

**VOC SOURCE ASSESSMENT AND  
CONFIRMATORY INDOOR AIR SAMPLING  
B002/B004/B008/B012/B077/B416**

*IBM Poughkeepsie Facility  
Poughkeepsie, New York  
NYSDEC Site No. 314001*



Poughkeepsie, New York

*Prepared for IBM Corporation  
File No. 3463.00  
October 2014*



2455 South Road  
Poughkeepsie, NY 12601

October 31, 2014

Alex G. Czuhanich  
New York State Department of Environmental Conservation  
Division of Environmental Remediation  
Remedial Bureau E, 12<sup>th</sup> Floor  
625 Broadway  
Albany, New York 12233-7017

Kristin Kulow  
New York State Department of Health  
28 Hill Street, Suite 201  
Oneonta, New York 13820

Re: Report of Findings  
VOC Source Assessment and Confirmatory Indoor Air Sampling -  
B002/B004/B008/B012/B077/B416  
RCRA Facility Investigation  
IBM Poughkeepsie Facility  
Poughkeepsie, New York  
EPA ID No. NYD080480734, NYSDEC Site No. 314001

Dear Mr. Czuhanich and Ms. Kulow:

The enclosed report presents the findings of our assessment of sources of certain volatile organic compounds (VOCs), and confirmatory indoor air sampling, in six buildings (B002/B004/B008/B012/B077/B416) at the IBM Poughkeepsie facility located at 2455 South Road, Poughkeepsie, New York. This work was conducted consistent with the objectives and procedures described in IBM's Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Work Plan, which was approved by the New York State Department of Environmental Conservation and the New York State Department of Health (the Agencies) in an August 12, 2013 letter to IBM.

If you wish to further discuss this document or have questions, please contact Mr. Steve Brannen of IBM at (845) 433-1509.

Sincerely,  
International Business Machines Corporation

Michael Phelan, Manager  
Environmental, Planning and Site Support Services

cc: W. Palomino, USEPA Region 2 (cover letter only)  
A. Everett, USEPA Region 2 (cover letter only)

**VOC SOURCE ASSESSMENT AND  
CONFIRMATORY INDOOR AIR SAMPLING  
B002/B004/B008/B012/B077/B416**

IBM Poughkeepsie Facility  
Poughkeepsie, New York  
NYSDEC Site No. 314001

*Prepared for*  
**IBM Corporation**



*Prepared by*  
**Sanborn, Head Engineering, P.C.**

File 3463.00  
October 2014

# REPORT OF FINDINGS

## VOC SOURCE ASSESSMENT AND CONFIRMATORY INDOOR AIR SAMPLING – B002/B004/B008/B012/B077/B416

### TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	I
1.0 INTRODUCTION .....	1
1.1 Report Organization .....	1
1.2 Objectives and Scope.....	2
2.0 BACKGROUND INFORMATION .....	2
2.1 Regulatory Status and Remediation .....	2
2.2 Subsurface Conditions.....	3
2.2.1 Hydrogeologic Conditions .....	3
2.2.2 Contaminant Distribution.....	4
3.0 VOC SOURCE ASSESSMENTS AND CONFIRMATORY SAMPLING APPROACH...	6
4.0 B002 ASSESSMENT AND FINDINGS.....	7
4.1 B002 Building Characteristics and Use .....	7
4.2 B002 HVAC System Overview .....	7
4.3 B002 Initial Indoor Air Field Screening.....	8
4.4 B002 Targeted Screening and Completed Actions.....	8
4.5 B002 Re-Screening and Confirmatory Sampling Indoor Air Results .....	10
5.0 B004 ASSESSMENT AND FINDINGS.....	11
5.1 B004 Building Characteristics and Use .....	11
5.2 HVAC System Overview .....	11
5.3 B004 Initial Field Screening.....	12
5.4 B004 Initial Targeted Screening and Completed Actions .....	12
5.5 B004 Re-Screening and Confirmatory Sampling Indoor Air Results .....	14
5.6 B004 Loading Dock Area Additional Field Screening and Completed Actions.....	15
5.7 B004 Loading Dock Area Subslab Differential Pressure Monitoring.....	16
5.8 B004 Loading Dock Area Subslab SVE Pilot Testing .....	16
5.8.1 Subslab SVE Testing Procedures.....	17
5.8.2 Subslab SVE Testing Results .....	17
5.9 Subslab SVE System Design Basis – B004 Loading Dock Area.....	18
5.9.1 Extraction Port Configuration and Target Operating Conditions.....	19
5.9.2 Process Flow Diagram .....	19
5.9.3 VOC Mass Removal and Treatment.....	20
5.10 B004 Summary and Next Steps.....	20
6.0 B008 ASSESSMENT AND FINDINGS.....	21
6.1 B008 Building Characteristics and Use .....	21



6.2	B008 HVAC System Overview .....	21
6.3	B008 Initial Field Screening.....	21
6.4	B008 Completed Actions .....	22
6.5	B008 Re-Screening and Confirmatory Sampling of Indoor Air Results .....	22
7.0	B012 ASSESSMENT AND FINDINGS.....	23
7.1	B012 Building Characteristics and Use .....	23
7.2	B012 HVAC System Overview .....	23
7.3	B012 Initial Field Screening.....	24
7.4	B012 Completed Actions .....	24
7.5	Re-Screening and Confirmatory Sampling Indoor Air Results .....	24
8.0	B077/B416 ASSESSMENT AND FINDINGS .....	25
8.1	Building Characteristics and Use .....	25
8.2	HVAC System Overview .....	26
8.3	Field Screening and Confirmatory Sampling Results.....	26
8.3.1	B077 Results .....	26
8.3.2	B416 Results.....	27
8.3.3	Summary for B077 and B416.....	27
9.0	QUALITY ASSURANCE/QUALITY CONTROL .....	27
10.0	CONCLUSIONS.....	28

## EXHIBITS

Exhibit 2.1	Conceptual Schematic of Site Hydrogeology
Exhibit 2.2	Summary of Source Assessment Activities and Completed Actions
Exhibit 4.1	Summary of B002 HVAC Operational Conditions
Exhibit 4.2	B002 Targeted Screening Results for Roof Drain and Manhole Cover Associated with Storm Drain System
Exhibit 4.3	Summary of B002 Targeted Screening Results Before Sealing
Exhibit 4.4	Summary of B002 HVAC Operational Adjustments
Exhibit 5.1	Summary of B004 HVAC Operational Conditions
Exhibit 5.2	Targeted Screening Result Manhole Associated with Storm Drain System
Exhibit 5.3	B004 Targeted Screening Results (Except the Loading Dock Area) Before Sealing
Exhibit 5.4	Summary of B004 HVAC Operational Adjustments
Exhibit 5.5	Targeted Screening and Completed Actions in B004 Loading Dock Area Before Sealing
Exhibit 5.6	HVAC Modifications in B004 Loading Dock Area
Exhibit 5.7	Extraction Port Blower Assembly
Exhibit 5.8	Subslab SVE Testing Data Summary
Exhibit 5.9	Portable GC/MS TCE Readings Collected During Pilot Testing at EP5002
Exhibit 5.10	B003/B004 Piping Configuration
Exhibit 5.11	Process Flow Diagram
Exhibit 6.1	Summary of Initial B008 HVAC Operational Conditions

Exhibit 6.2	Summary of B008 HVAC Operational Adjustments
Exhibit 7.1	Summary of Initial B012 HVAC Operational Conditions
Exhibit 7.2	Summary of HVAC Operational Adjustments
Exhibit 8.1	Summary of B416 HVAC Operational Conditions
Exhibit 10.1	Summary of VOC Concentrations in Indoor Air

## TABLES

Table 1	Summary of Portable GC/MS Indoor Air Screening Results
Table 2	Summary of Confirmatory Indoor Air Sample Information
Table 3	Summary of Indoor Air 8-Hour Confirmatory Sampling Results
Table 4	Summary of B004 Pilot Testing Laboratory Analytical Data

## FIGURES

Figure 1	Location Plan
Figure 2	Building Location and VOC Extent in Overburden Groundwater
Figure 3A	Building 002 Layout and HVAC Zones
Figure 3B	B002 Summary of TCE Screening in Indoor Air (Portable GC/MS Results)
Figure 3C	B002 Summary of TCE Concentrations in Indoor Air (8-Hour Sampling)
Figure 4A	Building 004 Layout and HVAC Zones
Figure 4B	B004 Summary of TCE Screening in Indoor Air (Portable GC/MS Results)
Figure 4C	B004 Summary of TCE Concentrations in Indoor Air (8-Hour Sampling)
Figure 4D	B004 Loading Dock Summary of TCE Screening in Indoor Air (Portable GC/MS Results)
Figure 4E	B004 Loading Dock Extraction Port and Subslab Vapor Monitoring Port Locations
Figure 4F	B004 Summary of Subslab Differential Pressure Monitoring
Figure 5A	Building 008 Layout and HVAC Zones
Figure 5B	B008 Summary of TCE Screening in Indoor Air (Portable GC/MS Results)
Figure 5C	B008 Summary of TCE Concentrations in Indoor Air (8-Hour Sampling)
Figure 6A	Building 012 Layout and HVAC Zones
Figure 6B	B012 Summary of TCE Screening in Indoor Air (Portable GC/MS Results)
Figure 6C	B012 Summary of TCE Concentrations in Indoor Air (8-Hour Sampling)
Figure 7A	Building 077 Layout
Figure 7B	B077 Summary of TCE Screening in Indoor Air (Portable GC/MS Results)
Figure 7C	B077 Summary of TCE Concentrations in Indoor Air (8-Hour Sampling)
Figure 8A	Building 416 Layout and HVAC Zones
Figure 8B	B416 Summary of TCE Screening in Indoor Air (Portable GC/MS Results)
Figure 8C	B416 Summary of TCE Concentrations in Indoor Air (8-Hour Sampling)

## **APPENDICES**

Appendix A	Limitations
Appendix B	Summary of Field Methods and Quality Assurance / Quality Control
Appendix C	Photograph Log
Appendix D	Laboratory Analytical Reports
Appendix E	Data Validation Report
Appendix F	Supplemental Figures: Subslab Pressure Response to Vapor Extraction Testing

## EXECUTIVE SUMMARY

This report presents the results of investigations, testing, and actions taken to evaluate, and address where appropriate, the anomalous presence of volatile organic compounds (VOCs) in indoor air of Buildings 002 (B002), B004, B008, B012, B077, and B416 at the International Business Machine Corporation (IBM) Poughkeepsie, New York facility (the site). This work was conducted consistent with the objectives and procedures described in IBM's Resource Conservation and Recovery Act (RCRA) Facility Investigation Work Plan (RFI Work Plan), which was approved by the New York State Department of Environmental Conservation and the New York State Department of Health (collectively, the Agencies) on August 12, 2013.

The above-listed buildings were designated in the RFI Work Plan for indoor air sampling because they overlie VOC-containing groundwater and are routinely occupied. Initial field screening of indoor air as part of this work indicated the relatively low-level presence of VOCs, predominantly trichloroethene (TCE), that could not be connected to current storage or use of solvents. Based on this finding, IBM elected to conduct additional assessment, testing, and actions in certain buildings to evaluate the origin and potential pathways for VOC vapor entry into the buildings, and to support implementation of measures that reduced VOC concentrations in indoor air.

TCE was detected at very low concentrations in a portion of the portable gas chromatograph/mass spectrometer (GC/MS) screening samples collected from B077 and B416. Results from 8-hr, time-integrated Summa® canister indoor air samples from these buildings were below 5 µg/m<sup>3</sup>. Based on these results, IBM believes no further assessment of these buildings is warranted.

Anomalous TCE concentrations were detected with the portable GC/MS in B002, B004, B008, and B012. Therefore, a combination of measures were implemented to reduce VOC concentrations in these buildings, including operational adjustments to the HVAC systems and/or sealing of certain preferential pathways. With the exception of the Loading Dock Area of B004, these actions have resulted in reductions in indoor air TCE concentrations, which have been verified with 8-hr, time-integrated Summa® canister indoor air samples. IBM intends to maintain the post-adjustment HVAC operating conditions in B002, B004, B008, and B012. IBM believes no further assessment of B002 or B008 is warranted. If the unoccupied portion of B012 is re-occupied, and/or HVAC conditions need to be modified, IBM will re-evaluate indoor air quality conditions. Additional discussion related to B004 is presented below.

Subslab investigations and SVE pilot testing was implemented to evaluate the viability of subslab SVE to address TCE concentrations in the B004 Loading Dock indoor air. Subslab SVE testing within the Loading Dock Area confirmed the viability of this method of intercepting VOC mass transport into the building through the floor slab. A design basis for connecting an extraction port in the Loading Dock Area to the vapor extraction and treatment system components in B003 has been developed from the results of pilot testing. The design basis is intended to achieve the goals of VOC mass removal and control of subslab-to-indoor air pressure differentials to reduce VOC mass entry into the Loading

Dock Area of B004. IBM is moving forward with the detailed design of VOC source remediation in the Loading Dock Area using subslab SVE, targeting construction in the fourth quarter of 2014 and startup in the first quarter of 2015. A separate report of SVE performance monitoring and confirmatory sampling results will be provided after the startup of the extraction port in the Loading Dock Area.

## **1.0 INTRODUCTION**

This report presents the results of investigations, testing, and actions taken to evaluate, and address where appropriate, the anomalous presence of volatile organic compounds (VOCs) in indoor air of Buildings 002 (B002), B004, B008, B012, B077, and B416 at the International Business Machine Corporation (IBM) Poughkeepsie, New York facility (the site). A site Location Plan is provided as Figure 1, and the locations of these buildings are shown on Figure 2.

This work was conducted consistent with the objectives and procedures described in IBM's Resource Conservation and Recovery Act (RCRA) Facility Investigation Work Plan (RFI Work Plan), which was submitted to the New York State Department of Environmental Conservation and the New York State Department of Health (collectively, the Agencies) on October 23, 2012. The Agencies approved the Work Plan in an August 12, 2013 letter to IBM.

The above-listed buildings were designated in the RFI Work Plan for indoor air sampling because they overlie VOC-containing groundwater and are routinely occupied. Initial field screening of indoor air as part of this work indicated the relatively low-level presence of VOCs, predominantly trichloroethene (TCE), that could not be connected to current storage or use of solvents. Based on this finding, IBM elected to conduct additional assessment, testing, and actions in certain buildings to evaluate the origin and potential pathways for VOC vapor entry into the buildings, and to support implementation of measures that reduced VOC concentrations in indoor air.

Sanborn, Head Engineering P.C. (SHPC) conducted the work described in this report between August 2013 and August 2014. Progress updates and preliminary data associated with this work have been communicated to the Agencies through routine correspondence and meetings. The investigation and this report are subject to the standard limitations for this type of work, as described in Appendix A.

### **1.1 Report Organization**

This report is organized into seven sections as described below:

Section 1 presents a general introduction, including the objectives and scope of the assessment.

Section 2 provides a summary of the regulatory status for the site, past investigation findings, and previous work conducted in other buildings as part of implementation of the RFI Work Plan.

Section 3 provides an overview of the VOC source assessment and confirmatory sampling approach.

Sections 4 through 8 provide building-by-building summaries of infrastructure; heating, ventilating, and air conditioning (HVAC) systems; investigation activities and findings; and actions taken to-date.



Section 9 presents an overview of the quality assurance and quality control assessment that was completed for the 8-hr, time-integrated Summa® canister confirmatory samples.

Section 10 presents the conclusions of the assessments and this report.

## **1.2 Objectives and Scope**

The objectives of this work were to: 1) evaluate the extent of VOC presence in indoor air, and 2) implement reasonable and practical actions to identify VOC sources and reduce concentrations in indoor air, if appropriate. For the purposes of the RFI Work Plan, VOC source assessment was defined as investigation and testing activities to understand the origin and potential pathways for VOC vapor entry into a building.

To meet these objectives, the work included:

- Implementation of indoor air screening surveys using a field-portable gas chromatograph/mass spectrometer (GC/MS) (i.e., HAPSITE manufactured by Inficon of East Syracuse, New York) to assess VOC presence in indoor air.
- Reconnaissance of certain buildings for potential pathways for VOC entry into the building, including use of a portable GC/MS to screen potential pathways (e.g., floor cracks, sumps, floor penetrations).
- Review and adjustment of the operating conditions of HVAC systems within certain buildings.
- Sealing of pathways within certain buildings that were identified as part of the above-described reconnaissance in order to reduce VOC concentrations in indoor air.
- Re-screening and sampling of indoor air in a manner consistent with the objectives and procedures described in the RFI Work Plan.

## **2.0 BACKGROUND INFORMATION**

This section provides a summary of the regulatory status for the site, past investigation findings, and previous work conducted in other buildings as part of implementation of the RFI Work Plan.

### **2.1 Regulatory Status and Remediation**

IBM voluntarily initiated a Groundwater Protection Program at the site in 1978 to characterize and remediate sources of contaminated media.<sup>1</sup> Several VOC groundwater plumes were identified during that investigation. The site Gravel Plume, which is identified as Area of Concern (AOC) B in the RCRA Part 373 Permit for the site,<sup>2</sup> is beneath or proximate to Buildings 002, 004, 008, 012 and 416 (B002, B004, B008, B012, and B416).

<sup>1</sup> IBM Poughkeepsie Groundwater RCRA Facility Investigation, Main Plant Site, prepared by Groundwater Sciences Corporation, December 12, 1997.

<sup>2</sup> 6NYCRR Part 373 Permit, DEC Hazardous Waste Permit 3-1346-00035/00123, EPA ID No. NYD080480734, Attachment XI, Corrective Action, 2009.

Two groundwater extraction wells are currently operating in the site Gravel Plume. One of these wells, T-315S, is located in an alcove between B002 and B012. The other extraction well, T-8S, is located in an alcove between Building 001 (B001) and B002 (refer to Figure 2 for the groundwater extraction well locations). Combined, these wells withdraw approximately 50 to 60 gallons per minute and are controlling migration of the plume and reducing the mass of TCE discharging to the on-site tributary (designated H-107) that leads to the Hudson River.

The B077 plume, associated with Solid Waste Management Unit (SWMU) 128 in the RCRA Part 373 Permit, emanates from B077 in the southwest corner of the site, and joins with several other small plumes in the area. Five groundwater extraction wells operate in the immediate vicinity of this larger coalescing plume as part of the site Boundary Plume Control System (SBPC System). One of these wells, T-49RA, operates immediately to the west of B077. The SBPC System controls flux to the Hudson River from groundwater plumes originating from sources adjacent to the river.

In addition to groundwater extraction, several soil excavations have taken place as part of historical remedial work carried out at the site, two of which took place near the northwest corner of B004. In 1979, excavation of soil took place as part of remedial activities associated with the Waste Ammonium Persulfate Tank (identified as SWMU 58 in the RCRA Part 373 Permit). In 1984, a manhole and piping from the Old Industrial Waste (IW) Sewer system (identified as SWMU 194 in the RCRA Part 373 Permit) were removed, and associated soils were excavated.

Additional historical remedial activities at or near the buildings subject of this report included the replacement of a refrigeration unit suspected of leaking refrigeration chemicals in the B002 former cafeteria, and upgrades to the Old IW Sewer system, which has lines in the vicinity of B002, B004, B008, and B416. Upgrades included the installation of a new double walled sewer system with leak detection, and the flushing of potentially contaminated sediments from piping. These corrective actions addressed suspected leaking of chemicals, and a potential continuing source entrained in the sewer pipes.

IBM has obtained approved Final Corrective Measures status from NYSDEC for groundwater investigation and remediation matters addressed under the RCRA Part 373 Permit. A groundwater monitoring program (GMP) associated with corrective actions at the site is currently being implemented in accordance with the 2009 RCRA Part 373 Permit.

## **2.2 Subsurface Conditions**

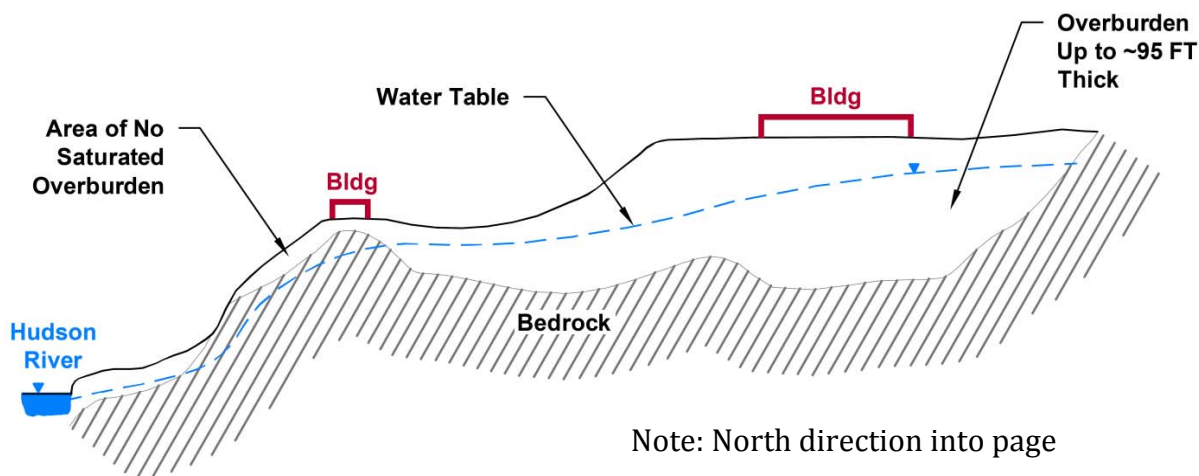
The following sections provide a summary of the subsurface conditions beneath B002, B004, B008, B012, B077, and B416, including a discussion of hydrogeology and the subsurface contaminant distribution.

### **2.2.1 Hydrogeologic Conditions**

Groundwater is present in both the overburden and bedrock units beneath the site. Overburden thickness ranges from approximately 0 to 95 feet across the site, corresponding with a highly irregular top-of-bedrock surface. As a result of the varying

overburden thickness, the water table occurs within overburden in areas where the overburden is thicker (corresponding to deeper bedrock) and within bedrock in areas with thin, unsaturated overburden (corresponding to shallow bedrock). Exhibit 2.1 depicts a simplified cross-section conceptual model of site hydrogeology.

**Exhibit 2.1: Conceptual Schematic of Site Hydrogeology**



In general, the bedrock surface slopes to the west across the site toward the Hudson River. Depths to bedrock beneath B002, B004, B008, and B012 range from approximately 15 to 55 feet below ground surface (bgs). Overburden beneath these buildings consists of up to 15 feet of medium- to coarse-grained fill material, typically underlain by sand and gravel (north and west) or silt (southeast). Bedrock is present at shallower depths closer to the Hudson River such that the depth to bedrock near B077 is between 2 to 7 feet bgs with limited thicknesses of overlying medium- to coarse-grained fill material<sup>3</sup>. Figure 2 shows the approximate areas at the site where there is no saturated overburden because of the shallow bedrock in those areas.

Where present, overburden groundwater generally flows from east to west across the site. Groundwater flow directions are locally influenced by groundwater extraction wells T-8SB and T-315S, which form localized depressions in water levels in near proximity to B002, B004, and B012. Depths to overburden groundwater generally increase in a westerly direction, ranging from less than two feet below the floor slab of B012 to greater than 30 feet beneath the floor slab of B008. Overburden groundwater is not present beneath B077.

### **2.2.2 Contaminant Distribution**

As summarized in the RFI Work Plan, occupied buildings overlying shallow VOC groundwater contamination were identified for further vapor intrusion investigations. Figure 2 shows the inferred extent of total VOCs (primarily TCE) in the overburden groundwater. As noted above, several buildings (B002, B004, B008, B012, and B416) are located above or proximate to the site Gravel Plume, which extends from apparent sources

<sup>3</sup> IBM Poughkeepsie Groundwater RCRA Facility Investigation, Main Plant Site Report, prepared by Groundwater Sciences Corporation, December 12, 1997.

beneath Building 003 (B003) and the vicinity of B004 westward along the direction of groundwater flow.

Overburden groundwater is not present beneath B077; however, a shallow bedrock VOC (primarily TCE) groundwater plume underlies this building. As mentioned above, groundwater emanating from B077 is collected via a series of extraction wells to control flux of contaminated groundwater to the Hudson River.

## **2.3 Summary of Previous Vapor Intrusion Investigations**

The RFI Work Plan presented IBM's rationale and procedures for assessing the potential anomalous presence of VOCs in indoor air within 8 buildings at the site. Based on results from historical investigations, IBM designated B003 as a source investigation building, and 7 buildings for indoor air sampling. IBM elected to construct, operate, and maintain a subslab SVE and manhole/trench vapor extraction systems in B003, which are described in a separate report submitted to and approved by the Agencies<sup>4</sup>.

Initial assessments were conducted in 7 buildings (B001, B002, B004, B008, B012, B077, and B416 – see Section 3 for a description of this work). Based upon the results of these initial assessments, IBM conducted source assessment investigations in five (B001, B002, B004, B008, and B012) of the seven remaining buildings to evaluate the origin and potential pathways for VOC vapor entry into the buildings, and to support implementation of measures aimed at reducing VOC concentrations in indoor air.

Further details related to source assessment activities and actions completed in B001 were conveyed to the Agencies in a separate report<sup>5</sup> and are therefore not reiterated herein. IBM is proceeding with design and construction of a subslab SVE system for B001, which will be completed in late-2014.

A summary of the source assessment activities and completed actions for all buildings that were identified for investigation is presented in Exhibit 2.2.

---

<sup>4</sup> *Performance Monitoring and Confirmatory Sampling Results, Building 003 Vapor Extraction System, IBM Poughkeepsie Facility, Poughkeepsie, New York*, prepared by Sanborn, Head Engineering, P.C., February 2014.

<sup>5</sup> *Report of Findings, Building 001 VOC Source Assessment, IBM Poughkeepsie Facility, Poughkeepsie, New York*, prepared by Sanborn, Head Engineering, P.C., April 2014.

## Exhibit 2.2: Summary of Source Assessment Activities and Completed Actions

Building	Source Assessment Activities		Completed Actions		
	Preferential pathway assessment	Subslab investigation and pilot testing	Sealed preferential pathways	Adjust HVAC Operating Conditions	Subslab SVE
B001	✓	✓	✓	✓	In-progress
B002	✓	Not needed	✓	✓	Not needed
B003	✓	✓	✓	✓	✓
B004	✓	✓	✓	✓	In-progress
B008	✓	Not needed	✓	✓	Not needed
B012	✓	Not needed	✓	✓	Not needed
B077	Not needed	Not needed	Not needed	Not needed	Not needed
B416	Not needed	Not needed	Not needed	Not needed	Not needed

As mentioned above, this report focuses on investigations performed in B002, B004, B008, B012, B077, and B416. Buildings 001 and 003 are covered under separate reports.

### 3.0 VOC SOURCE ASSESSMENTS AND CONFIRMATORY SAMPLING APPROACH

As described above, investigations in buildings B002, B004, B008, B012, B077, and B416 were initiated in August 2013 and included the following steps:

- Field screening of indoor air and targeted screening of certain features of the building;
- Re-screening of indoor air after actions were taken (if appropriate) to seal preferential pathways for VOC migration into indoor air and/or HVAC operational adjustments to increase air exchanges or run systems continuously;
- Collection of confirmatory indoor air samples with Summa® canisters equipped with 8-hour flow controllers;
- In one building (B004), additional assessment and actions (including pilot testing for subslab SVE) were implemented following collection of confirmatory indoor air samples.

Sections 4 through 9 provide a building-by-building summary of the unique building characteristics and use, the HVAC systems and settings, the results from initial field screening activities, a description of actions taken (if any), and a summary of the re-screening and confirmatory sampling results.

Field screening was conducted using a portable GC/MS in accordance with the procedures described in a letter from IBM to NYSDEC dated January 22, 2014. The samples were screened for tetrachloroethene (PCE) and TCE, which served as indicators of potential VOC vapor entry. TCE was detected at greater concentrations and frequencies than PCE and other analytes, and is therefore the focus of discussions in this report.

Following completion of actions intended to reduce VOC concentrations in indoor air, Summa® canister confirmatory indoor air samples were collected in April 2014 and submitted for laboratory analysis of eight site-specific VOCs by USEPA Method TO-15, including: chloroethane, 1,1-dichloroethane (1,1-DCA) 1,1-dichloroethene (1,1-DCE), cis-1,2-dichloroethene (c1,2-DCE), trans-1,2-dichloroethene (t1,2-DCE), PCE, TCE, and vinyl chloride (VC) in selective ion monitoring (SIM) mode. Summa® canisters for sampling each building were deployed approximately simultaneously, and were set at a height of approximately 4 to 5 feet above the ground. Ambient air samples were collected outside of each building, and quality assurance/quality control (QA/QC) samples (i.e., field duplicates and field blanks) were collected at a frequency consistent with the procedures described in the RFI Work Plan. Sampling information, including sample collection times, initial and final canister pressures, canister identification numbers, and field screening values, is provided in Tables 2A through 2F. Refer to Appendix B of this report for further details and documentation of the field methods and data quality assurance/quality control (QA/QC).

Photographs of Summa® sample locations are provided in Appendix C. The analytical laboratory reports for the confirmatory Summa® samples are included in Appendix D.

## **4.0 B002 ASSESSMENT AND FINDINGS**

### **4.1 B002 Building Characteristics and Use**

B002 is a three-story structure built in 1948, with later interior renovations. The footprint is about 77,000 square feet, and the total area is about 230,000 square feet. B002 is constructed of a reinforced poured concrete foundation, with steel columns and poured in place concrete floors. Exterior walls are constructed of concrete block with brick veneer.

The lower floor of B002 is currently used for server and equipment storage, offices, and calibration laboratories. B002 is connected to B003 at its southern end and B004 at its northern end via a shared corridor. B002 is also connected to B012 to the east via a ground-floor linkway and several upper floor linkways.

B002 was constructed over a portion of the pre-existing site storm drain network, and several connected manholes are present on the lower floor. A foundation under drain system was constructed beneath the floor slab of B002 and is interconnected with the roof drain system and the storm sewer system. Roof drain cleanouts are present throughout the first floor of B002 and are further discussed below in the context of preferential pathways for VOC entry.

### **4.2 B002 HVAC System Overview**

The B002 ground floor HVAC system is comprised of 8 individual HVAC zones, controlled by 7 active air handling units (AHUs). The AHUs are located within mechanical rooms on the ground floor. The AHU mechanical rooms and zones they serve are shown on Figure 3A. A summary of current operational conditions for B002 is presented in Exhibit 4.1.



#### Exhibit 4.1: Summary of B002 HVAC Operational Conditions

B002 AHU No.	Areas Served	Operating Schedule
2-1-1	Calibration Lab, IBM and Fluor Office Space	24 hrs/day
2-1-5	Telephone Closet, Contractor Space	24 hrs/day
2-1-7	Equipment Storage	Out of Service
2-1-8	Equipment Storage, Telephone Closet	Out of Service
2-1-9	Contractor Space, Load Center, Storage Space	24 hrs/day
2-1-10	Server Storage	24 hrs/day
2-1-12	Contractor Space	24 hrs/day
2-1-13	Contractor Space	0700 -1800 (M-F)
2-1-14	Contractor Space	Out of Service
2-1-17	Sail Lab	24 hrs/day

The former cafeteria, an electrical load center, and the southern end of the server storage room, all located along the western side of B002, are not part of any HVAC zones. AHU 2-1-12 is a return/recirculation air unit only; outside air is not being directly provided to this space. Due to infrastructure and access constraints associated with the AHU equipment, outside and return air flows cannot be measured or estimated accurately; thus air exchange rates for B002 are unknown.

#### 4.3 B002 Initial Indoor Air Field Screening

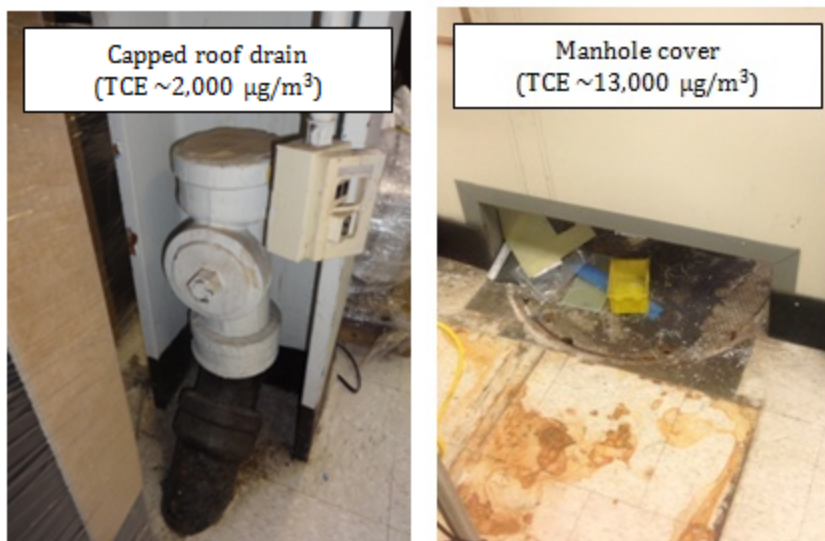
Initial field screening was conducted in August and September 2013 at 84 locations throughout the first floor of B002. The indoor air screening results are presented in Table 1A. Figure 3B shows the initial indoor air screening results for TCE.

TCE was detected at all screening location at concentrations ranging from 0.75 to 270 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). The highest TCE concentrations were observed in the southeast corner of a server storage area on the west side of the building (e.g., IA6009), and at the interface between B002 and B003 (e.g., samples IA6001 and IA6054).

#### 4.4 B002 Targeted Screening and Completed Actions

In response to the initial indoor air screening results in B002, targeted screening of floor cracks, manhole covers, roof drain cleanouts, and various other utility penetrations through the slab was conducted to evaluate whether these features were serving as pathways for VOC entry. A total of 37 targeted air locations were screened in B002. As mentioned above and shown on Figure 3A, a storm drain line runs roughly north / south under B002. Multiple underdrains are connected to this storm drain system. In addition, several roof drains penetrate the concrete slab and connect to the storm drain system. The storm drain conveys stormwater and collects contaminated groundwater via the underdrain system, a portion of which is treated at IBM's industrial wastewater treatment facility prior to discharge to the Hudson River. The highest targeted screening results were observed from features associated with this system. Exhibit 4.2 shows two of these features along with the associated TCE targeted screening results.

#### Exhibit 4.2: B002 Targeted Screening Results for Roof Drain and Manhole Cover Associated with Storm Drain System



As preferential VOC migration pathways were identified, they were sealed and subsequently indoor air was re-screened to evaluate the effectiveness of the sealing activities. Exhibit 4.3 summarizes the types of targeted air locations identified and the approximate TCE concentration range observed from the initial targeted screening round collected prior to sealing the preferential VOC migration pathway, and the sealing method employed. The effectiveness of the sealing method was evaluated by measuring breathing zone indoor air concentrations in the vicinity of the features before and after sealing.

#### Exhibit 4.3 - Summary of B002 Targeted Screening Results Before Sealing

Feature Description (# observed)	Portable GC/MS TCE Screening Values ( $\mu\text{g}/\text{m}^3$ )	Sealing method
<b>Storm Drain Network Feature</b>		
Manhole cover for storm drain (4)	24 - 13,000	Caulk
Roof Drain Clean-Out Cover (18)	41 - 4,800	Caulk
<b>Floor penetrations</b>		
Floor Cracks (3)	24 - 81	Caulk
Utility Penetrations (8)	30 - 310	Caulk
<b>Other</b>		
Utility Hatch (1)	240	Caulk
Floor Drain (1)	65	None - not feasible
Holes in Wall (3)	21 - 450	Expandable foam, cement
Trench (1)	8.6	Caulk

In addition, to the preferential pathway assessment and sealing activities, IBM made operational adjustments to several HVAC units within B002, which consisted of changing the operating schedule of certain HVAC systems from part-time to full-time operation. Exhibit 4.4 summarizes the operations adjustments to B002 HVAC systems.

#### Exhibit 4.4: Summary of B002 HVAC Operational Adjustments

B002 AHU No.	Areas Served	Pre-Adjustment Schedule	Post-Adjustment Schedule
2-1-1	Calibration Lab, IBM and Fluor Office Space	0600 - 1800 (M-F)	24 hrs/day
2-1-5	Telephone Closet, Contractor Space	0700 - 1700 (M-F)	24 hrs/day
2-1-7	Equipment Storage	Out of Service	Out of Service
2-1-8	Equipment Storage, Telephone Closet	Out of Service	Out of Service
2-1-9	Contractor Space, Load Center, Storage Space	0800 - 1500 (M-F)	24 hrs/day
2-1-10	Server Storage	24 hrs/day when occupied	24 hrs/day
2-1-12	Contractor Space	0600 - 1600 (M-F)	24 hrs/day
2-1-13	Contractor Space	0700 - 1800 (M-F)	0700 -1800 (M-F)
2-1-14	Contractor Space	Out of Service	Out of Service
2-1-17	Sail Lab	0700 - 1700 (M-F)	24 hrs/day

Red font indicates modified condition.

The above adjustments were successful in delivering more outside air into certain areas of B002; however, it was not possible to accurately estimate the additional outside air flow due to the physical constraints of the existing AHU infrastructure.

B002, B004, and B003 are interconnected via open hallways/corridors, and B012 is connected to B002 via an open, ground-floor linkway. Air flows freely between these buildings based on air pressure differentials, which are affected by a variety of factors including HVAC system operational conditions in B002 and other connected buildings. Airflow patterns between buildings influence VOC concentrations in indoor air. Initial field screening in B002 was conducted prior to the startup of the B003 subslab SVE and manhole/trench vapor extraction systems and prior to actions completed in B004 and B012 (further discussed below). Re-screening and confirmatory indoor air sampling in B002 was conducted after actions in these buildings were completed, and after startup of the B003 SVE and manhole/trench vapor extraction systems.

#### 4.5 B002 Re-Screening and Confirmatory Sampling Indoor Air Results

Following the completion of sealing activities and HVAC operational adjustments (from August 2013 to April 2014), rescreening of indoor air was conducted with the portable GC/MS to evaluate the relative effectiveness of these actions. The re-screening of indoor air was done in an iterative manner (e.g., sealing of a preferential pathway followed by re-screening of indoor air in the same area) with final screening completed in the Fall of 2013 or the Spring of 2014, depending on the area. Table 1A includes all of the indoor air screening results (including interim rounds), and Figure 3B summarizes the pre- and post-mitigation screening results for TCE. The combined effects of sealing preferential pathways, adjusting HVAC operating conditions, operation of the B003 subslab SVE and manhole/trench vapor extraction systems, and the actions completed in B012 and B004 yielded reductions in TCE concentrations in B002 indoor air.

The results for the 8-hour, time integrated Summa® canister confirmatory indoor air sampling are presented on Figure 3C and Table 3A. Where detected, TCE concentrations

ranged from 0.14 to 1.7  $\mu\text{g}/\text{m}^3$ . PCE and c-1,2-DCE were detected in one or more indoor air samples but at concentrations less than 1  $\mu\text{g}/\text{m}^3$ . Five of the eight site-specific analytes were not detected in any confirmatory indoor air samples, specifically: chloroethane, 1,1-DCA, 1,1-DCE, t-1,2-DCE, and vinyl chloride. Based on the results of the confirmatory Summa® canister sampling, IBM believes no further assessment is necessary in B002.

A discussion of the QA/QC findings associated with the confirmatory indoor air samples collected from B002 (including an ambient air sample) is presented in Section 9. The B002 data were found to be useable in accordance with the project data quality objectives defined in the RFI Work Plan, subject to a few minor qualifications that do not affect the findings and conclusions.

## **5.0 B004 ASSESSMENT AND FINDINGS**

### **5.1 B004 Building Characteristics and Use**

B004 is a three-story structure built in 1952, with later interior renovations. The footprint is about 100,000 square feet, and the total area is about 300,000 square feet. B004 is constructed of a reinforced poured concrete foundation, with poured in place concrete columns and floors. Exterior walls are constructed of concrete block with brick veneer.

B004 was constructed over a portion of the pre-existing site storm drain network, and several manholes are present on the lower floor. A foundation under drain system was constructed beneath the floor slab and interconnected with the storm sewer lines both beneath and surrounding the building. Capped pipe penetrations relating to a former roof drain system are present on the first floor.

Exterior subsurface piping and manholes associated with former industrial waste lines were located adjacent to the northwest corner of B004 (RCRA SWMU 194 – Former IW Drainage System). A TCE distillation system (RCRA SWMU 202 – B004) formerly in operation on the first floor of B004 discharged to these lines.

The lower floor is currently used for storage of servers, manufacturing components, and parts. There are loading docks with overhead doors on the west and north sides of the building. B004 is connected at its southern end to B002 via a shared corridor, and to B006 at its northern end via a linkway with overhead door.

### **5.2 HVAC System Overview**

The B004 ground floor HVAC system is comprised of 7 individual HVAC zones with 6 operational AHUs. The AHU mechanical rooms and HVAC zones are shown in Figure 4A. A summary of current operating conditions for B004 is presented in Exhibit 5.1.

### Exhibit 5.1: Summary of B004 HVAC Operational Conditions

B004 AHU No.	Areas Served	Operating Schedule
4-1-1	Office Space	24 hrs/day
4-1-2	Shipping/Receiving Storage	Out of Service
4-1-3	Shipping/Receiving Storage	24 hrs/day
4-1-4	Unknown	Out of Service
4-1-5	Office Space, Equipment Storage	24 hrs/day
4-1-6	Storage Area	24 hrs/day
4-1-7	Shipping/Receiving Storage	24 hrs/day
4-1-8	Parts Crib, Equipment Storage	24 hrs/day
4-1-9	Adjacent HVAC Room	Out of Service

The main hallway on the ground floor and the storage area in the northeast portion of the building are not served by any of the HVAC units. Due to infrastructure and access constraints associated with the AHU equipment, outside and return air flows cannot be measured or estimated accurately; thus, air exchange rates for B004 are unknown.

### 5.3 B004 Initial Field Screening

Initial field screening was conducted in August and September 2013 at 47 locations throughout the first floor of B004. The indoor air screening results for B004 are presented in Table 1B. Figure 4B shows the initial indoor air screening results for TCE for B004.

TCE was detected at most of the screening locations in B004 at relatively low concentrations up to 13  $\mu\text{g}/\text{m}^3$ . The highest concentrations were observed in the vicinity of the west side loading dock and the southwest portion of the building. TCE was not generally detected above the GC/MS instrument's reporting limit (approx. 0.54  $\mu\text{g}/\text{m}^3$ ) in the northeast portion of B004 near the ramp leading to B006.

### 5.4 B004 Initial Targeted Screening and Completed Actions

Based on the relatively low initial TCE screening concentrations, very limited initial targeted screening of potential preferential pathways was conducted outside of the loading dock area (see further discussion of screening within the loading dock area, below); rather, IBM focused on HVAC adjustments.

Similar to B002 and B003, there is a storm drain line that runs roughly north / south under B004. Multiple underdrains are connected to this storm drain system. In addition, several roof drains penetrate the concrete slab and connect to the storm drain system. Exhibit 5.2 shows a manhole cover associated with the storm drain system.

### Exhibit 5.2: Targeted Screening Result for Manhole Associated with Storm Drain System



Three targeted air samples were collected at manhole covers for the storm drain system as summarized in Exhibit 5.3, below. The manhole covers were sealed with caulk following portable GC/MS screening. The effectiveness of the sealing method was evaluated by measuring breathing zone indoor air concentrations in the vicinity of the features before and after sealing.

### Exhibit 5.3: B004 Targeted Screening Results (Except the Loading Dock Area) Before Sealing

Feature Description (# observed)	Portable GC/MS TCE Screening Values ( $\mu\text{g}/\text{m}^3$ )	Sealing method
<b>Storm Drain Network Feature</b>		
Manhole cover for storm drain (3)	0.75 – 7.5	Caulk

In addition to the preferential pathway assessment and sealing activities, IBM made operational adjustments to several ground floor HVAC units within B004, which consisted of changing the operating schedule of certain HVAC systems from part-time to full-time operation. Exhibit 5.4 summarizes the operational adjustments to B004 HVAC systems.

### Exhibit 5.4: Summary of B004 HVAC Operational Adjustments

B004 AHU No.	Areas Served	Pre-Adjustment Schedule	Post-Adjustment Schedule
4-1-1	Office Space	24 hrs/day	24 hrs/day
4-1-2	Shipping/Receiving Storage	Out of Service	Out of Service
4-1-3	Shipping/Receiving Storage	0700 - 1530 (M-F)	24 hrs/day
4-1-4	Unknown	Out of Service	Out of Service
4-1-5	Office Space, Equipment Storage	0600 - 1700 (M-F)	24 hrs/day
4-1-6	Storage Area	0500 - 1700 (M-F)	24 hrs/day
4-1-7	Shipping/Receiving Storage	0700 - 1530 (M-F)	24 hrs/day
4-1-8	Parts Crib, Equipment Storage	0700 - 1600 (M-F)	24 hrs/day
4-1-9	Adjacent HVAC Room	Out of Service	Out of Service

Red font indicates modified condition.



The above adjustments bring more outside air into B004; however it was not possible to accurately estimate the additional outside air flow due to the physical constraints of the existing AHU infrastructure.

B004, B002, and B003 are interconnected via open hallways/corridors, and B012 is connected to B002 via an open, ground floor linkway. Air flows freely between these buildings based on air pressure differentials, which are affected by a variety of factors including HVAC system operational conditions in B002 and other connected buildings. Airflow patterns between buildings influence VOC concentrations in indoor air. Initial field screening in B004 was conducted prior to the startup of the B003 subslab SVE and manhole/trench vapor extraction systems and prior to actions completed in B002 and B012. Re-screening and confirmatory indoor air sampling in B004 was conducted after actions in these buildings were completed, and after startup of the B003 SVE and manhole/trench vapor extraction systems.

## **5.5 B004 Re-Screening and Confirmatory Sampling Indoor Air Results**

Following the completion of limited sealing activities and HVAC operational adjustments described above, re-screening of indoor air was conducted to evaluate the relative effectiveness of these actions. The re-screening of indoor air was done in an iterative manner (e.g., sealing of a preferential pathway followed by re-screening of indoor air in the same area) with final screening completed in the Fall of 2013 or the Spring of 2014, depending on the area. Table 1B includes all of the indoor air screening results (including interim rounds), and Figure 4B summarizes the pre- and post-mitigation screening results for TCE. Additional screening and actions were completed in the Loading Dock Area of B004 and are discussed in further detail below.

While the actions completed in B004 were successful in reducing TCE concentrations, IBM elected to perform source assessment activities to further investigate the location of potential sources of TCE in the vicinity of the Loading Dock Area. As a result and as further discussed below, 8-hour, time integrated Summa® canister indoor air samples were not collected from the Loading Dock Area (located within HVAC zone 4-1-7) pending the completion of additional work in this area.

The results of 8-hour, time integrated Summa® canister confirmatory indoor air sampling in all areas except the Loading Dock Area are presented on Figure 4C and Table 3B. TCE was the only site-specific analyte to be detected in any of the confirmatory indoor air samples collected from B004 at concentrations ranging from 0.96 to 3.2 µg/m<sup>3</sup>. As mentioned above, because IBM elected to performed additional source investigations within the Loading Dock Area, a confirmatory indoor air sample was not collected from this area. Pending the outcome of the planned mitigation in this area, a confirmatory indoor air sample will be collected.

A discussion of the QA/QC findings associated with the confirmatory indoor air samples collected from B004 (including an ambient air sample) is presented in Section 9. The B004 data were found to be useable in accordance with the project data quality objectives

defined in the RFI Work Plan, subject to a few minor qualifications that do not affect the findings and conclusions.

## 5.6 B004 Loading Dock Area Additional Field Screening and Completed Actions

Based on the anomalous TCE screening concentrations in the Loading Dock Area of B004, IBM undertook steps to further assess the potential source of TCE in indoor air. These actions consisted of additional indoor air screening, preferential pathway assessment and sealing, HVAC operational adjustments, and subslab investigation and pilot testing activities. These actions were followed by re-screening of indoor air. The results of these assessment activities are further discussed below.

Additional indoor air screening was initiated in April 2014 prior to performing additional actions focused on reducing TCE concentrations in the Loading Dock and adjacent spaces. The results from this additional assessment are presented on Figure 4D and are summarized on Table 1B.

The highest initial field screening results (up to 180  $\mu\text{g}/\text{m}^3$ ) were observed within a restroom located south of the Loading Dock Area. Within the Loading Dock Area, the highest TCE concentrations were located in the area immediately north of the restroom (up to 11  $\mu\text{g}/\text{m}^3$ ).

Additional targeted screening in areas with the highest TCE screening concentrations was completed in April through June of 2014. Exhibit 5.5 summarizes the types of targeted air locations within the Loading Dock Area that were identified, the approximate TCE concentration range observed from the initial targeted screening round collected prior to sealing the preferential VOC migration pathway, and the sealing method employed. The effectiveness of the sealing method was evaluated by measuring breathing zone indoor air concentrations in the vicinity of the features before and after sealing.

**Exhibit 5.5: Targeted Screening and Completed Actions in  
B004 Loading Dock Area Before Sealing**

Feature Description (# observed)	Portable GC/MS TCE Screening Values ( $\mu\text{g}/\text{m}^3$ )	Sealing method
<b>Floor penetrations</b>		
Floor Cracks (8)	8.6 – 1,300	Caulk
Utility Penetrations (6)	860 – 1,800	Caulk, Expandable Foam
<b>Other</b>		
Concrete Columns (4)	54 – 320	Caulk
Floor Drain (1)	450	Caulk
Subfloor Scale (1)	48	Caulk

IBM further evaluated the operating conditions of AHUs 4-1-7, and 4-1-8 and made adjustments to these units to increase outside air flow and reduce negative pressure conditions (with respect to surrounding rooms) within the mechanical room housing the AHU 4-1-7 unit. These actions are described in Exhibit 5.6

### Exhibit 5.6: HVAC Modifications in B004 Loading Dock Area

Air Handling Unit (AHU)	Original Operating Conditions	HVAC Modifications
4-1-7	<ul style="list-style-type: none"> <li>Outside air damper ~10% open</li> <li>Return air duct in HVAC room was open enhancing negative pressure in the AHU room relative to adjacent spaces.</li> </ul>	<ul style="list-style-type: none"> <li>Outside damper 100% open</li> <li>Sealed return air duct within HVAC room</li> <li>Added supply air duct within the HVAC room</li> <li>Replaced sealed return air duct that was inside the HVAC room with a new duct located outside of the HVAC room</li> </ul>
4-1-8	<ul style="list-style-type: none"> <li>No supply air duct within restroom area</li> </ul>	<ul style="list-style-type: none"> <li>Added supply air duct to restroom area</li> </ul>

Red font indicates modified condition.

After completion of the sealing work and HVAC operational adjustments described above, indoor air was re-screened at certain locations in May and June 2014. As shown in Figure 4D, the TCE concentrations generally decreased slightly within the Loading Dock Area, but concentrations were relatively unchanged in the restroom area located south of the Loading Dock. Therefore, IBM elected to perform subslab investigations and pilot testing of subslab vapor extraction.

### 5.7 B004 Loading Dock Area Subslab Differential Pressure Monitoring

Figure 4E shows the location of 11 subslab vapor monitoring points and 3 subslab vapor extraction ports installed in the Loading Dock Area where the highest indoor air screening results were observed. The subslab monitoring and extraction ports were constructed for the purpose of subslab SVE pilot testing in general accordance with the procedures and protocols provided in the RFI Work Plan, Appendix A. Refer to Appendix B of this report for further details and documentation of the field methods, including the results of monitoring port integrity testing.

Prior to initiation of pilot testing, observations of subslab pressure relative to the indoor air pressure were obtained at the monitoring and extraction ports using a digital micro-manometer. Figure 4F shows the results at each location using color-coding to indicate where subslab pressure was greater than or neutral relative to indoor air. Review of these data indicate that all of the locations exhibit neutral to slightly positive pressure differentials relative to indoor air, conditions which support migration of VOCs from the subsurface to indoor air.

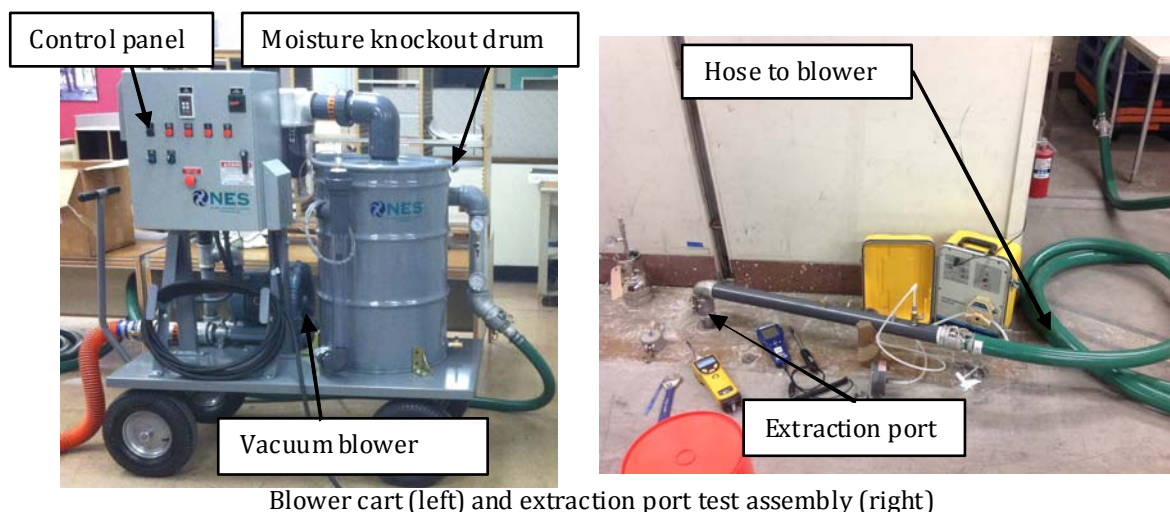
### 5.8 B004 Loading Dock Area Subslab SVE Pilot Testing

Subslab SVE testing was conducted in August 2014 to: 1) evaluate the method as a potential source reduction/remediation measure to remove VOC mass from beneath the building while simultaneously limiting migration of VOCs from the subsurface to indoor air, and if successful 2) assess whether extraction port(s) within the B004 Loading Dock Area could be connected to the existing subslab SVE system located in B003. This section provides a summary of the testing procedures and results.

### 5.8.1 Subslab SVE Testing Procedures

Subslab SVE testing was conducted at three extraction ports that were installed in the Loading Dock Area and adjacent restroom. The extraction ports are identified with the prefix “EP” and their locations are shown on Figure 4E. Each extraction port was constructed by coring a hole through the concrete floor slab and installing a 1 ½ -in.-diameter by 1-ft-long PVC screen equipped with a capped port flush with the floor. To test each port for soil vapor extraction, a regenerative vacuum blower mounted on a portable cart, shown in Exhibit 5.7 below, was used to withdraw vapor from the ports for durations of approximately 75 to 90 minutes each. The vapor flow rate and applied vacuum was monitored and recorded at each extraction port using the assembly shown in Exhibit 5.7. For each test, the differential pressure response between the subslab and indoor air was monitored at the other nearby subslab ports using digital manometers.

**Exhibit 5.7: Extraction Port Blower Assembly**



Blower cart (left) and extraction port test assembly (right)

### 5.8.2 Subslab SVE Testing Results

The subslab pressure response for each of the three tests is shown on Figures F-1 through F-3 in Appendix F. On these figures, the inferred extent of subslab pressure response is depicted by the pressure differential isopleths of -0.004 inches of water column (in. wc) (or about 1 Pascal); this value, or lower pressure (greater vacuum) is indication that vapor extraction has influence, and is expected to be sufficient to capture subslab soil vapor, within at least the area encompassed by the -0.004 in. wc isopleths.

The results indicate that significant and extensive depressurization can be achieved under the Loading Dock Area and restroom using a single extraction port. In particular, extraction from EP5002 will effectively depressurize the area where indoor air TCE screening concentrations were highest.

During each test, a sample of the vapor stream was collected into a Tedlar bag and screened using a PID. Near the conclusion of each test, a grab sample of the vapor stream was collected into a Summa® canister for analysis by USEPA Method TO-15 for the project-specific analyte list. The screening and laboratory data for each test are summarized in

Exhibit 5.8 below. The complete analytical results for the extraction test vapor samples are provided in Table 4.

**Exhibit 5.8: Subslab SVE Testing Data Summary**

Port Location	Applied Vacuum [in. wc]	Extracted Flow Rate [cfm]	PID Screening [ppmv]	Total VOCs- Laboratory Analysis		VOC Removal Rate [lbs/hr]
				[ppmv]	[ $\mu\text{g}/\text{m}^3$ ]	
EP5001	61	120	12	8,500	46,000	0.021
EP5002	58	91	10	8,400	45,000	0.015
EP5003	59	118	3.5	2,700	14,000	0.006

The subslab SVE test data indicate substantial depressurization and interception of VOC mass flux can be achieved by all of the ports. However, extraction port EP5002 will be connected to the existing B003 vapor extraction system for the following reasons: 1) results from testing at this location indicate a depressurization footprint similar to that observed during the EP5001 test and greater than that created by the EP5003 test; 2) the depressurization, air flow extraction rate, and mass removal rate at EP5002 are sufficient for reducing vapor intrusion into the loading dock area; and 3) this location is most easily accessed for construction and maintenance.

During each test, indoor air was screened to assess the efficacy of vapor extraction to limit migration of VOCs from the subsurface to indoor air. Exhibit 5.9 presents the observed TCE screening results measured during testing at EP5002. Pre-test indoor air concentrations of TCE measured during work in June 2014 are also included for comparison purposes. Without exception, TCE concentrations during pilot testing were less than the pre-testing screening results, suggesting that subslab SVE is effective at reducing TCE indoor air concentrations.

**Exhibit 5.9: Portable GC/MS TCE Readings Collected During Pilot Testing at EP5002**

Date	Indoor Air TCE Results: Pilot Test at EP5002 [ $\mu\text{g}/\text{m}^3$ ]							
	IA5021	IA5049	IA5068	IA5067	IA5060	IA5048	IA5066	IA5063
Pre-testing [6/19/2014]	2.8	2.7	4.0	3.3	4.7	13	13	33
Pilot Testing [8/7/2014]	2.6	1.7	1.3	1.6	1.3	1.3	1.3	1.3

## 5.9 Subslab SVE System Design Basis – B004 Loading Dock Area

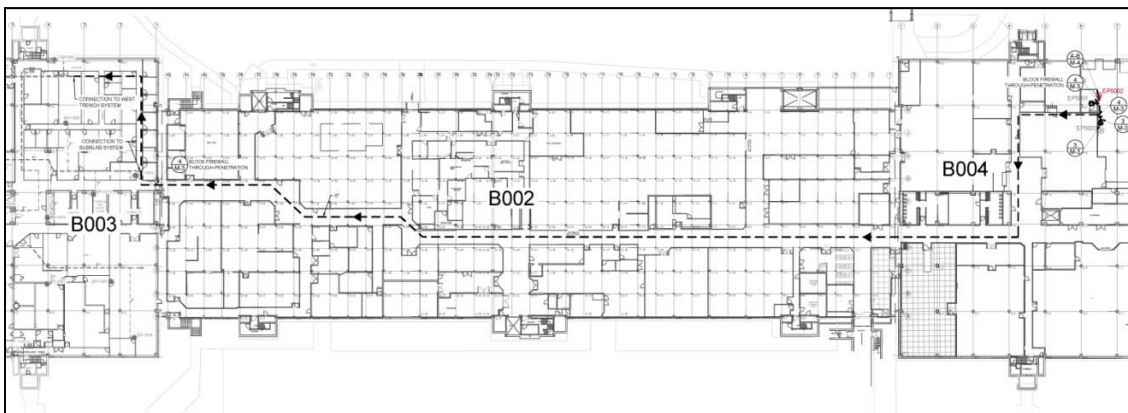
This section presents the design basis for subslab SVE source remediation beneath the Loading Dock Area of B004. The remediation design is based on the results of vapor extraction testing, which indicates that subslab SVE will achieve the goals of removal of VOC source mass from below the slab and capture of VOC vapor migrating into the building space. Given the proximity of the B003 vapor extraction systems, IBM has elected to connect the extraction port within the B004 Loading Dock Area to the B003 system. Further discussion is provided below.



### **5.9.1 Extraction Port Configuration and Target Operating Conditions**

As indicated in section 5.8.2, subslab extraction from EP5002 would effectively depressurize and remove VOC mass from the Loading Dock Area and nearby restroom. The design target for the applied vacuum at EP5002 will be 60 in. wc because this was the vacuum during the pilot test that provided sufficient vacuum to intercept subslab vapor to reduce indoor air concentrations. At this operating vacuum, EP5002 is expected to yield about 90 cfm. The B003 SVE system has sufficient capacity to accommodate this additional flow at the target vacuum. Exhibit 5.10 below shows the piping configuration for the B004 to B003 connection.

**Exhibit 5.10: B003/B004 Piping Configuration**



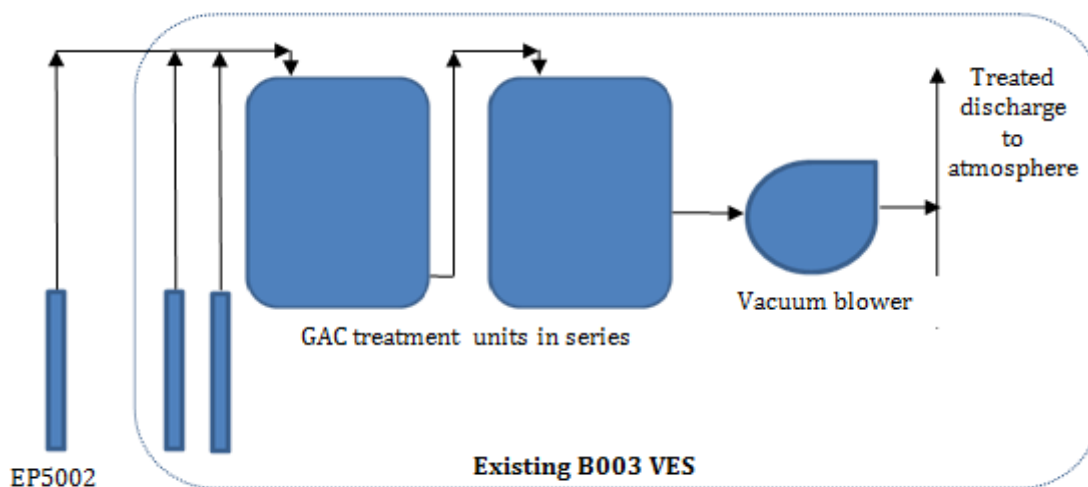
### **5.9.2 Process Flow Diagram**

The process flow diagram for the B004 Loading Dock Subslab SVE system is shown in Exhibit 5.11. While extraction port EP5002 will be connected to the existing B003 subslab blower system, to provide future operating flexibility, the pipe from EP5002 will be designed so that flow can be directed to the blower system associated with the west trench/manhole system, if appropriate. In addition, connections for extraction from EP5001 and EP5003 will be provided if these ports are needed in the future.

Vapor extracted from the B004 system will be combined with vapor extracted from the B003 subslab system, and will pass through two granular activated carbon (GAC) units plumbed in series. The treated vapor will pass through the vacuum blower and be discharged outside via the existing exhaust stack.



**Exhibit 5.11: Process Flow Diagram**



### **5.9.3 VOC Mass Removal and Treatment**

The VOC mass removal rate observed during short-term testing of EP5002 was about 0.015 lb/hour (0.36 lbs/day). Over time, we expect the actual VOC mass recovery rate will decrease according to an exponential decay curve that approaches an asymptote representing the mass transfer limitations in the subsurface.

The B003 system includes granular activated carbon (GAC) treatment prior to discharge to the atmosphere. GAC treatment may be removed in the future if combined emissions from the B003 and B004 system will not cause air pollution as indicated by an air quality impact analysis conducted in accordance with NYSDEC Division of Air Resources guidance.

### **5.10 B004 Summary and Next Steps**

Based on the results of confirmatory indoor air sampling, IBM believes no further work is necessary in B004 except for the Loading Dock Area. IBM intends to maintain the HVAC operating conditions in approximately the same post-adjustment HVAC conditions summarized in Exhibit 5.4.

Subslab SVE testing within the Loading Dock Area confirmed the viability of this method of intercepting VOC mass transport into the building through the floor slab. A design basis for connecting an extraction port in the Loading Dock Area to the vapor extraction and treatment system components in B003 has been developed from the results of pilot testing. The design basis is intended to achieve the goals of VOC mass removal and control of subslab-to-indoor air pressure differentials to reduce VOC mass entry into the Loading Dock Area of B004, while also providing for operating flexibility, redundancy, and future expansion, if appropriate.

IBM is moving forward with the detailed design of VOC source remediation in the Loading Dock Area using subslab SVE, targeting construction beginning in the fourth quarter of and startup in the first quarter of 2015. A separate report of SVE performance monitoring and

confirmatory sampling results will be provided after the startup of the extraction port in the Loading Dock Area.

