Bristol-Myers Squibb

Building 3 Vapor Intrusion and Air Treatment System Assessment Report

Syracuse North Campus Restoration Area
East Syracuse, New York

October 2021

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I, *Christopher Davern, certify that I am currently a New York State registered Professional Engineer and that this Building 3 Vapor Intrusion and Air Treatment System Assessment Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).*

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Christopher Davern
New York State P.E. License No. 102110

Contents

Tables

Figures

Attachments

Acronyms and Abbreviations

Arcadis	Arcadis of New York, Inc.
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ATS	air treatment system
BASE	Building Assessment Survey and Evaluation Study
BCA	Brownfield Cleanup Agreement
BDA	Brownfield Development Area
BMS	Bristol-Myers Squibb
CFM	cubic feet per minute
COC	constituent of concern
DER-10	DER-10 Technical Guidance for Site Investigation and Remediation
DUSR	Data Usability Summary Report
ELAP	Environmental Laboratory Approval Program
eV	electron volt
FSAP	Field Sampling and Analysis Plan
HVAC	heating, ventilation, and air conditioning
JLL	Jones Lang LaSalle Incorporated
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OBG	O'Brien & Gere
OMM	operation, maintenance, and monitoring
OSHA	Occupational Safety and Health Administration
Phase 1/1A Report	Phase 1/1A Remedial Investigation Data Summary Report
PID	photoionization detector
ppm	parts per million
QAPP	Quality Assurance Project Plan
QA/QC	quality assurance/quality control
RSL	Regional Screening Level
SDS	Safety Data Sheet
SVI	soil vapor intrusion
TIC	tentatively identified compound

TCE	trichloroethene
TLV	Threshold Limit Values
µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter
USEPA	United States Environmental Protection Agency
VI	vapor intrusion
VOC	volatile organic compounds

1 Introduction

This Building 3 Vapor Intrusion and Air Treatment System Assessment Report has been developed by Arcadis of New York, Inc. (Arcadis) for the Bristol-Myers Squibb (BMS) Syracuse North Campus Restoration Area, which is also referred to as the Brownfield Development Area (BDA). The BDA is part of the BMS Facility located at 3551 Burnet Avenue in East Syracuse, New York. The location of the BDA and BMS Facility are shown on **Figure 1**. The BDA is identified by the New York State Department of Environmental Conservation (NYSDEC) as Site No. C734138 and is subject to a Brownfield Cleanup Agreement (BCA; October 2011) between BMS and the New York State Department of Environmental Conservation (NYSDEC).

An indoor air treatment system (ATS) was installed in April 2021 as a supplemental mitigation measure for the boiler control room located in the basement of Building 3 at the BMS Facility. The proposed installation of the ATS was described in a March 19, 2021 letter submitted to NYSDEC by Arcadis on behalf of BMS. This report presents the findings of pre-startup and post-startup (i.e., confirmation sampling) indoor air sampling events conducted in Building 3 in January and June 2021, respectively, as well as supplemental air sampling conducted to assess ATS performance. Additionally, a summary of previous soil vapor intrusion (SVI) assessment activities conducted prior to 2021 at the BMS Facility is included in this report.

2 Previous Building 3 Soil Vapor Intrusion Assessments

Based on the presence of dissolved-phase volatile organic compound (VOC) concentrations in groundwater in the BDA, an evaluation of the potential SVI migration pathway was conducted for Building 3 as it was a downgradient or proximal building that remained occupied at the time of the Phase 1A investigation in 2016.

One indoor air sample (with associated outdoor ambient air sample) was collected in the Building 3 basement (i.e., boiler control room) for each sampling event. An elevated water table in proximity to the Building 3 slab elevation precluded collection of sub-slab samples or near building soil vapor samples. Therefore, BMS proposed to use the analytical results from monitoring wells upgradient of Building 3 (BDA-1WT and BDA-1F, shown on **Figure 2**) and compare compounds detected in the groundwater sample results to the compounds identified in the indoor air sample.

The initial SVI investigation consisted of two (2) rounds of sampling. The first round was conducted in January and March 2016. The results of that sampling were documented in the *Phase 1/1A Remedial Investigation Data Summary Report* (Arcadis 2016) (Phase 1/1A Report). In October 2016, BMS informed the NYSDEC and the New York State Department of Health (NYSDOH) that it would conduct a second round of SVI sampling during the following heating season. The second round of SVI sampling was conducted in December 2016 with additional groundwater samples from upgradient monitoring wells BDA-1F and BDA-1WT collected in July and December of 2017.

A summary of the findings from the 2016 sampling events was submitted to the NYSDEC and the NYSDOH on March 8, 2017 in a report titled *Soil Vapor Intrusion (SVI) Module Data Summary Report* (SVI Report, Arcadis 2017). The SVI Report concluded that based on the 2016 sampling results no additional sampling would be needed. In May 2017, the NYSDOH updated the screening values listed in the decision matrices from the *2006 NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York*. The results of this change were discussed in an October 4, 2017 e-mail to BMS from the NYSDOH, and during an October 10, 2017 meeting between BMS, the NYSDEC, and the NYSDOH. The agencies expressed concern that the Building 3 measured indoor air concentrations of trichloroethene (TCE) at 0.93 and 1.6 micrograms per cubic meter [µg/m^3] were greater than the NYSDOH revised indoor air guidance values for monitoring (0.2 µg/m^3) and mitigation (1.0 µg/m^3) when a sub-slab or soil gas source is detected. During the October 10, 2017 meeting, BMS indicated that additional sampling of indoor air in Building 3 would be conducted following completion of on-going building renovations in Building 3 and the adjoining Building 2, and the onset of the heating season.

The third round of Building 3 indoor and ambient air sampling (one sample each) was conducted on January 17, 2018 after completing the renovation activities but prior to startup of a new heating, ventilation, and air conditioning (HVAC) system. The results identified a slight decrease in the TCE concentration versus the previous rounds with a concentration of 0.77 µg/m^3 and 0.82 µg/m^3 from the parent and duplicate indoor air samples, respectively. However, the results remained above the screening criteria for monitoring of 0.2 µg/m^3 for TCE. As such, in the March 2018 monthly progress report to the NYSDEC and the NYSDOH, BMS provided an additional work scope and schedule, which was approved on May 2, 2018 following a modification request by the NYSDEC/NYSDOH.

The fourth round of Building 3 indoor and ambient air sampling (one sample each) was conducted on January 24, 2019 following the installation of the passive mitigation measures identified in the March 2018 work scope and

May 2, 2018 approval letter, and with the new HVAC system in full operation. Arcadis conducted a building airflow and pressure assessment on January 11, 2019. The evaluation results were detailed in the *Building 3 Vapor Intrusion (VI) Assessment Report* (Arcadis 2019), which indicated a positive pressure in the boiler control room indoor air relative to other locations measured (e.g., drain feature, indoor air in adjoining building rooms and outdoor ambient air), suggesting conditions suitable for preventing vapors from migrating through the floor drains or from the sub-slab environment and into the breathing zone. The results again identified a slight decrease in the TCE concentration versus the previous rounds with a concentration of 0.59 µg/m^3 and 0.61 µg/m^3 from the parent and duplicate indoor air samples, respectively. However, the results remained above the screening criteria for monitoring of 0.2 µg/m^3 for TCE. As such, BMS proposed to the NYSDEC and the NYSDOH to collect a new sample in the heating season of 2020/2021 once additional passive mitigation measures were implemented (e.g., weather stripping and HVAC adjustments).

3 Building 3 Air Sampling

This report summarizes the programmatic sampling activities conducted in 2021, including the routine Building 3 sampling event on January 14, the subsequent installation and efficacy testing as well as supplemental weekly and system sampling, and the results of the ATS post-startup confirmation sampling event conducted on June 24 within the occupied boiler control room.

3.1 Pre-Sampling Chemical Inventory

Prior to the January and June 2021 sampling events, a detailed building review and reconnaissance was conducted to: (1) confirm and document specific sample locations (i.e., measured from outside walls); (2) obtain additional information on building layout, uses, and HVAC system configuration and operation; and (3) identify and remove chemical products from the building, if feasible. Chemical products that could not be removed from buildings 48 hours in advance of the sampling were documented. A photoionization detector (PID) equipped with an 11.7 electron volt (eV) lamp was used to screen for the presence of detectable vapor-phase chemicals during the reconnaissance. In addition, during the supplemental ATS weekly testing activities noted above, a chemical inventory was conducted in the vicinity (basement level) of the ATS.

Based on the January chemical inventory presented in **Attachment A**, one product was identified as containing TCE during the January inventory; a used 18-ounce bottle of *Nu-Calgon's*® Cal-Spray branded *nu-blast*® condenser/coil cleaner was identified per the Safety Data Sheet (SDS) to contain approximately 90-98% TCE by weight. This product was identified within a flammable storage cabinet located in Building 2 (which is adjacent to Building 3). Depending on when this product was last used, the residual concentration on the surface(s) it was applied to could continue to off-gas into the indoor air for an undetermined amount of time. This potential confounding source coincides with the low-level detection of TCE in the indoor air results. Naphthalene was also confirmed to be an ingredient in at least one product (i.e., Chesterton 730 Spragrip®) identified in Building 2. Both products had been removed from the building prior to the ATS start-up and subsequent sampling events.

As these products are part of BMS's chemical inventory and BMS has a Hazardous Materials Communication Program for workers withing Building 2 and 3, any exposures associated with this product would fall under the Occupational Safety and Health Administration (OSHA) worker exposure criteria of 50 parts per million (ppm) for 8-hour Threshold Limit Values (TLV). Therefore, further mitigation measures associated with the potential for SVI would not be required. Nevertheless, BMS will continue to operate the ATS to provide an additional level of protection for the workers within the boiler control room.

3.2 Air Sampling

Building 3 air sampling events were conducted in January, April, May and June 2021. With the January and June sampling events identified as the ATS pre- and post-startup (i.e., confirmation) sampling events for the ATS, respectively. As discussed in Section 5.3 below, in addition to the confirmatory air sampling events, supplemental weekly system testing samples and ATS influent/effluent air samples were collected during the first month of ATS operation.

3.2.1 Sample Types and Locations

As with previous Building 3 VI sampling events, the January and June 2021 sampling events each included collection of one indoor air (with duplicate) sample in the boiler control room and one outdoor ambient air sample. The 6-liter Summa canisters were collected over an 8-hour period at the same sampling locations where indoor and outdoor ambient air samples were collected historically and had been approved in the field with NYSDEC staff. The weekly ATS testing samples were also collected over and 8-hour sample duration from location IA-3 directly above the ATS. The influent and effluent samples were collected as a grab/instantaneous system sample from the corresponding side of the ATS from a sample port installed into the temporary ducting extensions. The sampling locations are shown on **Figure 3**.

3.2.2 Sampling Procedures and Analysis

Pre- and post-startup samples and associated quality assurance/quality control (QA/QC) samples were collected in accordance with the NYSDEC-approved *Field Sampling and Analysis Plan* (FSAP; OBG 2013b) and *Quality Assurance Project Plan* (QAPP; OBG 2013c) and the NYSDEC Division of Environmental Remediation's *DER-10 Technical Guidance for Site Investigation and Remediation* (DER-10; NYSDEC 2010). All work was performed under the responsible charge of a qualified environmental professional as defined in DER-10.

Indoor and ambient air samples were collected concurrently during the January 14 and June 24, 2021, sampling events, respectively. All air samples were collected in individually certified clean 6-liter (L) Summa® canisters with the indoor air and ambient air samples placed approximately three to five feet above the ground surface (i.e., at approximate breathing zone height) and collected over an 8-hour period, consistent with previous sampling events. No potential equipment quality control issues were identified during indoor or ambient air sampling.

All sample canisters were provided by Eurofins Air Toxics Laboratories Environmental, LLC, of Folsom, California. After sampling, the canisters were returned to the laboratory by overnight courier, under chain-of-custody, for analysis of VOC in accordance with USEPA Method TO-15. Additionally, as feasible, site-specific VOC not included in the laboratory's standard TO-15 compound list were reported by the laboratory as tentatively identified compounds (TIC).

4 Pre- and Post- ATS Air Sample Results

4.1 Applicable Screening Criteria

To evaluate the potential need for additional evaluation or mitigation, indoor and ambient air analytical data were compared to the applicable screening values. In accordance with DER-10 (Section 3.14(c)(4)), the analytical data was also compared to residential screening values. The current and reasonably anticipated future use of BMS buildings is commercial/industrial.

- For constituents of concern (COCs) included in the NYSDOH May 2017 decision matrices, the indoor air and soil vapor guidance values provided in the matrices are used to identify whether no further action, additional monitoring, or mitigation is needed, regardless of commercial or residential building occupancy.
- The Commercial Indoor Air Screening Level is the USEPA Building Assessment Survey and Evaluation (BASE) Study 90th percentile value, provided in Appendix C of the NYSDOH Guidance document, except for

COCs included in the NYSDOH decision matrices. If a BASE value is not available, the USEPA Industrial Air Regional Screening Level (RSL) (USEPA 2021) using the lower of a target cancer incremental risk of $1x10^{-6}$ or a target hazard quotient of 1 is used, when available.

- NYSDOH Guidance document appendix, the Residential Indoor Air Screening Level is the NYSDOH Fuel Oil Study Upper Fence value, except for COCs included in the NYSDOH decision matrices. If a Fuel Oil Study Upper Fence value is not available, the USEPA Residential Air RSL value using the lower of a target cancer incremental risk of $1x10^{-6}$ or a target hazard quotient of 1 is used, when available. If a USEPA Residential Air RSL value is not available, the USEPA Industrial Air RSL is used, when available.

4.2 Comparison to Screening Criteria

As shown on **Table 1**, during the January 14, 2021 pre-startup sampling event, 32 VOC compounds were detected in either the parent or duplicate air samples; only four compounds exceeded either the commercial or residential screening values. During the June 24, 2021 post-startup (i.e., confirmation) sampling event, 24 compounds were detected, and only two exceeded screening values. A discussion of the compounds that exceeded screening values is presented below.

- Carbon tetrachloride was detected in both sampling rounds with almost identical concentrations between the ambient air sample and the indoor air sample. In both the January and June 2021 sampling events, carbon tetrachloride was detected at concentrations of 0.44 µg/m^3 and 0.32 µg/m^3 from the IA-3 parent sample and at 0.42 µg/m^3 and 0.33 µg/m^3 in the duplicate sample, which is above the NYSDOH decision matrix guidance value for monitoring of 0.2 µg/m^3. However, outside ambient levels were almost identical at reported concentrations of 0.46 µg/m^3 and 0.40 µg/m^3, respectively. As such, the exceedances of the screening criteria in indoor air may be considered directly related to background influence from ambient air integration through the HVAC system.
- For just the January 2021 sampling event, ethanol was detected at 580 µg/m^3 from the IA-3 parent sample and at 550 µg/m^3 in the duplicate sample, which was below the Commercial Indoor Air Screening level of 1,300 µg/m^3, but above the Residential Indoor Air Screening level of 210 µg/m^3. Various concentrations of ethanol had been detected in four of the previous sampling events; however, not at such elevated levels. Since ethanol was not identified in groundwater directly upgradient from Building 3, the elevated detection was likely the result of ethanol-based hand/surface sanitizer being used by workers within the boiler control room. Ethanol did not exceed screening values in the June 2021 sampling event.
- Naphthalene was detected during both the January and June 2021 sampling events with estimated concentrations of 0.22 µg/m^3 and 0.43 µg/m^3 from the IA-3 parent sample and 0.26 µg/m^3 and 0.42 µg/m^3 in the duplicate sample, respectively. All samples were below the Commercial Indoor Air Screening level of 5.1 µg/m^3 but above the Residential Indoor Air Screening value of 0.083 µg/m^3. Varying concentrations of naphthalene were detected in each of the three previous sampling events. Since naphthalene was not identified in groundwater directly upgradient from Building 3, it is likely that the detection identified in the indoor air sample was the result of a transient source. Naphthalene is a known ingredient in many paints, oils, and fuels, and can off-gas from a worker's clothing or contaminated materials long after contact.
- TCE was detected at a concentration of 0.54 µg/m^3 from the IA-3 parent sample and 0.52 µg/m^3 from the duplicate sample during the January 2021 pre-startup sampling event. This TCE concentration was lower than any of the previous indoor air samples collected in Building 3, but greater than the NYSDOH decision matrix guidance value for monitoring (in the absence of companion soil vapor concentrations) of 0.2 µg/m^3.

Following installation of the ATS, the indoor air TCE concentration from the June 2021 post-startup confirmation sampling event was lower than the NYSDOH decision matrix guidance value for monitoring; 0.16 µg/m^3 from the IA-3 parent sample and 0.15 µg/m^3 from the duplicate sample.

4.2.1 Data Usability

Upon completion of analysis, the laboratory data packages were validated by Arcadis. Laboratory analytical reports and corresponding Data Usability Summary Report (DUSR) for indoor air and ambient air samples are presented in **Attachment C** for each of the sampling events. No sample analytical results were rejected.

5 Mitigation Measures

5.1 Pre- ATS Installation Measures

In January 2021, facility HVAC settings were adjusted to allow the maximum fresh air mixing into the building. Measurements from BMS's HVAC contractor Jones Lang LaSalle Incorporated (JLL) were collected from each of the supply and return ducts and indicated a total of 2,659 cfm from the supply ducts and a total of 821 cfm from the return ducts; this indicated 1,838 cfm supplied from fresh air make-up. These results far exceed the United States Environmental Protection Agency (USEPA) guidance as referenced by American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 62.1-2001 to provide a minimum of 15 cfm of outdoor air per building occupant, considering building occupancy in Building 3 maintains no more than 10 people in each day, in the 1,838 cfm far exceeds the 150 cfm requirement if 10 employees were to be working in the building.

Following HVAC setting adjustments, differential pressure measurements were collected in January 2021 using stationary OmniGuard 4® differential pressure monitors to assess pressure differences between the Building 3 boiler control room indoor air and the following locations:

- Building 2 (directly connected to Building 3) indoor air;
- Inside a floor drain in the boiler control room, and
- Outdoor ambient air.

It should be noted that the monitored floor drain is typically fit with a one-way valve that was installed as part of initial mitigation measures implemented in 2018. The one-way valve was temporarily removed from the floor drain during differential pressure measurements.

