0.200	--	ND	0.589	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.704	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.638	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.720	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.819	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.819	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.753	--		1
2-Hexanone	ND	0.200	--	ND	0.819	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.920	--		1
Ethylbenzene	ND	0.200	--	ND	0.868	--		1

Project Name: KEITH MIDDLE SCHOOL

Lab Number: L1013397

Project Number: 115058

Report Date: 09/17/10

Method Blank Analysis Batch Quality Control

Analytical Method: 101,TO-15

Analytical Date: 09/02/10 15:07

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab for sample(s): 04-07 Batch: WG430773-4								
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.06	--		1
Styrene	ND	0.200	--	ND	0.851	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.868	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.982	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
Benzyl chloride	ND	0.200	--	ND	1.03	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: KEITH MIDDLE SCHOOL

Lab Number: L1013397

Project Number: 115058

Report Date: 09/17/10

Method Blank Analysis Batch Quality Control

Analytical Method: 101,TO-15

Analytical Date: 09/15/10 12:18

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab for sample(s): 01-03 Batch: WG430773-9								
Propylene	ND	0.200	--	ND	0.344	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.988	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.776	--		1
Chloroethane	ND	0.200	--	ND	0.527	--		1
Ethyl Alcohol	ND	2.50	--	ND	4.71	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	ND	1.00	--	ND	2.37	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
iso-Propyl Alcohol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Methylene chloride	ND	1.40	--	ND	4.86	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.622	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.720	--		1
Vinyl acetate	ND	0.200	--	ND	0.704	--		1
2-Butanone	ND	0.200	--	ND	0.589	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1

Project Name: KEITH MIDDLE SCHOOL

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Project Number: 115058

Report Date: 09/17/10

Method Blank Analysis Batch Quality Control

Analytical Method: 101,TO-15

Analytical Date: 09/15/10 12:18

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab for sample(s): 01-03 Batch: WG430773-9								
Chloroform	ND	0.200	--	ND	0.976	--		1
Tetrahydrofuran	ND	0.200	--	ND	0.589	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.704	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.638	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.720	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.819	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.819	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.753	--		1
2-Hexanone	ND	0.200	--	ND	0.819	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.920	--		1
Ethylbenzene	ND	0.200	--	ND	0.868	--		1

Project Name: KEITH MIDDLE SCHOOL

Lab Number: L1013397

Project Number: 115058

Report Date: 09/17/10

Method Blank Analysis Batch Quality Control

Analytical Method: 101,TO-15

Analytical Date: 09/15/10 12:18

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab for sample(s): 01-03 Batch: WG430773-9								
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.06	--		1
Styrene	ND	0.200	--	ND	0.851	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.868	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.982	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
Benzyl chloride	ND	0.200	--	ND	1.03	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Lab Control Sample Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013397

Report Date: 09/17/10

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-07 Batch: WG430772-3								
1,1,1-Trichloroethane	123		-		70-130	-		
1,1,2,2-Tetrachloroethane	119		-		70-130	-		
1,1,2-Trichloroethane	122		-		70-130	-		
1,1-Dichloroethane	109		-		70-130	-		
1,1-Dichloroethene	109		-		70-130	-		
1,2,4-Trichlorobenzene	104		-		50-150	-		
1,2-Dibromoethane	109		-		70-130	-		
1,2-Dichlorobenzene	121		-		70-130	-		
1,2-Dichloroethane	123		-		70-130	-		
1,2-Dichloropropane	117		-		70-130	-		
1,3-Dichlorobenzene	124		-		70-130	-		
1,4-Dichlorobenzene	122		-		70-130	-		
1,4-Dioxane	80		-		50-150	-		
Acetone	111		-		50-150	-		
Benzene	99		-		70-130	-		
Bromodichloromethane	117		-		70-130	-		
Bromoform	115		-		70-130	-		
Bromomethane	101		-		70-130	-		
Carbon tetrachloride	124		-		70-130	-		
Chlorobenzene	113		-		70-130	-		
Chloroform	115		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013397

Report Date: 09/17/10

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-07 Batch: WG430772-3								
cis-1,2-Dichloroethene	100		-		70-130	-		
cis-1,3-Dichloropropene	111		-		70-130	-		
Dibromochloromethane	111		-		70-130	-		
Ethylbenzene	108		-		70-130	-		
Hexachlorobutadiene	106		-		50-150	-		
2-Butanone	91		-		70-130	-		
4-Methyl-2-pentanone	102		-		70-130	-		
Methylene chloride	102		-		70-130	-		
Methyl tert butyl ether	92		-		70-130	-		
Naphthalene	81		-		50-150	-		
p/m-Xylene	116		-		70-130	-		
o-Xylene	118		-		70-130	-		
Styrene	108		-		70-130	-		
Tetrachloroethene	101		-		70-130	-		
Toluene	96		-		70-130	-		
trans-1,2-Dichloroethene	97		-		70-130	-		
trans-1,3-Dichloropropene	100		-		70-130	-		
Trichloroethene	104		-		70-130	-		
Vinyl chloride	98		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Lab Number: L1013397

Project Number: 115058

Report Date: 09/17/10

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 04-07 Batch: WG430773-3								
Propylene	87		-		70-130	-		
Dichlorodifluoromethane	111		-		70-130	-		
Chloromethane	90		-		70-130	-		
1,2-Dichloro-1,1,2,2-tetrafluoroethane	105		-		70-130	-		
Vinyl chloride	92		-		70-130	-		
1,3-Butadiene	88		-		70-130	-		
Bromomethane	98		-		70-130	-		
Chloroethane	98		-		70-130	-		
Ethyl Alcohol	116		-		70-130	-		
Vinyl bromide	94		-		70-130	-		
Acetone	123		-		50-150	-		
Trichlorofluoromethane	122		-		70-130	-		
iso-Propyl Alcohol	98		-		70-130	-		
1,1-Dichloroethene	110		-		70-130	-		
Methylene chloride	111		-		70-130	-		
3-Chloropropene	96		-		70-130	-		
Carbon disulfide	98		-		70-130	-		
1,1,2-Trichloro-1,2,2-Trifluoroethane	117		-		70-130	-		
trans-1,2-Dichloroethene	100		-		70-130	-		
1,1-Dichloroethane	111		-		70-130	-		
Methyl tert butyl ether	102		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013397

Report Date: 09/17/10

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 04-07 Batch: WG430773-3								
Vinyl acetate	129		-		70-130	-		
2-Butanone	119		-		70-130	-		
cis-1,2-Dichloroethene	103		-		70-130	-		
Ethyl Acetate	104		-		70-130	-		
Chloroform	122		-		70-130	-		
Tetrahydrofuran	89		-		70-130	-		
1,2-Dichloroethane	126		-		70-130	-		
n-Hexane	100		-		70-130	-		
1,1,1-Trichloroethane	127		-		70-130	-		
Benzene	110		-		70-130	-		
Carbon tetrachloride	130		-		70-130	-		
Cyclohexane	98		-		70-130	-		
1,2-Dichloropropane	118		-		70-130	-		
Bromodichloromethane	120		-		70-130	-		
1,4-Dioxane	103		-		50-150	-		
Trichloroethene	110		-		70-130	-		
2,2,4-Trimethylpentane	108		-		70-130	-		
Heptane	107		-		70-130	-		
cis-1,3-Dichloropropene	118		-		70-130	-		
4-Methyl-2-pentanone	122		-		70-130	-		
trans-1,3-Dichloropropene	104		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013397

Report Date: 09/17/10

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 04-07 Batch: WG430773-3								
1,1,2-Trichloroethane	128		-		70-130	-		
Toluene	102		-		70-130	-		
2-Hexanone	103		-		70-130	-		
Dibromochloromethane	111		-		70-130	-		
1,2-Dibromoethane	102		-		70-130	-		
Tetrachloroethene	100		-		70-130	-		
Chlorobenzene	106		-		70-130	-		
Ethylbenzene	104		-		70-130	-		
p/m-Xylene	111		-		70-130	-		
Bromoform	109		-		70-130	-		
Styrene	102		-		70-130	-		
1,1,1,2-Tetrachloroethane	115		-		70-130	-		
o-Xylene	114		-		70-130	-		
4-Ethyltoluene	107		-		70-130	-		
1,3,5-Trimethylbenzene	114		-		70-130	-		
1,2,4-Trimethylbenzene	120		-		70-130	-		
Benzyl chloride	112		-		70-130	-		
1,3-Dichlorobenzene	122		-		70-130	-		
1,4-Dichlorobenzene	121		-		70-130	-		
1,2-Dichlorobenzene	121		-		70-130	-		
1,2,4-Trichlorobenzene	122		-		50-150	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013397

Report Date: 09/17/10

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 04-07 Batch: WG430773-3								
Hexachlorobutadiene	123		-		50-150	-		

MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-03 Batch: WG430773-8								
Propylene	90		-		70-130	-		
Dichlorodifluoromethane	98		-		70-130	-		
Chloromethane	89		-		70-130	-		
1,2-Dichloro-1,1,2,2-tetrafluoroethane	98		-		70-130	-		
Vinyl chloride	95		-		70-130	-		
1,3-Butadiene	96		-		70-130	-		
Bromomethane	94		-		70-130	-		
Chloroethane	99		-		70-130	-		
Ethyl Alcohol	86		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013397

Report Date: 09/17/10

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-03 Batch: WG430773-8								
Vinyl bromide	97		-		70-130	-		
Acetone	90		-		50-150	-		
Trichlorofluoromethane	98		-		70-130	-		
iso-Propyl Alcohol	99		-		70-130	-		
1,1-Dichloroethene	99		-		70-130	-		
Methylene chloride	92		-		70-130	-		
3-Chloropropene	85		-		70-130	-		
Carbon disulfide	90		-		70-130	-		
1,1,2-Trichloro-1,2,2-Trifluoroethane	102		-		70-130	-		
trans-1,2-Dichloroethene	92		-		70-130	-		
1,1-Dichloroethane	95		-		70-130	-		
Methyl tert butyl ether	90		-		70-130	-		
Vinyl acetate	101		-		70-130	-		
2-Butanone	88		-		70-130	-		
cis-1,2-Dichloroethene	98		-		70-130	-		
Ethyl Acetate	89		-		70-130	-		
Chloroform	99		-		70-130	-		
Tetrahydrofuran	89		-		70-130	-		
1,2-Dichloroethane	97		-		70-130	-		
n-Hexane	92		-		70-130	-		
1,1,1-Trichloroethane	92		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013397

Report Date: 09/17/10

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-03 Batch: WG430773-8								
Benzene	93		-		70-130	-		
Carbon tetrachloride	101		-		70-130	-		
Cyclohexane	87		-		70-130	-		
1,2-Dichloropropane	92		-		70-130	-		
Bromodichloromethane	95		-		70-130	-		
1,4-Dioxane	91		-		50-150	-		
Trichloroethene	96		-		70-130	-		
2,2,4-Trimethylpentane	90		-		70-130	-		
Heptane	95		-		70-130	-		
cis-1,3-Dichloropropene	103		-		70-130	-		
4-Methyl-2-pentanone	89		-		70-130	-		
trans-1,3-Dichloropropene	94		-		70-130	-		
1,1,2-Trichloroethane	99		-		70-130	-		
Toluene	94		-		70-130	-		
2-Hexanone	94		-		70-130	-		
Dibromochloromethane	98		-		70-130	-		
1,2-Dibromoethane	98		-		70-130	-		
Tetrachloroethene	98		-		70-130	-		
Chlorobenzene	97		-		70-130	-		
Ethylbenzene	95		-		70-130	-		
p/m-Xylene	94		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013397

Report Date: 09/17/10

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-03 Batch: WG430773-8								
Bromoform	101		-		70-130	-		
Styrene	98		-		70-130	-		
1,1,2,2-Tetrachloroethane	97		-		70-130	-		
o-Xylene	96		-		70-130	-		
4-Ethyltoluene	94		-		70-130	-		
1,3,5-Trimethylbenzene	96		-		70-130	-		
1,2,4-Trimethylbenzene	100		-		70-130	-		
Benzyl chloride	105		-		70-130	-		
1,3-Dichlorobenzene	104		-		70-130	-		
1,4-Dichlorobenzene	105		-		70-130	-		
1,2-Dichlorobenzene	104		-		70-130	-		
1,2,4-Trichlorobenzene	113		-		50-150	-		
Hexachlorobutadiene	106		-		50-150	-		

Lab Duplicate Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013397

Report Date: 09/17/10

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
MCP Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG430772-5 QC Sample: L1013397-03 Client ID: VS-10-24						
Benzene	0.113	0.106	ppbV	6		25
Chloroform	0.166	0.169	ppbV	2		25
Tetrachloroethene	0.110	0.099	ppbV	11		25
Trichloroethene	0.157	0.146	ppbV	7		25

Lab Duplicate Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013397

Report Date: 09/17/10

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG430773-5 QC Sample: L1013397-03 Client ID: VS-10-24					
Propylene	ND	ND	ppbV	NC	25
Dichlorodifluoromethane	ND	ND	ppbV	NC	25
Chloromethane	ND	ND	ppbV	NC	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	ND	ppbV	NC	25
Vinyl chloride	ND	ND	ppbV	NC	25
1,3-Butadiene	ND	ND	ppbV	NC	25
Bromomethane	ND	ND	ppbV	NC	25
Chloroethane	ND	ND	ppbV	NC	25
Ethyl Alcohol	ND	ND	ppbV	NC	25
Vinyl bromide	ND	ND	ppbV	NC	25
Acetone	13.3	13.0	ppbV	2	25
Trichlorofluoromethane	ND	ND	ppbV	NC	25
iso-Propyl Alcohol	ND	ND	ppbV	NC	25
1,1-Dichloroethene	ND	ND	ppbV	NC	25
Methylene chloride	ND	ND	ppbV	NC	25
3-Chloropropene	ND	ND	ppbV	NC	25
Carbon disulfide	ND	ND	ppbV	NC	25
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	ND	ppbV	NC	25
trans-1,2-Dichloroethene	ND	ND	ppbV	NC	25

Lab Duplicate Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013397

Report Date: 09/17/10

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG430773-5 QC Sample: L1013397-03 Client ID: VS-10-24					
1,1-Dichloroethane	ND	ND	ppbV	NC	25
Methyl tert butyl ether	ND	ND	ppbV	NC	25
Vinyl acetate	ND	ND	ppbV	NC	25
2-Butanone	2.63	2.41	ppbV	9	25
cis-1,2-Dichloroethene	ND	ND	ppbV	NC	25
Ethyl Acetate	ND	ND	ppbV	NC	25
Chloroform	ND	ND	ppbV	NC	25
Tetrahydrofuran	3.01	2.72	ppbV	10	25
1,2-Dichloroethane	ND	ND	ppbV	NC	25
n-Hexane	ND	ND	ppbV	NC	25
1,1,1-Trichloroethane	ND	ND	ppbV	NC	25
Benzene	ND	ND	ppbV	NC	25
Carbon tetrachloride	ND	ND	ppbV	NC	25
Cyclohexane	ND	ND	ppbV	NC	25
1,2-Dichloropropane	ND	ND	ppbV	NC	25
Bromodichloromethane	ND	ND	ppbV	NC	25
1,4-Dioxane	ND	ND	ppbV	NC	25
Trichloroethene	ND	ND	ppbV	NC	25
2,2,4-Trimethylpentane	ND	ND	ppbV	NC	25