## **6.0 B008 ASSESSMENT AND FINDINGS**

### **6.1 B008 Building Characteristics and Use**

B008 is a three story structure built in 1985, located immediately to the west of B001. The footprint is about 62,000 square feet, with a total area of about 160,000 square feet. B008 is constructed of a reinforced poured concrete foundation, with a steel column and truss frame system, and reinforced poured concrete floors. Exterior walls are concrete over insulation board, with brick ornamentation around corners.

The lower level is currently used for data centers and offices. B008 shares an exterior wall with B001; the two buildings are connected via a set of doors through this shared wall.

### **6.2 B008 HVAC System Overview**

The HVAC systems serving the occupied portions of the first floor are AC-1 and AC-2, as shown on Figure 5A. Each of the units has the capacity to serve the entire building should the other unit require downtime for maintenance; they are kept separate by an isolation damper. The central, raised floor portion of the first floor of B008 is served by AC-2. The first floor hallway and upper two floors are served by AC-1. A summary of initial HVAC operating conditions for these two units is presented in Exhibit 6.1. Each system has an economizer that modulates outside air flow based on temperature and humidity settings. Therefore, the outside air flows presented in Exhibit 6.1 represent typical outside air flow rates during the initial field screening.

**Exhibit 6.1: Summary of Initial B008 HVAC Operational Conditions**

AHU No.	First Floor Areas Served	Operating Schedule	Outside Air Flow (cfm)
AC-1	Hallway	0700 -1800 (M-F)	6,000
AC-2	Raised Floor Area	0600 - 2000 (M-F)	2,000

### **6.3 B008 Initial Field Screening**

Initial field screening was conducted in August and September 2013 at 37 locations throughout the first floor of B008. The indoor air screening results for B008 are presented in Table 1C. Figure 5B shows the initial indoor air screening results for B008. TCE was detected in each of the initial indoor air screening samples at concentrations ranging from 2.6 to 8.1  $\mu\text{g}/\text{m}^3$ . The highest concentrations, typically around 7  $\mu\text{g}/\text{m}^3$ , were found in the northeast corner (e.g., IA3028) and the south central raised-floor areas (e.g., IA3006).

Only limited targeted screening was conducted in B008 because the majority of the first floor is covered by raised floor, which made screening for preferential pathways impractical.

## 6.4 B008 Completed Actions

Given that the majority of the first floor of B008 is covered by raised floor, which makes a robust evaluation of preferential pathways impractical, IBM elected to focus its efforts on HVAC adjustments.

IBM made operational adjustments to units AC-1 and AC-2, which consisted of increasing the outside air flows for each unit, slight adjustments to the operational schedules, and disabling the economizers for each unit to keep outside air flows relatively constant. Exhibit 6.2 summarizes the operational adjustments to the B008 HVAC systems.

**Exhibit 6.2: Summary of B008 HVAC Operational Adjustments**

B008 AHU No.	First Floor Areas Served	Schedule		Outside Air Flow (cfm)	
		Pre-Adjustment	Post-Adjustment	Pre-Adjustment	Post-Adjustment
AC-1	Hallway	0700 -1800 (M-F)	0600 -1800 (M-F)	6,000 (economizer operating)	10,000 (economizer not operating)
AC-2	Raised Floor Area	0600 - 2000 (M-F)	0600 - 1800 (M-F)	2,000 (economizer operating)	4,000 (economizer not operating)

Red font indicates modified condition.

The volume of outside air entering the building was approximately doubled from the original conditions. In addition, the economizers for AC-1 and AC-2, which previously allowed outside air flows to fluctuate, were disabled. Therefore, outside air flows are substantially higher (about 50% higher in the raised floor air) and relatively constant.

## 6.5 B008 Re-Screening and Confirmatory Sampling of Indoor Air Results

In April 2014 following completion the HVAC operational adjustments, rescreening of indoor air was conducted to evaluate the relative effectiveness of these actions. Table 1C includes the indoor air screening results (including interim rounds during HVAC adjustments), and Figure 5B summarizes the pre- and post-HVAC adjustment screening results for TCE. In general, increasing the outside air resulted in TCE screening concentrations that were slightly less than the concentrations observed in the initial round of screening (see Figure 5B) suggesting that modification of HVAC conditions had a positive effect on indoor air quality in B008.

The results of 8-hour, time integrated Summa® canister confirmatory indoor air sampling are presented on Figure 5C and Table 3C. TCE and PCE were the only analytes detected above laboratory reporting limits in the B008 confirmatory samples. TCE was detected at concentrations ranging from 1.9 to 3.2 µg/m<sup>3</sup>. Where detected above the laboratory reporting limits, PCE was observed at concentrations less than or equal to 0.4 µg/m<sup>3</sup>. Chloroethane, 1,1-DCA, 1,1-DCE, c-1,2-DCE, t-1,2-DCE, and vinyl chloride were not detected above laboratory reporting limits.

Based on the results of confirmatory indoor air sampling, IBM believes no further assessment is necessary in this building. IBM intends to maintain the HVAC operating

conditions in approximately the same post-adjustment HVAC conditions summarized in Exhibit 6.2.

A discussion of the QA/QC findings associated with the confirmatory indoor air samples collected from B008 (including an ambient air sample) is presented in Section 9. The B008 data were found to be useable in accordance with the project data quality objectives defined in the RFI Work Plan, with the exception of PCE within a Field Blank sample. The canister certification form for field blank FB3000 in B008 indicated the canister contained PCE prior to being shipped to the field for sample collection. This canister was shipped from the laboratory in error, which was acknowledged in the project narrative. The result for PCE in FB3000 was rejected ("R") and is not usable because this result may not be site-related; however, this qualification does not affect the findings and conclusions.

## **7.0 B012 ASSESSMENT AND FINDINGS**

### **7.1 B012 Building Characteristics and Use**

B012 is a three story structure, plus a fourth floor mechanical space (mezzanine) for the HVAC systems, built in 1984. The footprint is about 100,000 square feet, and the total area is about 370,000 square feet. B012 is constructed of a reinforced poured concrete foundation with poured in place, steel reinforced columns and floor systems. Exterior walls are brick over concrete block. The building has a foundation under drain system constructed beneath the floor slab.

The lower floor of B012 is currently an unoccupied former manufacturing space, most of which is covered by raised floor. B012 is connected to B002 via a ground floor linkway at the northern end of B012.

### **7.2 B012 HVAC System Overview**

The HVAC system in B012, located on the mezzanine, serves all three floors including the unoccupied first floor. As shown on Figure 6A, there are three HVAC zones on the first floor, one serving the southern half of the hallway and office areas, one serving the northern half of the hallway and utility/maintenance areas, and one serving the central raised floor area. A summary of the initial HVAC operating conditions is provided in Exhibit 7.1 below.

**Exhibit 7.1: Summary of Initial B012 HVAC Operational Conditions**

<b>HVAC Unit</b>	<b>Outside Air Flow (CFM)</b>	<b>Supply Air Dampers</b>	<b>Return Air Dampers</b>
AC-1,2,3	None to first floor	Closed to first floor	Closed to first floor
AC-5,6	1,500 (Entire building)	Open to first floor	Open to first floor

AC-1, 2, and 3 are connected to ductwork associated with supply air (a mixture of outside air and return air) and return air (air that is recycled from the building space) that delivers or returns air to/from all three floors. Outside air is delivered to all floors via the same units and shared ductwork. Numerous supply and return air dampers at each floor allow

outside air to be proportioned to each floor/area based on operational needs. The outside air intake dampers also have economizers that modulate based on temperature and pressure. As mentioned above, the first floor of B012 is unoccupied and therefore the supply air and return air dampers within the central raised floor area were closed. Therefore, air flow to this space was negligible at the time of initial field screening.

### 7.3 B012 Initial Field Screening

Initial field screening was conducted in August 2013 at 48 locations throughout the first floor of B012. The indoor air screening results are presented in Table 1D. Figure 6B shows the initial indoor air screening results. TCE was detected at all screening locations, at concentrations ranging from 5.4 to 27 µg/m<sup>3</sup>. The highest concentrations were found in the central raised-floor area of the former manufacturing space where outside air flow was negligible.

Only limited targeted screening was conducted in B012 because the majority of the first floor is covered by raised floor, which made screening for preferential pathways impractical.

### 7.4 B012 Completed Actions

Given that the majority of the first floor of B012 is covered by raised floor, which makes a robust evaluation of preferential pathways impractical, IBM elected to focus its efforts on HVAC adjustments. IBM made iterative adjustments to operating conditions for the B012 HVAC systems. Each adjustment was followed by re-screening of indoor air. Exhibit 7.2 summarizes the key operational adjustments to the B012 HVAC systems.

**Exhibit 7.2: Summary of HVAC Operational Adjustments**

HVAC Unit	Outside Air Flow (CFM)		Supply Air Dampers		Return Air Dampers	
	Pre-Adjustment	Post-Adjustment	Pre-Adjustment	Post-Adjustment	Pre-Adjustment	Post-Adjustment
AC-1,2,3	None to first floor but about 8,000 to entire building	24,000 (Entire building)	Closed to first floor	Open to first floor	Closed to first floor	Some open
AC-5,6	1,500 (Entire building)	2,400 (Entire building)	Open to first floor	Open to first floor	Open to first floor	Open to first floor

Red font indicates modified condition.

### 7.5 Re-Screening and Confirmatory Sampling Indoor Air Results

In April 2014 following completion the HVAC operational adjustments, rescreening of indoor air was conducted to evaluate the relative effectiveness of these actions. Table 1D

includes the indoor air screening results (including interim rounds), and Figure 6B summarizes the pre- and post-HVAC adjustment screening results for TCE. HVAC modifications were successful in reducing maximum observed TCE screening concentrations from greater than 20  $\mu\text{g}/\text{m}^3$  within the central raised floor area of B012 to less than or equal to 1.6  $\mu\text{g}/\text{m}^3$ .

Following re-screening of indoor air after the HVAC operational adjustments, 8-hour, time-integrated Summa® canister confirmatory indoor air samples were collected and analyzed. The results from this confirmatory sampling are presented on Figure 6C and Table 3D. TCE, PCE, c-1,2-DCE, and CA were the only analytes detected above laboratory reporting limits in the B012 confirmatory samples. TCE was detected at concentrations ranging from 0.59 to 1.2  $\mu\text{g}/\text{m}^3$ , confirming that the HVAC operational adjustments were successful in reducing TCE concentrations when compared to the pre-HVAC adjustment TCE screening concentrations. Where detected above reporting limits, PCE, c-1,2-DCE, and CA were detected at concentrations equal to or less than 0.27  $\mu\text{g}/\text{m}^3$ . 1,1-DCA, 1,1-DCE, t-1,2-DCE, and vinyl chloride were not detected above laboratory reporting limits.

Based on the results of confirmatory indoor air sampling, IBM believes no further assessment is necessary in this building. IBM intends to maintain the HVAC operating conditions in approximately the same post-adjustment HVAC conditions summarized in Exhibit 6.2 while the first floor of B012 remains unoccupied. If the first floor is to be re-occupied, IBM will reassess whether any HVAC modifications will affect the current indoor air quality.

A discussion of the QA/QC findings associated with the confirmatory indoor air samples collected from B012 (including an ambient air sample) is presented in Section 9. The B012 data were found to be useable in accordance with the project data quality objectives defined in the RFI Work Plan subject to a few minor qualifications that do not affect the findings and conclusions.

## **8.0 B077/B416 ASSESSMENT AND FINDINGS**

The following sections summarize the building-specific characteristics and uses, screening activities and results, and final confirmatory indoor air sampling results for B077 and B416. B077 and B416 are presented together in this section since no actions were necessary in either building.

### **8.1 Building Characteristics and Use**

B077 is a single story structure located on the southwest corner of the site. The building is currently used as the Recycling Center for the site. Loading docks are located on the east side of the building. The building is intermittently occupied.

B416 is a single story structure located to the west of B003. The building is predominantly made up of unoccupied office space and a cafeteria/kitchen area. B416 is connected to B003 via a ground floor linkway on the east side of the building.



## 8.2 HVAC System Overview

B077 does not have an HVAC system and the space is ventilated using fans located throughout the two main rooms. The building is used for storing and bailing recyclable materials for offsite processing, and the overhead doors at the loading dock are generally open when the space is occupied.

The B416 HVAC system is comprised of five HVAC zones, each served by an independently operating HVAC unit located on the rooftop mezzanine. The B416 HVAC zones are shown in Figure 8 and the current operational settings are presented in Exhibit 8.1. No adjustments were made to the B416 HVAC operations during the indoor air assessment work.

**Exhibit 8.1: Summary of B416 HVAC Operational Conditions**

B416 AHU No.	Areas Served	Operating Schedule
AC-1	Office Space (Vacant)	1 hr/day (M-F)
AC-2	Office Space	1 hr/day (M-F)
AC-3	Kitchen, Cafeteria, Office Space	0500 - 1430 (M-F)
AC-4	Office Space	1 hr/day (M-F)
AC-101	Cafeteria, Conference Rooms	0500 - 1900 (7 days/wk)

## 8.3 Field Screening and Confirmatory Sampling Results

### 8.3.1 B077 Results

Initial field screening in B077 was conducted at eight locations in September 2013 with subsequent re-screening in March 2014. The indoor air screening results are presented in Table 1E. Figure 7B shows both rounds of indoor air screening results. TCE was detected in each of the initial indoor air screening samples at concentrations ranging from 0.7 to 6.4  $\mu\text{g}/\text{m}^3$  and at concentrations ranging from 5.3 to 7.5  $\mu\text{g}/\text{m}^3$  in the second screening round. The highest TCE screening concentrations were observed in the center of the building at location IA7003. Targeted screening conducted in B077 did not indicate preferential pathways to be sealed.

In March 2014 following completion of the second screening round, an 8-hr, time-integrated Summa® samples were collected at location IA7003 (a primary and field duplicate sample) where the highest TCE screening concentrations were observed in the second round of screening. In addition, an ambient air sample was collected outside of the building. TCE was detected at a concentration of 4.1 and 4.4  $\mu\text{g}/\text{m}^3$  in the primary and field duplicate indoor air samples, respectively. PCE and c-1,2-DCE were detected in the primary and field duplicate samples but at concentrations below 0.7  $\mu\text{g}/\text{m}^3$ . CA, 1,1-DCA, 1,1-DCE, t-1,2-DCE, and VC were not detected at concentrations greater than laboratory reporting limits in either the primary or field duplicate sample.



### **8.3.2 B416 Results**

Initial field screening in B416 was conducted at seven locations in November 2013 with subsequent re-screening in March 2014. The indoor air screening results are presented in Table 1F. Figure 8B shows both rounds of indoor air screening results. TCE was not detected above the reporting limits for the portable GC/MS in the initial indoor air screening samples. TCE concentrations in the March 2014 re-screening round ranged from below the portable GC/MS reporting limit up to 2.4 µg/m<sup>3</sup>. Targeted screening conducted in B416 did not indicate preferential pathways to be sealed.

In March 2014 following completion of the second screening round, five 8-hr time-integrated Summa® samples were collected. In addition, an ambient air sample was collected outside of the building. TCE was detected in each of the indoor air samples at very low concentrations ranging from 0.086 to 0.20 µg/m<sup>3</sup>. PCE and c-1,2-DCE were detected above laboratory reporting limits in these samples but at concentrations less than 0.7 µg/m<sup>3</sup>. CA, 1,1-DCA, 1,1-DCE, c-1,2-DCE, t-1,2-DCE, PCE, and VC were not detected in any indoor air samples at concentrations above laboratory reporting limits.

### **8.3.3 Summary for B077 and B416**

Based on the results of confirmatory indoor air sampling, IBM believes no further assessment is necessary in B077 or B416. Alteration of the HVAC systems in these buildings was not conducted.

A discussion of the QA/QC findings associated with the confirmatory indoor air samples collected from B077 and B416 is presented in Section 9. The B077 and B416 data were found to be useable in accordance with the project data quality objectives defined in the RFI Work Plan subject to a few minor qualifications that do not affect the findings and conclusions.

## **9.0 QUALITY ASSURANCE/QUALITY CONTROL**

Analytical data from the 8-hour, time-integrated Summa® canister confirmatory sampling events described above were provided to New Environmental Horizons, Inc. (NEH) for third-party independent data validation. NEH's data validation reports are presented as Appendix E.

NEH's evaluation included a review of sample data to verify that the laboratory conducted the analyses in compliance with the analytical methods required, appropriate laboratory procedures, and consistency with the Work Plan Quality Assurance/Quality Control (QA/QC) requirements. NEH's evaluation was conducted in accordance with USEPA and NYSDEC guidelines for data validation of organic data. NEH prepared a Data Usability Report that summarizes the quality control issues that required action (i.e., qualification of data) and compared QA/QC criteria to the data quality objectives described in the approved Work Plan.

In summary and as stated in previous sections of the report, NEH found the data to be useable, with one exception, in accordance with the project data quality objectives subject

to a few minor qualifications that do not affect the findings and conclusions. The following QA/QC considerations were noted by NEH:

- For six samples (IA8002 in B416; IA4011 in B012; and AA5001, FD5033, IA5002, and IA5028 from B004), the sample collection durations differed by 20% (about 1.5 hours) less than the 8-hour target collection durations due to laboratory error in the calibration of the fill rate for the flow controllers. Therefore, the results for these sample were estimated ("J" or "UJ") with indeterminate bias.
- Final field vacuum and laboratory receipt vacuum differed by more than 5 inches Hg for two samples, IA6011 (B002) and FB5001 (B004). The results for these two samples were flagged as estimated ("J" or "UJ") by NEH with an indeterminate bias due to the disagreement.
- A low-level detection of TCE was reported for field blank FB4001. A comparison of the level found in FB4001 and associated samples in B012 resulted in five samples (FD4015, IA4007, IA4009, IA4012, IA4015) being flagged as estimated ("EB") for TCE by NEH with a possible high bias.
- The canister certification form for field blank FB3000 in B008 indicated the canister contained PCE prior to being shipped to the field for sample collection. This canister was shipped from the laboratory in error, which was acknowledged in the project narrative. The result for PCE in FB3000 was rejected ("R") and is not usable because this result may not be site-related.

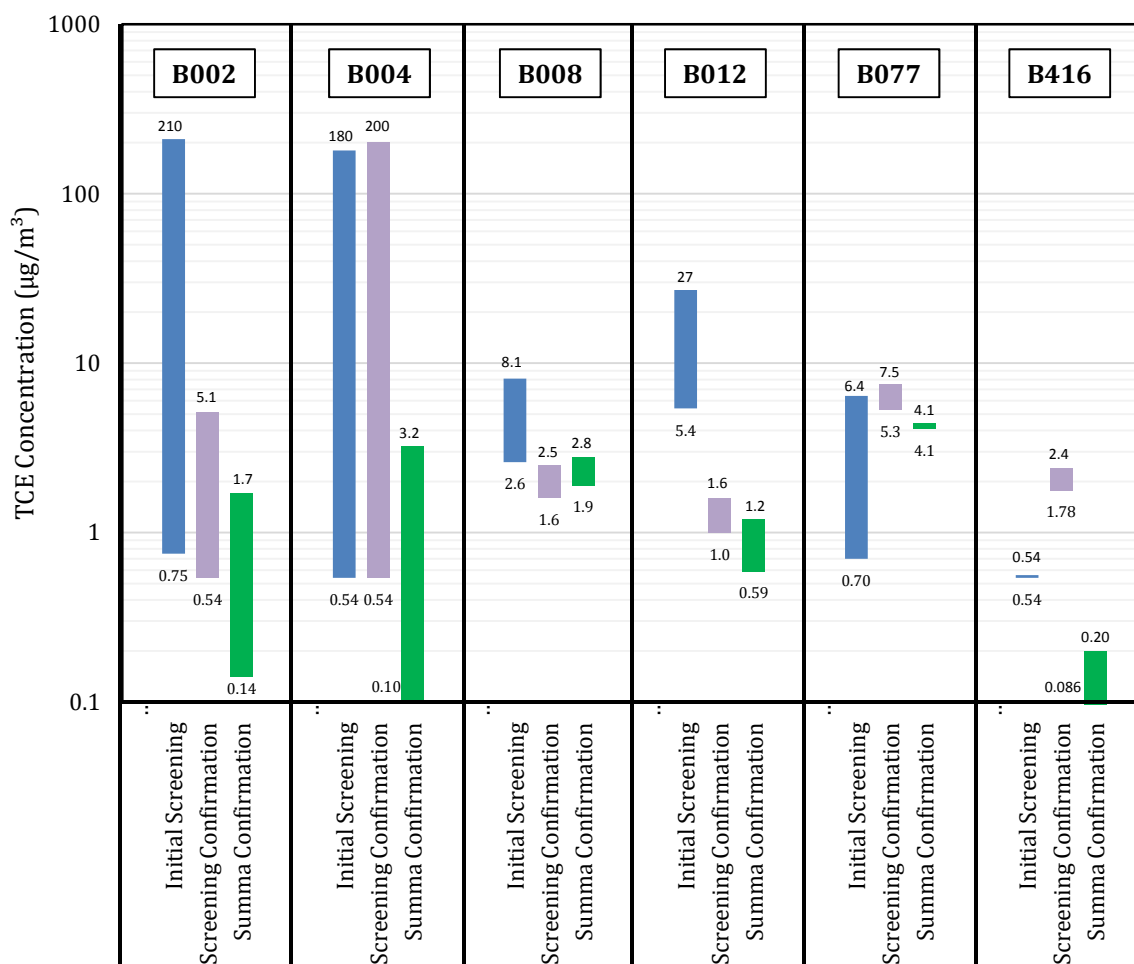
Additional information regarding QA/QC criteria for field screening and indoor air sampling is presented in Appendix B.

## 10.0 CONCLUSIONS

Various investigations, testing, and actions were undertaken to evaluate, and address where appropriate, the anomalous presence of VOCs (primarily TCE) in indoor air of B002, B004, B008, B012, B077, and B416. As described in the preceding sections, initial field screening of indoor air was completed with a portable GC/MS. Based on this initial screening investigation, IBM elected to conduct additional assessment, testing, and actions in certain buildings to evaluate the origin and potential pathways for VOC vapor entry into the buildings, and to support implementation of measures that reduced VOC concentrations in indoor air.

Exhibit 10.1 provides a building-by-building summary of TCE concentrations in indoor air from: 1) an initial screening round, 2) subsequent re-screening following completion of actions aimed at reducing VOC concentrations, and 3) 8-hr, time-integrated Summa® canister results after the re-screening round.

**Exhibit 10.1: Summary of VOC Concentrations in Indoor Air**



The text below summarizes conclusions related to the work conducted in each of the buildings.

- **B002** – After identifying anomalous TCE concentrations in indoor air, the portable GC/MS was used to assess and address preferential pathways for VOC migration into the building. In addition, IBM adjusted the operational conditions of several HVAC units to increase outside air flow rates to the ground floor. These actions have resulted in reductions in indoor air TCE concentrations, which have been verified with 8-hr, time-integrated Summa® canister indoor air samples. Based on these results, IBM will continue to operate and maintain the B002 HVAC systems in a manner consistent with the conditions used during the confirmatory sampling round. IBM believes no further assessment of B002 is warranted.
- **B004** – After identifying anomalous TCE concentrations in indoor air, the portable GC/MS was used to assess and address preferential pathways for VOC migration into B004 indoor air. In addition, IBM adjusted the operational conditions of several HVAC units to increase outside air flow rates to the ground floor. These actions resulted in reductions in indoor air TCE concentrations in all areas except the Loading Dock Area. Therefore, subslab investigations and SVE pilot testing was implemented to evaluate

the viability of subslab SVE to address TCE concentrations in the Loading Dock indoor air.

Subslab SVE testing within the Loading Dock Area confirmed the viability of this method of intercepting VOC mass transport into the building through the floor slab. A design basis for connecting an extraction port in the Loading Dock Area to the vapor extraction and treatment system components in B003 has been developed from the results of pilot testing. The design basis is intended to achieve the goals of VOC mass removal and control of subslab-to-indoor air pressure differentials to reduce VOC mass entry into the Loading Dock Area of B004.

IBM is moving forward with the detailed design of VOC source remediation in the Loading Dock Area using subslab SVE, targeting construction in the fourth quarter of 2014 and startup in first quarter of 2015. A separate report of SVE performance monitoring and confirmatory sampling results will be provided after the startup of the extraction port in the Loading Dock Area.

- **B008** - After identifying anomalous TCE concentrations in B008 indoor air, IBM adjusted the operational conditions of the HVAC units to increase outside air flow rates to the building. These actions have resulted in reductions in indoor air TCE concentrations, which have been verified with 8-hr, time-integrated Summa® canister indoor air samples. Based on these results, IBM will continue to operate and maintain the HVAC systems in a manner consistent with the conditions in place during the confirmatory sampling round. IBM believes no further assessment of B008 is warranted.
- **B012** - After identifying anomalous TCE concentrations in indoor air on the unoccupied ground floor of B012, IBM adjusted the operational conditions of several HVAC units to increase outside air flow rates to the building. These actions have resulted in reductions in B012 indoor air TCE concentrations, which have been verified with 8-hr, time-integrated Summa® canister indoor air samples. Based on these results, IBM will continue to operate and maintain the HVAC systems in a manner consistent with the conditions established during the confirmatory sampling round while this building remains unoccupied. If the unoccupied portion of B012 is re-occupied, and/or HVAC conditions need to be modified, IBM will re-evaluate indoor air quality conditions.
- **B077** - TCE was detected at relatively low concentrations (maximum concentration of about 7 µg/m<sup>3</sup>) in a portion of the screening samples collected from B077. Results from 8-hr, time-integrated Summa® canister indoor air samples collected in B077 were below 5 µg/m<sup>3</sup>. Based on these results, IBM believes no further assessment of this building is warranted.
- **B416** - TCE was detected at very low concentrations (maximum concentration of about 2.4 µg/m<sup>3</sup>) in a portion of the screening samples collected from B416. Results from 8-hr, time-integrated Summa® canister indoor air samples were below 5 µg/m<sup>3</sup>. Based on these results, IBM believes no further assessment of this building is warranted.

## TABLES

**TABLE 1 SERIES**  
**SUMMARY OF PORTABLE GC/MS INDOOR AIR**  
**SCREENING RESULTS**

TABLE 1a

**Building 002****Summary of Portable GC/MS Indoor Air Screening Results****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA6001	8/12/2013	Initial Screening	<0.68	10
	8/12/2013		<0.68	37
	8/12/2013		<0.68	38
	8/13/2013		0.75	30
	8/13/2013		<0.68	31
	8/14/2013		<0.68	15
	8/14/2013		<0.68	36
	8/15/2013		<0.68	44
	8/16/2013		<0.68	75
	8/19/2013		<0.68	91
	8/21/2013		<0.68	52
	8/21/2013		<0.68	47
	8/21/2013		<0.68	43
	8/21/2013		<0.68	51
	8/21/2013		<0.68	46
	10/21/2013	During Sealing and HVAC Adj.	<0.68	4.1
	10/22/2013		<0.68	2.3
	10/23/2013		<0.68	1.7
	10/24/2013		<0.68	2.1
	10/25/2013		<0.68	2.0
	10/28/2013		<0.68	2.6
	10/29/2013		<0.68	2.1
	10/30/2013		<0.68	1.7
	11/20/2013		<0.68	2.6
	11/21/2013		<0.68	2.3
	12/7/2013	Screening Confirmation	<0.68	<0.54
	4/7/2014		<0.68	1.3
	4/22/2014		<0.68	1.3
	6/4/2014		R	1.2
IA6002	8/12/2013	Initial Screening	<0.68	19
	10/24/2013	Screening Confirmation	<0.68	2.8
IA6003	8/12/2013	Initial Screening	<0.68	44
	10/24/2013	During Sealing and HVAC Adj.	<0.68	1.1
	4/8/2014	Screening Confirmation	<0.68	1.5
	4/10/2014		<0.68	1.4
IA6004	8/13/2013	Initial Screening	0.81	18
	8/14/2013		<0.68	7.5
	10/24/2013	During Sealing and HVAC Adj.	<0.68	1.7
	4/8/2014	Screening Confirmation	<0.68	2.5
	4/10/2014		<0.68	2.0
IA6005	8/14/2013	Initial Screening	<0.68	14
	10/24/2013	Screening Confirmation	<0.68	3.8
IA6006	8/14/2013	Initial Screening	<0.68	19
	8/21/2013		<0.68	17



TABLE 1a

**Building 002****Summary of Portable GC/MS Indoor Air Screening Results****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA6007	8/14/2013	Initial Screening	<0.68	23
IA6008	8/14/2013	Initial Screening	0.81	26
	10/24/2014	Screening Confirmation	<0.68	3.2
	11/20/2013		<0.68	2.6
IA6009	8/14/2013	Initial Screening	1.4	180
	8/15/2013		1.3	210
	8/19/2013		1.1	129
	8/21/2013		1.0	91
	9/11/2013		1.4	27
	10/24/2013	Screening Confirmation	<0.68	3.9
IA6010	8/14/2013	Initial Screening	0.75	8.1
IA6011	8/14/2013	Initial Screening	0.81	10
	10/24/2013	During Sealing and HVAC Adj.	1.0	5.9
	4/8/2014	Screening Confirmation	<0.68	3.2
	4/10/2014		<0.68	2.7
IA6012	8/14/2013	Initial Screening	1.3	10
	10/24/2013	During Sealing and HVAC Adj.	<0.68	3.2
	4/8/2014	Screening Confirmation	<0.68	2.9
	4/10/2014		<0.68	2.4
IA6013	8/15/2013	Initial Screening	0.75	4.9
IA6014	8/15/2013	Initial Screening	<0.68	4.8
IA6015	8/15/2013	Initial Screening	<0.68	3.6
	10/24/2013	During Sealing and HVAC Adj.	<0.68	2.8
	11/20/2013		<0.68	2.3
	4/8/2014	Screening Confirmation	<0.68	2.1
	4/10/2014		<0.68	1.8
IA6016	8/15/2013	Initial Screening	<0.68	4.2
IA6017	8/15/2013	Initial Screening	<0.68	3.8
IA6018	8/15/2013	Initial Screening	<0.68	24
	9/11/2013		1.4	26
IA6019	8/15/2013	Initial Screening	0.75	97
	9/11/2013		1.3	24
IA6020	8/15/2013	Initial Screening	0.68	70
	9/11/2013		1.5	29
IA6021	8/15/2013	Initial Screening	<0.68	26
	9/11/2013		1.4	24
IA6022	8/15/2013	Initial Screening	0.68	110
	9/11/2013		1.3	24
IA6023	8/15/2013	Initial Screening	0.68	110
	9/11/2013		1.4	27
IA6024	8/15/2013	Initial Screening	<0.68	21
	9/11/2013		1.5	21
	10/24/2013	During Sealing and HVAC Adj.	<0.68	3.9
	11/20/2013	Screening Confirmation	<0.68	2.8
IA6025	8/15/2013	Initial Screening	<0.68	17
	9/11/2013		0.81	20

TABLE 1a

**Building 002****Summary of Portable GC/MS Indoor Air Screening Results****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA6026	8/15/2013	Initial Screening	<0.68	13
IA6027	8/15/2013	Initial Screening	<0.68	17
IA6028	8/15/2013	Initial Screening	<0.68	32
	10/24/2013	Screening Confirmation	<0.68	4.7
IA6029	8/15/2013	Initial Screening	<0.68	15
IA6030	8/15/2013	Initial Screening	<0.68	15
IA6031	8/15/2013	Initial Screening	<0.68	21
	10/24/2013	Screening Confirmation	<0.68	5.1
IA6032	8/15/2013	Initial Screening	<0.68	19
IA6033	8/15/2013	Initial Screening	<0.68	19
IA6034	8/15/2013	Initial Screening	<0.68	5.9
IA6035	8/15/2013	Initial Screening	<0.68	5.9
IA6036	8/15/2013	Initial Screening	<0.68	19
IA6037	8/15/2013	Initial Screening	1.8	9.1
IA6038	8/16/2013	Initial Screening	<0.68	3.2
IA6039	8/16/2013	Initial Screening	<0.68	3.9
IA6040	8/16/2013	Initial Screening	<0.68	3.9
	9/11/2013		0.75	70
	9/13/2013		<0.68	110
IA6041	8/16/2013	Initial Screening	1.0	4.0
	10/24/2013	Screening Confirmation	<0.68	2.6
IA6042	8/16/2013	Initial Screening	<0.68	3.8
IA6043	8/16/2013	Initial Screening	<0.68	5.4
IA6044	8/16/2013	Initial Screening	<0.68	5.4
IA6045	8/16/2013	Initial Screening	<0.68	4.2
IA6046	8/16/2013	Initial Screening	1.4	6.4
IA6047	8/16/2013	Initial Screening	1.9	8.6
IA6048	8/16/2013	Initial Screening	<0.68	9.1
IA6049	8/16/2013	Initial Screening	0.75	12
	10/24/2013	During Sealing and HVAC Adj.	<0.68	3.8
	4/8/2014	Screening Confirmation	<0.68	2.1
	4/10/2014		<0.68	1.8
IA6050	8/16/2013	Initial Screening	<0.68	6.4
IA6051	8/16/2013	Initial Screening	<0.68	22
IA6052	8/16/2013	Initial Screening	<0.68	16
IA6053	8/16/2013	Initial Screening	<0.68	20

TABLE 1a

**Building 002****Summary of Portable GC/MS Indoor Air Screening Results****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA6054	8/16/2013	Initial Screening	<0.68	38
	8/19/2013		<0.68	150
	8/21/2013		<0.68	27
	8/21/2013		<0.68	29
	8/21/2013		<0.68	28
	8/21/2013		<0.68	59
	8/21/2013		<0.68	53
	10/23/2013	During Sealing and HVAC Adj.	<0.68	1.6
	10/24/2013		<0.68	1.6
	10/25/2013		<0.68	1.5
	10/28/2013		<0.68	2.7
	10/29/2013		<0.68	2.4
	10/30/2013		<0.68	1.6
	11/20/2013		<0.68	1.8
	11/21/2013		<0.68	1.9
	12/7/2013		<0.68	0.54
	4/7/2014	Screening Confirmation	<0.68	1.4
	4/22/2014		<0.68	1.2
	6/4/2014		R	1.4
IA6055	8/19/2013	Initial Screening	<0.68	97
IA6056	8/19/2013	Initial Screening	<0.68	26
	8/20/2013		<0.68	13
	10/24/2013	Screening Confirmation	<0.68	1.7
IA6057	8/19/2013	Initial Screening	0.68	26
	10/24/2013	Screening Confirmation	<0.68	1.9
IA6058	8/19/2013	Initial Screening	<0.68	28
IA6059	8/19/2013	Initial Screening	<0.68	25
IA6060	8/19/2013	Initial Screening	<0.68	12
IA6061	8/19/2013	Initial Screening	0.75	6.4
	10/24/2013	During Sealing and HVAC Adj.	0.68	3.8
	4/8/2014	Screening Confirmation	<0.68	2.0
	4/10/2014		0.95	1.6
IA6062	8/19/2013	Initial Screening	<0.68	5.9
IA6063	8/19/2013	Initial Screening	<0.68	17
IA6064	8/19/2013	Initial Screening	<0.68	23
IA6065	8/19/2013	Initial Screening	<0.68	20
IA6066	8/20/2013	Initial Screening	<0.68	0.75
	10/24/2013	During Sealing and HVAC Adj.	<0.68	<0.54
	4/8/2014	Screening Confirmation	<0.68	0.54
	4/10/2014		<0.68	<0.54
IA6067	8/20/2013	Initial Screening	<0.68	0.75
IA6068	8/20/2013	Initial Screening	<0.68	17
IA6069	8/20/2013	Initial Screening	0.88	20
IA6070	8/20/2013	Initial Screening	0.75	14
IA6071	8/20/2013	Initial Screening	0.68	11

TABLE 1a

**Building 002****Summary of Portable GC/MS Indoor Air Screening Results****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA6072	8/20/2013	Initial Screening	1.1	75
	8/21/2013		<0.68	12
	10/24/2013	Screening Confirmation	<0.68	4.5
IA6073	8/20/2013	Initial Screening	<0.68	16
	10/24/2013	During Sealing and HVAC Adj.	<0.68	3.4
	4/8/2014	Screening Confirmation	<0.68	2.1
	4/10/2014		<0.68	2.1
IA6074	8/20/2013	Initial Screening	0.81	16
IA6075	8/20/2013	Initial Screening	0.75	12
IA6076	8/20/2013	Initial Screening	<0.68	11
IA6077	8/20/2013	Initial Screening	1.0	11
IA6078	8/20/2013	Initial Screening	0.88	15
	10/24/2013	Screening Confirmation	<0.68	2.7
IA6079	8/20/2013	Initial Screening	<0.68	25
IA6080	8/20/2013	Initial Screening	<0.68	27
	10/24/2013	Screening Confirmation	<0.68	1.3
IA6081	8/20/2013	Initial Screening	0.88	34
IA6082	8/21/2013	Initial Screening	<0.68	11
IA6083	8/21/2013	Initial Screening	<0.68	10
IA6084	9/11/2013	Initial Screening	1.4	31

Blue shading indicates the result appears on the report figures.

TABLE 1b

**Building 004****Summary of Portable GC/MS Indoor Air Screening****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA5001	8/8/2013	Initial Screening	<0.68	10
IA5002	8/8/2013	Initial Screening	<0.68	10
	10/23/2013		<0.68	5.4
	4/8/2014	Screening Confirmation	<0.68	3.0
	5/29/2014	During Sealing and HVAC Adj.	<0.68	2.3
IA5003	8/8/2013	Initial Screening	<0.68	11
IA5004	8/8/2013	Initial Screening	<0.68	11
IA5005	8/8/2013	Initial Screening	<0.68	11
IA5006	8/8/2013	Initial Screening	<0.68	8.1
	11/20/2013	Screening Confirmation	<0.68	5.1
IA5007	8/8/2013	Initial Screening	<0.68	9.1
IA5008	8/8/2013	Initial Screening	<0.68	9.1
	10/23/2013	Screening Confirmation	<0.68	5.9
IA5009	8/8/2013	Initial Screening	<0.68	2.1
IA5010	8/8/2013	Initial Screening	<0.68	3.0
IA5011	8/8/2013	Initial Screening	<0.68	3.5
	10/23/2013	Screening Confirmation	<0.68	1.3
IA5012	8/8/2013	Initial Screening	<0.68	<0.54
	8/12/2013		<0.68	<0.54
	8/12/2013		<0.68	<0.54
	8/13/2013		<0.68	<0.97
	8/13/2013		<0.68	<0.97
	8/14/2013		<0.68	<0.54
	8/15/2013		<0.68	<0.54
	8/16/2013		<0.68	<0.54
IA5013	8/8/2013	Initial Screening	<0.68	<0.54
	10/23/2013		<0.68	<0.54
	11/20/2013		<0.68	<0.54
	11/21/2013		<0.68	<0.54
	12/7/2013		<0.68	<0.54
	4/8/2014	Screening Confirmation	<0.68	<0.54
	6/4/2014	During Sealing and HVAC Adj.	R	1.1
IA5014	8/8/2013	Initial Screening	<0.68	<0.54
	11/20/2013	Screening Confirmation	<0.68	<0.54
IA5015	8/8/2013	Initial Screening	<0.68	<0.54
IA5016	8/8/2013	Initial Screening	<0.68	1.3
IA5017	8/8/2013	Initial Screening	<0.68	1.2
	10/23/2013	Screening Confirmation	<0.68	<0.54
IA5018	8/8/2013	Initial Screening	<0.68	8.6
IA5019	8/8/2013	Initial Screening	<0.68	6.4
	5/29/2014	During Sealing and HVAC Adj.	<0.68	4.7
	6/17/2014	Screening Confirmation	<0.68	2.1
IA5020	8/8/2013	Initial Screening	<0.68	5.9

TABLE 1b

**Building 004****Summary of Portable GC/MS Indoor Air Screening****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA5021	8/8/2013	Initial Screening	<0.68	12
	10/23/2013		<0.68	5.4
	4/8/2014		<0.68	4.7
	4/10/2014	Screening Confirmation	<0.68	7.0
	4/22/2014	Preliminary Loading Dock Screening	<0.68	6.4
	4/24/2014		<0.68	5.9
	4/24/2014	During Sealing and HVAC Adj.	<0.68	8.1
	4/25/2014		R	5.1
	4/28/2014		R	5.4
	4/29/2014		<0.68	5.4
	5/29/2014		<0.68	8.6
	5/29/2014		<0.68	5.4
	5/29/2014		<0.68	4.4
	5/29/2014		<0.68	4.7
	5/29/2014		<0.68	4.1
	5/30/2014		R	4.5 JL
	5/30/2014		R	3.9 JL
	6/4/2014		R	4.8
	6/4/2014		R	4.0
	6/5/2014		<0.68	3.2
	6/5/2014		<0.68	2.3
	6/13/2014		<0.68	5.1
	6/18/2014		<0.68	2.5
	6/18/2014		<0.68	2.2
	6/18/2014		<0.68	2.2
	6/19/2014	Screening Confirmation	<0.68	2.8
	8/7/2014	During Pilot Testing	<0.68	2.6
	8/7/2014		<0.68	1.7
	8/7/2014		<0.68	1.1



TABLE 1b

**Building 004****Summary of Portable GC/MS Indoor Air Screening****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA5022	8/12/2013	Initial Screening	<0.68	3.7
	8/12/2013		<0.68	1.7
	8/13/2013		<0.68	4.5
	8/13/2013		<0.68	2.3
	8/14/2013		<0.68	2.4
	8/15/2013		<0.68	3.2
	8/16/2013		<0.68	3.5
	8/21/2013		<0.68	3.2
	8/21/2013		<0.68	3.6
	8/21/2013		<0.68	2.8
	8/21/2013		<0.68	4.6
	8/21/2013		<0.68	4.1
	10/21/2013		<0.68	3.7
	10/22/2013		<0.68	2.6
	10/23/2013		<0.68	2.5
	10/24/2013		<0.68	2.0
	10/25/2013		<0.68	2.0
	10/28/2013		<0.68	2.6
	10/29/2013		<0.68	1.8
	10/30/2013		<0.68	2.1
	11/20/2013		<0.68	1.8
	11/21/2013		<0.68	3.8
	12/7/2013		<0.68	<0.54
	4/8/2014		<0.68	1.1
	4/10/2014	Screening Confirmation	<0.68	2.4
	6/4/2014	During Sealing and HVAC Adj.	R	1.7
IA5023	8/12/2013	Initial Screening	<0.68	<0.54
	10/23/2013		<0.68	<0.54
	4/8/2014	Screening Confirmation	<0.68	<0.54
	5/29/2014	During Sealing and HVAC Adj.	<0.68	<0.54
IA5024	8/12/2013	Initial Screening	<0.68	<0.54
IA5025	8/12/2013	Initial Screening	<0.68	1.2
IA5026	8/12/2013	Initial Screening	<0.68	1.1
IA5027	8/12/2013	Initial Screening	<0.68	1.1
IA5028	8/12/2013	Initial Screening	<0.68	1.1
	10/23/2013		<0.68	0.75
	4/8/2014		<0.68	0.97
	4/10/2014	Screening Confirmation	<0.68	0.70
IA5029	8/12/2013	Initial Screening	<0.68	1.2
IA5030	8/12/2013	Initial Screening	<0.68	0.97
	8/13/2013		<0.68	1.3
	10/23/2013		<0.68	<0.54
IA5031	8/12/2013	Initial Screening	<0.68	2.1
	10/23/2013		<0.68	1.0
	4/8/2014		<0.68	1.7
	4/10/2014	Screening Confirmation	<0.68	1.5
	5/29/2014	During Sealing and HVAC Adj.	<0.68	1.6

TABLE 1b

**Building 004****Summary of Portable GC/MS Indoor Air Screening****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA5032	8/12/2013	Initial Screening	<0.68	2.5
IA5033	8/13/2013	Initial Screening	<0.68	6.4
	10/23/2013		<0.68	1.7
	4/8/2014	Screening Confirmation	<0.68	2.6
IA5034	8/13/2013	Initial Screening	<0.68	4.4
	10/23/2013		<0.68	1.1
	4/8/2014	Screening Confirmation	<0.68	2.1
IA5035	8/13/2013	Initial Screening	<0.68	4.6
IA5036	8/13/2013	Initial Screening	<0.68	5.9
IA5037	8/13/2013	Initial Screening	<0.68	5.9
IA5038	8/13/2013	Initial Screening	<0.68	7.0
	10/23/2013	Screening Confirmation	<0.68	1.3
IA5039	8/13/2013	Initial Screening	<0.68	8.6
IA5040	8/13/2013	Initial Screening	<0.68	8.1
IA5041	8/13/2013	Initial Screening	<0.68	2.1
	10/23/2013		<0.68	0.86
	4/8/2014		<0.68	1.5
	4/10/2014	Screening Confirmation	<0.68	1.1
	5/29/2014	During Sealing and HVAC Adj.	<0.68	2.1
IA5042	8/13/2013	Initial Screening	<0.68	2.2
IA5043	8/13/2013	Initial Screening	<0.68	2.0
IA5044	8/13/2013	Initial Screening	<0.68	13
	10/23/2013	Screening Confirmation	<0.68	9.1
IA5045	8/13/2013	Initial Screening	1.0	7.0
IA5046	8/13/2013	Initial Screening	<0.68	9.7
IA5047	8/13/2013	Initial Screening	<0.68	2.5
	11/20/2013	Screening Confirmation	<0.68	3.0
IA5048	4/24/2014	Preliminary Loading Dock Screening	<0.68	11
	4/29/2014	During Sealing and HVAC Adj.	<0.68	5.9
	5/29/2014		<0.68	5.9
	5/30/2014		R	2.4 JL
	5/30/2014		R	4.3 JL
	6/17/2014		<0.68	7.5
	6/18/2014		<0.68	3.3
	6/18/2014		<0.68	5.9
	6/18/2014		<0.68	5.0
	6/19/2014	Screening Confirmation	<0.68	13
	8/7/2014	During Pilot Testing	<0.68	1.3
	8/7/2014		<0.68	0.70

TABLE 1b

**Building 004****Summary of Portable GC/MS Indoor Air Screening****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA5049	4/24/2014	Preliminary Loading Dock Screening	<0.68	8.6
	5/29/2014	During Sealing and HVAC Adj.	<0.68	51
	5/29/2014		<0.68	81
	5/29/2014		<0.68	27
	5/29/2014		<0.68	16
	5/30/2014		R	18 JL
	5/30/2014		R	36 JL
	6/4/2014		R	7.5
	6/4/2014		R	5.1
	6/5/2014		<0.68	4.0
	6/5/2014		<0.68	3.4
	6/17/2014		<0.68	4.0
	6/18/2014		<0.68	2.4
	6/18/2014		<0.68	2.6
	6/18/2014		<0.68	2.3
	6/19/2014	Screening Confirmation	<0.68	2.7
	8/7/2014	During Pilot Testing	<0.68	3.0
	8/7/2014		<0.68	1.7
	8/7/2014		<0.68	0.81
IA5050	4/24/2014	Preliminary Loading Dock Screening	<0.68	4.7
	5/29/2014	During Sealing and HVAC Adj.	<0.68	5.9
	5/29/2014		<0.68	3.0
	5/29/2014		<0.68	3.3
	5/29/2014		<0.68	3.7
	5/29/2014		<0.68	2.8
	5/30/2014		R	2.9 JL
	6/4/2014		R	4.0
	6/4/2014		R	3.3
	6/5/2014		<0.68	3.3
	6/17/2014		<0.68	3.5
	6/18/2014		<0.68	2.2
IA5051	4/24/2014	Preliminary Loading Dock Screening	<0.68	2.8
IA5052	4/24/2014	Preliminary Loading Dock Screening	<0.68	5.9
	4/25/2014	During Sealing and HVAC Adj.	R	5.9
	4/28/2014		R	5.4
	4/29/2014		<0.68	6.4
	5/29/2014		<0.68	6.4
	5/29/2014		<0.68	3.8
	5/29/2014		<0.68	4.1
	5/29/2014		<0.68	3.9
	5/29/2014		<0.68	3.5
	5/30/2014		R	3.2 JL
	6/4/2014		R	4.1
	6/4/2014		R	3.8
	6/5/2014		<0.68	3.8
	6/17/2014		<0.68	3.2

TABLE 1b

**Building 004****Summary of Portable GC/MS Indoor Air Screening****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA5053	5/30/2014	During Sealing and HVAC Adj.	R	3.4 JL
IA5054	5/30/2014	During Sealing and HVAC Adj.	R	3.2 JL
IA5055	5/30/2014	Preliminary Loading Dock Screening	R	3.5 JL
	6/17/2014	During Sealing and HVAC Adj.	<0.68	3.5
	6/18/2014		<0.68	1.8
	6/18/2014		<0.68	1.8
	6/19/2014	Screening Confirmation	<0.68	2.6
IA5056	5/30/2014	During Sealing and HVAC Adj.	R	3.2 JL
IA5057	5/30/2014	Preliminary Loading Dock Screening	R	2.6 JL
	6/4/2014	During Sealing and HVAC Adj.	R	6.4
	6/4/2014		R	4.9
	6/5/2014		<0.68	3.9
IA5058	5/30/2014	Preliminary Loading Dock Screening	R	3.1 JL
	6/4/2014	During Sealing and HVAC Adj.	R	2.6
	6/4/2014		R	2.9
	6/5/2014		<0.68	2.6
IA5059	5/30/2014	During Sealing and HVAC Adj.	R	2.0 JL
IA5060	5/30/2014	Preliminary Loading Dock Screening	R	2.8 JL
	6/4/2014	During Sealing and HVAC Adj.	R	5.0
	6/4/2014		R	7.5
	6/5/2014		<0.68	6.4
	6/5/2014		<0.68	9.1
	6/17/2014		<0.68	4.5
	6/18/2014		<0.68	2.2
	6/18/2014		<0.68	1.7
	6/18/2014		<0.68	4.4
	6/19/2014	Screening Confirmation	<0.68	4.7
	8/7/2014	During Pilot Testing	<0.68	1.3
	8/7/2014		<0.68	0.64
IA5062	6/17/2010	Preliminary Loading Dock Screening	<0.68	3.4
	6/18/2014	During Sealing and HVAC Adj.	<0.68	2.0
	8/7/2014	During Pilot Testing	<0.68	0.70

TABLE 1b

**Building 004****Summary of Portable GC/MS Indoor Air Screening****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA5063	6/17/2014	Preliminary Loading Dock Screening	<0.68	91
	6/17/2014		<0.68	180
	6/18/2014	During Sealing and HVAC Adj.	<0.68	48
	6/18/2014		<0.68	30
	6/18/2014		<0.68	42
	6/18/2014		<0.68	34
	6/18/2014		<0.68	120
	6/19/2014		<2.7	210
	6/19/2014		<2.7	150
	6/19/2014		<0.68	33
	6/19/2014		<0.68	33
	6/19/2014		<0.68	9.7
	6/19/2014	Screening Confirmation	<0.68	200
	8/7/2014	During Pilot Testing	<0.68	5.2
	8/7/2014		<0.68	1.3
	8/7/2014		<0.68	0.91
IA5064	6/18/2014	During Sealing and HVAC Adj.	<0.68	0.81
IA5065	6/18/2014	During Sealing and HVAC Adj.	<0.68	1.2
	8/7/2014	During Pilot Testing	<0.68	1.0
IA5066	6/18/2014	Preliminary Loading Dock Screening	<0.68	9.7
	6/19/2014	Screening Confirmation	<0.68	13
	8/7/2014	During Pilot Testing	<0.68	1.3
	8/7/2014		<0.68	0.64
IA5067	6/18/2014	During Sealing and HVAC Adj.	<0.68	3.3
	8/7/2014	During Pilot Testing	<0.68	2.1
	8/7/2014		<0.68	1.6
	8/7/2014		<0.68	0.70
IA5068	6/18/2014	During Sealing and HVAC Adj.	<0.68	4.0
	8/7/2014	During Pilot Testing	<0.68	1.3
	8/7/2014		<0.68	0.64

Blue shading indicates the result appears on the report figures.

TABLE 1c

**Building 008****Summary of Portable GC/MS Indoor Air Screening****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA3001	9/9/2013	Initial Screening	<0.68	4.0
	4/9/2014		<0.68	5.0
	4/9/2014	During HVAC Adj.	<0.68	2.3
IA3002	9/9/2013	Initial Screening	<0.68	3.8
IA3003	9/9/2013	Initial Screening	<0.68	5.4
	4/9/2014		<0.68	4.2
IA3004	9/9/2013	Initial Screening	<0.68	5.4
	4/9/2014		<0.68	4.0
	4/9/2014	During HVAC Adj.	<0.68	2.1
IA3005	9/9/2013	Initial Screening	<0.68	4.9
IA3006	9/9/2013	Initial Screening	<0.68	8.1
	4/9/2014		<0.68	4.2
	4/9/2014	During HVAC Adj.	<0.68	2.4
IA3007	9/9/2013	Initial Screening	<0.68	3.4
	4/9/2014		<0.68	4.0
	4/9/2014	During HVAC Adj.	<0.68	2.3
	4/21/2014		<0.68	8.1
	4/21/2014		<0.68	6.4
	4/21/2014		<0.68	3.4
	4/21/2014		<0.68	2.0
	4/21/2014		<0.68	2.0
	4/22/2014		<0.68	6.4
	4/22/2014		<0.68	5.9
	4/22/2014		<0.68	3.6
	4/22/2014		<0.68	2.3
	4/22/2014	Screening Confirmation	<0.68	1.6
IA3008	9/9/2013	Initial Screening	<0.68	4.4
	4/9/2014		<0.68	5.2
	4/9/2014	During HVAC Adj.	<0.68	3.1
	4/21/2014		<0.68	8.1
	4/21/2014		<0.68	6.4
	4/21/2014		<0.68	4.4
	4/21/2014		<0.68	2.7
	4/21/2014		<0.68	2.9
	4/22/2014		<0.68	5.9
	4/22/2014		<0.68	5.9
	4/22/2014		<0.68	3.0
	4/22/2014	Screening Confirmation	<0.68	2.1
IA3009	9/9/2013	Initial Screening	<0.68	4.2
IA3010	9/9/2013	Initial Screening	<0.68	3.6
IA3011	9/9/2013	Initial Screening	<0.68	3.1



TABLE 1c

**Building 008****Summary of Portable GC/MS Indoor Air Screening****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA3012	9/9/2013	Initial Screening	<0.68	3.7
	4/9/2014		<0.68	5.4
	4/9/2014	During HVAC Adj.	<0.68	3.4
	4/21/2014		<0.68	9.1
	4/21/2014		<0.68	7.5
	4/21/2014		<0.68	4.5
	4/21/2014		<0.68	2.5
	4/21/2014		<0.68	2.7
	4/22/2014		<0.68	6.4
	4/22/2014		<0.68	6.4
	4/22/2014		<0.68	4.6
	4/22/2014		<0.68	2.8
	4/22/2014		<0.68	1.9
	4/22/2014	Screening Confirmation	<0.68	1.9
IA3013	9/9/2013	Initial Screening	<0.68	4.2
IA3014	9/9/2013	Initial Screening	<0.68	4.0
	4/9/2014		<0.68	5.4
	4/9/2014	During HVAC Adj.	<0.68	3.1
IA3015	9/9/2013	Initial Screening	<0.68	3.3
IA3016	9/9/2013	Initial Screening	<0.68	4.0
IA3017	9/9/2013	Initial Screening	<0.68	3.9
IA3018	9/9/2013	Initial Screening	<0.68	3.4
IA3019	9/9/2013	Initial Screening	<0.68	3.2
	4/9/2014		<0.68	4.7
	4/9/2014	During HVAC Adj.	<0.68	2.5
	4/25/2014		R	2.5
	4/21/2014		<0.68	10
	4/21/2014		<0.68	7.5
	4/21/2014		<0.68	3.4
	4/21/2014		<0.68	2.0
	4/21/2014		<0.68	2.0
	4/22/2014		<0.68	7.5
	4/22/2014		<0.68	7.0
	4/22/2014		<0.68	3.2
	4/22/2014		<0.68	2.2
	4/22/2014		<0.68	1.5
	4/25/2014	Screening Confirmation	R	2.5
IA3020	9/9/2013	Initial Screening	<0.68	2.6
IA3021	9/9/2013	Initial Screening	<0.68	3.9
IA3022	9/9/2013	Initial Screening	<0.68	2.8
IA3023	9/9/2013	Initial Screening	<0.68	2.6
IA3024	9/9/2013	Initial Screening	<0.68	3.5
IA3025	9/9/2013	Initial Screening	<0.68	3.4
IA3026	9/10/2013	Initial Screening	<0.68	7.0

TABLE 1c

**Building 008****Summary of Portable GC/MS Indoor Air Screening****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA3027	9/10/2013	Initial Screening	<0.68	7.0
	4/9/2014		<0.68	4.2
	4/9/2014	During HVAC Adj.	<0.68	2.3
	4/21/2014		<0.68	6.4
	4/21/2014		<0.68	3.1
	4/21/2014		<0.68	1.7
	4/21/2014		<0.68	2.0
	4/22/2014		<0.68	5.9
	4/22/2014		<0.68	3.3
	4/22/2014		<0.68	4.4
	4/22/2014		<0.68	2.3
	4/22/2014	Screening Confirmation	<0.68	1.6
IA3028	9/10/2013	Initial Screening	<0.68	7.5
	4/9/2014		<0.68	4.2
	4/9/2014	During HVAC Adj.	<0.68	2.3
	4/21/2014		<0.68	8.1
	4/21/2014		<0.68	6.4
	4/21/2014		<0.68	3.2
	4/21/2014		<0.68	1.8
	4/21/2014		<0.68	1.9
	4/22/2014		<0.68	6.4
	4/22/2014		<0.68	5.9
	4/22/2014		<0.68	3.4
	4/22/2014		<0.68	2.3
	4/22/2014	Screening Confirmation	<0.68	1.6
IA3029	9/10/2013	Initial Screening	<0.68	5.9
IA3030	9/10/2013	Initial Screening	<0.68	7.0
IA3031	9/10/2013	Initial Screening	<0.68	3.3
IA3032	9/10/2013	Initial Screening	<0.68	3.8
IA3033	9/10/2013	Initial Screening	<0.68	4.4
IA3034	9/10/2013	Initial Screening	<0.68	5.4
	4/9/2014		<0.68	1.3
IA3035	9/10/2013	Initial Screening	<0.68	5.9
IA3036	9/10/2013	Initial Screening	<0.68	6.4
IA3037	9/10/2013	Initial Screening	<0.68	4.4

Blue shading indicates the result appears on the report figures.