As shown on **Attachment B**, the January results indicate that a positive pressure continues to exist within the boiler control room relative to ambient conditions and the adjoining Building 2. While a slight negative pressure (-0.002 inches of water column [iwc] to -0.005 iwc) was measured in the boiler control room indoor air relative to the floor drain feature, the pressure differential represented an improvement from measurements (-0.006 iwc in January 2019 taken prior to implementation of HVAC settings adjustments. The one-way valve was reinstalled in the floor drain following differential pressure monitoring mitigating potential VI.

In addition, during the spring of 2021, JLL (per BMS direction) installed micromanometer sensors in Building 3 to provide daily data records of differential pressure readings between the Building 3 basement boiler control room indoor air, and both the adjoining Building 2 indoor air and outside ambient air. This inital data set following data

recording set up is also presented in **Attachment B** and will be reported to the NYSDEC/NYSDOH within the monthly progress report submittals. The results indicate continuous positive pressure exist within the boiler control room relative to the rest of Building 3 (second floor) with some variability in pressure as it relates to ambient conditions and the adjoining Building 2.

5.2 ATS Installation Measures

As noted in Section 4 above, while a downward trend in indoor air TCE concentrations was demonstrated based on sampling conducted in January 2021 following mitigation measures installed in previous years, the detected TCE concentrations remained above the NYSDOH guidance value for monitoring of 0.2 µg/m^3 for indoor air (NYSDOH, 2006). As a result, as shown on **Figure 3**, BMS opted to conservatively install an ATS in the boiler control room boiler control room as a supplemental mitigation measure to further reduce TCE concentrations in indoor air. The ATS consists of one variable-speed air treatment unit (Amaircare AirWash® MultiPRO) that includes an activated carbon canister for adsorption of VOC present in indoor air, as well as several particulate-filtering elements. The ATS was installed on April 22, 2021, and is intended to operate continuously. Based on post-startup field measurements, the variable speed range for the ATS (with the carbon canister) corresponds to a flow rate range of approximately 130 cubic feet per minute (cfm) to 300 cfm. The ATS has been operating at the low flow rate setting (130 cfm). An operation, maintenance, and monitoring (OMM) plan detailing the OMM procedures to be conducted for the ATS was submitted to the NYSDEC/NYSDOH on July 6, 2021.

Over the initial month of ATS operation, supplemental indoor air sampling was conducted and included the following:

- Eight-hour Indoor air samples via 6-liter Summa® canisters were collected in the boiler control room on a weekly basis to evaluate if changes in ATS operation (e.g., carbon breakthrough, speed adjustment) were warranted.
- An ATS influent and effluent air samples were also collected during the final weekly supplemental indoor air sampling event (i.e., about 1-month post-startup) to assess the removal efficiency of the carbon treatment. Temporary ductwork was installed on the ATS outlet to reduce potential dilution of the effluent sample.

Additional activities related to mitigation were conducted in January 2021 including the addition of weather stripping to the boiler control room doorways and balancing of the HVAC system to provide a more positive pressure environment.

5.3 Supplemental ATS Efficiently Air Sample Results

5.3.1 Weekly Indoor Air Samples

As shown in **Table 1**, weekly samples collected during the first month of ATS operation indicate a gradual reduction of TCE concentrations in indoor air. TCE concentrations ranged from an estimated concentration of 0.053 J µg/m^3 (1-month post-startup) to 0.28 µg/m^3 (1-week post-startup). As mentioned previously, supplemental indoor air sampling was conducted to confirm the system was operating at an appropriate setting (e.g., flow rate).

5.3.2 Influent/Effluent Air Samples

TCE was detected at an estimated concentration of 0.058 J ug/m3 in the ATS influent sample collected on May 20, 2021, approximately one month after the ATS began operating. As expected, assuming relatively consistent indoor air mixing in the boiler control room, this concentration was similar to the TCE concentration detected in the indoor air sample collected the same day (0.053 J µg/m^3). TCE was not detected in the ATS effluent sample. While using these data to quantify the carbon's removal efficiency may not be feasible (due to the relatively low influent concentrations), the influent/effluent sample results do support that the adsorption capacity of the carbon media was not spent at the time of the sampling.

6 Conclusions

Based on the results of indoor air sampling, the ATS has been effective at reducing indoor air concentrations of TCE in the boiler control room to below the NYSDOH decision matrix guidance value for monitoring of 0.2 µg/m^3. The results also support that the low flow rate setting (approximately 130 cfm based on field measurements) is sufficient for achieving system performance criteria. Additionally, based on the June 2021 (2-months post-startup) and supplemental air sampling (i.e., weekly post-startup indoor air samples and influent/effluent ATS air samples) results, it appears that the carbon will maintain sufficient VOC removal efficiency beyond a period of 30 or 60 days (operating at the specified flow rate setting).

7 Future Activities

7.1 System Operation, Maintenance, and Monitoring

As detailed in the July 2021 Building 3 ATS OMM Plan, the first year of operation, indoor air sampling will be conducted monthly to support assessing the future carbon filter changeout schedule. Following the first year of operation, the indoor air sampling schedule will be reevaluated but is anticipated to change to biennial indoor air sampling during the heating season for 4 years followed by once every 4 years pending no increase in TCE levels have been identified and the ATS is meeting mitigation metrics.

During OMM Plan implementation, each ATS sampling event will consist of collecting one indoor air, one duplicate, and one ambient air sample using a passive sampler (e.g., Radiello 130/145 or similar). The use of an USEPA-approved sorbent-diffusive passive sampler is appropriate for this location due to the continuous air movement within the room and the long duration worker occupancy. The samplers provide a longer sample collection period (>24 hrs) which in turn will provide a better dataset for assessing long-term system functionality and the potential for human health exposures (USEPA 2014). The samplers will be placed approximately three to five feet above the floor or ground surface (i.e., at approximate breathing zone height) and collected over a 7-day period. Sample locations are shown on **Figure 3**. The ATS will be operating in the boiler control room with entry doors kept closed to the extent feasible for the duration of the sampling period. BMS will provide 7 days of notice to NYSDEC and NYSDOH in advance of indoor air sampling events.

Samples will be provided to an Environmental Laboratory Approval Program (ELAP)-certified laboratory for analysis of TCE in accordance with USEPA Method TO-17. One duplicate indoor air sample will be collected each day that indoor air sampling is performed. As applicable, all scheduled samples will be collected in accordance with current addendums to the NYSDEC-approved FSAP (OBG 2013a) and QAPP (OBG 2013b) and the NYSDEC Division of Environmental Remediation DER-10 (NYSDEC 2010).

For the first year of operation, the ATS carbon filter and particulate filters will be replaced on a quarterly basis. Following the first year of operation, the carbon filter replacement schedule will be reevaluated based on system performance and indoor air laboratory analytical results.

The effectiveness of the system will be evaluated based on indoor air sample results. TCE concentrations in indoor air will be compared to the NYSDOH guidance values of 0.2 µg/m^3 for monitoring and 1.0 µg/m^3 for mitigation (NYSDOH 2006). If over time indoor air concentrations fall below the TCE guidance value for monitoring (0.2 µg/m^3), modifications to the system will be considered and may include:

- Reducing indoor air sampling frequency
- Reducing carbon filter changeout frequency.

BMS will notify NYSDEC and NYSDOH in advance of implementing system optimization measures or modifications.

7.2 Reporting

Following the first year of ATS operation, a brief letter report will be provided to NYSDEC and NYSDOH after each boiler control room indoor air sampling event. The report will be submitted within 60 days of data validation and will include a summary of indoor air analytical data, OMM activities completed during the reporting period, and a summary of planned future OMM activities. In following years, BMS will submit an annual OMM report that includes the weekly and monthly checks of the system and the dates of completed maintenance. If sampling occurs during the year, a summary of the analytical data will also be submitted in the annual report.

8 References

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Tables

Table 1
Building 3 Air Analytical Results

Building 3 VI and Air Treatment System Assessment Report
Site #C734138: BMS Syracuse North Campus Restoration Area