Lab Duplicate Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013397

Report Date: 09/17/10

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG430773-5 QC Sample: L1013397-03 Client ID: VS-10-24					
Heptane	ND	ND	ppbV	NC	25
cis-1,3-Dichloropropene	ND	ND	ppbV	NC	25
4-Methyl-2-pentanone	ND	ND	ppbV	NC	25
trans-1,3-Dichloropropene	ND	ND	ppbV	NC	25
1,1,2-Trichloroethane	ND	ND	ppbV	NC	25
Toluene	ND	ND	ppbV	NC	25
2-Hexanone	ND	ND	ppbV	NC	25
Dibromochloromethane	ND	ND	ppbV	NC	25
1,2-Dibromoethane	ND	ND	ppbV	NC	25
Tetrachloroethene	ND	ND	ppbV	NC	25
Chlorobenzene	ND	ND	ppbV	NC	25
Ethylbenzene	ND	ND	ppbV	NC	25
p/m-Xylene	ND	ND	ppbV	NC	25
Bromoform	ND	ND	ppbV	NC	25
Styrene	ND	ND	ppbV	NC	25
1,1,2,2-Tetrachloroethane	ND	ND	ppbV	NC	25
o-Xylene	ND	ND	ppbV	NC	25
4-Ethyltoluene	ND	ND	ppbV	NC	25
1,3,5-Trimethylbenzene	ND	ND	ppbV	NC	25

Lab Duplicate Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013397

Report Date: 09/17/10

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG430773-5 QC Sample: L1013397-03 Client ID: VS-10-24					
1,2,4-Trimethylbenzene	ND	ND	ppbV	NC	25
Benzyl chloride	ND	ND	ppbV	NC	25
1,3-Dichlorobenzene	ND	ND	ppbV	NC	25
1,4-Dichlorobenzene	ND	ND	ppbV	NC	25
1,2-Dichlorobenzene	ND	ND	ppbV	NC	25
1,2,4-Trichlorobenzene	ND	ND	ppbV	NC	25
Hexachlorobutadiene	ND	ND	ppbV	NC	25

Project Name: KEITH MIDDLE SCHOOL

Serial_No:09171011:27

Lab Number: L1013397

Project Number: 115058

Report Date: 09/17/10

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Cleaning Batch ID	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Out mL/min	Flow In mL/min	% RSD
L1013397-01	VS-9-24	252	2.7L Can	L1011753	-29.5	-9.8	-	-	-
L1013397-02	VS-9-24-DUP	138	2.7L Can	L1011753	-29.5	-4.5	-	-	-
L1013397-03	VS-10-24	450	2.7L Can	L1011753	-29.5	-5.0	-	-	-
L1013397-04	VS-1-24	236	2.7L Can	L1011753	-29.5	-3.3	-	-	-
L1013397-05	VS-4-24	198	2.7L Can	L1011753	-29.5	-4.7	-	-	-
L1013397-06	VS-BG-24	148	2.7L Can	L1011753	-29.5	-3.7	-	-	-
L1013397-07	VS-TB-24	113	2.7L Can	L1011753	-29.5	-29.5	-	-	-



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011753**Project Number:** CANISTER QC BAT**Report Date:** 09/17/10**Air Canister Certification Results**

Lab ID: L1011753-01
 Client ID: CAN 239 SHELF 1
 Sample Location:
 Matrix: Air
 Analytical Method: 48,TO-15
 Analytical Date: 08/05/10 21:19
 Analyst: RY

Date Collected: 07/30/10 00:00
 Date Received: 07/30/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air (Low Level) - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.200	--	ND	0.344	--		1
Propane	ND	0.200	--	ND	0.606	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.988	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.776	--		1
Chloroethane	ND	0.200	--	ND	0.527	--		1
Ethanol	ND	2.50	--	ND	4.71	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.841	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.14	--		1
Acetone	ND	1.00	--	ND	2.37	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.200	--	ND	0.434	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011753**Project Number:** CANISTER QC BAT**Report Date:** 09/17/10**Air Canister Certification Results**

Lab ID: L1011753-01

Date Collected: 07/30/10 00:00

Client ID: CAN 239 SHELF 1

Date Received: 07/30/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air (Low Level) - Mansfield Lab								
Methylene chloride	ND	1.00	--	ND	3.47	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.622	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.720	--		1
Vinyl acetate	ND	0.200	--	ND	0.704	--		1
2-Butanone	ND	0.200	--	ND	0.589	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.976	--		1
Tetrahydrofuran	ND	0.200	--	ND	0.589	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.923	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.704	--		1
Diisopropyl ether	ND	0.200	--	ND	0.835	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.835	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.907	--		1
Benzene	ND	0.200	--	ND	0.638	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.835	--		1
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.720	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011753**Project Number:** CANISTER QC BAT**Report Date:** 09/17/10**Air Canister Certification Results**

Lab ID: L1011753-01

Date Collected: 07/30/10 00:00

Client ID: CAN 239 SHELF 1

Date Received: 07/30/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air (Low Level) - Mansfield Lab								
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.819	--		1
2,4,4-trimethyl-1-pentene	ND	0.500	--	ND	2.29	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.819	--		1
2,4,4-trimethyl-2-pentene	ND	0.500	--	ND	2.29	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.753	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.923	--		1
2-Hexanone	ND	0.200	--	ND	0.819	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.37	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.920	--		1
Ethylbenzene	ND	0.200	--	ND	0.868	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.06	--		1
Styrene	ND	0.200	--	ND	0.851	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.868	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.20	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.982	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011753**Project Number:** CANISTER QC BAT**Report Date:** 09/17/10**Air Canister Certification Results**

Lab ID: L1011753-01

Date Collected: 07/30/10 00:00

Client ID: CAN 239 SHELF 1

Date Received: 07/30/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air (Low Level) - Mansfield Lab								
Bromobenzene	ND	0.200	--	ND	1.28	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.03	--		1
n-Propylbenzene	ND	0.200	--	ND	0.982	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.03	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.982	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.03	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011753**Project Number:** CANISTER QC BAT**Report Date:** 09/17/10**Air Canister Certification Results**

Lab ID: L1011753-01

Date Collected: 07/30/10 00:00

Client ID: CAN 239 SHELF 1

Date Received: 07/30/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air (Low Level) - Mansfield Lab								

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	94		60-140
Bromochloromethane	99		60-140
chlorobenzene-d5	95		60-140

Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011753**Project Number:** CANISTER QC BAT**Report Date:** 09/17/10**Air Canister Certification Results**

Lab ID: L1011753-01
 Client ID: CAN 239 SHELF 1
 Sample Location:
 Matrix: Air
 Analytical Method: 48,TO-15-SIM
 Analytical Date: 08/05/10 21:19
 Analyst: RY

Date Collected: 07/30/10 00:00
 Date Received: 07/30/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.050	--	ND	0.247	--		1
Chloromethane	ND	0.500	--	ND	1.03	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
Acetone	ND	2.00	--	ND	4.75	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.08	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	1.00	--	ND	3.47	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
Halothane	ND	0.050	--	ND	0.403	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.020	--	ND	0.072	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011753**Project Number:** CANISTER QC BAT**Report Date:** 09/17/10**Air Canister Certification Results**

Lab ID: L1011753-01

Date Collected: 07/30/10 00:00

Client ID: CAN 239 SHELF 1

Date Received: 07/30/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.020	--	ND	0.075	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.020	--	ND	0.092	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.206	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.500	--	ND	2.46	--		1
1,3,5-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.500	--	ND	2.74	--		1
p-Isopropyltoluene	ND	0.500	--	ND	2.74	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.500	--	ND	2.74	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011753**Project Number:** CANISTER QC BAT**Report Date:** 09/17/10**Air Canister Certification Results**

Lab ID: L1011753-01

Date Collected: 07/30/10 00:00

Client ID: CAN 239 SHELF 1

Date Received: 07/30/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011753**Project Number:** CANISTER QC BAT**Report Date:** 09/17/10**Air Canister Certification Results**

Lab ID: L1011753-01

Date Collected: 07/30/10 00:00

Client ID: CAN 239 SHELF 1

Date Received: 07/30/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	101		60-140
bromochloromethane	107		60-140
chlorobenzene-d5	108		60-140

Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011753**Project Number:** CANISTER QC BAT**Report Date:** 09/17/10**AIR CAN CERTIFICATION RESULTS**

Lab ID: L1011753-01
Client ID: CAN 239 SHELF 1
Sample Location: Not Specified
Matrix: Air
Analytical Method: 96,APH
Analytical Date: 08/07/10 18:36
Analyst: RY

Date Collected: 07/30/10 00:00
Date Received: 07/30/10
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbons in Air - Mansfield Lab						
1,3-Butadiene	ND		ug/m3	2.0	--	1
Methyl tert butyl ether	ND		ug/m3	2.0	--	1
Benzene	ND		ug/m3	2.0	--	1
Toluene	ND		ug/m3	2.0	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/m3	12	--	1
Ethylbenzene	ND		ug/m3	2.0	--	1
p/m-Xylene	ND		ug/m3	4.0	--	1
o-Xylene	ND		ug/m3	2.0	--	1
Naphthalene	ND		ug/m3	2.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/m3	14	--	1
C9-C10 Aromatics Total	ND		ug/m3	10	--	1

Project Name: KEITH MIDDLE SCHOOL

Lab Number: L1013397

Project Number: 115058

Report Date: 09/17/10

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal**Cooler**

N/A Present/Intact

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1013397-01A	Canister - 2.7 Liter	N/A	NA		NA	Present/Intact	MCP-TO15-SIM(30),MCP-TO15(30)
L1013397-02A	Canister - 2.7 Liter	N/A	NA		NA	Present/Intact	MCP-TO15-SIM(30),MCP-TO15(30)
L1013397-03A	Canister - 2.7 Liter	N/A	NA		NA	Present/Intact	MCP-TO15-SIM(30),MCP-TO15(30)
L1013397-04A	Canister - 2.7 Liter	N/A	NA		NA	Present/Intact	MCP-TO15-SIM(30),MCP-TO15(30)
L1013397-05A	Canister - 2.7 Liter	N/A	NA		NA	Present/Intact	MCP-TO15-SIM(30),MCP-TO15(30)
L1013397-06A	Canister - 2.7 Liter	N/A	NA		NA	Present/Intact	MCP-TO15-SIM(30),MCP-TO15(30)
L1013397-07A	Canister - 2.7 Liter	N/A	NA		NA	Present/Intact	MCP-TO15-SIM(30),MCP-TO15(30)
L1013397-08A	Canister - 2.7 Liter	N/A	NA		NA	Present/Intact	CLEAN-FEE()

*Values in parentheses indicate holding time in days

Project Name: KEITH MIDDLE SCHOOL
Project Number: 115058

Lab Number: L1013397
Report Date: 09/17/10

GLOSSARY

Acronyms

- EPA** - Environmental Protection Agency.
- LCS** - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
- LCSD** - Laboratory Control Sample Duplicate: Refer to LCS.
- MDL** - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
- MS** - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
- MSD** - Matrix Spike Sample Duplicate: Refer to MS.
- NA** - Not Applicable.
- NC** - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
- NI** - Not Ignitable.
- RL** - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
- RPD** - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported due to obvious interference.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.

Report Format: Data Usability Report



Project Name: KEITH MIDDLE SCHOOL
Project Number: 115058

Lab Number: L1013397
Report Date: 09/17/10

Data Qualifiers

RE - Analytical results are from sample re-extraction.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Project Name: KEITH MIDDLE SCHOOL
Project Number: 115058

Lab Number: L1013397
Report Date: 09/17/10

REFERENCES

- 101 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air (EPA/625/R-96/010b:January 1999) with QC Requirements & Performance Standards for the Analysis of TO-15 under the Massachusetts Contingency Plan, WSC-CAM-IXB, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certificate/Approval Program Summary

Last revised July 19, 2010 – Mansfield Facility

The following list includes only those analytes/methods for which certification/approval is currently held. For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0141.

Wastewater/Non-Potable Water (Inorganic Parameters: pH, Turbidity, Conductivity, Alkalinity, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Vanadium, Zinc, Total Residue (Solids), Total Suspended Solids (non-filterable), Total Cyanide. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables, Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, PAHs, Haloethers, Chlorinated Hydrocarbons, Volatile Organics.)

Solid Waste/Soil (Inorganic Parameters: pH, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Organic Carbon, Total Cyanide, Corrosivity, TCLP 1311. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Volatile Organics, Acid Extractables, Benzidines, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Florida Department of Health Certificate/Lab ID: E87814. *NELAP Accredited.*

Non-Potable Water (Inorganic Parameters: SM2320B, EPA 120.1, SM2510B, EPA 245.1, EPA 150.1, EPA 160.2, SM2540D, EPA 335.2, SM2540G, EPA 180.1. Organic Parameters: EPA 625, 608.)

Solid & Chemical Materials (Inorganic Parameters: 6020, 7470, 7471, 9045, 9014. Organic Parameters: EPA 8260, 8270, 8082, 8081.)

Air & Emissions (EPA TO-15.)

Louisiana Department of Environmental Quality Certificate/Lab ID: 03090. *NELAP Accredited.*

Non-Potable Water (Inorganic Parameters: EPA 120.1, 150.1, 160.2, 180.1, 200.8, 245.1, 310.1, 335.2, 608, 625, 1631, 3010, 3015, 3020, 6020, 9010, 9014, 9040, SM2320B, 2510B, 2540D, 2540G, 4500CN-E, 4500H-B, Organic Parameters: EPA 3510, 3580, 3630, 3640, 3660, 3665, 5030, 8015 (mod), 3570, 8081, 8082, 8260, 8270,)

Solid & Chemical Materials (Inorganic Parameters: 6020, 7196, 7470, 7471, 7474, 9010, 9014, 9040, 9045, 9060. Organic Parameters: EPA 8015 (mod), EPA 3570, 1311, 3050, 3051, 3060, 3580, 3630, 3640, 3660, 3665, 5035, 8081, 8082, 8260, 8270.)

Biological Tissue (Inorganic Parameters: EPA 6020. Organic Parameters: EPA 3570, 3510, 3610, 3630, 3640, 8270.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA030.