TABLE 1d

**Building 012****Summary of Portable GC/MS Indoor Air Screening****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA4001	8/5/2013	Initial Screening	1.2	17
	8/8/2013		<0.68	5.1
	8/12/2013		<0.68	6.4
	8/12/2013		<0.68	3.3
	8/13/2013		0.68	7.0
	8/13/2013		<0.68	5.3
	8/14/2013		<0.68	7.0
	8/15/2013		<0.68	4.9
	8/16/2013		<0.68	7.0
	8/21/2013		<0.68	5.2
	8/21/2013		<0.68	4.4
	8/21/2013		<0.68	4.9
	8/21/2013		<0.68	5.4
	8/21/2013		<0.68	5.3
	10/21/2013	During HVAC Adj.	<0.68	4.5
	10/22/2013		<0.68	3.5
	10/23/2013		<0.68	2.5
	10/24/2013		<0.68	2.8
	10/25/2013		<0.68	3.4
	10/28/2013		<0.68	3.3
	10/29/2013		<0.68	2.5
	10/30/2013		<0.68	2.4
	11/20/2013		<0.68	2.9
	11/21/2013		<0.68	3.3
	12/7/2013		<0.68	1.3
	12/7/2013		<0.68	<0.54
	12/7/2013		<0.68	<0.54
	12/7/2013		<0.68	<0.54
	12/18/2013		<0.68	2.3
	12/18/2013		<0.68	5.9
	12/19/2013		<3.4	3.2
	12/19/2013		<3.4	1.3
	12/19/2013		<3.4	0.91
	3/19/2014		<0.68	12 JH
	3/19/2014		<0.68	5.9 JH
	3/20/2014		<0.68	7.5 JH
	3/20/2014		<0.68	4.6 JH
	3/20/2014		<0.68	4.2 JH
	3/20/2014		<0.68	3.5 JH
	3/20/2014		<0.68	4.1 JH
	3/21/2014		<0.68	6.4
	3/21/2014		<0.68	4.9
	3/21/2014		<0.68	4.3
	3/21/2014		<0.68	4.0
	3/24/2014		<0.68	7.0 JH
	3/25/2014		<0.68	7.5 JH
	3/25/2014		<0.68	7.0 JH
	3/25/2014		<0.68	5.4 JH

TABLE 1d

**Building 012****Summary of Portable GC/MS Indoor Air Screening****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA4001 (continued)	3/25/2014	During HVAC Adj.	<0.68	3.7 JH
	3/25/2014		<0.68	2.8 JH
	3/25/2014		<0.68	2.6 JH
	3/26/2014		<0.68	4.1
	3/26/2014		<0.68	3.4
	3/26/2014		<0.68	2.7
	3/26/2014		<0.68	2.9
	3/26/2014		<0.68	2.1
	3/26/2014		<0.68	2.3
	4/7/2014		<0.68	1.3
	4/7/2014	Screening Confirmation	<0.68	0.91
	4/8/2014		<0.68	1.8
	4/9/2014		<0.68	2.3
	4/9/2014		<0.68	1.2
	6/4/2014		R	1.7
IA4002	8/5/2013	Initial Screening	0.75	13
IA4003	8/5/2013	Initial Screening	0.75	15
IA4004	8/5/2013	Initial Screening	0.95	18
IA4005	8/5/2013	Initial Screening	0.88	17
	10/25/2013	During HVAC Adj.	<0.68	6.4
	12/7/2013		<0.68	<0.54
IA4006	8/5/2013	Initial Screening	0.75	17
	10/25/2013	During HVAC Adj.	<0.68	6.4
	12/7/2013		<0.68	0.81
	12/7/2013		<0.68	<0.54
	12/7/2013		<0.68	<0.54
	12/7/2013		<0.68	<0.54
	12/18/2013		<0.68	9.7
	12/18/2013		<0.68	3.8
	12/19/2013		<3.4	2.8
	12/19/2013		<3.4	1.1
	12/19/2013		<3.4	0.86
	3/19/2014		<0.68	8.1 JH
	3/20/2014		<0.68	4.1 JH
IA4007	8/5/2013	Initial Screening	0.75	19
	10/25/2013	During HVAC Adj.	<0.68	6.4
	12/7/2013		<0.68	0.81
	12/7/2013		<0.68	<0.54
	4/7/2014	Screening Confirmation	<0.68	1.7
IA4008	8/5/2013	Initial Screening	<0.68	26
IA4009	8/5/2013	Initial Screening	<0.68	18
	10/25/2013	During HVAC Adj.	<0.68	6.4
	12/7/2013		<0.68	1.3
	12/7/2013		<0.68	<0.54
	4/7/2014	Screening Confirmation	<0.68	1.2

TABLE 1d

**Building 012****Summary of Portable GC/MS Indoor Air Screening****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA4010	8/5/2013	Initial Screening	<0.68	20
	10/25/2013	During HVAC Adj.	<0.68	7.0
	12/7/2013		<0.68	<0.54
	4/7/2014	Screening Confirmation	<0.68	1.7
IA4011	8/5/2013	Initial Screening	0.75	24
	10/25/2013	During HVAC Adj.	<0.68	7.0
	12/7/2013		<0.68	1.3
	12/7/2013		<0.68	<0.54
	12/18/2013		<0.68	12
	12/18/2013		<0.68	5.9
	12/19/2013		<3.4	4.1
	12/19/2013		<3.4	1.4
	12/19/2013		<3.4	<2.7
	3/19/2014		<0.68	11 JH
	3/20/2014		<0.68	6.4 JH
	4/7/2014	Screening Confirmation	<0.68	1.1
IA4012	8/5/2013	Initial Screening	<0.68	24
	10/25/2013	During HVAC Adj.	<0.68	6.4
	12/7/2013		<0.68	<0.54
	4/7/2014	Screening Confirmation	<0.68	1.2

TABLE 1d

**Building 012****Summary of Portable GC/MS Indoor Air Screening****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA4013	8/5/2013	Initial Screening	0.88	20
	10/25/2013	During HVAC Adj.	<0.68	4.7
	12/7/2013		<0.68	0.91
	12/7/2013		<0.68	<0.54
	12/18/2013		<0.68	12
	12/18/2013		<0.68	5.9
	12/19/2013		<3.4	3.8
	12/19/2013		<3.4	1.3
	12/19/2013		<3.4	0.75
	3/19/2014		<0.68	15 JH
	3/20/2014		<0.68	8.1 JH
	3/20/2014		<0.68	5.1 JH
	3/20/2014		<0.68	4.8 JH
	3/20/2014		<0.68	4.2 JH
	3/20/2014		<0.68	3.9 JH
	3/21/2014		<0.68	7.5
	3/21/2014		<0.68	4.9
	3/21/2014		<0.68	4.3
	3/21/2014		<0.68	4.2
	3/24/2014		<0.68	7.5 JH
	3/25/2014		<0.68	8.6 JH
	3/25/2014		<0.68	7.5 JH
	3/25/2014		<0.68	5.1 JH
	3/25/2014		<0.68	4.0 JH
	3/25/2014		<0.68	3.3 JH
	3/25/2014		<0.68	2.8 JH
	3/26/2014		<0.68	4.4
	3/26/2014		<0.68	3.9
	3/26/2014		<0.68	3.8
	3/26/2014		<0.68	3.1
	3/26/2014		<0.68	3.0
	3/26/2014		<0.68	3.2
	4/9/2014	Screening Confirmation	<0.68	1.2
IA4014	8/5/2013	Initial Screening	<0.68	21
IA4015	8/5/2013	Initial Screening	<0.68	10
	10/25/2013	During HVAC Adj.	<0.68	6.4
	12/7/2013		<0.68	<0.54
	4/7/2014	Screening Confirmation	<0.68	1.2
IA4016	8/5/2013	Initial Screening	<0.68	9.7
	12/18/2013	During HVAC Adj.	<0.68	11
	12/18/2013		<0.68	5.3
	12/19/2013		<3.4	3.8
	12/19/2013		<3.4	1.4
	12/19/2013		<3.4	0.81
	3/19/2014		<0.68	11 JH
	3/20/2014		<0.68	8.6 JH

TABLE 1d

**Building 012****Summary of Portable GC/MS Indoor Air Screening****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA4017	8/5/2013	Initial Screening	<0.68	8.6
	10/25/2013	During HVAC Adj.	<0.68	5.9
	12/7/2013		<0.68	0.75
	12/7/2013		<0.68	0.70
	12/7/2013		<0.68	0.64
	12/7/2013		<0.68	<0.54
	12/18/2013		<0.68	10
	12/18/2013		<0.68	4.3
	12/19/2013		<3.4	3.2
	12/19/2013		<3.4	1.2
	12/19/2013		<3.4	1.2
	3/19/2014		<0.68	11 JH
	3/20/2014		<0.68	9.1 JH
	3/20/2014		<0.68	6.4 JH
	3/20/2014		<0.68	4.9 JH
	3/20/2014		<0.68	4.5 JH
	3/20/2014		<0.68	4.7 JH
	3/21/2014		<0.68	7.0
	3/21/2014		<0.68	5.9
	3/21/2014		<0.68	5.2
	3/21/2014		<0.68	4.9
	3/24/2014		<0.68	8.6 JH
	3/25/2014		<0.68	9.7 JH
	3/25/2014		<0.68	7.5 JH
	3/25/2014		<0.68	5.4 JH
	3/25/2014		<0.68	4.6 JH
	3/25/2014		<0.68	3.8 JH
	3/25/2014		<0.68	3.0 JH
	3/26/2014		<0.68	4.8
	3/26/2014		<0.68	4.2
	3/26/2014		<0.68	3.6
	3/26/2014		<0.68	3.4
	3/26/2014		<0.68	3.7
	3/26/2014		<0.68	3.5
	4/9/2014	Screening Confirmation	<0.68	1.6



TABLE 1d

**Building 012****Summary of Portable GC/MS Indoor Air Screening****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA4018	8/6/2013	Initial Screening	1.0	25
	8/7/2013		<0.68	7.5
	10/25/2013	During HVAC Adj.	<0.68	6.4
	12/7/2013		<0.68	1.2
	12/7/2013		<0.68	0.70
	12/7/2013		<0.68	<0.54
	12/7/2013		<0.68	0.54
	12/18/2013		<0.68	12
	12/18/2013		<0.68	4.9
	12/19/2013		<3.4	3.8
	12/19/2013		<3.4	1.2
	12/19/2013		<3.4	0.75
	3/19/2014		<0.68	11 JH
	3/20/2014		<0.68	4.4 JH
IA4019	8/6/2013	Initial Screening	1.2	21
IA4020	8/6/2013	Initial Screening	0.95	22
IA4021	8/6/2013	Initial Screening	1.9	18
	10/25/2013	During HVAC Adj.	<0.68	3.2
	12/7/2013		<0.68	<0.54
IA4022	8/6/2013	Initial Screening	1.2	15
IA4023	8/6/2013	Initial Screening	1.2	27
	10/25/2013	During HVAC Adj.	<0.68	7.0
	12/7/2013		<0.68	0.59
	12/18/2013		<0.68	9.1
	12/18/2013		<0.68	4.6
	12/19/2013		<3.4	2.6
	12/19/2013		<3.4	0.86
	12/19/2013		<3.4	0.54
	3/19/2014		<0.68	11 JH
	3/20/2014		<0.68	4.8 JH
IA4024	8/6/2013	Initial Screening	1.4	19
IA4025	8/6/2013	Initial Screening	1.2	14
IA4026	8/6/2013	Initial Screening	<0.68	11
IA4027	8/6/2013	Initial Screening	0.75	16
IA4028	8/6/2013	Initial Screening	0.75	16
IA4029	8/6/2013	Initial Screening	0.81	15
IA4030	8/6/2013	Initial Screening	0.95	18
	10/25/2013	During HVAC Adj.	<0.68	7.5
	12/7/2013		<0.68	0.64
	12/19/2013		<3.4	2.9
	3/19/2014		<0.68	9.7 JH
	3/19/2014		<0.68	8.1 JH
	3/20/2014		<0.68	8.1 JH
IA4031	8/6/2013	Initial Screening	0.75	22
	10/25/2013	During HVAC Adj.	<0.68	12
	12/7/2013		<0.68	<0.54

TABLE 1d

**Building 012****Summary of Portable GC/MS Indoor Air Screening****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA4032	8/6/2013	Initial Screening	<0.68	15
	12/7/2013	During HVAC Adj.	<0.68	1.3
	12/7/2013		<0.68	<0.54
	12/19/2013		<3.4	1.3
	3/19/2014		<0.68	4.4 JH
	3/20/2014		<0.68	2.2 JH
IA4033	8/6/2013	Initial Screening	<0.68	19
IA4034	8/7/2013	Initial Screening	<0.68	5.9
IA4035	8/7/2013	Initial Screening	<0.68	8.1
IA4036	8/7/2013	Initial Screening	<0.68	7.0
IA4037	8/7/2013	Initial Screening	<0.68	7.0
IA4038	8/7/2013	Initial Screening	<0.68	5.4
IA4039	8/7/2013	Initial Screening	<0.68	8.6
	4/7/2014	Screening Confirmation	<0.68	1.7
IA4040	8/7/2013	Initial Screening	<0.68	8.6
IA4041	8/7/2013	Initial Screening	<0.68	6.4
IA4042	8/7/2013	Initial Screening	<0.68	9.7
IA4043	8/7/2013	Initial Screening	<0.68	11
	10/25/2013	During HVAC Adj.	<0.68	4.9
	12/7/2013		<0.68	0.7
	12/7/2013		<0.68	<0.54
	12/18/2013		<0.68	11
	12/18/2013		<0.68	3.2
	12/19/2013		<3.4	3.3
	12/19/2013		<3.4	1.1
	12/19/2013		<3.4	<2.7
	3/19/2014		<0.68	10 JH
	3/20/2014		<0.68	9.7 JH
	4/7/2014	Screening Confirmation	<0.68	1.7
IA4044	8/7/2013	Initial Screening	<0.68	11
IA4045	8/7/2013	Initial Screening	<0.68	8.1
	10/25/2013	During HVAC Adj.	<0.68	5.9
	12/7/2013		<0.68	0.86
	12/7/2013		<0.68	0.54
	12/7/2013		<0.68	0.54
	12/7/2013		<0.68	0.70
	12/18/2013		<0.68	12
	12/18/2013		<0.68	5.4
	12/19/2013		<3.4	3.2
	12/19/2013		<3.4	1.4
	12/19/2013		<3.4	0.75
	3/19/2014		<0.68	13 JH
	3/20/2014		<0.68	7.5 JH
IA4046	8/7/2013	Initial Screening	<0.68	8.6
IA4047	8/7/2013	Initial Screening	<0.68	8.6
IA4048	8/7/2013	Initial Screening	<0.68	7.0
IA4049	12/7/2013	During HVAC Adj.	<0.68	1.1
	12/7/2013		<0.68	<0.54

Blue shading indicates the result appears on the report figures.

TABLE 1e

**Building 077****Summary of Portable GC/MS Indoor Air Screening****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA7001	9/13/2013	Initial Screening	2.0	5.4
	9/13/2013		1.2	5.4
	3/10/2014	Screening Confirmation	0.68	5.9
IA7002	9/13/2013	Initial Screening	1.9	5.3
IA7003	9/13/2013	Initial Screening	1.4	5.1
	3/10/2014	Screening Confirmation	0.88	7.5
IA7004	9/13/2013	Initial Screening	1.5	4.8
IA7005	9/13/2013	Initial Screening	1.6	6.4
	3/10/2014	Screening Confirmation	0.81	5.3
IA7006	9/13/2013	Initial Screening	2.9	5.2
IA7007	9/13/2013	Initial Screening	1.7	5.4
	3/10/2014	Screening Confirmation	0.81	5.9
IA7008	9/13/2013	Initial Screening	3.9	0.70

Blue shading indicates the result appears on the report figures.

TABLE 1f

**Building 416****Summary of Portable GC/MS Indoor Air Screening****Report of Findings****VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416****IBM Poughkeepsie Facility****Poughkeepsie, New York**

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
IA8001	11/20/2013	Initial Screening	<0.68	<0.54
	3/11/2014	Screening Confirmation	<0.68	2.4
IA8002	11/20/2013	Initial Screening	<0.68	<0.54
	3/11/2014	Screening Confirmation	<0.68	1.8
IA8003	11/20/2013	Initial Screening	<0.68	<0.54
	3/11/2014	Screening Confirmation	<0.68	2.1
IA8004	11/20/2013	Initial Screening	<0.68	<0.54
	3/11/2014	Screening Confirmation	<0.68	<1.8
IA8005	11/20/2013	Initial Screening	<0.68	<0.54
	3/11/2014	Screening Confirmation	0.68	<1.8
IA8006	11/20/2013	Initial Screening	<0.68	<0.54
	3/11/2014	Screening Confirmation	<0.68	<1.8
IA8007	11/20/2013	Initial Screening	<0.68	<0.54
	3/11/2014	Screening Confirmation	<0.68	<1.8

Blue shading indicates the result appears on the report figures.

TABLE 1g

## Field Blanks and Notes

## Summary of Portable GC/MS Indoor Air Screening

## Report of Findings

VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416

IBM Poughkeepsie Facility

Poughkeepsie, New York

Sample Location	Collection Date	Sample Purpose	Concentrations in $\mu\text{g}/\text{m}^3$	
			PCE	TCE
Field Blank	8/5/2013	Nitrogen Field Blank	<0.68	1.2
	8/5/2013		<0.68	0.97
	8/6/2013		<0.68	1.5
	8/6/2013		<0.68	2.1
	8/7/2013		<0.68	4.4
	8/8/2013		<0.68	3.5
	10/21/2013		<0.68	<0.54
	10/22/2013		<0.68	<0.54
	10/22/2013		<0.68	<0.54
	10/23/2013		<0.68	<2.7
	10/23/2013		<0.68	<0.54
	10/24/2013		<0.68	<0.54
	10/24/2013		<0.68	<0.54
	10/25/2013		<0.68	<0.54
	10/25/2013		<0.68	<0.54
	10/28/2013		<0.68	<0.54
	10/29/2013		<0.68	<0.54
	10/29/2013		<0.68	<0.54
	10/29/2013		<0.68	1.0
	10/29/2013		<0.68	0.97
	10/29/2013		<0.68	0.70
	10/29/2013		<0.68	<0.54
	10/30/2013		<0.68	<0.54
	11/20/2013		<0.68	<0.54
	11/22/2013		<0.68	<0.54
	12/7/2013		<0.68	<0.54
	12/18/2013		<0.68	<0.54
	12/19/2013		<3.4	<2.7

## Notes:

1. This table summarizes data recorded during field screening of grab indoor air samples using a HAPSITE Smart portable gas chromatograph/mass spectrometer (GC/MS), manufactured by Inficon. The instrument was calibrated to manufacturer prepared standards ranging from 0.1 part per billion on a volumetric basis (ppbv) to 50 ppbv, for the following compounds: tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (c-1,2-DCE), trans-1,2-dichloroethene (t-1,2-DCE), 1,1-dichloroethene (1,1-DCE), and 1,1-dichloroethane (1,1-DCA). The field samples were collected by Sanborn Head personnel directly into the portable GC/MS sampling probe from the location and on the dates noted in the table. The samples were screened using the portable GC/MS in selective ion monitoring (SIM) mode. Results were converted to micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) by Sanborn Head assuming standard temperature (25 °C) and pressure (1 atmosphere) for the conversion. Results were rounded to two significant figures.

2. The portable GC/MS was used as a field screening tool; therefore, the data should be considered estimated and not suitable for final decision-making. The findings should be considered in conjunction with results of samples analyzed in accordance with USEPA TO-15 protocols.

## 3. Legend / Flags

Blue shading indicates the result appears on the report figures.

< - The analyte was not detected above the indicated reporting limit.

J - The result should be considered estimated.

H - The value is estimated with a potential high bias, based on the in-field calibration check.

L - The value is estimated with a potential low bias, based on the in-field calibration check.

**TABLE 2 SERIES**  
**SUMMARY OF CONFIRMATORY SAMPLE INFORMATION**

TABLE 2a

Building B002

Summary of Confirmatory Sample Information

Report of Findings

VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416

IBM Poughkeepsie Facility

Poughkeepsie, New York

Sample Location	Building Floor	Sample Matrix	Canister Number	Sample Height (ft above floor)	Start Time (hours)	Start Pressure (mm Hg)	Stop Time (hours)	Stop Pressure (mm Hg)	PID (ppbv)	Temperature (°F)	Location Description	Chemicals Observed Near Sample Location	Notes
Collection Date: April 10, 2014													
AA6001	NA	Ambient Air	504	Ground Surface	8:48	-27.84	17:41	-3.00	4	73.4	Exterior location west of building	-	Set near intake for AHU 2-1-10 (from exterior location)
IA6003	Ground	Indoor Air	473	4.6	9:13	-30.16	17:21	-9.06	24	69.6	Calibration lab	-	-
IA6004	Ground	Indoor Air	121	5.1	9:19	-30.31	17:28	-8.70	60	72.6	Equipment storage (e.g. ladders and piping)	-	Former cafeteria area
IA6011	Ground	Indoor Air	451	4.5	9:33	-30.19	18:37	-8.68	46	68.1	Storage area	-	-
IA6012	Ground	Indoor Air	542	4.5	9:28	-29.17	17:33	-3.60	28	67.1	Maintenance storage area	-	Paint used periodically at location, but not during sampling event
IA6015	Ground	Indoor Air	223	4.5	9:38	-30.33	17:38	-6.32	26	66.7	Hallway	-	Location adjacent to AHU 2-1-10 room
IA6049	Ground	Indoor Air	206	4.5	9:24	-30.24	17:30	-6.34	32	66.2	Hallway	-	-
IA6061	Ground	Indoor Air	476	4.5	9:04	-27.18	17:13	-3.70	38	71.7	Storage area	-	-
IA6066	Ground	Indoor Air	231	4.5	9:10	-30.14	17:10	-3.33	12	73.9	Storage area	-	-
IA6073	Ground	Indoor Air	356	4.5	9:42	-28.83	17:42	-5.86	6	71.6	Storage area	-	-

- Notes:
- Samples were collected by Sanborn, Head & Associates, Inc. on April 10, 2014.
  - Samples were collected into 2.7-liter, stainless steel, pre-evacuated SUMMA® canisters using 8-hour metering regulators and inline 2-micron filters. Canisters and regulators were laboratory-certified clean (100% certification).
  - PID screening was conducted using a ppbRAE, calibrated to a 10 parts per million by volume (ppmv) isobutylene-in-air standard.
  - "NM" indicates not monitored.  
"NA" indicates not applicable.  
"ND" indicates the instrument read 0 ppbv.



TABLE 2b

Building B004

Summary of Confirmatory Sample Information

Report of Findings

VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416

IBM Poughkeepsie Facility

Poughkeepsie, New York

Sample Location	Building Floor	Sample Matrix	Canister Number	Sample Height (ft above floor)	Start Time (hours)	Start Pressure (mm Hg)	Stop Time (hours)	Stop Pressure (mm Hg)	PID (ppbv)	Temperature (°F)	Location Description	Chemicals Observed Near Sample Location	Notes
Collection Date: April 10, 2014													
AA5001	NA	Ambient Air	387	Ground surface	9:50	-29.4	15:02	-3.01	19	68	Exterior location west of building	-	-
FB5001	NA	Nitrogen	478	Ground surface	11:14	-29.63	13:21	-3.01	19	68	Exterior location west of building	-	-
IA5002	Ground	Indoor Air	390	4.4	9:47	-29.56	13:15	-3.0	34	75.7	Parts storage area	-	Canister vacuum observed to drop more quickly than other samples - possible faulty controller
IA5021	Ground	Indoor Air	109	4.4	9:09	-28.77	17:28	-5.08	24	73.4	Warehouse area	-	Loading dock doors in the this area remained closed during sampling
IA5023	Ground	Indoor Air	450	4.4	10:05	-30.24	18:13	-9.7	44	72.3	Hallway	-	Warehouse and office overhead doors in adjacent area were open during the first half of sampling period
IA5028	Ground	Indoor Air	483	4.4	9:04	-30.02	14:36	-3.5	66	76.7	Components storage area	-	Overhead door leading to hallway open during the first few hours of sampling
IA5031	Ground	Indoor Air	155	5.1	9:07	-30.20	17:31	-6.08	20	76	Storage Area	Chlorodifluoromethane-22 canisters	-
IA5033	Ground	Indoor Air	366	5.3	9:35	-29.16	17:53	-9.13	40	73	Server storage area	-	HVAC observed operating near office space in storage area
IA5033 (FD5033)	Ground	Indoor Air	225	5.3	9:35	-30.03	15:52	-2.04					
IA5034	Ground	Indoor Air	475	5.3	9:40	-29.67	17:47	-6.13	28	73	Server storage area	-	HVAC observed operating near office space in storage area
IA5041	Ground	Indoor Air	123	4.9	9:14	-29.98	15:44	-3.00	24	73.7	Storage/office area	-	Door open to hallway; canister fell during early stage of sampling

Notes:

1. Samples were collected by Sanborn, Head & Associates, Inc. on April 10, 2014.
2. Samples were collected into 2.7-liter, stainless steel, pre-evacuated SUMMA® canisters using 8-hour metering regulators and inline 2-micron filters. Canisters and regulators were laboratory-certified clean (100% certification).
3. PID screening was conducted using a ppbRAE, calibrated to a 10 parts per million by volume (ppmv) isobutylene-in-air standard.
4. "NM" indicates not monitored.  
"NA" indicates not applicable.  
"ND" indicates the instrument read 0 ppbv.

TABLE 2c

Building B008

Summary of Confirmatory Sample Information

Report of Findings

VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416

IBM Poughkeepsie Facility

Poughkeepsie, New York

Sample Location	Building Floor	Sample Matrix	Canister Number	Sample Height (ft above floor)	Start Time (hours)	Start Pressure (mm Hg)	Stop Time (hours)	Stop Pressure (mm Hg)	PID (ppbv)	Temperature (°F)	Location Description	Chemicals Observed Near Sample Location	Notes
Collection Date: April 23, 2014													
AA3000	NA	Ambient Air	144	3.1	8:25	-29.54	16:49	-7.0	NM	50	Exterior location west of building	-	Set near intake for AC-1 and AC-2 (from exterior location)
FB3000	NA	Nitrogen	354	3.1	8:33	-29.50	10:14	-4.25	NM	50	Exterior location west of building	-	-
IA3007	Ground	Indoor Air	1716	4.5	8:13	-29.52	16:13	-7.5	10	75	Server room	-	-
IA3008	Ground	Indoor Air	179	4.5	8:08	-29.89	16:08	-8.6	5	76	Server room	-	-
IA3008 (FD3008)	Ground	Indoor Air	215	4.5	8:08	-29.46	16:08	-8.0					
IA3012	Ground	Indoor Air	466	4.5	8:18	-29.3	16:46	-10	0	74	Server room	-	-
IA3027	Ground	Indoor Air	106	4.5	8:02	-29.6	16:03	-7.6	0	74	Server room	-	-
IA3028	Ground	Indoor Air	241	4.5	8:00	-28.95	16:01	-7.0	5	76	Storage area	-	-

- Notes:
- Samples were collected by Sanborn, Head & Associates, Inc. on April 23, 2014.
  - Samples were collected into 2.7-liter, stainless steel, pre-evacuated SUMMA® canisters using 8-hour metering regulators and inline 2-micron filters. Canisters and regulators were laboratory-certified clean (100% certification).
  - PID screening was conducted using a ppbRAE, calibrated to a 10 parts per million by volume (ppmv) isobutylene-in-air standard.
  - "NM" indicates not monitored.  
"NA" indicates not applicable.  
"ND" indicates the instrument read 0 ppbv.

TABLE 2d

Building B012

Summary of Confirmatory Sample Information

Report of Findings

VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416

IBM Poughkeepsie Facility

Poughkeepsie, New York

Sample Location	Building Floor	Sample Matrix	Canister Number	Sample Height (ft above floor)	Start Time (hours)	Start Pressure (mm Hg)	Stop Time (hours)	Stop Pressure (mm Hg)	PID (ppbv)	Temperature (°F)	Location Description	Chemicals Observed Near Sample Location	Notes
Collection Date: April 10, 2014													
AA4001	Roof	Ambient Air	327	3.0	10:37	-30.19	18:37	-8.68	NM	NM	NE corner of roof	-	-
FB4001	Roof	Nitrogen	1508	1.5	10:41	-30.13	18:41	-7.17	NM	NM	NE corner of roof	-	-
IA4007	Ground	Indoor Air	330	4.5	9:45	-30.00	17:10	-3.11	8	62	Former manufacturing area	-	-
IA4009	Ground	Indoor Air	1740	4.5	9:50	-30.20	16:30	-2.27	20	62	Former manufacturing area	-	-
IA4010	Ground	Indoor Air	248	4.6	9:55	-29.86	16:28	-2.75	6	63	Former manufacturing area	-	-
IA4011	Ground	Indoor Air	400	4.6	9:58	-30.09	12:35	-3	32	NM	Storage area off of former manufacturing area	-	Sample fell during sampling
IA4012	Ground	Indoor Air	370	4.5	9:40	-30.45	17:40	-6.91	34	61	Former manufacturing area	-	-
IA4015	Ground	Indoor Air	151	5.2	10:26	-30.38	18:51	-9.42	18	62	Former café area	-	-
IA4015 (FD4015)	Ground	Indoor Air	459	5.2	10:26	-30.29	17:29	-3.00					
IA4039	Ground	Indoor Air	425	4.0	9:37	-30.15	19:10	-9.34	24	65	Electronics storage area	-	-
IA4043	Ground	Indoor Air	444	4.5	9:35	-30.16	17:59	-9.40	28	65	Elevator maintenance room	-	Tank with piping labeled "Industrial Waste" located in vicinity of sample

Notes:

- Samples were collected by Sanborn, Head & Associates, Inc. on April 10, 2014.
- Samples were collected into 2.7-liter, stainless steel, pre-evacuated SUMMA® canisters using 8-hour metering regulators and inline 2-micron filters. Canisters and regulators were laboratory-certified clean (100% certification).
- PID screening was conducted using a ppbRAE, calibrated to a 10 parts per million by volume (ppmv) isobutylene-in-air standard.
- "NM" indicates not monitored.  
"NA" indicates not applicable.  
"ND" indicates the instrument read 0 ppbv.

TABLE 2e

Building B077

Summary of Confirmatory Sample Information

Report of Findings

VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416

IBM Poughkeepsie Facility

Poughkeepsie, New York

Sample Location	Building Floor	Sample Matrix	Canister Number	Sample Height (ft above floor)	Start Time (hours)	Start Pressure (mm Hg)	Stop Time (hours)	Stop Pressure (mm Hg)	PID (ppbv)	Temperature (°F)	Location Description	Chemicals Observed Near Sample Location	Notes
Collection Date: March 11, 2014													
AA7001	NA	Ambient Air	336	3.5	12:05	-29.36	20:34	-9.92	NM	45	Exterior location south of building	-	-
IA7003	Ground	Indoor Air	236	4.3	11:52	-29.39	18:14	-3.62	NM	NM	Recyling Center	Fire extinguisher; empty marker board cleaning solution bottle; Raid wasp and hornet insecticide	Expansion joint approximately 10 ft away from sample
IA7003 (FD7001)	Ground	Indoor Air	105	4.3	11:52	-29.53	18:14	-9.77					

- Notes:
- Samples were collected by Sanborn, Head & Associates, Inc. on March 11, 2014.
  - Samples were collected into 2.7-liter, stainless steel, pre-evacuated SUMMA® canisters using 8-hour metering regulators and inline 2-micron filters. Canisters and regulators were laboratory-certified clean (100% certification).
  - PID screening was conducted using a ppbRAE, calibrated to a 10 parts per million by volume (ppmv) isobutylene-in-air standard.
  - "NM" indicates not monitored.  
"NA" indicates not applicable.  
"ND" indicates the instrument read 0 ppbv.

TABLE 2f

Building B416

Summary of Confirmatory Sample Information

Report of Findings

VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416

IBM Poughkeepsie Facility

Poughkeepsie, New York

Sample Location	Building Floor	Sample Matrix	Canister Number	Sample Height (ft above floor)	Start Time (hours)	Start Pressure (mm Hg)	Stop Time (hours)	Stop Pressure (mm Hg)	PID (ppbv)	Temperature (°F)	Location Description	Chemicals Observed Near Sample Location	Notes
Collection Date: March 11, 2014													
AA8001	NA	Ambient Air	531	Ground surface	12:19	-29.32	20:19	-9.09	NM	45	Exterior location on south of building	-	-
FB8001	NA	Nitrogen	527	Ground surface	12:20	-29.20	15:41	-3.64	NM	45	Exterior location on south of building	-	-
IA8001	Ground	Indoor Air	492	4.3	10:37	-29.66	18:49	-5.15	NM	73	Hallway outside conference room 15-20;	Fire extinguisher (enclosed in case)	All rooms off of this hallway closed
IA8002	Ground	Indoor Air	361	4.3	10:47	-29.35	15:08	-3.48	NM	70	Conference room 1916	Dry erase markers	-
IA8003	Ground	Indoor Air	408	4.3	10:51	-29.41	18:25	-4.09	NM	70	Office 5-25	-	Office door typically closed and remained so during sampling
IA8004	Ground	Indoor Air	239	4.3	11:13	-29.58	19:13	-8.61	NM	74	Hallway at back of kitchen; dry storage, bathrooms nearby	-	-
IA8005	Ground	Indoor Air	357	4.3	11:06	-29.34	19:11	-5.99	NM	72	Large meeting room off of cafeteria	Dry erase markers	Occupied intermittently
IA8006	Ground	Indoor Air	388	4.3	10:58	-29.53	18:53	-6.70	NM	74	Cafeteria	Fire extinguisher	Occupied intermittently

- Notes:
- Samples were collected by Sanborn, Head & Associates, Inc. on March 11, 2014.
  - Samples were collected into 2.7-liter, stainless steel, pre-evacuated SUMMA® canisters using 8-hour metering regulators and inline 2-micron filters. Canisters and regulators were laboratory-certified clean (100% certification).
  - PID screening was conducted using a ppbRAE, calibrated to a 10 parts per million by volume (ppmv) isobutylene-in-air standard.
  - "NM" indicates not monitored.  
"NA" indicates not applicable.  
"ND" indicates the instrument read 0 ppbv.

**TABLE 3 SERIES**  
**SUMMARY OF INDOOR AIR 8-HOUR**  
**CONFIRMATORY SAMPLING RESULTS**

TABLE 3a  
Building B002  
Summary of Summary of Indoor Air 8-Hour Confirmatory Sampling Results  
Report of Findings  
VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416  
IBM Poughkeepsie Facility  
Poughkeepsie, New York

Sample Location	Field Sample Name	Collection Date	Concentrations in µg/m <sup>3</sup>																							
			CA			1,1-DCA			1,1-DCE			c-1,2-DCE			t-1,2-DCE			PCE			TCE			VC		
			Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifier	Bias
AA6001	AA6001	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.15			0.10	J	I	0.051	U	
IA6003	IA6003	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.16			0.49			0.051	U	
IA6004	IA6004	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.11	U		0.051	U	
IA6011	IA6011	04/10/14	0.053	UJ	I	0.081	UJ	I	0.079	UJ	I	0.079	UJ	I	0.079	UJ	I	0.24	J	I	1.7	J	I	0.051	UJ	I
IA6012	IA6012	04/10/14	0.053	U		0.081	U		0.079	U		0.095			0.079	U		0.22			1.2			0.051	U	
IA6015	IA6015	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.96			0.051	U	
IA6049	IA6049	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.17			0.97			0.051	U	
IA6061	IA6061	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.66			1.1			0.051	U	
IA6066	IA6066	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.14			0.051	U	
IA6073	IA6073	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		1.3			0.051	U	

Notes:

1. Samples were collected by Sanborn, Head & Associates, Inc. on the dates indicated over an 8-hour sampling interval. The samples were analyzed by Alpha Analytical of Westborough, Massachusetts for the project-specific list of volatile organic compounds (VOCs) by United States Protection Agency (USEPA) Method TO-15 in selective ion monitoring (SIM) mode. "CA" is chloroethane; "1,1-DCA" is 1,1-dichloroethane; "1,1-DCE" is 1,1-dichloroethene; "c-1,2-DCE" is cis-1,2-dichloroethene; "t-1,2-DCE" is trans-1,2-dichloroethene; "PCE" is tetrachloroethene; "TCE" is trichloroethene; and "VC" is vinyl chloride.
2. Results are presented in micrograms per cubic meter (µg/m<sup>3</sup>).
3. An in-depth data usability review (DUR) was performed on the data by New Environmental Horizons, Inc. (NEH) of Arlington, Massachusetts. All results were considered acceptable, with the understanding of the potential uncertainty (bias) in the qualified results. In some cases, NEH assigned the following qualifiers and biases to the data. Refer to the DUR report for further details.  
"U" indicates the analyte is non-detect at or above the indicated sample specific practical quantification limit (PQL).  
"J" indicates the result is an estimated value.  
"UJ" indicates the non-detect is estimated at the indicated PQL.  
"EB" indicates analyte was also present in the associated field blank.  
"H" indicates a high bias.  
"I" indicates an indeterminate bias.
4. The "AA" designation indicates that the sample consists of ambient air collected from outside the building.
5. The field blank sample was collected by transferring high purity nitrogen provided by the laboratory from one certified clean SUMMA canister into another certified clean SUMMA canister over an approximately 8-hour period.
6. Results were rounded to two significant figures.



TABLE 3b  
Building B004  
Summary of Summary of Indoor Air 8-Hour Confirmatory Sampling Results  
Report of Findings  
VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416  
IBM Poughkeepsie Facility  
Poughkeepsie, New York

Sample Location	Field Sample Name	Collection Date	Concentrations in µg/m <sup>3</sup>																							
			CA			1,1-DCA			1,1-DCE			c-1,2-DCE			t-1,2-DCE			PCE			TCE			VC		
			Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifier	Bias
AA5001	AA5001	04/10/14	0.053	UJ	I	0.081	UJ	I	0.079	UJ	I	0.079	UJ	I	0.079	UJ	I	0.14	UJ	I	0.42	J	I	0.051	UJ	I
IA5002	IA5002	04/10/14	0.053	UJ	I	0.081	UJ	I	0.079	UJ	I	0.079	UJ	I	0.079	UJ	I	0.14	UJ	I	3.2	J	I	0.051	UJ	I
IA5023	IA5023	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.11	U		0.051	U	
IA5028	IA5028	04/10/14	0.053	UJ	I	0.081	UJ	I	0.079	UJ	I	0.079	UJ	I	0.079	UJ	I	0.14	UJ	I	0.49	J	I	0.051	UJ	I
IA5031	IA5031	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		1.1			0.051	U	
IA5033	FD5033	04/10/14	0.053	UJ	I	0.081	UJ	I	0.079	UJ	I	0.079	UJ	I	0.079	UJ	I	0.14	UJ	I	1.5	J	I	0.051	UJ	I
IA5033	IA5033	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		1.5			0.051	U	
IA5034	IA5034	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		1.5			0.051	U	
IA5041	IA5041	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.96			0.051	U	
Field Blank	FB5001	04/10/14	0.053	UJ	I	0.081	UJ	I	0.079	UJ	I	0.079	UJ	I	0.079	UJ	I	0.14	UJ	I	0.11	UJ	I	0.051	UJ	I

Notes:

- Samples were collected by Sanborn, Head & Associates, Inc. on the dates indicated over an 8-hour sampling interval. The samples were analyzed by Alpha Analytical of Westborough, Massachusetts for the project-specific list of volatile organic compounds (VOCs) by United States Protection Agency (USEPA) Method TO-15 in selective ion monitoring (SIM) mode. "CA" is chloroethane; "1,1-DCA" is 1,1-dichloroethane; "1,1-DCE" is 1,1-dichloroethene; "c-1,2-DCE" is cis-1,2-dichloroethene; "t-1,2-DCE" is trans-1,2-dichloroethene; "PCE" is tetrachloroethene; "TCE" is trichloroethene; and "VC" is vinyl chloride.
- Results are presented in micrograms per cubic meter (µg/m<sup>3</sup>).
- An in-depth data usability review (DUR) was performed on the data by New Environmental Horizons, Inc. (NEH) of Arlington, Massachusetts. All results were considered acceptable, with the understanding of the potential uncertainty (bias) in the qualified results. In some cases, NEH assigned the following qualifiers and biases to the data. Refer to the DUR report for further details.  
"U" indicates the analyte is non-detect at or above the indicated sample specific practical quantification limit (PQL).  
"J" indicates the result is an estimated value.  
"UJ" indicates the non-detect is estimated at the indicated PQL.  
"EB" indicates analyte was also present in the associated field blank.  
"H" indicates a high bias.  
"I" indicates an indeterminate bias.
- The "AA" designation indicates that the sample consists of ambient air collected from outside the building.
- The field blank sample was collected by transferring high purity nitrogen provided by the laboratory from one certified clean SUMMA canister into another certified clean SUMMA canister over an approximately 8-hour period.
- Results were rounded to two significant figures.

TABLE 3c  
Building B008  
Summary of Summary of Indoor Air 8-Hour Confirmatory Sampling Results  
Report of Findings  
VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416  
IBM Poughkeepsie Facility  
Poughkeepsie, New York

Sample Location	Field Sample Name	Collection Date	Concentrations in µg/m³																							
			CA			1,1-DCA			1,1-DCE			c-1,2-DCE			t-1,2-DCE			PCE			TCE			VC		
			Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias
AA3000	AA3000	04/23/14	0.074			0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.38			0.051	U	
IA3007	IA3007	04/23/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.24			2.4			0.051	U	
IA3008	IA3008	04/23/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.15			2.8			0.051	U	
IA3008	FD3008	04/23/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.40			3.2			0.051	U	
IA3012	IA3012	04/23/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14			2.6			0.051	U	
IA3027	IA3027	04/23/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14			1.9			0.051	U	
IA3028	IA3028	04/23/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		2.1			0.051	U	
Field Blank	FB3000	04/23/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.57	R		0.1	U		0.051	U	

Notes:

1. Samples were collected by Sanborn, Head & Associates, Inc. on the dates indicated over an 8-hour sampling interval. The samples were analyzed by Alpha Analytical of Westborough, Massachusetts for the project-specific list of volatile organic compounds (VOCs) by United States Protection Agency (USEPA) Method TO-15 in selective ion monitoring (SIM) mode. "CA" is chloroethane; "1,1-DCA" is 1,1-dichloroethane; "1,1-DCE" is 1,1-dichloroethene; "c-1,2-DCE" is cis-1,2-dichloroethene; "t-1,2-DCE" is trans-1,2-dichloroethene; "PCE" is tetrachloroethene; "TCE" is trichloroethene; and "VC" is vinyl chloride.
2. Results are presented in micrograms per cubic meter (µg/m³).
3. An in-depth data usability review (DUR) was performed on the data by New Environmental Horizons, Inc. (NEH) of Arlington, Massachusetts. All results were considered acceptable, with the understanding of the potential uncertainty (bias) in the qualified results. In some cases, NEH assigned the following qualifiers and biases to the data. Refer to the DUR report for further details.  
"U" indicates the analyte is non-detect at or above the indicated sample specific practical quantification limit (PQL).  
"J" indicates the result is an estimated value.  
"UJ" indicates the non-detect is estimated at the indicated PQL.  
"EB" indicates analyte was also present in the associated field blank.  
"H" indicates a high bias.  
"I" indicates an indeterminate bias.  
"R" indicates the result was rejected.
4. The "AA" designation indicates that the sample consists of ambient air collected from outside the building.
5. The field blank sample was collected by transferring high purity nitrogen provided by the laboratory from one certified clean SUMMA canister into another certified clean SUMMA canister over an approximately 8-hour period.
6. Results were rounded to two significant figures.

TABLE 3d  
Building B012  
Summary of Summary of Indoor Air 8-Hour Confirmatory Sampling Results  
Report of Findings  
VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416  
IBM Poughkeepsie Facility  
Poughkeepsie, New York

Sample Location	Field Sample Name	Collection Date	Concentrations in µg/m³																							
			CA			1,1-DCA			1,1-DCE			c-1,2-DCE			t-1,2-DCE			PCE			TCE			VC		
			Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifier	Bias
AA4001	AA4001	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.11	U		0.051	U	
IA4007	IA4007	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.59	EB	H	0.051	U	
IA4009	IA4009	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.65	EB	H	0.051	U	
IA4010	IA4010	04/10/14	0.053	U		0.081	U		0.079	U		0.27			0.079	U		0.14			0.82			0.051	U	
IA4011	IA4011	04/10/14	0.053	UJ	I	0.081	UJ	I	0.079	UJ	I	0.079	UJ	I	0.079	UJ	I	0.14	UJ	I	1.2	J	I	0.051	UJ	I
IA4012	IA4012	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.75	EB	H	0.051	U	
IA4015	FD4015	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.59	EB	H	0.051	U	
IA4015	IA4015	04/10/14	0.22			0.081	U		0.079	U		0.079	U		0.079	U		0.24			0.61	EB	H	0.051	U	
IA4039	IA4039	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.81			0.051	U	
IA4043	IA4043	04/10/14	0.074			0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.88			0.051	U	
Field Blank	FB4001	04/10/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.15			0.051	U	

Notes:

- Samples were collected by Sanborn, Head & Associates, Inc. on the dates indicated over an 8-hour sampling interval. The samples were analyzed by Alpha Analytical of Westborough, Massachusetts for the project-specific list of volatile organic compounds (VOCs) by United States Protection Agency (USEPA) Method TO-15 in selective ion monitoring (SIM) mode. "CA" is chloroethane; "1,1-DCA" is 1,1-dichloroethane; "1,1-DCE" is 1,1-dichloroethene; "c-1,2-DCE" is cis-1,2-dichloroethene; "t-1,2-DCE" is trans-1,2-dichloroethene; "PCE" is tetrachloroethene; "TCE" is trichloroethene; and "VC" is vinyl chloride.
- Results are presented in micrograms per cubic meter (µg/m³).
- An in-depth data usability review (DUR) was performed on the data by New Environmental Horizons, Inc. (NEH) of Arlington, Massachusetts. All results were considered acceptable, with the understanding of the potential uncertainty (bias) in the qualified results. In some cases, NEH assigned the following qualifiers and biases to the data. Refer to the DUR report for further details.
  - "U" indicates the analyte is non-detect at or above the indicated sample specific practical quantification limit (PQL).
  - "J" indicates the result is an estimated value.
  - "UJ" indicates the non-detect is estimated at the indicated PQL.
  - "EB" indicates analyte was also present in the associated field blank.
  - "H" indicates a high bias.
  - "I" indicates an indeterminate bias.
- The "AA" designation indicates that the sample consists of ambient air collected from outside the building.
- The field blank sample was collected by transferring high purity nitrogen provided by the laboratory from one certified clean SUMMA canister into another certified clean SUMMA canister over an approximately 8-hour period.
- Results were rounded to two significant figures.

TABLE 3e  
Building B077  
Summary of Summary of Indoor Air 8-Hour Confirmatory Sampling Results  
Report of Findings  
VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416  
IBM Poughkeepsie Facility  
Poughkeepsie, New York

Sample Location	Field Sample Name	Collection Date	Concentrations in µg/m <sup>3</sup>																							
			CA			1,1-DCA			1,1-DCE			c-1,2-DCE			t-1,2-DCE			PCE			TCE			VC		
			Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias
AA7001	AA7001	03/11/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.15			0.051	U	
IA7003	FD7003	03/11/14	0.053	U		0.081	U		0.079	U		0.091			0.079	U		0.64			4.4			0.051	U	
IA7003	IA7003	03/11/14	0.053	U		0.081	U		0.079	U		0.083			0.079	U		0.56			4.1			0.051	U	

Notes:

1. Samples were collected by Sanborn, Head & Associates, Inc. on the dates indicated over an 8-hour sampling interval. The samples were analyzed by Alpha Analytical of Westborough, Massachusetts for the project-specific list of volatile organic compounds (VOCs) by United States Protection Agency (USEPA) Method TO-15 in selective ion monitoring (SIM) mode. "CA" is chloroethane; "1,1-DCA" is 1,1-dichloroethane; "1,1-DCE" is 1,1-dichloroethene; "c-1,2-DCE" is cis-1,2-dichloroethene; "t-1,2-DCE" is trans-1,2-dichloroethene; "PCE" is tetrachloroethene; "TCE" is trichloroethene; and "VC" is vinyl chloride.
2. Results are presented in micrograms per cubic meter (µg/m<sup>3</sup>).
3. An in-depth data usability review (DUR) was performed on the data by New Environmental Horizons, Inc. (NEH) of Arlington, Massachusetts. All results were considered acceptable, with the understanding of the potential uncertainty (bias) in the qualified results. In some cases, NEH assigned the following qualifiers and biases to the data. Refer to the DUR report for further details.  
"U" indicates the analyte is non-detect at or above the indicated sample specific practical quantification limit (PQL).  
"J" indicates the result is an estimated value.  
"UJ" indicates the non-detect is estimated at the indicated PQL.  
"EB" indicates analyte was also present in the associated field blank.  
"H" indicates a high bias.  
"I" indicates an indeterminate bias.
4. The "AA" designation indicates that the sample consists of ambient air collected from outside the building.
5. The field blank sample was collected by transferring high purity nitrogen provided by the laboratory from one certified clean SUMMA canister into another certified clean SUMMA canister over an approximately 8-hour period.
6. Results were rounded to two significant figures.

TABLE 3f  
Building B416  
Summary of Summary of Indoor Air 8-Hour Confirmatory Sampling Results  
Report of Findings  
VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416  
IBM Poughkeepsie Facility  
Poughkeepsie, New York

Sample Location	Field Sample Name	Collection Date	Concentrations in µg/m <sup>3</sup>																							
			CA			1,1-DCA			1,1-DCE			c-1,2-DCE			t-1,2-DCE			PCE			TCE			VC		
			Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias	Result	Qualifer	Bias
AA8001	AA8001	03/11/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.048	J	I	0.051	U	
IA8001	IA8001	03/11/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.086	J	I	0.051	U	
IA8002	IA8002	03/11/14	0.053	UJ	I	0.081	UJ	I	0.079	UJ	I	0.079	UJ	I	0.079	UJ	I	0.14	UJ	I	0.097	J	I	0.051	UJ	I
IA8003	IA8003	03/11/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.091	J	I	0.051	U	
IA8004	IA8004	03/11/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.11			0.051	U	
IA8005	IA8005	03/11/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.091	J	I	0.051	U	
IA8006	IA8006	03/11/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.20			0.051	U	
Field Blank	FB8001	03/11/14	0.053	U		0.081	U		0.079	U		0.079	U		0.079	U		0.14	U		0.11	U		0.051	U	

Notes:

- Samples were collected by Sanborn, Head & Associates, Inc. on the dates indicated over an 8-hour sampling interval. The samples were analyzed by Alpha Analytical of Westborough, Massachusetts for the project-specific list of volatile organic compounds (VOCs) by United States Protection Agency (USEPA) Method TO-15 in selective ion monitoring (SIM) mode. "CA" is chloroethane; "1,1-DCA" is 1,1-dichloroethane; "1,1-DCE" is 1,1-dichloroethene; "c-1,2-DCE" is cis-1,2-dichloroethene; "t-1,2-DCE" is trans-1,2-dichloroethene; "PCE" is tetrachloroethene; "TCE" is trichloroethene; and "VC" is vinyl chloride.
- Results are presented in micrograms per cubic meter (µg/m<sup>3</sup>).
- An in-depth data usability review (DUR) was performed on the data by New Environmental Horizons, Inc. (NEH) of Arlington, Massachusetts. All results were considered acceptable, with the understanding of the potential uncertainty (bias) in the qualified results. In some cases, NEH assigned the following qualifiers and biases to the data. Refer to the DUR report for further details.  
"U" indicates the analyte is non-detect at or above the indicated sample specific practical quantification limit (PQL).  
"J" indicates the result is an estimated value.  
"UJ" indicates the non-detect is estimated at the indicated PQL.  
"EB" indicates analyte was also present in the associated field blank.  
"H" indicates a high bias.  
"I" indicates an indeterminate bias.
- The "AA" designation indicates that the sample consists of ambient air collected from outside the building.
- The field blank sample was collected by transferring high purity nitrogen provided by the laboratory from one certified clean SUMMA canister into another certified clean SUMMA canister over an approximately 8-hour period.
- Results were rounded to two significant figures.

**TABLE 4**  
**SUMMARY OF B004 PILOT TESTING**  
**LABORATORY ANALYTICAL DATA**

**TABLE 4**  
**Building 004**

**Summary of Pilot Testing Laboratory Analytical Data**  
**Report of Findings**

**VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416**  
**IBM Poughkeepsie Facility**  
**Poughkeepsie, New York**

Sample Location	Field Sample Name	Collection Date	Concentrations in $\mu\text{g}/\text{m}^3$							
			CA	1,1-DCA	1,1-DCE	c-1,2-DCE	t-1,2-DCE	PCE	TCE	VC
			Result	Result	Result	Result	Result	Result	Result	Result
EP5001	EP5001	08/06/14	<5.4	<8.2	<8.1	750	<8.1	34	45,000	<5.2
EP5002	EP5002	08/07/14	<5.5	<8.5	<8.3	690	<8.3	37	44,000	<5.3
EP5003	EP5003	08/07/14	<2.9	<4.5	<4.4	220	<4.4	13	14,000	<2.8

Notes:

1. Samples were collected by Sanborn, Head & Associates, Inc. on August 6 and 7, 2014. The samples were analyzed by Alpha Analytical of Westborough, Massachusetts for the project-specific list of volatile organic compounds (VOCs) by United States Protection Agency (USEPA) Method TO-15 in selective ion monitoring (SIM) mode. "CA" is chloroethane; "1,1-DCA" is 1,1-dichloroethane; "1,1-DCE" is 1,1-dichloroethene; "c-1,2-DCE" is cis-1,2-dichloroethene; "t-1,2-DCE" is trans-1,2-dichloroethene; "PCE" is tetrachloroethene; "TCE" is trichloroethene; and "VC" is vinyl chloride.
2. Results are presented in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).
3. Results were rounded to two significant figures.



## FIGURES



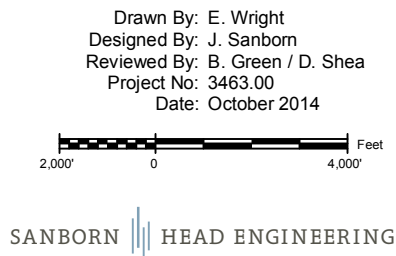
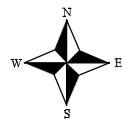
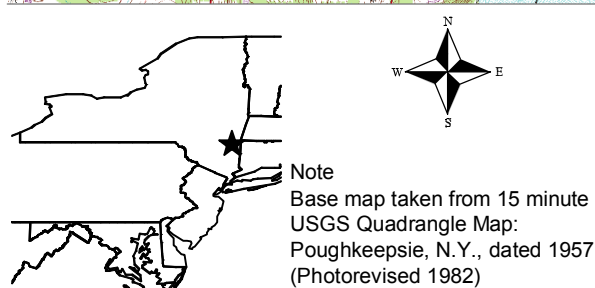
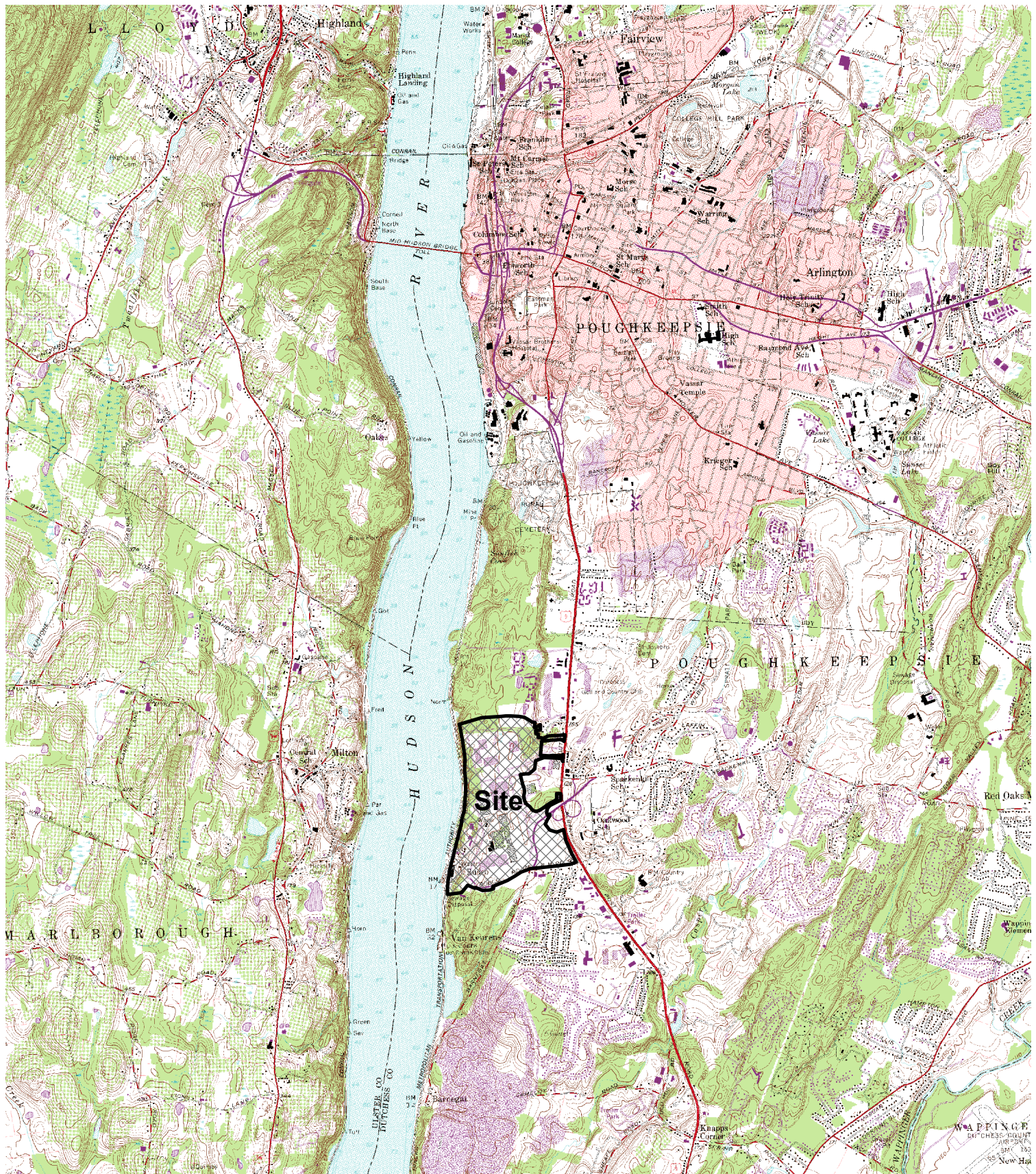


Figure 1

## Location Plan

Report of Findings  
VOC Source Assessment and  
Confirmatory Sampling  
IBM Poughkeepsie Facility  
Poughkeepsie, New York



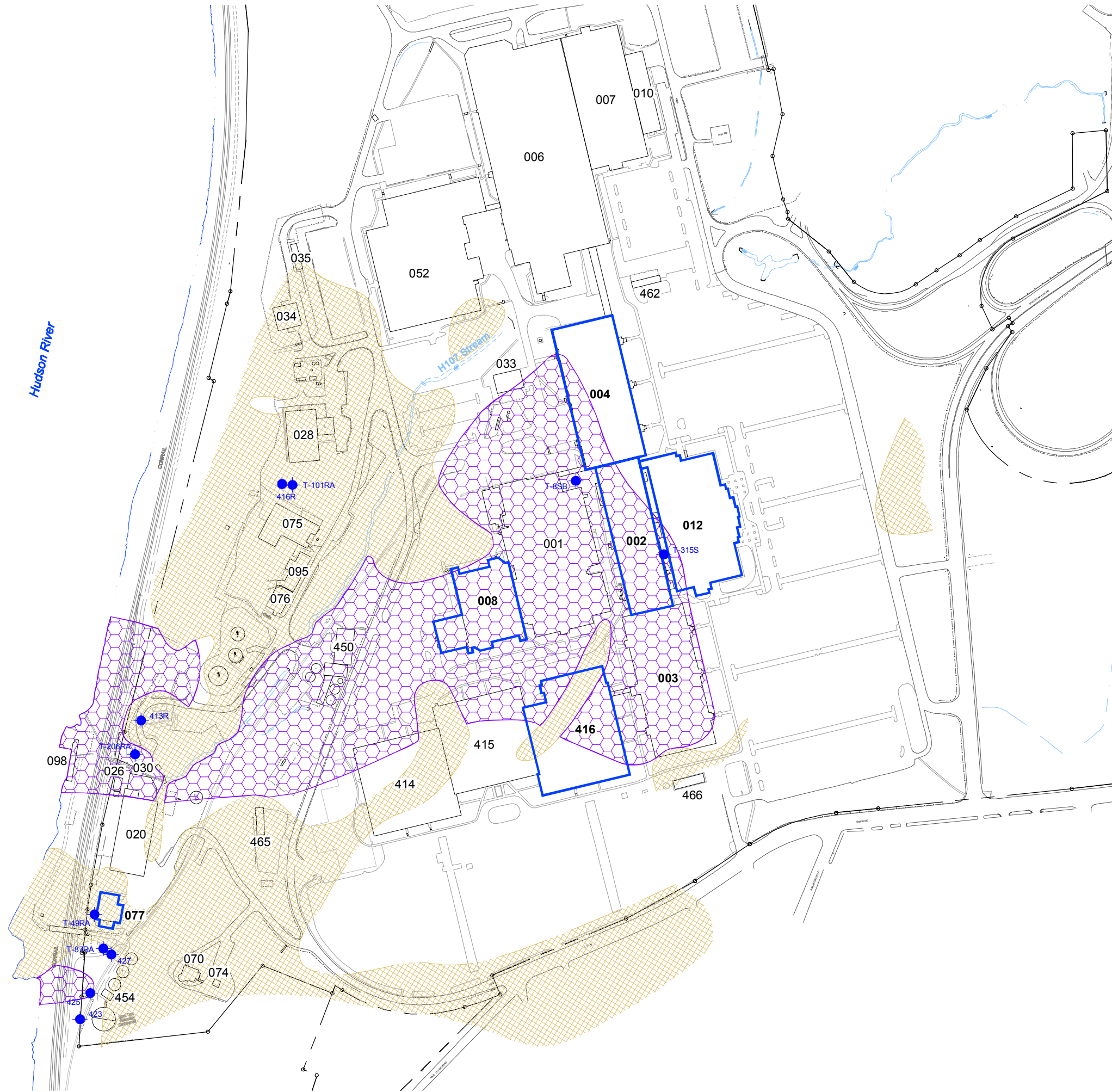
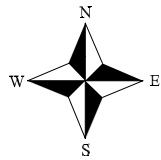


Figure 2

## Building Location and VOC Extent in Overburden Groundwater

Report of Findings  
VOC Source Assessment and  
Confirmatory Sampling  
IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By: E. Wright  
Designed By: J. Sanborn  
Reviewed By: B. Green / D. Shea  
Project No: 3463.00  
Date: October 2014

### Figure Narrative

This figure shows buildings where source assessment and/or confirmatory sampling activities were performed, other site buildings, and the inferred extent of total VOCs in overburden groundwater. It is based on the most recent sampling data at existing site overburden monitoring and extraction wells, as well as data and figures presented in the site's 2011 Annual Groundwater Monitoring Report prepared by Groundwater Sciences Corporation (GSC) dated April 26, 2012.

### Notes

1. Base plan was prepared using AutoCAD files provided by Grubb & Ellis Management Services, Inc. (GEMS) in December 2009.
2. Groundwater analytical data was provided to Sanborn Head by GSC on August 14, 2012 via electronic file transfer.
3. The area of no saturated overburden was provided in GSC's 2011 Annual Groundwater Monitoring Report, Main Plant Site, dated April 26, 2012.

### Legend

- Approximate location of property line
- Approximate location of extraction well
- Inferred extent of VOCs in overburden groundwater
- Area of no saturated overburden
- Indicates building number
- Indicates the location of buildings sampled
- Unlabeled features include tanks, storage sheds, and other structures and features not intended for routine occupancy

175' 87.5' 0 175' 350' Feet



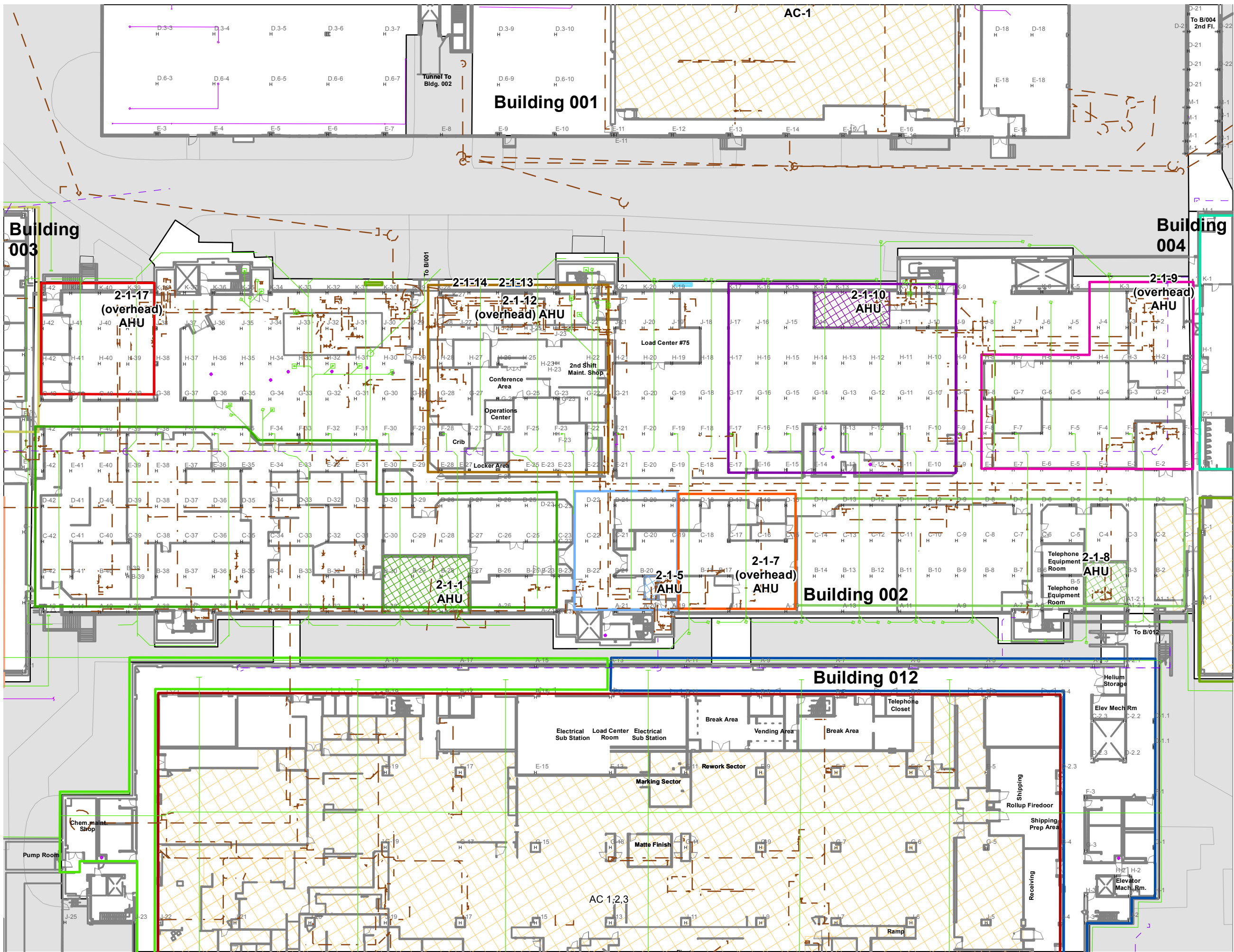


Figure 3A

## Building 002 Layout and HVAC Zones

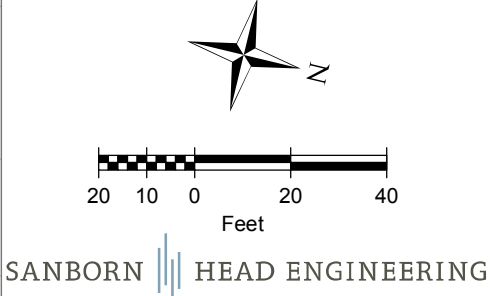
Report of Findings  
VOC Source Assessment and  
Confirmatory Sampling

IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By: C. LaVack  
Designed By: J. Sanborn  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

**Figure Narrative**  
This figure shows the first floor layout of Building 002. Refer to the legend for additional information.

- Legend**
- Storm sewer
  - Roof drain and underdrain system
  - Industrial waste drain
  - Sanitary lines
  - Manhole Cover
  - Column and designations
  - Raised floor
  - Mechanical room for indicated air handling unit (AHU)
  - 2-1-8 Approximate limits of HVAC Zone



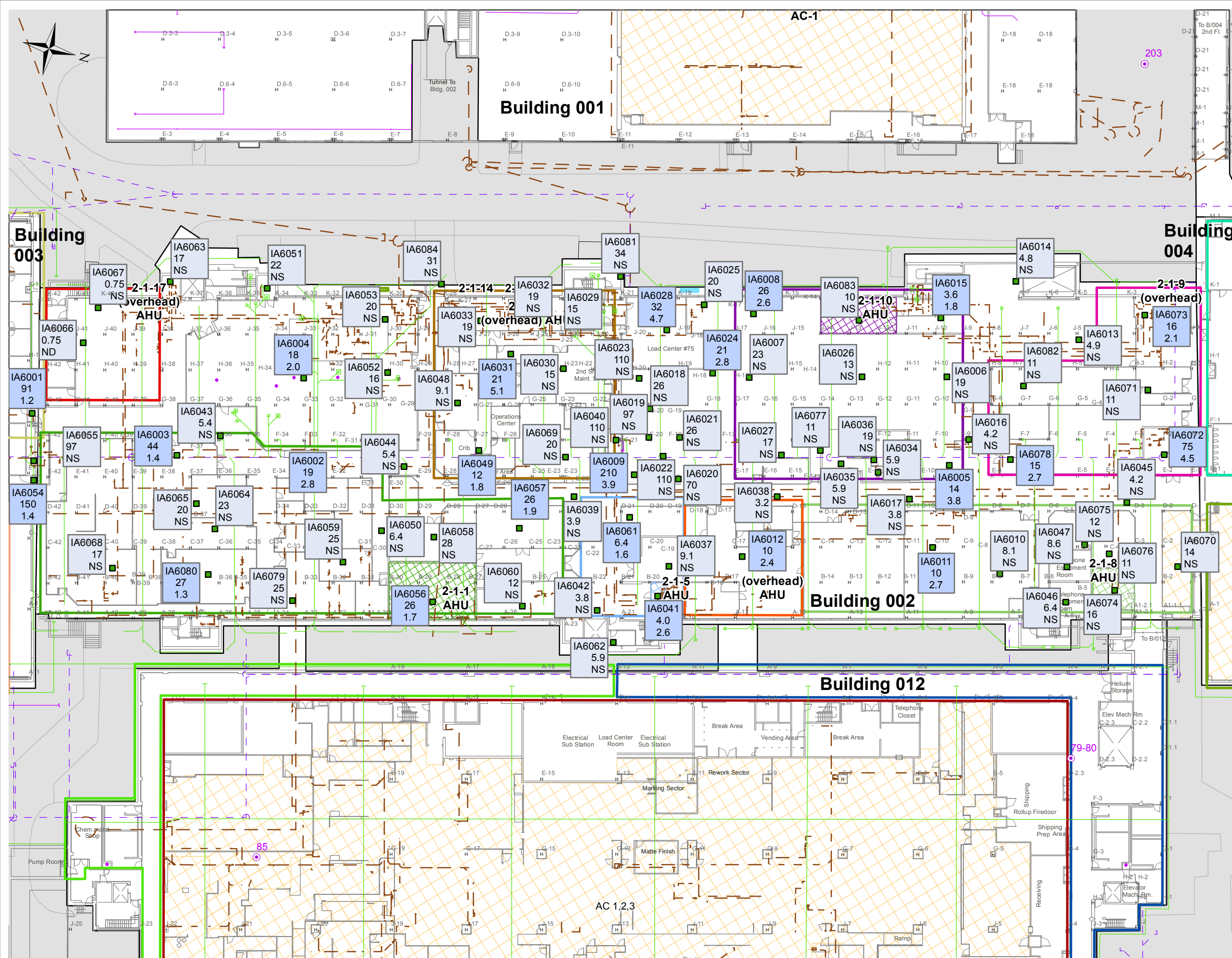


Figure 3B

**B002 Summary of TCE  
Screening in Indoor Air  
(Portable GC/MS Results)**

Report of Findings  
VOC Source Assessment and  
Confirmatory Sampling

# IBM Poughkeepsie Facility

Poughkeepsie, New York

---


Drawn By:	C. LaVack
Designed By:	J. Sanborn
Reviewed By:	B. Green/D. Shea
Project No:	3463.00
Date:	October 2014

**Figure Narrative**

This figure shows the results of indoor air screening in Building 002 before and after sealing of preferential pathways for vapor entry and completion of HVAC adjustments. Samples were collected using a portable gas chromatograph/mass spectrometer (GC/MS). The results are shown in units of micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). Refer to Table 1A for a summary of all indoor air screening results for B002.