Date Collected:	CAS Number	Indoor Air Screening Value*		Building 3 - Mar. 2016		Building 3 - Dec. 2016		Building 3 - Jan. 2018		Building 3 - Jan. 2019		Building 3 - Jan. 2021		Building 3 - ATS Testing April-May 2021						Building 3 - June 2021	
		Commercial (Exceedances Gray Shaded)	Residential (Exceedances Orange Bold)	Ambient AA-3 03/02/16	Indoor IA-3 03/02/16	Ambient AA-3 12/08/16	Indoor IA-3 12/08/16	Ambient AA-3 01/17/18	Indoor IA-3 01/17/18	Ambient AMB-3 01/24/19	Indoor IA-3/DUP 01/24/19	Ambient AMB-011421 01/14/21	Indoor IA-3 01/14/21	Indoor IA-3 04/29/21	Indoor IA-3 05/06/21	Indoor IA-3 05/13/21	Indoor IA-3 05/20/21	Indoor INFLUENT-1 05/20/21	Indoor EFFLUENT-1 05/20/21	Indoor IA-3 06/24/21	Ambient AA-3 06/24/21
Volatile Organics - TO-15 (ug/m^3)																					
1,1,1-Trichloroethane*	71-55-6	3		0.017 J	0.045 J [0.049 J]	0.019 J	0.13 J	0.13 U	0.054 J [0.051 J]	0.14 U	0.039 J [0.039 J]	0.15 U	**0.032 J [0.032 J]**	0.16 U	0.72 U	1.6 U	**0.014 J**	**0.014 J**	**0.0068 J**	**0.013 J [0.015 J]**	**0.0082 J**
1,1,2,2-Tetrachloroethane	79-34-5	0.21	0.4	0.18 U	0.20 U [0.20 U]	0.17 U	0.19 U	0.16 U	0.19 U [0.19 U]	0.18 U	0.18 U [0.19 U]	0.19 U	0.19 U [0.20 U]	0.20 U	0.91 U	2.0 U	0.19 U	0.16 U	0.18 U	0.19 U [0.19 U]	0.21 U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	76-13-1	3.5	2.5	0.40 J	0.48 J [0.47 J]	0.56 J	0.60 J	0.52 J	0.57 J [0.55 J]	0.75 J	0.74 J [0.66 J]	**0.43 J**	**0.52 J [0.47 J]**	1.1 U	5.1 U	11 U	**0.36 J**	**0.41 J**	**0.26 J**	**0.42 J [0.38 J]**	**0.46 J**
1,1,2-Trichloroethane	79-00-5	1.5	0.4	0.14 U	0.16 U [0.16 U]	0.14 U	0.15 U	0.13 U	0.15 U [0.15 U]	0.14 U	0.15 U [0.15 U]	0.15 U	0.15 U [0.16 U]	0.16 U	0.72 U	1.6 U	0.15 U	0.13 U	0.15 U	0.15 U [0.15 U]	0.16 U
1,1-Dichloroethane	75-34-3	0.7	0.4	0.10 U	0.022 J [0.022 J]	0.10 U	0.052 J	0.097 U	0.035 J [0.036 J]	0.11 U	0.11 U [0.11 U]	0.11 U	0.11 U [0.12 U]	0.12 U	0.54 U	1.2 U	0.11 U	0.094 U	0.11 U	0.11 U [0.11 U]	0.12 U
1,1-Dichloroethene*	75-35-4	0.2		0.051 U	0.059 U [0.058 U]	0.050 U	0.063	0.048 U	0.066 [0.064]	0.053 U	0.053 U [0.054 U]	0.056 U	0.056 U [0.058 U]	0.057 U	0.26 U	0.57 U	0.056 U	0.046 U	0.053 U	0.056 U [0.055 U]	0.060 U
1,2,4-Trichlorobenzene	120-82-1	6.8	0.5	4.7 U	5.5 U [5.4 U]	4.7 U	5.2 U	4.4 UJ	5.2 UJ [5.1 UJ]	*4.9 U*	*5.0 U [5.1 U]*	5.2 U	5.3 U [5.4 U]	5.4 U	25 U	53 U	5.3 U	4.3 U	5.0 U	5.3 U [5.2 U]	5.6 U
1,2,4-Trimethylbenzene	95-63-6	9.5	9.8	0.14 J	0.16 J [0.17 J]	0.62 U	0.18 J	0.20 J	0.34 J [0.37 J]	0.65 U	**10 [10]**	**0.15 J**	**0.16 J [0.17 J]**	0.71 U	3.3 U	7.0 U	**0.19 J**	**0.20 J**	0.66 U	0.70 U [0.68 U]	0.74 U
1,2-Dibromoethane (EDB)	106-93-4	1.5	0.4	0.20 U	0.23 UB [0.22 UB]	0.19 UB	0.22 UB	0.18 U	0.21 U [0.21 U]	0.20 U	0.20 U [0.024 J]	0.22 U	0.027 J [0.22 U]	0.22 U	1.0 U	2.2 U	**0.024 J**	**0.021 J**	0.20 U	0.22 U [0.21 U]	0.23 U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	76-14-2	6.8	0.4	0.10 J	0.10 J [0.11 J]	0.11 J	0.11 J	0.097 J	0.11 J [0.10 J]	0.12 J	0.11 J [0.15 J]	**0.10 J**	**0.10 J [0.098 J]**	**0.11 J**	0.93 U	2.0 U	**0.12 J**	**0.12 J**	**0.15 J**	**0.092 J [0.095 J]**	**0.10 J**
1,2-Dichlorobenzene	95-50-1	1.2	0.5	0.77 U	0.89 U [0.88 U]	0.76 U	0.85 U	0.72 U	0.84 U [0.82 U]	0.80 U	0.80 U [0.82 U]	0.84 U	0.85 U [0.88 U]	0.87 U	4.0 U	8.6 U	0.85 U	0.70 U	0.80 U	0.85 U [0.84 U]	0.91 U
1,2-Dichloroethane	107-06-2	0.9	0.4	0.10 UB	0.12 UB [0.12 UB]	0.10 UB	0.11 UB	0.056 J	0.054 J [0.058 J]	0.088 J	0.086 J [0.092 J]	**0.10 J**	**0.069 J [0.068 J]**	**0.051 J**	0.54 U	1.2 U	**0.057 J**	**0.087 J**	**0.037 J**	**0.042 J [0.043 J]**	**0.049 J**
1,2-Dichloropropane	78-87-5	1.6	0.4	0.59 U	0.68 U [0.68 U]	0.58 U	0.65 U	0.55 U	0.64 U [0.63 U]	*0.61 U*	*0.62 U [0.63 U]*	0.65 U	0.66 U [0.67 U]	0.67 U	3.1 U	6.6 U	0.66 U	**0.26 J**	0.62 U	0.66 U [0.64 U]	0.70 U
1,3,5-Trimethylbenzene	108-67-8	3.7	3.9	0.63 U	0.73 U [0.72 U]	0.62 U	0.69 U	0.59 U	0.68 U [0.67 U]	0.65 U	1.9 [2.0]	0.69 U	0.70 U [0.72 U]	0.71 U	3.3 U	7.0 U	0.70 U	0.57 U	0.66 U	0.70 U [0.68 U]	0.74 U
1,3-Butadiene	106-99-0	3	0.094	0.28 U	0.33 U **[0.099 J]**	0.28 U	0.31 U	0.26 U	*0.31 U [0.30 U]*	*0.29 U*	*0.30 U [0.30 U]*	0.31 U	0.31 U [0.32 U]	0.32 U	1.5 U	3.2 U	0.31 U	0.26 U	0.30 U	0.31 U [0.31 U]	0.33 U
1,3-Dichlorobenzene	541-73-1	2.4	0.5	0.77 U	0.89 U [0.88 U]	0.76 U	0.85 U	0.72 U	0.84 U [0.82 U]	*0.80 U*	*0.80 U [0.82 U]*	0.84 U	0.85 U [0.88 U]	0.87 U	4.0 U	8.6 U	0.85 U	0.70 U	0.80 U	0.85 U [0.84 U]	0.91 U
1,4-Dichlorobenzene	106-46-7	5.5	1.2	0.15 UB	0.18 UB [0.18 UB]	0.15 UB	0.17 UB	0.14 U	0.17 UB [0.16 U]	0.16 UJ	0.16 UJ [0.16 UJ]	0.17 U	0.17 U [0.18 U]	0.17 U	0.80 U	1.7 U	0.17 U	0.14 U	0.16 U	0.17 U [0.17 U]	0.18 U
1,4-Dioxane	123-91-1	2.5	0.56	0.46 U	0.53 U [0.53 U]	0.45 U	0.51 U	0.43 U	0.50 U [0.49 U]	0.48 U	0.48 U [0.49 U]	**0.047 J**	**0.065 J [0.13 J]**	**0.36 J**	2.4 U	5.2 U	**0.38 J**	**0.14 J**	**0.093 J**	**0.14 J [0.19 J]**	**0.098 J**
2,2,4-Trimethylpentane	540-84-1	- -	5	3.0 U	3.4 U [3.4 U]	2.9 U	3.3 U	2.8 U	3.2 U [3.2 U]	3.1 U	3.1 U [3.2 U]	3.3 U	3.3 U [3.4 U]	3.4 U	16 U	33 U	3.3 U	2.7 U	3.1 U	3.3 U [3.2 U]	3.5 U
2-Hexanone	591-78-6	130	31	2.6 U	3.0 U [3.0 U]	0.42 J	0.83 J	2.4 U	2.8 U [2.8 U]	2.7 U	2.7 U [0.95 J]	2.9 U	2.9 U [3.0 U]	3.0 U	14 U	29 U	2.9 U	2.4 U	2.7 U	2.9 U [0.19 J]	3.1 U
3-Chloropropene	107-05-1	2	0.47	2.0 UJ	2.3 UJ [2.3 UJ]	2.0 U	2.2 U	1.9 U	*2.2 U [2.1 U]*	*2.1 U*	*2.1 U [2.1 U]*	4.4 UJ	4.4 UJ [4.6 UJ]	2.3 U	10 U	22 U	2.2 U	1.8 U	2.1 U	2.2 UJ [2.2 UJ]	2.4 UJ
4-Ethyltoluene	622-96-8	3.6	- -	0.63 UB	0.73 UB [0.72 UB]	0.62 U	0.69 U	0.18 J	0.40 J [0.38 J]	0.65 U	2.3 [2.5]	**0.15 J**	**0.14 J [0.14 J]**	0.71 U	3.3 U	7.0 U	**0.15 J**	**0.17 J**	0.66 U	0.70 U [0.68 U]	0.74 U
Acetone	67-64-1	98.9	115	3.6 UB	9.9 [5.4]	6.8	16	4.5	6.4 [6.0]	7.9 J	7.3 J [9.7 J]	**4.1**	**7.9 [7.6]**	**22**	**11 J**	**11 J**	**27**	**24**	**14**	**11 [12]**	**9.9**
Benzene	71-43-2	9.4	13	0.44	0.60 [0.59]	0.36	0.46	0.58	0.66 [0.66]	0.56	0.64 [0.64]	**0.65**	**0.67 [0.63]**	**0.46**	**0.21 J**	2.3 U	**0.22 J**	**0.23**	**0.21 UB**	**0.11 J [0.12 J]**	**0.10 J**
Benzyl chloride (a-chlorotoluene)	100-44-7	6.8	0.057	*0.66 U*	*0.77 U [0.76 U]*	*0.65 U*	*0.73 U*	*0.62 U*	*0.72 U [0.71 U]*	*0.69 U*	*0.69 U [0.71 U]*	0.72 U	0.74 U [0.76 U]	0.75 U	3.4 U	7.4 U	0.74 U	0.60 U	0.69 U	0.74 U [0.72 U]	0.78 U
Bromodichloromethane	75-27-4	0.33	0.076	*0.86 U*	**0.41 J [0.38 J]**	*0.84 U*	**0.19 J**	*0.80 U*	*0.93 U [0.92 U]*	*0.89 U*	*0.90 U [0.92 U]*	0.94 U	**0.057 J [0.061 J]**	0.97 U	4.4 U	9.6 U	0.95 U	0.78 U	0.90 U	0.95 U [0.93 U]	1.0 U
Bromoform	75-25-2	11	2.6	1.3 U	1.5 U [1.5 U]	1.3 U	1.4 U	1.2 U	1.4 U [1.4 U]	1.4 U	1.4 U [1.4 U]	1.4 U	1.5 U [1.5 U]	1.5 U	6.9 U	15 U	1.5 U	1.2 U	1.4 U	1.5 U [1.4 U]	1.6 U
Bromomethane	74-83-9	1.7	0.5	2.5 U	2.9 U [2.8 U]	*2.4 U*	*2.7 U*	2.3 U	2.7 U [2.7 U]	*2.6 U*	*2.6 U [2.7 U]*	2.7 U	2.8 U [2.8 U]	2.8 UJ	13 UJ	28 UJ	2.8 U	2.2 U	2.6 U	2.8 U [2.7 U]	2.9 U
Carbon disulfide	75-15-0	4.2	730	2.0 UJ	2.3 UJ [2.3 UJ]	2.0 U	2.2 U	1.9 U	2.2 U [2.1 U]	2.1 U	2.0 J [2.1 U]	2.2 U	2.2 U [2.3 U]	2.2 U	10 U	22 U	2.2 U	**1.4 J**	2.1 U	**2.2 U [0.65 J]**	2.4 U
Carbon tetrachloride*	56-23-5	0.2		**0.42**	**0.42 [0.41]**	**0.46**	**0.45**	**0.38**	**0.39 [0.39]**	**0.47**	**0.47 [0.48]**	**0.46**	**0.44 [0.42]**	**0.33**	**0.28 J**	1.8 U	**0.30**	**0.32**	**0.092 J**	**0.32 [0.33]**	**0.40**
Chlorobenzene	108-90-7	0.9	0.4	0.59 U	0.68 U [0.68 U]	0.58 U	0.65 U	0.55 U	0.64 U [0.63 U]	0.61 U	0.62 U [0.63 U]	0.64 U	0.65 U [0.67 U]	0.67 U	3.1 U	6.6 U	0.65 U	0.53 U	0.62 U	0.65 U [0.64 U]	0.70 U
Chloroethane	75-00-3	1.1	0.4	0.17 UJ	0.20 UJ [0.19 UJ]	0.17 U	0.19 U	0.16 U	0.18 U [0.18 U]	0.041 J	0.18 U [0.059 J]	**0.027 J**	**0.041 J [0.046 J]**	**0.10 J**	0.88 U	1.9 U	**0.10 J**	**0.051 J**	**0.052 J**	**0.041 J [0.026 J]**	**0.030 J**
Chloroform	67-66-3	1.1	1.2	0.080 J	**1.4 [1.4]**	0.086 J	**1.4**	0.089 J	0.74 [0.74]	0.077 J	0.34 [0.33]	**0.070 J**	**0.38 [0.38]**	**0.15**	**0.15 J**	1.4 U	**0.24**	**0.36**	**0.29**	**0.14 [0.15]**	**0.065 J**
Chloromethane	74-87-3	3.7	4.2	0.91	0.91 [0.90]	0.78	0.79	0.80 J	0.85 J [0.83 J]	0.90 J	0.84 J [0.97 J]	**0.62 J**	**0.64 J [0.64 J]**	**1.1 J**	**0.87 J**	**1.0 J**	**0.98 J**	**0.93 J**	**0.86 J**	**0.74 J [0.74 J]**	**0.71 J**
cis-1,2-Dichloroethene*	156-59-2	0.2		0.10 U	0.14 U [0.12]	0.10 U	**0.29**	0.095 U	**0.28 [0.30]**	0.10 U	0.12 U [0.11]	0.11 U	**0.069 J [0.064 J]**	**0.060 J**	0.53 U	1.1 U	**0.042 J**	**0.039 J**	**0.072 J**	**0.021 J [0.022 J]**	0.12 U
cis-1,3-Dichloropropene	10061-01-5	2.3	0.4	0.58 U	0.67 U [0.67 U]	0.57 U	0.64 U	0.54 U	0.63 U [0.62 U]	*0.60 U*	*0.61 U [0.62 U]*	0.64 U	0.64 U [0.66 U]	0.66 U	3.0 U	6.5 U	0.64 U	0.53 U	0.61 U	0.64 U [0.63 U]	0.68 U
Cyclohexane	110-82-7	26,000	6.3	0.44 U	0.51 U [0.50 U]	0.43 U	0.098 J	0.15 J	0.29 J [0.26 J]	0.46 U	0.46 U [0.47 U]	2.4 U	2.4 U [2.5 U]	2.5 U	11 U	25 U	2.4 U	**0.36 J**	2.3 U	**2.4 U [1.6 J]**	**0.21 J**
Dibromochloromethane	124-48-1	- -	- -	1.1 U	1.3 U [1.2 U]	1.1 U	1.2 U	1.0 U	1.2 U [1.2 U]	*1.1 U*	*1.1 U [1.2 U]*	1.2 U	1.2 U [1.2 U]	1.2 U	5.7 U	12 U	1.2 U	0.99 U	1.1 U	1.2 U [1.2 U]	1.3 U
Dichlorodifluoromethane (Freon 12)	75-71-8	16.5	10	2.0	2.2 [2.2]	2.1	2.1	1.9	2.0 [2.0]	2.3 J	2.2 J [2.4 J]	**2.3 J**	**2.3 J [2.3 J]**	**2.1 J**	**2.0 J**	**2.3 J**	**2.4 J**	**2.3 J**	**2.2 J**	**2.2 J [2.2 J]**	**2.1 J**
Ethanol	64-17-5	1,300	210	2.5	20 [19]	2.7	66	3.4	72 [68]	5.3 J	51 J [57 J]	**3.4**	**580 EJ [550 EJ]**	**3,000 EJ**	**1,600 EJ**	**3,300 EJ**	**1,100 EJ**	**560 EJ**	**840 EJ**	**100 J [100 J]**	**1.9 J**
Ethylbenzene	100-41-4	5.7	6.4	0.21	0.19 [0.30]	0.074 J	0.13	0.16	0.20 [0.21]	0.21	2.1 [1.8]	**0.10 J**	**0.11 J [0.10 J]**	**0.12 J**	0.58 U	1.2 U	**0.12**	**0.19**	**0.12 UB**	**0.058 J [0.065 J]**	**0.044 J**
Hexachlorobutadiene	87-68-3	6.8	0.5	6.8 U	*7.9 U [7.8 U]*	6.7 U	7.5 U	*6.4 UJ*	*7.4 UJ [7.3 UJ]*	*7.1 U*	*7.1 U [7.3 U]*	7.5 U	7.6 U [7.8 U]	7.7 U	35 U	76 U	7.6 U	6.2 U	7.1 U	7.6 U [7.4 U]	8.0 U
Isopropyl alcohol (2-propanol)	67-63-0	250	210	0.42 J	8.9 J [1.5 J]	0.36 J	4.5	1.5 U	3.2 [2.9]	1.3 J	4.6 J [5.3 J]	1.7 UB	**19 [18]**	**130**	**68**	**82**	**42**	**49**	**88**	**6.2 [6.4]**	**2.6**
Isopropylbenzene (cumene)	98-82-8	1,800	0.8	0.63 U	0.73 U [0.72 U]	0.62 U	0.69 U	0.59 U	0.32 J [0.28 J]	0.65 U	0.40 J [0.67 U]	0.69 U	**0.053 J [0.057 J]**	0.71 U	3.3 U	7.0 U	0.70 U	**0.073 J**	0.66 U	0.70 U [0.68 U]	0.74 U
m,p-Xylene	108-38-3	22.2	11	0.35	0.56 [0.58]	0.22 UB	0.30	0.51	0.57 [0.55]	0.65	10 [9.1]	**0.29**	**0.35 [0.30]**	**0.38**	**0.28 J**	2.5 U	**0.39**	**0.52**	0.23 UB	**0.20 J [0.22 J]**	**0.15 J**
Methyl ethyl ketone (MEK, 2-Butanone)	78-93-3	12	16	0.66 J	1.1 J [0.46 J]	1.8 U	4.3	0.71 J	0.62 J [0.71 J]	1.9 J	1.2 J [2.3]	**0.50 J**	**0.94 J [1.3 J]**	**1.5 J**	9.8 U	21 U	**1.6 J**	**3.9**	2.0 U	**1.1 J [1.4 J]**	**1.0 J**
4-methyl-2-pentanone (MIBK)	108-10-1	6	1.9	0.52 U	0.61 U [0.60 U]	0.19 J	0.30 J	0.49 U	0.57 U [0.56 U]	0.22 J	0.23 J [0.56 U]	0.57 U	0.58 U [0.60 U]	0.59 U	2.7 U	5.8 U	**0.19 J**	**0.21 J**	0.55 U	**0.14 J [0.15 J]**	0.62 U
Methyl tert-butyl ether	1634-04-4	11.5	14	0.46 U	0.53 U [0.53 U]	0.45 U	0.51 U	0.013 J	0.011 J [0.013 J]	0.48 U	0.48 U [0.49 U]	0.50 U	0.51 U [0.53 U]	0.52 U	2.4 U	5.2 U	0.51 U	**0.032 J**	0.48 U	0.51 U [0.50 U]	0.54 U
Methylene chloride*	75-09-2	3		0.30 J	1.0 U [0.29 J]	0.88 UB	0.98 UB	0.33 J	0.64 J [0.42 J]	0.82 J	0.64 J [0.58 J]	0.97 U	0.99 UB [1.0 U]	**0.69 J**	4.6 U	9.9 U	2.5 U	**0.92 J**	2.3 U	0.99 U [0.96 U]	1.0 U
Naphthalene	91-20-3	5.1	0.083	*0.34 U*	*0.39 U [0.38 U]*	0.33 UB	**0.23 J**	0.31 UB	**0.24 J [0.36 UB]**	0.35 UB	**4.6 J [4.2 J]**	0.37 U	**0.22 J [0.26 J]**	**0.22 J**	1.7 U	3.7 U	**0.61**	**0.67**	0.35 U	**0.43 [0.42]**	**0.12 J**
n-Heptane	142-82-5	1,800	18	0.52 U	0.61 U [0.60 U]	0.52 UB	0.58 UB	0.21 J	0.36 J [0.70]	0.54 U	0.82 [0.99]	**0.23 J**	**0.29 J [0.27 J]**	3.0 U	14 U	29 U	**0.60 J**	**0.50 J**	2.7 U	2.9 U [2.8 U]	3.1 U
n-Hexane	110-54-3	10.2	14	0.45 U	0.52 U [0.52 U]	0.44 UB	0.50 UB	0.46	0.66 [1.0]	0.76	0.61 [0.71]	**0.36 J**	**0.54 J [0.42 J]**	2.6 U	12 U	25 U	**0.18 J**	**0.45 J**	2.4 U	2.5 U [2.4 U]	2.7 U
n-Propylbenzene	103-65-1	4,400	1.5	0.63 U	0.73 U [0.72 U]	0.62 U	0.69 U	0.59 U	0.68 U [0.12 J]	0.65 U	1.2 [1.2]	0.69 U	0.70 U [0.72 U]	0.71 U	3.3 U	7.0 U	0.70 U	0.57 U	0.66 U	0.70 U [0.68 U]	0.74 U
o-Xylene	95-47-6	7.9	7.1	0.13	0.21 [0.22]	0.084 J	0.12	0.22	0.24 [0.23]	0.32	4.1 [3.8]	**0.11 J**	**0.12 [0.12 J]**	**0.15**	0.58 U	1.2 U	**0.15**	**0.22**	**0.013 J**	**0.071 J [0.093 J]**	**0.052 J**
Styrene	100-42-5	1.9	1.4	0.54 U	0.63 U [0.63 U]	0.072 J	0.13 J	0.51 U	0.59 U [0.58 U]	0.57 U	0.57 U [0.58 U]	**0.027 J**	**0.045 J [0.053 J]**	**0.52 J**	2.8 U	6.1 U	**0.14 J**	**0.078 J**	**0.081 J**	**0.070 J [0.093 J]**	0.64 U
Tetrachloroethene (PCE)*	127-18-4	3		0.039 J	0.077 J [0.081 J]	0.044 J	0.11 J	0.075 J	0.14 J [0.18 U]	0.067 J	0.18 J [0.17 J]	**0.13 J**	**0.74 [0.26]**	**0.16 J**	0.90 U	1.9 U	**0.20**	**0.18**	**0.015 J**	**0.082 J [0.060 J]**	**0.048 J**
Tetrahydrofuran	109-99-9	8,800	0.8	1.9 U	2.2 U [0.57 J]	1.8 U	0.52 J	1.8 U	2.0 U [2.0 U]	*2.0 U*	*2.0 U [2.0 U]*	2.1 U	2.1 U [2.2 U]	**0.93 J**	9.8 U	21 U	**0.57 J**	**0.40 J**	**0.36 J**	**2.1 U [0.22 J]**	2.2 U
Toluene	108-88-3	43	57	0.87	1.5 [1.6]	0.41	0.77	0.82	1.0 [0.90]	0.81	5.0 [4.5]	**0.65**	**0.67 [0.65]**	**0.58**	**0.72 J**	**0.70 J**	**0.52**	**16**	**0.018 J**	**0.45 [0.51]**	**0.24 J**
trans-1,2-Dichloroethene	156-60-5	- -	- -	0.51 UJ	0.024 J [0.027 J]	0.50 U	0.56 UB	0.48 U	0.23 J [0.22 J]	0.53 U	0.53 U [0.54 U]	0.56 U	0.56 U [0.58 U]	0.57 U	2.6 U	5.7 U	0.56 U	**0.012 J**	**0.013 J**	0.56 U [0.55 U]	0.60 U
trans-1,3-Dichloropropene	10061-02-6	1.3	0.25	0.58 U	0.67 U [0.67 U]	0.57 U	0.64 U	0.54 U	0.63 U [0.62 U]	*0.60 U*	*0.61 U [0.62 U]*	0.64 U	0.64 U [0.66 U]	0.66 U	3.0 U	6.5 U	0.64 U	0.53 U	0.61 U	0.64 U [0.63 U]	0.68 U
Trichloroethene (TCE)*	**79-01-6**	**0.2**		**0.043 J**	**0.93 [0.93]**	**0.14 UB**	**1.6**	**0.036 J**	**0.77 [0.82]**	**0.033 J**	**0.59 [0.61]**	**0.023 J**	**0.54 [0.52]**	**0.28**	**0.26 J**	0.51 UB	**0.053 J**	**0.058 J**	0.14 U	**0.16 [0.15]**	**0.017 J**
Trichlorofluoromethane (Freon 11)	75-69-4	18.1	12	1.0	1.2 [1.1]	1.2	1.2	1.0	1.2 [1.0]	1.4	1.2 [1.2]	**1.2**	**1.4 [1.2]**	**1.3**	**1.1 J**	8.0 U	**1.4**	**1.4**	**1.9**	**1.1 [1.1]**	**1.2**
Vinyl chloride*	75-01-4	0.2		0.033 U	0.038 U [0.038 U]	0.032 U	0.018 J	0.031 U	0.036 U [0.035 U]	0.034 U	0.034 U [0.035 U]	0.036 U	0.036 U [0.037 U]	0.037 U	0.17 U	0.36 U	0.036 U	0.030 U	0.034 U	0.036 U [0.036 U]	0.038 U
Volatile Organics-TIC (ppbv)																					
Isobutanol	78-83-1	4,400	1,000	NR	1.8 JN [2 JN]	NR	NR	0.79 JN	1.6 JN [1.9 JN]	NR	0.93 JN [1.6 JN]	NR	NR	NR	NR	NR	NR	**1.1 NJ**	NR	NR	NR
Pentane	109-66-0	260	2.5	NR	NR	NR	NR	NR	NR	NR	0.89 JN [1.2 JN]	NR	**1.6 [1.3]**	NR	NR	NR	**1.1 NJ**	**5.8 NJ**	NR	**1.6 NJ [1.6 NJ]**	NR
Propylene	526-73-8	- -	- -	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	**2.1 NJ**	NR	NR	NR	NR	NR	NR	NR

See Notes on Page 2.