Non-Potable Water (Inorganic Parameters: SM4500H+B. Organic Parameters: EPA 624.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 2206. *NELAP Accredited.*

Non-Potable Water (Inorganic Parameters: EPA 200.8, 245.1, 1631E, 120.1, 150.1, 180.1, 310.1, 335.2, 160.2, SM2540D, 2540G, 4500CN-E, 4500H+B, 2320B, 2510B. Organic Parameters: EPA 625, 608.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA015. *NELAP Accredited.*

Non-Potable Water (Inorganic Parameters: SW-846 1312, 3010, 3020A, 3015, 6020, SM2320B, EPA 200.8, SM2540C, 2540D, 2540G, EPA 120.1, SM2510B, EPA 180.1, 245.1, 1631E, SW-846 9040B, 6020, 9010B, 9014 Organic Parameters: EPA 608, 625, SW-846 3510C, 3580A, 5030B, 3035L, 5035H, 3630C, 3640A, 3660B, 3665A, 8081A, 8082 8260B, 8270C)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6020, 9010B, 9014, 1311, 1312, 3050B, 3051, 3060A, 7196A, 7470A, 7471A, 9045C, 9060. Organic Parameters: SW-846 3580A, 5030B, 3035L, 5035H, 3630C, 3640A, 3660B, 3665A, 8081A, 8082, 8260B, 8270C, 3570, 8015B.)

Atmospheric Organic Parameters (EPA TO-15)

Biological Tissue (Inorganic Parameters: SW-846 6020 Organic Parameters: SW-846 8270C, 3510C, 3570, 3610B, 3630C, 3640A)

New York Department of Health Certificate/Lab ID: 11627. **NELAP Accredited.**

Non-Potable Water (Inorganic Parameters: EPA 310.1, SM2320B, EPA 365.2, 160.1, EPA 160.2, SM2540D, EPA 200.8, 6020, 1631E, 245.1, 335.2, 9014, 150.1, 9040B, 120.1, SM2510B, EPA 376.2, 180.1, 9010B. Organic Parameters: EPA 624, 8260B, 8270C, 608, 8081A, 625, 8082, 3510C, 3511, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 9040B, 9045C, SW-846 Ch7 Sec 7.3, EPA 6020, 7196A, 7471A, 7474, 9014, 9040B, 9045C, 9010B. Organic Parameters: EPA 8260B, 8270C, 8081A, DRO 8015B, 8082, 1311, 3050B, 3580, 3050B, 3035, 3570, 3051, 5035, 5030B.)

Air & Emissions (EPA TO-15.)

Rhode Island Department of Health Certificate/Lab ID: LAO00299. **NELAP Accredited via LA-DEQ.**

Refer to MA-DEP Certificate for Non-Potable Water.

Refer to LA-DEQ Certificate for Non-Potable Water.

Texas Commission of Environmental Quality Certificate/Lab ID: T104704419-08-TX. **NELAP Accredited.**

Solid & Chemical Materials (Inorganic Parameters: EPA 6020, 7470, 7471, 1311, 7196, 9014, 9040, 9045, 9060. Organic Parameters: EPA 8015, 8270, 8260, 8081, 8082.)

Air (Organic Parameters: EPA TO-15)

U.S. Army Corps of Engineers

Department of Defense Certificate/Lab ID: L2217.01.

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 3051, 6020, 747A, 7474, 9045C, 9060, SM 2540G, ASTM D422-63. Organic Parameters: EPA 3580, 3570, 3540C, 5035, 8260B, 8270C, 8270 Alk-PAH, 8082, 8081A, 8015 (SHC), 8015 (DRO).

Air & Emissions (EPA TO-15.)

Analytes Not Accredited by NELAP

Certification is not available by NELAP for the following analytes: **8270C**: Biphenyl.



ANALYTICAL REPORT

Lab Number:	L1013402
Client:	TRC Environmental Consultants Wannalancit Mills 650 Suffolk Street Lowell, MA 01854
ATTN:	David Sullivan
Phone:	(978) 656-3600
Project Name:	KEITH MIDDLE SCHOOL
Project Number:	115058
Report Date:	09/13/10

Certifications & Approvals: MA (M-MA030), NY (11627), CT (PH-0141), NH (2206), NJ (MA015), RI (LAO00299), ME (MA0030), PA (Registration #68-02089), LA NELAC (03090), FL NELAC (E87814), US Army Corps of Engineers.

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com



Project Name: KEITH MIDDLE SCHOOL
Project Number: 115058

Lab Number: L1013402
Report Date: 09/13/10

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1013402-01	C-24	Not Specified	08/25/10 00:00
L1013402-02	B-24	Not Specified	08/25/10 00:00
L1013402-03	A-24	Not Specified	08/25/10 00:00
L1013402-04	BG-24	Not Specified	08/25/10 00:00
L1013402-05	BG-24-DUP	Not Specified	08/25/10 00:00
L1013402-06	TB-24	Not Specified	08/25/10 00:00
L1013402-07	CAN 1659	Not Specified	

Project Name: KEITH MIDDLE SCHOOL
Project Number: 115058

Lab Number: L1013402
Report Date: 09/13/10

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

For additional information, please contact Client Services at 800-624-9220.

MCP Related Narratives

Canisters were released from the laboratory on August 13, 2010.

The canister certification data is provided as an addendum.

The internal standards were within method criteria.

No flow controller to sample association could be made. The RPD of the pre- and post-flow controller calibration checks were within acceptable limits except for flow controller 0476 which had an RSD of 200%.

MCP Volatile Organics in Air

L1013402-01 and -02: The presence of Chloromethane could not be determined in this sample due to non-target compounds interfering with the identification and quantification of this compound.

Project Name: KEITH MIDDLE SCHOOL
Project Number: 115058

Lab Number: L1013402
Report Date: 09/13/10

Case Narrative (continued)

L1013402-03 and WG430562-5 Duplicate results for Chloromethane should be considered estimated due to co-elution with a non-target peak.

MCP Volatile Organics in Air (SIM)

In reference to questions E b/l:

All samples were analyzed for a subset of the MCP compounds per the project.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:



Kathleen O'Brien

Title: Technical Director/Representative

Date: 09/13/10

AIR

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-01
 Client ID: C-24
 Sample Location:
 Matrix: Air
 Analytical Method: 101,TO-15
 Analytical Date: 09/01/10 21:22
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Propylene	ND	0.200	--	ND	0.344	--		1
Dichlorodifluoromethane	0.627	0.200	--	3.10	0.988	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.776	--		1
Chloroethane	ND	0.200	--	ND	0.527	--		1
Ethyl Alcohol	13.5	2.50	--	25.4	4.71	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	7.40	1.00	--	17.6	2.37	--		1
Trichlorofluoromethane	0.325	0.200	--	1.82	1.12	--		1
iso-Propyl Alcohol	0.882	0.500	--	2.17	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Methylene chloride	ND	1.40	--	ND	4.86	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.622	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.720	--		1
Vinyl acetate	ND	0.200	--	ND	0.704	--		1
2-Butanone	0.712	0.200	--	2.10	0.589	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-01

Date Collected: 08/25/10 00:00

Client ID: C-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Chloroform	ND	0.200	--	ND	0.976	--		1
Tetrahydrofuran	ND	0.200	--	ND	0.589	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.704	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.638	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.720	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.819	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.819	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	0.226	0.200	--	0.851	0.753	--		1
2-Hexanone	ND	0.200	--	ND	0.819	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.920	--		1
Ethylbenzene	ND	0.200	--	ND	0.868	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.06	--		1
Styrene	0.226	0.200	--	0.962	0.851	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-01

Date Collected: 08/25/10 00:00

Client ID: C-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.868	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.982	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
Benzyl chloride	ND	0.200	--	ND	1.03	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	90		60-140
Bromochloromethane	83		60-140
chlorobenzene-d5	91		60-140

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-01
 Client ID: C-24
 Sample Location:
 Matrix: Air
 Analytical Method: 101,TO15-SIM
 Analytical Date: 09/01/10 21:22
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Benzene	0.106	0.100	--	0.338	0.319	--		1
Chloroform	0.027	0.020	--	0.132	0.098	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	88		60-140
bromochloromethane	80		60-140
chlorobenzene-d5	92		60-140



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-02
 Client ID: B-24
 Sample Location:
 Matrix: Air
 Analytical Method: 101,TO-15
 Analytical Date: 09/01/10 22:00
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Propylene	ND	0.200	--	ND	0.344	--		1
Dichlorodifluoromethane	0.609	0.200	--	3.01	0.988	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.776	--		1
Chloroethane	ND	0.200	--	ND	0.527	--		1
Ethyl Alcohol	10.0	2.50	--	18.8	4.71	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	8.76	1.00	--	20.8	2.37	--		1
Trichlorofluoromethane	0.349	0.200	--	1.96	1.12	--		1
iso-Propyl Alcohol	0.810	0.500	--	1.99	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Methylene chloride	ND	1.40	--	ND	4.86	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.622	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.720	--		1
Vinyl acetate	ND	0.200	--	ND	0.704	--		1
2-Butanone	0.991	0.200	--	2.92	0.589	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-02

Date Collected: 08/25/10 00:00

Client ID: B-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Chloroform	ND	0.200	--	ND	0.976	--		1
Tetrahydrofuran	ND	0.200	--	ND	0.589	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.704	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.638	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.720	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.819	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
4-Methyl-2-pentanone	0.334	0.200	--	1.37	0.819	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	0.508	0.200	--	1.91	0.753	--		1
2-Hexanone	ND	0.200	--	ND	0.819	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.920	--		1
Ethylbenzene	0.543	0.200	--	2.36	0.868	--		1
p/m-Xylene	2.03	0.400	--	8.79	1.74	--		1
Bromoform	ND	0.200	--	ND	2.06	--		1
Styrene	0.215	0.200	--	0.915	0.851	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-02

Date Collected: 08/25/10 00:00

Client ID: B-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	0.792	0.200	--	3.44	0.868	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.982	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
Benzyl chloride	ND	0.200	--	ND	1.03	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	89		60-140
Bromochloromethane	83		60-140
chlorobenzene-d5	89		60-140

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-02
 Client ID: B-24
 Sample Location:
 Matrix: Air
 Analytical Method: 101,TO15-SIM
 Analytical Date: 09/01/10 22:00
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Benzene	ND	0.100	--	ND	0.319	--		1
Chloroform	0.029	0.020	--	0.141	0.098	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
Trichloroethene	0.035	0.020	--	0.188	0.107	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	87		60-140
bromochloromethane	79		60-140
chlorobenzene-d5	90		60-140

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-03
 Client ID: A-24
 Sample Location:
 Matrix: Air
 Analytical Method: 101,TO-15
 Analytical Date: 09/01/10 22:37
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Propylene	ND	0.200	--	ND	0.344	--		1
Dichlorodifluoromethane	0.579	0.200	--	2.86	0.988	--		1
Chloromethane	0.277	0.200	--	0.572	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.776	--		1
Chloroethane	ND	0.200	--	ND	0.527	--		1
Ethyl Alcohol	11.9	2.50	--	22.3	4.71	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	3.48	1.00	--	8.25	2.37	--		1
Trichlorofluoromethane	0.298	0.200	--	1.67	1.12	--		1
iso-Propyl Alcohol	0.509	0.500	--	1.25	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Methylene chloride	ND	1.40	--	ND	4.86	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.622	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.720	--		1
Vinyl acetate	ND	0.200	--	ND	0.704	--		1
2-Butanone	0.227	0.200	--	0.669	0.589	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-03

Date Collected: 08/25/10 00:00

Client ID: A-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Chloroform	ND	0.200	--	ND	0.976	--		1
Tetrahydrofuran	ND	0.200	--	ND	0.589	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.704	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.638	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.720	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.819	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.819	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.753	--		1
2-Hexanone	ND	0.200	--	ND	0.819	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.920	--		1
Ethylbenzene	ND	0.200	--	ND	0.868	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.06	--		1
Styrene	ND	0.200	--	ND	0.851	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-03

Date Collected: 08/25/10 00:00

Client ID: A-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.868	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.982	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
Benzyl chloride	ND	0.200	--	ND	1.03	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	88		60-140
Bromochloromethane	81		60-140
chlorobenzene-d5	90		60-140

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-03
 Client ID: A-24
 Sample Location:
 Matrix: Air
 Analytical Method: 101,TO15-SIM
 Analytical Date: 09/01/10 22:37
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Benzene	ND	0.100	--	ND	0.319	--		1
Chloroform	0.023	0.020	--	0.112	0.098	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	86		60-140
bromochloromethane	79		60-140
chlorobenzene-d5	89		60-140



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-04
 Client ID: BG-24
 Sample Location:
 Matrix: Air
 Analytical Method: 101,TO-15
 Analytical Date: 09/01/10 23:52
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Propylene	ND	0.200	--	ND	0.344	--		1
Dichlorodifluoromethane	0.531	0.200	--	2.62	0.988	--		1
Chloromethane	0.506	0.200	--	1.04	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.776	--		1
Chloroethane	ND	0.200	--	ND	0.527	--		1
Ethyl Alcohol	ND	2.50	--	ND	4.71	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	1.48	1.00	--	3.50	2.37	--		1
Trichlorofluoromethane	0.278	0.200	--	1.56	1.12	--		1
iso-Propyl Alcohol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Methylene chloride	ND	1.40	--	ND	4.86	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.622	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.720	--		1
Vinyl acetate	ND	0.200	--	ND	0.704	--		1
2-Butanone	ND	0.200	--	ND	0.589	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-04

Date Collected: 08/25/10 00:00

Client ID: BG-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Chloroform	ND	0.200	--	ND	0.976	--		1
Tetrahydrofuran	ND	0.200	--	ND	0.589	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.704	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.638	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.720	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.819	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.819	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.753	--		1
2-Hexanone	ND	0.200	--	ND	0.819	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.920	--		1
Ethylbenzene	ND	0.200	--	ND	0.868	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.06	--		1
Styrene	ND	0.200	--	ND	0.851	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-04

Date Collected: 08/25/10 00:00

Client ID: BG-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.868	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.982	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
Benzyl chloride	ND	0.200	--	ND	1.03	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	94		60-140
Bromochloromethane	87		60-140
chlorobenzene-d5	91		60-140

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-04
 Client ID: BG-24
 Sample Location:
 Matrix: Air
 Analytical Method: 101,TO15-SIM
 Analytical Date: 09/01/10 23:52
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Benzene	ND	0.100	--	ND	0.319	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	91		60-140
bromochloromethane	84		60-140
chlorobenzene-d5	92		60-140