# Legend

Refer to Figure 3A for additional legend items

 Indoor Air Sample Location

IA6072	Sample location number
75	Aug./Sept. 2013 TCE result ( $\mu\text{g}/\text{m}^3$ )
4.5	Most recent TCE result ( $\mu\text{g}/\text{m}^3$ ); (Oct/Nov 2013 or Apr/June 2014)

IA6070	Sample location where only the
14	initial screening round was
NS	collected.

NS Not Screened



© 2014 SANBORN HEAD ENGINEERING, P.C.  
Last Edited By: clavack  
Path: S:\CONDATA\34063\3463.00\Graphics Files\ArcGIS\Figures\Analysis\April Confirmatory Sampling\B002-Confirmatory\_HAPSITE.mxd

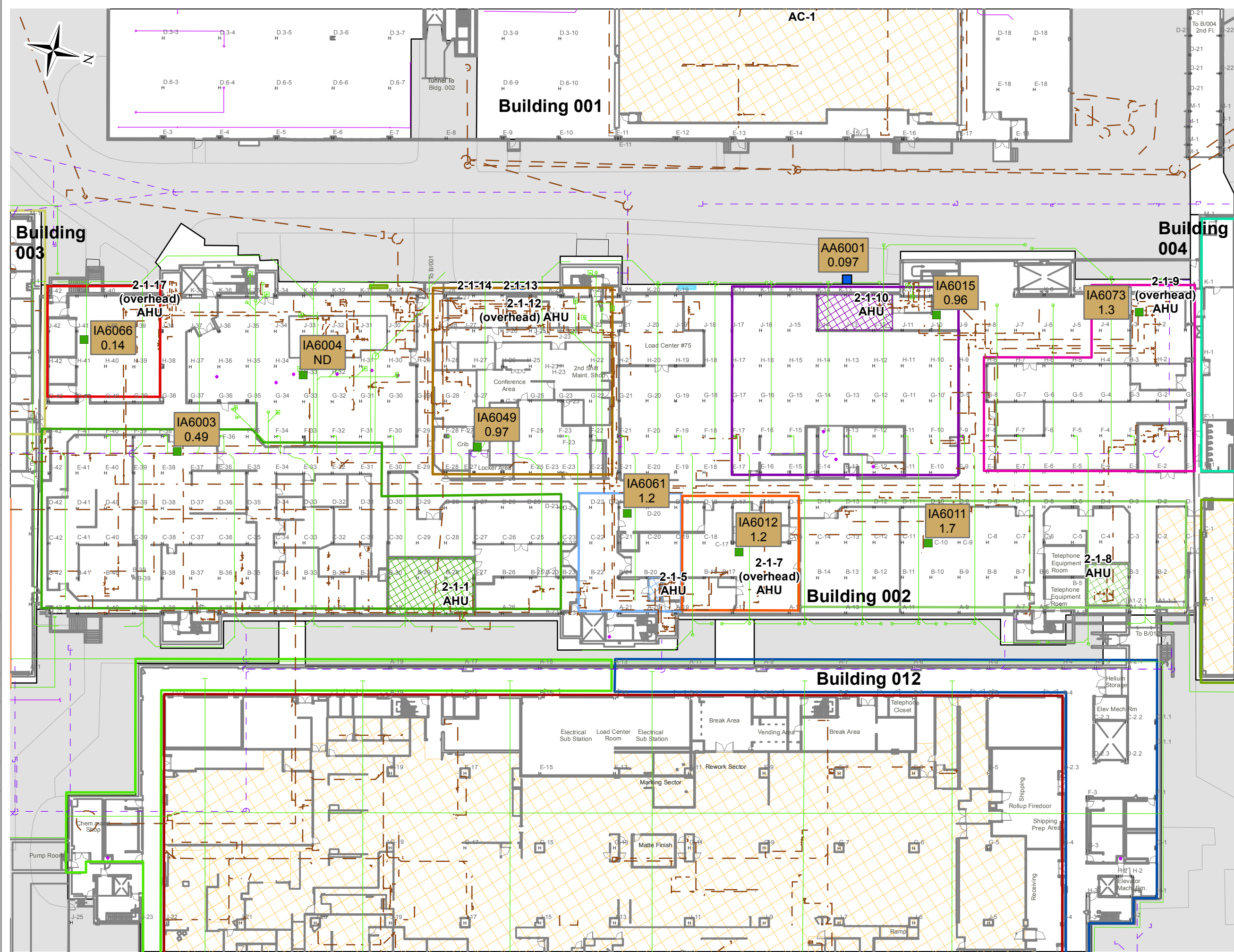


Figure 3C

### B002 Summary of TCE Concentrations in Indoor Air (8-Hour Sampling)

Report of Findings  
VOC Source Assessment and  
Confirmatory Sampling

IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By: C. LaVack  
Designed By: J. Sanborn  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

**Figure Narrative**

This figure shows the results of indoor air sampling conducted by Sanborn Head personnel on April 10, 2014. The samples were collected as 8-hour time weighted average samples using Summa canisters. The results for TCE are shown in units of micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

**Legend**

Refer to Figure 3A for additional legend items

- Indoor Air Sample Location
- Sample location number  
April 10, 2014 TCE result ( $\mu\text{g}/\text{m}^3$ )
- ND Indicates not detected
- Ambient air QA/QC sample location
- Manhole Cover

20 10 0 20 40  
Feet

SANBORN HEAD ENGINEERING

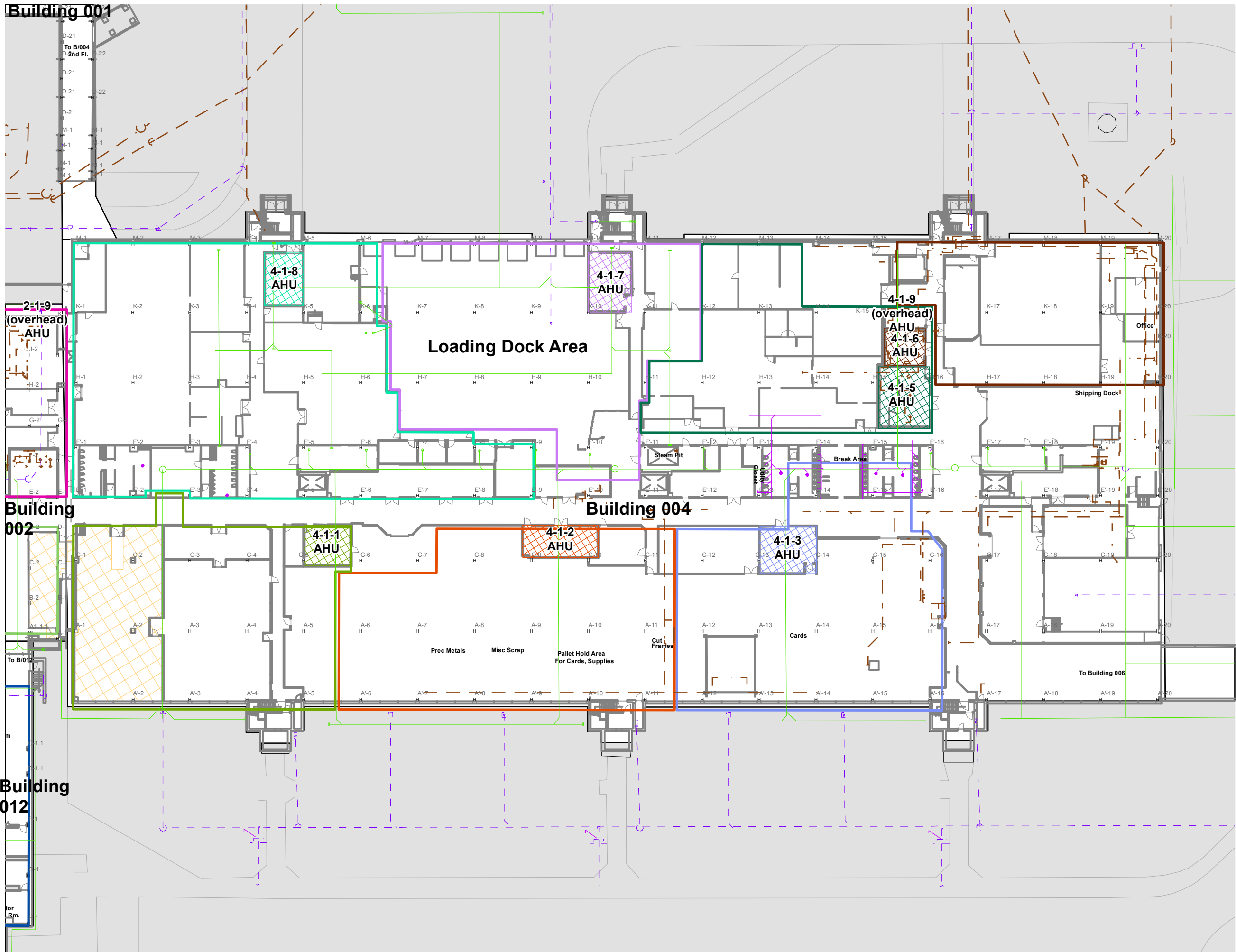


Figure 4A

## Building 004 Layout and HVAC Zones

Report of Findings  
VOC Source Assessment and  
Confirmatory Sampling

IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By: C. LaVack  
Designed By: J. Sanborn  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

### Figure Narrative

This figure shows the first floor layout of Building 004. Refer to the legend for additional information.

### Legend

- Storm sewer
- Roof drain and underdrain system
- Industrial waste drain
- Sanitary lines
- Column and designations
- Raised floor
- Mechanical room for indicated air handling unit (AHU)
- Approximate limits of HVAC Zone



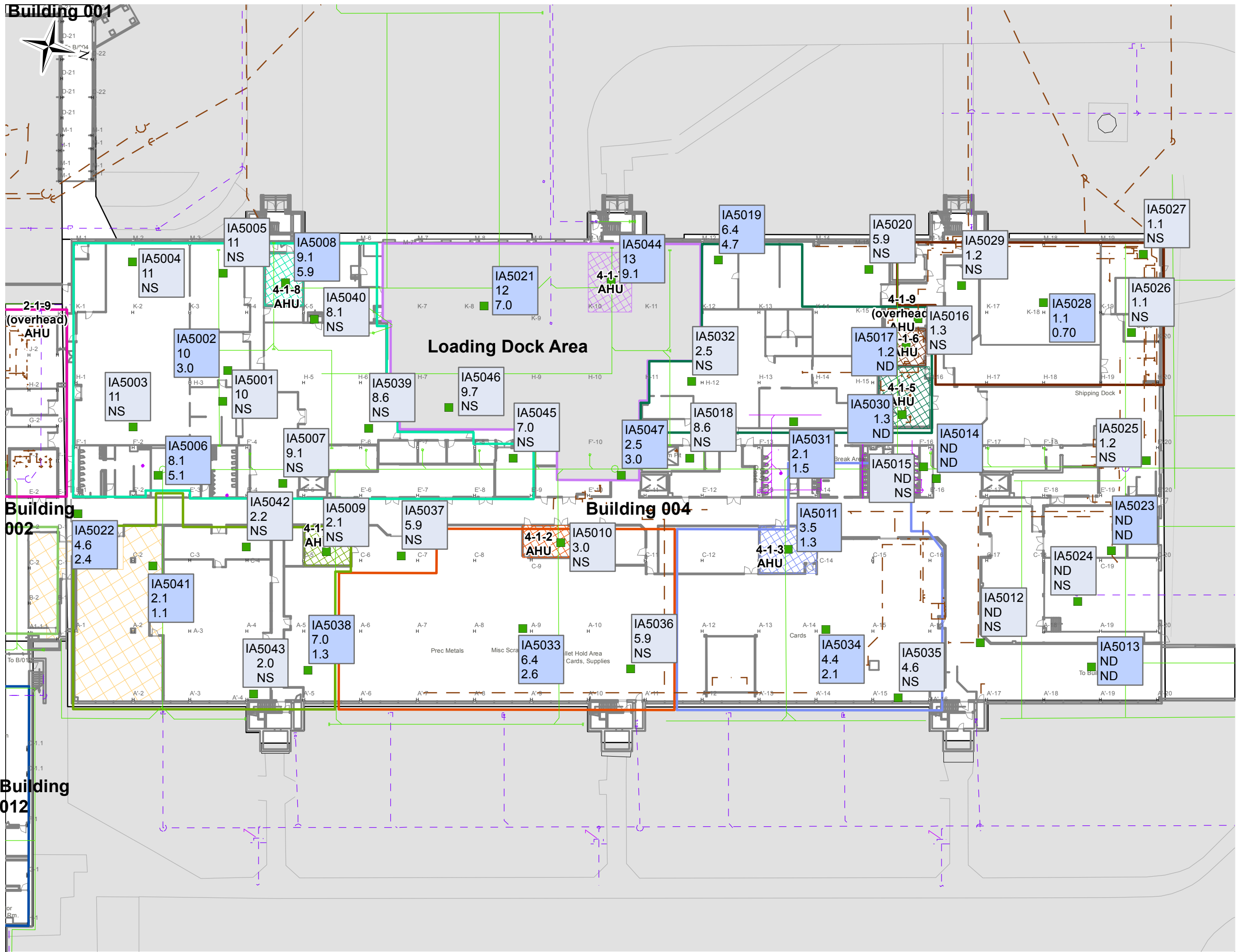


© 2014 SANBORN HEAD ENGINEERING, P.C.  
Last Edited By: clavack  
Path: S:\CONDATA\34063.00\Graphics Files\ArcGIS\Figures\SourceFiles\Multiple Building Rpt of Findings\B004-Confirmatory\_HAPSITE.mxd

Building 001

Building 002

Building 012



**Figure 4B**  
**B004 Summary of TCE**  
**Screening in Indoor Air**  
**(Portable GC/MS Results)**  
Report of Findings  
VOC Source Assessment and  
Confirmatory Sampling

IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By: C. LaVack  
Designed By: J. Sanborn  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

**Figure Narrative**  
This figure shows the results of indoor air screening in Building 004 before and after sealing of preferential pathways for vapor entry and completion of HVAC adjustments. Samples were collected using a portable gas chromatograph/mass spectrometer (GC/MS). The results are shown in units of micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). Refer to Table 1B for a summary of all indoor air screening results from B004.

- Legend**  
Refer to Figure 4A for additional legend items
- Indoor Air Sample Location
  - Sample location number  
Initial Screening: TCE result ( $\mu\text{g}/\text{m}^3$ )  
Screening Confirmation: TCE result ( $\mu\text{g}/\text{m}^3$ ); (Oct/Nov 2013 or Apr 2014)
  - Sample location where only the initial screening round was collected.
  - NS Not Screened
  - ND Not detected above instrument detection limit
  - Loading Dock Area (4-1-7 area)



© 2014 SANBORN HEAD ENGINEERING, P.C.  
Last Edited By: clavack  
Path: S:\CONDATA\3406\3463.00\Graphics\Figures\Analysis\April Confirmatory Sampling\B004-Confirmatory\_HAPSITE.mxd

Building 001

Building 002

Building 012

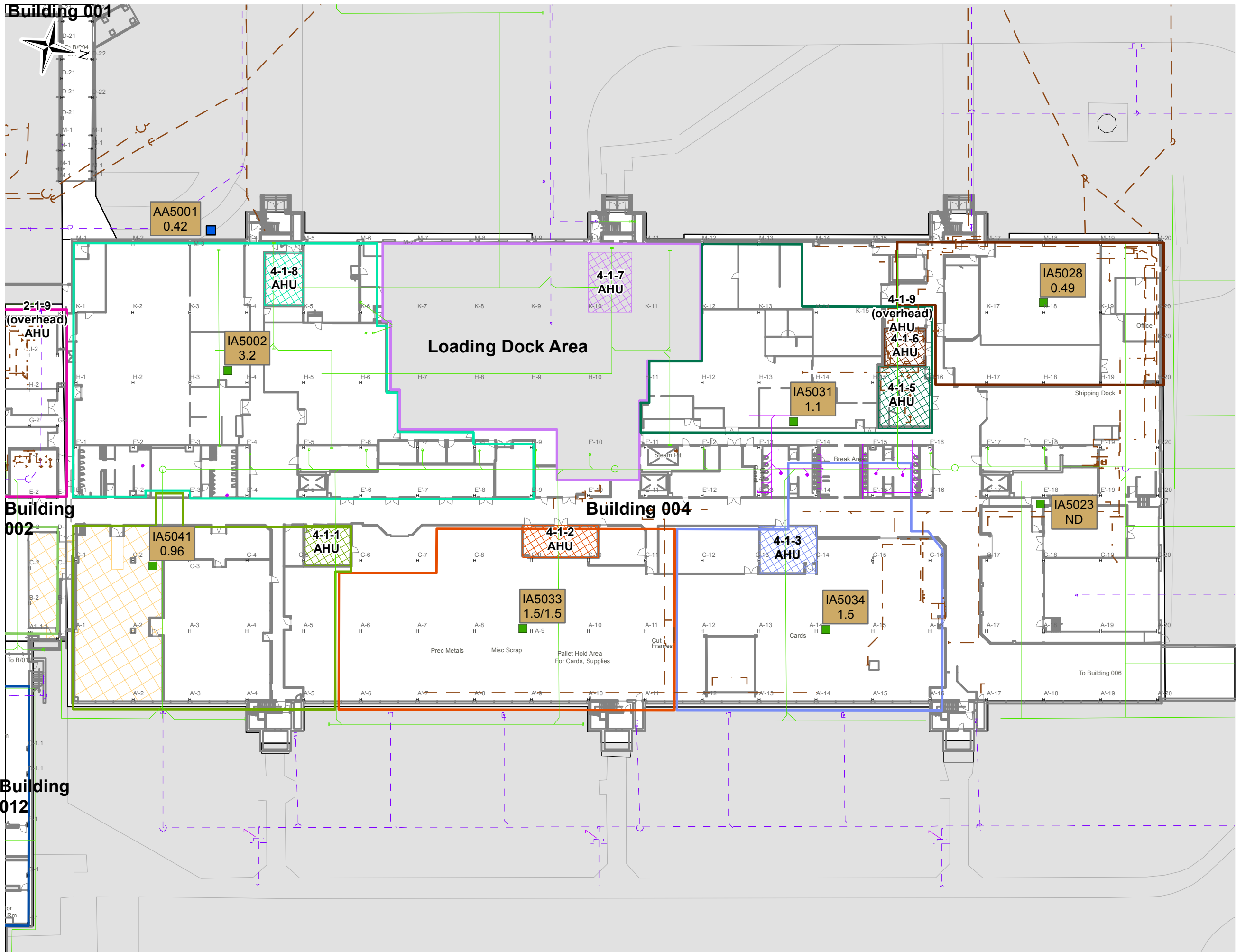


Figure 4C  
**B004 Summary of TCE  
Concentrations in Indoor Air  
(8-Hour Sampling)**

Report of Findings  
VOC Source Assessment and  
Confirmatory Sampling

IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By: C. LaVack  
Designed By: J. Sanborn  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014







**Figure Narrative**

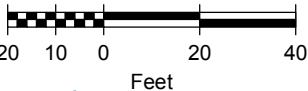
This figure shows the results of indoor air sampling conducted by Sanborn Head personnel on April 10, 2014. The samples were collected as 8-hour time weighted average samples using Summa canisters. The results for TCE are shown in units of micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

A confirmatory indoor air sample was not collected from the loading dock area during the April 10, 2014 sampling round. Source investigations results will be provided in a separate report.

**Legend**

Refer to Figure 4A for additional legend items

-  Indoor Air Sample Location
-  Sample location number  
April 10, 2014 TCE result ( $\mu\text{g}/\text{m}^3$ )
-  ND Indicates not detected
-  Ambient air QA/QC sample location
-  1.5/1.5 Indicates the results of a field duplicate sample
-  Loading Dock Area (4-1-7 area)



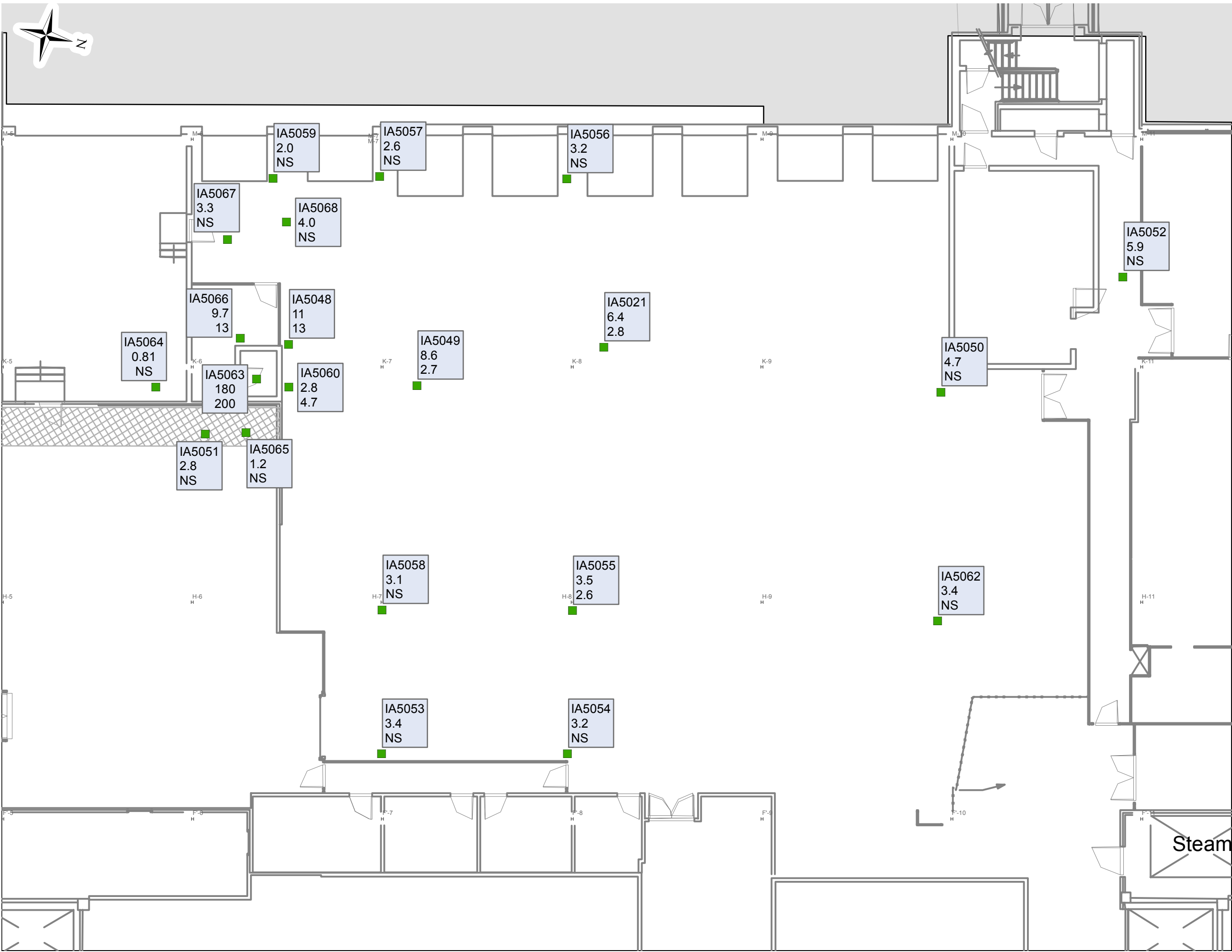


Figure 4D  
**B004 Loading Dock Summary  
of TCE Screening in Indoor  
Air (Portable GC/MS Results)**

Report of Findings  
VOC Source Assessment and  
Confirmatory Sampling

IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By: C. LaVack  
Designed By: R. Welch  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

**Figure Narrative**  
This figure shows the results of indoor air screening in the Building 004 loading dock area. In general, the readings represent conditions before and after HVAC modifications and sealing of preferential pathways for vapor entry, which took place over a period of two months. Samples were collected using a portable gas chromatograph/mass spectrometer (GC/MS). The results are shown in units of micrograms per cubic meter (µg/m³).

**Legend**

■ Indoor Air Sample Location

IA5052  
6.4  
NS

Sample location number  
Pre-sealing and HVAC  
adjustment: TCE result (µg/m³)  
Post-sealing and HVAC  
adjustment: TCE result (µg/m³)

NS Not Screened

© 2014 SANBORN HEAD ENGINEERING, P.C.  
Last Edited By: clavack  
Path: S:\CONDATA\34063.00\Graphics Files\ArcGIS\Figures\SourceFiles\Multiple Building Rpt of Findings\B004\_CP's>LoadingDock.mxd

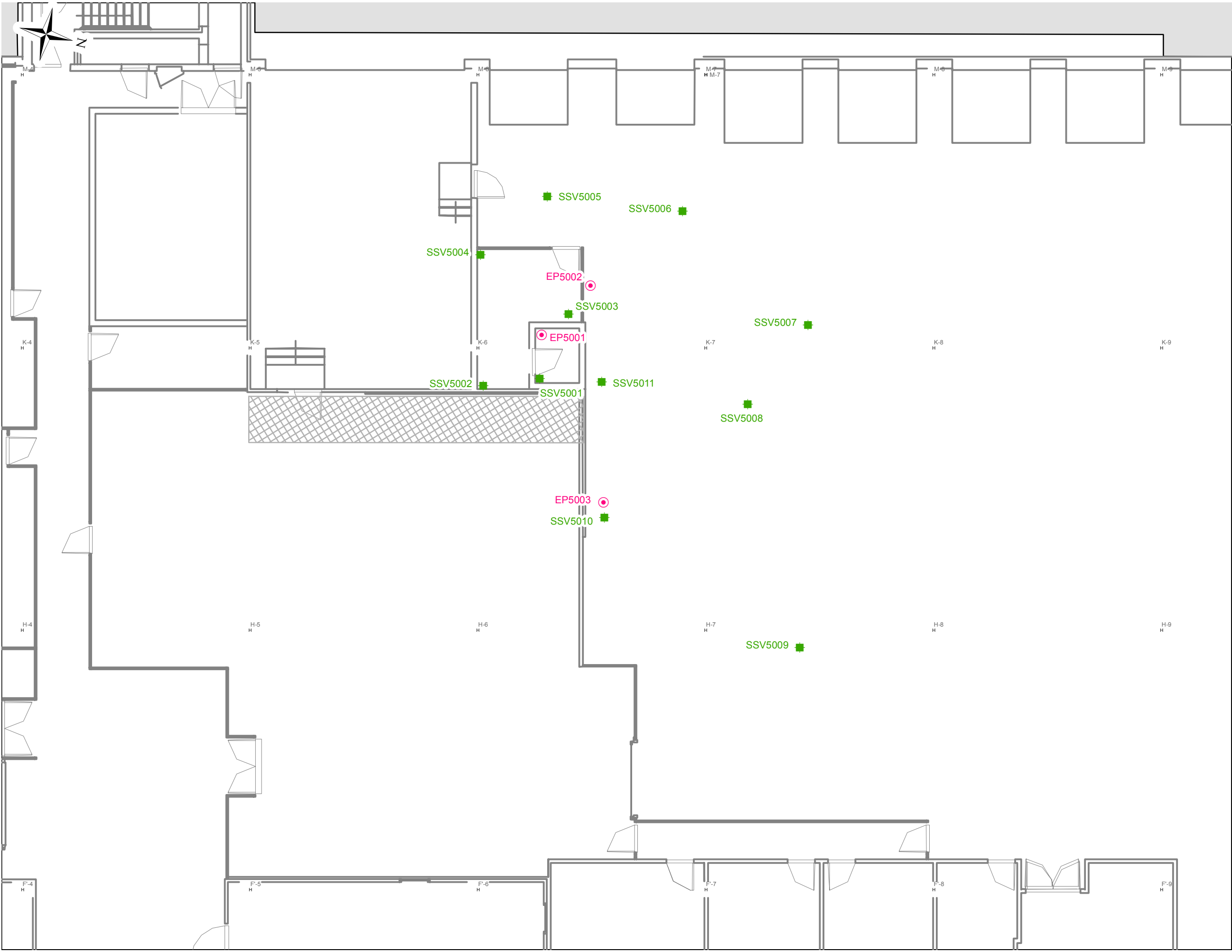


Figure 4E  
**B004 Loading Dock Extraction  
Port and Subslab Vapor  
Monitoring Port Locations**

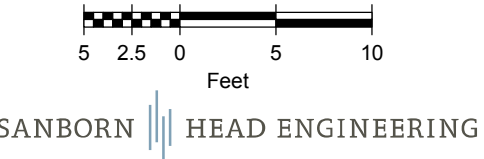
Report of Findings  
VOC Source Assessment and  
Confirmatory Sampling

IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By:	C. LaVack
Designed By:	R. Welch
Reviewed By:	B. Green/D. Shea
Project No:	3463.00
Date:	October 2014

**Figure Narrative**  
This figure shows the locations of subslab vapor monitoring locations and vapor extraction ports.

- Legend**
- SSV5001 ■ Subslab Vapor Monitoring Location
  - EP5001 ● Vapor Extraction Port



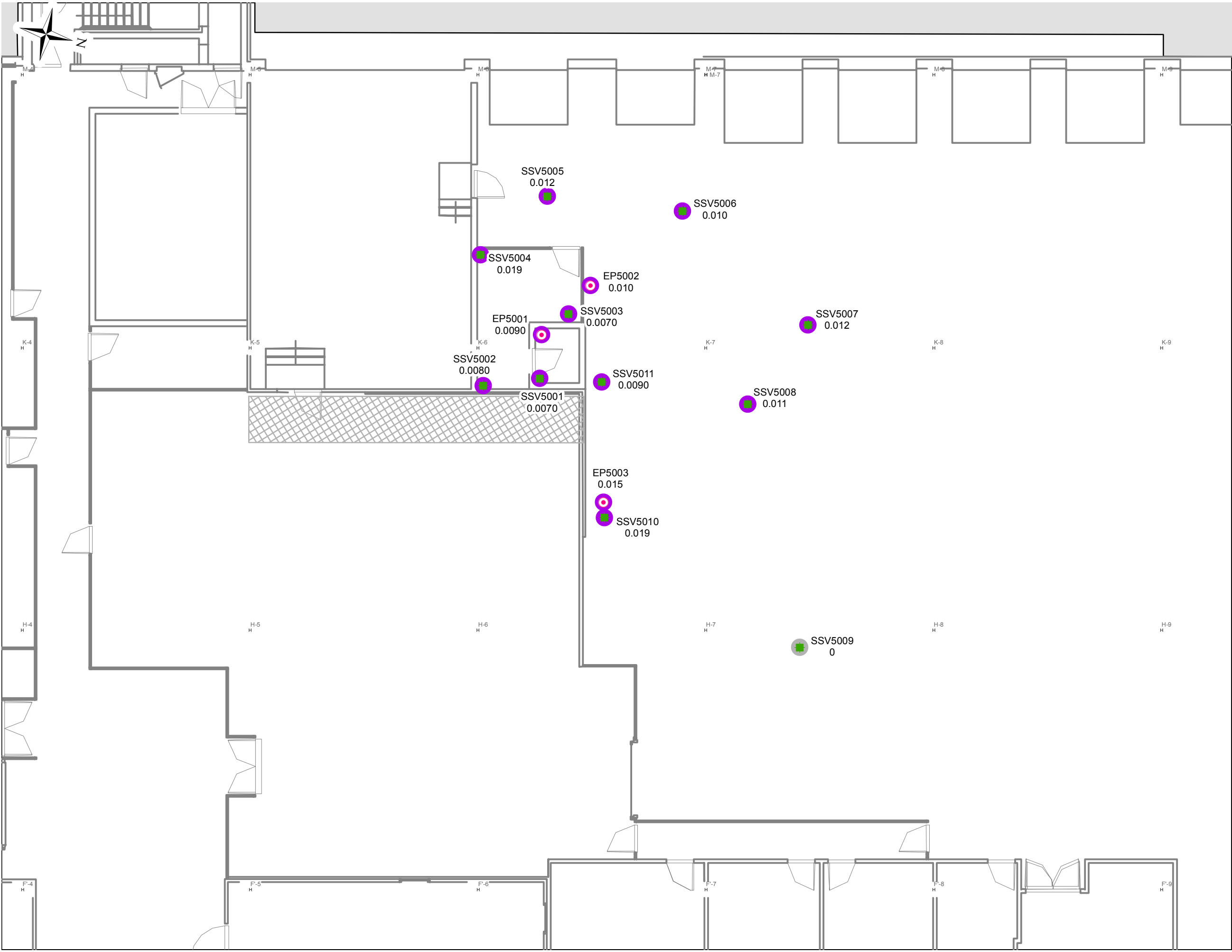


Figure 4F  
**B004 Loading Dock Summary  
of Subslab Differential  
Pressure Monitoring**

Report of Findings  
VOC Source Assessment and  
Confirmatory Sampling

IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By: C. LaVack  
Designed By: R. Welch  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

**Figure Narrative**

This figure shows the results of differential pressure monitoring conducted concurrent with indoor air work in August 2014 at the subslab monitoring locations shown. Differential pressure monitoring was conducted using a digital manometer capable of measuring pressures from 0.000 to 1.0 inches of water.

**Legend**

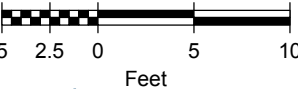
**Differential Pressures**

- Subslab Pressure = Building Pressure
- Subslab Pressure > Building Pressure

**Subslab Locations**

- 0.008 Subslab vapor monitoring location  
Differential pressure (in. water)
- EP2001 Vapor extraction port  
Differential pressure (in. water)

Differential pressure values are relative to building air pressure. A positive value indicates subslab pressure is greater than building pressure. A negative value indicates subslab pressure is less than building pressure.





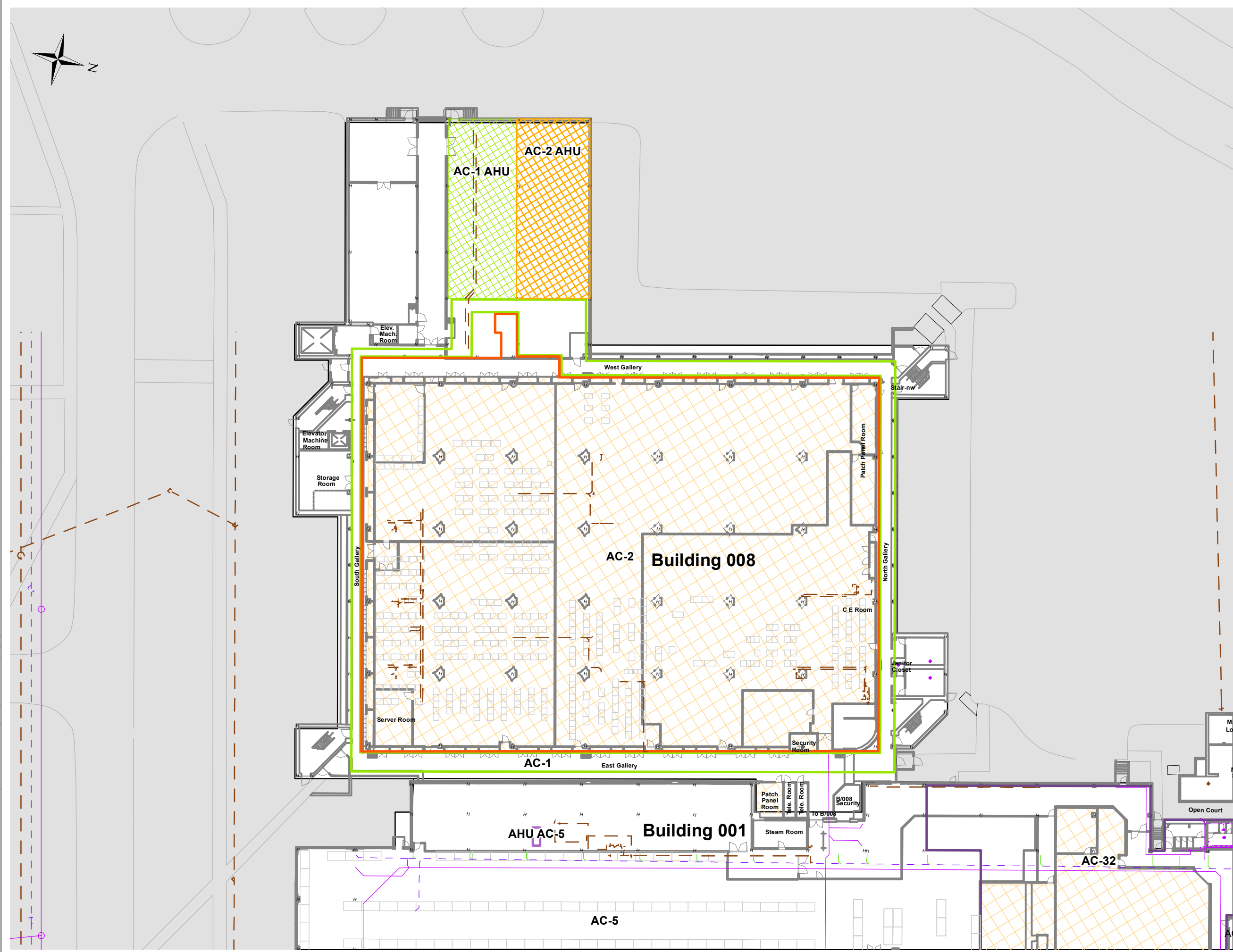


Figure 5A

# Building 008 Layout and HVAC Zones

Report of Findings  
VOC Source Assessment and  
Confirmatory Sampling

IBM Poughkeepsie Facility  
Poughkeepsie, New York

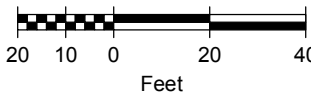
Drawn By: C. LaVack  
Designed By: J. Sanborn  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

## Figure Narrative

This figure shows the first floor layout of Building 008. Refer to the legend for additional information.

## Legend

- - - Storm sewer
- - - Industrial waste drain
- Sanitary lines
- H D-2 Column and designations
- Raised floor
- AC-2 AHU Mechanical room for indicated air handling unit (AHU)
- AC-2 Approximate limits of HVAC Zone



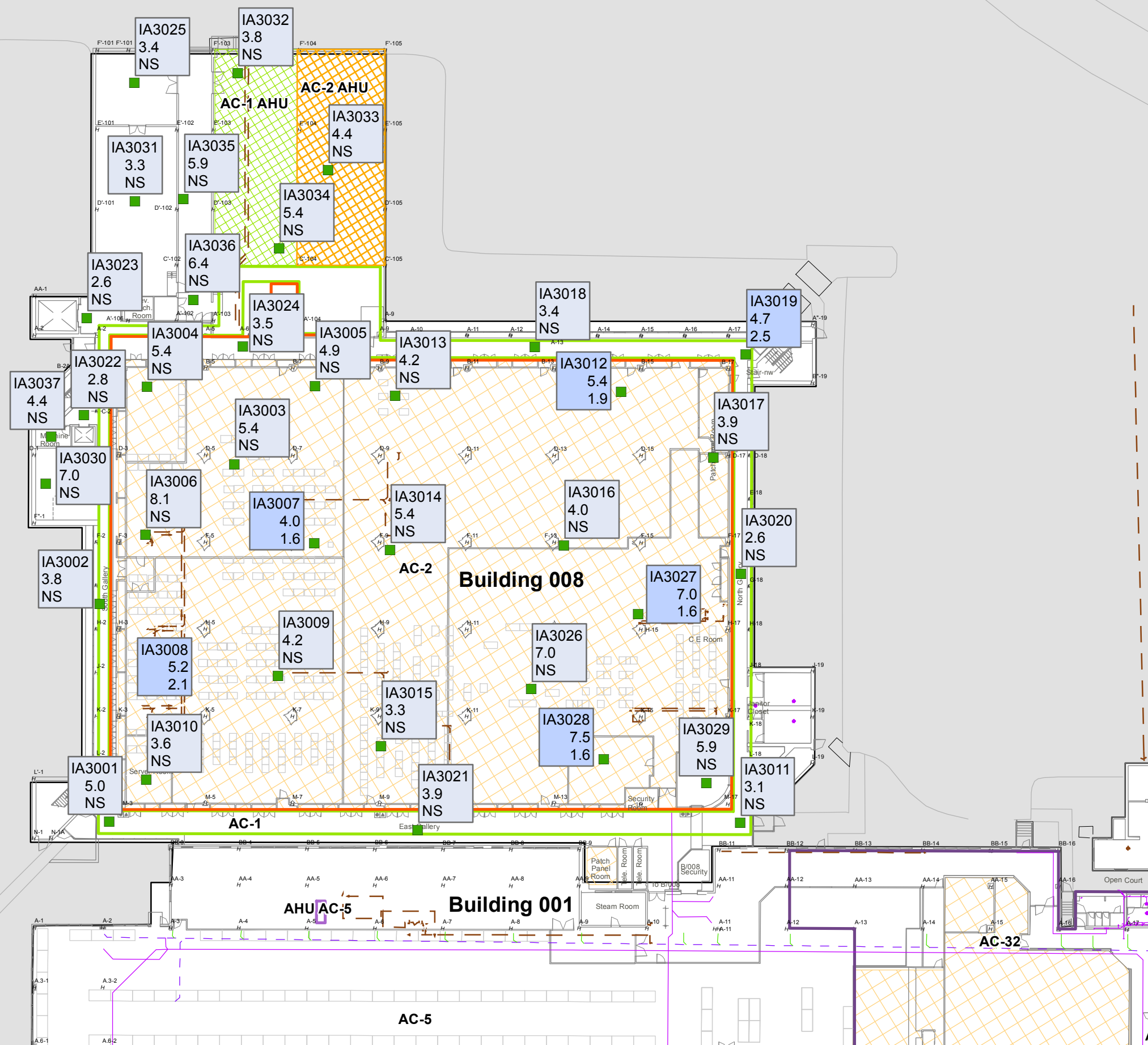


Figure 5B

**B008 Summary of TCE  
Screening in Indoor Air  
(Portable GC/MS Results)**

Report of Findings  
VOC Source Assessment and  
Confirmatory Sampling

IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By: C. LaVack  
Designed By: J. Sanborn  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

### Figure Narrative

This figure shows the results of indoor air screening in Building 008 before and after completion of HVAC adjustments. Samples were collected using a portable gas chromatograph/mass spectrometer (GC/MS). The results are shown in units of micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). Refer to Table 1C for a summary of all indoor air screening results from B008.

### Legend

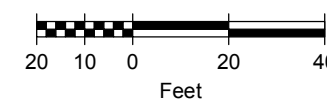
Refer to Figure 5A for additional legend items

Indoor Air Sample Location

IA3027	Sample location number
7.0	Aug./Sept. 2013 TCE result ( $\mu\text{g}/\text{m}^3$ )
3.5	April 2014 TCE result ( $\mu\text{g}/\text{m}^3$ )

IA3020	Sample location where only the
2.6	initial screening round was
NS	collected.

NS      Not Screened



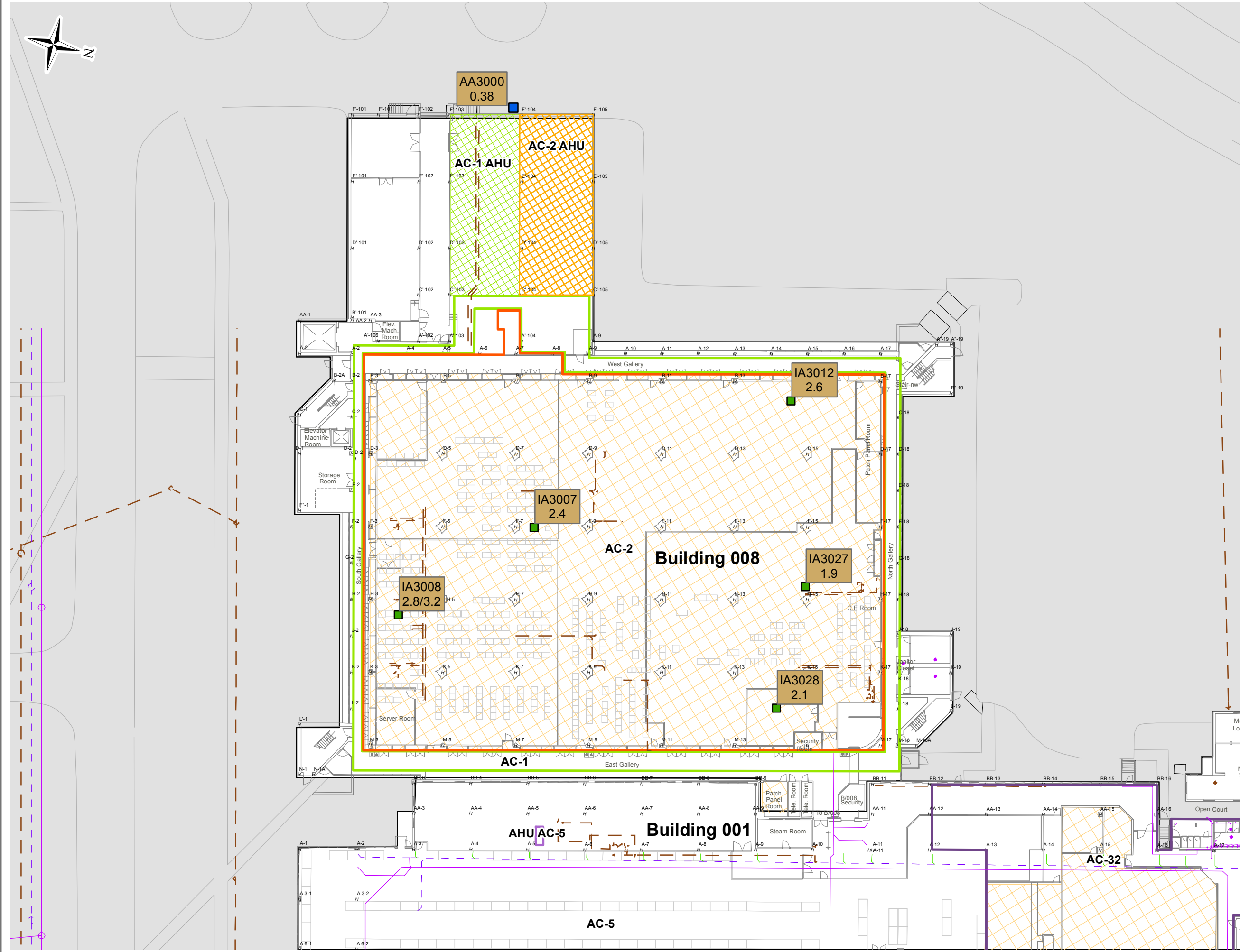


Figure 5C  
**B008 Summary of TCE  
Concentrations in Indoor Air  
(8-Hour Sampling)**

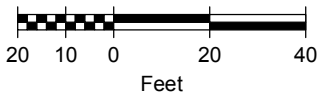
Report of Findings  
VOC Source Assessment and  
Confirmatory Sampling

IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By: C. LaVack  
Designed By: J. Sanborn  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

**Figure Narrative**  
This figure shows the results of indoor air sampling conducted by Sanborn Head personnel on April 23, 2014. The samples were collected as 8-hour time weighted average samples using Summa canisters. The results for TCE are shown in units of micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

- Legend**  
Refer to Figure 5A for additional legend items
- Indoor Air Sample Location
  - IA3012 2.6 Sample location number April 23, 2014 TCE result ( $\mu\text{g}/\text{m}^3$ )
  - ND Indicates not detected
  - Ambient air QA/QC sample location
  - 2.8/3.2 Indicates the results of a field duplicate sample





© 2014 SANBORN HEAD ENGINEERING, P.C.  
Last Edited By: clavack  
Path: S:\CONDATA\3406\3463.00\Graphics Files\ArcGIS\Figures\SourceFiles\ROF\_VOC\_ConfirmSampling\Fig\_5\_B012.mxd

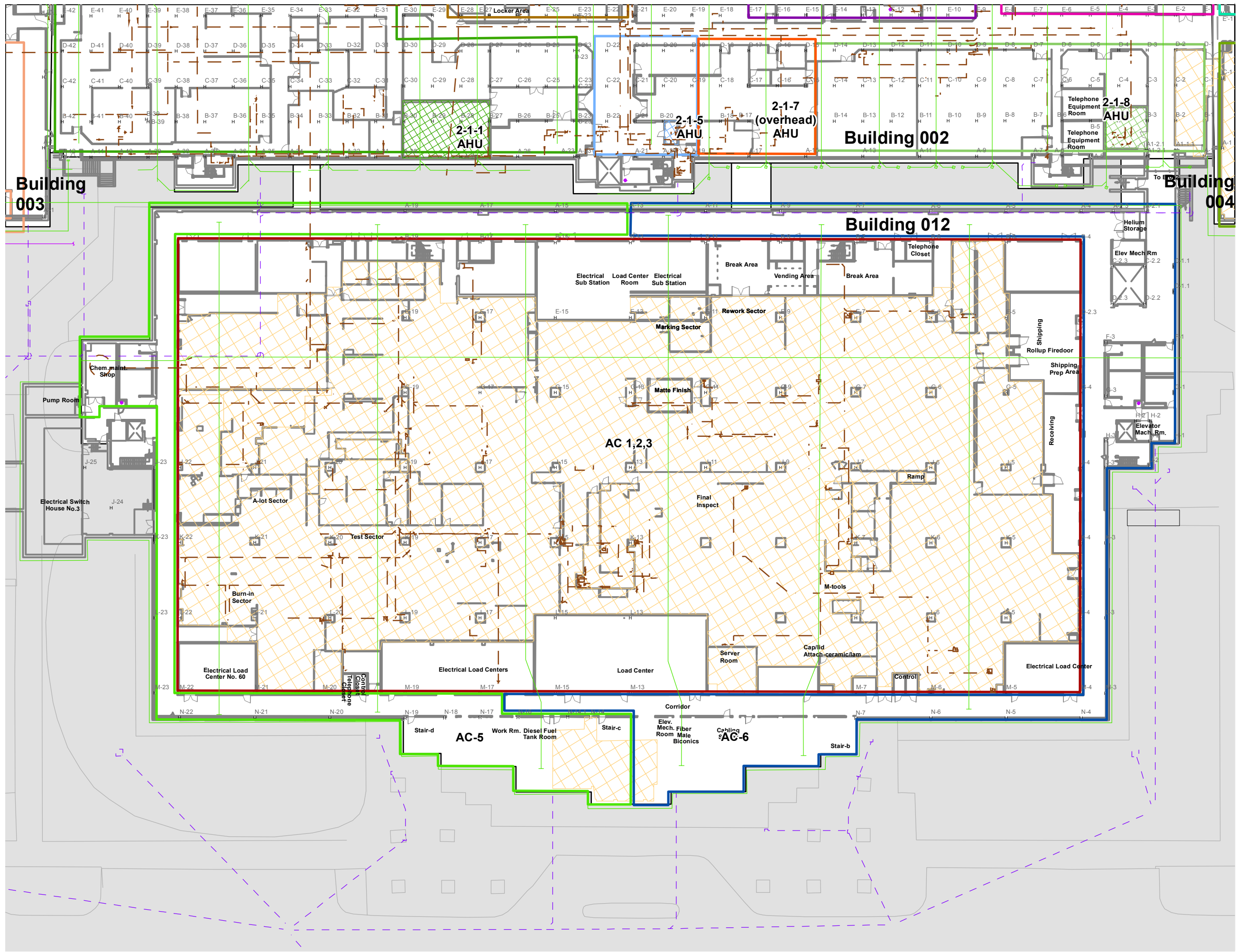


Figure 6A

## Building 012 Layout and HVAC Zones

Report of Findings  
VOC Source Assessment and Confirmatory Sampling  
IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By: C. LaVack  
Designed By: J. Sanborn  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

**Figure Narrative**  
This figure shows the first floor layout of Building 012. Refer to the legend for additional information.

**Legend**

- Storm sewer
- Roof drain and underdrain system
- Industrial waste drain
- Sanitary lines
- Column and designations
- Raised floor
- Approximate limits of HVAC Zone

North arrow and scale bar (0 to 40 feet).

SANBORN HEAD ENGINEERING

© 2014 SANBORN HEAD ENGINEERING, P.C.  
Last Edited By: clavack  
Path: S:\CONDATA\3406s\3463.00\Graphics\Figures\SourceFiles\Multiple Building Rpt of Findings\B012\_Confirmatory\_HAPSITE.mxd

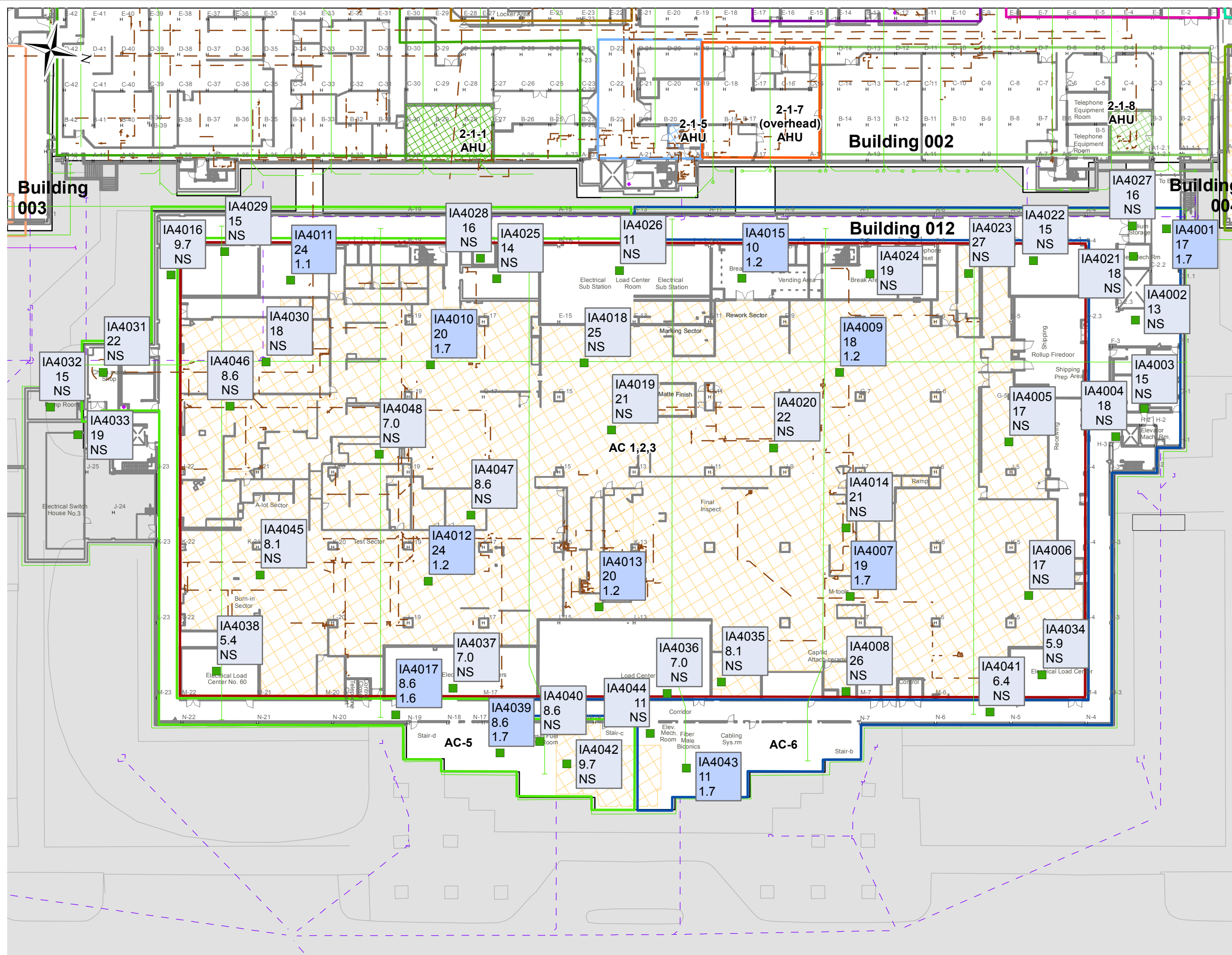


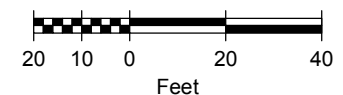
Figure 6B  
**B012 Summary of TCE  
Screening in Indoor Air  
(Portable GC/MS Results)**  
Report of Findings  
VOC Source Assessment and  
Confirmatory Sampling

IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By: C. LaVack  
Designed By: J. Sanborn  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

**Figure Narrative**  
This figure shows the results of indoor air screening in Building 012 before and after sealing of preferential pathways for vapor entry and completion of HVAC adjustments. Samples were collected using a portable gas chromatograph/mass spectrometer (GC/MS). The results are shown in units of micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). Refer to Table 1D for a summary of all indoor air screening results from B012.

- Legend**  
Refer to Figure 6A for additional legend items
- Indoor Air Sample Location
  - Sample location number  
17 August 2013 TCE result ( $\mu\text{g}/\text{m}^3$ )  
1.7 April/June 2014 TCE result ( $\mu\text{g}/\text{m}^3$ )
  - Sample location where only the initial screening round was collected.  
5.9  
NS
  - NS Not Screened





© 2014 SANBORN HEAD ENGINEERING, P.C.  
Last Edited By: clavack  
Path: S:\CONDATA\3406s\3463.00\Graphics Files\ArcGIS\Figures\Analysis\April Confirmator Sampling\B012\_DP\_and\_HAPSITE.mxd

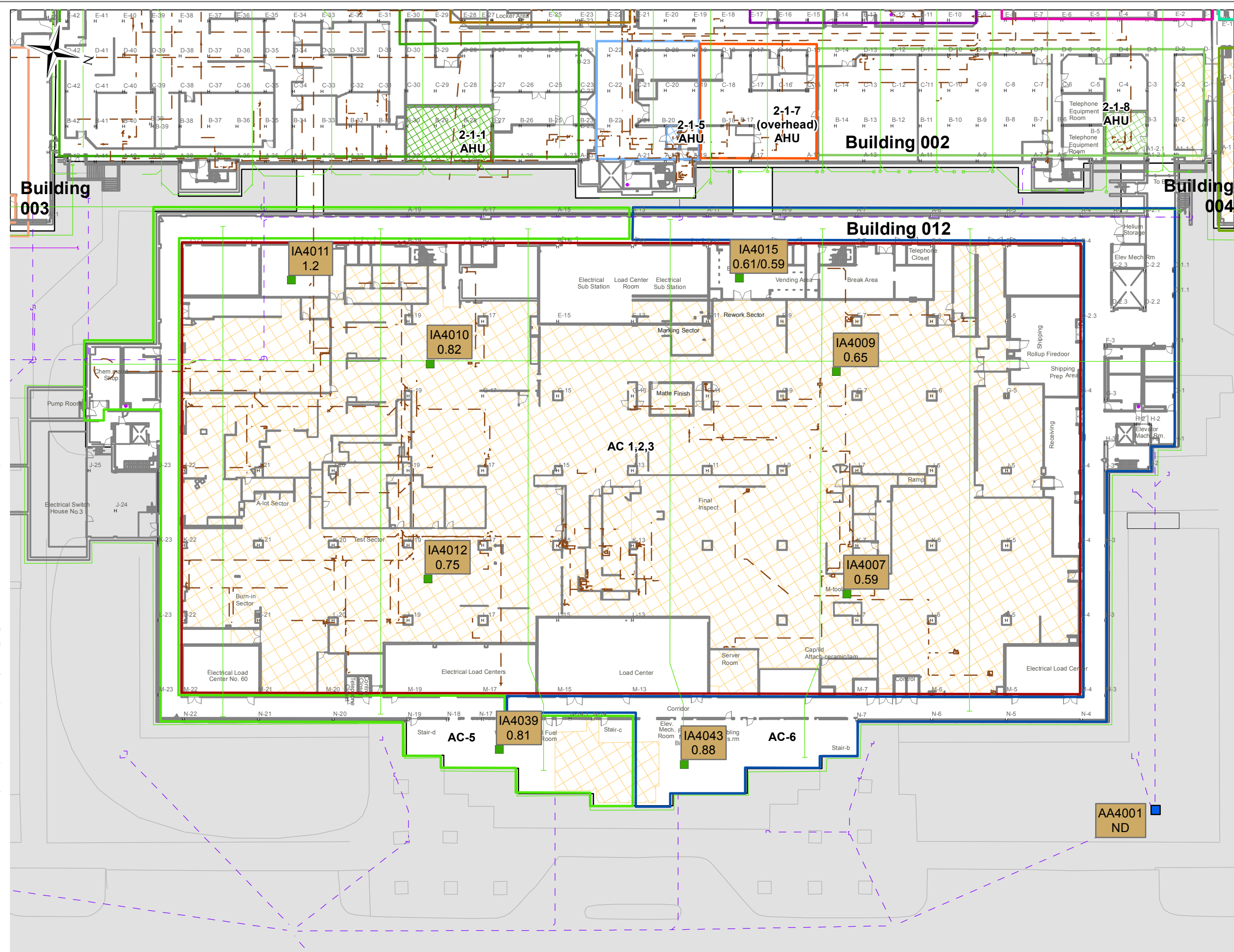


Figure 6C

### B012 Summary of TCE Concentrations in Indoor Air (8-Hour Sampling)

Report of Findings  
VOC Source Assessment and  
Confirmatory Sampling

IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By: C. LaVack  
Designed By: J. Sanborn  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

**Figure Narrative**

This figure shows the results of indoor air sampling conducted by Sanborn Head personnel on April 10, 2014. The samples were collected as 8-hour time weighted average samples using Summa canisters. The results for TCE are shown in units of micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

**Legend**

Refer to Figure 6A for additional legend items

- Indoor Air Sample Location
- Sample location number  
April 10, 2014 TCE result ( $\mu\text{g}/\text{m}^3$ )
- ND Indicates not detected
- 0.61/0.59 Indicates the results of a field duplicate sample
- Ambient air QA/QC sample location (ambient air samples was collected on the roof of B012 beneath the outside air intake for HVAC units AC-1, 2, and 3).

20 10 0 20 40  
Feet

SANBORN HEAD ENGINEERING



Figure 7A

## Building 077 Layout

Report of Findings  
VOC Source Assessment and  
Confirmatory Sampling

IBM Poughkeepsie Facility  
Poughkeepsie, New York

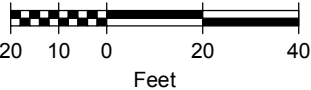
Drawn By:	C. LaVack
Designed By:	J. Sanborn
Reviewed By:	B. Green/D. Shea
Project No:	3463.00
Date:	October 2014

### Figure Narrative

This figure shows the first floor layout of Building 077. Refer to the legend for additional information.