Table 1
Building 3 Air Analytical Results

Building 3 VI and Air Treatment System Assessment Report
Site #C734138: BMS Syracuse North Campus Restoration Area

Notes:

1. Samples were collected by Arcadis and analyzed by Eurofins Air Toxics Laboratories Environmental, LLC of Folsom, CA.
2. * = constituent included in the NYSDOH May 2017 Soil Vapor / Indoor Air Matrices - indoor air guidance values listed guidance may be used to identify whether to conduct additional monitoring or mitigation.
3. The Commercial Indoor Air Screening Level is the USEPA BASE Study 90th percentile value, when available (except
4. The Residential Indoor Air Screening Level is the NYSDOH Fuel Oil Study Upper Fence value (except for *
4. Non-numerical values in the "CAS Number" column are a surrogate identification because no actual CAS number is available.
5. Analytes detected in sample are shown in black font and analytes that are not detected are shown in gray font.
6. Field duplicate sample results are presented in brackets, [ ].
7. The data has been validated.
8. Designations:
   a) Italic font = Sample MDL exceeds the constituent's lower indoor air screening value.
      - Black bold font = Result detected above method detection limit
      - Gray shading = Result detected above constituent's higher indoor air screening value.
9. Abbreviations:
   - - = Screening Value not available based on inquiry described in Notes 3 and 4.
   µg/m^3 = Micrograms per cubic meter.
   CAS = Chemical Abstracts Service.
   AA = Ambient Air
   IA = Indoor Air
   MDL = Method detection limit.
   NR = Not reported as a TIC.
   ppbv = Parts per billion by volume
10. Qualifier Definitions:
   B = Analyte was detected in the blank and sample.
   E = Analyte exceeded calibration range.
   J = Estimated value. Result is greater than the MDL but less than the RL.
   N = The analysis indicates the presence of a compound which there is presumptive evidence to make a tentative identification.
   U = Analyte not detected above the method detection limit. The compound reporting limit is presented for reference.
   UB = Analyte considered non-detect at the listed value due to associated blank contamination.
   UJ = The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.

Table 2
Upgradient Groundwater Results

Building 3 VI and Air Treatment System Assessment Report
Site #C734138: BMS Syracuse North Campus Restoration Area

Location ID:			BDA-1F					BDA-1WT				
Date Collected:	CAS Number	TOGS 1.1.1 Groundwater Standard/Guidance Value	04/12/16	07/17/17	12/08/17	09/28/18	10/30/19	04/12/16	07/17/17	12/08/17	09/27/18	10/30/19
Sample Name:			BDA-1F 04122016	BDA-1F 07172017	BDA-1F 12082017	BDA-1F 09282018	BDA-1F 10302019	BDA-1WT 04122016	BDA-1WT 07172017	BDA-1WT 12082017	BDA-1WT 09272018	BDA-1WT 10302019
Volatile Organics - USEPA SW-846 Method 8260C (µg/L)												
1,1,1-Trichloroethane	71-55-6	5	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
1,1,2,2-Tetrachloroethane	79-34-5	5	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	5	10 U [10 U]	10 U	10 U	10 U [10 U]	10 U	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	79-00-5	1	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
1,1-Dichloroethane	75-34-3	5	2.0 [2.0]	1.0 U	1.0 U	1.0 U [1.0 U]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
1,1-Dichloroethene	75-35-4	5	2.0 [1.0]	1.0 U	1.0 U	1.0 U [1.0 U]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
1,2,3-Trichlorobenzene	87-61-6	5	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
1,2,4-Trichlorobenzene	120-82-1	5	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
1,2,4-Trimethylbenzene	95-63-6	5	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
1,2-Dibromo-3-chloropropane	96-12-8	0.04	*5.0 U [5.0 U]*	*5.0 U*	*5.0 U*	*5.0 U [5.0 U]*	*5 U*	*5.0 U*	*5.0 U*	*5.0 U*	*5.0 U*	*5 U*
1,2-Dibromoethane	106-93-4	0.0006	*1.0 U [1.0 U]*	*1.0 U*	*1.0 U*	*1.0 U [1.0 U]*	*1 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1.0 U*	*1 U*
1,2-Dichlorobenzene	95-50-1	3	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
1,2-Dichloroethane	107-06-2	0.6	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
1,2-Dichloropropane	78-87-5	1	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
1,3,5-Trimethylbenzene	108-67-8	5	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
1,3-Dichlorobenzene	541-73-1	3	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
1,4-Dichlorobenzene	106-46-7	3	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
1,4-Dioxane	123-91-1	- -	250 U [250 U]	250 U	250 U	250 U [250 U]	250 U	250 U	250 U	250 U	250 U	250 U
2-Hexanone	591-78-6	50	10 U [10 U]	10 U	10 U	10 U [10 U]	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitropropane	79-46-9	- -	10 U [10 U]	10 U	10 U	10 U [10 U]	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	67-64-1	50	20 U [20 U]	20 U	20 U	2.0 J [2.0 J]	20 U	20 U	20 U	20 U	0.90 J	20 U
Acetonitrile	75-05-8	- -	100 U [100 U]	100 U	100 U	100 U [100 U]	100 U	100 U	100 U	100 U	100 U	100 U
Benzene	71-43-2	1	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
Bromochloromethane	74-97-5	5	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
Bromodichloromethane	75-27-4	50	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
Bromoform	75-25-2	50	4.0 U [4.0 U]	4.0 U	4.0 U	4.0 U [4.0 U]	4 U	4.0 U	4.0 U	4.0 U	4.0 U	4 U
Bromomethane	74-83-9	5	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
Carbon disulfide	75-15-0	60	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
Carbon tetrachloride	56-23-5	5	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
Chlorobenzene	108-90-7	5	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
Chlorodifluoromethane	75-45-6	5	5.0 U [5.0 U]	5.0 U	5.0 UJ	5.0 U [5.0 U]	5 UJ	5.0 U	5.0 U	5.0 UJ	5.0 U	5 UJ
Chloroethane	75-00-3	5	0.90 J [0.90 J]	1.0 U	1.0 U	1.0 U [1.0 U]	1 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1 UJ
Chloroform	67-66-3	7	1.0 U [1.0 U]	1.0 U	1.0 U	0.70 J [0.60 J]	0.2 J	1.0 U	1.0 U	1.0 U	1.0 U	1 U
Chloromethane	74-87-3	5	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1 UJ
cis-1,2-Dichloroethene	156-59-2	5	2.0 [2.0]	1.0	0.70 J	0.70 J [0.70 J]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
cis-1,3-Dichloropropene	10061-01-5	0.4	*1.0 U [1.0 U]*	*1.0 U*	*1.0 U*	1.0 U [1.0 U]	1 U	*1.0 U*	*1.0 U*	*1.0 U*	1.0 U	1 U
Cyclohexane	110-82-7	- -	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
Cyclohexanone	108-94-1	- -	100 U [100 U]	100 U	100 UJ	100 U [100 U]	100 U	100 U	100 U	100 UJ	100 U	100 U
Dibromochloromethane	124-48-1	50	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
Dichlorodifluoromethane	75-71-8	5	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1 UJ
Ethyl acetate	141-78-6	- -	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
Ethyl ether	60-29-7	- -	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 UJ
Ethylbenzene	100-41-4	5	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
Isobutanol	78-83-1	- -	250 U [250 U]	250 U	250 U	250 U [250 U]	250 U	250 U	250 U	250 U	250 U	250 U
Isopropylbenzene	98-82-8	5	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
m,p-Xylene	179601-23-1	5	1.0 U [1.0 U]	1.0 U	1.0 U	5.0 U [5.0 U]	5 U	1.0 U	1.0 U	1.0 U	5.0 U	5 U
Methyl acetate	79-20-9	- -	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
Methyl ethyl ketone (MEK, 2-butanone)	78-93-3	50	10 U [10 U]	10 U	10 U	10 U [10 U]	10 U	10 U	10 U	10 U	10 U	10 U

See Notes on Page 2.

Table 2
Upgradient Groundwater Results

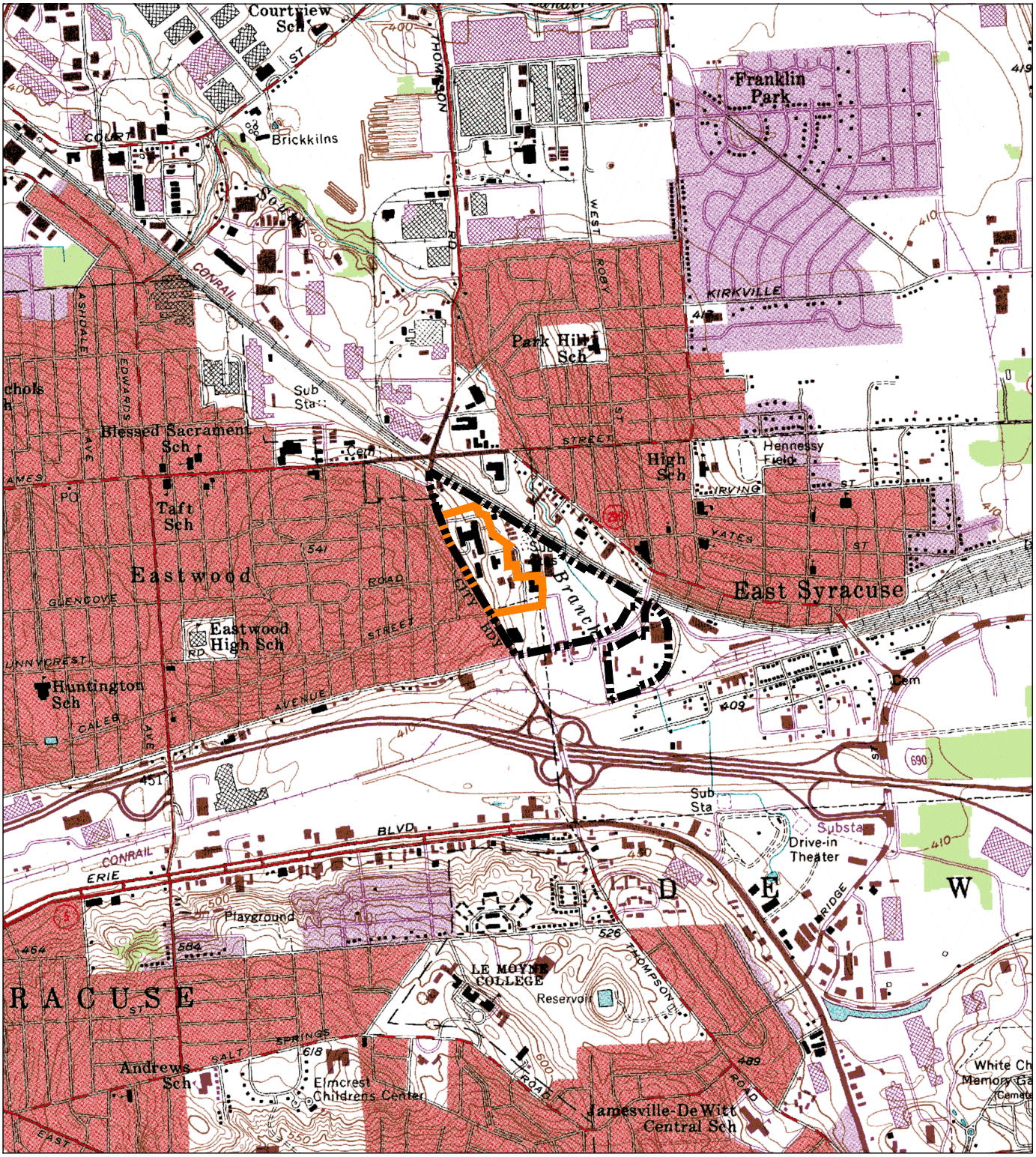
Building 3 VI and Air Treatment System Assessment Report
Site #C734138: BMS Syracuse North Campus Restoration Area

Location ID:		TOGS 1.1.1	BDA-1F					BDA-1WT				
Date Collected:		Groundwater	04/12/16	07/17/17	12/08/17	09/28/18	10/30/19	04/12/16	07/17/17	12/08/17	09/27/18	10/30/19
Sample Name:	CAS Number	Standard/Guidance Value	BDA-1F 04122016	BDA-1F 07172017	BDA-1F 12082017	BDA-1F 09282018	BDA-1F 10302019	BDA-1WT 04122016	BDA-1WT 07172017	BDA-1WT 12082017	BDA-1WT 09272018	BDA-1WT 10302019
Volatile Organics - USEPA SW-846 Method 8260C (µg/L) (cont'd)												
Methyl isobutyl ketone (MIBK, 4-methyl-2-pentanone)	108-10-1	† (50)	10 U [10 U]	10 U	10 U	10 U [10 U]	10 U	10 U	10 U	10 U	10 U	10 U
Methyl tert-butyl ether	1634-04-4	10	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
Methylcyclohexane	108-87-2	†	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
Methylene chloride	75-09-2	5	4.0 U [4.0 U]	4.0 U	1.0	0.90 J [0.90 J]	0.7 J	4.0 U	4.0 U	1.0 U	1.0 U	1 U
Naphthalene	91-20-3	10	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
n-Butanol	71-36-3	50	*250 U [250 U]*	*250 U*	*250 U*	*250 U [250 U]*	*250 U*	*250 U*	*250 U*	*250 U*	*250 U*	*250 U*
n-Butylbenzene	104-51-8	5	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
n-Heptane	142-82-5	- -	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 UJ	5 U
n-Hexane	110-54-3	- -	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
o-Xylene	95-47-6	5	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
p-Isopropyltoluene	99-87-6	5	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
sec-Butylbenzene	135-98-8	5	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
Styrene	100-42-5	5	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
tert-Butylbenzene	98-06-6	5	5.0 U [5.0 U]	5.0 U	5.0 U	5.0 U [5.0 U]	5 U	5.0 U	5.0 U	5.0 U	5.0 U	5 U
Tertiary butyl alcohol	75-65-0	- -	20 U [20 U]	20 U	20 U	50 U [50 U]	50 U	20 U	20 U	20 U	50 U	50 U
Tetrachloroethene	127-18-4	5	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
Tetrahydrofuran	109-99-9	50	10 U [10 U]	10 U	10 U	10 U [10 U]	10 U	10 U	10 U	10 U	10 U	10 U
Toluene	108-88-3	5	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
trans-1,2-Dichloroethene	156-60-5	5	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 U	1.0 U	1.0 U	1.0 U	1.0 U	1 U
trans-1,3-Dichloropropene	10061-02-6	0.4	*1.0 U [1.0 U]*	*1.0 U*	*1.0 U*	1.0 U [1.0 U]	1 U	*1.0 U*	*1.0 U*	*1.0 U*	1.0 U	1 U
Trichloroethene	79-01-6	5	**14 [13]**	**11**	**5.0**	**7.0 [6.0]**	2	1.0 U	1.0 U	1.0 U	1.0 U	1 U
Trichlorofluoromethane	75-69-4	5	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1 UJ
Vinyl chloride	75-01-4	2	1.0 U [1.0 U]	1.0 U	1.0 U	1.0 U [1.0 U]	1 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1 UJ
Xylenes (total)	1330-20-7	5	1.0 U [1.0 U]	1.0 U	1.0 U	5.0 U [5.0 U]	6 U	1.0 U	1.0 U	1.0 U	5.0 U	6 U

Notes:

1. Results compared to NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1, Ambient Water Quality Standards and Guidance Values.
2. The data has been validated.
3. Samples were analyzed by TestAmerica Laboratories of Buffalo/Amherst, New York or Eurofins Lancaster Laboratories Environmental, LLC, Lancaster, PA.
4. Analytes detected in sample are shown in black font and analytes that are not detected are shown in gray font.
5. Field duplicate sample results are presented in brackets, [ ].
6. The compounds 3-methylphenol and 4-methylphenol cannot be chromatographically separated, and therefore are reported as 3&4-methylphenol.
7. Data have been validated.
8. Designations:
    a) Bold font with gray shading = Result detected at or above NYSDEC TOGS 1.1.1. or a default screening value for purposes of this report.
    b) Italic font = Sample MDL exceeds NYSDEC TOGS 1.1.1 value.
    c) † = Not determined to be a POC at this time based on review of TOGS Part 1(B)(2) Steps 1 through 3.
    d) () = Value in parenthesis and gray font indicate a default screening value being used for purposes of this report.
9. Abbreviations:
    - - = Substance not regulated by the POC Groundwater Standard (TOGS 1.1.1, Table 3).
    µg/L = Micrograms per liter.
    CAS = Chemical Abstracts Service.
    NYSDEC = New York State Department of Environmental Conservation.
    VOC = Volatile organic compound.
10. Qualifier Definitions:
    J = Estimated value. Result is greater than the MDL but less than the RL.
    U = Analyte not detected at listed reporting limit.

Figures



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., SYRACUSE EAST, NEW YORK, 1957, PHOTOREVISED 1978.