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-05
 Client ID: BG-24-DUP
 Sample Location:
 Matrix: Air
 Analytical Method: 101,TO-15
 Analytical Date: 09/02/10 00:30
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Propylene	ND	0.200	--	ND	0.344	--		1
Dichlorodifluoromethane	0.516	0.200	--	2.55	0.988	--		1
Chloromethane	0.528	0.200	--	1.09	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.776	--		1
Chloroethane	ND	0.200	--	ND	0.527	--		1
Ethyl Alcohol	ND	2.50	--	ND	4.71	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	1.35	1.00	--	3.21	2.37	--		1
Trichlorofluoromethane	0.260	0.200	--	1.46	1.12	--		1
iso-Propyl Alcohol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Methylene chloride	ND	1.40	--	ND	4.86	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.622	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.720	--		1
Vinyl acetate	ND	0.200	--	ND	0.704	--		1
2-Butanone	ND	0.200	--	ND	0.589	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-05

Date Collected: 08/25/10 00:00

Client ID: BG-24-DUP

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Chloroform	ND	0.200	--	ND	0.976	--		1
Tetrahydrofuran	ND	0.200	--	ND	0.589	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.704	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.638	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.720	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.819	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.819	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.753	--		1
2-Hexanone	ND	0.200	--	ND	0.819	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.920	--		1
Ethylbenzene	ND	0.200	--	ND	0.868	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.06	--		1
Styrene	ND	0.200	--	ND	0.851	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-05

Date Collected: 08/25/10 00:00

Client ID: BG-24-DUP

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.868	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.982	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
Benzyl chloride	ND	0.200	--	ND	1.03	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	83		60-140
Bromochloromethane	92		60-140
chlorobenzene-d5	82		60-140

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-05
 Client ID: BG-24-DUP
 Sample Location:
 Matrix: Air
 Analytical Method: 101,TO15-SIM
 Analytical Date: 09/02/10 00:30
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Benzene	ND	0.100	--	ND	0.319	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	81		60-140
bromochloromethane	91		60-140
chlorobenzene-d5	82		60-140

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-06
 Client ID: TB-24
 Sample Location:
 Matrix: Air
 Analytical Method: 101,TO-15
 Analytical Date: 09/01/10 16:59
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Propylene	ND	0.200	--	ND	0.344	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.988	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.776	--		1
Chloroethane	ND	0.200	--	ND	0.527	--		1
Ethyl Alcohol	ND	2.50	--	ND	4.71	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	ND	1.00	--	ND	2.37	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
iso-Propyl Alcohol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Methylene chloride	ND	1.40	--	ND	4.86	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.622	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.720	--		1
Vinyl acetate	ND	0.200	--	ND	0.704	--		1
2-Butanone	ND	0.200	--	ND	0.589	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-06

Date Collected: 08/25/10 00:00

Client ID: TB-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
Chloroform	ND	0.200	--	ND	0.976	--		1
Tetrahydrofuran	ND	0.200	--	ND	0.589	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.704	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.638	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.720	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.819	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.819	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.753	--		1
2-Hexanone	ND	0.200	--	ND	0.819	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.920	--		1
Ethylbenzene	ND	0.200	--	ND	0.868	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.06	--		1
Styrene	ND	0.200	--	ND	0.851	--		1



Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-06

Date Collected: 08/25/10 00:00

Client ID: TB-24

Date Received: 08/27/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab								
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.868	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.982	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
Benzyl chloride	ND	0.200	--	ND	1.03	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	75		60-140
Bromochloromethane	79		60-140
chlorobenzene-d5	81		60-140

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**SAMPLE RESULTS**

Lab ID: L1013402-06
 Client ID: TB-24
 Sample Location:
 Matrix: Air
 Analytical Method: 101,TO15-SIM
 Analytical Date: 09/01/10 16:59
 Analyst: RY

Date Collected: 08/25/10 00:00
 Date Received: 08/27/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air by SIM - Mansfield Lab								
Benzene	ND	0.100	--	ND	0.319	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	72		60-140
bromochloromethane	78		60-140
chlorobenzene-d5	80		60-140

Project Name: KEITH MIDDLE SCHOOL

Lab Number: L1013402

Project Number: 115058

Report Date: 09/13/10

Method Blank Analysis Batch Quality Control

Analytical Method: 101,TO-15

Analytical Date: 09/01/10 15:56

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab for sample(s): 01-06 Batch: WG430562-4								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.200	--	ND	0.344	--		1
Propane	ND	0.200	--	ND	0.606	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.988	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.776	--		1
Chloroethane	ND	0.200	--	ND	0.527	--		1
Ethyl Alcohol	ND	2.50	--	ND	4.71	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.841	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.14	--		1
Acetone	ND	1.00	--	ND	2.37	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
iso-Propyl Alcohol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.200	--	ND	0.434	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Methylene chloride	ND	1.40	--	ND	4.86	--		1

Project Name: KEITH MIDDLE SCHOOL

Lab Number: L1013402

Project Number: 115058

Report Date: 09/13/10

Method Blank Analysis Batch Quality Control

Analytical Method: 101,TO-15

Analytical Date: 09/01/10 15:56

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab for sample(s): 01-06 Batch: WG430562-4								
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.622	--		1
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.720	--		1
Vinyl acetate	ND	0.200	--	ND	0.704	--		1
2-Butanone	ND	0.200	--	ND	0.589	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.976	--		1
Tetrahydrofuran	ND	0.200	--	ND	0.589	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.923	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.704	--		1
Isopropyl Ether	ND	0.200	--	ND	0.835	--		1
Ethyl-Tert-Butyl-Ether	ND	0.200	--	ND	0.835	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.907	--		1
Benzene	ND	0.200	--	ND	0.638	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
Tertiary-Amyl Methyl Ether	ND	0.200	--	ND	0.835	--		1
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1



Project Name: KEITH MIDDLE SCHOOL

Lab Number: L1013402

Project Number: 115058

Report Date: 09/13/10

Method Blank Analysis Batch Quality Control

Analytical Method: 101,TO-15

Analytical Date: 09/01/10 15:56

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab for sample(s): 01-06 Batch: WG430562-4								
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.720	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.819	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.819	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.753	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.923	--		1
2-Hexanone	ND	0.200	--	ND	0.819	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl Acetate	ND	0.500	--	ND	2.37	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.920	--		1
Ethylbenzene	ND	0.200	--	ND	0.868	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.06	--		1
Styrene	ND	0.200	--	ND	0.851	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.868	--		1

Project Name: KEITH MIDDLE SCHOOL

Lab Number: L1013402

Project Number: 115058

Report Date: 09/13/10

Method Blank Analysis Batch Quality Control

Analytical Method: 101,TO-15

Analytical Date: 09/01/10 15:56

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab for sample(s): 01-06 Batch: WG430562-4								
1,2,3-Trichloropropane	ND	0.200	--	ND	1.20	--		1
Nonane (C9)	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.982	--		1
Bromobenzene	ND	0.200	--	ND	1.28	--		1
o-Chlorotoluene	ND	0.200	--	ND	1.03	--		1
n-Propylbenzene	ND	0.200	--	ND	0.982	--		1
p-Chlorotoluene	ND	0.200	--	ND	1.03	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.982	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
Decane (C10)	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.03	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane (C12)	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1



Project Name: KEITH MIDDLE SCHOOL

Lab Number: L1013402

Project Number: 115058

Report Date: 09/13/10

Method Blank Analysis Batch Quality Control

Analytical Method: 101,TO-15

Analytical Date: 09/01/10 15:56

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air - Mansfield Lab for sample(s): 01-06 Batch: WG430562-4								
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: KEITH MIDDLE SCHOOL

Lab Number: L1013402

Project Number: 115058

Report Date: 09/13/10

Method Blank Analysis Batch Quality Control

Analytical Method: 101,TO15-SIM

Analytical Date: 09/01/10 15:56

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-06 Batch: WG430564-4								
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Acetone	ND	1.00	--	ND	2.37	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
Bromoform	ND	0.020	--	ND	0.206	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
Chlorobenzene	ND	0.020	--	ND	0.092	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1



Project Name: KEITH MIDDLE SCHOOL

Lab Number: L1013402

Project Number: 115058

Report Date: 09/13/10

Method Blank Analysis Batch Quality Control

Analytical Method: 101,TO15-SIM

Analytical Date: 09/01/10 15:56

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
MCP Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-06 Batch: WG430564-4								
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1
2-Butanone	ND	0.200	--	ND	0.589	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.819	--		1
Methylene chloride	ND	1.40	--	ND	4.86	--		1
Methyl tert butyl ether	ND	0.020	--	ND	0.072	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
Toluene	ND	0.020	--	ND	0.075	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1

Lab Control Sample Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013402

Report Date: 09/13/10

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-06 Batch: WG430562-3								
Chlorodifluoromethane	78		-		70-130	-		
Propylene	72		-		70-130	-		
Dichlorodifluoromethane	90		-		70-130	-		
Chloromethane	75		-		70-130	-		
1,2-Dichloro-1,1,2,2-tetrafluoroethane	86		-		70-130	-		
Methanol	85		-		70-130	-		
Vinyl chloride	75		-		70-130	-		
1,3-Butadiene	74		-		70-130	-		
Bromomethane	82		-		70-130	-		
Chloroethane	86		-		70-130	-		
Ethyl Alcohol	107		-		70-130	-		
Dichlorofluoromethane	90		-		70-130	-		
Vinyl bromide	81		-		70-130	-		
Acrolein	85		-		70-130	-		
Acetone	120		-		50-150	-		
Acetonitrile	91		-		70-130	-		
Trichlorofluoromethane	104		-		70-130	-		
iso-Propyl Alcohol	95		-		70-130	-		
Acrylonitrile	91		-		70-130	-		
Pentane	81		-		70-130	-		
Ethyl ether	92		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013402

Report Date: 09/13/10

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-06 Batch: WG430562-3								
1,1-Dichloroethene	93		-		70-130	-		
Methylene chloride	102		-		70-130	-		
3-Chloropropene	84		-		70-130	-		
Carbon disulfide	89		-		70-130	-		
1,1,2-Trichloro-1,2,2-Trifluoroethane	107		-		70-130	-		
trans-1,2-Dichloroethene	93		-		70-130	-		
1,1-Dichloroethane	103		-		70-130	-		
Methyl tert butyl ether	103		-		70-130	-		
Vinyl acetate	119		-		70-130	-		
2-Butanone	120		-		70-130	-		
cis-1,2-Dichloroethene	92		-		70-130	-		
Ethyl Acetate	108		-		70-130	-		
Chloroform	106		-		70-130	-		
Tetrahydrofuran	89		-		70-130	-		
2,2-Dichloropropane	94		-		70-130	-		
1,2-Dichloroethane	105		-		70-130	-		
n-Hexane	98		-		70-130	-		
Isopropyl Ether	109		-		70-130	-		
Ethyl-Tert-Butyl-Ether	108		-		70-130	-		
1,1,1-Trichloroethane	116		-		70-130	-		
1,1-Dichloropropene	92		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013402

Report Date: 09/13/10

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-06 Batch: WG430562-3								
Benzene	95		-		70-130	-		
Carbon tetrachloride	117		-		70-130	-		
Cyclohexane	93		-		70-130	-		
Tertiary-Amyl Methyl Ether	101		-		70-130	-		
Dibromomethane	97		-		70-130	-		
1,2-Dichloropropane	100		-		70-130	-		
Bromodichloromethane	111		-		70-130	-		
1,4-Dioxane	110		-		50-150	-		
Trichloroethene	102		-		70-130	-		
2,2,4-Trimethylpentane	99		-		70-130	-		
Heptane	102		-		70-130	-		
cis-1,3-Dichloropropene	103		-		70-130	-		
4-Methyl-2-pentanone	130		-		70-130	-		
trans-1,3-Dichloropropene	91		-		70-130	-		
1,1,2-Trichloroethane	111		-		70-130	-		
Toluene	89		-		70-130	-		
1,3-Dichloropropane	89		-		70-130	-		
2-Hexanone	113		-		70-130	-		
Dibromochloromethane	97		-		70-130	-		
1,2-Dibromoethane	92		-		70-130	-		
Octane	80		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Lab Number: L1013402

Project Number: 115058

Report Date: 09/13/10

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-06 Batch: WG430562-3								
Tetrachloroethene	95		-		70-130	-		
1,1,1,2-Tetrachloroethane	93		-		70-130	-		
Chlorobenzene	94		-		70-130	-		
Ethylbenzene	99		-		70-130	-		
p/m-Xylene	104		-		70-130	-		
Bromoform	103		-		70-130	-		
Styrene	98		-		70-130	-		
1,1,2,2-Tetrachloroethane	115		-		70-130	-		
o-Xylene	116		-		70-130	-		
1,2,3-Trichloropropane	89		-		70-130	-		
Nonane (C9)	105		-		70-130	-		
Isopropylbenzene	104		-		70-130	-		
Bromobenzene	102		-		70-130	-		
o-Chlorotoluene	94		-		70-130	-		
n-Propylbenzene	103		-		70-130	-		
p-Chlorotoluene	103		-		70-130	-		
4-Ethyltoluene	108		-		70-130	-		
1,3,5-Trimethylbenzene	114		-		70-130	-		
tert-Butylbenzene	109		-		70-130	-		
1,2,4-Trimethylbenzene	123		-		70-130	-		
Decane (C10)	101		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013402

Report Date: 09/13/10

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-06 Batch: WG430562-3								
Benzyl chloride	116		-		70-130	-		
1,3-Dichlorobenzene	116		-		70-130	-		
1,4-Dichlorobenzene	116		-		70-130	-		
sec-Butylbenzene	109		-		70-130	-		
p-Isopropyltoluene	106		-		70-130	-		
1,2-Dichlorobenzene	118		-		70-130	-		
n-Butylbenzene	121		-		70-130	-		
1,2-Dibromo-3-chloropropane	129		-		70-130	-		
Undecane	115		-		70-130	-		
Dodecane (C12)	130		-		70-130	-		
1,2,4-Trichlorobenzene	132		-		50-150	-		
Naphthalene	117		-		50-150	-		
1,2,3-Trichlorobenzene	119		-		70-130	-		
Hexachlorobutadiene	120		-		50-150	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013402

Report Date: 09/13/10

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-06 Batch: WG430564-3								
1,1,1-Trichloroethane	112		-		70-130	-		
1,1,2,2-Tetrachloroethane	117		-		70-130	-		
1,1,2-Trichloroethane	106		-		70-130	-		
1,1-Dichloroethane	105		-		70-130	-		
1,1-Dichloroethene	97		-		70-130	-		
1,2,4-Trichlorobenzene	132		-		50-150	-		
1,2-Dibromoethane	96		-		70-130	-		
1,2-Dichlorobenzene	118		-		70-130	-		
1,2-Dichloroethane	104		-		70-130	-		
1,2-Dichloropropane	98		-		70-130	-		
1,3-Dichlorobenzene	118		-		70-130	-		
1,4-Dichlorobenzene	118		-		70-130	-		
1,4-Dioxane	93		-		50-150	-		
Acetone	116		-		50-150	-		
Benzene	83		-		70-130	-		
Bromodichloromethane	105		-		70-130	-		
Bromoform	103		-		70-130	-		
Bromomethane	86		-		70-130	-		
Carbon tetrachloride	113		-		70-130	-		
Chlorobenzene	97		-		70-130	-		
Chloroform	105		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013402