### Legend

- Storm sewer
- Sanitary Lines



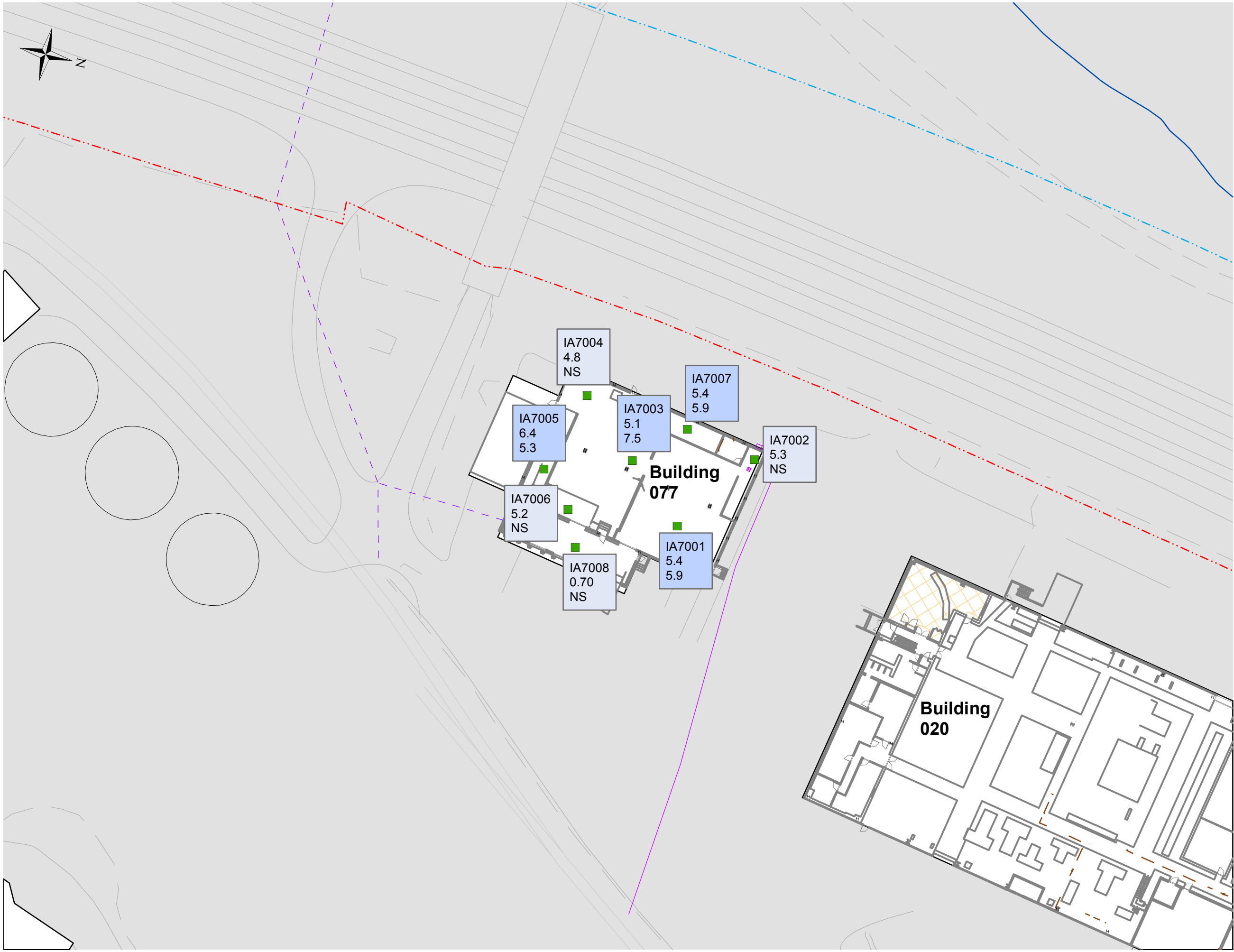


Figure 7B

### B077 Summary of TCE Screening in Indoor Air (Portable GC/MS Results)

Report of Findings  
VOC Source Assessment and Confirmatory Sampling

IBM Poughkeepsie Facility  
Poughkeepsie, New York

---

Drawn By: C. LaVack  
Designed By: J. Sanborn  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

**Figure Narrative**

This figure shows the results of indoor air screening in Building 077. Samples were collected during a preliminary indoor air screening round in September 2013 and again in March 2014 just prior to collection of 8-hour Summa canister samples (see Figure 7C for these results). The indoor air screening samples were collected using a portable gas chromatograph/mass spectrometer (GC/MS). The results are shown in units of micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). Refer to Table 1E for a summary of all indoor air screening results for B077.

**Legend**

Refer to Figure 7A for additional legend items

- Indoor Screening Location

IA7001	Sample location number
5.4	September 2013 TCE result ( $\mu\text{g}/\text{m}^3$ )
5.9	March 2014 TCE result ( $\mu\text{g}/\text{m}^3$ )

IA7002	Sample location where only the initial screening round was collected.
5.3	
NS	

NS Not Screened





Figure 7C  
**B077 Summary of TCE  
Concentrations in Indoor Air  
(8-Hour Sampling)**

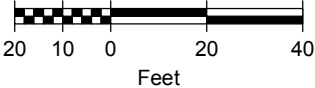
Report of Findings  
VOC Source Assessment and  
Confirmatory Sampling

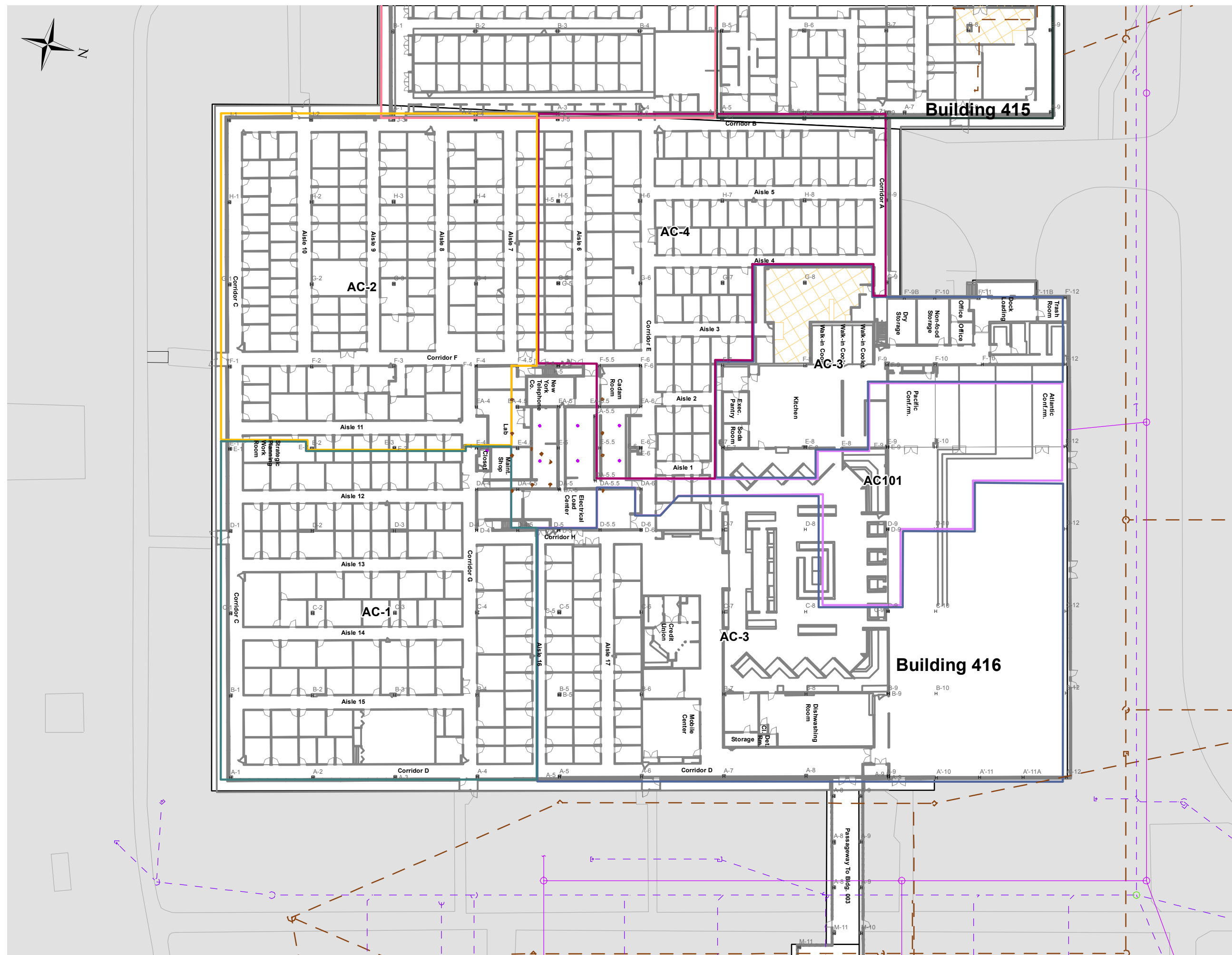
IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By: C. LaVack  
Designed By: J. Sanborn  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

**Figure Narrative**  
This figure shows the results of indoor air sampling conducted by Sanborn Head personnel on March 11, 2014. The samples were collected as 8-hour time weighted average samples using Summa canisters. The results for TCE are shown in units of micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

- Legend**  
Refer to Figure 7A for additional legend items
- Indoor Air Sample Location
  - Sample location number  
March 11, 2014 TCE result ( $\mu\text{g}/\text{m}^3$ )
  - Ambient air QA/QC sample location
  - 4.1/4.4 Indicates the results of a field duplicate sample





## Building 416 Layout and HVAC Zones

## Report of Findings

### VOC Source Assessment and Confirmatory Sampling

IBM Poughkeepsie Facility  
Poughkeepsie, New York

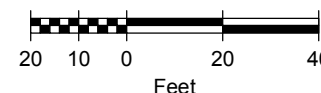
Drawn By: C. LaVack  
Designed By: J. Sanborn  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

### Figure Narrative

This figure shows the first floor layout of Building 416. Refer to the legend for additional information.

### Legend

- Storm sewer
- Industrial waste drain
- Sanitary lines
- Column and designations
- Raised floor
- Approximate limits of HVAC Zone



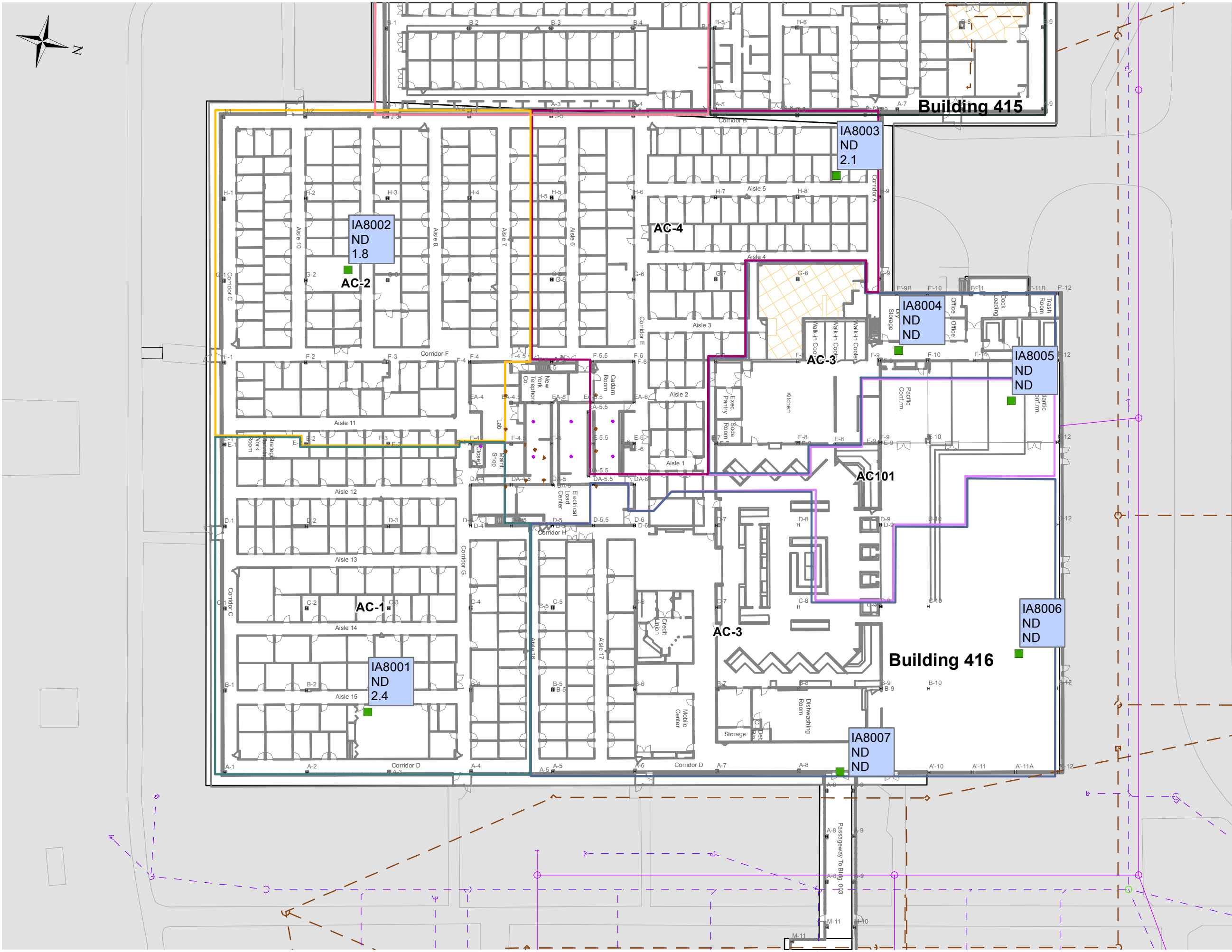


Figure 8B  
**B416 Summary of TCE  
Screening in Indoor Air  
(Portable GC/MS Results)**  
Report of Findings  
VOC Source Assessment and  
Confirmatory Sampling

IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By: C. LaVack  
Designed By: J. Sanborn  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

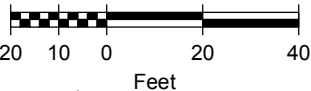
**Figure Narrative**

This figure shows the results of indoor air screening in Building 416. Samples were collected during a preliminary indoor air screening round in September 2013 and again in March 2014 just prior to collection of 8-hour Summa canister samples (see Figure 8C for these results). The indoor air screening samples were collected using a portable gas chromatograph/mass spectrometer (GC/MS). The results are shown in units of micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). Refer to Table 1F for a summary of all indoor air screening results for B416.

**Legend**

Refer to Figure 8A for additional legend items

- Indoor Screening Location
- IA8005 ND ND Sample location number  
Nov 2013 TCE result ( $\mu\text{g}/\text{m}^3$ )  
March 2014 TCE result ( $\mu\text{g}/\text{m}^3$ )
- ND Not detected above instrument  
detection limit





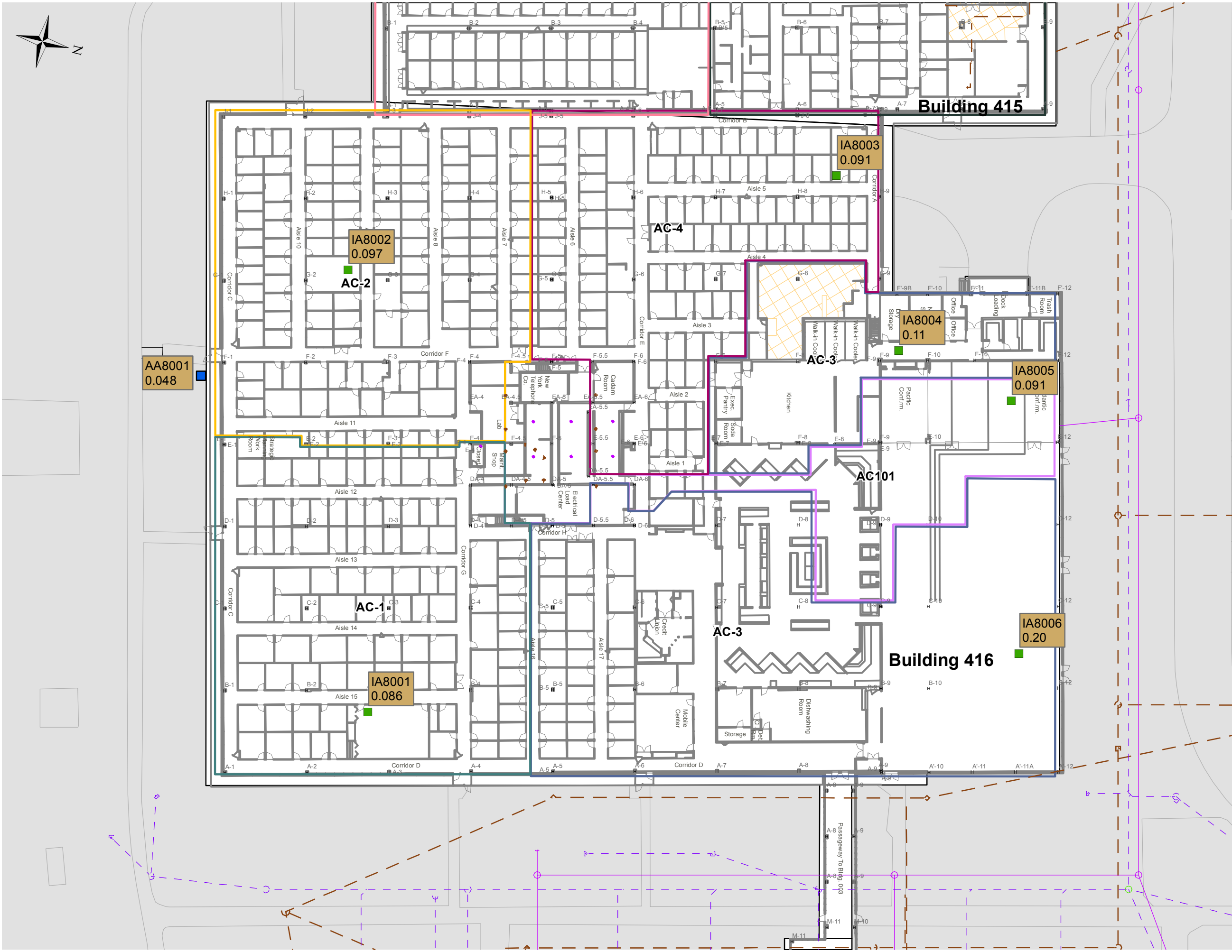


Figure 8C  
**B416 Summary of TCE Concentrations in Indoor Air (8-Hour Sampling)**  
Report of Findings  
VOC Source Assessment and Confirmatory Sampling

IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By: C. LaVack  
Designed By: J. Sanborn  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

**Figure Narrative**  
This figure shows the results of indoor air sampling conducted by Sanborn Head personnel on March 11, 2014. The samples were collected as 8-hour time weighted average samples using Summa canisters. The results for TCE are shown in units of micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

- Legend**  
Refer to Figure 8A for additional legend items
- Indoor Air Sample Location
  - IA8004 0.11  
Sample location number  
March 11, 2014 TCE result ( $\mu\text{g}/\text{m}^3$ )
  - ND Indicates not detected
  - Ambient air QA/QC sample location

# **APPENDIX A**

## **LIMITATIONS**

## **APPENDIX A**

### **SHPC LIMITATIONS**

1. The findings and conclusions described in this report are based in part on the data obtained from a finite number of samples from widely spaced locations. The figures are intended to depict inferred conditions during a given period of time, consistent with available information. The actual conditions will vary from that shown, both spatially and temporally. Other interpretations are possible. The nature and extent of variations between sampling locations may not become evident until further investigation is initiated. If variations or other latent conditions then appear evident, it may be necessary to re-evaluate the conclusions of this report.
2. The conclusions contained in this report are based in part upon various types of chemical data as well as historical and hydrogeologic information developed by previous investigators. While SHPC has reviewed that data available to us at the time the report was prepared and information as stated in this report, any of SHPC's interpretations and conclusions that have relied on that information will be contingent on its validity. SHPC has not performed an independent assessment of the reliability of the data; should additional chemical data, historical information, or hydrogeologic information become available in the future, such information should be reviewed by SHPC and the interpretations and conclusions presented herein may be modified accordingly.
3. Sampling and quantitative laboratory testing was performed by others as part of the investigation as noted within the report. Where such analyses have been conducted by an outside laboratory, unless otherwise stated in the report, SHPC has relied upon the data provided, and has not conducted an independent evaluation of the reliability of these data. It must be noted that additional compounds not searched for during the current study may be present in vapor and indoor air at the site. Moreover, it should be noted that variations in the types and concentrations of contaminants and variations in their distribution within the vapor and indoor air may occur due to the passage of time, seasonal water table fluctuations, recharge events, and other factors.
4. This report has been prepared for the exclusive use of the IBM Corporation for specific application to the IBM Poughkeepsie facility in accordance with generally accepted hydrogeologic and engineering practices. No warranty, expressed or implied, is made. The contents of this report should not be relied on by any other party without the express written consent of SHPC.
5. In preparing this report, SHPC has endeavored to conform to generally accepted practices of other consultants undertaking similar studies at the same time and in the same geographical area. SHPC has attempted to observe a degree of care and skill generally exercised by the technical community under similar circumstances and conditions.

**APPENDIX B**

**SUMMARY OF FIELD METHODS AND  
QUALITY ASSURANCE / QUALITY CONTROL**

## **APPENDIX B**

### **SUMMARY OF FIELD METHODS AND QA/QC**

#### **B.1 INTRODUCTION**

This appendix describes the field methods, and data quality assurance/quality control (QA/QC) evaluations and results, associated with Buildings 002, 004, 008, 012, 077, and 416 VOC source assessment and confirmatory sampling work at IBM's Poughkeepsie, NY facility. Field procedures and data QA/QC measures were conducted in general accordance with the standard operating procedures (SOPs) provided in IBM's VOC Source Assessment RFI Work Plan (RFI Work Plan).

Tabular summaries of the data described below are provided in Tables 1 through 3 of the main report. A subset of the Site-specific analyte list presented in the RFI Work Plan was used to serve as indicators during field screening of potential VOC vapor entry, including tetrachloroethene (PCE) and trichloroethene (TCE).

#### **B.2 INDOOR AIR AND TARGETED AIR SCREENING**

##### **B.2.1 Field Methods**

Initial indoor air and targeted air screening in the above mentioned buildings was conducted using an Inficon HAPSITE Smart portable gas chromatograph/mass spectrometer (GC/MS). The portable GC/MS was used as an air-screening instrument for PCE and TCE. Indoor air and targeted air screening was conducted from August 2013 to August 2014.

The portable GC/MS was calibrated to vendor-prepared standards ranging from 0.1 to 50 parts per billion by volume (ppbv) for the target analytes, and the samples were screened in selective ion monitoring (SIM) mode. The lower calibration range of 0.1 ppbv was considered the method reporting limit for the portable GC/MS samples (after converting to micrograms per cubic meter [ $\mu\text{g}/\text{m}^3$ ]). The instrument reports values based on the quality of fit of chromatograph peaks and ion pairs, both within and outside of the calibration range.

Portable GC/MS sample collection and analysis takes approximately 6 minutes. The line is purged for 1 minute to remove remnants of previous samples, and then the concentrator tube is filled for 1 minute. The mass collected in the concentrator is then pumped through the GC/MS for analysis. Total analysis time is approximately 4 minutes and is based on the elution time of the analytes. Prior to portable GC/MS screening, the indoor air and targeted air locations were screened at most locations with a photoionization detector (PID). Where PID readings were relatively greater, the portable GC/MS screening was conducted by "diluting" the sample by reducing the concentrator fill time from the normal 1 minute down to either 30 or 15 seconds. A 30-second concentrator fill time is equivalent to a 50% dilution and a 15-second concentrator fill time is equivalent to a 75% dilution. Once the analysis is complete, the concentration results provided by the portable GC/MS are multiplied by either 2 or 4, respectively, to get the indoor air/targeted air concentrations.

During indoor air screening, grab Summa® canister samples were collected at indoor air screening locations in Buildings 002 (IA6009), 004 (IA5031), 012 (IA4018, IA4045), 077 (IA7001), and 416 (IA8005). Grab samples were submitted to Alpha for analysis of the Site-specific VOCs using USEPA Method TO-15 in SIM mode. These data are provided in Exhibit B.1 and discussed below.

### **B.2.2 QA/QC Evaluation**

The objective of portable GC/MS field screening was to obtain general, order-of-magnitude understanding of VOC concentrations to inform and adjust the focus of the field activities in real time. The portable GC/MS data is not intended to support final decisions. Nevertheless, the following QA/QC measures were taken to support evaluation of the field screening data.

At the beginning of each day, either outside air blanks passed through a carbon filter or clean nitrogen blanks were collected into the portable GC/MS. In the event that the blank analysis results indicated that one of the analytes (particularly TCE) had been detected, a “cleaning” method would be run on the portable GC/MS. This method runs a blank sample at high temperature to facilitate the removal of chemical traces from previous sampling rounds. The blank was then repeated. This process was generally repeated until satisfactorily low concentrations in the blank analysis had been achieved. Where blank sample results were not reported as “non-detect”, indoor air results similar to (and therefore not discernible from) those recorded for blanks were assumed to be associated with the portable GC/MS operating environment and/or residual VOC presence in the portable GC/MS column and were therefore considered to be less than the concentration detected in the blank.

Following the collection of a blank sample, and prior to sampling, a calibration check was performed on the instrument. Calibration checks were performed using a gas solution with known concentrations of PCE and TCE. Calibration check results were used during the data review process to qualify or reject screening results. In general, percent recovery was calculated for each analyte in the calibration check; the acceptable range for recovery is 70% to 130%. If an analyte had a percent recovery of greater than 130% during the calibration check, subsequent sample screening results for that analyte were qualified as estimated (“J”) with a high bias (where detected) until the next calibration check was performed. If an analyte had a percent recovery less than 70% during the calibration check, subsequent sample screening results were either qualified as estimated (“J”) with a low bias (if the analyte was detected during screening), or rejected (“R”) (if the analyte was non-detect during screening) until the next calibration check was performed. Exhibit B.2 provides a summary of calibration check results, including the calculated percent recovery.

As noted above, a grab indoor air sample was collected into a 1-liter pre-evacuated Summa® canister at an indoor air screening location in each of five buildings after portable GC/MS screening was conducted. The purpose of these grab Summa® samples was to obtain an understanding of the general comparability of the portable GC/MS screening results with the results of samples subject to laboratory analysis. Exhibit B.1 summarizes the RPD between the portable GC/MS and Summa® canister results.

Sample	IA6009/H	IA6009/G	RPD
Date	10/24/2013		
Units	µg/m <sup>3</sup>	µg/m <sup>3</sup>	%
PCE	< 0.68	0.16	-
TCE	3.9	3.1	22

Sample	IA5031/H	IA5031/G	RPD
Date	10/23/2013		
Units	µg/m <sup>3</sup>	µg/m <sup>3</sup>	%
PCE	< 0.68	0.17	-
TCE	1.0	0.73	33

Sample	IA4018/H	IA4018/G	RPD	Sample	IA4018/H	IA4018/G	RPD	Sample	IA4018/H	IA4018/G	RPD	Sample	IA4045/H	IA4045/G	RPD
Date	10/25/2013			Date	3/19/2014			Date	3/20/2014			Date	12/19/2013		
Units	µg/m <sup>3</sup>	µg/m <sup>3</sup>	%	Units	µg/m <sup>3</sup>	µg/m <sup>3</sup>	%	Units	µg/m <sup>3</sup>	µg/m <sup>3</sup>	%	Units	µg/m <sup>3</sup>	µg/m <sup>3</sup>	%
PCE	< 0.68	0.14	-	PCE	< 0.68	0.33	-	PCE	< 0.68	0.32	-	PCE	< 3.4	< 0.14	-
TCE	6.4	5.5	16	TCE	11 JH	3.7	99	TCE	4.4 JH	0.26	178	TCE	3.2	3.0	7.1

Sample	IA7001/H	IA7001/G	RPD
Date	9/13/2013		
Units	µg/m <sup>3</sup>	µg/m <sup>3</sup>	%
PCE	1.2	0.94	25
TCE	5.4	3.2	53

Sample	IA8005/H	IA8005/G	RPD
Date	11/20/2013		
Units	µg/m <sup>3</sup>	µg/m <sup>3</sup>	%
PCE	< 0.68	0.25	-
TCE	< 0.54	0.12	-

Notes:

1. "/H" = HAPSITE Portable GC/MS sample  
"/G" = 1-liter Summa canister grab sample

2. RPD is the relative percent difference, calculated by the formula:

$$| \text{Result1} - \text{Result2} | / ((\text{Result1} + \text{Result2}) / 2) * 100$$

3. "-" indicates the RPD can not be calculated because one or both of the results are non-detect.

**Exhibit B.1 – Summary of RPDs for Indoor Air Portable GC/MS Screening and Summa® Samples**

Although the portable GC/MS and Summa® data do not represent true field duplicate samples because the sample time intervals and volumes are different for each method, the portable GC/MS and Summa® TCE results indicate order-of-magnitude agreement.



## **B.3 INDOOR AIR SAMPLING**

### **B.3.1 Field Methods**

Summa® canisters were used to collect 8-hour time-weighted-average indoor air samples. The indoor air samples were collected in accordance with the Indoor and Ambient Air Sampling SOP included in Appendix A.1 of the RFI Work Plan. The samples were collected into 2.7-liter pre-evacuated Summa® canisters at a height of approximately 4 feet above the floor. Summa® canisters were submitted to Alpha Analytical of Mansfield, MA (Alpha) for laboratory analysis of the eight site-specific VOCs using USEPA Method TO-15 in selective ion monitoring (SIM) mode. A summary of sampling information for the air samples is provided in Table 2.

### **B.3.2 QA/QC Evaluation**

Field QA/QC samples included collection of four field duplicate samples, four field blank using ultra-high purity nitrogen provided by the laboratory, and one ambient air sample per building as documented in Table 3.

Analytical data was provided to New Environmental Horizons, Inc. (NEH) of Arlington, Massachusetts for an independent third-party in-depth data usability review (DUR). NEH's DUR reports are presented as Appendix E.

NEH's evaluation included a review of sample data, including raw data, to verify that the laboratory performed the analyses in compliance with the analytical methods required, and to verify consistency with the QA/QC Plan requirements. The evaluation was conducted in accordance with the USEPA and NYSDEC guidelines for data validation of organic data. NEH prepared an In-Depth Data Usability Review Report that summarized the QC issues that required action (qualification of data) and compared QA/QC criteria to the data quality objectives (DQOs) described in the Work Plan.

In summary, NEH found the data to be usable in accordance with the project DQOs subject to a few minor qualifications. The QA/QC considerations noted by NEH are presented by sampling event in the following subsections.

#### ***B.3.2.1 B416 Event***

For sample IA8002 in B416, the sample collection durations differed by 20% (about 1.5 hours) less than the 8-hour target collection durations due to laboratory error in the calibration of the fill rate for the flow controllers. Therefore, the results for these sample were estimated ("J" or "UJ") with indeterminate bias.

#### ***B.3.2.2 B002, B004, and B012 Event***

For five samples (IA4011 in B012; and AA5001, FD5033, IA5002, and IA5028 from B004), the sample collection durations differed by 20% (about 1.5 hours) less than the 8-hour target collection durations due to laboratory error in the calibration of the fill rate for the flow controllers. Therefore, the results for these sample were estimated ("J" or "UJ") with indeterminate bias.



Final field vacuum and laboratory receipt vacuum differed by more than 5 inches Hg for two samples, IA6011 (B002) and FB5001 (B004). The results for these two samples were flagged as estimated ("J" or "UJ") by NEH with an indeterminate bias due to the disagreement.

A low-level detection of TCE was reported for field blank FB4001. A comparison of the level found in FB4001 and associated samples in B012 resulted in five samples (FD4015, IA4007, IA4009, IA4012, IA4015) being flagged as estimated ("EB") for TCE by NEH with a possible high bias.

### **B.3.2.3 B008 Event**

The canister certification form for field blank FB3000 in B008 indicated the canister contained PCE prior to being shipped to the field for sample collection. This canister was shipped from the laboratory in error, which was acknowledged in the project narrative. The result for PCE in FB3000 was rejected ("R") and is not usable because this result may not be site-related; however, this qualification does not affect the findings and conclusions.

In summary and as stated above, the with the exception of the PCE result for sample FB3000, data were generally found to be usable in accordance with the project DQOs and subject to only minor qualifications.

S:\CONDATA\3400s\3463.00\Source Files\Multiple Building Report of Findings\Appendix B\Appendix B.docx

**EXHIBIT B.2**  
**Summary of Portable GC/MS Calibration Check Samples**  
**Report of Findings**  
**VOC Source Assessment and Confirmatory Indoor Air Sampling - B002/B004/B008/B012/B077/B416**  
**IBM Poughkeepsie Facility**  
**Poughkeepsie, New York**

Screening Event	Date	Calibration Concentration (ppb)	TCE		PCE	
			Measured (ppbV)	% Recovery	Measured (ppbV)	% Recovery
B416 & B077 Screening	3/10/2014	1.0	1.6	161%	1.2	118%
B416 & B077 Screening	3/11/2014	1.0	1.7	167%	1.7	174%
B012 Screening	3/19/2014	1.0	2.0	203%	1.7	167%
B012 Screening	3/20/2014	1.0	1.7	171%	1.5	149%
B012 Screening	3/21/2014	1.0	0.92	92.1%	0.87	87%
B012 Screening	3/24/2014	1.0	1.5	146%	1.3	127%
B012 Screening	3/25/2014	1.0	1.4	145%	1.1	115%
B012 Screening	3/26/2014	1.0	1.1	110%	1.0	99.60%
B002 B004 B012 Screening	4/7/2014	1.0	0.84	84%	0.72	72%
B002 B004 B012 Screening	4/8/2014	1.0	0.85	85%	0.78	78%
B002 B004 B012 Screening	4/9/2013	0.90	1.0	116%	0.95	105.8%
B002 B004 B012 Screening	4/10/2014	1.0	0.79	79%	0.72	72%
B008 HVAC	4/21/2014	1.0	0.96	96.1%	0.97	96.6%
B008 HVAC	4/22/2014	1.0	0.90	90%	0.92	92.3%
B002 B004 B012 Screening	4/24/2014	1.0	0.83	83%	0.77	77%
B002 B004 B012 Screening	4/25/2014	1.0	0.74	74%	0.67	67%
B002 B004 B012 Screening	4/28/2014	1.0	0.83	83%	0.65	65%
B002 B004 B012 Screening	4/29/2014	1.0	1.0	102.4%	0.97	96.8%
B004 Loading Dock Screening	5/29/2014	1.0	0.9	93.8%	0.73	73.5%
B004 Loading Dock Screening	5/30/2014	1.0	0.7	68.5%	0.58	58.4%
B004 Loading Dock Screening	6/4/2014	1.0	0.7	70.5%	0.62	61.6%
B004 Loading Dock Screening	6/5/2014	1.0	0.8	82.7%	0.72	72.4%
B004 Loading Dock Screening	6/17/2014	1.0	0.9	88.4%	0.83	83.0%
B004 Loading Dock Screening	6/18/2014	1.0	0.7	69.6%	0.72	72.1%
B004 Loading Dock Screening	6/19/2014	1.0	0.9	91.7%	0.79	79.5%

Notes:

1. Percent recovery was calculated using the following formula:  

$$\left( \frac{\text{Measured concentration}}{\text{Calibration Solution Concentration}} \right) * 100$$
2. Percent recovery values less than 70% or greater than 130% are shaded red.
3. Refer to the text of Appendix B for additional discussion.

**APPENDIX C**  
**PHOTOGRAPH LOG**

## APPENDIX C

### PHOTOGRAPH LOG



Photo 1: Sample IA6003 in B002, located in calibration lab.



Photo 2: Sample IA6004 in B002, located in the former cafeteria area, presently an equipment storage area.



Photo 3: Sample IA6011 in B002, located in a storage area.



Photo 4: Sample IA6012 in B002, located in a maintenance storage area.



Photo 5: Sample IA6015 in B002, located in hallway adjacent to AHU 2-1-10.



Photo 6: Sample IA6049 in B002, located in a hallway adjacent to offices.



Photo 7: Sample IA6061 in B002, located in a storage area.



Photo 8: Sample IA6066 in B002, located in a storage area.





Photo 9: Sample IA6073 in B002, located in a storage area.



Photo 10: Sample AA6001 outside of B002, located along the western exterior wall outside of AHU 2-1-10.





Photo 11: Sample IA5002 in B004, located in a parts storage area.



Photo 12: Sample IA5021 in B004, located in a warehouse area.



Photo 13: Sample IA5023 in B004, located in hallway adjacent to Electrical Load Center 10.



Photo 14: Sample IA5028 in B004, located in a manufacturing components storage area.



Photo 15: Sample IA5031 in B004, located in a storage area.



Photo 16: Samples IA5033 and FD5033 in B004, located in a server storage area.

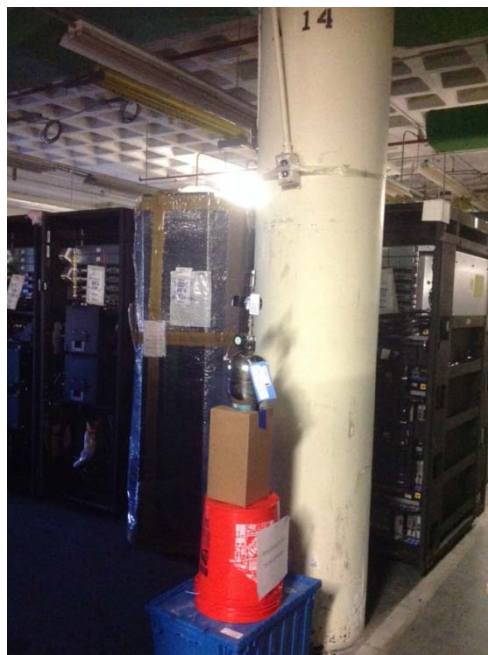


Photo 17: Sample IA5034 in B004, located in a server storage area.



Photo 18: Sample IA5041 in B004, located in a storage/office area.



Photo 19: Samples AA5001 and FB5001 outside of B004, located at the southern end of the western exterior wall.



Photo 20: Sample IA3007 in B008, located in a server room.





Photo 21: Samples IA3008 and FD3008, located in a server room.



Photo 22: Sample IA3012 in B008, located in a server room.





Photo 23: Sample IA3027 in B008, located in a server room.



Photo 24: Sample IA3028 in B008, located in a storage area.



Photo 25: Samples AA3000 and FB3000 outside of B008, located beneath the intake for AC-1 and AC-2 along the western exterior wall.



Photo 26: Sample IA4007 in B012, located in the former manufacturing area.



Photo 27: Sample IA4009 in B012, located in the former manufacturing area.



Photo 28: Sample IA4010 in B012, located in the former manufacturing area.



Photo 29: Sample IA4011 in B012, in storage area off of former manufacturing area.



Photo 30: Sample IA4012 in B012, located in the former manufacturing area.



Photo 31: Samples IA4015 and FD4015 in B012, located in the former café area.



Photo 32: Sample IA4039 in B012, located in an electronics storage area.





Photo 33: Sample IA4043 in B012, located in an elevator maintenance room.



Photo 34: Samples AA4001 and FB4001 outside of B012, located on the southeast corner of the roof.





Photo 35: Sample IA7003 and FD7001 in B077, located in the Recycling Center.



Photo 36: Sample AA7001 outside of B077, located at the southwest corner of the building.



Photo 37: Sample IA8001 in B416, located in the hallway outside of Conference Room 15-20.



Photo 38: Sample IA8002 in B416, located in Conference Room 1916.



Photo 39: Sample IA8003 in B416, located in Office 5-25.



Photo 40: Sample IA8004 in B416, located in the hallway at the back of the Kitchen Area.



Photo 41: Sample IA8005 in B416, located in large meeting room adjacent to the Cafeteria.



Photo 42: Sample IA8006 in B416, located in the Cafeteria.



Photo 43: Sample AA8001 and FB8001 outside of B416, located at the southern exterior wall of the building.

S:\CONDATA\3400s\3463.00\Source Files\Multiple Building Report of Findings\Appendix C - Photo log\Photo log.docx

**APPENDIX D**

**LABORATORY ANALYTICAL  
REPORTS**



## **INDOOR AIR GRAB SAMPLING**

## **B077 INDOOR AIR GRAB SAMPLING**



## ANALYTICAL REPORT

Lab Number:	L1318300
Client:	Sanborn, Head & Associates, Inc. 20 Foundry Street Concord, NH 03301
ATTN:	Jennifer Sanborn
Phone:	(603) 415-6137
Project Name:	IBM-POK
Project Number:	3463.00
Report Date:	09/23/13

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), PA (68-02089), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), DOD (L2217.01), USDA (Permit #P330-11-00109), 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](http://www.alphalab.com)



**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1318300  
**Report Date:** 09/23/13

Sample from a different building and removed from this report.

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1318300-01	IA7001/G	POUGHKEEPSIE, NY	09/13/13 11:20
L1318300-02	IA2001/G	POUGHKEEPSIE, NY	09/13/13 13:58
L1318300-03	UNUSED CAN 844	POUGHKEEPSIE, NY	

**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1318300  
**Report Date:** 09/23/13

### 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. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

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.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples.

Please contact Client Services at 800-624-9220 with any questions.

**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1318300  
**Report Date:** 09/23/13

### Case Narrative (continued)

#### Volatile Organics in Air

Canisters were released from the laboratory on September 13, 2013. The canister certification results are provided as an addendum.

Samples L1318300-01 and -02 : Prior to sample analysis, the canisters were pressurized with UHP Nitrogen due to canister size. The pressurization resulted in a dilution of the samples. The reporting limits have been elevated accordingly.

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:  Christopher J. Anderson

Title: Technical Director/Representative

Date: 09/23/13



**AIR**

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1318300**Report Date:** 09/23/13**SAMPLE RESULTS**

**Lab ID:** L1318300-01 D  
**Client ID:** IA7001/G  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Soil\_Vapor  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 09/20/13 16:37  
**Analyst:** RY

**Date Collected:** 09/13/13 11:20  
**Date Received:** 09/17/13  
**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								
Vinyl chloride	ND	0.049	--	ND	0.126	--		2.463
Chloroethane	ND	0.049	--	ND	0.130	--		2.463
1,1-Dichloroethene	ND	0.049	--	ND	0.195	--		2.463
trans-1,2-Dichloroethene	ND	0.049	--	ND	0.195	--		2.463
1,1-Dichloroethane	ND	0.049	--	ND	0.200	--		2.463
cis-1,2-Dichloroethene	ND	0.049	--	ND	0.195	--		2.463
Trichloroethene	0.586	0.049	--	3.15	0.265	--		2.463
Tetrachloroethene	0.138	0.049	--	0.936	0.334	--		2.463



**Project Name:** IBM-POK**Lab Number:** L1318300**Project Number:** 3463.00**Report Date:** 09/23/13**SAMPLE RESULTS**

Lab ID: L1318300-01 D  
 Client ID: IA7001/G  
 Sample Location: POUGHKEEPSIE, NY

Date Collected: 09/13/13 11:20  
 Date Received: 09/17/13  
 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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Bromofluorobenzene	110		70-130
Toluene-d8	109		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	96		60-140
bromochloromethane	98		60-140
chlorobenzene-d5	98		60-140

Project Name: IBM-POK

Lab Number: L1318300

Project Number: 3463.00

Report Date: 09/23/13

### Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 09/20/13 15:26

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-02 Batch: WG637853-5								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1

Project Name: IBM-POK

Lab Number: L1318300

Project Number: 3463.00

Report Date: 09/23/13

## Method Blank Analysis

### Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 09/20/13 15:26

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-02 Batch: WG637853-5								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Bromofluorobenzene	103		70-130
Toluene-d8	105		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1318300  
**Report Date:** 09/23/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-02 Batch: WG637853-3 WG637853-4								
Vinyl chloride	99		99		70-130	0		20
Chloroethane	98		100		70-130	2		20
1,1-Dichloroethene	99		99		70-130	0		20
trans-1,2-Dichloroethene	89		86		70-130	3		20
1,1-Dichloroethane	99		100		70-130	1		20
cis-1,2-Dichloroethene	106		106		70-130	0		20
Trichloroethene	100		99		70-130	1		20
Tetrachloroethene	115		115		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	91		90		70-130
Toluene-d8	105		105		70-130
Bromofluorobenzene	107		105		70-130



# **Lab Duplicate Analysis** Batch Quality Control

**Project Name:** IBM-POK

**Project Number:** 3463.00

**Lab Number:** L1318300

**Report Date:** 09/23/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG637853-6 QC Sample: L1318300-01 Client ID: IA7001/G						
Vinyl chloride	ND	ND	ppbV	NC		20
Chloroethane	ND	ND	ppbV	NC		20
1,1-Dichloroethene	ND	ND	ppbV	NC		20
trans-1,2-Dichloroethene	ND	ND	ppbV	NC		20
1,1-Dichloroethane	ND	ND	ppbV	NC		20
cis-1,2-Dichloroethene	ND	ND	ppbV	NC		20
Trichloroethene	0.586	0.571	ppbV	3		20
Tetrachloroethene	0.138	0.135	ppbV	2		20

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		96		70-130
Toluene-d8	109		109		70-130
Bromofluorobenzene	110		108		70-130

**Project Name:** IBM-POK

**Project Number:** 3463.00

Serial\_No:09231315:07  
**Lab Number:** L1318300

**Report Date:** 09/23/13

### Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1318300-01	IA7001/G	1505	1.0L Can	09/13/13	93045	L1317854-04	Pass	-29.3	-4.4	-	-	-	-
L1318300-02	IA2001/G	681	1.0L Can	09/13/13	93045	L1317854-01	Pass	-29.3	-9.5	-	-	-	-
L1318300-03	UNUSED CAN 844	844	1.0L Can	09/13/13	93045	L1317854-03	Pass	-29.3	-3.5	-	-	-	-

**Project Name:****Lab Number:** L1317854**Project Number:** Not Specified**Report Date:** 09/23/13**Air Canister Certification Results**

Lab ID: L1317854-01  
 Client ID: CAN 681 FC 1  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 09/11/13 18:10  
 Analyst: RY

Date Collected: 09/11/13 17:42  
 Date Received: 09/11/13  
 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								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	109		60-140
bromochloromethane	109		60-140
chlorobenzene-d5	105		60-140

**Project Name:****Lab Number:** L1317854**Project Number:** Not Specified**Report Date:** 09/23/13**Air Canister Certification Results**

Lab ID: L1317854-03  
 Client ID: CAN 844 FC 3  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 09/11/13 19:11  
 Analyst: RY

Date Collected: 09/11/13 17:42  
 Date Received: 09/11/13  
 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								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	125		60-140
bromochloromethane	109		60-140
chlorobenzene-d5	101		60-140

**Project Name:****Lab Number:** L1317854**Project Number:** Not Specified**Report Date:** 09/23/13**Air Canister Certification Results**

Lab ID: L1317854-04  
 Client ID: CAN 1505 FC 4  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 09/11/13 19:41  
 Analyst: RY

Date Collected: 09/11/13 17:42  
 Date Received: 09/11/13  
 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								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	125		60-140
bromochloromethane	108		60-140
chlorobenzene-d5	100		60-140

Project Name: IBM-POK

Lab Number: L1318300

Project Number: 3463.00

Report Date: 09/23/13

**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

Absent

**Container Information**

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1318300-01A	Canister - 1 Liter	N/A	N/A		Y	Absent	NYSDEC-TO15-SIM(30)
L1318300-02A	Canister - 1 Liter	N/A	N/A		Y	Absent	NYSDEC-TO15-SIM(30)
L1318300-03A	Canister - 1 Liter	N/A	N/A		Y	Absent	CLEAN-FEE()

\*Values in parentheses indicate holding time in days



**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1318300  
**Report Date:** 09/23/13

## GLOSSARY

### Acronyms

EDL	- Estimated 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 EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
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.
LFB	- Laboratory Fortified Blank: 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.
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.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### 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 ten times (10x) 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. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- 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.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.

**Report Format:** Data Usability Report



**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1318300  
**Report Date:** 09/23/13

**Data Qualifiers**

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- 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. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. 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.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- 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:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1318300  
**Report Date:** 09/23/13

## REFERENCES

- 48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

## 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 August 3, 2012 – 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, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Suspended Solids (non-filterable). 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, Titanium, Vanadium, Zinc, Total Organic Carbon, Corrosivity, TCLP 1311, SPLP 1312. 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, SM2540D, SM2540G.)

*Solid & Chemical Materials* (Inorganic Parameters: 6020, 7470, 7471, 9045. 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 180.1, 245.7, 1631E, 3020A, 6020A, 7470A, 9040, 9050A, SM2320B, 2540D, 2540G, 4500H-B, Organic Parameters: EPA 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 5030B, 8015D, 3570, 8081B, 8082A, 8260B, 8270C, 8270D.)

*Solid & Chemical Materials* (Inorganic Parameters: EPA 1311, 3050B, 3051A, 3060A, 6020A, 7196A, 7470A, 7471B, 7474, 9040B, 9045C, 9060. Organic Parameters: EPA 3540C, 3570, 3580A, 3630C, 3640A, 3660, 3665A, 5035, 8015D, 8081B, 8082A, 8260B, 8270C, 8270D.)

*Biological Tissue* (Inorganic Parameters: EPA 6020A. Organic Parameters: EPA 3570, 3510C, 3610B, 3630C, 3640A, 8270C, 8270D.)

*Air & Emissions* (EPA TO-15.)

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

*Non-Potable Water* (Inorganic Parameters: EPA 180.1, 1631E, 6020A, 7470A, 9040B, 9050A, SM2540D, 2540G, 4500H+B, 2320B, 3020A, . Organic Parameters: EPA 3510C, 3630C, 3640A, 3660B, 8081B, 8082A, 8270C, 8270D, 8015D.)

*Solid & Chemical Materials* (Inorganic Parameters: SW-846 1311, 3050B, 3051A, 6020A, 7471B, 9040B, 9045C. Organic Parameters: SW-846 3540C, 3580A, 3630C, 3640A, 3660B, 3665A, 8270C, 8015D, 8082A, 8081B.)

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

*Non-Potable Water* (Inorganic Parameters: SW-846 1312, 3020A, SM2320B, SM2540D, 2540G, 4500H-B, EPA 180.1, 1631E, SW-846 7470A, 9040C, 6020A, 9050A. Organic Parameters: SW-846 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 8015D, 8081B, 8082A, 8270C, 8270D)

*Solid & Chemical Materials* (Inorganic Parameters: SW-846 1311, 1312, 3050B, 3051A, 6020A, 7471B, 7474, 9040B, 9040C, 9045C, 9045D, 9060. Organic Parameters: SW-846 3540C, 3570, 3580A, 3630C, 3640A, 3660B, 3665A, 8081B, 8082A, 8270C, 8270D, 8015D.)

*Atmospheric Organic Parameters* (EPA 3C, TO-15, TO-10A, TO-13A-SIM.)

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

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

*Non-Potable Water* (Inorganic Parameters: SM2320B, SM2540D, 6020A, 1631E, 7470A, 9050A, EPA 180.1, 3020A. Organic Parameters: EPA 8270C, 8270D, 8081B, 8082A, 3510C.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 6020A, 7471B, 7474, 9040C, 9045D. Organic Parameters: EPA 8270C, 8270D, 8081B, 8082A, 1311, 3050B, 3580A, 3570, 3051A.)

*Air & Emissions* (EPA TO-15, TO-10A.)

**Pennsylvania** Certificate/Lab ID: 68-02089 **NELAP Accredited**

*Non-Potable Water* (Inorganic Parameters: 1312, 1631E, 180.1, 3020A, 6020A, 7470A, 9040B, 9050A, 2320B, 2540D, 2540G, SM4500H+-B. Organic Parameters: 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 8015D, 8081B, 8082A, 8270C, 8270D.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 1311, 3051A, 6020A, 7471B, 7474 9040B, 9045C, 9060. Organic Parameters: EPA3050B, 3540C, 3570, 3580A, 3630C, 3640A, 3660B, 3665A, 8270C, 8270D, 8081B, 8015D, 8082A.)

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

Refer to NJ-DEP 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, 9040, 9045, 9060. Organic Parameters: EPA 8015, 8270, 8081, 8082.)

*Air* (Organic Parameters: EPA TO-15)

**Virginia Division of Consolidated Laboratory Services** Certificate/Lab ID:460194. **NELAP Accredited.**

*Non-Potable Water* (Inorganic Parameters:EPA 3020A, 6020A, 245.7, 9040B. Organic Parameters: EPA 3510C, 3640A, 3660B, 3665A, 8270C, 8270D, 8082A, 8081B, 8015D.)

*Solid & Chemical Materials* (Inorganic Parameters: EPA 6020A,7470A,7471B,9040B,9045C,3050B,3051, 9060. Organic Parameters: EPA 3540C, 3580A, 3630C, 3640A, 3660B, 3665A, 3570, 8270C, 8270D, 8081B, 8082A, 8015D.)

**Washington State Department of Ecology** Certificate/Lab ID: C954. *Non-Potable Water* (Inorganic Parameters: SM2540D, 180.1, 1631E.)

*Solid & Chemical Materials* (Inorganic Parameters: EPA 6020, 7470, 7471, 7474, 9045C, 9050A, 9060. Organic Parameters: EPA 8081, 8082, 8015, 8270.)

**U.S. Army Corps of Engineers**

**Department of Defense, L-A-B** Certificate/Lab ID: L2217.01.

*Non-Potable Water* (Inorganic Parameters: EPA 6020A, SM4500H-B. Organic Parameters: 3020A, 3510C, 8270C, 8270D, 8270C-ALK-PAH, 8270D-ALK-PAH, 8082A, 8081B, 8015D-SHC, 8015D.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 1311, 3050B, 6020A, 7471A, 9045C, 9060, SM 2540G, ASTM D422-63. Organic Parameters: EPA 3580A, 3570, 3540C, 8270C, 8270D, 8270C-ALK-PAH, 8270D-ALK-PAH 8082A, 8081B, 8015D-SHC, 8015D.)

*Air & Emissions* (EPA TO-15.)

**Analytes Not Accredited by NELAP**

Certification is not available by NELAP for the following analytes: **8270C**: Biphenyl. **TO-15**: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 2-Methylnaphthalene, 1-Methylnaphthalene.





## AIR ANALYSIS

PAGE 1 OF 1

## CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048  
TEL: 508-822-9300 FAX: 508-822-3288

## Client Information

Client: Sanborn Head + Assoc

Address: 20 Foundry St  
Concord NH 03301

Phone: 603-229-1900

Fax: \_\_\_\_\_

Email: Sanborn@Sanbornhead.com

☐ These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments:

\* Site-specific analyte list

**All Columns Below Must Be Filled Out**

[illegible]

**\*SAMPLE MATRIX CODES**

AA = Ambient Air (Indoor/Outdoor)  
SV = Soil Vapor/Landfill Gas/SVE  
Other = Please Specify

### Container Type

CS

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By:

Date/Time

Received By:

Date/Time:

Reyes  
FND 54

9/16/13 1010  
9/17/13 0936

FE084  
1/10/19

9/17/11

## **B002, B004, B012 INDOOR AIR GRAB SAMPLING**



## ANALYTICAL REPORT

Lab Number:	L1321975
Client:	Sanborn, Head & Associates, Inc. 20 Foundry Street Concord, NH 03301
ATTN:	Jennifer Sanborn
Phone:	(603) 415-6137
Project Name:	IBM-POK
Project Number:	3463.00
Report Date:	11/05/13

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), PA (68-02089), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), DOD (L2217.01), USDA (Permit #P330-11-00109), 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](http://www.alphalab.com)



**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1321975  
**Report Date:** 11/05/13

Samples from a different building and removed from this report.

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1321975-01	IA1025\G	NY	10/22/13 16:23
L1321975-02	IA5031\G	NY	10/23/13 13:59
L1321975-03	IA6009\G	NY	10/24/13 14:54
L1321975-04	IA4018\G	NY	10/25/13 10:47
L1321975-05	IA2024\G	NY	10/29/13 14:24
L1321975-06	UNUSED CAN 458	NY	

**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1321975  
**Report Date:** 11/05/13

### 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. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

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.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

---

**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1321975  
**Report Date:** 11/05/13

### Case Narrative (continued)

#### Volatile Organics in Air

Canisters were released from the laboratory on October 22, 2013. The canister certification results are provided as an addendum.

Sample L1321975-05 and WG649314-6 Duplicate have elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the samples.

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:  Christopher J. Anderson

Title: Technical Director/Representative

Date: 11/05/13



**AIR**

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1321975**Report Date:** 11/05/13**SAMPLE RESULTS**

**Lab ID:** L1321975-02  
**Client ID:** IA5031\G  
**Sample Location:** NY  
**Matrix:** Soil\_Vapor  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 11/04/13 17:23  
**Analyst:** MB

**Date Collected:** 10/23/13 13:59  
**Date Received:** 10/30/13  
**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								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Trichloroethene	0.136	0.020	--	0.731	0.107	--		1
Tetrachloroethene	0.025	0.020	--	0.170	0.136	--		1

**Project Name:** IBM-POK**Lab Number:** L1321975**Project Number:** 3463.00**Report Date:** 11/05/13**SAMPLE RESULTS**

Lab ID: L1321975-02

Date Collected: 10/23/13 13:59

Client ID: IA5031\G

Date Received: 10/30/13

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Bromofluorobenzene	85		70-130
Toluene-d8	87		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	96		60-140
bromochloromethane	98		60-140
chlorobenzene-d5	94		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1321975**Report Date:** 11/05/13**SAMPLE RESULTS**

**Lab ID:** L1321975-03  
**Client ID:** IA6009\G  
**Sample Location:** NY  
**Matrix:** Soil\_Vapor  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 11/04/13 17:54  
**Analyst:** MB

**Date Collected:** 10/24/13 14:54  
**Date Received:** 10/30/13  
**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								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Trichloroethene	0.583	0.020	--	3.13	0.107	--		1
Tetrachloroethene	0.024	0.020	--	0.163	0.136	--		1



**Project Name:** IBM-POK**Lab Number:** L1321975**Project Number:** 3463.00**Report Date:** 11/05/13**SAMPLE RESULTS**

Lab ID: L1321975-03

Date Collected: 10/24/13 14:54

Client ID: IA6009\G

Date Received: 10/30/13

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Bromofluorobenzene	86		70-130
Toluene-d8	86		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	96		60-140
bromochloromethane	100		60-140
chlorobenzene-d5	96		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1321975**Report Date:** 11/05/13**SAMPLE RESULTS**

**Lab ID:** L1321975-04  
**Client ID:** IA4018\G  
**Sample Location:** NY  
**Matrix:** Soil\_Vapor  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 11/04/13 18:26  
**Analyst:** MB

**Date Collected:** 10/25/13 10:47  
**Date Received:** 10/30/13  
**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								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Trichloroethene	1.02	0.020	--	5.48	0.107	--		1
Tetrachloroethene	0.020	0.020	--	0.136	0.136	--		1



**Project Name:** IBM-POK**Lab Number:** L1321975**Project Number:** 3463.00**Report Date:** 11/05/13**SAMPLE RESULTS**

Lab ID: L1321975-04

Date Collected: 10/25/13 10:47

Client ID: IA4018\G

Date Received: 10/30/13

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Bromofluorobenzene	87		70-130
Toluene-d8	85		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	97		60-140
bromochloromethane	99		60-140
chlorobenzene-d5	95		60-140

Project Name: IBM-POK

Lab Number: L1321975

Project Number: 3463.00

Report Date: 11/05/13

### Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 11/04/13 13:40

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-05 Batch: WG649314-5								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1

Project Name: IBM-POK

Lab Number: L1321975

Project Number: 3463.00

Report Date: 11/05/13

## Method Blank Analysis

### Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 11/04/13 13:40

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-05 Batch: WG649314-5								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Bromofluorobenzene	86		70-130
Toluene-d8	91		70-130

## Lab Control Sample Analysis

### Batch Quality Control

Project Name: IBM-POK

Project Number: 3463.00

Lab Number: L1321975

Report Date: 11/05/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-05 Batch: WG649314-3 WG649314-4								
Vinyl chloride	124		128		70-130	3		20
Chloroethane	115		118		70-130	3		20
1,1-Dichloroethene	113		118		70-130	4		20
trans-1,2-Dichloroethene	95		96		70-130	1		20
1,1-Dichloroethane	102		103		70-130	1		20
cis-1,2-Dichloroethene	114		115		70-130	1		20
Trichloroethene	119		117		70-130	2		20
Tetrachloroethene	108		108		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	112		112		70-130
Toluene-d8	92		92		70-130
Bromofluorobenzene	94		94		70-130

# Lab Duplicate Analysis

## Batch Quality Control

Project Name: IBM-POK

Project Number: 3463.00

Lab Number: L1321975

Report Date: 11/05/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG649314-6 QC Sample: L1321975-05 Client ID: IA2024\G						
Vinyl chloride	ND	ND	ppbV	NC		20
Chloroethane	ND	ND	ppbV	NC		20
1,1-Dichloroethene	ND	ND	ppbV	NC		20
trans-1,2-Dichloroethene	ND	ND	ppbV	NC		20
1,1-Dichloroethane	0.152	0.152	ppbV	0		20
cis-1,2-Dichloroethene	0.760	0.718	ppbV	6		20
Trichloroethene	84.3	85.6	ppbV	2		20
Tetrachloroethene	1.04	1.06	ppbV	2		20

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		108		70-130
Toluene-d8	89		87		70-130
Bromofluorobenzene	87		87		70-130

**Project Name:** IBM-POK

**Project Number:** 3463.00

**Serial\_No:** 11051314:19  
**Lab Number:** L1321975

**Report Date:** 11/05/13

### Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1321975-01	IA1025\G	1740	2.7L Can	10/22/13	94539	L1321059-02	Pass	-29.7	-5.5	-	-	-	-
L1321975-02	IA5031\G	323	2.7L Can	10/22/13	94539	L1321059-01	Pass	-29.8	-7.3	-	-	-	-
L1321975-03	IA6009\G	135	2.7L Can	10/22/13	94539	L1321059-06	Pass	-29.8	-4.3	-	-	-	-
L1321975-04	IA4018\G	149B	2.7L Can	10/22/13	94539	L1321059-07	Pass	-29.7	-5.2	-	-	-	-
L1321975-05	IA2024\G	419	2.7L Can	10/22/13	94539	L1321059-05	Pass	-29.8	-4.2	-	-	-	-
L1321975-06	UNUSED CAN 458	458	2.7L Can	10/22/13	94539	L1321059-03	Pass	-29.7	-29.4	-	-	-	-

**Project Name:****Lab Number:** L1321059**Project Number:** Not Specified**Report Date:** 11/05/13**Air Canister Certification Results**

Lab ID: L1321059-01  
 Client ID: CAN 323 FC A  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 10/18/13 18:17  
 Analyst: MB

Date Collected: 10/18/13 17:50  
 Date Received: 10/18/13  
 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								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	97		60-140
bromochloromethane	100		60-140
chlorobenzene-d5	99		60-140



**Project Name:****Lab Number:** L1321059**Project Number:** Not Specified**Report Date:** 11/05/13**Air Canister Certification Results**

Lab ID: L1321059-02  
 Client ID: CAN 1740 FC B  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 10/18/13 18:49  
 Analyst: MB

Date Collected: 10/18/13 17:50  
 Date Received: 10/18/13  
 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								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	93		60-140
bromochloromethane	93		60-140
chlorobenzene-d5	96		60-140

**Project Name:****Lab Number:** L1321059**Project Number:** Not Specified**Report Date:** 11/05/13**Air Canister Certification Results**

Lab ID: L1321059-03  
 Client ID: CAN 458 FC C  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 10/18/13 19:21  
 Analyst: MB

Date Collected: 10/18/13 17:50  
 Date Received: 10/18/13  
 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								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	93		60-140
bromochloromethane	92		60-140
chlorobenzene-d5	96		60-140

**Project Name:****Lab Number:** L1321059**Project Number:** Not Specified**Report Date:** 11/05/13**Air Canister Certification Results**

Lab ID: L1321059-05  
 Client ID: CAN 419 FC E  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 10/18/13 20:25  
 Analyst: MB

Date Collected: 10/18/13 17:50  
 Date Received: 10/18/13  
 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								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	92		60-140
bromochloromethane	92		60-140
chlorobenzene-d5	94		60-140

**Project Name:****Lab Number:** L1321059**Project Number:** Not Specified**Report Date:** 11/05/13**Air Canister Certification Results**

Lab ID: L1321059-06  
 Client ID: CAN 135 FC F  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 10/18/13 20:57  
 Analyst: MB

Date Collected: 10/18/13 17:50  
 Date Received: 10/18/13  
 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								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	92		60-140
bromochloromethane	92		60-140
chlorobenzene-d5	94		60-140

**Project Name:****Lab Number:** L1321059**Project Number:** Not Specified**Report Date:** 11/05/13**Air Canister Certification Results**

Lab ID: L1321059-07  
 Client ID: CAN 149B FC G  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 10/18/13 21:29  
 Analyst: MB

Date Collected: 10/18/13 17:50  
 Date Received: 10/18/13  
 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								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	92		60-140
bromochloromethane	92		60-140
chlorobenzene-d5	93		60-140

Project Name: IBM-POK

Lab Number: L1321975

Project Number: 3463.00

Report Date: 11/05/13

**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(*)
L1321975-01A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1321975-02A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1321975-03A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1321975-04A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1321975-05A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1321975-06A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	CLEAN-FEE()

\*Values in parentheses indicate holding time in days

**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1321975  
**Report Date:** 11/05/13

## GLOSSARY

### Acronyms

EDL	- Estimated 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 EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
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.
LFB	- Laboratory Fortified Blank: 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.
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.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### 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 ten times (10x) 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. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- 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.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.