SITE #C734138: BMS SYRACUSE
NORTH CAMPUS RESTORATION AREA
EAST SYRACUSE, NY

BUILDING 3 VAPOR INTRUSION AND AIR TREATMENT SYSTEM ASSESSMENT REPORT

SITE LOCATION MAP

ARCADIS

FIGURE 1

CITY: SYRACUSE, NY DIV/GROUP: EBC-IM/DV DB/LD: L.POSENAUER PM/TM: LYR: ON=*;OFF=REF, (FRZ)
C:\BIM\OneDrive - ARCADIS\BIM 360 Docs\ANA - BRISTOL-MYERS COMPANY\SOIL VAPOR INTRUSION MITIGATION\2019\B0087363.0031.00006\01-DWG\BMS_BLDG3-VIAR_FIG02-BLDG 3 LOC MAP.dwg LAYOUT: 2 SAVED: 4/30/2019 2:49 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: C-LA-PDF
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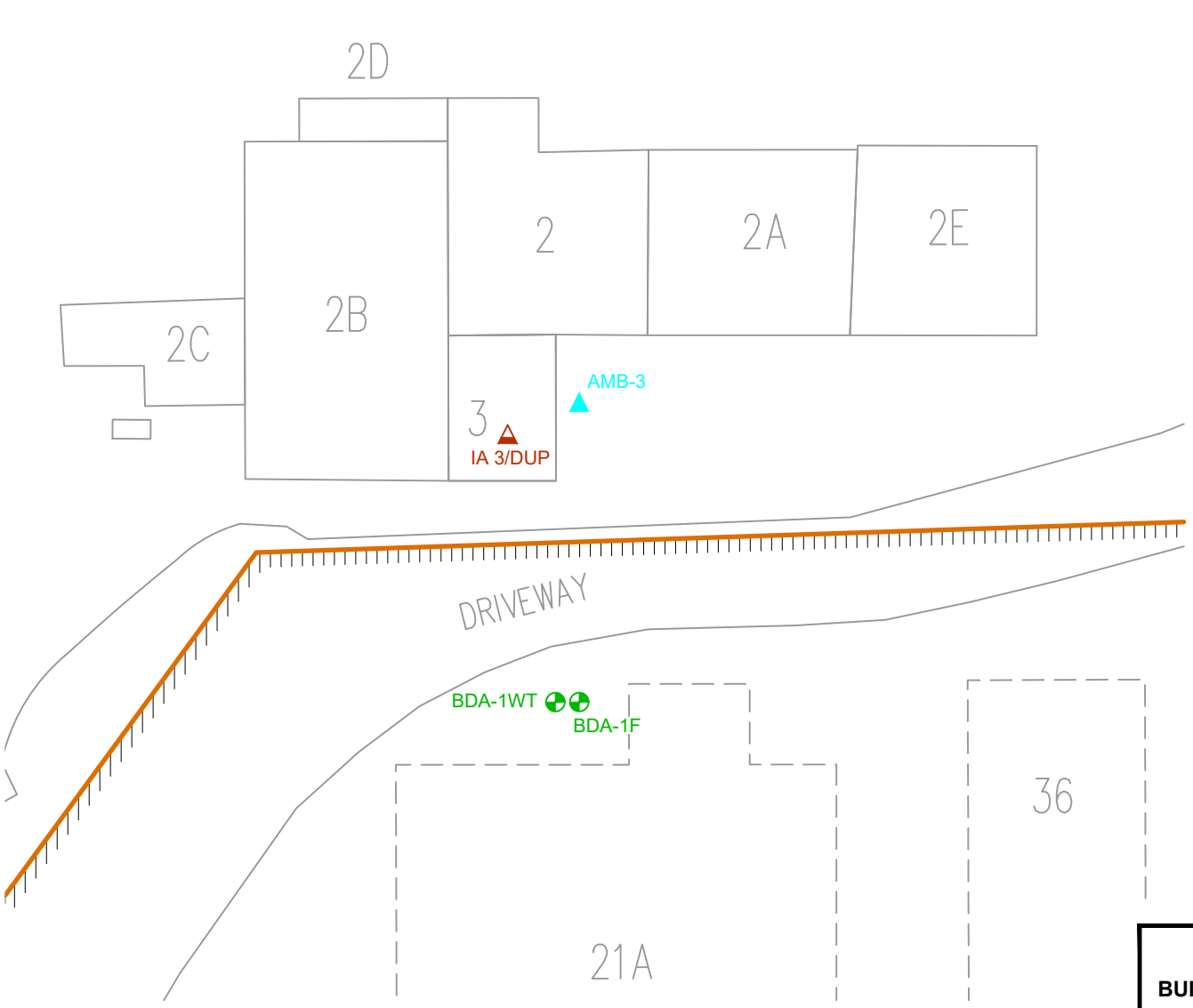
BMS-X-BASE



LEGEND:

- APPROXIMATE BROWNFIELD AREA BOUNDARY
- EXISTING BUILDING
- DEMOLISHED BUILDING
- WATER TABLE MONITORING WELL
- INDOOR AIR SAMPLING LOCATION
- AMBIENT AIR SAMPLING LOCATION

NOTE:

1. BASEMAP BASED ON A MAP TITLED "BRISTOL-MYERS SQUIBB PART OF LOT 41 – TOWN OF DEWITT AND PART OF THE VILLAGE OF EAST SYRACUSE ONONDAGA COUNTY NEW YORK", DATED MARCH 25, 2010 PREPARED BY COTTRELL LAND SURVEYORS, P.C.

0 20' 40'
GRAPHIC SCALE

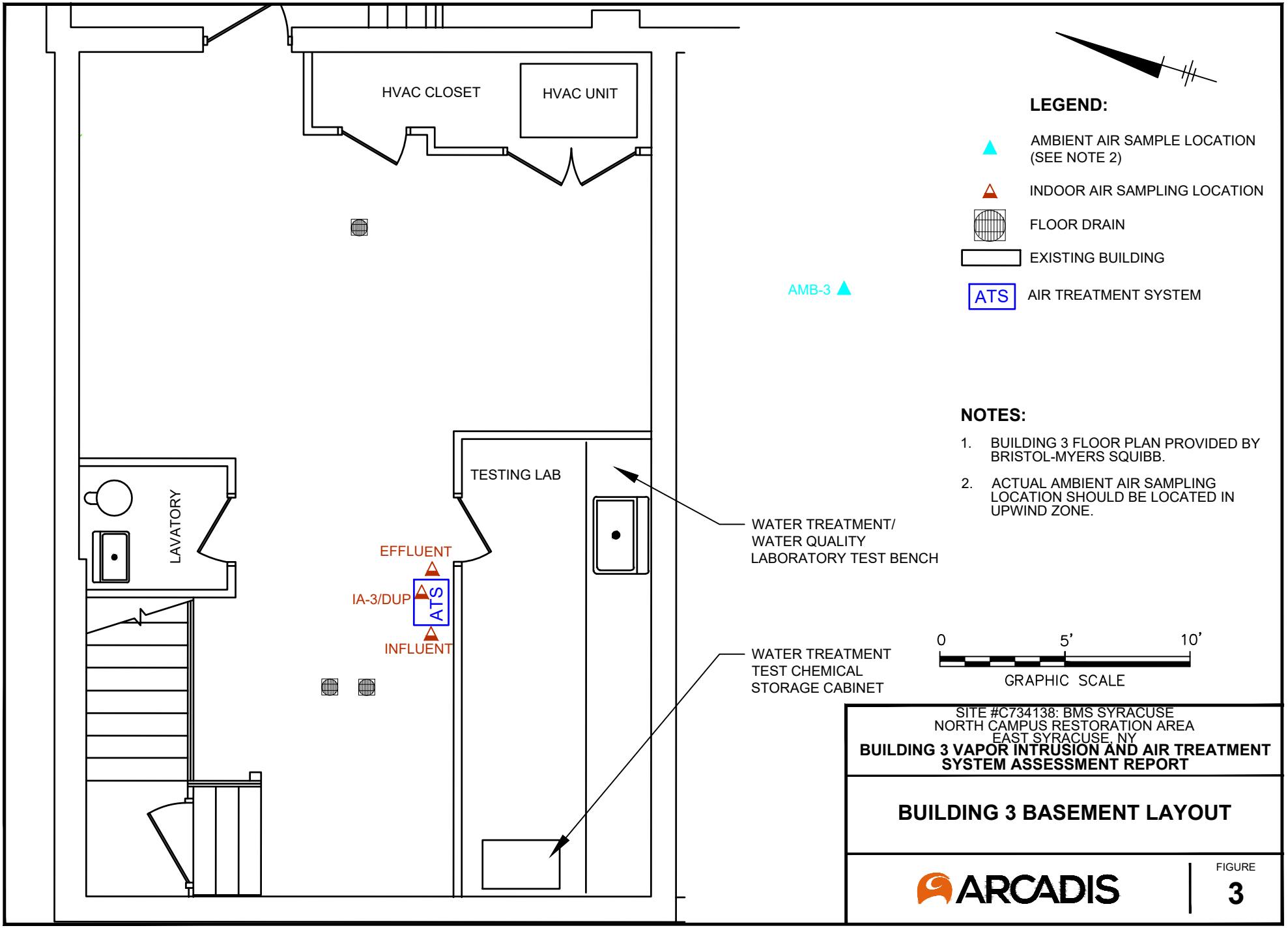
SITE #C734138: BMS SYRACUSE
NORTH CAMPUS RESTORATION AREA
EAST SYRACUSE, NY
BUILDING 3 VAPOR INTRUSION AND AIR TREATMENT SYSTEM ASSESSMENT REPORT

BUILDING 3 LOCATION MAP

ARCADIS

FIGURE
2

C:\Users\lposenauer\BIM 360\Arcadis\ANA - BRISTOL-MYERS COMPANY\Project Files\BDA Hydraulic Testing Program\2021\01-DWG\B3OMM_F03_BASEMENT.dwg LAYOUT: 3 SAVED: 5/13/2021 5:53 PM ACADVER: 24.0S (LMS TECH) PAGESETUP: C-LA-PDF PLOTSTYLETABLE: PLTFULL.CTB
PLOTTED: 5/14/2021 12:26 PM BY: POSENAUER, LISA



LEGEND:

- AMBIENT AIR SAMPLE LOCATION (SEE NOTE 2)
- INDOOR AIR SAMPLING LOCATION
- FLOOR DRAIN
- EXISTING BUILDING
- ATS — AIR TREATMENT SYSTEM

NOTES:

1. BUILDING 3 FLOOR PLAN PROVIDED BY BRISTOL-MYERS SQUIBB.
2. ACTUAL AMBIENT AIR SAMPLING LOCATION SHOULD BE LOCATED IN UPWIND ZONE.

0 5' 10'

GRAPHIC SCALE

SITE #C734138: BMS SYRACUSE
NORTH CAMPUS RESTORATION AREA
EAST SYRACUSE, NY

BUILDING 3 VAPOR INTRUSION AND AIR TREATMENT SYSTEM ASSESSMENT REPORT

BUILDING 3 BASEMENT LAYOUT

ARCADIS

FIGURE
3

Appendix A

Structural Sampling Questionnaire and Building Inventory Forms/Photo Logs
(See Attached CD for Inventory Photos)

Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

Site Name: Bristol-Myers Squibb Site Code: Operable Unit:

Building Code: Industrial Building Name: Building 3

Address: 6000 Thompson Rd Apt/Suite No:

City: East Syracuse State: NY Zip: 13057 County: Onondaga

Contact Information

Preparer's Name: Daniel Zuck Phone No: 516-369-2741

Preparer's Affiliation: Arcadis of NY Inc. Company Code:

Purpose of Investigation: Soil Vapor Investigation Date of Inspection: 1/14/2021

Contact Name: Anne Locke Affiliation: MANAGER

Phone No: 315-432-2660 Alt. Phone No: Email: anne.locke@bms.com

Number of Occupants (total): 5-10 Number of Children: 0

[x] Occupant Interviewed? [ ] Owner Occupied? [ ] Owner Interviewed?

Owner Name (if different): Bristol-Myers Squibb Owner Phone: NA

Owner Mailing Address: PO Box 4755, Syracuse NY 13221

Building Details

Bldg Type (Res/Com/Ind/Mixed): COMMERCIAL/MIXED Bldg Size (S/M/L): MEDIUM

If Commercial or Industrial Facility, Select Operations: MULTI-USE BUILDING

If Residential Select Structure Type:

Number of Floors: 2 Approx. Year Construction: 1910 [x] Building Insulated? [ ] Attached Garage?

Describe Overall Building 'Tightness' and Airflows(e.g., results of smoke tests):

Building has multiple air handlers and has older windows and doors. Ambient air infiltration can be detected at building access locations.

Foundation Description

Foundation Type: BASEMENT-PARTIAL Foundation Depth (bgs): 8 Unit: FEET

Foundation Floor Material: POURED CONCRETE

Foundation Wall Material: CONCRETE BLOCK

Foundation Floor Thickness: 7

Foundation Wall Thickness:

Unit: INCHES

[x] Floor penetrations? Describe Floor Penetrations: Floor drains

[x] Wall penetrations? Describe Wall Penetrations: Electrical conduits, piping

Basement is: PARTIALLY FINISHE Basement is: DRY [x] Sumps/Drains? Water In Sump?: YES

Describe Foundation Condition (cracks, seepage, etc.) : Solid but cracked, Coved by tile in spots.

[ ] Radon Mitigation System Installed? [ ] VOC Mitigation System Installed? [ ] Mitigation System On?

Heating/Cooling/Ventilation Systems

Heating System: FORCED AIR Heat Fuel Type: GAS [x] Central A/C Present?

Vented Appliances

Water Heater Fuel Type: ELECTRIC Clothes Dryer Fuel Type: NO CLOTHES DRYER

Water Htr Vent Location: OUTSIDE Dryer Vent Location: NONE

Structure Sampling Questionnaire and Building Inventory
New York State Department of Environmental Conservation

PRODUCT INVENTORY

Building Name: Building 3 Bldg Code: Industrial Date: 1/14/2021

Bldg Address: 6000 Thompson Rd Apt/Suite No:

Bldg City/State/Zip: East Syracuse NY, 13057

Make and Model of PID: ppbRAE 2000 Date of Calibration: 1/14/2021

Location	Product Name/Description	Size (oz)	Condition *	Chemical Ingredients	PID Reading	COC Y/N?
	See attached hand notes					☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐

* Describe the condition of the product containers as **Unopened (UO)**, **Used (U)**, or **Deteriorated (D)**
** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

Product Inventory Complete? Yes Were there any elevated PID readings taken on site? Yes ☒ Products with COC?

Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

Site Name: Bristol-Myers Squibb Site Code: _____ Operable Unit: _____

Building Code: Industrial Building Name: Building 3

Address: 6000 Thompson Rd Apt/Suite No: _____

City: East Syracuse State: NY Zip: 13057 County: Onondaga

Factors Affecting Indoor Air Quailty

Frequency Basement/Lowest Level is Occupied?: ALMOST NEVER Floor Material: CEMENT

☐ Inhabited? ☒ HVAC System On? ☒ Bathroom Exhaust Fan? ☒ Kitchen Exhaust Fan?

Alternate Heat Source: NONE ☐ Is there smoking in the building?

☒ Air Fresheners? Description/Location of Air Freshener: Bathrooms

☒ Cleaning Products Used Recently?: Description of Cleaning Products: Lysol and other disinfectants

☐ Cosmetic Products Used Recently?: Description of Cosmetic Products: _____

☐ New Carpet or Furniture? Location of New Carpet/Furniture: _____

☒ Recent Dry Cleaning? Location of Recently Dry Cleaned Fabrics: Various staff use dry cleaned clothing

☐ Recent Painting/Staining? Location of New Painting: _____

☐ Solvent or Chemical Odors? Describe Odors (if any): _____

☒ Do Any Occupants Use Solvents At Work? If So, List Solvents Used: Various for pipe fittings

☐ Recent Pesticide/Rodenticide? Description of Last Use: _____

Describe Any Household Activities (chemical use,/storage, unvented appliances, hobbies, etc.) That May Affect Indoor Air Quality:

The building is the boiler and maintenance area for the facility. The water testing area has an exhaust fan, as well as a bathroom with cleaners. The cleaning products in the stock room have been identified, marked out, and listed on the inventory forms.

☐ Any Prior Testing For Radon? If So, When?: _____

☒ Any Prior Testing For VOCs? If So, When?: Jan 1, 2019

Sampling Conditions

Weather Conditions: PARTLY CLOUDY Outdoor Temperature: _____ °F

Current Building Use: MULTI-USE BUILDING Barometric Pressure: _____ in(hg)

Product Inventory Complete? Yes ☒ Building Questionnaire Completed?

Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

Site Name: BMS Syracuse Site Code: Operable Unit:

Building Code: Building 3 Building Name: Boiler Control Building

Address: Apt/Suite No:

City: Syracuse NY State: NY Zip: County: USA

Factors Affecting Indoor Air Quailty

Frequency Basement/Lowest Level is Occupied?: 3 shifts/Day Floor Material: Concrete w/tile

☐ Inhabited? ☒ HVAC System On? ☒ Bathroom Exhaust Fan? ☐ Kitchen Exhaust Fan?

Alternate Heat Source: Floor Heater (Electric) ☐ Is there smoking in the building? (N)

☐ Air Fresheners? Description/Location of Air Freshener: NA

☒ Cleaning Products Used Recently?: Description of Cleaning Products: Champion Spray Disinfectant

☐ Cosmetic Products Used Recently?: Description of Cosmetic Products: NA

☐ New Carpet or Furniture? Location of New Carpet/Furniture: NO

☐ Recent Dry Cleaning? Location of Recently Dry Cleaned Fabrics: NO

☐ Recent Painting/Staining? Location of New Painting: NO

☒ Solvent or Chemical Odors? Describe Odors (if any): Hand sanitizer

☐ Do Any Occupants Use Solvents At Work? If So, List Solvents Used: yes → see product inventory

☐ Recent Pesticide/Rodenticide? Description of Last Use: NO

Describe Any Household Activities (chemical use,/storage, unvented appliances, hobbies, etc.) That May Affect Indoor Air Quality:

Summa canister 4, ID: FA00910, Sample ID: Job1+1A, Location: Bldg 3 Control Room Vs AMS
ID: FA00895, Sample ID: Job2+2A, Location: Bldg 3 Control Room Vs Bldg 2
ID: FA00908, Sample ID: Job3+3A, Location: Bldg 3 Control Room Vs Slab Drain

- Note Differential pressure Monitors Collected @ Control Room Vs Bldg 2, Vs AMS, Vs Drain.

☐ Any Prior Testing For Radon? If So, When?:

☒ Any Prior Testing For VOCs? If So, When?: 2019

Sampling Conditions

Weather Conditions: Overcast

Current Building Use: Boiler Control Room

Product Inventory Complete? 1/12/21 ☒ Building Questionnaire Completed?

Start: Indoor Temperature: 70.4°F IA Humidity: 29.6%

Outdoor Temperature: 40.8°F 62.8% Hum °F

Start 40.15°F 70.45%

Barometric Pressure: Start: 29.84 in(hg)

Stop End:

Stop: Indoor Temp: 70.1°F 29.1% Hum

Building 2B

Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

1/8

PRODUCT INVENTORY

Building Name: Building 2B Floor 1 Bldg Code: Date: 1/12/21

Bldg Address: BMS Syracuse Apt/Suite No:

Bldg City/State/Zip:

Make and Model of PID: 11.7 ev MiniRAE 3000 10# FA00321 Date of Calibration: 1/12/21 @0930AM

Location	Product Name/Description	Size (oz)	Condition *	Chemical Ingredients / photo ID	PID (ppm) Reading	COC Y/N?
B2B-C1	3-in-1: Multi purpose Oil	3oz	U	Petrolium distillates -2104 -2105	0.0	☐
"	Loctite - 567 Thread Sealant	1.69oz x3	U	-2106	0.0	☐
"	Loctite - Gasket eliminator 518	10.15 oz	U	-2106	0.0	☐
"	Loctite - 55 pipe Sealing Cord	~30z	U	Silicone Resin -2106	0.0	☐
"	Loctite - RC/680 retaining compound	1.69 oz	U	-2108	0.0	☐
"	Loctite LB-8008	8oz	U	Quartz -2108 -2109	0.0	☐
"	LA-CO: Slic-tite Thread Sealing compound	8oz	U	-2108	0.0	☐
"	LA-CO: Epoxy Stick	~8oz	U	Bisphenol-A - Epoxy resin, Silicon Dioxide -2110 -2111	0.0	☐
"	Techspray - Transistor Silicone grease	4oz	U	-2110	0.0	☐
"	Blaster: Penetrating catalyst	11oz	U	Petrolium distillates -2110 -2112	0.0	☐
B2B-A1	Sodium Hydroxide 50% solution	~55 gallons	U	-2113 -2114	0.0	☐
B2B-A2	Chemical treatment CL-2150	~55 gallons	UO	-2115 -2116	0.0	☐
B2B-A2	Cooling Water treatment CL6836	~55 gallons	UO	Sodium hydroxide -2117 -2118	0.0	☐
B2B-A2	Chemtreat CL49	~55 gal	UO	Sodium bromosulfamate -2119 Sodium Chlorosulfamate -2120	0.0	☐
B2B-A2	Boiler water treatment BL122	120 gal	U	Sodium Bisulfite -2121 -2112	0.0	☐
B2B-A2	Boiler water treatment BL2452	120 gal	U	Potasium Hydroxide -2123 -2124	0.0	☐

B2B-C1

* Describe the condition of the product containers as **Unopened (UO), Used (U), or Deteriorated (D)**

** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

Product Inventory Complete? ☐ Were there any elevated PID readings taken on site? ☐ ☐ Products with COC?

Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

Building 2A
Cabinet 2

PRODUCT INVENTORY

Building Name: Building 2A - Floor 1 Bldg Code: B2A-C2 Date: 1/12/21

Bldg Address: BMS Syracuse Apt/Suite No:

Bldg City/State/Zip:

Make and Model of PID: 11.7eV Mini Rae 3000 Date of Calibration: 1/12/21

Location	Product Name/Description	Size (oz)	Condition *	Chemical Ingredients / photos	PID Reading	COC Y/N?
B2A-C2 Top Shelf	CRC - HF Contact Cleaner	11oz x3	U	Petrolium distillates -2125 -2126	0.0	☐
"	CRC - 2-26 lubricant	11oz	U	Petrolium distillates -2125 -2127 -2128 -2129	0.0	☐
"	Sprayon - Multipurpose adhesive	16.75 oz	U	Hexane, Acetone, propane, Butane -2125 -2130	0.0	☐
"	Flex Seal Liquid Rubber Coating	14oz	U	Toluene, Mineral spirits, petrolium Solvent -2125 -2131	0.0	☐
"	Flex Seal liquid rubber Sealant	128oz x2	U	-2132 -2135 -2136	3.3	☐
"	Sprayon S00601 Red insulating Varnish	15.25oz	U x1 UO x11	Xylene, Acetone, toluene, propane, Butane, iron oxide -2134	0.0	☐
"	Krylon - Rust tough enamel	15oz	UO x1 U x10	-2134	0.0	☐
"	Cal-SPRAY Coil cleaner	18oz	U	*Trichloroethylene* -2134 -2137	0.0	☒
"	NAPA - 10W-30 Motor Oil	32oz	U	-2138	0.0	☐
"	Chesterton - 723 Sprasolvo - penetrating oil	12.3oz	U	-2138	0.0	☐
"	E-Z Weld 914 pipe cleaner	8oz	U	Methyl Ethyl Ketone -2138 -2139	0.0	☐
"	Wet Weld low VOC "E-Z weld" PVC cement	16oz	U x2	Tetrahydroturan MEK -2138 -2140	1.9	☐
"	Carlon - Clear Primer	32oz	U	MEK, Cyclohexanone, Tetrahydrofuran, -2141 -2142	429	☐
"	Spray On - Molly Chain Lube	11oz	U x2	Propane, hexane, -2141 -2143 -2144	1.5	☐
"	Sprayon - Anti Sieze Lube	11.25oz	U	-2141	0.0	☐
"	Rustoleum - Enamel	15oz	U x6	Acetone, Ethyl Benzene, Xylene -2141 -2145	0.8	☐

2A-C2

* Describe the condition of the product containers as **Unopened (UO)**, **Used (U)**, or **Deteriorated (D)**

** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

Product Inventory Complete? ☐ Were there any elevated PID readings taken on site? ☐ ☐ Products with COC?

3/8

Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

PRODUCT INVENTORY

Building Name: Building 2A - Flwr 1 Bldg Code: B2A - [C2] Date: 1/12/21

Bldg Address: & BMS Syracuse Apt/Suite No:

Bldg City/State/Zip:

Make and Model of PID: 11.7 eV Mini Rae 3000 Date of Calibration: 1/12/21

Location	Product Name/Description	Size (oz)	Condition *	Chemical Ingredients / Photo ID	PID Reading	COC Y/N?
B2A-C2 middle shelf	Virginia - Vaccume pump oil	1 Quart	U	-2146	0.0	☐
"	Chemsafe - Ram truck-Spray Adhesive	12oz	U	n-butane, propane, Acetone -2146 -2147	0.4	☐
"	CROWN - Spray adhesive	14.1oz	U	Acetone, heptane, propane -2146 -2148 -2149	0.5	☐
"	Sprayon - Chain + Pin bushing lube	11oz	D	-2146	0.0	☐
"	Hercules - Clear PVC PRIMER	16 oz	U	Tetrahydrofuran, Cyclohexane, MEK, Acetone -2150 -2151	0.0	☐
"	Steel IT - Anti Rust Stainless Steel	14oz	UO	Polyurethane, Xyol, Driers, Aliphatic Hydrocarbons -2150 -2152	0.0	☐
"	Chesterton 730 SPRAGRIP	12 oz	U	Isobutane, heptane -2150 -2153	0.0	☐
"	Crown - TFE Lube	10.5 oz	U	Xylene, Acetone, Cyclohexane, Dimethyl ether -2150 -2154 -2155	0.5	☐
"	CAL-SPRAY instant leak Sealer	16oz	U	-2150	0.7	☐
"	Virginia ~~Amber~~ #10 Degreasing Solvent	1 gal	U	Acetone, tetrachloroethylene, Hydrocarbons -2156 -2157	13.9	☐
"	3M Nitrile plastic Adhesiv	5oz	U x1 UO x2	-2156 -2158	0.0	☐
B2A-C2 Bottom	SW - DTM Acrylic	1 gal	U x3	-2160 -2161	0.0	☐
"	SW - Urethane Alkyd enamle	1 gal	U	-2160 -2162	0.0	☐
"	Temperkote - high heat coating	1 gal	U	Toluene Petroleum Distillates -2160 -2163	0.7	☐
"	SW - A100 Acrylic Formula	5 gal	U	-2164 -2165	0.0	☐
"	Sunny Side - Low odor mineral spirits	1 gal	U x2	Petroleum distillates -2164 -2166	0.2	☐

B2A-C2

* Describe the condition of the product containers as **Unopened (UO)**, **Used (U)**, or **Deteriorated (D)**

** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

Product Inventory Complete? ☐ Were there any elevated PID readings taken on site? ☐ ☐ Products with COC?

4/8

Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

PRODUCT INVENTORY

Building Name: Building 2A - Floor 1 Bldg Code: B2A-[C2+C3] Date: 1/12/21

Bldg Address: BMS Syracuse Apt/Suite No:

Bldg City/State/Zip:

Make and Model of PID: 11.7 eV MiniRae 3000 Date of Calibration: 1/12/21

	Location	Product Name/Description	Size (oz)	Condition *	Chemical Ingredients / photo ID	PID Reading	COC Y/N?
B2A C2	B2A-C2 Bottom	Enerpac Hydraulic oil	1gal	U	-2164	0.0	☐
B2A-C3 (top shelf)	B2A-C3 Top shelf	Snoop - leak detector	8oz	U x1 UO x1	-2169	0.0	☐
	"	Weld-on - PC64 Primer cleaner	32oz	D	Acetone, MEK, tetrahydroFuran, Cyclohexane -2169, -2170	0.6	☐
	"	Rustoleum Primer	1gal	U	-2169 -2171	0.0	☐
	"	Krylon - Iron guard Acrylic	1gal	U x3	-2169 -2172	0.0	☐
	"	PPG - Multiprime Alkyd primer	1gal	U	-2174 -2175	0.0	☐
	"	Hercules - PVC Primer - Clear	32oz	U x2	Acetone, CycloHexane, MEK, tetrahydroFuran -2174 -2176	0.2	☐
	"	Hercules - PVC+CPVC Primer - purple	32oz	U	" -2174 -2177	0.5	☐
	"	Hercules - PVC - plastic pipe cement	32oz	U	" -2174 -2178	2.3	☐
	"	Hercules - PVC - Gray plastic pipe cement	32oz	U	" -2174 -2179	1.3	☐
	"	EZ-Weld 912 Purple Primer	16oz	U	Tetra Hydro Furan, MEK, Cyclohexane, Acetone -2180 -2181	0.8	☐
	"	ISO - Heet injector cleaner	12oz	U	Isopropyl Alcohol -2180 -2182	0.0	☐
	"	Virginia - Vaccume pump oil	1quart	U	-2180	0.0	☐
	"	NAPA - Motor oil 5W-30	1quart	U x1 UO x1	-2180	0.0	☐
	B2A-C3 middle shelf	EMKarate - Refrigeration lubricant - RL32H	1gal	U x2	polyol ester -2183 -2184	0.0	☐
	"	Comstar - Coil flush cleaner - CF20	1gal	U	-2183	0.0	☐

* Describe the condition of the product containers as **Unopened (UO)**, **Used (U)**, or **Deteriorated (D)**

** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

Product Inventory Complete? ☐ Were there any elevated PID readings taken on site? ☐ ☐ Products with COC?

5/8

Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

PRODUCT INVENTORY

Building Name: Building 2A - Flwr 1 Bldg Code: B2A - [C3+A1] Date: 1/12/21

Bldg Address: BMS Syracuse Apt/Suite No:

Bldg City/State/Zip:

Make and Model of PID: 11.7 eV Mini Rae 3000 Date of Calibration: 1/12/21

Location	Product Name/Description	Size (oz)	Condition *	Chemical Ingredients	PID Reading	COC Y/N?
B2A-C3 middle Shelf	Nu Calgon - Refridgerant oil. C-4	1 gal	U x 2	Mineral Oil -2183 -2185	0.0	☐
"	Virginia AB150 lubricant	1 gal	U	-2183	0.0	☐
"	SW - Industrial enamel HS	1 gal	U x 3	Ethyl Benzene -2186 -2187	0.0	☐
"	Virginia 10n Degreasing Solvent	1 gal	U x 1 UO x 3	Acetone, tetrachloroethylene, Hydrocarbons -2186 -2188	0.2	☐
"	SW - ProMar 200 latex	1 gal	U x 1	-2186 -2189	0.0	☐
B2A-C3 Bottom	Edmac - Synthetic lubricant	5 gal	U	-2190	0.0	☐
"	TRANE - Oil 22 Refridgeration oil	2.5 gal	U	-2190	0.0	☐
B2A-A1	DOW Frost	55 gal	U x 2	-2191 -2192	0.0	☐
"	Permatreat PC191T	5 gal	U x 2	-2194	0.0	☐
"	Nalsperse 73550	5 gal	U x 2	-2194	0.0	☐
"	Nalco 7469 Antifoam	5 gal	U	-2194	0.0	☐
"	Nalco 7341	5 gal	U	-2195	0.0	☐
						☐
						☐
						☐
						☐

* Describe the condition of the product containers as **Unopened (UO)**, **Used (U)**, or **Deteriorated (D)**

** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

Product Inventory Complete? ☐ Were there any elevated PID readings taken on site? ☐ ☐ Products with COC?

Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

6/8

PRODUCT INVENTORY

Building Name: Building 2A - Floor 1 Bldg Code: B2A - [A2+A3] Date: 1/14/21

Bldg Address: BMS Syracuse Apt/Suite No:

Bldg City/State/Zip:

Make and Model of PID: 11.7 eV MiniRae 3000 Date of Calibration: 1/14/21

Location	Product Name/Description	Size (oz)	Condition *	Chemical Ingredients	PID Reading	COC Y/N?
B2A-A2	Chem treat - Cool water treatment CL6836	55 gal	U x 6	Sodium hydroxide -2198	0.0	☐
"	Chem treat - CL49	55 gal	U x 6	-2199 -2200	0.0	☐
"	Chem treat CL2150	55 gal	U x 6	-2201 -2202	0.0	☐
"	Anti scalant	85 gal	U	-2196	0.0	☐
"	Sodium Bisulfite	75 gal	U	-2197	0.0	☐
B2A-A3	Chemtreat - Cool water treatment CL6836	55 gal	U	Sodium hydroxide	0.0	☐
"	Chem treat CL49	55 gal	U		0.0	☐
"	Chemtreat CL2150	55 gal	U		0.0	☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐

B2A-A2

B2A-A3

* Describe the condition of the product containers as **Unopened (UO)**, **Used (U)**, or **Deteriorated (D)**

** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

Product Inventory Complete? ☐ Were there any elevated PID readings taken on site? ☐ ☐ Products with COC?

Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

7/8

PRODUCT INVENTORY

Building Name: Building 3 - Floor 1 Bldg Code: B3 - [Lab + BR] Date: 1/14/21

Bldg Address: BMS Syracuse Apt/Suite No:

Bldg City/State/Zip:

Make and Model of PID: 11.7eV Mini Rae 3000 Date of Calibration: 1/14/21

Location	Product Name/Description	Size (oz)	Condition *	Chemical Ingredients / photo ID	PID Reading	COC Y/N?
B3-Lab	EMD- Buffer Solution pH 4.0	500 mL	U	-2203	0.0	☐
"	EMD - Buffer Solution pH 10.0	500 mL	U x2	-2203	0.0	☐
"	EMD - Buffer Solution pH 7.0	500 mL	U x2	-2203	0.0	☐
"	Nalco - ORP Standard 200 mV	1 L	U x2	-2204	0.0	☐
"	Nalco - ORP standard 600 mV	1 L	UO	-2204	0.0	☐
"	Nalco - 50980 - Trasar 3 cal	1 L	U	-2204	0.0	☐
"	Nalco - 50920 Trasar 2 Cal	1 L	U x1	-2205	0.0	☐
"	Nalco - SOLN ST-2 dopwise Sulfite	1 L	U x2	-2205	0.0	☐
"	Nalco Total Alkalinity indicator	500mL	U x2	-2205	0.0	☐
"	NALCO - Phenolphalein Indicator	500mL	U x1 UO x4	-2206	0.3	☐
"	NALCO - Trasar 3D	4 L	U x1 UO x1	-2206	0.0	☐
"	NALCO - SOLN 50226 H_2SO_4 Titrant	4L	U x1 UO x1	-2206	0.0	☐
B3-BR	Tough Guy - hand cleaner	1 gal	U	-2207	0.0	☐
"	Champion - Spray disinfectant	0.5oz	U	Dimethyl ammonium chloride -2207	0.0	☐
						☐
						☐

B3-LAB

B3-BR

* Describe the condition of the product containers as **Unopened (UO)**, **Used (U)**, or **Deteriorated (D)**

** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

Product Inventory Complete? ☐ Were there any elevated PID readings taken on site? ☐ ☐ Products with COC?

Structure Sampling Questionnaire and Building Inventory
New York State Department of Environmental Conservation

8/8

PRODUCT INVENTORY

Building Name: Building 3 - Flor 2 Bldg Code: B3 - F2 [E • W] Date: 1/14/21

Bldg Address: BMS Syracuse Apt/Suite No:

Bldg City/State/Zip:

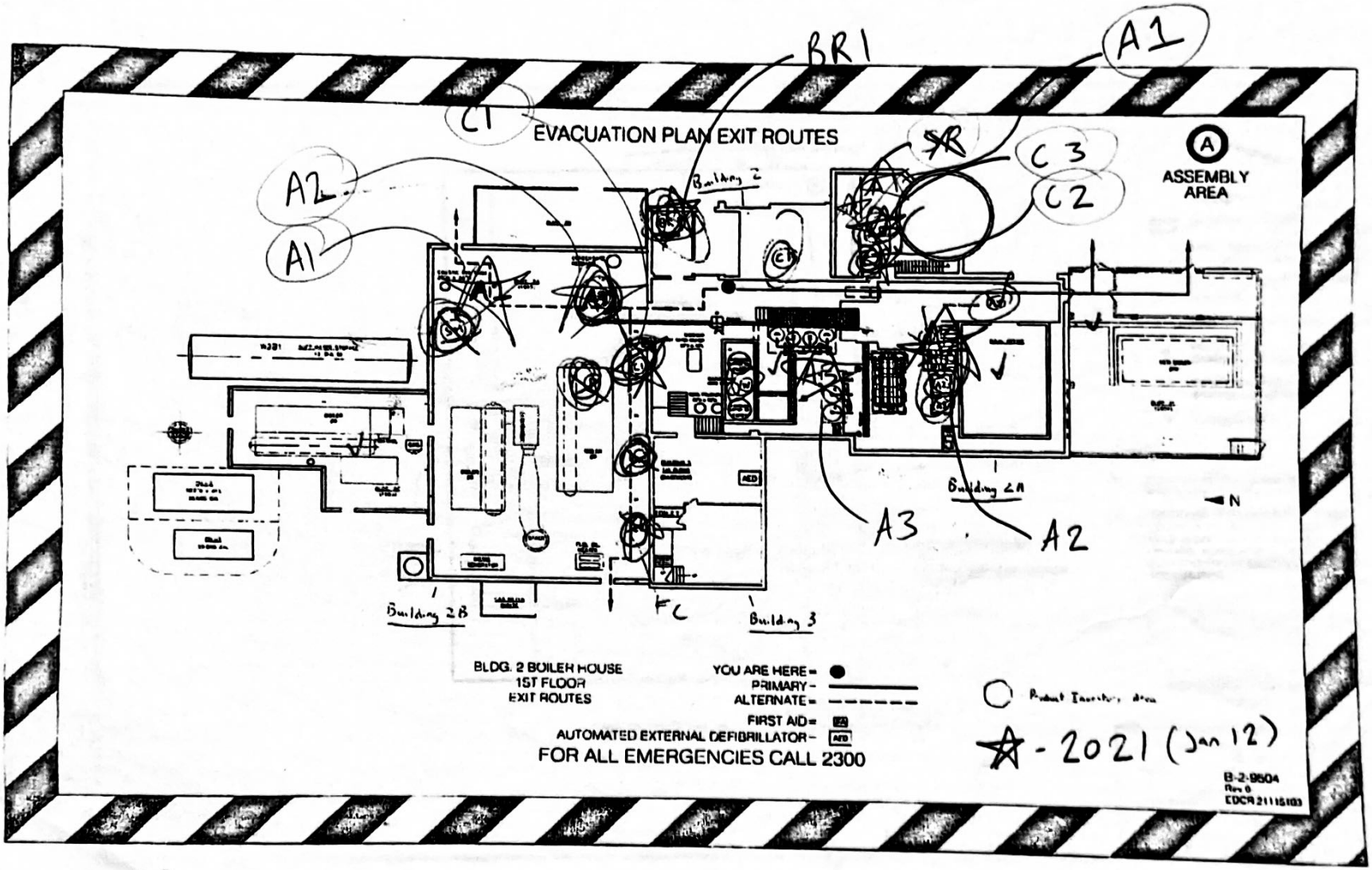
Make and Model of PID: 11.7 eV MiniRae 3000 Date of Calibration: 1/14/21