Report Date: 09/13/10

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
MCP Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-06 Batch: WG430564-3								
cis-1,2-Dichloroethene	94		-		70-130	-		
cis-1,3-Dichloropropene	97		-		70-130	-		
Dibromochloromethane	98		-		70-130	-		
Ethylbenzene	98		-		70-130	-		
Hexachlorobutadiene	120		-		50-150	-		
2-Butanone	105		-		70-130	-		
4-Methyl-2-pentanone	122		-		70-130	-		
Methylene chloride	109		-		70-130	-		
Methyl tert butyl ether	102		-		70-130	-		
Naphthalene	108		-		50-150	-		
p/m-Xylene	106		-		70-130	-		
o-Xylene	110		-		70-130	-		
Styrene	99		-		70-130	-		
Tetrachloroethene	94		-		70-130	-		
Toluene	83		-		70-130	-		
trans-1,2-Dichloroethene	92		-		70-130	-		
trans-1,3-Dichloropropene	88		-		70-130	-		
Trichloroethene	97		-		70-130	-		
Vinyl chloride	82		-		70-130	-		

Lab Duplicate Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013402

Report Date: 09/13/10

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG430562-5 QC Sample: L1013402-03 Client ID: A-24						
Propylene	ND	ND	ppbV	NC		25
Dichlorodifluoromethane	0.579	0.594	ppbV	3		25
Chloromethane	0.277	0.270	ppbV	3		25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	ND	ppbV	NC		25
Vinyl chloride	ND	ND	ppbV	NC		25
1,3-Butadiene	ND	ND	ppbV	NC		25
Bromomethane	ND	ND	ppbV	NC		25
Chloroethane	ND	ND	ppbV	NC		25
Ethyl Alcohol	11.9	10.8	ppbV	10		25
Vinyl bromide	ND	ND	ppbV	NC		25
Acetone	3.48	3.30	ppbV	5		25
Trichlorofluoromethane	0.298	0.308	ppbV	3		25
iso-Propyl Alcohol	0.509	ND	ppbV	NC		25
1,1-Dichloroethene	ND	ND	ppbV	NC		25
Methylene chloride	ND	ND	ppbV	NC		25
3-Chloropropene	ND	ND	ppbV	NC		25
Carbon disulfide	ND	ND	ppbV	NC		25
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	ND	ppbV	NC		25
trans-1,2-Dichloroethene	ND	ND	ppbV	NC		25

Lab Duplicate Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013402

Report Date: 09/13/10

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG430562-5 QC Sample: L1013402-03 Client ID: A-24					
1,1-Dichloroethane	ND	ND	ppbV	NC	25
Methyl tert butyl ether	ND	ND	ppbV	NC	25
Vinyl acetate	ND	ND	ppbV	NC	25
2-Butanone	0.227	0.233	ppbV	3	25
cis-1,2-Dichloroethene	ND	ND	ppbV	NC	25
Ethyl Acetate	ND	ND	ppbV	NC	25
Chloroform	ND	ND	ppbV	NC	25
Tetrahydrofuran	ND	ND	ppbV	NC	25
1,2-Dichloroethane	ND	ND	ppbV	NC	25
n-Hexane	ND	ND	ppbV	NC	25
1,1,1-Trichloroethane	ND	ND	ppbV	NC	25
Benzene	ND	ND	ppbV	NC	25
Carbon tetrachloride	ND	ND	ppbV	NC	25
Cyclohexane	ND	ND	ppbV	NC	25
1,2-Dichloropropane	ND	ND	ppbV	NC	25
Bromodichloromethane	ND	ND	ppbV	NC	25
1,4-Dioxane	ND	ND	ppbV	NC	25
Trichloroethene	ND	ND	ppbV	NC	25
2,2,4-Trimethylpentane	ND	ND	ppbV	NC	25

Lab Duplicate Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013402

Report Date: 09/13/10

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG430562-5 QC Sample: L1013402-03 Client ID: A-24					
Heptane	ND	ND	ppbV	NC	25
cis-1,3-Dichloropropene	ND	ND	ppbV	NC	25
4-Methyl-2-pentanone	ND	ND	ppbV	NC	25
trans-1,3-Dichloropropene	ND	ND	ppbV	NC	25
1,1,2-Trichloroethane	ND	ND	ppbV	NC	25
Toluene	ND	ND	ppbV	NC	25
2-Hexanone	ND	ND	ppbV	NC	25
Dibromochloromethane	ND	ND	ppbV	NC	25
1,2-Dibromoethane	ND	ND	ppbV	NC	25
Tetrachloroethene	ND	ND	ppbV	NC	25
Chlorobenzene	ND	ND	ppbV	NC	25
Ethylbenzene	ND	ND	ppbV	NC	25
p/m-Xylene	ND	ND	ppbV	NC	25
Bromoform	ND	ND	ppbV	NC	25
Styrene	ND	ND	ppbV	NC	25
1,1,2,2-Tetrachloroethane	ND	ND	ppbV	NC	25
o-Xylene	ND	ND	ppbV	NC	25
4-Ethyltoluene	ND	ND	ppbV	NC	25
1,3,5-Trimethylbenzene	ND	ND	ppbV	NC	25

Lab Duplicate Analysis

Batch Quality Control

Project Name: KEITH MIDDLE SCHOOL

Project Number: 115058

Lab Number: L1013402

Report Date: 09/13/10

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
MCP Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG430562-5 QC Sample: L1013402-03 Client ID: A-24					
1,2,4-Trimethylbenzene	ND	ND	ppbV	NC	25
Benzyl chloride	ND	ND	ppbV	NC	25
1,3-Dichlorobenzene	ND	ND	ppbV	NC	25
1,4-Dichlorobenzene	ND	ND	ppbV	NC	25
1,2-Dichlorobenzene	ND	ND	ppbV	NC	25
1,2,4-Trichlorobenzene	ND	ND	ppbV	NC	25
Hexachlorobutadiene	ND	ND	ppbV	NC	25

MCP Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG430564-5 QC Sample: L1013402-03 Client ID: A-24					
Benzene	ND	ND	ppbV	NC	25
Chloroform	0.023	0.024	ppbV	4	25
Tetrachloroethene	ND	ND	ppbV	NC	25
Trichloroethene	ND	ND	ppbV	NC	25

Project Name: KEITH MIDDLE SCHOOL

Serial_No:09131016:55

Lab Number: L1013402

Project Number: 115058

Report Date: 09/13/10

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Cleaning Batch ID	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Out mL/min	Flow In mL/min	% RSD
L1013402-01	C-24	624	6.0L Can	L1011587	-29.4	-3.2	-	-	-
L1013402-02	B-24	1515	6.0L Can	I1011289	-29.4	-1.7	-	-	-
L1013402-03	A-24	757	6.0L Can	I1011289	-29.4	-2.3	-	-	-
L1013402-04	BG-24	1700	6.0L Can	L1011587	-29.4	-2.5	-	-	-
L1013402-05	BG-24-DUP	695	6.0L Can	I1011289	-29.4	-1.3	-	-	-
L1013402-06	TB-24	998	6.0L Can	I1011289	-29.4	-29.4	-	-	-



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011289**Project Number:** CANISTER QC BAT**Report Date:** 09/13/10**Air Canister Certification Results**

Lab ID: L1011289-01
 Client ID: CAN 586 SHELF 36
 Sample Location:
 Matrix: Air
 Analytical Method: 48,TO-15
 Analytical Date: 07/28/10 20:14
 Analyst: RY

Date Collected: 07/21/10 00:00
 Date Received: 07/21/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air (Low Level) - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.200	--	ND	0.344	--		1
Propane	ND	0.200	--	ND	0.606	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.988	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.776	--		1
Chloroethane	ND	0.200	--	ND	0.527	--		1
Ethanol	ND	2.50	--	ND	4.71	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.841	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.14	--		1
Acetone	ND	1.00	--	ND	2.37	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.200	--	ND	0.434	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011289**Project Number:** CANISTER QC BAT**Report Date:** 09/13/10**Air Canister Certification Results**

Lab ID: L1011289-01

Date Collected: 07/21/10 00:00

Client ID: CAN 586 SHELF 36

Date Received: 07/21/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air (Low Level) - Mansfield Lab								
Methylene chloride	ND	1.00	--	ND	3.47	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.622	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.720	--		1
Vinyl acetate	ND	0.200	--	ND	0.704	--		1
2-Butanone	ND	0.200	--	ND	0.589	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.976	--		1
Tetrahydrofuran	ND	0.200	--	ND	0.589	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.923	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.704	--		1
Diisopropyl ether	ND	0.200	--	ND	0.835	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.835	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.907	--		1
Benzene	ND	0.200	--	ND	0.638	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.835	--		1
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.720	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011289**Project Number:** CANISTER QC BAT**Report Date:** 09/13/10**Air Canister Certification Results**

Lab ID: L1011289-01

Date Collected: 07/21/10 00:00

Client ID: CAN 586 SHELF 36

Date Received: 07/21/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air (Low Level) - Mansfield Lab								
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.819	--		1
2,4,4-trimethyl-1-pentene	ND	0.500	--	ND	2.29	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.819	--		1
2,4,4-trimethyl-2-pentene	ND	0.500	--	ND	2.29	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.753	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.923	--		1
2-Hexanone	ND	0.200	--	ND	0.819	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.37	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.920	--		1
Ethylbenzene	ND	0.200	--	ND	0.868	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.06	--		1
Styrene	ND	0.200	--	ND	0.851	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.868	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.20	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.982	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011289**Project Number:** CANISTER QC BAT**Report Date:** 09/13/10**Air Canister Certification Results**

Lab ID: L1011289-01

Date Collected: 07/21/10 00:00

Client ID: CAN 586 SHELF 36

Date Received: 07/21/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air (Low Level) - Mansfield Lab								
Bromobenzene	ND	0.200	--	ND	1.28	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.03	--		1
n-Propylbenzene	ND	0.200	--	ND	0.982	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.03	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.982	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.03	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011289**Project Number:** CANISTER QC BAT**Report Date:** 09/13/10**Air Canister Certification Results**

Lab ID: L1011289-01

Date Collected: 07/21/10 00:00

Client ID: CAN 586 SHELF 36

Date Received: 07/21/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air (Low Level) - Mansfield Lab								

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	104		60-140
Bromochloromethane	98		60-140
chlorobenzene-d5	96		60-140

Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011289**Project Number:** CANISTER QC BAT**Report Date:** 09/13/10**Air Canister Certification Results**

Lab ID: L1011289-01
 Client ID: CAN 586 SHELF 36
 Sample Location:
 Matrix: Air
 Analytical Method: 48,TO-15-SIM
 Analytical Date: 07/28/10 20:14
 Analyst: RY

Date Collected: 07/21/10 00:00
 Date Received: 07/21/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.050	--	ND	0.247	--		1
Chloromethane	ND	0.500	--	ND	1.03	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
Acetone	ND	2.00	--	ND	4.75	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.08	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	1.00	--	ND	3.47	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
Halothane	ND	0.050	--	ND	0.403	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.020	--	ND	0.072	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011289**Project Number:** CANISTER QC BAT**Report Date:** 09/13/10**Air Canister Certification Results**

Lab ID: L1011289-01

Date Collected: 07/21/10 00:00

Client ID: CAN 586 SHELF 36

Date Received: 07/21/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.020	--	ND	0.075	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.020	--	ND	0.092	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.206	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.500	--	ND	2.46	--		1
1,3,5-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.500	--	ND	2.74	--		1
p-Isopropyltoluene	ND	0.500	--	ND	2.74	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.500	--	ND	2.74	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011289**Project Number:** CANISTER QC BAT**Report Date:** 09/13/10**Air Canister Certification Results**

Lab ID: L1011289-01

Date Collected: 07/21/10 00:00

Client ID: CAN 586 SHELF 36

Date Received: 07/21/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011289**Project Number:** CANISTER QC BAT**Report Date:** 09/13/10**Air Canister Certification Results**

Lab ID: L1011289-01

Date Collected: 07/21/10 00:00

Client ID: CAN 586 SHELF 36

Date Received: 07/21/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	95		60-140
bromochloromethane	101		60-140
chlorobenzene-d5	94		60-140



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011587**Project Number:** CANISTER QC BAT**Report Date:** 09/13/10**Air Canister Certification Results**

Lab ID: L1011587-01
 Client ID: CAN 629 SHELF 42
 Sample Location:
 Matrix: Air
 Analytical Method: 48,TO-15
 Analytical Date: 07/30/10 15:34
 Analyst: RY

Date Collected: 07/28/10 00:00
 Date Received: 07/28/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air (Low Level) - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.200	--	ND	0.344	--		1
Propane	ND	0.200	--	ND	0.606	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.988	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.776	--		1
Chloroethane	ND	0.200	--	ND	0.527	--		1
Ethanol	ND	2.50	--	ND	4.71	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.841	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.14	--		1
Acetone	ND	1.00	--	ND	2.37	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.200	--	ND	0.434	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011587**Project Number:** CANISTER QC BAT**Report Date:** 09/13/10**Air Canister Certification Results**

Lab ID: L1011587-01

Date Collected: 07/28/10 00:00

Client ID: CAN 629 SHELF 42

Date Received: 07/28/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air (Low Level) - Mansfield Lab								
Methylene chloride	ND	1.00	--	ND	3.47	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.622	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.720	--		1
Vinyl acetate	ND	0.200	--	ND	0.704	--		1
2-Butanone	ND	0.200	--	ND	0.589	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.792	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.976	--		1
Tetrahydrofuran	ND	0.200	--	ND	0.589	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.923	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.704	--		1
Diisopropyl ether	ND	0.200	--	ND	0.835	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.835	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.907	--		1
Benzene	ND	0.200	--	ND	0.638	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.835	--		1
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.720	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011587**Project Number:** CANISTER QC BAT**Report Date:** 09/13/10**Air Canister Certification Results**

Lab ID: L1011587-01

Date Collected: 07/28/10 00:00

Client ID: CAN 629 SHELF 42

Date Received: 07/28/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air (Low Level) - Mansfield Lab								
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.819	--		1
2,4,4-trimethyl-1-pentene	ND	0.500	--	ND	2.29	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.819	--		1
2,4,4-trimethyl-2-pentene	ND	0.500	--	ND	2.29	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.907	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.753	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.923	--		1
2-Hexanone	ND	0.200	--	ND	0.819	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.37	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.920	--		1
Ethylbenzene	ND	0.200	--	ND	0.868	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.06	--		1
Styrene	ND	0.200	--	ND	0.851	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.868	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.20	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.982	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011587**Project Number:** CANISTER QC BAT**Report Date:** 09/13/10**Air Canister Certification Results**