**Report Format:** Data Usability Report





**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1321975  
**Report Date:** 11/05/13

**Data Qualifiers**

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- 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. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. 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.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- 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:** IBM-POK**Lab Number:** L1321975**Project Number:** 3463.00**Report Date:** 11/05/13

## REFERENCES

- 48      Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

## 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 October 1, 2013 – 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, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Suspended Solids (non-filterable). 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, Titanium, Vanadium, Zinc, Total Organic Carbon, Corrosivity, TCLP 1311, SPLP 1312. 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, SM2540D, SM2540G.)

*Solid & Chemical Materials* (Inorganic Parameters: 6020, 7470, 7471, 9045. 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 180.1, 245.7, 1631E, 3020A, 6020A, 7470A, 9040, 9050A, SM2320B, 2540D, 2540G, 4500H-B, Organic Parameters: EPA 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 5030B, 8015D, 3570, 8081B, 8082A, 8260B, 8270C, 8270D.)

*Solid & Chemical Materials* (Inorganic Parameters: EPA 1311, 3050B, 3051A, 3060A, 6020A, 7196A, 7470A, 7471B, 7474, 9040B, 9045C, 9060. Organic Parameters: EPA 3540C, 3570, 3580A, 3630C, 3640A, 3660, 3665A, 5035, 8015D, 8081B, 8082A, 8260B, 8270C, 8270D.)

*Biological Tissue* (Inorganic Parameters: EPA 6020A. Organic Parameters: EPA 3570, 3510C, 3610B, 3630C, 3640A, 8270C, 8270D.)

*Air & Emissions* (EPA TO-15.)

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

*Non-Potable Water* (Inorganic Parameters: EPA 180.1, 1631E, 6020A, 7470A, 9040B, 9050A, SM2540D, 2540G, 4500H+B, 2320B, 3020A, . Organic Parameters: EPA 3510C, 3630C, 3640A, 3660B, 8081B, 8082A, 8270C, 8270D, 8015D.)

*Solid & Chemical Materials* (Inorganic Parameters: SW-846 1311, 3050B, 3051A, 6020A, 7471B, 9040B, 9045C. Organic Parameters: SW-846 3540C, 3580A, 3630C, 3640A, 3660B, 3665A, 8270C, 8015D, 8082A, 8081B.)

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

*Non-Potable Water* (Inorganic Parameters: SW-846 1312, 3020A, SM2320B, SM2540D, 2540G, 4500H-B, EPA 180.1, 1631E, SW-846 7470A, 9040C, 6020A, 9050A. Organic Parameters: SW-846 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 8015D, 8081B, 8082A, 8270C, 8270D)

*Solid & Chemical Materials* (Inorganic Parameters: SW-846 1311, 1312, 3050B, 3051A, 6020A, 7471B, 7474, 9040B, 9040C, 9045C, 9045D, 9060, 9060A. Organic Parameters: SW-846 3540C, 3570, 3580A, 3630C, 3640A, 3660B, 3665A, 8081B, 8082A, 8270C, 8270D, 8015D.)

*Atmospheric Organic Parameters* (EPA 3C, TO-15, TO-10A, TO-13A-SIM.)

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

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

*Non-Potable Water* (Inorganic Parameters: SM2320B, SM2540D, 6020A, 1631E, 7470A, 9050A, EPA 180.1, 3020A. Organic Parameters: EPA 8270C, 8270D, 8081B, 8082A, 3510C.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 6020A, 7471B, 7474, 9040C, 9045D, 9060A. Organic Parameters: EPA 8270C, 8270D, 8081B, 8082A, 1311, 3050B, 3580A, 3570, 3051A.)

*Air & Emissions* (EPA TO-15, TO-10A.)

**Pennsylvania** Certificate/Lab ID: 68-02089 **NELAP Accredited**

*Non-Potable Water* (Inorganic Parameters: 1312, 1631E, 180.1, 3020A, 6020A, 7470A, 9040B, 9050A, 2320B, 2540D, 2540G, SM4500H+-B. Organic Parameters: 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 8015D, 8081B, 8082A, 8270C, 8270D.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 1311, 3051A, 6020A, 7471B, 7474 9040B, 9045C, 9060. Organic Parameters: EPA3050B, 3540C, 3570, 3580A, 3630C, 3640A, 3660B, 3665A, 8270C, 8270D, 8081B, 8015D, 8082A.)

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

Refer to NJ-DEP 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, 9040, 9045, 9060. Organic Parameters: EPA 8015, 8270, 8081, 8082.)

*Air* (Organic Parameters: EPA TO-15)

**Virginia Division of Consolidated Laboratory Services** Certificate/Lab ID: 460194. **NELAP Accredited.**

*Non-Potable Water* (Inorganic Parameters: EPA 3020A, 6020A, 245.7, 9040B. Organic Parameters: EPA 3510C, 3640A, 3660B, 3665A, 8270C, 8270D, 8082A, 8081B, 8015D.)

*Solid & Chemical Materials* (Inorganic Parameters: EPA 6020A, 7470A, 7471B, 9040B, 9045C, 3050B, 3051, 9060. Organic Parameters: EPA 3540C, 3580A, 3630C, 3640A, 3660B, 3665A, 3570, 8270C, 8270D, 8081B, 8082A, 8015D.)

**Washington State Department of Ecology** Certificate/Lab ID: C954. *Non-Potable Water* (Inorganic Parameters: SM2540D, 180.1, 1631E.)

*Solid & Chemical Materials* (Inorganic Parameters: EPA 6020, 7470, 7471, 7474, 9045C, 9050A, 9060. Organic Parameters: EPA 8081, 8082, 8015, 8270.)

**U.S. Army Corps of Engineers**

**Department of Defense, L-A-B** Certificate/Lab ID: L2217.01.

*Non-Potable Water* (Inorganic Parameters: EPA 6020A, SM4500H-B. Organic Parameters: 3020A, 3510C, 8270C, 8270D, 8270C-ALK-PAH, 8270D-ALK-PAH, 8082A, 8081B, 8015D-SHC, 8015D.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 1311, 3050B, 6020A, 7471A, 9045C, 9060, SM 2540G, ASTM D422-63. Organic Parameters: EPA 3580A, 3570, 3540C, 8270C, 8270D, 8270C-ALK-PAH, 8270D-ALK-PAH 8082A, 8081B, 8015D-SHC, 8015D.)

*Air & Emissions* (EPA TO-15.)

**Analytes Not Accredited by NELAP**

Certification is not available by NELAP for the following analytes: **8270C**: Biphenyl. **TO-15**: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 2-Methylnaphthalene, 1-Methylnaphthalene.



## AIR ANALYSIS

PAGE 1 OF 1

## CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048  
TEL: 508-822-9300 FAX: 508-822-3288

## Client Information

Client: Sanborn, Head & Assoc.

Address: 20 Foundry St.

Concord, NH 03301

Phone: ~~75~~ 603-229-1900

Fax: \_\_\_\_\_

Email: sanborn@sanbornhead.com

☐ These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments:

\* Site-specific analyte list. Call Jenn Sanborn with questions

**All Columns Below Must Be Filled Out**[illegible]

**\*SAMPLE MATRIX CODES**

AA = Ambient Air (Indoor/Outdoor)  
SV = Soil Vapor/Landfill Gas/SVE  
Other = Please Specify

### Container Type

C9

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By:

Date/Time

Received By:

Date/Time:

Respectfully,  
 Abdul Matin

11/30/13 0800  
10-30-13 1730  
10-30-13 08:50  
10/31/13 0500

Abdul Mslubry  
~~Abdul Mslubry~~  
man held too

10/30/13 8:00  
10-30-13 17:30  
10/31/13 00:30  
10/31/13 05:00

## **B416 INDOOR AIR GRAB SAMPLING**





## ANALYTICAL REPORT

Lab Number:	L1324967
Client:	Envirotest Laboratories Inc. 20 Foundry Street Concord, NH 03301
ATTN:	Jennifer Sanborn
Phone:	(603) 415-6137
Project Name:	IBM-POK
Project Number:	3463.00
Report Date:	12/16/13

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), PA (68-02089), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), DOD (L2217.01), USDA (Permit #P330-11-00109), 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](http://www.alphalab.com)



**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1324967  
**Report Date:** 12/16/13

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>
L1324967-01	IA8005\G	POUGHKEEPSIE, NY	11/20/13 20:44

**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1324967  
**Report Date:** 12/16/13

### 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. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

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.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

---

**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1324967  
**Report Date:** 12/16/13

**Case Narrative (continued)**

Volatile Organics in Air

Canisters were released from the laboratory on October 30, 2013. The canister certification results are provided as an addendum.

The sample in this report was originally reported as L1323970-01 but moved to a stand alone job at the request of the client.

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:  Christopher J. Anderson

Title: Technical Director/Representative

Date: 12/16/13

**AIR**

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1324967**Report Date:** 12/16/13**SAMPLE RESULTS**

**Lab ID:** L1324967-01  
**Client ID:** IA8005\G  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 11/27/13 17:16  
**Analyst:** RY

**Date Collected:** 11/20/13 20:44  
**Date Received:** 11/22/13  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.022	0.020	0.007	0.118	0.107	0.038		1
Tetrachloroethene	0.037	0.020	0.020	0.251	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1324967**Project Number:** 3463.00**Report Date:** 12/16/13**SAMPLE RESULTS**

Lab ID: L1324967-01

Date Collected: 11/20/13 20:44

Client ID: IA8005\G

Date Received: 11/22/13

Sample Location: POUGHKEEPSIE, NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Bromofluorobenzene	93		70-130
Toluene-d8	98		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	97		60-140
bromochloromethane	98		60-140
chlorobenzene-d5	97		60-140



Project Name: IBM-POK

Lab Number: L1324967

Project Number: 3463.00

Report Date: 12/16/13

### Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 11/27/13 13:31

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01 Batch: WG655026-5								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Project Name: IBM-POK

Lab Number: L1324967

Project Number: 3463.00

Report Date: 12/16/13

### Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 11/27/13 13:31

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01 Batch: WG655026-5								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Bromofluorobenzene	91		70-130
Toluene-d8	105		70-130

## Lab Control Sample Analysis

### Batch Quality Control

Project Name: IBM-POK

Project Number: 3463.00

Lab Number: L1324967

Report Date: 12/16/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01 Batch: WG655026-3 WG655026-4								
Vinyl chloride	101		105		70-130	4		20
Chloroethane	103		104		70-130	1		20
1,1-Dichloroethene	99		100		70-130	1		20
trans-1,2-Dichloroethene	84		86		70-130	2		20
1,1-Dichloroethane	101		102		70-130	1		20
cis-1,2-Dichloroethene	107		110		70-130	3		20
Trichloroethene	111		111		70-130	0		20
Tetrachloroethene	110		111		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		99		70-130
Toluene-d8	100		100		70-130
Bromofluorobenzene	101		100		70-130

# **Lab Duplicate Analysis** Batch Quality Control

**Project Name:** IBM-POK

**Project Number:** 3463.00

**Lab Number:** L1324967

**Report Date:** 12/16/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG655026-6 QC Sample: L1324967-01 Client ID: IA8005\G						
Vinyl chloride	ND	ND	ppbV	NC		20
Chloroethane	ND	ND	ppbV	NC		20
1,1-Dichloroethene	ND	ND	ppbV	NC		20
trans-1,2-Dichloroethene	ND	ND	ppbV	NC		20
1,1-Dichloroethane	ND	ND	ppbV	NC		20
cis-1,2-Dichloroethene	ND	ND	ppbV	NC		20
Trichloroethene	0.022	0.023	ppbV	4		20
Tetrachloroethene	0.037	0.036	ppbV	3		20

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		99		70-130
Toluene-d8	98		96		70-130
Bromofluorobenzene	93		92		70-130

**Project Name:** IBM-POK

**Project Number:** 3463.00

Serial\_No:12161312:05  
**Lab Number:** L1324967

**Report Date:** 12/16/13

**Canister and Flow Controller Information**

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1324967-01	IA8005\G	231	2.7L Can	10/30/13	94781	L1321611-15	Pass	-30.0	-4.2	-	-	-	-

**Project Name:****Lab Number:** L1321611**Project Number:** Not Specified**Report Date:** 12/16/13**Air Canister Certification Results**

Lab ID: L1321611-15  
 Client ID: CAN 231 FC 034  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 10/28/13 20:13  
 Analyst: MB

Date Collected: 10/25/13 16:38  
 Date Received: 10/25/13  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	74		60-140
bromochloromethane	77		60-140
chlorobenzene-d5	79		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1324967**Report Date:** 12/16/13**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 Absent

**Container Information**

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1324967-01A	Canister - 2.7 Liter	N/A	N/A		Y	Absent	NYSDEC-TO15-SIM(30)

\*Values in parentheses indicate holding time in days



**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1324967  
**Report Date:** 12/16/13

## GLOSSARY

### Acronyms

EDL	- Estimated 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 EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
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.
LFB	- Laboratory Fortified Blank: 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.
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.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### 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 ten times (10x) 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. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- 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.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.

**Report Format:** DU Report with 'J' Qualifiers



**Project Name:** IBM-POK**Lab Number:** L1324967**Project Number:** 3463.00**Report Date:** 12/16/13**Data Qualifiers**

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- 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. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. 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.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

---



**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1324967  
**Report Date:** 12/16/13

## REFERENCES

- 48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

## 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.



## Certification Information

Last revised December 11, 2013

**The following analytes are not included in our NELAP Scope of Accreditation:**

### **Westborough Facility**

**EPA 524.2:** Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.

**EPA 8260C:** 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.

**EPA 8330A/B:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.

**EPA 8270D:** 1-Methylnaphthalene, Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**EPA 625:** 4-Chloroaniline, 4-Methylphenol.

**SM4500:** Soil: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

**EPA 9071:** Total Petroleum Hydrocarbons, Oil & Grease.

### **Mansfield Facility**

**EPA 8270D:** Biphenyl.

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:**

### ***Drinking Water***

**EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, Tl; **EPA 200.7:** Ba, Be, Ca, Cd, Cr, Cu, Na; **EPA 245.1:** Mercury;

**EPA 300.0:** Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO<sub>3</sub>-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**

**EPA 332:** Perchlorate.

**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, Enterolert-QT.**

### ***Non-Potable Water***

**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, Tl, Zn;

**EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, Ti, Tl, V, Zn;

**EPA 245.1, SM4500H-B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH<sub>3</sub>-BH, EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO<sub>3</sub>-F, EPA 353.2:** Nitrate-N, **SM4500NH<sub>3</sub>-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.**

**EPA 624:** Volatile Halocarbons & Aromatics,

**EPA 608:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF.**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

1322967



## AIR ANALYSIS

PAGE 1 OF 2

## CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048  
TEL: 508-822-9300 FAX: 508-822-3288

## Client Information

Client: Sanborn Head &amp; Associates

Address: 20 Fundry St  
Concord NH

Phone: 603-229-1900

Fax: \_\_\_\_\_

Email: j.sanborn@sanbornhead.com

☐ These samples have been previously analyzed by Alpha

## Project Information

Project Name: IBM-P0K

Project Location: NY

Project #: 3463.00

Project Manager: Jenn Sanborn

ALPHA Quote #:

## Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due:

Time:

Date Rec'd in Lab:

## Report Information - Data Deliverables

☐ FAX☒ EMAIL

Criteria Checker: \_\_\_\_\_

(Default based on Regulatory Criteria Indicated)

Other Formats: \_\_\_\_\_

☒ EMAIL (standard pdf report)☐ Additional Deliverables: \_\_\_\_\_

Report to: (if different than Project Manager)

ALPHA Job #: 1322970

## Billing Information

☒ Same as Client info PO #: 3463.00

## Regulatory Requirements/Report Limits

State/Fed	Program	Criteria

Other Project Specific Requirements/Comments:

Site-specific analyte list

Sample IA8005\G was misidentified as  
IA7005\G on the chain of custody.

## All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection	Initial	Final	Sample	Sampler's	Can	ID	ID - Flow	TO-14A by TO-15	TO-15	TO-15 SIM	SPK specific	FIXED GASES	TO-13A	TO-4/TO-10	Sample Comments (i.e. PID)
		Date	Start Time	End Time	Vacuum	Vacuum	Matrix	Initials	Size	Can	Controller						
01	IA7005\G	11/20/13	20:44	Grab	29.5	4.5	AA	REW	27L	231	A		X				PID = 50
02	IA1034	11/21/13	10:08	18:11	28.15	7.45	AA			1768	491		X				
03	IA1030	11/21/13	10:18	18:19	29.96	5.89	AA			255	281		X				Call Regan
04	IA1018		10:24	18:24	30	5.82	AA			147	129		X				Welch with
05	DUP 1		10:26	18:26	30	7.38	AA			185	292		X				questions
06	IA1065		10:30	18:30	29.88	10.56	AA			555	188		X				603-415-
07	IA1064		10:34	18:34	30	7.50	AA			140	483		X				6123
08	IA1062		10:37	18:37	30	5.66	AA			488	484		X				
09	IA1061		10:39	18:40	30	11.61	AA			109	562		X				
10	IA1001		10:42	18:44	30	5.55	AA			187	291		X				

## \*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)  
SV = Soil Vapor/Landfill Gas/SVE  
Other = Please Specify

Container Type

CS

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By:

Date/Time

Received By:

Date/Time:

## **B012 INDOOR AIR GRAB SAMPLING**



## ANALYTICAL REPORT

Lab Number:	L1326027
Client:	Sanborn, Head & Associates, Inc. 20 Foundry Street Concord, NH 03301
ATTN:	Jennifer Sanborn
Phone:	(603) 415-6137
Project Name:	IBM-POK RFI WORK PLAN
Project Number:	3463.00
Report Date:	12/27/13

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), PA (68-02089), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), DOD (L2217.01), USDA (Permit #P330-11-00109), 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](http://www.alphalab.com)





**Project Name:** IBM-POK RFI WORK PLAN  
**Project Number:** 3463.00

**Lab Number:** L1326027  
**Report Date:** 12/27/13

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>
L1326027-01	IA4045/G	POUGHKEEPSIE, NY	12/19/13 11:00

**Project Name:** IBM-POK RFI WORK PLAN  
**Project Number:** 3463.00

**Lab Number:** L1326027  
**Report Date:** 12/27/13

### 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. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

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.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

---

**Project Name:** IBM-POK RFI WORK PLAN  
**Project Number:** 3463.00

**Lab Number:** L1326027  
**Report Date:** 12/27/13

**Case Narrative (continued)**

Volatile Organics in Air

Canisters were released from the laboratory on December 18, 2013. The canister certification results are provided as an addendum.

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:  Christopher J. Anderson

Title: Technical Director/Representative

Date: 12/27/13

**AIR**

**Project Name:** IBM-POK RFI WORK PLAN**Lab Number:** L1326027**Project Number:** 3463.00**Report Date:** 12/27/13**SAMPLE RESULTS**

**Lab ID:** L1326027-01  
**Client ID:** IA4045/G  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 12/26/13 15:25  
**Analyst:** MB

**Date Collected:** 12/19/13 11:00  
**Date Received:** 12/21/13  
**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								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	0.035	0.020	--	0.139	0.079	--		1
Trichloroethene	0.555	0.020	--	2.98	0.107	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1

**Project Name:** IBM-POK RFI WORK PLAN**Lab Number:** L1326027**Project Number:** 3463.00**Report Date:** 12/27/13**SAMPLE RESULTS**

Lab ID: L1326027-01

Date Collected: 12/19/13 11:00

Client ID: IA4045/G

Date Received: 12/21/13

Sample Location: POUGHKEEPSIE, NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Bromofluorobenzene	77		70-130
Toluene-d8	79		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	98		60-140
bromochloromethane	131		60-140
chlorobenzene-d5	107		60-140

**Project Name:** IBM-POK RFI WORK PLAN**Lab Number:** L1326027**Project Number:** 3463.00**Report Date:** 12/27/13

### Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 12/26/13 14:20

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01 Batch: WG661664-5								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1



Project Name: IBM-POK RFI WORK PLAN

Lab Number: L1326027

Project Number: 3463.00

Report Date: 12/27/13

### Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 12/26/13 14:20

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01 Batch: WG661664-5								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Bromofluorobenzene	82		70-130
Toluene-d8	86		70-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** IBM-POK RFI WORK PLAN

**Lab Number:** L1326027

**Project Number:** 3463.00

**Report Date:** 12/27/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01 Batch: WG661664-3 WG661664-4								
Vinyl chloride	104		105		70-130	1		20
Chloroethane	105		105		70-130	0		20
1,1-Dichloroethene	112		111		70-130	1		20
trans-1,2-Dichloroethene	100		97		70-130	3		20
1,1-Dichloroethane	111		108		70-130	3		20
cis-1,2-Dichloroethene	125		121		70-130	3		20
Trichloroethene	104		104		70-130	0		20
Tetrachloroethene	88		91		70-130	3		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	113		110		70-130
Toluene-d8	87		88		70-130
Bromofluorobenzene	90		89		70-130

# **Lab Duplicate Analysis** Batch Quality Control

**Project Name:** IBM-POK RFI WORK PLAN

**Project Number:** 3463.00

**Lab Number:** L1326027

**Report Date:** 12/27/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG661664-6 QC Sample: L1326027-01 Client ID: IA4045/G						
Vinyl chloride	ND	ND	ppbV	NC		20
Chloroethane	ND	ND	ppbV	NC		20
1,1-Dichloroethene	ND	ND	ppbV	NC		20
trans-1,2-Dichloroethene	ND	ND	ppbV	NC		20
1,1-Dichloroethane	ND	ND	ppbV	NC		20
cis-1,2-Dichloroethene	0.035	0.036	ppbV	3		20
Trichloroethene	0.555	0.577	ppbV	4		20
Tetrachloroethene	ND	ND	ppbV	NC		20

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		125		70-130
Toluene-d8	79		82		70-130
Bromofluorobenzene	77		79		70-130

**Project Name:** IBM-POK RFI WORK PLAN

Serial\_No:12271314:10  
**Lab Number:** L1326027

**Project Number:** 3463.00

**Report Date:** 12/27/13

**Canister and Flow Controller Information**

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1326027-01	IA4045/G	109	2.7L Can	12/18/13	96786	L1325225-02	Pass	-29.7	-9.4	-	-	-	-

**Project Name:** BATCH CANISTER CERTIFICATION  
**Project Number:** CANISTER QC BAT

**Lab Number:** L1325225  
**Report Date:** 12/27/13

### Air Canister Certification Results

**Lab ID:** L1325225-02  
**Client ID:** CAN 109 SHELF 15  
**Sample Location:**  
**Matrix:** Air  
**Analytical Method:** 48,TO-15  
**Analytical Date:** 12/12/13 16:02  
**Analyst:** RY

**Date Collected:** 12/11/13 19:16  
**Date Received:** 12/12/13  
**Field Prep:** Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		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	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	2.50	--	ND	4.71	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		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	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1



**Project Name:** BATCH CANISTER CERTIFICATION  
**Project Number:** CANISTER QC BAT

**Lab Number:** L1325225  
**Report Date:** 12/27/13

### Air Canister Certification Results

**Lab ID:** L1325225-02  
**Client ID:** CAN 109 SHELF 15  
**Sample Location:**

**Date Collected:** 12/11/13 19:16  
**Date Received:** 12/12/13  
**Field Prep:** Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - 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	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	0.200	--	ND	0.704	--		1
2-Butanone	ND	0.200	--	ND	0.590	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.200	--	ND	0.590	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		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	0.836	--		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	0.721	--		1



**Project Name:** BATCH CANISTER CERTIFICATION**Lab Number:** L1325225**Project Number:** CANISTER QC BAT**Report Date:** 12/27/13**Air Canister Certification Results**

Lab ID: L1325225-02

Date Collected: 12/11/13 19:16

Client ID: CAN 109 SHELF 15

Date Received: 12/12/13

Sample Location:

Field Prep: Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.820	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		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	2.38	--		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	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1



**Project Name:** BATCH CANISTER CERTIFICATION  
**Project Number:** CANISTER QC BAT

**Lab Number:** L1325225  
**Report Date:** 12/27/13

### Air Canister Certification Results

**Lab ID:** L1325225-02  
**Client ID:** CAN 109 SHELF 15  
**Sample Location:**

**Date Collected:** 12/11/13 19:16  
**Date Received:** 12/12/13  
**Field Prep:** Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		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

Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds				

No Tentatively Identified Compounds





**Project Name:** BATCH CANISTER CERTIFICATION**Lab Number:** L1325225**Project Number:** CANISTER QC BAT**Report Date:** 12/27/13**Air Canister Certification Results**

Lab ID: L1325225-02

Date Collected: 12/11/13 19:16

Client ID: CAN 109 SHELF 15

Date Received: 12/12/13

Sample Location:

Field Prep: Not Specified

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

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	92		60-140
Bromochloromethane	84		60-140
chlorobenzene-d5	97		60-140

**Project Name:** BATCH CANISTER CERTIFICATION  
**Project Number:** CANISTER QC BAT

**Lab Number:** L1325225  
**Report Date:** 12/27/13

### Air Canister Certification Results

**Lab ID:** L1325225-02  
**Client ID:** CAN 109 SHELF 15  
**Sample Location:**  
**Matrix:** Air  
**Analytical Method:** 48,TO-15-SIM  
**Analytical Date:** 12/12/13 16:02  
**Analyst:** RY

**Date Collected:** 12/11/13 19:16  
**Date Received:** 12/12/13  
**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	1.09	--		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	0.404	--		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  
**Project Number:** CANISTER QC BAT

**Lab Number:** L1325225  
**Report Date:** 12/27/13

### Air Canister Certification Results

**Lab ID:** L1325225-02  
**Client ID:** CAN 109 SHELF 15  
**Sample Location:**

**Date Collected:** 12/11/13 19:16  
**Date Received:** 12/12/13  
**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	0.050	--	ND	0.188	--		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	0.207	--		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
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	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



**Project Name:** BATCH CANISTER CERTIFICATION**Lab Number:** L1325225**Project Number:** CANISTER QC BAT**Report Date:** 12/27/13**Air Canister Certification Results**

Lab ID: L1325225-02

Date Collected: 12/11/13 19:16

Client ID: CAN 109 SHELF 15

Date Received: 12/12/13

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								
n-Butylbenzene	ND	0.500	--	ND	2.74	--		1
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

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	95		60-140
bromochloromethane	88		60-140
chlorobenzene-d5	100		60-140

**Project Name:** IBM-POK RFI WORK PLAN**Lab Number:** L1326027**Project Number:** 3463.00**Report Date:** 12/27/13**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(*)
L1326027-01A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)

\*Values in parentheses indicate holding time in days

**Project Name:** IBM-POK RFI WORK PLAN  
**Project Number:** 3463.00

**Lab Number:** L1326027  
**Report Date:** 12/27/13

## GLOSSARY

### Acronyms

EDL	- Estimated 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 EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
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.
LFB	- Laboratory Fortified Blank: 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.
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.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### 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 ten times (10x) 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. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- 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.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.

Report Format: Data Usability Report



**Project Name:** IBM-POK RFI WORK PLAN  
**Project Number:** 3463.00

**Lab Number:** L1326027  
**Report Date:** 12/27/13

**Data Qualifiers**

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- 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. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. 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.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Report Format: Data Usability Report

---



**Project Name:** IBM-POK RFI WORK PLAN  
**Project Number:** 3463.00

**Lab Number:** L1326027  
**Report Date:** 12/27/13

## REFERENCES

- 48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

## 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.





## Certification Information

Last revised December 11, 2013

**The following analytes are not included in our NELAP Scope of Accreditation:**

### **Westborough Facility**

**EPA 524.2:** Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.

**EPA 8260C:** 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.

**EPA 8330A/B:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.

**EPA 8270D:** 1-Methylnaphthalene, Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**EPA 625:** 4-Chloroaniline, 4-Methylphenol.

**SM4500:** Soil: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

**EPA 9071:** Total Petroleum Hydrocarbons, Oil & Grease.

### **Mansfield Facility**

**EPA 8270D:** Biphenyl.

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:**

### ***Drinking Water***

**EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, Tl; **EPA 200.7:** Ba, Be, Ca, Cd, Cr, Cu, Na; **EPA 245.1:** Mercury;

**EPA 300.0:** Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO<sub>3</sub>-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**

**EPA 332:** Perchlorate.

**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, Enterolert-QT.**

### ***Non-Potable Water***

**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, Tl, Zn;

**EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, Ti, Tl, V, Zn;

**EPA 245.1, SM4500H-B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH<sub>3</sub>-BH, EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO<sub>3</sub>-F, EPA 353.2:** Nitrate-N, **SM4500NH<sub>3</sub>-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.**

**EPA 624:** Volatile Halocarbons & Aromatics,

**EPA 608:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF.**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



# AIR ANALYSIS

## CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048  
TEL: 508-822-9300 FAX: 508-822-3288

### Client Information

Client: Sanborn Head & Assoc.

Address: 20 Foundry St.  
Concord NH 03301

Phone: 603-229-1900

Fax:

Email: jsanborn@sanbornhead.com

☐ These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments:

### Project Information

Project Name: IBM-POX RFI Work Plan

Project Location: Poughkeepsie, NY

Project #: 3463.00

Project Manager: Jenn Sanborn

ALPHA Quote #:

### Turn-Around Time

☒ Standard

☐ RUSH (only confirmed if pre-approved!)

Date Due:

Time:

Date Rec'd in Lab:

### Report Information - Data Deliverables

☐ FAX

☒ ADEx

Criteria Checker:

(Default based on Regulatory Criteria Indicated)

Other Formats:

☒ EMAIL (standard pdf report)

☐ Additional Deliverables:

Report to: (if different than Project Manager)

ALPHA Job #:

L1326027

### Billing Information

☐ Same as Client info

PO #:

### Regulatory Requirements/Report Limits

State/Fed	Program	Criteria

### ANALYSIS

### All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection						Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-14A	TO-15	TO-15 APH	FIXED	TO-13A	TO-4 /	Sample Comments (i.e. PID)
		Date	Start Time	End Time	Initial Vacuum	Final Vacuum													
26027-01	IA404S1G	12-19-13	11:00	11:00	18	7	AA	AVK	2.7L	109				X					project specific analyte list.

### \*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)

SV = Soil Vapor/Landfill Gas/SVE

Other = Please Specify

Container Type

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Relinquished By:

Date/Time

Received By:

Date/Time:

*[Signature]*

12/20/13 3:00pm  
12/21/13 11:52

*[Signature]*

12/21/13 11:52



## ANALYTICAL REPORT

Lab Number:	L1405903
Client:	Sanborn, Head & Associates, Inc. 20 Foundry Street Concord, NH 03301
ATTN:	Jennifer Sanborn
Phone:	(603) 415-6137
Project Name:	IBM-POK B012
Project Number:	3463.00
Report Date:	03/27/14

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), PA (68-02089), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), DOD (L2217.01), USDA (Permit #P330-11-00109), 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](http://www.alphalab.com)



**Project Name:** IBM-POK B012  
**Project Number:** 3463.00

**Lab Number:** L1405903  
**Report Date:** 03/27/14

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>
L1405903-01	IA4018/G	NY	03/19/14 10:41
L1405903-02	IA4018/G	NY	03/20/14 11:30

**Project Name:** IBM-POK B012  
**Project Number:** 3463.00

**Lab Number:** L1405903  
**Report Date:** 03/27/14

### 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. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

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.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

---

**Project Name:** IBM-POK B012  
**Project Number:** 3463.00

**Lab Number:** L1405903  
**Report Date:** 03/27/14

### Case Narrative (continued)

#### Volatile Organics in Air

Canisters were released from the laboratory on February 25, 2014. The canister certification results are provided as an addendum.

Samples L1405903-01 and -02: Prior to sample analysis, the canisters were pressurized with UHP Nitrogen due to canister size. The pressurization resulted in a dilution of the samples. The reporting limits have been elevated accordingly.

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:  Christopher J. Anderson

Title: Technical Director/Representative

Date: 03/27/14

**AIR**

**Project Name:** IBM-POK B012**Project Number:** 3463.00**Lab Number:** L1405903**Report Date:** 03/27/14**SAMPLE RESULTS**

**Lab ID:** L1405903-01 D  
**Client ID:** IA4018/G  
**Sample Location:** NY  
**Matrix:** Soil\_Vapor  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 03/27/14 10:41  
**Analyst:** MB

**Date Collected:** 03/19/14 10:41  
**Date Received:** 03/20/14  
**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								
Vinyl chloride	ND	0.044	--	ND	0.111	--		2.176
Chloroethane	ND	0.044	--	ND	0.115	--		2.176
1,1-Dichloroethene	ND	0.044	--	ND	0.172	--		2.176
trans-1,2-Dichloroethene	ND	0.044	--	ND	0.172	--		2.176
1,1-Dichloroethane	ND	0.044	--	ND	0.176	--		2.176
cis-1,2-Dichloroethene	ND	0.044	--	ND	0.172	--		2.176
Trichloroethene	0.692	0.044	--	3.72	0.234	--		2.176
Tetrachloroethene	0.048	0.044	--	0.325	0.295	--		2.176

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	90		60-140
bromochloromethane	94		60-140
chlorobenzene-d5	95		60-140





**Project Name:** IBM-POK B012**Lab Number:** L1405903**Project Number:** 3463.00**Report Date:** 03/27/14**SAMPLE RESULTS**

**Lab ID:** L1405903-02 D  
**Client ID:** IA4018/G  
**Sample Location:** NY  
**Matrix:** Soil\_Vapor  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 03/27/14 11:57  
**Analyst:** MB

**Date Collected:** 03/20/14 11:30  
**Date Received:** 03/20/14  
**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								
Vinyl chloride	ND	0.048	--	ND	0.122	--		2.387
Chloroethane	ND	0.048	--	ND	0.126	--		2.387
1,1-Dichloroethene	ND	0.048	--	ND	0.189	--		2.387
trans-1,2-Dichloroethene	ND	0.048	--	ND	0.189	--		2.387
1,1-Dichloroethane	ND	0.048	--	ND	0.193	--		2.387
cis-1,2-Dichloroethene	ND	0.048	--	ND	0.189	--		2.387
Trichloroethene	0.477	0.048	--	2.56	0.256	--		2.387
Tetrachloroethene	ND	0.048	--	ND	0.323	--		2.387

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	88		60-140
bromochloromethane	93		60-140
chlorobenzene-d5	96		60-140



Project Name: IBM-POK B012

Lab Number: L1405903

Project Number: 3463.00

Report Date: 03/27/14

### Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 03/26/14 16:15

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-02 Batch: WG678189-4								
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
Chloroethane	ND	0.020	--	ND	0.053	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** IBM-POK B012

**Project Number:** 3463.00

**Lab Number:** L1405903

**Report Date:** 03/27/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-02 Batch: WG678189-3								
Vinyl chloride	90		-		70-130	-		25
Chloroethane	89		-		70-130	-		25
1,1-Dichloroethene	88		-		70-130	-		25
trans-1,2-Dichloroethene	82		-		70-130	-		25
1,1-Dichloroethane	92		-		70-130	-		25
cis-1,2-Dichloroethene	103		-		70-130	-		25
Trichloroethene	103		-		70-130	-		25
Tetrachloroethene	115		-		70-130	-		25

**Project Name:** IBM-POK B012  
**Project Number:** 3463.00

## Lab Duplicate Analysis

Batch Quality Control

**Lab Number:** L1405903  
**Report Date:** 03/27/14

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG678189-5 QC Sample: L1405903-01 Client ID: IA4018/G						
Vinyl chloride	ND	ND	ppbV	NC		25
Chloroethane	ND	ND	ppbV	NC		25
1,1-Dichloroethene	ND	ND	ppbV	NC		25
trans-1,2-Dichloroethene	ND	ND	ppbV	NC		25
1,1-Dichloroethane	ND	ND	ppbV	NC		25
cis-1,2-Dichloroethene	ND	ND	ppbV	NC		25
Trichloroethene	0.692	0.703	ppbV	2		25
Tetrachloroethene	0.048	0.046	ppbV	5		25

**Project Name:** IBM-POK B012

**Project Number:** 3463.00

Serial\_No:03271415:01  
**Lab Number:** L1405903

**Report Date:** 03/27/14

### Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1405903-01	IA4018/G	883	1.0L Can	02/25/14	98953	L1402833-02	Pass	-29.0	-2.0	-	-	-	-
L1405903-02	IA4018/G	571	1.0L Can	02/25/14	98953	L1402833-02	Pass	-29.1	-4.4	-	-	-	-

**Project Name:** BATCH CANISTER CERTIFICATION  
**Project Number:** CANISTER QC BAT

**Lab Number:** L1402833  
**Report Date:** 03/27/14

### Air Canister Certification Results

**Lab ID:** L1402833-02  
**Client ID:** CAN 717 SHELF 11  
**Sample Location:**  
**Matrix:** Air  
**Analytical Method:** 48,TO-15  
**Analytical Date:** 02/04/14 20:03  
**Analyst:** MB

**Date Collected:** 02/03/14 18:26  
**Date Received:** 02/04/14  
**Field Prep:** Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		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	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	2.50	--	ND	4.71	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		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	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1



**Project Name:** BATCH CANISTER CERTIFICATION  
**Project Number:** CANISTER QC BAT

**Lab Number:** L1402833  
**Report Date:** 03/27/14

### Air Canister Certification Results

**Lab ID:** L1402833-02  
**Client ID:** CAN 717 SHELF 11  
**Sample Location:**

**Date Collected:** 02/03/14 18:26  
**Date Received:** 02/04/14  
**Field Prep:** Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - 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	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	0.200	--	ND	0.704	--		1
2-Butanone	ND	0.200	--	ND	0.590	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.200	--	ND	0.590	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		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	0.836	--		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	0.721	--		1



**Project Name:** BATCH CANISTER CERTIFICATION  
**Project Number:** CANISTER QC BAT

**Lab Number:** L1402833  
**Report Date:** 03/27/14

### Air Canister Certification Results

**Lab ID:** L1402833-02  
**Client ID:** CAN 717 SHELF 11  
**Sample Location:**

**Date Collected:** 02/03/14 18:26  
**Date Received:** 02/04/14  
**Field Prep:** Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.200	--	ND	0.820	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		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	2.38	--		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	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1





**Project Name:** BATCH CANISTER CERTIFICATION  
**Project Number:** CANISTER QC BAT

**Lab Number:** L1402833  
**Report Date:** 03/27/14

## Air Canister Certification Results

**Lab ID:** L1402833-02  
**Client ID:** CAN 717 SHELF 11  
**Sample Location:**

**Date Collected:** 02/03/14 18:26  
**Date Received:** 02/04/14  
**Field Prep:** Not Specified

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air - Mansfield Lab								
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		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

Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds				

No Tentatively Identified Compounds



**Project Name:** BATCH CANISTER CERTIFICATION**Lab Number:** L1402833**Project Number:** CANISTER QC BAT**Report Date:** 03/27/14**Air Canister Certification Results**

Lab ID: L1402833-02

Date Collected: 02/03/14 18:26

Client ID: CAN 717 SHELF 11

Date Received: 02/04/14

Sample Location:

Field Prep: Not Specified

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

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	97		60-140
Bromochloromethane	97		60-140
chlorobenzene-d5	95		60-140

**Project Name:** BATCH CANISTER CERTIFICATION  
**Project Number:** CANISTER QC BAT

**Lab Number:** L1402833  
**Report Date:** 03/27/14

### Air Canister Certification Results

**Lab ID:** L1402833-02  
**Client ID:** CAN 717 SHELF 11  
**Sample Location:**  
**Matrix:** Air  
**Analytical Method:** 48,TO-15-SIM  
**Analytical Date:** 02/04/14 20:03  
**Analyst:** MB

**Date Collected:** 02/03/14 18:26  
**Date Received:** 02/04/14  
**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	1.09	--		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	0.404	--		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  
**Project Number:** CANISTER QC BAT

**Lab Number:** L1402833  
**Report Date:** 03/27/14

### Air Canister Certification Results

**Lab ID:** L1402833-02  
**Client ID:** CAN 717 SHELF 11  
**Sample Location:**

**Date Collected:** 02/03/14 18:26  
**Date Received:** 02/04/14  
**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	0.050	--	ND	0.188	--		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	0.207	--		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
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	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

**Project Name:** BATCH CANISTER CERTIFICATION**Lab Number:** L1402833**Project Number:** CANISTER QC BAT**Report Date:** 03/27/14**Air Canister Certification Results**

Lab ID: L1402833-02

Date Collected: 02/03/14 18:26

Client ID: CAN 717 SHELF 11

Date Received: 02/04/14

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								
n-Butylbenzene	ND	0.500	--	ND	2.74	--		1
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

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	92		60-140
bromochloromethane	93		60-140
chlorobenzene-d5	93		60-140

**Project Name:** IBM-POK B012**Project Number:** 3463.00**Lab Number:** L1405903**Report Date:** 03/27/14**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

**Reagent H2O Preserved Vials Frozen on:** NA**Cooler Information Custody Seal****Cooler**

NA Present/Intact

**Container Information**

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1405903-01A	Canister - 1 Liter	NA	NA	NA	Y	Present/Intact	TO15-SIM(30)
L1405903-02A	Canister - 1 Liter	NA	NA	NA	Y	Present/Intact	TO15-SIM(30)

\*Values in parentheses indicate holding time in days

Project Name: IBM-POK B012

Lab Number: L1405903

Project Number: 3463.00

Report Date: 03/27/14

## GLOSSARY

### Acronyms

EDL	- Estimated 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 EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
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.
LFB	- Laboratory Fortified Blank: 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.
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.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### 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 ten times (10x) 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. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- 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.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.

Report Format: Data Usability Report



**Project Name:** IBM-POK B012**Lab Number:** L1405903**Project Number:** 3463.00**Report Date:** 03/27/14**Data Qualifiers**

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- 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. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. 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.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- 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:** IBM-POK B012  
**Project Number:** 3463.00

**Lab Number:** L1405903  
**Report Date:** 03/27/14

## REFERENCES

- 48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

## 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.



## Certification Information

Last revised December 11, 2013

**The following analytes are not included in our NELAP Scope of Accreditation:**

### **Westborough Facility**

**EPA 524.2:** Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.

**EPA 8260C:** 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.

**EPA 8330A/B:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.

**EPA 8270D:** 1-Methylnaphthalene, Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**EPA 625:** 4-Chloroaniline, 4-Methylphenol.

**SM4500:** Soil: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

**EPA 9071:** Total Petroleum Hydrocarbons, Oil & Grease.

### **Mansfield Facility**

**EPA 8270D:** Biphenyl.

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:**

### ***Drinking Water***

**EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, Tl; **EPA 200.7:** Ba, Be, Ca, Cd, Cr, Cu, Na; **EPA 245.1:** Mercury;

**EPA 300.0:** Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**

**EPA 332:** Perchlorate.

**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, Enterolert-QT.**

### ***Non-Potable Water***

**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, Tl, Zn;

**EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, Ti, Tl, V, Zn;

**EPA 245.1, SM4500H-B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH3-BH, EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.**

**EPA 624:** Volatile Halocarbons & Aromatics,

**EPA 608:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF.**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



## PAGE 1 OF 1

## Client Information

Address: 20 Foundry St  
Concord, NH 03301

Phone: 603-229-1900

Fax:

Email: jsanborn@sanbornhead.com

☐ These samples have been previously analyzed by Alpha

These samples have been previously analyzed by Alpha	Date Recd.	Name:
Other Project Specific Requirements/Comments: <i>A please email report to Jenn Sunborn and Regan Welch</i>		

\*Site specific Analyte list IBM-POL/B003 List

**All Columns Below Must Be Filled Out**

[illegible]

\*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)  
SV = Soil Vapor/Landfill Gas/SVE  
Other = Please Specify

Container Type

Q

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS

Relinquished By:

Date/Time

Received By:

Date/Time:

Reggie  
Abdul, Malubog  
Tom Toker

3/20/14 1414  
3-20-14 1810  
20-14

Abdul Muhib,  
Team Leader

3/20/17 1474  
3-20-17 1810



## CHAIN OF CUSTODY

## AIR ANALYSIS

PAGE 1 OF 1

Serial No: 03271415:01

320 Forbes Blvd, Mansfield, MA 02048  
TEL: 508-822-9300 FAX: 508-822-3288

## Client Information

Client: ~~BBA~~ Sanborn Head + Assoc

Address: 20 Foundry St  
Concord, NH 03301

Phone: 603-229-1900

Fax: \_\_\_\_\_

Email: jsanborn@sanbornhead.com

☐ These samples have been previously analyzed by Alpha

## Project Information

Project Name: IBM-POK B012

Project Location: NY

Project #: 3463.00

Project Manager: Jenn Sanborn

ALPHA Quote #:

## Turn-Around Time

☒ Standard☐ RUSH (only confirmed if pre-approved!)

Date Due:

Time:

Date Rec'd in Lab:

## Report Information - Data Deliverables

☐ FAX☒ ADEx

Criteria Checker: \_\_\_\_\_

(Default based on Regulatory Criteria Indicated)

Other Formats: \_\_\_\_\_

☐ EMAIL (standard pdf report)☐ Additional Deliverables: \_\_\_\_\_

Report to: (if different than Project Manager)

ALPHA Job #: L1405903

## Billing Information

☒ Same as Client info PO #: 3463.00

## Regulatory Requirements/Report Limits

State/Fed	Program	Criteria

## ANALYSIS

\*Site-specific Analyte List IBM-POK/B003 List

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection						Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-14A	TO-15	TO-15 APH	FIXED	TO-13A	TO-4 / TO-10	Sample Comments (i.e. PID)
		Date	Start Time	End Time	Initial Vacuum	Final Vacuum													
L1405903-01	IA 4018 / G	3/19/14	10:41	Grab	28.5	3	AA	REW	1L	883	—			X					
-02	IA 4018 / G	3/20/14	11:30	11:35	28.45	4.77	1	1	1	571	—			X					

## \*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)  
SV = Soil Vapor/Landfill Gas/SVE  
Other = Please Specify

Container Type

CS

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Relinquished By:

Date/Time

Received By:

Date/Time:

Regan  
Abdul Mubey  
Tom Tover

3/20/14 1414

3-20-14 1810

3-20-14

Abdul Mubey  
Tom Tover  
Sally

3/20/14 1414

3-20-14 1810

3/20/14

## **INDOOR AIR SAMPLING**

## **B077, B416 INDOOR AIR SAMPLING**



## ANALYTICAL REPORT

Lab Number:	L1405228
Client:	Sanborn, Head & Associates, Inc. 20 Foundry Street Concord, NH 03301
ATTN:	Jennifer Sanborn
Phone:	(603) 415-6137
Project Name:	IBM-POK
Project Number:	3463.00
Report Date:	03/24/14

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), PA (68-02089), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), DOD (L2217.01), USDA (Permit #P330-11-00109), 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](http://www.alphalab.com)



**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1405228  
**Report Date:** 03/24/14

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>
L1405228-01	IA8001	POUGHKEEPSIE, NY	03/11/14 18:49
L1405228-02	IA8002	POUGHKEEPSIE, NY	03/11/14 15:08
L1405228-03	IA8003	POUGHKEEPSIE, NY	03/11/14 18:25
L1405228-04	IA8004	POUGHKEEPSIE, NY	03/11/14 19:13
L1405228-05	IA8005	POUGHKEEPSIE, NY	03/11/14 19:11
L1405228-06	IA8006	POUGHKEEPSIE, NY	03/11/14 18:53
L1405228-07	AA8001	POUGHKEEPSIE, NY	03/11/14 20:19
L1405228-08	FB8001	POUGHKEEPSIE, NY	03/11/14 15:41
L1405228-09	IA7003	POUGHKEEPSIE, NY	03/11/14 18:14
L1405228-10	FD7003	POUGHKEEPSIE, NY	03/11/14 18:14
L1405228-11	AA7001	POUGHKEEPSIE, NY	03/11/14 20:34
L1405228-13	CAN-233	POUGHKEEPSIE, NY	
L1405228-14	CAN-507	POUGHKEEPSIE, NY	



**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1405228  
**Report Date:** 03/24/14

### 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. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

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.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

---

**Project Name:** IBM-POK**Lab Number:** L1405228**Project Number:** 3463.00**Report Date:** 03/24/14**Case Narrative (continued)**

## Volatile Organics in Air

Canisters were released from the laboratory on February 25 and March 10, 2014. The canister certification results are provided as an addendum.

The sample designated IA8002/S (L1405228-02) had a RPD for the pre- and post-flow controller calibration check (71% RPD) that was outside of the control limit (20% RPD). The initial flow rate for the flow controller was 4.5 mL/minute; the final flow rate was 9.5 mL/minute. The final pressure recorded by the laboratory of the associated canister was -3.2 inches of mercury.

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:  Christopher J. Anderson

Title: Technical Director/Representative

Date: 03/24/14

**AIR**

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1405228**Report Date:** 03/24/14**SAMPLE RESULTS**

**Lab ID:** L1405228-01  
**Client ID:** IA8001  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Analytical Method:** 48,TO-15-SIM  
**Analytical Date:** 03/21/14 17:14  
**Analyst:** RY

**Date Collected:** 03/11/14 18:49  
**Date Received:** 03/13/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.016	0.020	0.007	0.086	0.107	0.038	J	1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

**Project Name:** IBM-POK**Lab Number:** L1405228**Project Number:** 3463.00**Report Date:** 03/24/14**SAMPLE RESULTS**

Lab ID: L1405228-01

Date Collected: 03/11/14 18:49

Client ID: IA8001

Date Received: 03/13/14

Sample Location: POUGHKEEPSIE, NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Bromofluorobenzene	105		70-130
Toluene-d8	107		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	100		60-140
bromochloromethane	87		60-140
chlorobenzene-d5	100		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1405228**Report Date:** 03/24/14**SAMPLE RESULTS**

**Lab ID:** L1405228-02  
**Client ID:** IA8002  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 03/21/14 17:46  
**Analyst:** RY

**Date Collected:** 03/11/14 15:08  
**Date Received:** 03/13/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.018	0.020	0.007	0.097	0.107	0.038	J	1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

**Project Name:** IBM-POK**Lab Number:** L1405228**Project Number:** 3463.00**Report Date:** 03/24/14**SAMPLE RESULTS**

Lab ID: L1405228-02

Date Collected: 03/11/14 15:08

Client ID: IA8002

Date Received: 03/13/14

Sample Location: POUGHKEEPSIE, NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Bromofluorobenzene	107		70-130
Toluene-d8	109		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	101		60-140
bromochloromethane	91		60-140
chlorobenzene-d5	98		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1405228**Report Date:** 03/24/14**SAMPLE RESULTS**

**Lab ID:** L1405228-03  
**Client ID:** IA8003  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 03/21/14 18:50  
**Analyst:** RY

**Date Collected:** 03/11/14 18:25  
**Date Received:** 03/13/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.017	0.020	0.007	0.091	0.107	0.038	J	1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1405228**Project Number:** 3463.00**Report Date:** 03/24/14**SAMPLE RESULTS**

Lab ID: L1405228-03

Date Collected: 03/11/14 18:25

Client ID: IA8003

Date Received: 03/13/14

Sample Location: POUGHKEEPSIE, NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Bromofluorobenzene	105		70-130
Toluene-d8	106		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	101		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	99		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1405228**Report Date:** 03/24/14**SAMPLE RESULTS**

**Lab ID:** L1405228-04  
**Client ID:** IA8004  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 03/21/14 19:21  
**Analyst:** RY

**Date Collected:** 03/11/14 19:13  
**Date Received:** 03/13/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.021	0.020	0.007	0.113	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

**Project Name:** IBM-POK**Lab Number:** L1405228**Project Number:** 3463.00**Report Date:** 03/24/14**SAMPLE RESULTS**

Lab ID: L1405228-04

Date Collected: 03/11/14 19:13

Client ID: IA8004

Date Received: 03/13/14

Sample Location: POUGHKEEPSIE, NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Bromofluorobenzene	103		70-130
Toluene-d8	105		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	101		60-140
bromochloromethane	92		60-140
chlorobenzene-d5	98		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1405228**Report Date:** 03/24/14**SAMPLE RESULTS**

**Lab ID:** L1405228-05  
**Client ID:** IA8005  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 03/21/14 19:53  
**Analyst:** RY

**Date Collected:** 03/11/14 19:11  
**Date Received:** 03/13/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.017	0.020	0.007	0.091	0.107	0.038	J	1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

**Project Name:** IBM-POK**Lab Number:** L1405228**Project Number:** 3463.00**Report Date:** 03/24/14**SAMPLE RESULTS**

Lab ID: L1405228-05

Date Collected: 03/11/14 19:11

Client ID: IA8005

Date Received: 03/13/14

Sample Location: POUGHKEEPSIE, NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Bromofluorobenzene	107		70-130
Toluene-d8	108		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	102		60-140
bromochloromethane	95		60-140
chlorobenzene-d5	96		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1405228**Report Date:** 03/24/14**SAMPLE RESULTS**

**Lab ID:** L1405228-06  
**Client ID:** IA8006  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 03/21/14 20:25  
**Analyst:** RY

**Date Collected:** 03/11/14 18:53  
**Date Received:** 03/13/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.037	0.020	0.007	0.199	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

**Project Name:** IBM-POK**Lab Number:** L1405228**Project Number:** 3463.00**Report Date:** 03/24/14**SAMPLE RESULTS**

Lab ID: L1405228-06

Date Collected: 03/11/14 18:53

Client ID: IA8006

Date Received: 03/13/14

Sample Location: POUGHKEEPSIE, NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Bromofluorobenzene	106		70-130
Toluene-d8	108		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	103		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	96		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1405228**Report Date:** 03/24/14**SAMPLE RESULTS**

**Lab ID:** L1405228-07  
**Client ID:** AA8001  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Analytical Method:** 48,TO-15-SIM  
**Analytical Date:** 03/21/14 16:11  
**Analyst:** RY

**Date Collected:** 03/11/14 20:19  
**Date Received:** 03/13/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.009	0.020	0.007	0.048	0.107	0.038	J	1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1405228**Project Number:** 3463.00**Report Date:** 03/24/14**SAMPLE RESULTS**

Lab ID: L1405228-07

Date Collected: 03/11/14 20:19

Client ID: AA8001

Date Received: 03/13/14

Sample Location: POUGHKEEPSIE, NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Bromofluorobenzene	103		70-130
Toluene-d8	103		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	96		60-140
bromochloromethane	98		60-140
chlorobenzene-d5	103		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1405228**Report Date:** 03/24/14**SAMPLE RESULTS**

**Lab ID:** L1405228-08  
**Client ID:** FB8001  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Analytical Method:** 48,TO-15-SIM  
**Analytical Date:** 03/21/14 15:40  
**Analyst:** RY

**Date Collected:** 03/11/14 15:41  
**Date Received:** 03/13/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1405228**Project Number:** 3463.00**Report Date:** 03/24/14**SAMPLE RESULTS**

Lab ID: L1405228-08

Date Collected: 03/11/14 15:41

Client ID: FB8001

Date Received: 03/13/14

Sample Location: POUGHKEEPSIE, NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Bromofluorobenzene	104		70-130
Toluene-d8	106		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	95		60-140
bromochloromethane	93		60-140
chlorobenzene-d5	95		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1405228**Report Date:** 03/24/14**SAMPLE RESULTS**

**Lab ID:** L1405228-09  
**Client ID:** IA7003  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 03/21/14 20:56  
**Analyst:** RY

**Date Collected:** 03/11/14 18:14  
**Date Received:** 03/13/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	0.021	0.020	0.020	0.083	0.079	0.079		1
Trichloroethene	0.769	0.020	0.007	4.13	0.107	0.038		1
Tetrachloroethene	0.083	0.020	0.020	0.563	0.136	0.136		1

**Project Name:** IBM-POK**Lab Number:** L1405228**Project Number:** 3463.00**Report Date:** 03/24/14**SAMPLE RESULTS**

Lab ID: L1405228-09

Date Collected: 03/11/14 18:14

Client ID: IA7003

Date Received: 03/13/14

Sample Location: POUGHKEEPSIE, NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Bromofluorobenzene	107		70-130
Toluene-d8	109		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	102		60-140
bromochloromethane	92		60-140
chlorobenzene-d5	95		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1405228**Report Date:** 03/24/14**SAMPLE RESULTS**

**Lab ID:** L1405228-10  
**Client ID:** FD7003  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 03/21/14 21:28  
**Analyst:** RY

**Date Collected:** 03/11/14 18:14  
**Date Received:** 03/13/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	0.023	0.020	0.020	0.091	0.079	0.079		1
Trichloroethene	0.810	0.020	0.007	4.35	0.107	0.038		1
Tetrachloroethene	0.094	0.020	0.020	0.637	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1405228**Project Number:** 3463.00**Report Date:** 03/24/14**SAMPLE RESULTS**

Lab ID: L1405228-10

Date Collected: 03/11/14 18:14

Client ID: FD7003

Date Received: 03/13/14

Sample Location: POUGHKEEPSIE, NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Bromofluorobenzene	105		70-130
Toluene-d8	107		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	100		60-140
bromochloromethane	91		60-140
chlorobenzene-d5	94		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1405228**Report Date:** 03/24/14**SAMPLE RESULTS**

**Lab ID:** L1405228-11  
**Client ID:** AA7001  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 03/21/14 16:43  
**Analyst:** RY

**Date Collected:** 03/11/14 20:34  
**Date Received:** 03/13/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.027	0.020	0.007	0.145	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1405228**Project Number:** 3463.00**Report Date:** 03/24/14**SAMPLE RESULTS**

Lab ID: L1405228-11

Date Collected: 03/11/14 20:34

Client ID: AA7001

Date Received: 03/13/14

Sample Location: POUGHKEEPSIE, NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Bromofluorobenzene	103		70-130
Toluene-d8	104		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	103		60-140
bromochloromethane	95		60-140
chlorobenzene-d5	102		60-140

Project Name: IBM-POK

Lab Number: L1405228

Project Number: 3463.00

Report Date: 03/24/14

### Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 03/21/14 15:08

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-11 Batch: WG676279-5								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Project Name: IBM-POK

Lab Number: L1405228

Project Number: 3463.00

Report Date: 03/24/14

## Method Blank Analysis

### Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 03/21/14 15:08

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-11 Batch: WG676279-5								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Bromofluorobenzene	102		70-130
Toluene-d8	107		70-130

## Lab Control Sample Analysis

### Batch Quality Control

Project Name: IBM-POK

Project Number: 3463.00

Lab Number: L1405228

Report Date: 03/24/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-11 Batch: WG676279-3 WG676279-4								
Vinyl chloride	98		98		70-130	0		20
Chloroethane	96		96		70-130	0		20
1,1-Dichloroethene	95		94		70-130	1		20
trans-1,2-Dichloroethene	88		87		70-130	1		20
1,1-Dichloroethane	103		91		70-130	12		20
cis-1,2-Dichloroethene	110		111		70-130	1		20
Trichloroethene	97		104		70-130	7		20
Tetrachloroethene	108		107		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		101		70-130
Toluene-d8	106		106		70-130
Bromofluorobenzene	105		106		70-130

# Lab Duplicate Analysis

## Batch Quality Control

Project Name: IBM-POK

Project Number: 3463.00

Lab Number: L1405228

Report Date: 03/24/14

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-11 QC Batch ID: WG676279-6 QC Sample: L1405228-02 Client ID: IA8002						
Vinyl chloride	ND	ND	ppbV	NC		20
Chloroethane	ND	ND	ppbV	NC		20
1,1-Dichloroethene	ND	ND	ppbV	NC		20
trans-1,2-Dichloroethene	ND	ND	ppbV	NC		20
1,1-Dichloroethane	ND	ND	ppbV	NC		20
cis-1,2-Dichloroethene	ND	ND	ppbV	NC		20
Trichloroethene	0.018J	0.018J	ppbV	NC		20
Tetrachloroethene	ND	ND	ppbV	NC		20

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		95		70-130
Toluene-d8	109		107		70-130
Bromofluorobenzene	107		107		70-130

Project Name: IBM-POK

Project Number: 3463.00

Serial\_No:03241411:00  
Lab Number: L1405228

Report Date: 03/24/14

### Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1405228-01	IA8001	0085	#16 AMB	03/10/14	99439		-	-	-	Pass	4.1	4.4	7
L1405228-01	IA8001	492	2.7L Can	03/10/14	99439	L1404854-09	Pass	-28.8	-4.6	-	-	-	-
L1405228-02	IA8002	0411	#16 AMB	03/10/14	99439		-	-	-	Pass	4.5	9.5	71
L1405228-02	IA8002	361	2.7L Can	03/10/14	99439	L1404854-10	Pass	-29.1	-3.2	-	-	-	-
L1405228-03	IA8003	0638	#20 AMB	03/10/14	99439		-	-	-	Pass	4.5	5.5	20
L1405228-03	IA8003	408	2.7L Can	03/10/14	99439	L1404854-01	Pass	-29.0	-3.6	-	-	-	-
L1405228-04	IA8004	0563	#20 SV	03/10/14	99439		-	-	-	Pass	4.4	4.7	7
L1405228-04	IA8004	239	2.7L Can	03/10/14	99439	L1404854-06	Pass	-28.9	-8.2	-	-	-	-
L1405228-05	IA8005	0133	#16 AMB	03/10/14	99439		-	-	-	Pass	4.1	4.4	7
L1405228-05	IA8005	357	2.7L Can	03/10/14	99439	L1404854-02	Pass	-28.6	-5.5	-	-	-	-
L1405228-06	IA8006	0266	#16 AMB	03/10/14	99439		-	-	-	Pass	4.4	4.4	0
L1405228-06	IA8006	388	2.7L Can	03/10/14	99439	L1404854-08	Pass	-28.9	-6.4	-	-	-	-
L1405228-07	AA8001	0558	#20 SV	03/10/14	99439		-	-	-	Pass	4.1	4.3	5
L1405228-07	AA8001	531	2.7L Can	03/10/14	99439	L1404854-04	Pass	-29.0	-7.8	-	-	-	-
L1405228-08	FB8001	0286	#16 AMB	03/10/14	99439		-	-	-	Pass	4.2	4.4	5

Project Name: IBM-POK

Project Number: 3463.00

Serial\_No:03241411:00  
Lab Number: L1405228

Report Date: 03/24/14

### Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1405228-08	FB8001	527	2.7L Can	03/10/14	99439	L1404854-12	Pass	-29.0	-3.9	-	-	-	-
L1405228-09	IA7003	0374	#90 AMB	03/10/14	99439		-	-	-	Pass	4.3	5.1	17
L1405228-09	IA7003	236	2.7L Can	03/10/14	99439	L1404854-15	Pass	-29.3	-3.3	-	-	-	-
L1405228-10	FD7003	0491	#20 SV	03/10/14	99439		-	-	-	Pass	4.5	3.9	14
L1405228-10	FD7003	105	2.7L Can	03/10/14	99439	L1404854-07	Pass	-29.0	-9.2	-	-	-	-
L1405228-11	AA7001	0445	#16 AMB	03/10/14	99439		-	-	-	Pass	4.2	4.5	7
L1405228-11	AA7001	336	2.7L Can	03/10/14	99439	L1404854-11	Pass	-28.7	-8.3	-	-	-	-
L1405228-13	CAN-233	233	2.7L Can	03/10/14	99439	L1404854-05	Pass	-28.9	-29.0	-	-	-	-
L1405228-14	CAN-507	0100	#20 AMB	03/10/14	99439		-	-	-	Pass	4.3	14.2	107
L1405228-14	CAN-507	507	2.7L Can	03/10/14	99439	L1404854-13	Pass	O/P	O/P	-	-	-	-

**Project Name:****Lab Number:** L1404854**Project Number:** Not Specified**Report Date:** 03/24/14**Air Canister Certification Results**

Lab ID: L1404854-01  
 Client ID: CAN 408 FC 638  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/08/14 15:58  
 Analyst: RY

Date Collected: 03/07/14 17:00  
 Date Received: 03/07/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	115		60-140
bromochloromethane	116		60-140
chlorobenzene-d5	122		60-140



**Project Name:****Lab Number:** L1404854**Project Number:** Not Specified**Report Date:** 03/24/14**Air Canister Certification Results**

Lab ID: L1404854-02  
 Client ID: CAN 357 FC 133  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/08/14 16:30  
 Analyst: RY

Date Collected: 03/07/14 17:00  
 Date Received: 03/07/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	110		60-140
bromochloromethane	115		60-140
chlorobenzene-d5	116		60-140

**Project Name:****Lab Number:** L1404854**Project Number:** Not Specified**Report Date:** 03/24/14**Air Canister Certification Results**

Lab ID: L1404854-04  
 Client ID: CAN 531 FC 558  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/07/14 20:17  
 Analyst: RY

Date Collected: 03/07/14 17:00  
 Date Received: 03/07/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	62		60-140
bromochloromethane	75		60-140
chlorobenzene-d5	82		60-140

**Project Name:****Lab Number:** L1404854**Project Number:** Not Specified**Report Date:** 03/24/14**Air Canister Certification Results**

Lab ID: L1404854-05  
 Client ID: CAN 233 FC 100  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/07/14 20:49  
 Analyst: RY

Date Collected: 03/07/14 17:00  
 Date Received: 03/07/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	98		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	95		60-140

**Project Name:****Lab Number:** L1404854**Project Number:** Not Specified**Report Date:** 03/24/14**Air Canister Certification Results**

Lab ID: L1404854-06  
 Client ID: CAN 239 FC 563  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/07/14 21:21  
 Analyst: RY

Date Collected: 03/07/14 17:00  
 Date Received: 03/07/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	99		60-140
bromochloromethane	95		60-140
chlorobenzene-d5	97		60-140

**Project Name:****Lab Number:** L1404854**Project Number:** Not Specified**Report Date:** 03/24/14**Air Canister Certification Results**

Lab ID: L1404854-07  
 Client ID: CAN 105 FC 491  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/07/14 21:53  
 Analyst: RY

Date Collected: 03/07/14 17:00  
 Date Received: 03/07/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	98		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	99		60-140

**Project Name:****Lab Number:** L1404854**Project Number:** Not Specified**Report Date:** 03/24/14**Air Canister Certification Results**

Lab ID: L1404854-08  
 Client ID: CAN 388 FC 266  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/07/14 22:24  
 Analyst: RY

Date Collected: 03/07/14 17:00  
 Date Received: 03/07/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	90		60-140
bromochloromethane	81		60-140
chlorobenzene-d5	103		60-140

**Project Name:****Lab Number:** L1404854**Project Number:** Not Specified**Report Date:** 03/24/14**Air Canister Certification Results**

Lab ID: L1404854-09  
 Client ID: CAN 492 FC 085  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/08/14 17:34  
 Analyst: RY

Date Collected: 03/07/14 17:00  
 Date Received: 03/07/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	90		60-140
bromochloromethane	104		60-140
chlorobenzene-d5	105		60-140

**Project Name:****Lab Number:** L1404854**Project Number:** Not Specified**Report Date:** 03/24/14**Air Canister Certification Results**

Lab ID: L1404854-10  
 Client ID: CAN 361 FC 411  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/08/14 18:06  
 Analyst: RY

Date Collected: 03/07/14 17:00  
 Date Received: 03/07/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

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



**Project Name:****Lab Number:** L1404854**Project Number:** Not Specified**Report Date:** 03/24/14**Air Canister Certification Results**

Lab ID: L1404854-11  
 Client ID: CAN 336 FC 445  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/08/14 18:37  
 Analyst: RY

Date Collected: 03/07/14 17:00  
 Date Received: 03/07/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	79		60-140
bromochloromethane	94		60-140
chlorobenzene-d5	98		60-140

**Project Name:****Lab Number:** L1404854**Project Number:** Not Specified**Report Date:** 03/24/14**Air Canister Certification Results**

Lab ID: L1404854-12  
 Client ID: CAN 527 FC 286  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/08/14 19:09  
 Analyst: RY

Date Collected: 03/07/14 17:00  
 Date Received: 03/07/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	76		60-140
bromochloromethane	89		60-140
chlorobenzene-d5	99		60-140

**Project Name:****Lab Number:** L1404854**Project Number:** Not Specified**Report Date:** 03/24/14**Air Canister Certification Results**

Lab ID: L1404854-13  
 Client ID: CAN 507 GRAB A  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/08/14 19:40  
 Analyst: RY

Date Collected: 03/07/14 17:00  
 Date Received: 03/07/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	80		60-140
bromochloromethane	87		60-140
chlorobenzene-d5	93		60-140

**Project Name:****Lab Number:** L1404854**Project Number:** Not Specified**Report Date:** 03/24/14**Air Canister Certification Results**

Lab ID: L1404854-15  
 Client ID: CAN 236 FC 374  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/08/14 20:44  
 Analyst: RY

Date Collected: 03/07/14 17:00  
 Date Received: 03/07/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	82		60-140
bromochloromethane	82		60-140
chlorobenzene-d5	94		60-140

Project Name: IBM-POK

Lab Number: L1405228

Project Number: 3463.00

Report Date: 03/24/14

## 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 Absent

## Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1405228-01A	Canister - 2.7 Liter	N/A	N/A		Y	Absent	NYSDEC-TO15-SIM(30)
L1405228-02A	Canister - 2.7 Liter	N/A	N/A		Y	Absent	NYSDEC-TO15-SIM(30)
L1405228-03A	Canister - 2.7 Liter	N/A	N/A		Y	Absent	NYSDEC-TO15-SIM(30)
L1405228-04A	Canister - 2.7 Liter	N/A	N/A		Y	Absent	NYSDEC-TO15-SIM(30)
L1405228-05A	Canister - 2.7 Liter	N/A	N/A		Y	Absent	NYSDEC-TO15-SIM(30)
L1405228-06A	Canister - 2.7 Liter	N/A	N/A		Y	Absent	NYSDEC-TO15-SIM(30)
L1405228-07A	Canister - 2.7 Liter	N/A	N/A		Y	Absent	NYSDEC-TO15-SIM(30)
L1405228-08A	Canister - 2.7 Liter	N/A	N/A		Y	Absent	NYSDEC-TO15-SIM(30)
L1405228-09A	Canister - 2.7 Liter	N/A	N/A		Y	Absent	NYSDEC-TO15-SIM(30)
L1405228-10A	Canister - 2.7 Liter	N/A	N/A		Y	Absent	NYSDEC-TO15-SIM(30)
L1405228-11A	Canister - 2.7 Liter	N/A	N/A		Y	Absent	NYSDEC-TO15-SIM(30)
L1405228-14A	Canister - 2.7 Liter	N/A	N/A		Y	Absent	SAMPLINGSUPPLIES()

\*Values in parentheses indicate holding time in days

**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1405228  
**Report Date:** 03/24/14

## GLOSSARY

### Acronyms

EDL	- Estimated 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 EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
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.
LFB	- Laboratory Fortified Blank: 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.
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.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### 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 ten times (10x) 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. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- 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.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.