Location	Product Name/Description	Size (oz)	Condition *	Chemical Ingredients	PID Reading	COC Y/N?
B3-F2E	Virginia - Alk: Foam Concentrate	1 gal	U x 2	-2208	0.0	☐
B3 - F2E "	Bright DYES red dye	1 gal	U x 2 UO x 6	-2209	0.0	☐
"	TRANE - OIL00022 refrigeration oil	2.5 gal	U x 1	-2210	0.0	☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐
						☐

* Describe the condition of the product containers as **Unopened (UO)**, **Used (U)**, or **Deteriorated (D)**

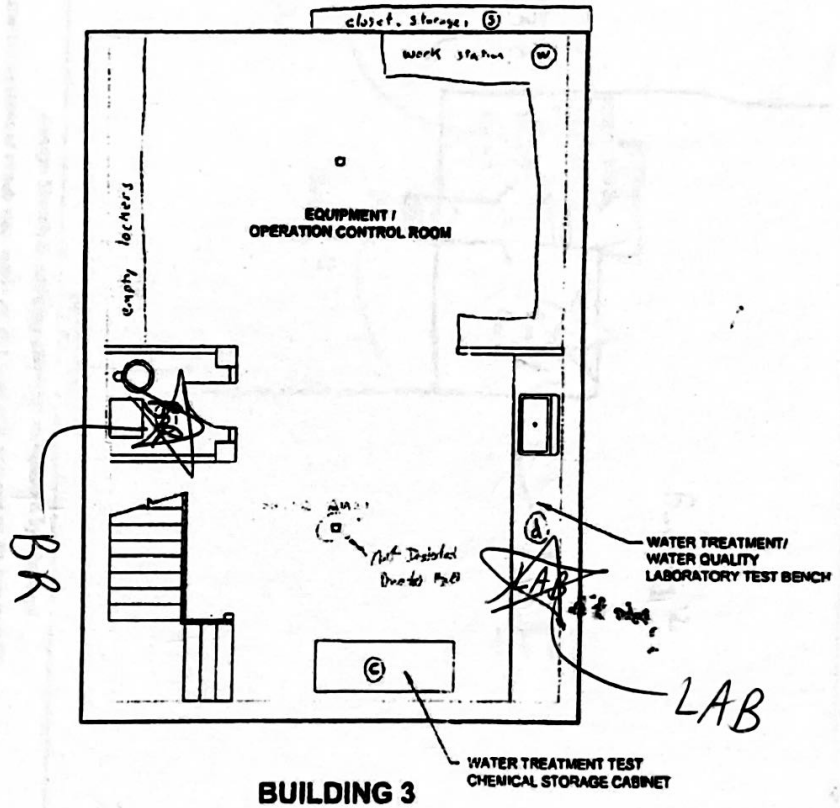
** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

Product Inventory Complete? ☐ Were there any elevated PID readings taken on site? ☐ ☐ Products with COC?



Completed

2B - C1	2A - C2
2B - A1	
2B - A2	



BUILDING 3

LEGEND:

- EXISTING BUILDING
- PROPOSED SUB-SLAB SOIL VAPOR SAMPLING LOCATION
- PROPOSED INDOOR AIR SAMPLING LOCATION
- PROPOSED SOIL BORING
- PROPOSED SOIL VAPOR SAMPLING LOCATION
- PROPOSED AMBIENT AIR SAMPLE LOCATION
- FLOOR DRAIN

NOTES:

1. BUILDING 3 FLOOR PLAN PROVIDED BY BRISTOL-MYERS SQUIBB.
2. THE ACTUAL AMBIENT AIR SAMPLING LOCATION WILL BE SELECTED IN THE FIELD SUCH THAT IT IS NEAR A HEATING, VENTILATION, AND AIR CONDITIONING SYSTEM INTAKE FOR THE BUILDING.

C : Product Inventory Area

0 5' 10'
GRAPHIC SCALE

SITE #C734138 BMS SYRACUSE
NORTH CAMPUS RESTORATION AREA
EAST SYRACUSE, NY

BUILDING 3
FIRST FLOOR PLAN AND PROPOSED SAMPLE LOCATIONS

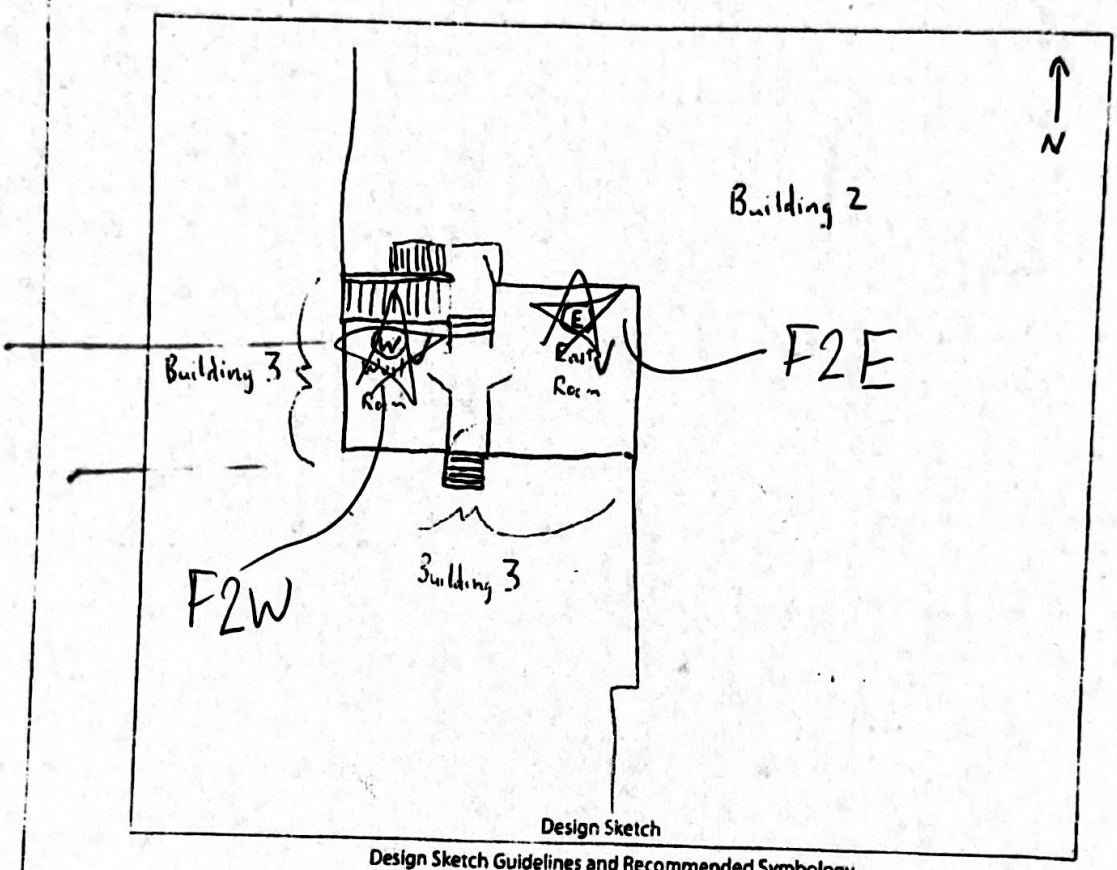
ARCADIS | 5

Structure Sampling Questionnaire and Building Inventory
New York State Department of Environmental Conservation

FIRST FLOOR BUILDING LAYOUT SKETCH

Please click the box with the blue border below to upload a sketch of the first floor of the building. The sketch should be in a standard image format (.jpg, .png, .tiff)

Clear Image



Design Sketch

Design Sketch Guidelines and Recommended Symbology

- Identify and label the locations of all sub-slab, indoor air, and outdoor air samples on the layout sketch.
- Measure the distance of all sample locations from identifiable features, and include on the layout sketch.
- Identify room use (bedroom, living room, den, kitchen, etc.) on the layout sketch.
- Identify the locations of the following features on the layout sketch, using the appropriate symbols:

B or F	Boiler or Furnace	D	Other floor or wall penetrations (label appropriately)
HW	Hot Water Heater	XXXXXXX	Perimeter Drains (draw inside or outside outer walls as appropriate)
FP	Fireplaces	######	Areas of broken-up concrete
WS	Wood Stoves	● SS-1	Location & label of sub-slab samples
W/D	Washer / Dryer	● IA-1	Location & label of indoor air samples
S	Sumps	● OA-1	Location & label of outdoor air samples
@	Floor Drains	● PFET-1	Location and label of any pressure field test holes

○ : Product Inventory Area

Structure Sampling Questionnaire and Building Inventory

New York State Department of Environmental Conservation

Building Code: Com/Industrial Address: Building 3

Sampling Information

Sampler Name(s): Daniel Zuck

Sampler Company Code: Arcadis

Sample Collection Date: 1/14/21

Date Samples Sent To Lab: 1/14/21

Sample Chain of Custody Number: NA

Outdoor Air Sample Location ID: AMB-011421

SUMMA Canister Information

Sample ID:	IA-3 (DUP-011421)	DUP-011421	AMB-011421		
Location Code:	Indoor Air	IA	AMB-		
Location Type:	Commercial	Commercial	Commercial		
Canister ID:	6L0764	2290	6L0505		
Regulator ID:	23485	24335	23522		
Matrix:	A: Air	IA: Air	Ambient Air		
Sampling Method:	6L Summa - TO-15	6L Summa - TO-15	6L Summa - TO-15		

Sampling Area Info

Slab Thickness (inches):	NA	NA	NA		
Sub-Slab Material:	NA	NA	NA		
Sub-Slab Moisture:	NA	NA	NA		
Seal Type:	NA	NA	NA		
Seal Adequate?:	NA ☐	NA ☐	NA ☐	☐	☐

Sample Times and Vacuum Readings

Sample Start Date/Time:	0840 1/14/21	0840 1/14/21	0838 1/14/21		
Vacuum Gauge Start:	-27.5 (Pre-Log: -30.20)	-27.5 (Pre-Log: -30.16)	-28.75 (Pre-Log: -30.16)		
Sample End Date/Time:	1642 1/14/21	1642 1/14/21	1640 1/14/21		
Vacuum Gauge End:	-6.25	-6.75	-6.5		
Sample Duration (hrs):	8hrs	8hrs	8hrs		
Vacuum Gauge Unit:	in Hg	in Hg	in Hg		

Sample QA/QC Readings

Vapor Port Purge:	NA ☐	NA ☐	NA ☐	☐	☐
~~Purge~~ Start PID Reading:	0.0 ppm	0.0 ppm	0.0 ppm		
Purge PID Unit:	0.0 ppm	0.0 ppm	0.0 ppm		
Tracer Test Pass:	☐	☐	☐	☐	☐

mini RAE 3000 11.7 Lap
SN: 592-907676
Coil: dk

Sample start and end times should be entered using the following format: MM/DD/YYYY HH:MM

ARCADIS Design & Consultancy for natural and built assets

Indoor/Ambient Air Sample Collection Log

Sample ID: IA-3

Client:	BMS	**Date/Day:**	~~5/23/2019~~ 4/29/21
Project:	Building 3 VI	**Sample Intake Height:**	4' ALS
Location:	Boiler Control Room	**Subcontractor:**	NA
Project #:		**Miscellaneous Equipment:**	IA Treatment unit NorAir 600
Samplers:	Daniel Zuck		
Coordinates:	(See attached Figure)	**Time Start:**	0805
Outdoor/Indoor:	Indoor	**Stop Time**	1610

Instrument Readings:

Time	Canister Pressure (inches Hg)	Temperature (F)	Relative Humidity (%)	Air Speed (ft/min)	Barometric Pressure in Hg	PID (ppb) / (ppm)
0805	-29.5	69.4	49.7	0	29.37	0
1345	-10	73.3	48.6	0	29.23	0
1610	-6	74.2	51.5	0	29.17	0

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 6L0742

Flow Controller ID: 23408

General Observations/Notes:

Photos: 2021.04.29_081036

- IA System flow rate @ Effluent 255 ft/min
- Staff were using hand sanitizer spray

ARCADIS Design & Consultancy for natural and built assets

Indoor/Ambient Air Sample Collection Log

Sample ID: IA-3

Client:	BMS	**Date/Day:**	~~5/23/2019~~ 5/6/21
Project:	BMS Building 3	**Sample Intake Height:**	4' ALS
Location:	Basement control room	**Subcontractor:**	NA
Project #:		**Miscellaneous Equipment:**	IA Carbon treated Unit. Nor Air 800
Samplers:	Daniel Zuck		
Coordinates:	(See attached Figure)	**Time Start:**	0825
Outdoor/Indoor:	Indoor	Time Stop	1632

Instrument Readings:

Time	Canister Pressure (inches Hg)	Temperature (F)	Relative Humidity (%)	Air Speed (ft/min)	Barometric Pressure in Hg	PID (ppb) / (ppm)
0825	-30	70.0	45.2	0	29.64	0
0941	-24	70.2	41.9	0	29.65	0
1632	-6	71.2	33.5	0	29.60	0

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 6L0736

Flow Controller ID: 25317

General Observations/Notes:

Photos: 20210506_083511.jpg

Average CFM - 279

Indoor/Ambient Air Sample Collection Log

Sample ID: IA- 3

Client:	BMS	**Date/Day:**	5/13/21 Th.
Project:	Building 3 VI	**Sample Intake Height:**	4' ALS
Location:	Syracuse, NY	**Subcontractor:**	NA
Project #:		**Miscellaneous Equipment:**	Vorair 800
Samplers:	D. Zuck		
Coordinates:	(See attached Figure)	**Time Start:**	0815
Outdoor/Indoor:	IA	**End Time:**	1615

Instrument Readings:

Time	Canister Pressure (inches Hg)	Temperature (F)	Relative Humidity (%)	Air Speed (ft/min)	Barometric Pressure	PID (ppb)
0815	-31	~~69.9~~	35.1	0	29.87	0
1615	-6	71.6	31.7	0	29.80	0

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 6L0453

Flow Controller ID: 23255

General Observations/Notes:

Photos: 20210513_162538

Average 251 cfm over 1 min data collection time

Indoor/Ambient Air Sample Collection Log

Sample ID: IA-3

Client:	BMS	**Date/Day:**	5/20/21 Thursday
Project:	Building 3 IA	**Sample Intake Height:**	4' ALS
Location:	Boiler Control Room	**Subcontractor:**	NA
Project #:		**Miscellaneous Equipment:**	Novist 800
Samplers:	D. Zuck		
Coordinates:	(See attached Figure)	**Time Start:**	0828
Outdoor/Indoor:	IA	**End Time:**	1628

Instrument Readings:

Time	Canister Pressure (inches Hg)	Temperature (F)	Relative Humidity (%)	Air Speed (ft/min)	Barometric Pressure	PID (ppb)
0828	-29.25	70.0	50.9	0	29.99	0
1628	-6	73.45	54.2	0	29.92	0

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 6L2210

Flow Controller ID: 23477

General Observations/Notes:

Photos: 20210520_095346

Effluent-1 Sample Collected @ 0345 1545 → 1550 CanID: 6L0902/FC#: 23828* Press: -28.5/-5

Influent-1 " " @ 1610 → 1615 " : 6L0735 FC#: 23466* " : -28.5/-2

*FC's had flow Regulators Removed to collect quick grab samples from port.

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Indoor/Ambient Air Sample Collection Log

Sample ID: AA-3

Client:	BMS	**Date/Day:**	Thursday 6/24/21
Project:	Building 7 VI	**Sample Intake Height:**	4' ALS
Location:	Syracuse NY	**Subcontractor:**	NA
Project #:	30064943.00001	**Miscellaneous Equipment:**	Vehicle Parking
Samplers:	D. Zuck		
Coordinates:	(See attached Figure)	**Time Start:**	1030
Outdoor/Indoor:	AA	**End Time:**	1830

Instrument Readings:

Time	Canister Pressure (inches Hg)	Temperature (F)	Relative Humidity (%)	Air Speed (ft/min)	Barometric Pressure	PID (ppb)
1030	-30	76.64	35.22	0	30.34	0
1430	-15.5	88.10	25.11	0	30.29	0
1830	-7	85.60	28.40	0	30.23	0

SUMMA Canister Information

Size (circle one): 1 L (6 L)

Canister ID: 6L1321

Flow Controller ID: 23401

General Observations/Notes:

Photos:

- @ 1hr pressure AA - 26.5
  @ 4hr pressure AA - 15.5

Indoor/Ambient Air Sample Collection Log

ARCADIS

Sample ID: IA-3 / DUP-062421

Client:	BMS	**Date/Day:**	Thursday 6/24/21
Project:	Building 3VI	**Sample Intake Height:**	4' ALS
Location:	Syracuse NY	**Subcontractor:**	NA
Project #:	30064943.00001	**Miscellaneous Equipment:**	NorAir 800
Samplers:	D. Zuck		
Coordinates:	(See attached Figure)	**Time Start:**	1025
Outdoor/Indoor:	IA	**End Time:**	1825

Instrument Readings:

Time	Canister Pressure (inches Hg)		Temperature (F)	Relative Humidity (%)	Air Speed (ft/min)	Barometric Pressure	PID (ppb)
1025	-30	-30	69.1	40.71	0	30.34	0
1430	-15.5	-15	74.2	46.85	0	30.29	0
1825	-6.0	-6.0	77.09	43.31	0	30.24	0

SUMMA Canister Information

Size (circle one): 1 L (6 L)

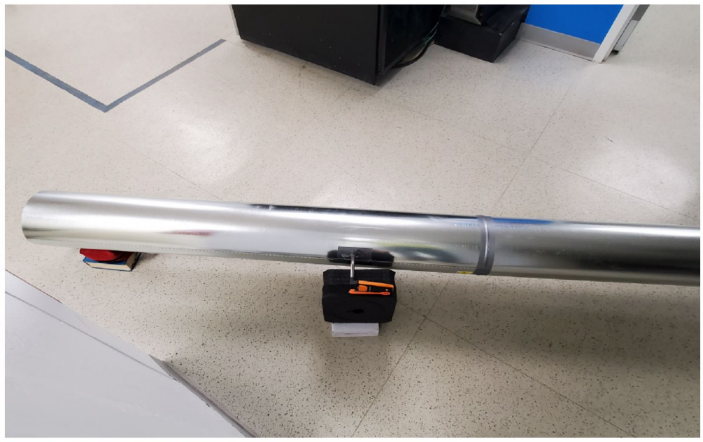
	IA	DUP
Canister ID:	~~06L0384~~ CL0384	6L0062
Flow Controller ID:	23593	23399