Lab ID: L1011587-01

Date Collected: 07/28/10 00:00

Client ID: CAN 629 SHELF 42

Date Received: 07/28/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air (Low Level) - Mansfield Lab								
Bromobenzene	ND	0.200	--	ND	1.28	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.03	--		1
n-Propylbenzene	ND	0.200	--	ND	0.982	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.03	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.982	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.982	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.03	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011587**Project Number:** CANISTER QC BAT**Report Date:** 09/13/10**Air Canister Certification Results**

Lab ID: L1011587-01

Date Collected: 07/28/10 00:00

Client ID: CAN 629 SHELF 42

Date Received: 07/28/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air (Low Level) - Mansfield Lab								

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	94		60-140
Bromochloromethane	95		60-140
chlorobenzene-d5	92		60-140



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011587**Project Number:** CANISTER QC BAT**Report Date:** 09/13/10**Air Canister Certification Results**

Lab ID: L1011587-01
 Client ID: CAN 629 SHELF 42
 Sample Location:
 Matrix: Air
 Analytical Method: 48,TO-15-SIM
 Analytical Date: 07/30/10 15:34
 Analyst: RY

Date Collected: 07/28/10 00:00
 Date Received: 07/28/10
 Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.050	--	ND	0.247	--		1
Chloromethane	ND	0.500	--	ND	1.03	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
Acetone	ND	2.00	--	ND	4.75	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.08	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	1.00	--	ND	3.47	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
Halothane	ND	0.050	--	ND	0.403	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.020	--	ND	0.072	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011587**Project Number:** CANISTER QC BAT**Report Date:** 09/13/10**Air Canister Certification Results**

Lab ID: L1011587-01

Date Collected: 07/28/10 00:00

Client ID: CAN 629 SHELF 42

Date Received: 07/28/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.020	--	ND	0.075	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.020	--	ND	0.092	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.206	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.500	--	ND	2.46	--		1
1,3,5-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.500	--	ND	2.74	--		1
p-Isopropyltoluene	ND	0.500	--	ND	2.74	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.500	--	ND	2.74	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011587**Project Number:** CANISTER QC BAT**Report Date:** 09/13/10**Air Canister Certification Results**

Lab ID: L1011587-01

Date Collected: 07/28/10 00:00

Client ID: CAN 629 SHELF 42

Date Received: 07/28/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1



Project Name: BATCH CANISTER CERTIFICATION**Lab Number:** L1011587**Project Number:** CANISTER QC BAT**Report Date:** 09/13/10**Air Canister Certification Results**

Lab ID: L1011587-01

Date Collected: 07/28/10 00:00

Client ID: CAN 629 SHELF 42

Date Received: 07/28/10

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab								

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	93		60-140
bromochloromethane	97		60-140
chlorobenzene-d5	91		60-140

Project Name: KEITH MIDDLE SCHOOL**Lab Number:** L1013402**Project Number:** 115058**Report Date:** 09/13/10**Sample Receipt and Container Information**

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal**Cooler**

N/A Present/Intact

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1013402-01A	Canister - 6 Liter	N/A	NA		NA	Present/Intact	MCP-TO15-SIM(30),MCP-TO15(30)
L1013402-02A	Canister - 6 Liter	N/A	NA		NA	Present/Intact	MCP-TO15-SIM(30),MCP-TO15(30)
L1013402-03A	Canister - 6 Liter	N/A	NA		NA	Present/Intact	MCP-TO15-SIM(30),MCP-TO15(30)
L1013402-04A	Canister - 6 Liter	N/A	NA		NA	Present/Intact	MCP-TO15-SIM(30),MCP-TO15(30)
L1013402-05A	Canister - 6 Liter	N/A	NA		NA	Present/Intact	MCP-TO15-SIM(30),MCP-TO15(30)
L1013402-06A	Canister - 6 Liter	N/A	NA		NA	Present/Intact	MCP-TO15-SIM(30),MCP-TO15(30)
L1013402-07A	Canister - 6 Liter	N/A	NA		NA	Present/Intact	CLEAN-FEE()

*Values in parentheses indicate holding time in days

Project Name: KEITH MIDDLE SCHOOL
Project Number: 115058

Lab Number: L1013402
Report Date: 09/13/10

GLOSSARY

Acronyms

- EPA** - Environmental Protection Agency.
- LCS** - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
- LCSD** - Laboratory Control Sample Duplicate: Refer to LCS.
- MDL** - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
- MS** - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
- MSD** - Matrix Spike Sample Duplicate: Refer to MS.
- NA** - Not Applicable.
- NC** - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
- NI** - Not Ignitable.
- RL** - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
- RPD** - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported due to obvious interference.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.

Report Format: Data Usability Report



Project Name: KEITH MIDDLE SCHOOL
Project Number: 115058

Lab Number: L1013402
Report Date: 09/13/10

Data Qualifiers

- RE** - Analytical results are from sample re-extraction.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Project Name: KEITH MIDDLE SCHOOL
Project Number: 115058

Lab Number: L1013402
Report Date: 09/13/10

REFERENCES

- 101 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air (EPA/625/R-96/010b:January 1999) with QC Requirements & Performance Standards for the Analysis of TO-15 under the Massachusetts Contingency Plan, WSC-CAM-IXB, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certificate/Approval Program Summary

Last revised July 19, 2010 – Mansfield Facility

The following list includes only those analytes/methods for which certification/approval is currently held. For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0141.

Wastewater/Non-Potable Water (Inorganic Parameters: pH, Turbidity, Conductivity, Alkalinity, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Vanadium, Zinc, Total Residue (Solids), Total Suspended Solids (non-filterable), Total Cyanide. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables, Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, PAHs, Haloethers, Chlorinated Hydrocarbons, Volatile Organics.)

Solid Waste/Soil (Inorganic Parameters: pH, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Organic Carbon, Total Cyanide, Corrosivity, TCLP 1311. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Volatile Organics, Acid Extractables, Benzidines, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Florida Department of Health Certificate/Lab ID: E87814. *NELAP Accredited.*

Non-Potable Water (Inorganic Parameters: SM2320B, EPA 120.1, SM2510B, EPA 245.1, EPA 150.1, EPA 160.2, SM2540D, EPA 335.2, SM2540G, EPA 180.1. Organic Parameters: EPA 625, 608.)

Solid & Chemical Materials (Inorganic Parameters: 6020, 7470, 7471, 9045, 9014. Organic Parameters: EPA 8260, 8270, 8082, 8081.)

Air & Emissions (EPA TO-15.)

Louisiana Department of Environmental Quality Certificate/Lab ID: 03090. *NELAP Accredited.*

Non-Potable Water (Inorganic Parameters: EPA 120.1, 150.1, 160.2, 180.1, 200.8, 245.1, 310.1, 335.2, 608, 625, 1631, 3010, 3015, 3020, 6020, 9010, 9014, 9040, SM2320B, 2510B, 2540D, 2540G, 4500CN-E, 4500H-B, Organic Parameters: EPA 3510, 3580, 3630, 3640, 3660, 3665, 5030, 8015 (mod), 3570, 8081, 8082, 8260, 8270,)

Solid & Chemical Materials (Inorganic Parameters: 6020, 7196, 7470, 7471, 7474, 9010, 9014, 9040, 9045, 9060. Organic Parameters: EPA 8015 (mod), EPA 3570, 1311, 3050, 3051, 3060, 3580, 3630, 3640, 3660, 3665, 5035, 8081, 8082, 8260, 8270.)

Biological Tissue (Inorganic Parameters: EPA 6020. Organic Parameters: EPA 3570, 3510, 3610, 3630, 3640, 8270.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA030.

Non-Potable Water (Inorganic Parameters: SM4500H+B. Organic Parameters: EPA 624.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 2206. *NELAP Accredited.*

Non-Potable Water (Inorganic Parameters: EPA 200.8, 245.1, 1631E, 120.1, 150.1, 180.1, 310.1, 335.2, 160.2, SM2540D, 2540G, 4500CN-E, 4500H+B, 2320B, 2510B. Organic Parameters: EPA 625, 608.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA015. *NELAP Accredited.*

Non-Potable Water (Inorganic Parameters: SW-846 1312, 3010, 3020A, 3015, 6020, SM2320B, EPA 200.8, SM2540C, 2540D, 2540G, EPA 120.1, SM2510B, EPA 180.1, 245.1, 1631E, SW-846 9040B, 6020, 9010B, 9014 Organic Parameters: EPA 608, 625, SW-846 3510C, 3580A, 5030B, 3035L, 5035H, 3630C, 3640A, 3660B, 3665A, 8081A, 8082 8260B, 8270C)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6020, 9010B, 9014, 1311, 1312, 3050B, 3051, 3060A, 7196A, 7470A, 7471A, 9045C, 9060. Organic Parameters: SW-846 3580A, 5030B, 3035L, 5035H, 3630C, 3640A, 3660B, 3665A, 8081A, 8082, 8260B, 8270C, 3570, 8015B.)

Atmospheric Organic Parameters (EPA TO-15)

Biological Tissue (Inorganic Parameters: SW-846 6020 Organic Parameters: SW-846 8270C, 3510C, 3570, 3610B, 3630C, 3640A)

New York Department of Health Certificate/Lab ID: 11627. **NELAP Accredited.**

Non-Potable Water (Inorganic Parameters: EPA 310.1, SM2320B, EPA 365.2, 160.1, EPA 160.2, SM2540D, EPA 200.8, 6020, 1631E, 245.1, 335.2, 9014, 150.1, 9040B, 120.1, SM2510B, EPA 376.2, 180.1, 9010B. Organic Parameters: EPA 624, 8260B, 8270C, 608, 8081A, 625, 8082, 3510C, 3511, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 9040B, 9045C, SW-846 Ch7 Sec 7.3, EPA 6020, 7196A, 7471A, 7474, 9014, 9040B, 9045C, 9010B. Organic Parameters: EPA 8260B, 8270C, 8081A, DRO 8015B, 8082, 1311, 3050B, 3580, 3050B, 3035, 3570, 3051, 5035, 5030B.)

Air & Emissions (EPA TO-15.)

Rhode Island Department of Health Certificate/Lab ID: LAO00299. **NELAP Accredited via LA-DEQ.**

Refer to MA-DEP Certificate for Non-Potable Water.

Refer to LA-DEQ Certificate for Non-Potable Water.

Texas Commission of Environmental Quality Certificate/Lab ID: T104704419-08-TX. **NELAP Accredited.**

Solid & Chemical Materials (Inorganic Parameters: EPA 6020, 7470, 7471, 1311, 7196, 9014, 9040, 9045, 9060. Organic Parameters: EPA 8015, 8270, 8260, 8081, 8082.)

Air (Organic Parameters: EPA TO-15)

U.S. Army Corps of Engineers

Department of Defense Certificate/Lab ID: L2217.01.

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 3051, 6020, 747A, 7474, 9045C, 9060, SM 2540G, ASTM D422-63. Organic Parameters: EPA 3580, 3570, 3540C, 5035, 8260B, 8270C, 8270 Alk-PAH, 8082, 8081A, 8015 (SHC), 8015 (DRO).

Air & Emissions (EPA TO-15.)

Analytes Not Accredited by NELAP

Certification is not available by NELAP for the following analytes: **8270C**: Biphenyl.

APPENDIX F

LABORATORY DATA VALIDATION
MEMORANDA



Memo

To: David Sullivan
From: Lorie MacKinnon
CC:
Date: 12/22/10
Re: Data Validation Review: Air Samples: Keith Middle School/New Bedford, MA: SDGs 10080261 and 10080262

SUMMARY

Limited (Tier II) validation was performed on the data for 16 air samples and three trip blank samples collected at the Keith Middle School in New Bedford, Massachusetts. The samples were collected on August 25, 2010 and submitted to Northeast Analytical, Inc. (NEA) in Schenectady, New York for analysis. All air vent samples were collected on polyurethane foam (PUF) cartridges in accordance with EPA method TO-10A; all ambient air samples were collected on particulate filters and PUF cartridges in accordance with EPA method TO-4A. The samples were analyzed for polychlorinated biphenyl (PCB) homologues using EPA method 680. NEA reported the results under job numbers 10080261 and 10080262.

The sample results were assessed using the *EPA New England Data Validation Functional Guidelines for Evaluating Environmental Analyses*, revised December 1996. Modification of these guidelines was performed to accommodate the non-CLP methodology.

In general, the data appear to be valid as reported and may be used for decision-making purposes. Potential uncertainty exists for the results for tetrachlorobiphenyl in samples BG-24 and BG-24 DUP due to high relative percent differences in the evaluation of the field duplicate pairs. This issue has a minor impact on the data usability; all results are still usable for project objectives.

SAMPLES

Samples included in this review are listed below:

10080261

VS-9-24

VS-9-24 DUP (1)

VS-10-24

VS-1-24
VS-BG-24
A-24
Trip Blank-24

VS-4-24
C-24
BG-24

VS-TB-24
B-24
BG-24-DUP (2)

10080262

C-24 (filter)
BG-24 (filter)

B-24 (filter)
BG-24 DUP (filter) (3)

A-24 (filter)
Trip Blank-24 (filter)

- (1) Field duplicate of VS-9-24
- (2) Field duplicate of BG-24
- (3) Field duplicate of BG-24 (filter)

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with TRC requests
- Holding times and sample preservation
- Gas chromatography/mass spectrometry (GC/MS) tunes
- Initial and continuing calibrations
- Blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Internal standard performance
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with TRC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the chain-of-custody and any correspondence between TRC and the laboratory.

Holding Times and Sample Preservation

All samples were extracted and analyzed within the method-specified holding time.

GC/MS Tunes

The frequency and abundance of all decafluorotriphenylphosphine (DFTPP) tunes were within the acceptance criteria. The samples were analyzed within 12 hours from the DFTPP tunes. Window defining mixtures were analyzed following each DFTPP tune.

Initial and Continuing Calibrations

The %RSDs and %Ds of all PCB congeners used in the initial and continuing calibrations were within the acceptance criteria.

Blanks

Target compounds were not detected in the laboratory method blanks or trip blanks associated with the PCB homologue analyses.

Surrogate Spike Recoveries

Select samples exhibited surrogate recoveries outside the acceptance criteria. The following table summarizes the surrogate recoveries in the affected samples.

Sample ID Control Limit (PUF) Control Limit (Filter)	TCMX 44-104 18-137	DCB 70-116 42-134	Validation Actions
Trip Blank-24 (filter)	Criteria Met	136%	Validation action was not required as the results were nondetect and therefore not affected by the potential high bias.

LCS Results

An LCS and LCSD was extracted and analyzed with each extraction batch. The following table summarizes the compounds recovered outside of the control limits and the resulting validation actions.