**Report Format:** DU Report with 'J' Qualifiers



**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1405228  
**Report Date:** 03/24/14

**Data Qualifiers**

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- 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. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. 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.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers



**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1405228  
**Report Date:** 03/24/14

## REFERENCES

- 48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

## 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.





## Certification Information

Last revised December 11, 2013

**The following analytes are not included in our NELAP Scope of Accreditation:**

### **Westborough Facility**

**EPA 524.2:** Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.

**EPA 8260C:** 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.

**EPA 8330A/B:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.

**EPA 8270D:** 1-Methylnaphthalene, Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**EPA 625:** 4-Chloroaniline, 4-Methylphenol.

**SM4500:** Soil: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

**EPA 9071:** Total Petroleum Hydrocarbons, Oil & Grease.

### **Mansfield Facility**

**EPA 8270D:** Biphenyl.

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:**

### **Drinking Water**

**EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, Tl; **EPA 200.7:** Ba, Be, Ca, Cd, Cr, Cu, Na; **EPA 245.1:** Mercury;

**EPA 300.0:** Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO<sub>3</sub>-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**

**EPA 332:** Perchlorate.

**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, Enterolert-QT.**

### **Non-Potable Water**

**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, Tl, Zn;

**EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, Ti, Tl, V, Zn;

**EPA 245.1, SM4500H-B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH<sub>3</sub>-BH, EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO<sub>3</sub>-F, EPA 353.2:** Nitrate-N, **SM4500NH<sub>3</sub>-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.**

**EPA 624:** Volatile Halocarbons & Aromatics,

**EPA 608:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF.**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



# AIR ANALYSIS

PAGE 1 OF 1

## CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048  
TEL: 508-822-9300 FAX: 508-822-3288

### Client Information

Client: Sanborn Head + Assoc.

Address: 20 Foundry St.  
Concord MA 03301

Phone: 603-229-1900

Fax: \_\_\_\_\_

Email: jsanborn@sanbornhead.com

☐ These samples have been previously analyzed by Alpha

### Project Information

Project Name: IBM - POK

Project Location: Poughkeepsie NY

Project #: 3463.00

Project Manager: Jenn Sanborn

ALPHA Quote #:

### Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due:

Time:

Date Rec'd in Lab: 3/13/14

### Report Information - Data Deliverables

☐ FAX☒ ADEx

Criteria Checker: \_\_\_\_\_

(Default based on Regulatory Criteria Indicated)

Other Formats: \_\_\_\_\_

☐ EMAIL (standard pdf report)☐ Additional Deliverables: \_\_\_\_\_

Report to: (if different than Project Manager)

ALPHA Job #: L1405228

### Billing Information

☒ Same as Client info PO #: 3463.00

### Regulatory Requirements/Report Limits

State/Fed	Program	Criteria

### ANALYSIS

\*Site-specific analyte list (BOOS)

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection						Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-14A	TO-15	TO-15	APH	FIXED	TO-13	TO-41	Sample Comments (i.e. PID)
		Date	Start Time	End Time	Initial Vacuum	Final Vacuum														
5228 -01	IA8001/S	3/11/14	10:37	18:49	-29.66	-5.15	AA	HOE	27L	492	685			X						
-02	IA8002/S	3/11/14	10:47	15:08	-29.35	-3.48				361	411			X						
-03	IA8003/S	3/11/14	10:51	18:25	-29.41	-4.09				408	638			X						
-04	IA8004/S	3/11/14	11:13	19:13	-29.58	-8.61				239	563			X						
-05	IA8005/S	3/11/14	11:06	19:11	-29.34	-5.99				357	133									
-06	IA8006/S	3/11/14	10:58	18:53	-29.53	-6.7				388	266									
-07	AA8001/S	3/11/14	12:19	20:19	-29.32	-9.09				531	558									
-08	FB8001/S	3/11/14	12:20	15:41	-29.20	-3.64				527	286									

### \*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)

SV = Soil Vapor/Landfill Gas/SVE

Other = Please Specify

Container Type

CS

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Relinquished By:

Date/Time

Received By:

Date/Time:



## CHAIN OF CUSTODY

## AIR ANALYSIS

PAGE 2 OF 2

 320 Forbes Blvd, Mansfield, MA 02048  
 TEL: 508-822-9300 FAX: 508-822-3288

## Client Information

Client: Sanborn Head + Assoc

 Address: 20 Foundry St.  
 Concord NH 03301

Phone: 603-229-1900

Fax: \_\_\_\_\_

Email: jsanborn@sanbornhead.com

☐ These samples have been previously analyzed by Alpha

## Project Information

Project Name: IBM-POK

Project Location: Doughton Ave NH

Project #: 3463.00

Project Manager: Jenn Sanborn

ALPHA Quote #:

## Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due:

Time:

Date Rec'd in Lab: 3/13/14

## Report Information - Data Deliverables

☐ FAX☒ ADEX

Criteria Checker: \_\_\_\_\_

(Default based on Regulatory Criteria Indicated)

Other Formats: \_\_\_\_\_

☐ EMAIL (standard pdf report)☐ Additional Deliverables: \_\_\_\_\_

Report to: (if different than Project Manager)

ALPHA Job #: L1405228

## Billing Information

☒ Same as Client info PO #: 3463.00

## Regulatory Requirements/Report Limits

State/Fed	Program	Criteria

## ANALYSIS

\* Site-specific analyte list (B003)

## All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection							Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-14A by TO-15	TO-15	TO-15 SIM*	APH	FIXED GASES	TO-13A	TO-4 / TO-10	Sample Comments (i.e. PID)
		Date	Start Time	End Time	Initial Vacuum	Final Vacuum															
-09	IA7003/S	3/11/14	11:52	18:14	-29.39	-3.62			AA	HDE	2.7	236	374			X					
-10	FD7003/S	3/11/14	11:52	18:14	-29.53	-9.77						105	491								
-11	AA7001/S	3/11/14	12:05	20:34	-29.36	-9.92						336	445								
-12	SSV2022/G	3/12/14	14:12	14:17	-28.62	-3.83			SV	REW	1L	778	524			X					

## \*SAMPLE MATRIX CODES

 AA = Ambient Air (Indoor/Outdoor)  
 SV = Soil Vapor/Landfill Gas/SVE  
 Other = Please Specify

Container Type

LS

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS &amp; CONDITIONS. (See reverse side.)

Relinquished By:

Date/Time

Received By:

Date/Time:

## **B002, B004, B012 INDOOR AIR SAMPLING**



## ANALYTICAL REPORT

Lab Number:	L1407719
Client:	Sanborn, Head & Associates, Inc. 20 Foundry Street Concord, NH 03301
ATTN:	Jennifer Sanborn
Phone:	(603) 415-6137
Project Name:	IBM-POK
Project Number:	3463.00
Report Date:	04/25/14

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), PA (68-02089), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), DOD (L2217.01), USDA (Permit #P330-11-00109), 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](http://www.alphalab.com)



**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1407719  
**Report Date:** 04/25/14

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1407719-01	IA6003	NY	04/10/14 17:21
L1407719-02	IA6004	NY	04/10/14 17:28
L1407719-03	IA6011	NY	04/10/14 18:37
L1407719-04	IA6012	NY	04/10/14 17:33
L1407719-05	IA6015	NY	04/10/14 17:38
L1407719-06	IA6049	NY	04/10/14 17:30
L1407719-07	IA6061	NY	04/10/14 17:13
L1407719-08	IA6066	NY	04/10/14 17:10
L1407719-09	IA6073	NY	04/10/14 17:42
L1407719-10	AA5001	NY	04/10/14 15:02
L1407719-11	AA6001	NY	04/10/14 17:41
L1407719-12	FB5001	NY	04/10/14 13:21
L1407719-13	FD5033	NY	04/10/14 15:52
L1407719-14	IA4011	NY	04/10/14 12:35
L1407719-15	IA5002	NY	04/10/14 13:15
L1407719-16	IA5021	NY	04/10/14 17:28
L1407719-17	IA5023	NY	04/10/14 18:13
L1407719-18	IA5028	NY	04/10/14 14:36
L1407719-19	IA5031	NY	04/10/14 17:31
L1407719-20	AA4001	NY	04/10/14 18:37
L1407719-21	FB4001	NY	04/10/14 18:41
L1407719-22	FD4015	NY	04/10/14 17:29
L1407719-23	IA4007	NY	04/10/14 17:10
L1407719-24	IA4009	NY	04/10/14 16:30
L1407719-25	IA4010	NY	04/10/14 16:28
L1407719-26	IA4012	NY	04/10/14 17:40
L1407719-27	IA4015	NY	04/10/14 18:51
L1407719-28	IA4039	NY	04/10/14 19:10
L1407719-29	IA4043	NY	04/10/14 17:59
L1407719-30	IA5033	NY	04/10/14 17:53
L1407719-31	IA5034	NY	04/10/14 17:47

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1407719-32	IA5041	NY	04/10/14 15:44
L1407719-33	CAN 148	NY	
L1407719-34	CAN 126	NY	
L1407719-35	CAN 122	NY	
L1407719-36	CAN 540	NY	
L1407719-37	CAN 541	NY	
L1407719-38	CAN 1739	NY	

**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1407719  
**Report Date:** 04/25/14

### 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. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

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.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

---



**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1407719  
**Report Date:** 04/25/14

### Case Narrative (continued)

#### FINAL REPORT REPLACING PARTIAL

This final report replaces the partial report issued on April 21, 2014 and includes the results of all requested analyses. The analysis of the indoor air sample designated IA5021 (L1407719-16) which was on hold has been cancelled by the client.

#### Volatile Organics in Air

Canisters were released from the laboratory on March 25, 2014. The canister certification results are provided as an addendum.

The sample designated IA6011 (L1407719-03) has a final pressure recorded on the CoC of -8.68 inHg and a final pressure recorded in the lab of -1.0 inHg.

The sample designated FB5001 (L1407719-12) has a final pressure recorded on the CoC of -3.0 inHg and a final pressure recorded in the lab of +2.9 inHg.

The sample designated IA6011 (L1407719-03) had a RPD for the pre- and post-flow controller calibration check (55% RPD) that was outside of the control limit (20% RPD). The initial flow rate for the flow controller was 4.3 mL/minute; the final flow rate was 7.6 mL/minute. The final pressure recorded by the laboratory of the associated canister was -1.0 inches of mercury.

The sample designated IA6012 (L1407719-04) had a RPD for the pre- and post-flow controller calibration check (47% RPD) that was outside of the control limit (20% RPD). The initial flow rate for the flow controller was 4.5 mL/minute; the final flow rate was 7.3 mL/minute. The final pressure recorded by the laboratory of the associated canister was -3.1 inches of mercury.

The sample designated IA6066 (L1407719-08) had a RPD for the pre- and post-flow controller calibration check (29% RPD) that was outside of the control limit (20% RPD). The initial flow rate for the flow controller was 4.4 mL/minute; the final flow rate was 5.9 mL/minute. The final pressure recorded by the laboratory of the

**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1407719  
**Report Date:** 04/25/14

### Case Narrative (continued)

associated canister was -2.8 inches of mercury.

The sample designated AA5001 (L1407719-10) had a RPD for the pre- and post-flow controller calibration check (35% RPD) that was outside of the control limit (20% RPD). The initial flow rate for the flow controller was 4.2 mL/minute; the final flow rate was 6.0 mL/minute. The final pressure recorded by the laboratory of the associated canister was -3.2 inches of mercury.

The sample designated FD5033 (L1407719-13) had a RPD for the pre- and post-flow controller calibration check (46% RPD) that was outside of the control limit (20% RPD). The initial flow rate for the flow controller was 4.5 mL/minute; the final flow rate was 7.2 mL/minute. The final pressure recorded by the laboratory of the associated canister was -1.8 inches of mercury.

The sample designated IA4011 (L1407719-14) had a RPD for the pre- and post-flow controller calibration check (123% RPD) that was outside of the control limit (20% RPD). The initial flow rate for the flow controller was 4.2 mL/minute; the final flow rate was 17.5mL/minute. The final pressure recorded by the laboratory of the associated canister was -2.1 inches of mercury.

The sample designated IA5002 (L1407719-15) had a RPD for the pre- and post-flow controller calibration check (48% RPD) that was outside of the control limit (20% RPD). The initial flow rate for the flow controller was 4.4 mL/minute; the final flow rate was 7.2 mL/minute. The final pressure recorded by the laboratory of the associated canister was -2.6 inches of mercury.

The sample designated IA5028 (L1407719-18) had a RPD for the pre- and post-flow controller calibration check (42% RPD) that was outside of the control limit (20% RPD). The initial flow rate for the flow controller was 4.0 mL/minute; the final flow rate was 6.1 mL/minute. The final pressure recorded by the laboratory of the associated canister was -3.6 inches of mercury.

The sample designated AA4001 (L1407719-20) had a RPD for the pre- and post-flow controller calibration

**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1407719  
**Report Date:** 04/25/14

### Case Narrative (continued)

check (39% RPD) that was outside of the control limit (20% RPD). The initial flow rate for the flow controller was 4.0 mL/minute; the final flow rate was 2.7 mL/minute. The final pressure recorded by the laboratory of the associated canister was -8.4 inches of mercury.

The sample designated FB4001 (L1407719-21) had a RPD for the pre- and post-flow controller calibration check (22% RPD) that was outside of the control limit (20% RPD). The initial flow rate for the flow controller was 4.0 mL/minute; the final flow rate was 5.0 mL/minute. The final pressure recorded by the laboratory of the associated canister was -6.9 inches of mercury.

The sample designated FD4015 (L1407719-22) had a RPD for the pre- and post-flow controller calibration check (24% RPD) that was outside of the control limit (20% RPD). The initial flow rate for the flow controller was 4.0 mL/minute; the final flow rate was 5.1 mL/minute. The final pressure recorded by the laboratory of the associated canister was -2.1 inches of mercury.

The sample designated IA4009 (L1407719-24) had a RPD for the pre- and post-flow controller calibration check (27% RPD) that was outside of the control limit (20% RPD). The initial flow rate for the flow controller was 4.5 mL/minute; the final flow rate was 5.9 mL/minute. The final pressure recorded by the laboratory of the associated canister was -1.2 inches of mercury.

The sample designated IA4010 (L1407719-25) had a RPD for the pre- and post-flow controller calibration check (23% RPD) that was outside of the control limit (20% RPD). The initial flow rate for the flow controller was 4.2 mL/minute; the final flow rate was 5.3 mL/minute. The final pressure recorded by the laboratory of the associated canister was -2.1 inches of mercury.

The sample designated IA5041 (L1407719-32) had a RPD for the pre- and post-flow controller calibration check (56% RPD) that was outside of the control limit (20% RPD). The initial flow rate for the flow controller was 4.0 mL/minute; the final flow rate was 7.1 mL/minute. The final pressure recorded by the laboratory of the associated canister was -2.7 inches of mercury.

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:  Christopher J. Anderson

Title: Technical Director/Representative

Date: 04/25/14

**AIR**

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-01  
**Client ID:** IA6003  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/16/14 16:35  
**Analyst:** RY

**Date Collected:** 04/10/14 17:21  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.092	0.020	0.007	0.494	0.107	0.038		1
Tetrachloroethene	0.024	0.020	0.020	0.163	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-01

Date Collected: 04/10/14 17:21

Client ID: IA6003

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Bromofluorobenzene	93		70-130
Toluene-d8	99		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	96		60-140
bromochloromethane	84		60-140
chlorobenzene-d5	93		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-02  
**Client ID:** IA6004  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/16/14 17:39  
**Analyst:** RY

**Date Collected:** 04/10/14 17:28  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-02

Date Collected: 04/10/14 17:28

Client ID: IA6004

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Bromofluorobenzene	91		70-130
Toluene-d8	97		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	82		60-140
bromochloromethane	84		60-140
chlorobenzene-d5	84		60-140



**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-03  
**Client ID:** IA6011  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/16/14 18:10  
**Analyst:** RY

**Date Collected:** 04/10/14 18:37  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.320	0.020	0.007	1.72	0.107	0.038		1
Tetrachloroethene	0.036	0.020	0.020	0.244	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-03

Date Collected: 04/10/14 18:37

Client ID: IA6011

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Bromofluorobenzene	99		70-130
Toluene-d8	100		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	83		60-140
bromochloromethane	90		60-140
chlorobenzene-d5	94		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-04  
**Client ID:** IA6012  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/16/14 18:42  
**Analyst:** RY

**Date Collected:** 04/10/14 17:33  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	0.024	0.020	0.020	0.095	0.079	0.079		1
Trichloroethene	0.222	0.020	0.007	1.19	0.107	0.038		1
Tetrachloroethene	0.032	0.020	0.020	0.217	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-04

Date Collected: 04/10/14 17:33

Client ID: IA6012

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Bromofluorobenzene	94		70-130
Toluene-d8	97		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	97		60-140
bromochloromethane	98		60-140
chlorobenzene-d5	98		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-05  
**Client ID:** IA6015  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/16/14 19:14  
**Analyst:** RY

**Date Collected:** 04/10/14 17:38  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.178	0.020	0.007	0.957	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-05

Date Collected: 04/10/14 17:38

Client ID: IA6015

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Bromofluorobenzene	95		70-130
Toluene-d8	98		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	91		60-140
bromochloromethane	93		60-140
chlorobenzene-d5	96		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-06  
**Client ID:** IA6049  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/16/14 19:45  
**Analyst:** RY

**Date Collected:** 04/10/14 17:30  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.181	0.020	0.007	0.973	0.107	0.038		1
Tetrachloroethene	0.025	0.020	0.020	0.170	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-06

Date Collected: 04/10/14 17:30

Client ID: IA6049

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Bromofluorobenzene	96		70-130
Toluene-d8	97		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	93		60-140
bromochloromethane	93		60-140
chlorobenzene-d5	95		60-140



**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-07  
**Client ID:** IA6061  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/16/14 20:17  
**Analyst:** RY

**Date Collected:** 04/10/14 17:13  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.214	0.020	0.007	1.15	0.107	0.038		1
Tetrachloroethene	0.097	0.020	0.020	0.658	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-07

Date Collected: 04/10/14 17:13

Client ID: IA6061

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Bromofluorobenzene	96		70-130
Toluene-d8	99		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	94		60-140
bromochloromethane	93		60-140
chlorobenzene-d5	95		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-08  
**Client ID:** IA6066  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/16/14 20:49  
**Analyst:** RY

**Date Collected:** 04/10/14 17:10  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.026	0.020	0.007	0.140	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-08

Date Collected: 04/10/14 17:10

Client ID: IA6066

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Bromofluorobenzene	95		70-130
Toluene-d8	98		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	93		60-140
bromochloromethane	92		60-140
chlorobenzene-d5	96		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-09  
**Client ID:** IA6073  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/16/14 21:20  
**Analyst:** RY

**Date Collected:** 04/10/14 17:42  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.234	0.020	0.007	1.26	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-09

Date Collected: 04/10/14 17:42

Client ID: IA6073

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Bromofluorobenzene	98		70-130
Toluene-d8	101		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	85		60-140
bromochloromethane	90		60-140
chlorobenzene-d5	94		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-10  
**Client ID:** AA5001  
**Sample Location:** NY  
**Matrix:** Air  
**Analytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/16/14 15:31  
**Analyst:** RY

**Date Collected:** 04/10/14 15:02  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.078	0.020	0.007	0.419	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-10

Date Collected: 04/10/14 15:02

Client ID: AA5001

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Bromofluorobenzene	86		70-130
Toluene-d8	92		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	102		60-140
bromochloromethane	89		60-140
chlorobenzene-d5	100		60-140



**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-11  
**Client ID:** AA6001  
**Sample Location:** NY  
**Matrix:** Air  
**Analytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/16/14 16:03  
**Analyst:** RY

**Date Collected:** 04/10/14 17:41  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.018	0.020	0.007	0.097	0.107	0.038	J	1
Tetrachloroethene	0.022	0.020	0.020	0.149	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-11

Date Collected: 04/10/14 17:41

Client ID: AA6001

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Bromofluorobenzene	93		70-130
Toluene-d8	99		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	94		60-140
bromochloromethane	85		60-140
chlorobenzene-d5	95		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-12  
**Client ID:** FB5001  
**Sample Location:** NY  
**Matrix:** Air  
**Analytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/16/14 21:52  
**Analyst:** RY

**Date Collected:** 04/10/14 13:21  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-12

Date Collected: 04/10/14 13:21

Client ID: FB5001

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Bromofluorobenzene	96		70-130
Toluene-d8	101		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	92		60-140
bromochloromethane	90		60-140
chlorobenzene-d5	93		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-13  
**Client ID:** FD5033  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/16/14 22:23  
**Analyst:** RY

**Date Collected:** 04/10/14 15:52  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.272	0.020	0.007	1.46	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-13

Date Collected: 04/10/14 15:52

Client ID: FD5033

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Bromofluorobenzene	95		70-130
Toluene-d8	97		70-130

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

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-14  
**Client ID:** IA4011  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/16/14 22:55  
**Analyst:** RY

**Date Collected:** 04/10/14 12:35  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.219	0.020	0.007	1.18	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-14

Date Collected: 04/10/14 12:35

Client ID: IA4011

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Bromofluorobenzene	96		70-130
Toluene-d8	99		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	81		60-140
bromochloromethane	89		60-140
chlorobenzene-d5	96		60-140



**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-15  
**Client ID:** IA5002  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/16/14 23:27  
**Analyst:** RY

**Date Collected:** 04/10/14 13:15  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.590	0.020	0.007	3.17	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-15

Date Collected: 04/10/14 13:15

Client ID: IA5002

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Bromofluorobenzene	93		70-130
Toluene-d8	97		70-130

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

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-17  
**Client ID:** IA5023  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/16/14 23:58  
**Analyst:** RY

**Date Collected:** 04/10/14 18:13  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-17

Date Collected: 04/10/14 18:13

Client ID: IA5023

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Bromofluorobenzene	93		70-130
Toluene-d8	96		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	95		60-140
bromochloromethane	94		60-140
chlorobenzene-d5	97		60-140



**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-18  
**Client ID:** IA5028  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/18/14 14:26  
**Analyst:** RY

**Date Collected:** 04/10/14 14:36  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.091	0.020	0.007	0.489	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-18

Date Collected: 04/10/14 14:36

Client ID: IA5028

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Bromofluorobenzene	93		70-130
Toluene-d8	98		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	100		60-140
bromochloromethane	99		60-140
chlorobenzene-d5	98		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-19  
**Client ID:** IA5031  
**Sample Location:** NY  
**Matrix:** Air  
**Analytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/18/14 15:30  
**Analyst:** RY

**Date Collected:** 04/10/14 17:31  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.202	0.020	0.007	1.09	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-19

Date Collected: 04/10/14 17:31

Client ID: IA5031

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Bromofluorobenzene	96		70-130
Toluene-d8	100		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	99		60-140
bromochloromethane	98		60-140
chlorobenzene-d5	95		60-140



**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-20  
**Client ID:** AA4001  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/18/14 16:23  
**Analyst:** RY

**Date Collected:** 04/10/14 18:37  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-20

Date Collected: 04/10/14 18:37

Client ID: AA4001

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Bromofluorobenzene	92		70-130
Toluene-d8	96		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	96		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	96		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-21  
**Client ID:** FB4001  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/18/14 16:55  
**Analyst:** RY

**Date Collected:** 04/10/14 18:41  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.028	0.020	0.007	0.150	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-21

Date Collected: 04/10/14 18:41

Client ID: FB4001

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Bromofluorobenzene	92		70-130
Toluene-d8	96		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	97		60-140
bromochloromethane	83		60-140
chlorobenzene-d5	96		60-140



**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-22  
**Client ID:** FD4015  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/18/14 17:27  
**Analyst:** RY

**Date Collected:** 04/10/14 17:29  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.110	0.020	0.007	0.591	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-22

Date Collected: 04/10/14 17:29

Client ID: FD4015

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Bromofluorobenzene	97		70-130
Toluene-d8	102		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	88		60-140
bromochloromethane	91		60-140
chlorobenzene-d5	93		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-23  
**Client ID:** IA4007  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/18/14 17:58  
**Analyst:** RY

**Date Collected:** 04/10/14 17:10  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.109	0.020	0.007	0.586	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-23

Date Collected: 04/10/14 17:10

Client ID: IA4007

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Bromofluorobenzene	96		70-130
Toluene-d8	100		70-130

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



**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-24  
**Client ID:** IA4009  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/18/14 19:02  
**Analyst:** RY

**Date Collected:** 04/10/14 16:30  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.121	0.020	0.007	0.650	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-24

Date Collected: 04/10/14 16:30

Client ID: IA4009

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Bromofluorobenzene	99		70-130
Toluene-d8	103		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	94		60-140
bromochloromethane	93		60-140
chlorobenzene-d5	92		60-140



**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-25  
**Client ID:** IA4010  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/18/14 19:33  
**Analyst:** RY

**Date Collected:** 04/10/14 16:28  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	0.067	0.020	0.020	0.266	0.079	0.079		1
Trichloroethene	0.153	0.020	0.007	0.822	0.107	0.038		1
Tetrachloroethene	0.020	0.020	0.020	0.136	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-25

Date Collected: 04/10/14 16:28

Client ID: IA4010

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Bromofluorobenzene	95		70-130
Toluene-d8	99		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	82		60-140
bromochloromethane	89		60-140
chlorobenzene-d5	94		60-140



**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-26  
**Client ID:** IA4012  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/18/14 20:05  
**Analyst:** RY

**Date Collected:** 04/10/14 17:40  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.140	0.020	0.007	0.752	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-26

Date Collected: 04/10/14 17:40

Client ID: IA4012

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Bromofluorobenzene	96		70-130
Toluene-d8	99		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	88		60-140
bromochloromethane	90		60-140
chlorobenzene-d5	92		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-27  
**Client ID:** IA4015  
**Sample Location:** NY  
**Matrix:** Air  
**Analytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/18/14 20:37  
**Analyst:** RY

**Date Collected:** 04/10/14 18:51  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	0.084	0.020	0.020	0.222	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.113	0.020	0.007	0.607	0.107	0.038		1
Tetrachloroethene	0.036	0.020	0.020	0.244	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-27

Date Collected: 04/10/14 18:51

Client ID: IA4015

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Bromofluorobenzene	98		70-130
Toluene-d8	101		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	86		60-140
bromochloromethane	89		60-140
chlorobenzene-d5	93		60-140



**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-28  
**Client ID:** IA4039  
**Sample Location:** NY  
**Matrix:** Air  
**Analytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/18/14 21:08  
**Analyst:** RY

**Date Collected:** 04/10/14 19:10  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.150	0.020	0.007	0.806	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-28

Date Collected: 04/10/14 19:10

Client ID: IA4039

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Bromofluorobenzene	97		70-130
Toluene-d8	99		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	84		60-140
bromochloromethane	90		60-140
chlorobenzene-d5	94		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-29  
**Client ID:** IA4043  
**Sample Location:** NY  
**Matrix:** Air  
**Analytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/18/14 21:40  
**Analyst:** RY

**Date Collected:** 04/10/14 17:59  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	0.028	0.020	0.020	0.074	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.163	0.020	0.007	0.876	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-29

Date Collected: 04/10/14 17:59

Client ID: IA4043

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Bromofluorobenzene	97		70-130
Toluene-d8	100		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	85		60-140
bromochloromethane	90		60-140
chlorobenzene-d5	94		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-30  
**Client ID:** IA5033  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/18/14 22:12  
**Analyst:** RY

**Date Collected:** 04/10/14 17:53  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.283	0.020	0.007	1.52	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-30

Date Collected: 04/10/14 17:53

Client ID: IA5033

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Bromofluorobenzene	95		70-130
Toluene-d8	98		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	86		60-140
bromochloromethane	91		60-140
chlorobenzene-d5	94		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-31  
**Client ID:** IA5034  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/18/14 22:43  
**Analyst:** RY

**Date Collected:** 04/10/14 17:47  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.275	0.020	0.007	1.48	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-31

Date Collected: 04/10/14 17:47

Client ID: IA5034

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	119		70-130
Bromofluorobenzene	98		70-130
Toluene-d8	101		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	80		60-140
bromochloromethane	85		60-140
chlorobenzene-d5	94		60-140



**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1407719**Report Date:** 04/25/14**SAMPLE RESULTS**

**Lab ID:** L1407719-32  
**Client ID:** IA5041  
**Sample Location:** NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/18/14 23:15  
**Analyst:** RY

**Date Collected:** 04/10/14 15:44  
**Date Received:** 04/11/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.178	0.020	0.007	0.957	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**SAMPLE RESULTS**

Lab ID: L1407719-32

Date Collected: 04/10/14 15:44

Client ID: IA5041

Date Received: 04/11/14

Sample Location: NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	119		70-130
Bromofluorobenzene	100		70-130
Toluene-d8	103		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	81		60-140
bromochloromethane	87		60-140
chlorobenzene-d5	92		60-140

Project Name: IBM-POK

Lab Number: L1407719

Project Number: 3463.00

Report Date: 04/25/14

### Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 04/16/14 14:11

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-15,17 Batch: WG682767-5								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Project Name: IBM-POK

Lab Number: L1407719

Project Number: 3463.00

Report Date: 04/25/14

## Method Blank Analysis

### Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 04/16/14 14:11

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-15,17 Batch: WG682767-5								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Bromofluorobenzene	95		70-130
Toluene-d8	100		70-130

Project Name: IBM-POK

Lab Number: L1407719

Project Number: 3463.00

Report Date: 04/25/14

### Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 04/18/14 13:32

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 18-32 Batch: WG683396-5								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Project Name: IBM-POK

Lab Number: L1407719

Project Number: 3463.00

Report Date: 04/25/14

## Method Blank Analysis

### Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 04/18/14 13:32

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 18-32 Batch: WG683396-5								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Bromofluorobenzene	90		70-130
Toluene-d8	96		70-130

## Lab Control Sample Analysis

### Batch Quality Control

Project Name: IBM-POK

Project Number: 3463.00

Lab Number: L1407719

Report Date: 04/25/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-15,17 Batch: WG682767-3 WG682767-4								
Vinyl chloride	105		121		70-130	14		20
Chloroethane	105		121		70-130	14		20
1,1-Dichloroethene	99		113		70-130	13		20
trans-1,2-Dichloroethene	95		105		70-130	10		20
1,1-Dichloroethane	103		112		70-130	8		20
cis-1,2-Dichloroethene	106		114		70-130	7		20
Trichloroethene	95		95		70-130	0		20
Tetrachloroethene	98		102		70-130	4		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		100		70-130
Toluene-d8	99		103		70-130
Bromofluorobenzene	99		103		70-130

# **Lab Control Sample Analysis** Batch Quality Control

**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1407719  
**Report Date:** 04/25/14

<b>Parameter</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>%Recovery Limits</b>	<b>RPD</b>	<b>Qual</b>	<b>RPD Limits</b>
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 18-32 Batch: WG683396-3 WG683396-4								
Vinyl chloride	109		105		70-130	4		20
Chloroethane	108		104		70-130	4		20
1,1-Dichloroethene	102		98		70-130	4		20
trans-1,2-Dichloroethene	99		91		70-130	8		20
1,1-Dichloroethane	106		96		70-130	10		20
cis-1,2-Dichloroethene	111		106		70-130	5		20
Trichloroethene	98		92		70-130	6		20
Tetrachloroethene	100		100		70-130	0		20

<b>Surrogate</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>Acceptance Criteria</b>
1,2-Dichloroethane-d4	98		96		70-130
Toluene-d8	99		102		70-130
Bromofluorobenzene	95		100		70-130



**Project Name:** IBM-POK  
**Project Number:** 3463.00

## Lab Duplicate Analysis

Batch Quality Control

**Lab Number:** L1407719  
**Report Date:** 04/25/14

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-15,17 QC Batch ID: WG682767-6 QC Sample: L1407719-01 Client ID: IA6003						
Vinyl chloride	ND	ND	ppbV	NC		20
Chloroethane	ND	ND	ppbV	NC		20
1,1-Dichloroethene	ND	ND	ppbV	NC		20
trans-1,2-Dichloroethene	ND	ND	ppbV	NC		20
1,1-Dichloroethane	ND	ND	ppbV	NC		20
cis-1,2-Dichloroethene	ND	ND	ppbV	NC		20
Trichloroethene	0.092	0.091	ppbV	1		20
Tetrachloroethene	0.024	0.023	ppbV	4		20

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		96		70-130
Toluene-d8	99		96		70-130
Bromofluorobenzene	93		93		70-130

# **Lab Duplicate Analysis** Batch Quality Control

**Project Name:** IBM-POK

**Project Number:** 3463.00

**Lab Number:** L1407719

**Report Date:** 04/25/14

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 18-32 QC Batch ID: WG683396-6 QC Sample: L1407719-23 Client ID: IA4007					
Vinyl chloride	ND	ND	ppbV	NC	20
Chloroethane	ND	ND	ppbV	NC	20
1,1-Dichloroethene	ND	ND	ppbV	NC	20
trans-1,2-Dichloroethene	ND	ND	ppbV	NC	20
1,1-Dichloroethane	ND	ND	ppbV	NC	20
cis-1,2-Dichloroethene	ND	ND	ppbV	NC	20
Trichloroethene	0.109	0.110	ppbV	1	20
Tetrachloroethene	ND	ND	ppbV	NC	20

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		102		70-130
Toluene-d8	100		99		70-130
Bromofluorobenzene	96		95		70-130

Project Name: IBM-POK

Project Number: 3463.00

Serial\_No:04251414:07  
Lab Number: L1407719

Report Date: 04/25/14

### Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1407719-01	IA6003	0242	#20 AMB	03/25/14	99982		-	-	-	Pass	4.0	3.8	5
L1407719-01	IA6003	473	2.7L Can	03/25/14	99982	L1405772-20	Pass	-28.9	-8.5	-	-	-	-
L1407719-02	IA6004	0187	#16 AMB	03/25/14	99982		-	-	-	Pass	4.0	4.0	0
L1407719-02	IA6004	121	2.7L Can	03/25/14	99982	L1405772-39	Pass	-29.0	-8.4	-	-	-	-
L1407719-03	IA6011	0116	#16 AMB	03/25/14	99982		-	-	-	Pass	4.3	7.6	55
L1407719-03	IA6011	451	2.7L Can	03/25/14	99982	L1405772-27	Pass	-29.0	-1.0	-	-	-	-
L1407719-04	IA6012	0401	#90 SV	03/25/14	99982		-	-	-	Pass	4.5	7.3	47
L1407719-04	IA6012	542	2.7L Can	03/25/14	99982	L1405772-13	Pass	-29.0	-3.1	-	-	-	-
L1407719-05	IA6015	0369	#90 SV	03/25/14	99982		-	-	-	Pass	4.0	4.6	14
L1407719-05	IA6015	223	2.7L Can	03/25/14	99982	L1405772-33	Pass	-29.0	-5.6	-	-	-	-
L1407719-06	IA6049	0312	#20 AMB	03/25/14	99982		-	-	-	Pass	4.2	4.4	5
L1407719-06	IA6049	206	2.7L Can	03/25/14	99982	L1405772-19	Pass	-29.0	-5.6	-	-	-	-
L1407719-07	IA6061	0478	#16 AMB	03/25/14	99982		-	-	-	Pass	4.2	4.5	7
L1407719-07	IA6061	476	2.7L Can	03/25/14	99982	L1405772-01	Pass	-29.0	-3.3	-	-	-	-
L1407719-08	IA6066	0096	#16 AMB	03/25/14	99982		-	-	-	Pass	4.4	5.9	29

Project Name: IBM-POK

Project Number: 3463.00

Serial\_No:04251414:07  
Lab Number: L1407719

Report Date: 04/25/14

### Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1407719-08	IA6066	231	2.7L Can	03/25/14	99982	L1405772-09	Pass	-29.0	-2.8	-	-	-	-
L1407719-09	IA6073	0207	#20 AMB	03/25/14	99982		-	-	-	Pass	4.2	4.7	11
L1407719-09	IA6073	356	2.7L Can	03/25/14	99982	L1405772-03	Pass	-29.0	-4.6	-	-	-	-
L1407719-10	AA5001	0067	#16 AMB	03/25/14	99982		-	-	-	Pass	4.2	6.0	35
L1407719-10	AA5001	387	2.7L Can	03/25/14	99982	L1405772-28	Pass	-29.0	-3.2	-	-	-	-
L1407719-11	AA6001	0541	#16 AMB	03/25/14	99982		-	-	-	Pass	4.0	4.3	7
L1407719-11	AA6001	504	2.7L Can	03/25/14	99982	L1405772-08	Pass	-29.0	-2.7	-	-	-	-
L1407719-12	FB5001	0237	#16 SV	03/25/14	99982		-	-	-	Pass	4.0	4.3	7
L1407719-12	FB5001	478	2.7L Can	03/25/14	99982	L1405772-37	Pass	-29.0	2.9	-	-	-	-
L1407719-13	FD5033	0481	#16 AMB	03/25/14	99982		-	-	-	Pass	4.5	7.2	46
L1407719-13	FD5033	225	2.7L Can	03/25/14	99982	L1405772-10	Pass	-29.0	-1.8	-	-	-	-
L1407719-14	IA4011	0019	#20 SV	03/25/14	99982		-	-	-	Pass	4.2	17.5	123
L1407719-14	IA4011	400	2.7L Can	03/25/14	99982	L1405772-32	Pass	-29.0	-2.1	-	-	-	-
L1407719-15	IA5002	0627	#16 AMB	03/25/14	99982		-	-	-	Pass	4.4	7.2	48
L1407719-15	IA5002	390	2.7L Can	03/25/14	99982	L1405772-17	Pass	-28.8	-2.6	-	-	-	-

Project Name: IBM-POK

Project Number: 3463.00

Serial\_No:04251414:07  
Lab Number: L1407719

Report Date: 04/25/14

### Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1407719-16	IA5021	0384	#20 AMB	03/25/14	99982		-	-	-	Pass	4.1	4.6	11
L1407719-16	IA5021	109	2.7L Can	03/25/14	99982	L1405772-22	Pass	-28.2	-4.8	-	-	-	-
L1407719-17	IA5023	0158	#20 AMB	03/25/14	99982		-	-	-	Pass	4.2	4.2	0
L1407719-17	IA5023	450	2.7L Can	03/25/14	99982	L1405772-21	Pass	-29.0	-9.1	-	-	-	-
L1407719-18	IA5028	0307	#16 AMB	03/25/14	99982		-	-	-	Pass	4.0	6.1	42
L1407719-18	IA5028	483	2.7L Can	03/25/14	99982	L1405772-40	Pass	-29.0	-3.6	-	-	-	-
L1407719-19	IA5031	0049	#90 SV	03/25/14	99982		-	-	-	Pass	4.0	4.3	7
L1407719-19	IA5031	155	2.7L Can	03/25/14	99982	L1405772-15	Pass	-29.0	-5.4	-	-	-	-
L1407719-20	AA4001	0424	#20 AMB	03/25/14	99982		-	-	-	Pass	4.0	2.7	39
L1407719-20	AA4001	327	2.7L Can	03/25/14	99982	L1405772-29	Pass	-29.0	-8.4	-	-	-	-
L1407719-21	FB4001	0408	#16 AMB	03/25/14	99982		-	-	-	Pass	4.0	5.0	22
L1407719-21	FB4001	150B	2.7L Can	03/25/14	99982	L1405772-38	Pass	-29.0	-6.9	-	-	-	-
L1407719-22	FD4015	0119	#20 SV	03/25/14	99982		-	-	-	Pass	4.0	5.1	24
L1407719-22	FD4015	459	2.7L Can	03/25/14	99982	L1405772-43	Pass	-29.2	-2.1	-	-	-	-
L1407719-23	IA4007	0349	#20 SV	03/25/14	99982		-	-	-	Pass	4.0	4.4	10

Project Name: IBM-POK

Project Number: 3463.00

Serial\_No:04251414:07  
Lab Number: L1407719

Report Date: 04/25/14

### Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1407719-23	IA4007	330	2.7L Can	03/25/14	99982	L1405772-41	Pass	-29.2	-2.2	-	-	-	-
L1407719-24	IA4009	0453	#30 SV	03/25/14	99982		-	-	-	Pass	4.5	5.9	27
L1407719-24	IA4009	1740	2.7L Can	03/25/14	99982	L1405772-42	Pass	-29.2	-1.2	-	-	-	-
L1407719-25	IA4010	0026	#20 AMB	03/25/14	99982		-	-	-	Pass	4.2	5.3	23
L1407719-25	IA4010	248	2.7L Can	03/25/14	99982	L1405772-25	Pass	-29.0	-2.1	-	-	-	-
L1407719-26	IA4012	0231	#20 AMB	03/25/14	99982		-	-	-	Pass	4.4	4.8	9
L1407719-26	IA4012	370	2.7L Can	03/25/14	99982	L1405772-30	Pass	-29.0	-3.7	-	-	-	-
L1407719-27	IA4015	0359	#90 SV	03/25/14	99982		-	-	-	Pass	4.0	3.9	3
L1407719-27	IA4015	151	2.7L Can	03/25/14	99982	L1405772-34	Pass	-29.0	-8.6	-	-	-	-
L1407719-28	IA4039	0576	#30 SV	03/25/14	99982		-	-	-	Pass	4.0	3.6	11
L1407719-28	IA4039	425	2.7L Can	03/25/14	99982	L1405772-44	Pass	-29.2	-8.4	-	-	-	-
L1407719-29	IA4043	0386	#30 SV	03/25/14	99982		-	-	-	Pass	4.2	4.5	7
L1407719-29	IA4043	444	2.7L Can	03/25/14	99982	L1405772-36	Pass	-29.0	-5.1	-	-	-	-
L1407719-30	IA5033	0577	#30 SV	03/25/14	99982		-	-	-	Pass	4.1	4.2	2
L1407719-30	IA5033	366	2.7L Can	03/25/14	99982	L1405772-05	Pass	-29.0	-8.8	-	-	-	-

Project Name: IBM-POK

Project Number: 3463.00

Serial\_No:04251414:07  
Lab Number: L1407719

Report Date: 04/25/14

### Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1407719-31	IA5034	0583	#16 AMB	03/25/14	99982		-	-	-	Pass	4.2	4.7	11
L1407719-31	IA5034	475	2.7L Can	03/25/14	99982	L1405772-11	Pass	-28.8	-5.6	-	-	-	-
L1407719-32	IA5041	0286	#16 AMB	03/25/14	99982		-	-	-	Pass	4.0	7.1	56
L1407719-32	IA5041	123	2.7L Can	03/25/14	99982	L1405772-18	Pass	-29.0	-2.7	-	-	-	-
L1407719-33	CAN 148	148	2.7L Can	03/25/14	99982	L1405772-02	Pass	-29.0	-28.7	-	-	-	-
L1407719-34	CAN 126	126	2.7L Can	03/25/14	99982	L1405772-26	Pass	-29.0	-21.0	-	-	-	-
L1407719-35	CAN 122	122	2.7L Can	03/25/14	99982	L1405772-24	Pass	O/P	-0.4	-	-	-	-
L1407719-36	CAN 540	540	2.7L Can	03/25/14	99982	L1405772-31	Pass	-29.0	-27.5	-	-	-	-
L1407719-37	CAN 541	541	2.7L Can	03/25/14	99982	L1405772-16	Pass	-29.0	0.4	-	-	-	-
L1407719-38	CAN 1739	1739	2.7L Can	03/25/14	99982	L1405772-23	Pass	O/P	O/P	-	-	-	-

Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-01  
 Client ID: CAN 476 FC 0478  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/20/14 20:10  
 Analyst: MB

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	109		60-140
bromochloromethane	108		60-140
chlorobenzene-d5	124		60-140



Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-02  
 Client ID: CAN 148 FC 0382  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/20/14 20:45  
 Analyst: MB

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	109		60-140
bromochloromethane	107		60-140
chlorobenzene-d5	123		60-140

Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-03  
 Client ID: CAN 356 FC 0207  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/20/14 21:21  
 Analyst: MB

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	107		60-140
bromochloromethane	105		60-140
chlorobenzene-d5	121		60-140

Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-05  
 Client ID: CAN 366 FC 0577  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/20/14 22:32  
 Analyst: MB

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	104		60-140
bromochloromethane	103		60-140
chlorobenzene-d5	120		60-140



**Project Name:****Lab Number:** L1405772**Project Number:** 3463.00.210**Report Date:** 04/25/14**Air Canister Certification Results**

Lab ID: L1405772-08  
 Client ID: CAN 504 FC 0541  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/21/14 00:19  
 Analyst: MB

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	97		60-140
bromochloromethane	95		60-140
chlorobenzene-d5	117		60-140

Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-09  
 Client ID: CAN 231 FC 0096  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/21/14 00:56  
 Analyst: MB

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	100		60-140
bromochloromethane	100		60-140
chlorobenzene-d5	120		60-140



**Project Name:****Lab Number:** L1405772**Project Number:** 3463.00.210**Report Date:** 04/25/14**Air Canister Certification Results**

Lab ID: L1405772-10  
 Client ID: CAN 225 FC 0481  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/21/14 01:32  
 Analyst: MB

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	100		60-140
bromochloromethane	100		60-140
chlorobenzene-d5	120		60-140

**Project Name:****Lab Number:** L1405772**Project Number:** 3463.00.210**Report Date:** 04/25/14**Air Canister Certification Results**

Lab ID: L1405772-11  
 Client ID: CAN 475 FC 0583  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/21/14 02:08  
 Analyst: MB

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	99		60-140
bromochloromethane	99		60-140
chlorobenzene-d5	120		60-140

**Project Name:****Lab Number:** L1405772**Project Number:** 3463.00.210**Report Date:** 04/25/14**Air Canister Certification Results**

Lab ID: L1405772-13  
 Client ID: CAN 542 FC 0401  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/21/14 03:19  
 Analyst: MB

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	96		60-140
bromochloromethane	97		60-140
chlorobenzene-d5	118		60-140





Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-15  
 Client ID: CAN 155 FC 0049  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/21/14 04:30  
 Analyst: MB

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	96		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	104		60-140



Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-16  
 Client ID: CAN 541 FC 0203  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/21/14 19:24  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	109		60-140
bromochloromethane	107		60-140
chlorobenzene-d5	123		60-140



Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-17  
 Client ID: CAN 390 FC 0627  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/21/14 19:58  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	108		60-140
bromochloromethane	106		60-140
chlorobenzene-d5	123		60-140

Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-18  
 Client ID: CAN 123 FC 0286  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/21/14 20:34  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	107		60-140
bromochloromethane	105		60-140
chlorobenzene-d5	122		60-140

**Project Name:****Lab Number:** L1405772**Project Number:** 3463.00.210**Report Date:** 04/25/14**Air Canister Certification Results**

Lab ID: L1405772-19  
 Client ID: CAN 206 FC 0312  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/21/14 21:10  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	104		60-140
bromochloromethane	102		60-140
chlorobenzene-d5	119		60-140

Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-20  
 Client ID: CAN 473 FC 0242  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/21/14 21:47  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	103		60-140
bromochloromethane	101		60-140
chlorobenzene-d5	118		60-140



**Project Name:****Lab Number:** L1405772**Project Number:** 3463.00.210**Report Date:** 04/25/14**Air Canister Certification Results**

Lab ID: L1405772-21  
 Client ID: CAN 450 FC 0158  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/21/14 22:23  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	103		60-140
bromochloromethane	100		60-140
chlorobenzene-d5	119		60-140

Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-22  
 Client ID: CAN 109 FC 0384  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/21/14 23:00  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	103		60-140
bromochloromethane	100		60-140
chlorobenzene-d5	119		60-140



Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-23  
 Client ID: CAN 1739 GRAB A  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/24/14 18:03  
 Analyst: AR

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	101		60-140
bromochloromethane	112		60-140
chlorobenzene-d5	115		60-140



**Project Name:****Lab Number:** L1405772**Project Number:** 3463.00.210**Report Date:** 04/25/14**Air Canister Certification Results**

Lab ID: L1405772-24  
 Client ID: CAN 122 GRAB B  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/24/14 18:38  
 Analyst: AR

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	103		60-140
bromochloromethane	117		60-140
chlorobenzene-d5	103		60-140

Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-25  
 Client ID: CAN 248 FC 026  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/22/14 16:54  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	123		60-140
bromochloromethane	125		60-140
chlorobenzene-d5	139		60-140



Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-26  
 Client ID: CAN 126 FC 0174  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/22/14 17:30  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	121		60-140
bromochloromethane	123		60-140
chlorobenzene-d5	137		60-140



**Project Name:****Lab Number:** L1405772**Project Number:** 3463.00.210**Report Date:** 04/25/14**Air Canister Certification Results**

Lab ID: L1405772-27  
 Client ID: CAN 451 FC 0116  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/22/14 18:05  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	119		60-140
bromochloromethane	119		60-140
chlorobenzene-d5	134		60-140

Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-28  
 Client ID: CAN 387 FC 067  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/24/14 17:28  
 Analyst: AR

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	106		60-140
bromochloromethane	120		60-140
chlorobenzene-d5	116		60-140

Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-29  
 Client ID: CAN 327 FC 0424  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/22/14 19:17  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	118		60-140
bromochloromethane	119		60-140
chlorobenzene-d5	133		60-140



**Project Name:****Lab Number:** L1405772**Project Number:** 3463.00.210**Report Date:** 04/25/14**Air Canister Certification Results**

Lab ID: L1405772-30  
 Client ID: CAN 370 FC 0231  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/22/14 19:53  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	116		60-140
bromochloromethane	117		60-140
chlorobenzene-d5	132		60-140





**Project Name:****Lab Number:** L1405772**Project Number:** 3463.00.210**Report Date:** 04/25/14**Air Canister Certification Results**

Lab ID: L1405772-31  
 Client ID: CAN 540 FC 0124  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/22/14 20:30  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	115		60-140
bromochloromethane	116		60-140
chlorobenzene-d5	132		60-140

Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-32  
 Client ID: CAN 400 FC 0019  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/22/14 21:07  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	115		60-140
bromochloromethane	116		60-140
chlorobenzene-d5	133		60-140



Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-33  
 Client ID: CAN 223 FC 0369  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/22/14 21:44  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	111		60-140
bromochloromethane	112		60-140
chlorobenzene-d5	127		60-140

**Project Name:****Lab Number:** L1405772**Project Number:** 3463.00.210**Report Date:** 04/25/14**Air Canister Certification Results**

Lab ID: L1405772-34  
 Client ID: CAN 151 FC 0359  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/22/14 22:20  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	114		60-140
bromochloromethane	116		60-140
chlorobenzene-d5	131		60-140

**Project Name:****Lab Number:** L1405772**Project Number:** 3463.00.210**Report Date:** 04/25/14**Air Canister Certification Results**

Lab ID: L1405772-36  
 Client ID: CAN 444 FC 0386  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/22/14 23:34  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	116		60-140
bromochloromethane	118		60-140
chlorobenzene-d5	134		60-140

**Project Name:****Lab Number:** L1405772**Project Number:** 3463.00.210**Report Date:** 04/25/14**Air Canister Certification Results**

Lab ID: L1405772-37  
 Client ID: CAN 478 FC 0237  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/23/14 00:12  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	116		60-140
bromochloromethane	117		60-140
chlorobenzene-d5	132		60-140

**Project Name:****Lab Number:** L1405772**Project Number:** 3463.00.210**Report Date:** 04/25/14**Air Canister Certification Results**

Lab ID: L1405772-38  
 Client ID: CAN 150B FC 0408  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/23/14 00:49  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	115		60-140
bromochloromethane	116		60-140
chlorobenzene-d5	131		60-140

Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-39  
 Client ID: CAN 121 FC 0187  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/23/14 01:27  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	115		60-140
bromochloromethane	115		60-140
chlorobenzene-d5	131		60-140



**Project Name:****Lab Number:** L1405772**Project Number:** 3463.00.210**Report Date:** 04/25/14**Air Canister Certification Results**

Lab ID: L1405772-40  
 Client ID: CAN 483 FC 0307  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/23/14 02:04  
 Analyst: RY

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	111		60-140
bromochloromethane	112		60-140
chlorobenzene-d5	112		60-140

**Project Name:****Lab Number:** L1405772**Project Number:** 3463.00.210**Report Date:** 04/25/14**Air Canister Certification Results**

Lab ID: L1405772-41  
 Client ID: CAN 330 FC 0349  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/24/14 14:59  
 Analyst: AR

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	111		60-140
bromochloromethane	124		60-140
chlorobenzene-d5	122		60-140

Project Name:

Lab Number: L1405772

Project Number: 3463.00.210

Report Date: 04/25/14

## Air Canister Certification Results

Lab ID: L1405772-42  
 Client ID: CAN 1740 FC 0453  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/24/14 15:35  
 Analyst: AR

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	108		60-140
bromochloromethane	121		60-140
chlorobenzene-d5	118		60-140



**Project Name:****Lab Number:** L1405772**Project Number:** 3463.00.210**Report Date:** 04/25/14**Air Canister Certification Results**

Lab ID: L1405772-43  
 Client ID: CAN 459 FC 0119  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/24/14 16:11  
 Analyst: AR

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	108		60-140
bromochloromethane	120		60-140
chlorobenzene-d5	117		60-140

**Project Name:****Lab Number:** L1405772**Project Number:** 3463.00.210**Report Date:** 04/25/14**Air Canister Certification Results**

Lab ID: L1405772-44  
 Client ID: CAN 425 FC 0576  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 03/24/14 16:47  
 Analyst: AR

Date Collected: 03/20/14 10:09  
 Date Received: 03/20/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	106		60-140
bromochloromethane	120		60-140
chlorobenzene-d5	104		60-140

Project Name: IBM-POK

Lab Number: L1407719

Project Number: 3463.00

Report Date: 04/25/14

## 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(*)
L1407719-01A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-02A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-03A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-04A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-05A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-06A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-07A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-08A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-09A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-10A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-11A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-12A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-13A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-14A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-15A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-16A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	CANCELLED()
L1407719-17A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-18A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-19A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-20A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-21A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-22A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-23A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-24A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-25A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-26A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-27A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)

\*Values in parentheses indicate holding time in days



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14**Container Information**

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1407719-28A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-29A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-30A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-31A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-32A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1407719-33A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	CLEAN-FEE()
L1407719-34A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	CLEAN-FEE()
L1407719-35A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	CLEAN-FEE()
L1407719-36A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	CLEAN-FEE()
L1407719-37A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	CLEAN-FEE()
L1407719-38A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	CLEAN-FEE()

\*Values in parentheses indicate holding time in days

**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1407719  
**Report Date:** 04/25/14

## GLOSSARY

### Acronyms

EDL	- Estimated 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 EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
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.
LFB	- Laboratory Fortified Blank: 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.
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.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### 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 ten times (10x) 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. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- 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.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.

**Report Format:** DU Report with 'J' Qualifiers





**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1407719  
**Report Date:** 04/25/14

**Data Qualifiers**

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- 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. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. 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.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers



**Project Name:** IBM-POK**Lab Number:** L1407719**Project Number:** 3463.00**Report Date:** 04/25/14

## REFERENCES

- 48      Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

## 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.



## Certification Information

Last revised April 15, 2014

**The following analytes are not included in our NELAP Scope of Accreditation:**

### **Westborough Facility**

**EPA 524.2:** Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.

**EPA 8260C:** 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.

**EPA 8330A/B:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.

**EPA 8270D:** 1-Methylnaphthalene, Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**EPA 625:** 4-Chloroaniline, 4-Methylphenol.

**SM4500:** Soil: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

**EPA 9071:** Total Petroleum Hydrocarbons, Oil & Grease.

### **Mansfield Facility**

**EPA 8270D:** Biphenyl.

**EPA 2540D:** TSS

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:**

### **Drinking Water**

**EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, Tl; **EPA 200.7:** Ba, Be, Ca, Cd, Cr, Cu, Na; **EPA 245.1:** Mercury;

**EPA 300.0:** Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO<sub>3</sub>-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**

**EPA 332:** Perchlorate.

**Microbiology:** SM9215B; SM9223-P/A, SM9223B-Colilert-QT, Enterolert-QT.

### **Non-Potable Water**

**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, Tl, Zn;

**EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, Ti, Tl, V, Zn;

**EPA 245.1, SM4500H-B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC,**

**SM426C, SM4500NH<sub>3</sub>-BH, EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO<sub>3</sub>-F,**

**EPA 353.2:** Nitrate-N, **SM4500NH<sub>3</sub>-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4,**

**SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.**

**EPA 624:** Volatile Halocarbons & Aromatics,

**EPA 608:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

**Microbiology:** SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF.

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



# AIR ANALYSIS

CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048  
TEL: 508-822-9300 FAX: 508-822-3288

PAGE 1 OF 4

Date Rec'd in Lab:

4/11/14

ALPHA Job #:

C1407719

## Project Information

Project Name: IBM-P0K

Project Location: NY

Project #: 3463.00.

Project Manager: Jenn Sanborn

ALPHA Quote #:

## Turn-Around Time

☒ Standard☐ RUSH (only confirmed if pre-approved!)

Date Due:

Time:

## Report Information - Data Deliverables

☐ FAX☒ ADEx

Criteria Checker: \_\_\_\_\_

(Default based on Regulatory Criteria Indicated)

Other Formats: \_\_\_\_\_

☐ EMAIL (standard pdf report)☐ Additional Deliverables: \_\_\_\_\_

Report to: (if different than Project Manager)

## Billing Information

☒ Same as Client info

PO #: 3463.00

## Regulatory Requirements/Report Limits

State/Fed

Program

Criteria

## Client Information

Client: Sanborn Head+Assoc.

Address: 20 Foundry St  
Concord, NH 03301

Phone: 603-229-1900

Fax: \_\_\_\_\_

Email: jsanborn@sanbornhead.com

☐ These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments:

\* Site-specific analyte list - BOD3 analytes

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection										TO-14A	TO-15	TO-15 APH	FIXED	TO-13	TO-4	Sample Comments (i.e. PID)
		Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	ID Can	ID - Flow Controller							
07719.01	IA6003	4/10/14	0913	1721	-30.16	-9.06	AA	AVK	2.7L	473	0242			X				
02	IA6004	↓	0919	1728	-30.31	-8.70	AA			121	0187			X				
03	IA6011		0933	1837	-30.19	-8.108				451 <del>324</del>	0116 <del>0422</del>			X				
04	IA6012		0928	1733	-29.17	-3.16				542	0401			X				
05	IA6015		0938	1738	-30.33	-6.32				223	0309			X				
06	IA6049		0924	1730	-30.24	-6.34				200	0312			X				
07	IA6061		0904	1713	-27.18	-3.70				476	0478			X				
08	IA6066		0910	1710	-30.14	-3.33				231	0096			X				
09	IA6073		0942	1742	-28.83	-5.86				330	0207			X				
															X			

## \*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)

SV = Soil Vapor/Landfill Gas/SVE

Other = Please Specify

Container Type

CS

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Relinquished By:

Date/Time

Received By:

Date/Time:



## AIR ANALYSIS

PAGE 2 OF 4

## CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048  
TEL: 508-822-9300 FAX: 508-822-3288

## Client Information

Client: Sanborn Head + AssocAddress: 20 Foundry St  
Concord, NH 03301Phone: 603-229-1900

Fax: \_\_\_\_\_

Email: jsanborn@sanbornhead.com☐ These samples have been previously analyzed by Alpha

## Project Information

Project Name: IBM-PDKProject Location: NYProject #: 3463,00Project Manager: Jenn Sanborn

ALPHA Quote #:

## Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due:

Time:

Date Rec'd in Lab:

4/11/14

## Report Information - Data Deliverables

☐ FAX☒ ADEx

Criteria Checker: \_\_\_\_\_

(Default based on Regulatory Criteria Indicated)

Other Formats: \_\_\_\_\_

☐ EMAIL (standard pdf report)☐ Additional Deliverables: \_\_\_\_\_

Report to: (if different than Project Manager)

ALPHA Job #: 21407719

## Billing Information

☒ Same as Client info PO #: 3463,00

## Regulatory Requirements/Report Limits

State/Fed Program Criteria

Other Project Specific Requirements/Comments:

\*Site-specific analyte list - BOD3 analytes

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection						Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-14	TO-15	TO-15	APH	FIXED	TO-13	TO-4	Sample Comments (i.e. PID)
		Date	Start Time	End Time	Initial Vacuum	Final Vacuum														
07719, 10	AA5001	4-10-14	09:50	15:02	-29.4	-3.01	AA	DMT AVK	2.7L	387	067			X						
11	AA6001	4-10-14	08:48	17:41	-27.8	-3.0		DMT AVK		504	541			X						
12	FB5001		11:14	13:21	-29.6	-3.0		DMT AVK		478	237			X						
13	FD5033		9:35	15:52	-30	-2		AVK		225	481			X						
14	IA4011		9:58	12:35	-30	-3		AVK		400	19			X						
15	IA5002		9:47	13:15	-29.6	-3		AVK		390	627			X						
16	IA5021 <b>HOLD</b>		9:09	17:28	-28.8	-5.1		AVK		109	384			X						<b>HOLD **</b>
17	IA5023		10:05	18:13	-30.2	-9.7		AVK		450	158			X						
18	IA5028		9:04	14:36	-30	-3.5		AVK		483	307			X						
19	IA5031		9:07	17:31	-30.2	-6.1				155	49			X						

## \*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)

SV = Soil Vapor/Landfill Gas/SVE

Other = Please Specify

Container Type

CS

Relinquished By:

Date/Time

Received By:

Date/Time:

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)



# AIR ANALYSIS

PAGE 3 OF 4

## CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048  
TEL: 508-822-9300 FAX: 508-822-3288

### Client Information

Client: Sanborn Head + Assoc  
Address: 20 Foundry St  
Concord, NH 03301  
Phone: 603-229-1900  
Fax: \_\_\_\_\_  
Email: jsanborn@sanbornhead.com

☐ These samples have been previously analyzed by Alpha

### Project Information

Project Name: IBM-POK  
Project Location: NY  
Project #: 3463.00  
Project Manager: Jenn Sanborn  
ALPHA Quote #:

### Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due:

Time:

Date Rec'd in Lab:

4/11/14

### Report Information - Data Deliverables

☐ FAX☒ eMAEx

Criteria Checker: \_\_\_\_\_

(Default based on Regulatory Criteria Indicated)

Other Formats: \_\_\_\_\_

☐ EMAIL (standard pdf report)☐ Additional Deliverables: \_\_\_\_\_

Report to: (if different than Project Manager)

ALPHA Job #: C1407719

### Billing Information

☒ Same as Client info PO #: 3463.00

### Regulatory Requirements/Report Limits

State/Fed	Program	Criteria

### ANALYSIS

\* Site-specific Analyte List - Booz analytes

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection						Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-14A	TO-15	TO-15	APH	FIXED	TO-13	TO-41	Sample Comments (i.e. PID)
		Date	Start Time	End Time	Initial Vacuum	Final Vacuum														
07719.20	AA4001	04/11/14	1037	1837	-30.19	-8.68	AA	DMT <del>REW</del>	2.7L	327	0424			X						
21	FB4001	04/11/14	1041	1841	-30.13	-7.17		DMT <del>REW</del>		150B	0408			X						
22	FD4015	04/11/14	1026	1729	-30.29	-3.00		DMT <del>REW</del>		459	0119			X						
23	IA4007		0945	1710	-30.00	-3.11		REW		330	0349			X						
24	IA4009		0950	1630	-30.20	-2.27				1740	0453			X						
25	IA4010		0955	1628	-29.86	-2.75				248	0260			X						
26	IA4012		0940	1740	-30.45	-6.91		REW		370	0231			X						
27	IA4015		1026	1851	-30.38	-9.42		DMT <del>REW</del>		151	0359			X						
28	IA4039		0937	1910	-30.15	-9.34				425	0576			X						
29	IA4043		0935	1759	-30.16	-9.40		REW		444	0386			V						

### \*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)  
SV = Soil Vapor/Landfill Gas/SVE  
Other = Please Specify

Container Type

CS

Relinquished By:

Date/Time

Received By:

Date/Time:

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)



# AIR ANALYSIS

PAGE 4 OF 4

## CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048  
TEL: 508-822-9300 FAX: 508-822-3288

### Client Information

Client: Sanborn Head & AssocAddress: 20 Foundry St  
Concord, NH 03301Phone: 603-229-1900

Fax: \_\_\_\_\_

Email: j.sanborn@sanbornhead.com☐ These samples have been previously analyzed by Alpha

### Project Information

Project Name: IBM-POKProject Location: NYProject #: 3463.00Project Manager: Jenn Sanborn

ALPHA Quote #:

### Turn-Around Time

☒ Standard☐ RUSH (only confirmed if pre-approved!)

Date Due:

Time:

Date Rec'd in Lab:

4/11/14

### Report Information - Data Deliverables

☐ FAX☒ ADEx

Criteria Checker: \_\_\_\_\_

(Default based on Regulatory Criteria Indicated)

Other Formats: \_\_\_\_\_

☐ EMAIL (standard pdf report)☐ Additional Deliverables: \_\_\_\_\_

Report to: (if different than Project Manager)

ALPHA Job #: C1407719

### Billing Information

☒ Same as Client info PO #: 3463.00

### Regulatory Requirements/Report Limits

State/Fed	Program	Criteria

### ANALYSIS

\* Site specific analyte list - B003 list  
All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection										TO-14A	TO-15	TO-15	APH	FIXED	TO-13A	TO-41	Sample Comments (i.e. PID)
		Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller								
07719-30	IA5033	4/10/14	9:35	17:53	-29.2	-9.1	AA	AVK	2.7	366	577			X					
31	IA5034		9:40	17:47	-29.6	-6.13		AVK		475	583			X					
32	IA5041		9:14	15:44	-29.9	-3		AVK		123	286			X					

### \*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)

SV = Soil Vapor/Landfill Gas/SVE

Other = Please Specify

Container Type

Relinquished By:

Date/Time

Received By:

Date/Time:

Resh4/11/14 0755Tom Toker4/11/14 7:55Tom Toker4/11/14Tom Toker4/11/14 1810

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

## **B008 INDOOR AIR SAMPLING**





## ANALYTICAL REPORT

Lab Number:	L1408728
Client:	Sanborn, Head & Associates, Inc. 20 Foundry Street Concord, NH 03301
ATTN:	Jennifer Sanborn
Phone:	(603) 415-6137
Project Name:	IBM-POK
Project Number:	3463.00
Report Date:	05/01/14

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), PA (68-02089), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), DOD (L2217.01), USDA (Permit #P330-11-00109), 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](http://www.alphalab.com)



**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1408728  
**Report Date:** 05/01/14

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>
L1408728-01	IA 3028	POUGHKEEPSIE, NY	04/23/14 16:01
L1408728-02	IA 3027	POUGHKEEPSIE, NY	04/23/14 16:03
L1408728-03	IA 3008	POUGHKEEPSIE, NY	04/23/14 16:08
L1408728-04	FD 3008	POUGHKEEPSIE, NY	04/23/14 16:08
L1408728-05	IA 3007	POUGHKEEPSIE, NY	04/23/14 16:13
L1408728-06	IA 3012	POUGHKEEPSIE, NY	04/23/14 16:46
L1408728-07	FB 3000	POUGHKEEPSIE, NY	04/23/14 10:14
L1408728-08	AA 3000	POUGHKEEPSIE, NY	04/23/14 16:49

**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1408728  
**Report Date:** 05/01/14

### 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. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

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.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

---

**Project Name:** IBM-POK**Lab Number:** L1408728**Project Number:** 3463.00**Report Date:** 05/01/14**Case Narrative (continued)**

## Volatile Organics in Air

Canisters were released from the laboratory on April 18, 2014. The canister certification results are provided as an addendum.

Sample L1408728-07: The Field Blank has a detection of Tetrachloroethene above the reporting limit. The sample was re-analyzed and confirmed the original results. The results of the original analysis are reported. The canister that this sample was collected in failed certification for Tetrachloroethene (0.051 ppbv) due to an oversight in the laboratory it was sent to the field for use.

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:  Christopher J. Anderson

Title: Technical Director/Representative

Date: 05/01/14

**AIR**

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1408728**Report Date:** 05/01/14**SAMPLE RESULTS**

**Lab ID:** L1408728-01  
**Client ID:** IA 3028  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/29/14 19:00  
**Analyst:** RY

**Date Collected:** 04/23/14 16:01  
**Date Received:** 04/24/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.387	0.020	0.007	2.08	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1408728**Project Number:** 3463.00**Report Date:** 05/01/14**SAMPLE RESULTS**

Lab ID: L1408728-01

Date Collected: 04/23/14 16:01

Client ID: IA 3028

Date Received: 04/24/14

Sample Location: POUGHKEEPSIE, NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	128		70-130
Bromofluorobenzene	97		70-130
Toluene-d8	98		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	77		60-140
bromochloromethane	90		60-140
chlorobenzene-d5	95		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1408728**Report Date:** 05/01/14**SAMPLE RESULTS**

**Lab ID:** L1408728-02  
**Client ID:** IA 3027  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/29/14 20:03  
**Analyst:** RY

**Date Collected:** 04/23/14 16:03  
**Date Received:** 04/24/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.349	0.020	0.007	1.88	0.107	0.038		1
Tetrachloroethene	0.020	0.020	0.020	0.136	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1408728**Project Number:** 3463.00**Report Date:** 05/01/14**SAMPLE RESULTS**

Lab ID: L1408728-02  
 Client ID: IA 3027  
 Sample Location: POUGHKEEPSIE, NY

Date Collected: 04/23/14 16:03  
 Date Received: 04/24/14  
 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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Bromofluorobenzene	100		70-130
Toluene-d8	102		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	86		60-140
bromochloromethane	83		60-140
chlorobenzene-d5	90		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1408728**Report Date:** 05/01/14**SAMPLE RESULTS**

**Lab ID:** L1408728-03  
**Client ID:** IA 3008  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Analytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/29/14 20:35  
**Analyst:** RY

**Date Collected:** 04/23/14 16:08  
**Date Received:** 04/24/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.519	0.020	0.007	2.79	0.107	0.038		1
Tetrachloroethene	0.022	0.020	0.020	0.149	0.136	0.136		1

**Project Name:** IBM-POK**Lab Number:** L1408728**Project Number:** 3463.00**Report Date:** 05/01/14**SAMPLE RESULTS**

Lab ID: L1408728-03

Date Collected: 04/23/14 16:08

Client ID: IA 3008

Date Received: 04/24/14

Sample Location: POUGHKEEPSIE, NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Bromofluorobenzene	99		70-130
Toluene-d8	102		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	85		60-140
bromochloromethane	95		60-140
chlorobenzene-d5	91		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1408728**Report Date:** 05/01/14**SAMPLE RESULTS**

**Lab ID:** L1408728-04  
**Client ID:** FD 3008  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/29/14 21:07  
**Analyst:** RY

**Date Collected:** 04/23/14 16:08  
**Date Received:** 04/24/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.600	0.020	0.007	3.22	0.107	0.038		1
Tetrachloroethene	0.059	0.020	0.020	0.400	0.136	0.136		1

**Project Name:** IBM-POK**Lab Number:** L1408728**Project Number:** 3463.00**Report Date:** 05/01/14**SAMPLE RESULTS**

Lab ID: L1408728-04

Date Collected: 04/23/14 16:08

Client ID: FD 3008

Date Received: 04/24/14

Sample Location: POUGHKEEPSIE, NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	127		70-130
Bromofluorobenzene	95		70-130
Toluene-d8	97		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	75		60-140
bromochloromethane	88		60-140
chlorobenzene-d5	96		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1408728**Report Date:** 05/01/14**SAMPLE RESULTS**

Lab ID: L1408728-05  
 Client ID: IA 3007  
 Sample Location: POUGHKEEPSIE, NY  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 04/29/14 21:38  
 Analyst: RY

Date Collected: 04/23/14 16:13  
 Date Received: 04/24/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.444	0.020	0.007	2.39	0.107	0.038		1
Tetrachloroethene	0.036	0.020	0.020	0.244	0.136	0.136		1

**Project Name:** IBM-POK**Lab Number:** L1408728**Project Number:** 3463.00**Report Date:** 05/01/14**SAMPLE RESULTS**

Lab ID: L1408728-05

Date Collected: 04/23/14 16:13

Client ID: IA 3007

Date Received: 04/24/14

Sample Location: POUGHKEEPSIE, NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	126		70-130
Bromofluorobenzene	96		70-130
Toluene-d8	99		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	77		60-140
bromochloromethane	91		60-140
chlorobenzene-d5	94		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1408728**Report Date:** 05/01/14**SAMPLE RESULTS**

**Lab ID:** L1408728-06  
**Client ID:** IA 3012  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/29/14 22:10  
**Analyst:** RY

**Date Collected:** 04/23/14 16:46  
**Date Received:** 04/24/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.487	0.020	0.007	2.62	0.107	0.038		1
Tetrachloroethene	0.021	0.020	0.020	0.142	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1408728**Project Number:** 3463.00**Report Date:** 05/01/14**SAMPLE RESULTS**

Lab ID: L1408728-06

Date Collected: 04/23/14 16:46

Client ID: IA 3012

Date Received: 04/24/14

Sample Location: POUGHKEEPSIE, NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	126		70-130
Bromofluorobenzene	96		70-130
Toluene-d8	97		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	76		60-140
bromochloromethane	89		60-140
chlorobenzene-d5	94		60-140



**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1408728**Report Date:** 05/01/14**SAMPLE RESULTS**

**Lab ID:** L1408728-07  
**Client ID:** FB 3000  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Anaytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/29/14 17:57  
**Analyst:** RY

**Date Collected:** 04/23/14 10:14  
**Date Received:** 04/24/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	0.084	0.020	0.020	0.570	0.136	0.136		1



**Project Name:** IBM-POK**Lab Number:** L1408728**Project Number:** 3463.00**Report Date:** 05/01/14**SAMPLE RESULTS**

Lab ID: L1408728-07

Date Collected: 04/23/14 10:14

Client ID: FB 3000

Date Received: 04/24/14

Sample Location: POUGHKEEPSIE, NY

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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Bromofluorobenzene	95		70-130
Toluene-d8	99		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	90		60-140
bromochloromethane	96		60-140
chlorobenzene-d5	93		60-140

**Project Name:** IBM-POK**Project Number:** 3463.00**Lab Number:** L1408728**Report Date:** 05/01/14**SAMPLE RESULTS**

**Lab ID:** L1408728-08  
**Client ID:** AA 3000  
**Sample Location:** POUGHKEEPSIE, NY  
**Matrix:** Air  
**Analytical Method:** 48,TO-15-SIM  
**Analytical Date:** 04/29/14 18:28  
**Analyst:** RY

**Date Collected:** 04/23/14 16:49  
**Date Received:** 04/24/14  
**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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	0.028	0.020	0.020	0.074	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	0.070	0.020	0.007	0.376	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

**Project Name:** IBM-POK**Lab Number:** L1408728**Project Number:** 3463.00**Report Date:** 05/01/14**SAMPLE RESULTS**

Lab ID: L1408728-08  
 Client ID: AA 3000  
 Sample Location: POUGHKEEPSIE, NY

Date Collected: 04/23/14 16:49  
 Date Received: 04/24/14  
 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								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Bromofluorobenzene	98		70-130
Toluene-d8	101		70-130

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	80		60-140
bromochloromethane	82		60-140
chlorobenzene-d5	94		60-140

Project Name: IBM-POK

Lab Number: L1408728

Project Number: 3463.00

Report Date: 05/01/14

### Method Blank Analysis Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 04/29/14 15:14

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-08 Batch: WG685961-5								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.020	ND	0.053	0.053		1
1,1-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
trans-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
1,1-Dichloroethane	ND	0.020	0.020	ND	0.081	0.081		1
cis-1,2-Dichloroethene	ND	0.020	0.020	ND	0.079	0.079		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.020	ND	0.136	0.136		1

Project Name: IBM-POK

Lab Number: L1408728

Project Number: 3463.00

Report Date: 05/01/14

## Method Blank Analysis

### Batch Quality Control

Analytical Method: 48,TO-15-SIM

Analytical Date: 04/29/14 15:14

Parameter	ppbV			ug/m3			Qualifier	Dilution Factor
	Results	RL	MDL	Results	RL	MDL		
Volatile Organics in Air by SIM - Mansfield Lab for sample(s): 01-08 Batch: WG685961-5								

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Bromofluorobenzene	100		70-130
Toluene-d8	103		70-130

# **Lab Control Sample Analysis** Batch Quality Control

**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1408728  
**Report Date:** 05/01/14

<b>Parameter</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>%Recovery Limits</b>	<b>RPD</b>	<b>Qual</b>	<b>RPD Limits</b>
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-08 Batch: WG685961-3 WG685961-4								
Vinyl chloride	109		111		70-130	2		20
Chloroethane	108		112		70-130	4		20
1,1-Dichloroethene	104		107		70-130	3		20
trans-1,2-Dichloroethene	93		94		70-130	1		20
1,1-Dichloroethane	104		103		70-130	1		20
cis-1,2-Dichloroethene	110		112		70-130	2		20
Trichloroethene	98		105		70-130	7		20
Tetrachloroethene	103		108		70-130	5		20

<b>Surrogate</b>	<b>LCS %Recovery</b>	<b>Qual</b>	<b>LCSD %Recovery</b>	<b>Qual</b>	<b>Acceptance Criteria</b>
1,2-Dichloroethane-d4	100		109		70-130
Toluene-d8	100		106		70-130
Bromofluorobenzene	99		105		70-130



# Lab Duplicate Analysis

## Batch Quality Control

Project Name: IBM-POK

Project Number: 3463.00

Lab Number: L1408728

Report Date: 05/01/14

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air by SIM - Mansfield Lab Associated sample(s): 01-08 QC Batch ID: WG685961-6 QC Sample: L1408728-01 Client ID: IA 3028						
Vinyl chloride	ND	ND	ppbV	NC		20
Chloroethane	ND	ND	ppbV	NC		20
1,1-Dichloroethene	ND	ND	ppbV	NC		20
trans-1,2-Dichloroethene	ND	ND	ppbV	NC		20
1,1-Dichloroethane	ND	ND	ppbV	NC		20
cis-1,2-Dichloroethene	ND	ND	ppbV	NC		20
Trichloroethene	0.387	0.326	ppbV	17		20
Tetrachloroethene	ND	ND	ppbV	NC		20

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	128		106		70-130
Toluene-d8	98		98		70-130
Bromofluorobenzene	97		96		70-130

Project Name: IBM-POK

Project Number: 3463.00

Serial\_No:05011416:29  
Lab Number: L1408728

Report Date: 05/01/14

### Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controller Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1408728-01	IA 3028	0592	#16 SV	04/18/14	101199		-	-	-	Pass	4.5	4.6	2
L1408728-01	IA 3028	241	2.7L Can	04/18/14	101199	L1407886-04	Pass	-30.0	-7.1	-	-	-	-
L1408728-02	IA 3027	0187	#16 AMB	04/18/14	101199		-	-	-	Pass	4.1	4.3	5
L1408728-02	IA 3027	106	2.7L Can	04/18/14	101199	L1407886-07	Pass	-30.0	-7.6	-	-	-	-
L1408728-03	IA 3008	0124	#20 SV	04/18/14	101199		-	-	-	Pass	4.0	4.2	5
L1408728-03	IA 3008	179	2.7L Can	04/18/14	101199	L1407886-09	Pass	-30.0	-8.5	-	-	-	-
L1408728-04	FD 3008	0478	#16 AMB	04/18/14	101199		-	-	-	Pass	4.4	4.4	0
L1408728-04	FD 3008	215	2.7L Can	04/18/14	101199	L1407886-08	Pass	-30.0	-8.1	-	-	-	-
L1408728-05	IA 3007	0125	#16 AMB	04/18/14	101199		-	-	-	Pass	4.4	4.4	0
L1408728-05	IA 3007	1716	2.7L Can	04/18/14	101199	L1407886-01	Pass	-30.0	-7.6	-	-	-	-
L1408728-06	IA 3012	0411	#16 AMB	04/18/14	101199		-	-	-	Pass	4.2	3.6	15
L1408728-06	IA 3012	466	2.7L Can	04/18/14	101199	L1407886-02	Pass	-30.0	-10.0	-	-	-	-
L1408728-07	FB 3000	0629	#16 AMB	04/18/14	101199		-	-	-	Pass	4.5	4.8	6
L1408728-07	FB 3000	354	2.7L Can	04/18/14	101199	L1407886-03	Pass	-30.0	-4.0	-	-	-	-
L1408728-08	AA 3000	0242	#20 AMB	04/18/14	101199		-	-	-	Pass	4.0	4.2	5

Project Name: IBM-POK  
Project Number: 3463.00

Serial\_No:05011416:29  
Lab Number: L1408728  
Report Date: 05/01/14

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controler Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1408728-08	AA 3000	144	2.7L Can	04/18/14	101199	L1407886-12	Pass	-30.0	-6.9	-	-	-	-



**Project Name:****Lab Number:** L1407886**Project Number:** Not Specified**Report Date:** 05/01/14**Air Canister Certification Results**

Lab ID: L1407886-01  
 Client ID: CAN 1716 FC 0125  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 04/16/14 11:09  
 Analyst: RY

Date Collected: 04/15/14 17:00  
 Date Received: 04/15/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	77		60-140
bromochloromethane	86		60-140
chlorobenzene-d5	90		60-140

**Project Name:****Lab Number:** L1407886**Project Number:** Not Specified**Report Date:** 05/01/14**Air Canister Certification Results**

Lab ID: L1407886-02  
 Client ID: CAN 466 FC 0411  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 04/16/14 11:44  
 Analyst: RY

Date Collected: 04/15/14 17:00  
 Date Received: 04/15/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	83		60-140
bromochloromethane	95		60-140
chlorobenzene-d5	95		60-140

**Project Name:****Lab Number:** L1407886**Project Number:** Not Specified**Report Date:** 05/01/14**Air Canister Certification Results**

Lab ID: L1407886-03  
 Client ID: CAN 354 FC 0629  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 04/16/14 12:17  
 Analyst: RY

Date Collected: 04/15/14 17:00  
 Date Received: 04/15/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	0.051	0.020	0.008	0.346	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	85		60-140
bromochloromethane	98		60-140
chlorobenzene-d5	98		60-140

**Project Name:****Lab Number:** L1407886**Project Number:** Not Specified**Report Date:** 05/01/14**Air Canister Certification Results**

Lab ID: L1407886-04  
 Client ID: CAN 241 FC 0592  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 04/16/14 12:52  
 Analyst: RY

Date Collected: 04/15/14 17:00  
 Date Received: 04/15/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	81		60-140
bromochloromethane	98		60-140
chlorobenzene-d5	86		60-140

**Project Name:****Lab Number:** L1407886**Project Number:** Not Specified**Report Date:** 05/01/14**Air Canister Certification Results**

Lab ID: L1407886-07  
 Client ID: CAN 106 FC 0187  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 04/16/14 14:56  
 Analyst: RY

Date Collected: 04/15/14 17:00  
 Date Received: 04/15/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	80		60-140
bromochloromethane	95		60-140
chlorobenzene-d5	96		60-140



**Project Name:****Lab Number:** L1407886**Project Number:** Not Specified**Report Date:** 05/01/14**Air Canister Certification Results**

Lab ID: L1407886-08  
 Client ID: CAN 215 FC 0478  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 04/16/14 15:29  
 Analyst: RY

Date Collected: 04/15/14 17:00  
 Date Received: 04/15/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	78		60-140
bromochloromethane	94		60-140
chlorobenzene-d5	84		60-140

**Project Name:****Lab Number:** L1407886**Project Number:** Not Specified**Report Date:** 05/01/14**Air Canister Certification Results**

Lab ID: L1407886-09  
 Client ID: CAN 179 FC 0124  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 04/17/14 10:37  
 Analyst: RY

Date Collected: 04/15/14 17:00  
 Date Received: 04/15/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	90		60-140
bromochloromethane	98		60-140
chlorobenzene-d5	107		60-140

**Project Name:****Lab Number:** L1407886**Project Number:** Not Specified**Report Date:** 05/01/14**Air Canister Certification Results**

Lab ID: L1407886-12  
 Client ID: CAN 144 FC 0242  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 04/17/14 14:32  
 Analyst: RY

Date Collected: 04/15/14 17:00  
 Date Received: 04/15/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	92		60-140
bromochloromethane	108		60-140
chlorobenzene-d5	108		60-140

**Project Name:****Lab Number:** L1407886**Project Number:** Not Specified**Report Date:** 05/01/14**Air Canister Certification Results**

Lab ID: L1407886-14  
 Client ID: CAN 509 FC B  
 Sample Location:  
 Matrix: Air  
 Analytical Method: 48,TO-15-SIM  
 Analytical Date: 04/17/14 16:27  
 Analyst: RY

Date Collected: 04/15/14 17:00  
 Date Received: 04/15/14  
 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								
Vinyl chloride	ND	0.020	0.007	ND	0.051	0.018		1
Chloroethane	ND	0.020	0.007	ND	0.053	0.019		1
1,1-Dichloroethene	ND	0.020	0.007	ND	0.079	0.028		1
trans-1,2-Dichloroethene	ND	0.020	0.006	ND	0.079	0.024		1
1,1-Dichloroethane	ND	0.020	0.007	ND	0.081	0.028		1
cis-1,2-Dichloroethene	ND	0.020	0.007	ND	0.079	0.026		1
Trichloroethene	ND	0.020	0.007	ND	0.107	0.038		1
Tetrachloroethene	ND	0.020	0.008	ND	0.136	0.054		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	82		60-140
bromochloromethane	102		60-140
chlorobenzene-d5	99		60-140

**Project Name:** IBM-POK**Lab Number:** L1408728**Project Number:** 3463.00**Report Date:** 05/01/14**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(*)
L1408728-01A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1408728-02A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1408728-03A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1408728-04A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1408728-05A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1408728-06A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1408728-07A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)
L1408728-08A	Canister - 2.7 Liter	N/A	N/A		Y	Present/Intact	NYSDEC-TO15-SIM(30)

\*Values in parentheses indicate holding time in days

**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1408728  
**Report Date:** 05/01/14

## GLOSSARY

### Acronyms

EDL	- Estimated 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 EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
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.
LFB	- Laboratory Fortified Blank: 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.
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.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### 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 ten times (10x) 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. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- 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.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.

**Report Format:** DU Report with 'J' Qualifiers



**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1408728  
**Report Date:** 05/01/14

**Data Qualifiers**

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- 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. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. 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.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers



**Project Name:** IBM-POK  
**Project Number:** 3463.00

**Lab Number:** L1408728  
**Report Date:** 05/01/14

## REFERENCES

- 48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

## 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.





## Certification Information

Last revised April 15, 2014

**The following analytes are not included in our NELAP Scope of Accreditation:**

### **Westborough Facility**

**EPA 524.2:** Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.

**EPA 8260C:** 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.

**EPA 8330A/B:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.

**EPA 8270D:** 1-Methylnaphthalene, Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**EPA 625:** 4-Chloroaniline, 4-Methylphenol.

**SM4500:** Soil: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

**EPA 9071:** Total Petroleum Hydrocarbons, Oil & Grease.

### **Mansfield Facility**

**EPA 8270D:** Biphenyl.

**EPA 2540D:** TSS

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:**

### **Drinking Water**

**EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, Tl; **EPA 200.7:** Ba, Be, Ca, Cd, Cr, Cu, Na; **EPA 245.1:** Mercury;

**EPA 300.0:** Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**

**EPA 332:** Perchlorate.

**Microbiology:** SM9215B; SM9223-P/A, SM9223B-Colilert-QT, Enterolert-QT.

### **Non-Potable Water**

**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, Tl, Zn;

**EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, Ti, Tl, V, Zn;

**EPA 245.1, SM4500H-B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC,**

**SM426C, SM4500NH3-BH, EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F,**

**EPA 353.2:** Nitrate-N, **SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4,**

**SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.**

**EPA 624:** Volatile Halocarbons & Aromatics,

**EPA 608:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

**Microbiology:** SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF.

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



# AIR ANALYSIS

PAGE 1 OF 1

## CHAIN OF CUSTODY

320 Forbes Blvd, Mansfield, MA 02048  
TEL: 508-822-9300 FAX: 508-822-3288

### Client Information

Client: Sanborn Head + Assoc.

Address: 20 Foundry St.  
Concord, NH 03301

Phone: 603-229-1900

Fax: \_\_\_\_\_

Email: jsanborn@sanbornhead.com☐ These samples have been previously analyzed by Alpha

### Project Information

Project Name: IBM-POKProject Location: NYProject #: 3463.00Project Manager: Jenn Sanborn

ALPHA Quote #:

### Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due:

Time:

Date Rec'd in Lab:

4/24/14

### Report Information - Data Deliverables

☐ FAX☒ ADEx

Criteria Checker: \_\_\_\_\_

(Default based on Regulatory Criteria Indicated)

Other Formats: \_\_\_\_\_

☐ EMAIL (standard pdf report)☐ Additional Deliverables: \_\_\_\_\_

Report to: (if different than Project Manager)

ALPHA Job #: L1408728

### Billing Information

☒ Same as Client info PO #: 3463.00

### Regulatory Requirements/Report Limits

State/Fed	Program	Criteria

### ANALYSIS

\* Site-specific analyte list

### All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection						Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-14A	TO-15	TO-15 APH	FIXED	TO-13A	TO-41	Sample Comments (i.e. PID)
		Date	Start Time	End Time	Initial Vacuum	Final Vacuum													
08728.01	IA 3028	4-23-14	0800	16:01	-28.95	-7.0	AA	REW	2.7L	241	592			X					
02	IA 3027		0802	1603	-29.60	-7.6				106	187			X					
03	IA 3008		0808	1608	-29.89	-8.6				179	124			X					
04	FD 3008		0808	16:08	-29.46	-8.0				215	478			X					
05	IA 3007		0813	16:13	-29.52	-7.5				1716	125			X					
06	IA 3012		0818	1646	-29.30	-10				466	411			X					
07	FB 3000		0833	1014	-29.50	-4.25				354	629			X					
08	AA 3000		0825	1649	-29.54	-7.0				144	242			X					
				1649		-7.0													

### \*SAMPLE MATRIX CODES

AA = Ambient Air (Indoor/Outdoor)

SV = Soil Vapor/Landfill Gas/SVE

Other = Please Specify

Container Type

CS

Relinquished By:

Date/Time

Received By:

Date/Time:

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

**APPENDIX E**

**DATA VALIDATION REPORT**



## **Data Usability Report**

### **Method TO-15 Analysis**

**Client/Company:** Sanborn, Head, & Associates, Inc., Concord, New Hampshire (SHA)

**Site/Project Name:** IBM Poughkeepsie Facility, Poughkeepsie, New York

**Laboratory:** Alpha Analytical, Mansfield, Massachusetts

**Sample Delivery Group:** L1407719

**Date(s) of Collection:** April 10, 2014

**Number and type  
Samples & analyses:** 26 Indoor Air samples, 3 Ambient Air samples, and 2 Field Blanks for 8 project-specific VOCs by Method TO-15

**Senior Data Reviewers:** Dr. Nancy C. Rothman, New Environmental Horizons, Inc.  
Susan D. Chapnick, New Environmental Horizons, Inc.

**Date Completed:** May 21, 2014

A Data Validation Checklist Review was performed on the Work Order identified with the following intentions: 1) to determine if the data were generated and reported in accordance with the *RFI Work Plan, VOC Source Assessment, IBM Poughkeepsie Facility, Poughkeepsie, New York, prepared by Sanborn, Head & Associates, October 2012*; USEPA Region 9, *Volatile Organic Compounds (VOCs) in Air (Ambient Air/Soil Vapor/Stack Gas) Samples Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)*, EPA Method TO-15, (January 1999), 01/21/2000 revision; NYSDEC *Analytical Services Protocol, June 2005, with NYSDEC Modifications to the EPA Region 9 TO-15 QA/QC Criteria*, February 2008; USEPA Region II SOP HW-31, *Validating Air Samples, Volatile Organic Analysis of Ambient Air in Canisters by Method TO-15*, Rev. 4, October 2006; and 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)*, Publication EPA/625/R-96/010b, January 1999; 2) to determine if the data met project data quality objectives for acceptable accuracy, precision, sensitivity; and technical usability; and 3) to update the project database with appropriate data quality qualifiers.

## I. Sample Descriptions and Analytical Parameters

The sample IDs, date of sampling, identification of MS/MSD/MD, FD, EB, TB, if applicable, and the analytical parameters reviewed are listed in Table 1. Any deviations noted for sample collection or receipt (*e.g.*, temperature or preservation issues) are included in Section II, below.

Table 1. Sample Descriptions and Analytical Parameters

Sample ID	Lab Sample ID	Collection Date	Matrix	Analytical Parameters	Sample Type
IA6003	L1407719-01	4/10/14	Indoor Air	VOCs	Field Sample
IA6004	L1407719-02	4/10/14	Indoor Air	VOCs	Field Sample
IA6011	L1407719-03	4/10/14	Indoor Air	VOCs	Field Sample
IA6012	L1407719-04	4/10/14	Indoor Air	VOCs	Field Sample
IA6015	L1407719-05	4/10/14	Indoor Air	VOCs	Field Sample
IA6049	L1407719-06	4/10/14	Indoor Air	VOCs	Field Sample
IA6061	L1407719-07	4/10/14	Indoor Air	VOCs	Field Sample
IA6066	L1407719-08	4/10/14	Indoor Air	VOCs	Field Sample
IA6073	L1407719-09	4/10/14	Indoor Air	VOCs	Field Sample
AA5001	L1407719-10	4/10/14	Ambient Air	VOCs	Field Sample
AA6001	L1407719-11	4/10/14	Ambient Air	VOCs	Field Sample
FB5001	L1407719-12	4/10/14	Air	VOCs	Field Blank
FD5033	L1407719-13	4/10/14	Indoor Air	VOCs	Field Duplicate of IA5033
IA4011	L1407719-14	4/10/14	Indoor Air	VOCs	Field Sample
IA5002	L1407719-15	4/10/14	Indoor Air	VOCs	Field Sample
IA5023	L1407719-17	4/10/14	Indoor Air	VOCs	Field Sample
IA5028	L1407719-18	4/10/14	Indoor Air	VOCs	Field Sample
IA5031	L1407719-19	4/10/14	Indoor Air	VOCs	Field Sample
AA4001	L1407719-20	4/10/14	Ambient Air	VOCs	Field Sample
FB4001	L1407719-21	4/10/14	Air	VOCs	Field Blank
FD4015	L1407719-22	4/10/14	Indoor Air	VOCs	Field Duplicate of IA4015

Table 1. Sample Descriptions and Analytical Parameters - *continued*

Sample ID	Lab Sample ID	Collection Date	Matrix	Analytical Parameters	Sample Type
IA4007	L1407719-23	4/10/14	Indoor Air	VOCs	Field Blank
IA4009	L1407719-24	4/10/14	Indoor Air	VOCs	Field Sample
IA4010	L1407719-25	4/10/14	Indoor Air	VOCs	Field Sample
IA4012	L1407719-26	4/10/14	Indoor Air	VOCs	Field Sample
IA4015	L1407719-27	4/10/14	Indoor Air	VOCs	Field Sample
IA4039	L1407719-28	4/10/14	Indoor Air	VOCs	Field Sample
IA4043	L1407719-29	4/10/14	Indoor Air	VOCs	Field Sample
IA5033	L1407719-30	4/10/14	Indoor Air	VOCs	Field Sample
IA5034	L1407719-31	4/10/14	Indoor Air	VOCs	Field Sample
IA5041	L1407719-32	4/10/14	Indoor Air	VOCs	Field Sample

Analytical method references:

VOC: Method TO-15 operated in the Selected Ion Monitoring (SIM) mode for 8 project-specific VOCs

## II. Data Discussion

An In-Depth Data Usability Review was performed on SDG L1221714. This review indicated, overall, that the laboratory met project DQOs. Therefore, compliant with the Work Plan requirements for data validation, an abbreviated checklist review of subsequent air data was performed. Please see the Data Usability Report for SDG L1221714 for complete details on the in-depth TO-15 review. The Data Review Checklist, attached, was completed during this abbreviated assessment to document the review of this SDG.

The samples were received intact and the canister vacuums (initial field, field final, and lab receipt) and flow controller accuracy were considered acceptable for all samples except as follows.

- Samples IA6011 and FB5001 reported a greater than 5 "Hg difference between their final field vacuums and lab receipt vacuums. The results for these two samples were estimated (J or UJ) with indeterminate bias due to the disagreement between the field final and receipt vacuums, as shown in Table 2.
- Fourteen samples reported flow controller check results that exceeded project criteria (RPD > 20%) and five of these (AA5001, FD5033, IA4011, IA5002, and IA5028) also exceeded sample collection time criteria ( $> 8\text{h} \pm 20\%$ ). Both the flow controller RPD and the duration of sample collection were evaluated together in determining whether DV action should be taken, since the field collection compensated for the flow controller issues by shortening or lengthening the sampling time. For five samples (AA5001, FD5033, IA4011, IA5002, and IA5028), the sample collection duration was significantly changed ( $>20\%$  of 8h) so that the collection event no longer represented an 8-hour collection. Based on professional judgment, the resulting data for these affected samples are considered uncertain. Therefore, results for samples AA5001, FD5033, IA4011, IA5002, and IA5028 were estimated (J or UJ) with indeterminate bias due to flow controller uncertainty and sample collection uncertainty, as shown in Table 2.

Sample IA5021 was received on "HOLD" and was not reported in this SDG.

One of the two field blanks (FB4001) associated with all 4000-series samples, reported a low-level detect for trichloroethene. A comparison of the level found in this field blank with the associated samples lead to estimation (EB) of trichloroethene in five samples with a possible high bias, as shown in Table 2.

Laboratory Duplicate (LD) precision evaluation was performed on samples IA6003 and IA4007. Precision was acceptable for all target VOCs.

There were two field duplicate (FD) pairs: IA5003 / FD5003 and IA4015 / FD4015. FD precision was acceptable for all target VOCs. The sample/LD and FD results are an indication of acceptable precision and representativeness of the samples to the locations collected for all target VOCs in these air samples.

Sensitivity requirements compared to the Reporting Limits (RLs) defined in Table B.1 of the Work Plan were met for all samples.

All other quality control information associated with accuracy, precision, and sensitivity for the VOCs reported met project criteria for these samples with the exceptions summarized in Table 2, below. The attached Data Review Checklist includes all QA/QC reviewed during validation (including QC results that were acceptable) and details on the justification for actions taken.

Table 2. Summary of Data Validation Actions

Field Sample ID	Analyte	Qualifier	Bias	Validation Comments
IA6011 FB5001	All VOCs	J / UJ	I	Field final and Receipt vacuum disagree
AA5001 FD5033 IA4011 IA5002 IA5028	All VOCs	J / UJ	I	Flow Controller uncertainty + Sample Collection uncertainty
FD4015 IA4007 IA4009 IA4012 IA4015	Trichloroethene	EB	H	Equipment Blank Action
AA6001	Trichloroethene	J	I	Result uncertain below the calibration range

*Qualifiers: U = Analyte is non-detect at the "Analyte-Reporting Limit" value; UJ = Non-detect is estimated; J = Result is estimated; EB = detected in field equipment blank; R = Result is rejected and is unusable for project decisions.*

*Bias: L = Low; H = High; I = Indeterminate*





## Data Usability Report Method TO-15 Analysis

**Client/Company:** Sanborn, Head, & Associates, Inc., Concord, New Hampshire (SHA)

**Site/Project Name:** IBM Poughkeepsie Facility, Poughkeepsie, New York

**Laboratory:** Alpha Analytical, Mansfield, Massachusetts

**Sample Delivery Group:** L1408728

**Date(s) of Collection:** April 23, 2014

**Number and type  
Samples & analyses:** 6 Indoor Air samples, 1 Ambient Air sample, and 1 Field Blank for 8 project-specific VOCs by Method TO-15

**Senior Data Reviewers:** Dr. Nancy C. Rothman, New Environmental Horizons, Inc.  
Susan D. Chapnick, New Environmental Horizons, Inc.

**Date Completed:** May 22, 2014

A Data Validation Checklist Review was performed on the Work Order identified with the following intentions: 1) to determine if the data were generated and reported in accordance with the *RFI Work Plan, VOC Source Assessment, IBM Poughkeepsie Facility, Poughkeepsie, New York, prepared by Sanborn, Head & Associates, October 2012*; USEPA Region 9, *Volatile Organic Compounds (VOCs) in Air (Ambient Air/Soil Vapor/Stack Gas) Samples Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)*, EPA Method TO-15, (January 1999), 01/21/2000 revision; NYSDEC *Analytical Services Protocol, June 2005, with NYSDEC Modifications to the EPA Region 9 TO-15 QA/QC Criteria*, February 2008; USEPA Region II SOP HW-31, *Validating Air Samples, Volatile Organic Analysis of Ambient Air in Canisters by Method TO-15*, Rev. 4, October 2006; and 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)*, Publication EPA/625/R-96/010b, January 1999; 2) to determine if the data met project data quality objectives for acceptable accuracy, precision, sensitivity; and technical usability; and 3) to update the project database with appropriate data quality qualifiers.

## I. Sample Descriptions and Analytical Parameters

The sample IDs, date of sampling, identification of MS/MSD/MD, FD, EB, TB, if applicable, and the analytical parameters reviewed are listed in Table 1. Any deviations noted for sample collection or receipt (*e.g.*, temperature or preservation issues) are included in Section II, below.

Table 1. Sample Descriptions and Analytical Parameters

Sample ID	Lab Sample ID	Collection Date	Matrix	Analytical Parameters	Sample Type
IA 3028	L1408728-01	4/23/14	Indoor Air	VOCs	Field Sample
IA 3027	L1408728-02	4/23/14	Indoor Air	VOCs	Field Sample
IA 3008	L1408728-03	4/23/14	Indoor Air	VOCs	Field Sample
FD 3008	L1408728-04	4/23/14	Indoor Air	VOCs	Field Duplicate of IA 3008
IA 3007	L1408728-05	4/23/14	Indoor Air	VOCs	Field Sample
IA 3012	L1408728-06	4/23/14	Indoor Air	VOCs	Field Sample
FB 3000	L1408728-07	4/23/14	Air	VOCs	Field Blank
AA 3000	L1408728-08	4/23/14	Ambient Air	VOCs	Field Sample

Analytical method references:

VOC: Method TO-15 operated in the Selected Ion Monitoring (SIM) mode for 8 project-specific VOCs

## II. Data Discussion

An In-Depth Data Usability Review was performed on SDG L1221714. This review indicated, overall, that the laboratory met project DQOs. Therefore, compliant with the Work Plan requirements for data validation, an abbreviated checklist review of subsequent air data was performed. Please see the Data Usability Report for SDG L1221714 for complete details on the in-depth TO-15 review. The Data Review Checklist, attached, was completed during this abbreviated assessment to document the review of this SDG.

The samples were received intact and the canister vacuums (initial field, field final, and lab receipt) and flow controller accuracy were considered acceptable for all samples.

The canister certification form for the field blank, FB 3000, indicated the canister contained tetrachloroethene prior to being shipped to the field for sample collection. This canister was shipped from the laboratory in error and should have been re-cleaned and re-certified prior to use, which was acknowledged in the project narrative. The result for tetrachloroethene in FB 3000 was rejected (R) and is not usable since this result may not be site-related.

Laboratory Duplicate (LD) precision evaluation was performed on sample IA 3028. Precision was acceptable for all target VOCs.

There was one field duplicate (FD) pair: IA 3008 / FD 3008. FD precision was acceptable for all target VOCs. The sample/LD and FD results are an indication of acceptable precision and representativeness of the samples to the locations collected for all target VOCs in these air samples.

Sensitivity requirements compared to the Reporting Limits (RLs) defined in Table B.1 of the Work Plan were met for all samples.

All other quality control information associated with accuracy, precision, and sensitivity for the VOCs reported met project criteria for these samples with the exceptions summarized in Table 2, below. The attached Data Review Checklist includes all QA/QC reviewed during validation (including QC results that were acceptable) and details on the justification for actions taken.

Table 2. Summary of Data Validation Actions

Field Sample ID	Analyte	Qualifier	Bias	Validation Comments
FB 3000	Tetrachloroethene	R		Unusable: Canister contaminated

*Qualifiers: U = Analyte is non-detect at the "Analyte-Reporting Limit" value; UJ = Non-detect is estimated; J = Result is estimated; EB = detected in field equipment blank; R = Result is rejected and is unusable for project decisions.*

*Bias: L = Low; H = High; I = Indeterminate*



## **Data Usability Report**

### **Method TO-15 Analysis**

**Client/Company:** Sanborn, Head, & Associates, Inc., Concord, New Hampshire (SHA)

**Site/Project Name:** IBM Poughkeepsie Facility, Poughkeepsie, New York

**Laboratory:** Alpha Analytical, Mansfield, Massachusetts

**Sample Delivery Group:** L1405228

**Date(s) of Collection:** March 11, 2014

**Number and type  
Samples & analyses:** 8 Indoor Air samples, 2 Ambient Air samples, and 1 Field Blank for 8 project-specific VOCs by Method TO-15

**Senior Data Reviewers:** Dr. Nancy C. Rothman, New Environmental Horizons, Inc.  
Susan D. Chapnick, New Environmental Horizons, Inc.

**Date Completed:** April 4, 2014

A Data Validation Checklist Review was performed on the Work Order identified with the following intentions: 1) to determine if the data were generated and reported in accordance with the *RFI Work Plan, VOC Source Assessment, IBM Poughkeepsie Facility, Poughkeepsie, New York, prepared by Sanborn, Head & Associates, October 2012*; USEPA Region 9, *Volatile Organic Compounds (VOCs) in Air (Ambient Air/Soil Vapor/Stack Gas) Samples Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)*, EPA Method TO-15, (January 1999), 01/21/2000 revision; NYSDEC *Analytical Services Protocol, June 2005, with NYSDEC Modifications to the EPA Region 9 TO-15 QA/QC Criteria*, February 2008; USEPA Region II SOP HW-31, *Validating Air Samples, Volatile Organic Analysis of Ambient Air in Canisters by Method TO-15*, Rev. 4, October 2006; and 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)*, Publication EPA/625/R-96/010b, January 1999; 2) to determine if the data met project data quality objectives for acceptable accuracy, precision, sensitivity; and technical usability; and 3) to update the project database with appropriate data quality qualifiers.

## I. Sample Descriptions and Analytical Parameters

The sample IDs, date of sampling, identification of MS/MSD/MD, FD, EB, TB, if applicable, and the analytical parameters reviewed are listed in Table 1. Any deviations noted for sample collection or receipt (*e.g.*, temperature or preservation issues) are included in Section II, below.

Table 1. Sample Descriptions and Analytical Parameters

Sample ID	Lab Sample ID	Collection Date	Matrix	Analytical Parameters	Sample Type
IA8001	L1405228-01	3/11/14	Indoor Air	VOCs	Field Sample
IA8002	L1405228-02	3/11/14	Indoor Air	VOCs	Field Sample
IA8003	L1405228-03	3/11/14	Indoor Air	VOCs	Field Sample
IA8004	L1405228-04	3/11/14	Indoor Air	VOCs	Field Sample
IA8005	L1405228-05	3/11/14	Indoor Air	VOCs	Field Sample
IA8006	L1405228-06	3/11/14	Indoor Air	VOCs	Field Sample
AA8001	L1405228-07	3/11/14	Ambient Air	VOCs	Field Sample
FB8001	L1405228-08	3/11/14	Air	VOCs	Field Blank
IA7003	L1405228-09	3/11/14	Indoor Air	VOCs	Field Sample
FD7003	L1405228-10	3/11/14	Indoor Air	VOCs	Field Duplicate of IA7003
AA7001	L1405228-11	3/11/14	Ambient Air	VOCs	Field Sample

Analytical method references:

VOC: Method TO-15 operated in the Selected Ion Monitoring (SIM) mode for 8 project-specific VOCs

## II. Data Discussion

An In-Depth Data Usability Review was performed on SDG L1221714. This review indicated, overall, that the laboratory met project DQOs. Therefore, compliant with the Work Plan requirements for data validation, an abbreviated checklist review of subsequent air data was performed. Please see the Data Usability Report for SDG L1221714 for complete details on the in-depth TO-15 review. The Data Review Checklist, attached, was completed during this abbreviated assessment to document the review of this SDG.

The samples were received intact and the canister vacuums (initial field, field final, and lab receipt) and flow controller accuracy were considered acceptable for all samples except IA8002. A comparison of the flow rate prior to shipment and after sampling for the flow controller used to collect sample IA8002 indicated unacceptable precision ( $RPD = 71\%$  compared to flow rate precision objective of  $RPD \leq 20\%$ ), which may have affected the integrity of sample collection. The results for this one sample were estimated (J or UJ) with indeterminate bias due to flow controller uncertainty.

A subslab soil vapor sample SSV2002/G was collected on March 12, 2014; however, there were no results reported for this sample in this SDG L1405228.

The Chain-of-Custody (COC) sample IDs all have a "/S" suffix attached to sample IDs, which is missing from the sample IDs reported in the EDD and hardcopy data package (e.g., sample reported as IA8001 is listed on the COC as "IA8001/S").

Laboratory Duplicate (LD) precision evaluation was performed on sample IA8002. Precision was acceptable for all target VOCs.

There was one field duplicate (FD) pair: IA7003 / FD7003. FD precision was acceptable for all target VOCs. The sample/LD and FD results are an indication of acceptable precision and representativeness of the samples to the locations collected for all target VOCs in these air samples.

Sensitivity requirements compared to the Reporting Limits (RLs) defined in Table B.1 of the Work Plan were met for all samples.

All other quality control information associated with accuracy, precision, and sensitivity for the VOCs reported met project criteria for these samples with the exceptions summarized in Table 2, below. The attached Data Review Checklist includes all QA/QC reviewed during validation (including QC results that were acceptable) and details on the justification for actions taken.

Table 2. Summary of Data Validation Actions

Field Sample ID	Analyte	Qualifier	Bias	Validation Comments
IA8002	All VOCs except: Trichloroethene	UJ	I	Flow Controller uncertainty
IA8002	Trichloroethene	J	I	Flow Controller uncertainty + Result uncertain below the calibration range
IA8001 IA8003 IA8005 AA8001	Trichloroethene	J	I	Result uncertain below the calibration range

*Qualifiers: U = Analyte is non-detect at the "Analyte-Reporting Limit" value; UJ = Non-detect is estimated; J = Result is estimated; EB = detected in field equipment blank; R = Result is rejected and is unusable for project decisions.*

*Bias: L = Low; H = High; I = Indeterminate*

**APPENDIX F**

**SUPPLEMENTAL FIGURES**  
**SUBSLAB PRESSURE RESPONSE TO**  
**VAPOR EXTRACTION TESTING**



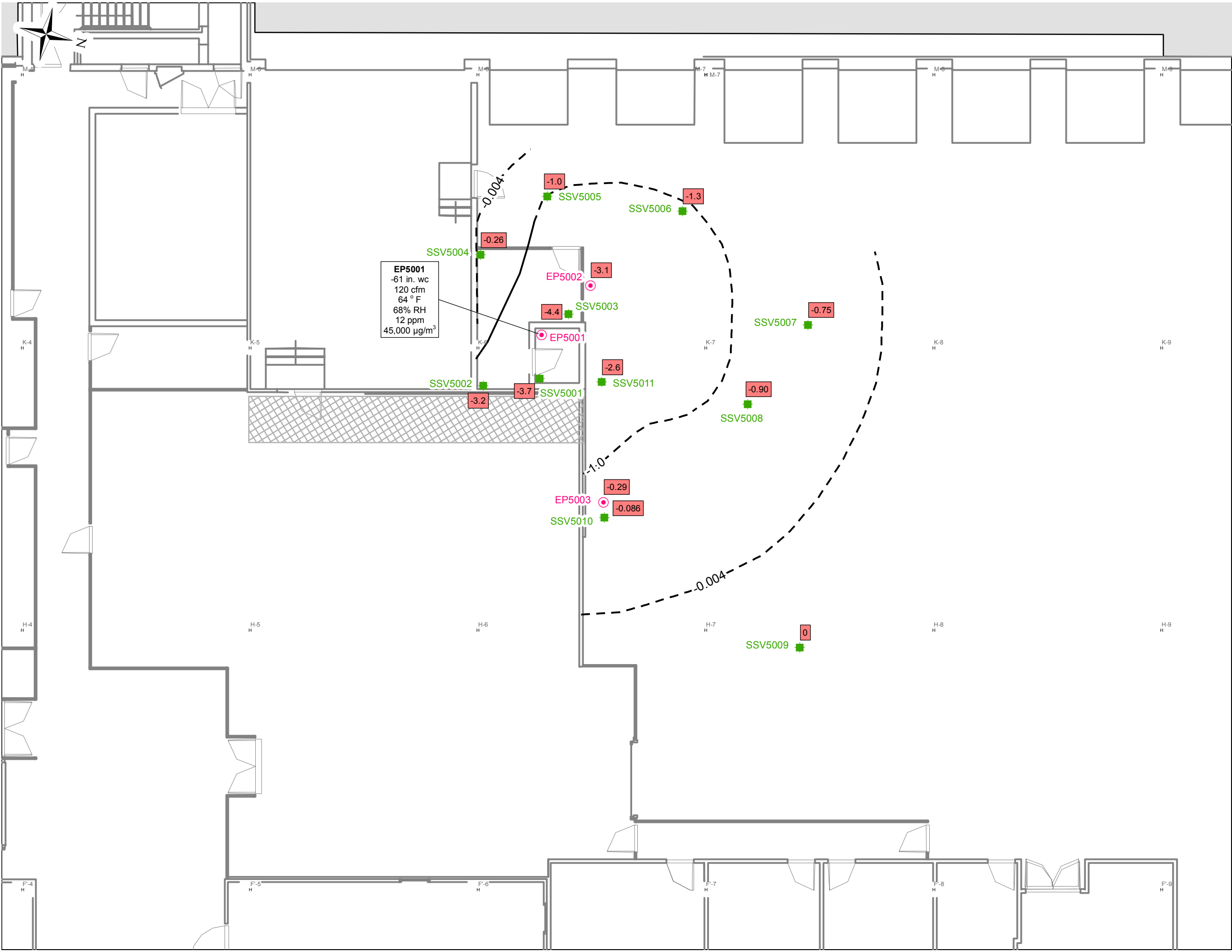


Figure F-1

## Subslab Pressure Response to Vapor Extraction Testing B004 Loading DockTest at EP5001

B004 Pilot Testing  
VOC Source Assessment

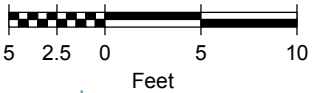
IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By: C. LaVack  
Designed By: R. Welch  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

**Figure Narrative**  
This figure shows the individual extraction test data and observed subslab pressure response during pilot testing at EP5001 on August 6, 2014. Subslab pressure was monitored using a digital manometer referenced to indoor air pressure. Negative values indicate subslab pressure is less than indoor air pressure. Subslab vapor was collected during testing for laboratory analysis using a 1 liter, stainless steel Summa canister.

**Legend**

<b>EP5001</b> in. wc scfm ° F % RH ppm # µg/m³	Test Port ID Applied Vacuum Air Flow Rate Temperature Relative Humidity PID Reading TCE
SSV5001	Subslab Vapor Monitoring Location
EP5001	Vapor Extraction Port
-1.0	Differential Pressure, in wc
--	Inferred Differential Pressure Contour (in wc). Negative values indicate vacuum conditions
—	Differential Pressure Contour (in wc). Negative values indicate vacuum conditions
[Cross-hatch]	Approximate Extents of Crawl Space



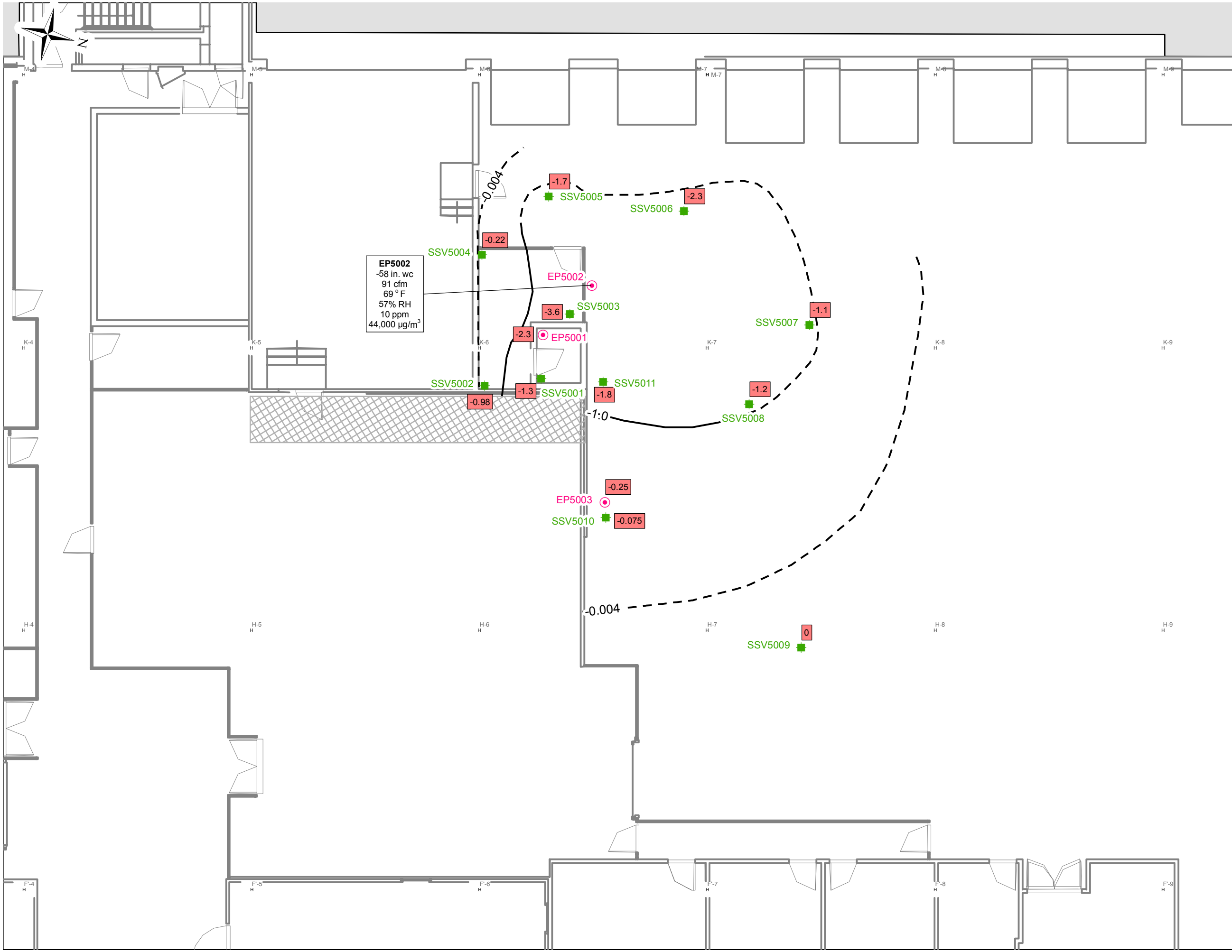


Figure F-2  
**Subslab Pressure Response to  
Vapor Extraction Testing B004  
Loading Dock Test at EP5002**

B004 Pilot Testing  
VOC Source Assessment

IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By: C. LaVack  
Designed By: R. Welch  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

**Figure Narrative**  
This figure shows the individual extraction test data and observed subslab pressure response during pilot testing at EP5002 on August 7, 2014. Subslab pressure was monitored using a digital manometer referenced to indoor air pressure. Negative values indicate subslab pressure is less than indoor air pressure. Subslab vapor was collected during testing for laboratory analysis using a 1 liter, stainless steel Summa canister.

**Legend**

<b>EP5001</b> in. wc scfm ° F % RH ppm # µg/m³	Test Port ID Applied Vacuum Air Flow Rate Temperature Relative Humidity PID Reading TCE
SSV5001	Subslab Vapor Monitoring Location
EP5001	Vapor Extraction Port
-1.0	Differential Pressure, in wc
--	Inferred Differential Pressure Contour (in wc). Negative values indicate vacuum conditions
—	Differential Pressure Contour (in wc). Negative values indicate vacuum conditions
[Hatched Box]	Approximate Extents of Crawl Space

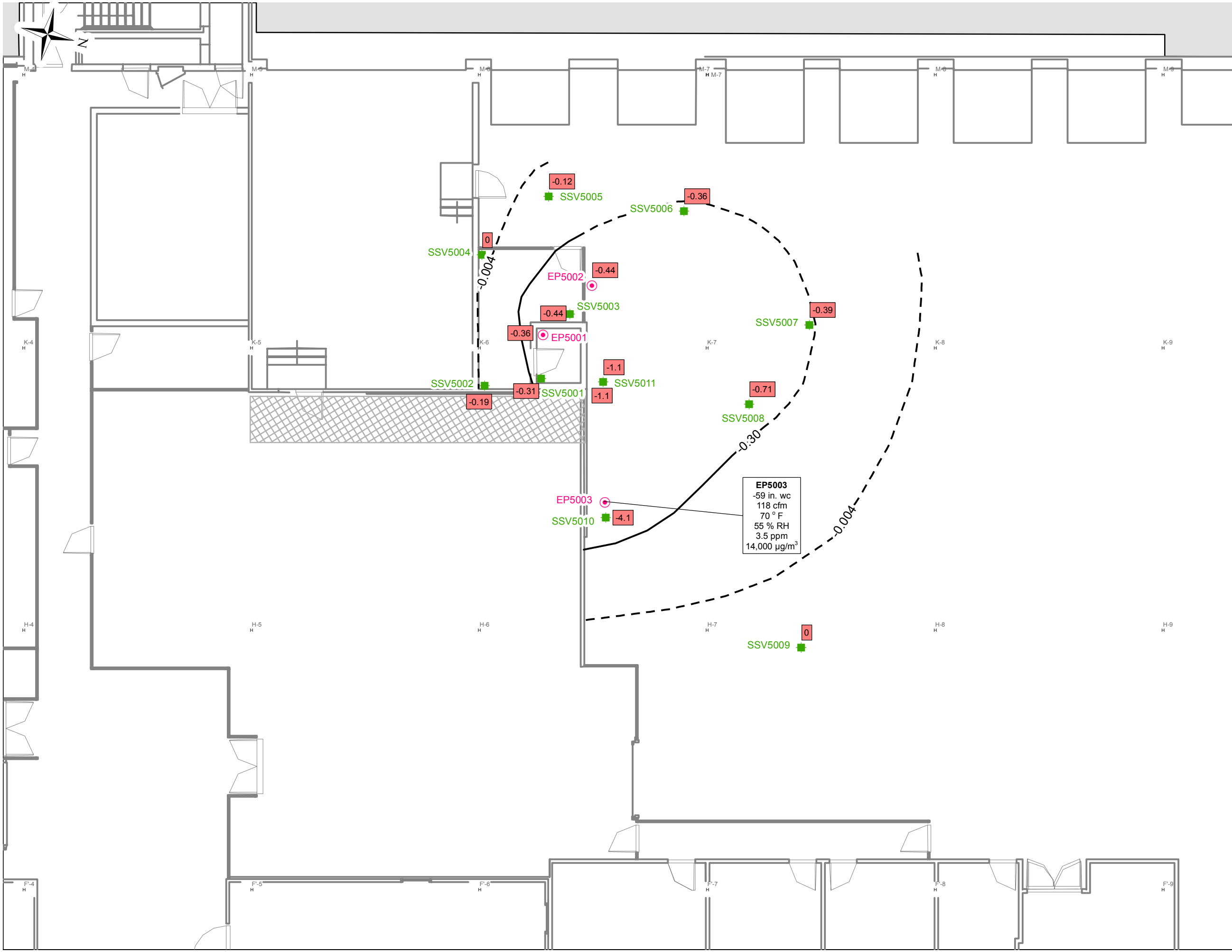


Figure F-3  
**Subslab Pressure Response to  
Vapor Extraction Testing B004  
Loading Dock Test at EP5003**

B004 Pilot Testing  
VOC Source Assessment

IBM Poughkeepsie Facility  
Poughkeepsie, New York

Drawn By: C. LaVack  
Designed By: R. Welch  
Reviewed By: B. Green/D. Shea  
Project No: 3463.00  
Date: October 2014

**Figure Narrative**  
This figure shows the individual extraction test data and observed subslab pressure response during pilot testing at EP5003 on August 7, 2014. Subslab pressure was monitored using a digital manometer referenced to indoor air pressure. Negative values indicate subslab pressure is less than indoor air pressure. Subslab vapor was collected during testing for laboratory analysis using a 1 liter, stainless steel Summa canister.

**Legend**

<b>EP5001</b> in. wc scfm ° F % RH ppm # µg/m³	Test Port ID Applied Vacuum Air Flow Rate Temperature Relative Humidity PID Reading TCE
--	---

**SSV5001**  
■ Subslab Vapor Monitoring Location

**EP5001**  
● Vapor Extraction Port

**-1.0**  
■ Differential Pressure, in wc

--- Inferred Differential Pressure Contour (in wc). Negative values indicate vacuum conditions

— Differential Pressure Contour (in wc). Negative values indicate vacuum conditions

▨ Approximate Extents of Crawl Space