Compound	LCS ID: Associated Samples	Recovery (%)	Control Limits	
2-Chlorobiphenyl	LCS-88: Filter samples C-24, B- 24, A-24, BG-24, BG-24-DUP, Trip Blank-24	80.6	28.7-8.9	Validation action was not required as the results for the affected homolog groups were nondetect and therefore not affected by the potential high bias.

Internal Standard Performance

All internal standard criteria were met.

Field Duplicate Results

Samples BG-24/BG-24 DUP (Filter), VS-9-24/VS-9-24 DUP (PUF), and BG-24/BG-24 DUP (PUF) were submitted as the field duplicate (collocated) pairs with this sample set. PCBs were not detected in samples BG-24/BG-24 DUP (Filter) and VS-9-24/VS-9-24 DUP (PUF).

The following table summarizes the RPDs of the detected analytes in sample pair BG-24/BG-24 DUP (PUF), which were within the acceptance criteria of 20%RPD or the difference of <2 times the reporting limit (RL), with the exception of dichlorobiphenyl and tetrachlorobiphenyl. The positive results for dichlorobiphenyl and tetrachlorobiphenyl in samples BG-24 and BG-24 DUP (PUF) were estimated (J).

Parameter	BG-24 (PUF) (ug/m3)	BG-24 DUP (PUF) (ug/m3)	RPD (%)
Dichlorobiphenyl	0.000455	0.000357	24.1
Trichlorobiphenyl	0.00187	0.00182	2.7
Tetrachlorobiphenyl	0.000534	0.000734	31.5
Total PCB	0.00286	0.00291	1.7

Quantitation Limits and Sample Results

The quantitation limits met the requirements in the Sampling Plan for this program.



Memo

To: David Sullivan
From: Lorie MacKinnon
CC:
Date: 12/22/0
Re: Data Validation Review: Air Samples: Keith Middle School/New Bedford, MA: SDG L1013397 and L1013402

SUMMARY

Limited (Tier II) validation was performed on the data for 11 air samples and two trip blank samples collected at the Keith Middle School, Massachusetts. The samples were collected on August 25, 2010 and submitted to Alpha Woods Hole Labs (Alpha) in Westborough, MA for analysis. All air vent samples were collected in 2 liter SUMMA® canisters in accordance with EPA method TO-15A; all ambient air samples were collected in 6 liter SUMMA® canisters in accordance with EPA method TO-15A. The samples were analyzed for volatile organic compounds using EPA method TO-15A.

The sample results were assessed using the *EPA New England Data Validation Functional Guidelines for Evaluating Environmental Analyses*, revised December 1996. Modification of these guidelines was performed to accommodate the non-CLP methodology.

In general, the data appear to be valid as reported and may be used for decision-making purposes. The results for benzyl chloride in samples VS-9-24, VS-9-24 DUP, and VS-10-24, propylene, chloromethane, 1,3-butadiene, 4-methyl-2-pentanone, and 1,2,4-trichlorobenzene in samples C-24, B-24, A-24, BG-24, BG-24 DUP, and TB-24, and vinyl acetate, 1,2-dichloroethane, 1,1,1-trichloroethane, carbon tetrachloride, and 1,1,2-trichloroethane in samples VS-1-24, VS-4-24, VS-BG-24, and VS-TB-24 should be qualified as estimated (J/UJ) due to calibration nonconformances. The results for tetrachloroethene in samples VS-9-24 and VS-9-24 DUP should be qualified as estimated (J) due to field duplicate precision results. The results for acetone in samples VS-9-24 and VS-9-24 DUP, propylene and chloromethane in samples VS-1-24 and VS-4-24, and chloromethane in sample A-24 should be qualified as estimated (J) due to possible co-elution with non-target compounds. The direction of the bias cannot be determined from these nonconformances. Due to the interference of non-target compounds, the presence of chloromethane and Freon-114 in samples VS-9-24, VS-9-24 DUP, and VS-10-24 and chloromethane in samples C-24 and B-24 could not be confirmed. These affected nondetect results were qualified as estimated (UJ).

SAMPLES

Samples included in this review are listed below:

L1013397

VS-9-24	VS-9-24 DUP (1)	VS-10-24
VS-1-24	VS-4-24	VS-BG-24
VS-TB-24		

L1013402

C-24	B-24	A-24
BG-24	BG-24 DUP (2)	TB-24

- 1) Field duplicate of VS-9-24
- 2) Field duplicate of BG-24

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with TRC requests
- Holding times and sample preservation
- Gas chromatography/mass spectrometry (GC/MS) tunes
- Initial and continuing calibrations
- Method blanks
- System Monitoring Compound recoveries
- Laboratory Duplicate results
- Laboratory control sample (LCS) results
- Internal standard performance
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with TRC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the chain-of-custody and any correspondence between TRC and the laboratory.

Holding Times and Sample Preservation

All samples were analyzed within the method-specified holding time.

GC/MS Tunes

The frequency and abundance of all bromofluorobenzene (BFB) tunes were within the acceptance criteria.

Initial and Continuing Calibrations

The relative standard deviation (%RSD) of benzyl chloride (34.2) was outside of the acceptance criteria in the initial calibration associated with samples VS-9-24, VS-9-24 DUP, and VS-10-24. The nondetect

results for benzyl chloride were estimated (UJ) in these samples due to initial calibration nonconformances.

The percent differences (%Ds) for propylene (27.5), chloromethane (25.1), 1,3-butadiene (25.9), 4-methyl-2-pentanone (29.5), and 1,2,4-trichlorobenzene (32.0) were outside of the acceptance criteria in the continuing calibration associated with samples C-24, B-24, A-24, BG-24, BG-24 DUP, and TB-24. The positive and nondetect results for propylene, chloromethane, 1,3-butadiene, 4-methyl-2-pentanone, and 1,2,4-trichlorobenzene were estimated (J/UJ) in these samples due to continuing calibration nonconformances.

The percent differences (%Ds) for vinyl acetate (28.7), 1,2-dichloroethane (25.8), 1,1,1-trichloroethane (27.1), carbon tetrachloride (29.9), and 1,1,2-trichloroethane (27.9) were outside of the acceptance criteria in the continuing calibration associated with samples VS-1-24, VS-4-24, VS-BG-24, and VS-TB-24. The positive and nondetect results for vinyl acetate, 1,2-dichloroethane, 1,1,1-trichloroethane, carbon tetrachloride, and 1,1,2-trichloroethane were estimated (J/UJ) in these samples due to continuing calibration nonconformances.

Blanks

Target compounds were not detected in the laboratory method blank and trip blank samples associated with the volatile organic compound analyses.

Target compounds were not detected in the canister certification samples Can 239 Shelf 1, Can 586 Shelf 36, and Can 629 Shelf 42, which were reported under jobs L1011753, L1011289, and L1011587.

System Monitoring Compound Recoveries

System monitoring compounds were not introduced to these samples. Evaluation of the samples based on system monitoring compound recovery was not performed.

Laboratory Duplicate Results

The laboratory performed duplicate analyses on samples VS-10-24 and A-24. All relative percent differences (RPDs) were within the laboratory control limit of 25.

LCS Results

LCS samples were analyzed along with the field samples. All recovery criteria were met.

Internal Standard Performance

Internal standards were within the acceptance criteria in all sample analyses.

Field Duplicate Results

Samples VS-9-24 and VS-9-24 DUP were submitted as the field duplicate (collocated) pair with this sample set. The following table summarizes the relative percent differences (RPDs) of the target VOCs detected in either sample, all of which were within the acceptance criteria of 20%RPD or the difference of <2 times the reporting limit (RL), with the exception of tetrachloroethene. The positive results for tetrachloroethene in samples VS-9-24 and VS-9-24 DUP were estimated (J).

VOCs	VS-9-24 ($\mu\text{g}/\text{m}^3$)	VS-9-24 DUP ($\mu\text{g}/\text{m}^3$)	RPD (%)
Benzene	0.635	1.12	55.3, Within 2xRL
Chloroform	8.77	10.4	17.0
Tetrachloroethene	3.73	6.66	56.4
Trichloroethene	0.209	0.231	10.0
Acetone	52.1	35.7	37.4, Within 2xRL
Methyl tert-butyl ether	8.61	7.64	11.9
2-Butaone	10.5	8.25	24.0
Tetrahydrofuran	8.13	12.4	41.6, Within 2xRL

Samples BG-24 and BG-24 DUP were submitted as the field duplicate (collocated) pair with this sample set. The following table summarizes the relative percent differences (RPDs) of the target VOCs detected in either sample, all of which were within the acceptance criteria of 20%RPD or the difference of <2 times the reporting limit (RL).

VOCs	BG-24 ($\mu\text{g}/\text{m}^3$)	BG-24 DUP ($\mu\text{g}/\text{m}^3$)	RPD (%)
Dichlorodifluoromethane	2.62	2.55	2.7
Chloromethane	1.04	1.09	4.7
Acetone	3.50	3.21	8.6
Trichlorofluoromethane	1.56	1.46	6.6

Quantitation Limits and Sample Results

The laboratory noted in the case narrative that the presence of select compounds could not be determined or select compounds should be considered estimates due to non-target compound interferences. The following table summarizes these compound identification issues.

Sample	Compound	Identification Issue	Validation Action
VS-9-24	Chloromethane Freon-114	Non-target compounds interfered with possible identification of these compounds	Estimate (UJ) the nondetect results for chloromethane and Freon-114 in samples VS-9-24, VS-9-24 DUP, and VS-10-24.
VS-9-24 DUP			
VS-10-24			
VS-9-24	Acetone	Co-elution with non-target compound	Estimate (J) the positive results for acetone in samples VS-9-24 and VS-9-24 DUP.
VS-9-24 DUP			
VS-1-24	Propylene	Co-elution with non-target compound	Estimate (J) the positive results for propylene and chloromethane in samples VS-1-24 and VS-4-24.
VS-4-24	Chloromethane		
C-24	Chloromethane	Non-target compounds interfered with possible identification of these compounds	Estimate (UJ) the nondetect results for chloromethane in samples C-24 and B-24.
B-24			
A-24	Chloromethane	Co-elution with non-target compound	Estimate (J) the positive result for chloromethane in sample A-24.

Samples VS-9-24, VS-9-24 DUP, and VS-10-24 were analyzed at 10-fold dilutions due to elevated concentrations of non-target compounds in these samples.

Sample VS-1-24 was analyzed straight and at a 10-fold dilution due to the high level of acetone. The results were combined by the validator to report all results within the calibration range and the lowest sample reporting limits.

APPENDIX G

**DISCUSSION OF RISK-BASED COMPARISON
CRITERIA**

DISCUSSION OF RISK-BASED COMPARISON CRITERIA

PCBs

Two PCB risk-based air concentrations (RBACs) have been developed for the KMS, assuming occupational exposures within the school (8 hours/day, 250 days/year, for 25 years). Both non-carcinogenic and carcinogenic health endpoints were considered in the calculation of the RBACs; however, RBACs are based on noncarcinogenic effects as the most sensitive endpoint. The first RBAC is the Action Level (AL; 0.05 ug/m^3) used as an initial indicator that PCB air concentrations above background levels have been detected. The risk basis for the AL is a noncarcinogenic hazard index of approximately 0.2. The second RBAC is the Acceptable Long-Term Average Exposure Concentration (ALTAEC; 0.3 ug/m^3), indicative of the maximum acceptable air concentration that should not be exceeded for an extended time period. The ALTAEC could be exceeded over the short-term and still result in acceptable risk levels. The risk basis for the ALTAEC is a noncarcinogenic hazard index of one.

Both RBACs were developed to be applied to a total PCB air concentration. PCB homologues have been quantified and summed to generate total PCB air concentrations. By quantifying PCB homologues, total PCB air data gathered at the KMS are directly comparable to total PCB air data gathered at the high school since both are based on homologues rather than congeners, which greatly facilitates communication and discussion with the general public on the results of analyses.

In September 2009, EPA published Public Health Levels (PHLs) for PCBs which are calculated indoor air concentrations that maintain PCB exposures below a level that EPA = believes does not cause harm. PHLs were calculated for all ages of children from toddlers in day care to adolescents in high school as well as for adult school employees. In this report, indoor air PCB concentrations are compared to the PHL (0.453 ug/m^3) for adult school employees and children 12 to <15 years old, representative of the middle school age range. In calculating the PHL, EPA considered average PCB exposures from both school (e.g., school indoor and outdoor air, indoor dust and nearby outside soils) and non-school (e.g., diet, outside soils, indoor dust, and indoor and outdoor air) environments. EPA assumed that middle school children spend 6.5-hours per day at school (with 6 hours spent inside the school) for a 180-day school year.

The LTMMIP specifies that both indoor air and vent stack air gas-phase total PCB concentrations are to be compared to RBACs. This comparison is appropriate for indoor air results since exposures to indoor air at the KMS are occurring over a similar duration and frequency as that assumed for RBAC development (8 hours/day, 250 days/year for 25 years). However, this comparison is less appropriate for vent stack air results. The vent system is designed to capture gas-phase PCBs from the subsurface beneath the KMS and convey the gases through PVC piping to outdoor air, limiting migration through the building slab and into indoor air. Little if any human exposure to air within the vent stack system itself is taking place. Air from the vent stack is vented to outdoor air where the PCBs are quickly diluted and dispersed. Therefore, comparison of vent stack air results to RBACs developed assuming exposures of 8

hours/day, 250 days/year for 25 years is highly conservative, if not conceptually irrelevant. The results of the comparison of vent stack air results to RBACs should be interpreted with caution due to the significantly reduced degree of exposure to vent stack air that can be experienced by individuals in comparison to indoor air.

VOCs

Comparison criteria for VOC data include MassDEP Threshold Effects Exposure Limits (TELs) and Allowable Ambient Limits (AALs), published in December 1995, consistent with the LTMMIP. TELs are developed to be applicable to short-term exposure concentrations (average 24-hour levels) while AALs are developed to be protective of long-term exposure concentrations (average annual levels over 30 years). AALs and TELs are risk-based values, corresponding to the lower of a non-carcinogenic hazard of 0.2 or an excess lifetime cancer risk of one in one million (1×10^{-6}) for potentially carcinogenic compounds. Indoor air and vent stack air VOC concentrations are conservatively compared to both criteria even though it is unlikely that actual exposures to measured air concentrations would occur for either an entire 24-hour day or continually for 30 years. Short-term exposures at the KMS are likely to occur for approximately 8 hours per day, while long-term exposures are likely to occur for approximately 250 days/year for an exposure duration of 25 years.

Because TELs and AALs have not been revised since 1995 and may not include the most up-to-date toxicity information available, VOC concentrations in excess of AALs and TELs are discussed relative to alternate comparison criteria. The alternate comparison criteria are primarily residential and commercial EPA screening levels (EPA SLs) developed by Oak Ridge National Laboratory (November 2010) using the most current toxicity information available. Similar to AALs, residential EPA SLs are applicable to continuous long-term exposures. Commercial EPA SLs are more applicable to the actual exposures occurring at the KMS (8 hours/day, 250 days/year for 25 years). Residential and commercial EPA SLs are associated with the same cancer risk threshold used in establishing AALs and TELs. However, EPA SLs are based on a hazard of 1 for non-carcinogenic endpoints. Therefore, EPA SLs provided on Tables 6-1 and 6-2 have been adjusted to a non-carcinogenic hazard of 0.2 to be consistent with AALs and TELs based on non-carcinogenic effects. In interpreting concentrations in excess of residential EPA SLs, it is important to consider how the frequency and duration of actual exposures may differ from continuous long-term exposures assumed for residential EPA SL development.

Because AALs, TELs, and EPA SLs are set at risk levels (i.e., non-carcinogenic hazard of 0.2 and excess lifetime cancer risk of 1×10^{-6}) that are only a portion of the MassDEP risk management criteria of a non-carcinogenic hazard of 1 and an excess lifetime cancer risk of one in one-hundred thousand (1×10^{-5}), concentrations that slightly exceed (i.e., less than 5-fold) one or more comparison criteria may not be cause for concern, especially considering that actual exposures may be of lesser duration and frequency than assumed in comparison criteria development.

For compounds lacking comparison criteria, detected concentrations are discussed relative to available comparison criteria for a surrogate compound, selected based on similarities in

chemical structure and/or known toxicity. Compounds lacking comparison criteria are also discussed relative to site-specific outdoor and indoor air background concentrations, as available.

Levels of VOCs in air present as a result of background or ambient conditions were not factored into the establishment of comparison criteria. Therefore, comparison criteria may be set at values that are below typical background levels of VOCs in indoor air, present as a result of off-gassing from building materials or consumer products that contain VOCs. To account for anticipated background conditions at the KMS, VOC concentrations in excess of comparison criteria are framed relative to site-specific outdoor air background concentrations, indicating ambient conditions in the vicinity of site. To provide additional perspective, VOC concentrations in excess of comparison criteria are also discussed relative to MassDEP indoor air background values. Therefore, the presence of one or more VOCs at concentrations that exceed comparison criteria should be interpreted with caution and may not indicate the need for immediate action.

There are a small number of compounds in indoor air, vent air, and outdoor air background samples for which reporting limits exceed comparison criteria set at very low values, which are not readily achievable with standard analytical methods. The comparison criteria for each of the affected compounds (i.e., benzene, chloroform, methylene chloride, styrene, tetrachloroethene, and trichloroethene) are based on an excess lifetime cancer risk of 1×10^{-6} for continuous lifetime exposure. For these compounds, the reporting limit typically exceeds the comparison criteria by 10-fold or less, indicating that the reporting limit is associated with an excess lifetime cancer risk of up to 1×10^{-5} for long-term exposures. However, because the development of comparison criteria does not consider airborne levels present as a result of background or ambient activities, it is important to note that comparison criteria for these compounds are set at levels that are below typical indoor air background levels and cannot be distinguished from levels in site-specific outdoor air samples.

APPENDIX H

INDOOR AIR RISK CALCULATIONS – COMMERCIAL WORKER

Table 1. Summary of Detected Analytical Results for Indoor Air Samples - 2007 through 2010
Keith Middle School
New Bedford, Massachusetts

Analysis	Analyte	# of Samples	# of Detects	Freq. of Detects	Min. of Detects (ug/m3)	Max. of Detects (ug/m3)	Location of Max. Detected	Min. of Non-Detects (ug/m3)	Max. of Non-Detects (ug/m3)	Mean Concentration (ug/m3)	EPC (ug/m3)	EPC Basis
VOCs (ug/m3)	1,2,4-trichlorobenzene	42	2	4.8%	11.7	12.2	A-11	1.48	3.71	1.8E+00	12.2	Max. of Detects
	1,2,4-trimethylbenzene	42	11	26.2%	0.982	4.85	C-13	0.982	2.46	1.1E+00	1.561	95% Chebyshev (Mean, Sd) UCL
	2,2,4-Trimethylpentane	42	4	9.5%	0.934	1.11	A-20	0.934	2.33	8.1E-01	1.11	Max. of Detects
	2-butanone	42	31	73.8%	0.669	23.6	A-11	0.589	1.47	3.6E+00	4.692	95% Approximate Gamma UCL
	acetone ⁽¹⁾	42	39	92.9%	2.56	134	A-13	4.75	13.3	2.4E+01	30.72	95% Approximate Gamma UCL
	Benzene	24	22	91.7%	0.338	1.08	C-16	0.319	0.319	6.6E-01	0.752	95% Student's-t UCL
	Carbon Disulfide	27	7	25.9%	0.622	1.66	A-20	0.622	1.56	4.9E-01	0.59	95% Student's-t UCL
	Chloroform	24	17	70.8%	0.101	0.245	C-17	0.098	0.098	1.2E-01	0.176	95% Chebyshev (Mean, Sd) UCL
	chloromethane	36	8	22.2%	0.433	15	C-13	0.413	1.03	1.0E+00	2.866	95% Chebyshev (Mean, Sd) UCL
	cyclohexane	42	10	23.8%	0.688	7.36	C-13	0.688	1.72	9.2E-01	1.716	95% Chebyshev (Mean, Sd) UCL
	Dichlorodifluoromethane	24	24	100.0%	1.99	3.1	C-24	--	--	2.4E+00	2.519	95% Student's-t UCL
	ethanol ⁽¹⁾	42	41	97.6%	4.16	191	C-17	4.71	4.71	3.0E+01	53.84	95% Chebyshev (Mean, Sd) UCL
	ethylbenzene	42	13	31.0%	0.868	10.1	A-19	0.868	2.17	1.6E+00	2.979	95% Chebyshev (Mean, Sd) UCL
	Ethyl Acetate	24	4	16.7%	1.8	1.94	C-17	1.8	1.8	1.1E+00	1.94	Max. of Detects
	Freon-113	24	4	16.7%	1.53	2.02	C-17	1.53	1.53	9.1E-01	2.02	Max. of Detects
	isopropanol ⁽¹⁾	42	29	69.0%	1.25	42.6	C-19	1.23	1.23	4.4E+00	9.104	95% Chebyshev (Mean, Sd) UCL
	methylene chloride ⁽¹⁾	36	9	25.0%	1.74	318	C-14	1.74	4.86	1.1E+01	49.67	95% Chebyshev (Mean, Sd) UCL
	Methyl Isobutyl Ketone	24	8	33.3%	0.819	18.8	B-17	0.819	0.819	1.9E+00	5.692	95% Chebyshev (Mean, Sd) UCL
	p/m-xylene	42	14	33.3%	1.74	39	A-19	1.74	4.34	4.8E+00	10.46	95% Chebyshev (Mean, Sd) UCL
	o-xylene	42	12	28.6%	0.868	14	B-17	0.868	2.17	2.1E+00	4.378	95% Chebyshev (Mean, Sd) UCL
	n-heptane	42	8	19.0%	0.819	16.5	A-11	0.819	2.05	1.1E+00	2.772	95% Chebyshev (Mean, Sd) UCL
	n-hexane	42	13	31.0%	0.715	145	C-14	0.704	3.52	4.7E+00	19.65	95% Chebyshev (Mean, Sd) UCL
	Propylene	42	4	9.5%	0.44	0.506	B-23	0.344	1.72	5.0E-01	0.718	95% Chebyshev (Mean, Sd) UCL
	styrene	42	19	45.2%	0.868	7.26	A-14	0.851	2.13	1.7E+00	2.827	95% Chebyshev (Mean, Sd) UCL
Tetrachloroethylene	24	13	54.2%	0.136	0.393	A-20	0.136	0.136	1.4E-01	0.223	95% Chebyshev (Mean, Sd) UCL	
tetrahydrofuran	36	5	13.9%	0.589	7.05	A-13	0.589	1.47	8.2E-01	1.746	95% Chebyshev (Mean, Sd) UCL	
toluene	42	35	83.3%	0.777	33.1	A-11	0.753	1.88	3.8E+00	4.903	95% Approximate Gamma UCL	
Trichloroethylene	24	8	33.3%	0.107	0.215	A-19	0.107	0.107	8.8E-02	0.137	95% Chebyshev (Mean, Sd) UCL	
trichlorofluoromethane	42	20	47.6%	1.18	3.08	C-14	1.12	2.81	1.4E+00	1.481	95% Student's-t UCL	
PCBs (ug/m3)	Total PCBs	39	32	82.1%	0.00031	0.013	A-19	0.000071	0.00038	2.7E-03	0.00386	95% Approximate Gamma UCL

Notes:

ug/m3 - micrograms per cubic meter.

Values in **Bold** indicate the compound was detected.

VOCs - Volatile Organic Compounds.

PCBs - polychlorinated biphenyls.

(1) Compound is a common laboratory contaminant and detects may be associated with laboratory contamination for 2007 samples.

EPC - Exposure point concentration.

UCL - Upper concentration limit.

Table 2
Commercial Worker Risk Evaluation
Inhalation of Air Exposure Pathway
Keith Middle School
New Bedford, MA

Constituent	EPC	Estimated Dose		Toxicity Values			Risk Estimates	
	Indoor Air Concentration µg/m3	ADEcancer (Cancer) µg/m3	ADEnon-cancer (Non-cancer) µg/m3	Unit Risk (µg/m3) ⁻¹	Chronic Noncancer Reference Concentration µg/m3	Cancer Risk (--)	Hazard Quotient (--)	
1,2,4-Trichlorobenzene	12.2	9.9E-01	2.8E+00	NA	(1) 2.0E+02	(1) NA	1.E-02	
2-Butanone	4.69	3.8E-01	1.1E+00	NA	(1) 5.0E+03	(1) NA	2.E-04	
Acetone	30.7	2.5E+00	7.0E+00	NA	(1) 8.0E+02	(1) NA	9.E-03	
Carbon disulfide	0.59	4.8E-02	1.3E-01	NA	7.0E+02	(2) NA	2.E-04	
Ethyl acetate	1.94	1.6E-01	4.4E-01	NA	3.0E+03	(8) NA	1.E-04	
Benzene	0.752	6.1E-02	1.7E-01	7.8E-06	(1) 3.0E+01	(1) 5.E-07	6.E-03	
Chloroform	0.176	1.4E-02	4.0E-02	2.3E-05	(1) 6.6E+02	(1) 3.E-07	6.E-05	
Chloromethane	2.866	2.3E-01	6.5E-01	NA	(2) 9.0E+01	(2) NA	7.E-03	
Difluorodichloromethane	2.519	2.1E-01	5.8E-01	NA	2.0E+02	(3) NA	3.E-03	
Ethylbenzene	2.979	2.4E-01	6.8E-01	NA	(1) 1.0E+03	(1) NA	7.E-04	
Freon 113	2.02	1.6E-01	4.6E-01	NA	3.0E+04	(3) NA	2.E-05	
Methylene chloride	49.67	4.1E+00	1.1E+01	4.7E-07	(1) 3.0E+03	(1) 2.E-06	4.E-03	
Methyl isobutyl ketone	5.692	4.6E-01	1.3E+00	NA	(1) 3.0E+03	(1) NA	4.E-04	
Styrene	2.827	2.3E-01	6.5E-01	5.7E-07	(1) 1.0E+03	(1) 1.E-07	6.E-04	
Tetrachloroethene	0.223	1.8E-02	5.1E-02	5.5E-05	(1) 4.6E+03	(1) 1.E-06	1.E-05	
Tetrahydrofuran	1.746	1.4E-01	4.0E-01	1.9E-06	(7) 3.0E+02	(7) 3.E-07	1.E-03	
Toluene	4.903	4.0E-01	1.1E+00	NA	(1) 5.0E+03	(1) NA	2.E-04	
Trichlorofluoromethane	1.481	1.2E-01	3.4E-01	NA	7.0E+02	(3) NA	5.E-04	
Trichloroethene	0.137	1.1E-02	3.1E-02	1.7E-06	(1) 1.8E+02	(1) 2.E-08	2.E-04	
Xylenes	14.838	1.2E+00	3.4E+00	NA	(1) 1.0E+02	(1) NA	3.E-02	
n-Hexane	19.65	1.6E+00	4.5E+00	NA	(4) 2.0E+02	(4) NA	2.E-02	
n-Heptane	2.77	2.3E-01	6.3E-01	NA	(4) 2.0E+02	(4) NA	3.E-03	
Cyclohexane	1.716	1.4E-01	3.9E-01	NA	(4) 2.0E+02	(4) NA	2.E-03	
1,2,4-Trimethylbenzene	1.561	1.3E-01	3.6E-01	NA	(5) 5.0E+01	(5) NA	7.E-03	
2,2,4-Trimethylpentane	1.11	9.1E-02	2.5E-01	NA	(4) 2.0E+02	(4) NA	1.E-03	
Ethanol	53.84	4.4E+00	1.2E+01	NA	4.0E+03	(6) NA	3.E-03	
Isopropanol	9.10	7.4E-01	2.1E+00	NA	4.0E+03	(6) NA	5.E-04	
Propylene	0.718	5.9E-02	1.6E-01	NA	(5) 5.0E+01	(5) NA	3.E-03	
PCBs	0.00386	3.1E-04	8.8E-04	1.0E-04	(1) 2.0E-02	(1) 3.E-08	4.E-02	

Where:

LADEcancer = IAC x EFx ED x EP/APcancer
ADEnon-cancer = IAC x EF x ED x EP / APhon-cancer
Cancer Risk = LADEcancer x UR
Hazard Quotient = ADEnon-cancer / Inhalation Reference Concentration

LADE = Life Time Average Daily Exposure
ADE = Average Daily Exposure
EPC = Exposure Point Concentration
µg/m³ = micrograms per cubic meter

And where:
Exposure Frequency (EF) = 250 days/year (5 days a week for 50 weeks of exposure)
Exposure Duration (ED) = 8 hrs/event [1]
Exposure Period (EP) = 25 yr [1]
Unit Conversion (UC) = 0.04 days/hr
Averaging Period (APcancer) = 25550 days [1]
Averaging Period (APnon-cancer) = 9125 days [1]

[1] MADEP, 2008

	Cancer Risk	Hazard Index
TOTAL:	4E-06	2.E-01

Bold = Cancer Risk >1.0E-05 or Hazard Quotient > 1.0E+01

- Sources of Toxicity Values:
(1) MassDEP 2008; MCP standards derivation
(2) IRIS, 2008
(3) HEAST, 1997
(4) Used C5-C8 aliphatic value from MassDEP 2008
(5) Used C9-C10 aromatic value from MassDEP 2008
(6) California EPA Reference Exposure Level for methanol
(7) EPA provisional value from the Superfund Technical Support Center
(8) Converted from IRIS RfD (0.9 mg/kg-day x 70 kg x 1/20 m3/day x 1000)