General Observations/Notes:

Photos:
- @ 1hr Pressure: IA -26.5 / DUP -27
- @ 4hr Pressure: IA / -15.5 / Dup -15.0

Photograph Log

Building 3 Vapor Intrusion and Air Treatment System Assessment Report
Bristol-Myers Squibb
Syracuse North Campus Restoration Area (Site #C734138)
East Syracuse, New York



Building 3 Air Treatment System and Pilot Testing

Photograph Log

Building 3 Vapor Intrusion and Air Treatment System Assessment Report
Bristol-Myers Squibb
Syracuse North Campus Restoration Area (Site #C734138)
East Syracuse, New York

Building 3 Air Treatment System

Photograph Log

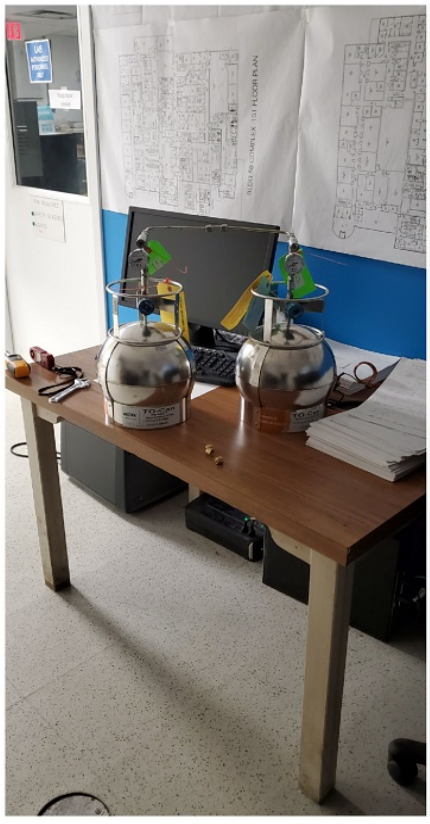
Building 3 Vapor Intrusion and Air Treatment System Assessment Report
Bristol-Myers Squibb
Syracuse North Campus Restoration Area (Site #C734138)
East Syracuse, New York

Building 3 Air Treatment System

Photograph Log

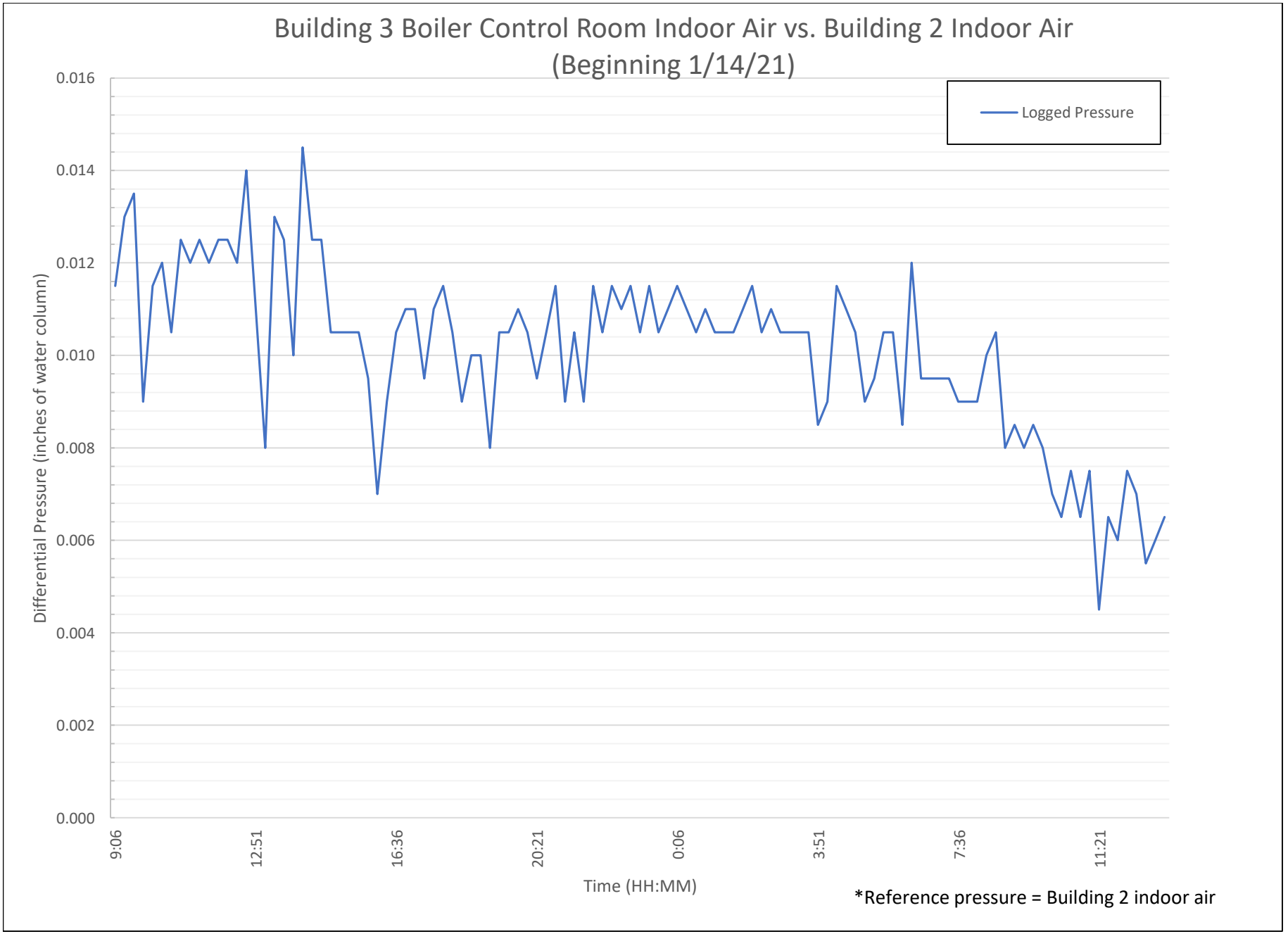
Building 3 Vapor Intrusion and Air Treatment System Assessment Report
Bristol-Myers Squibb
Syracuse North Campus Restoration Area (Site #C734138)
East Syracuse, New York

Air Sampling Locations

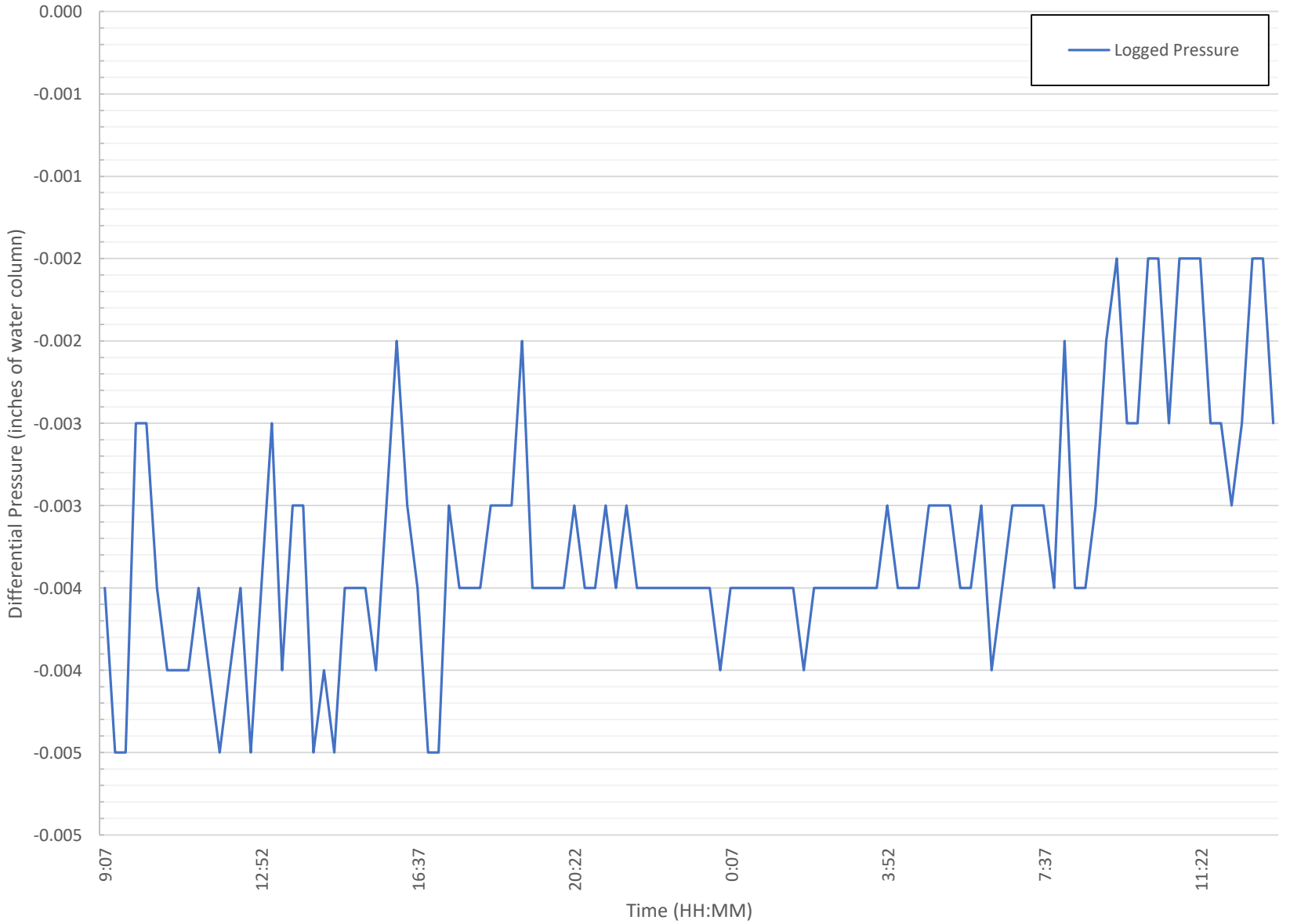


Appendix B

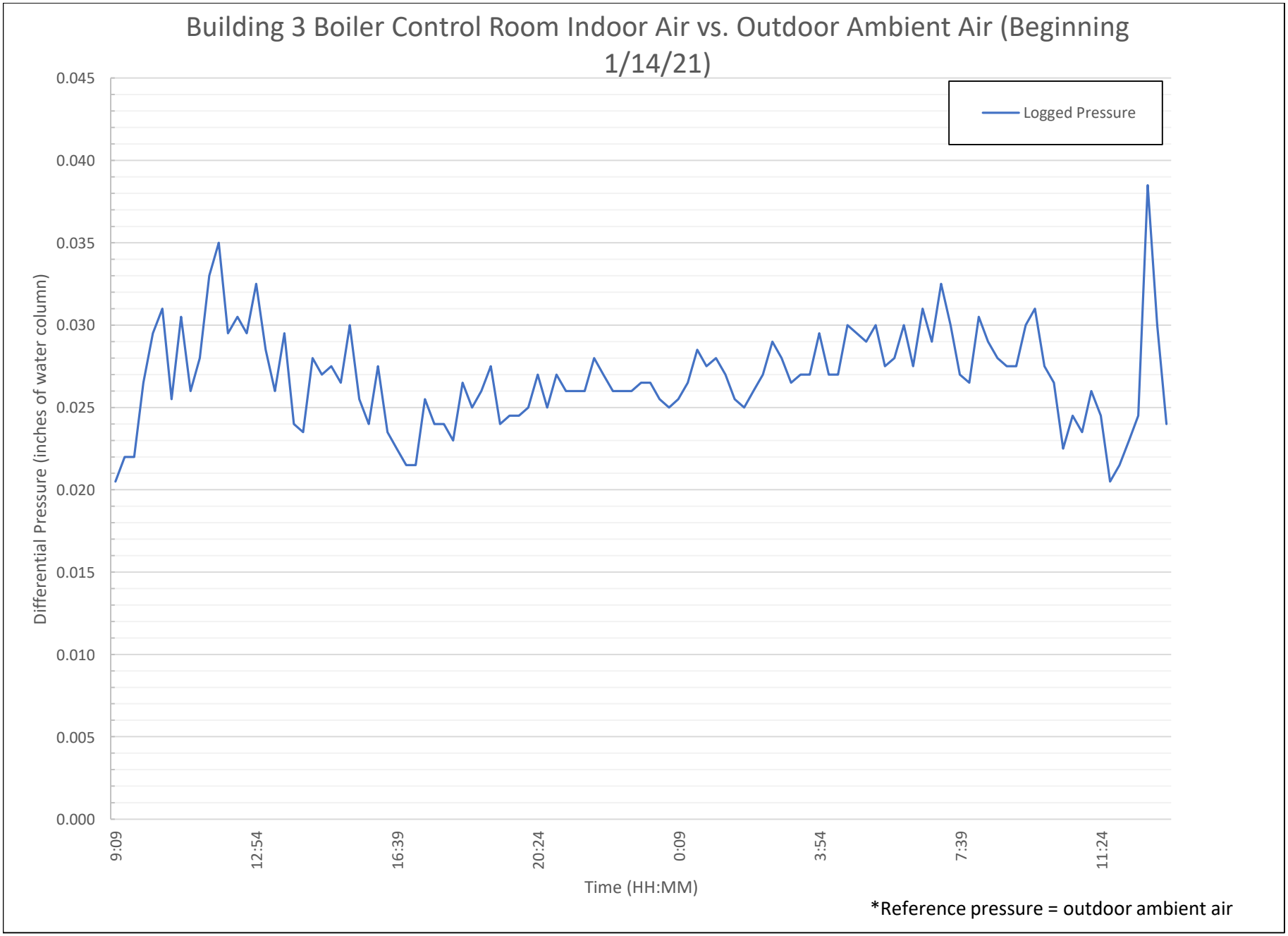
Differential Pressure Graphs

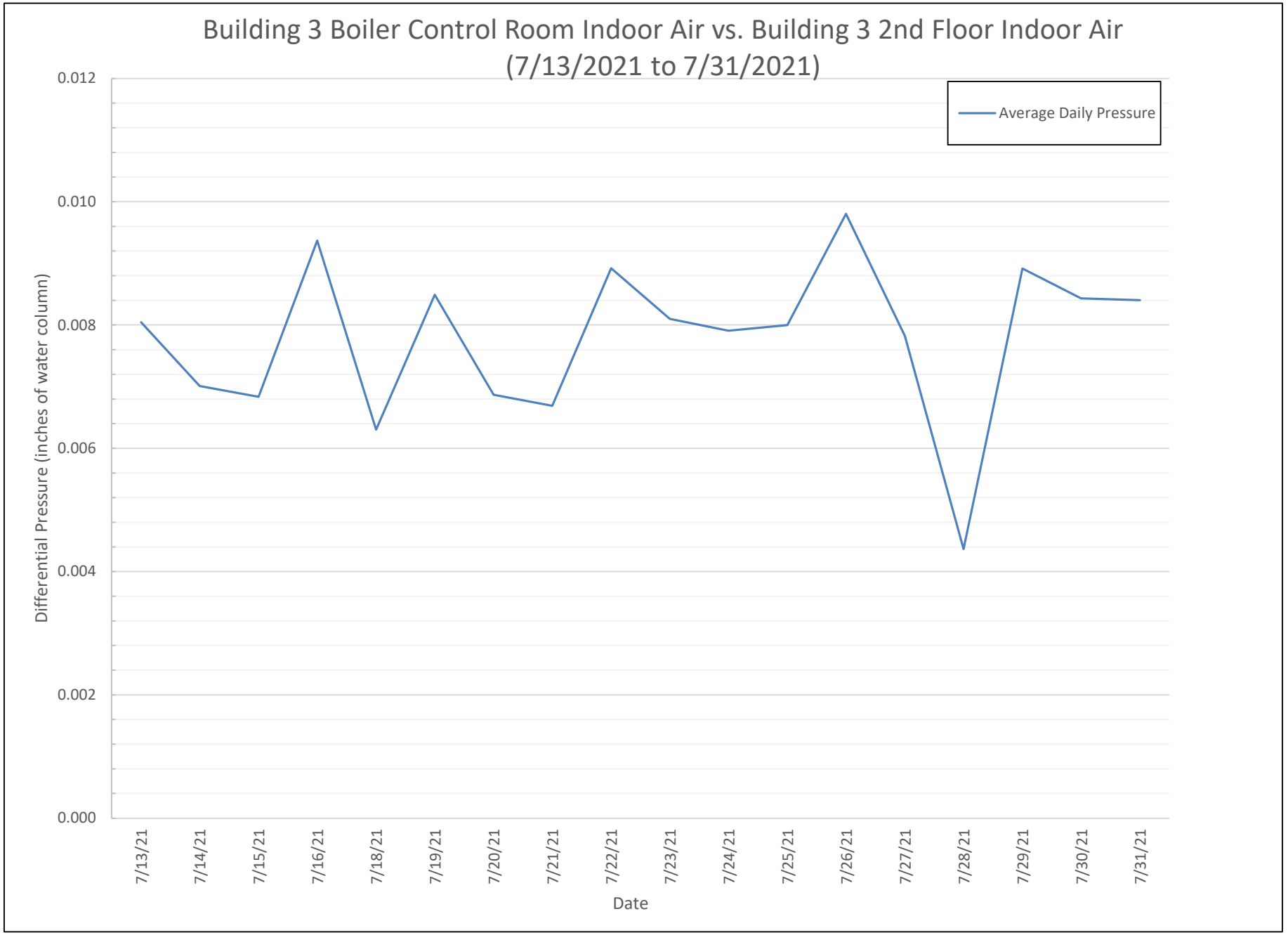

Building 3 Boiler Control Room Indoor Air vs. Building 2 Indoor Air
(Beginning 1/14/21)
Logged Pressure
Differential Pressure (inches of water column)
0.016
0.014
0.012
0.010
0.008
0.006
0.004
0.002
0.000
9:06
12:51
16:36
20:21
0:06
3:51
7:36
11:21
Time (HH:MM)
*Reference pressure = Building 2 indoor air

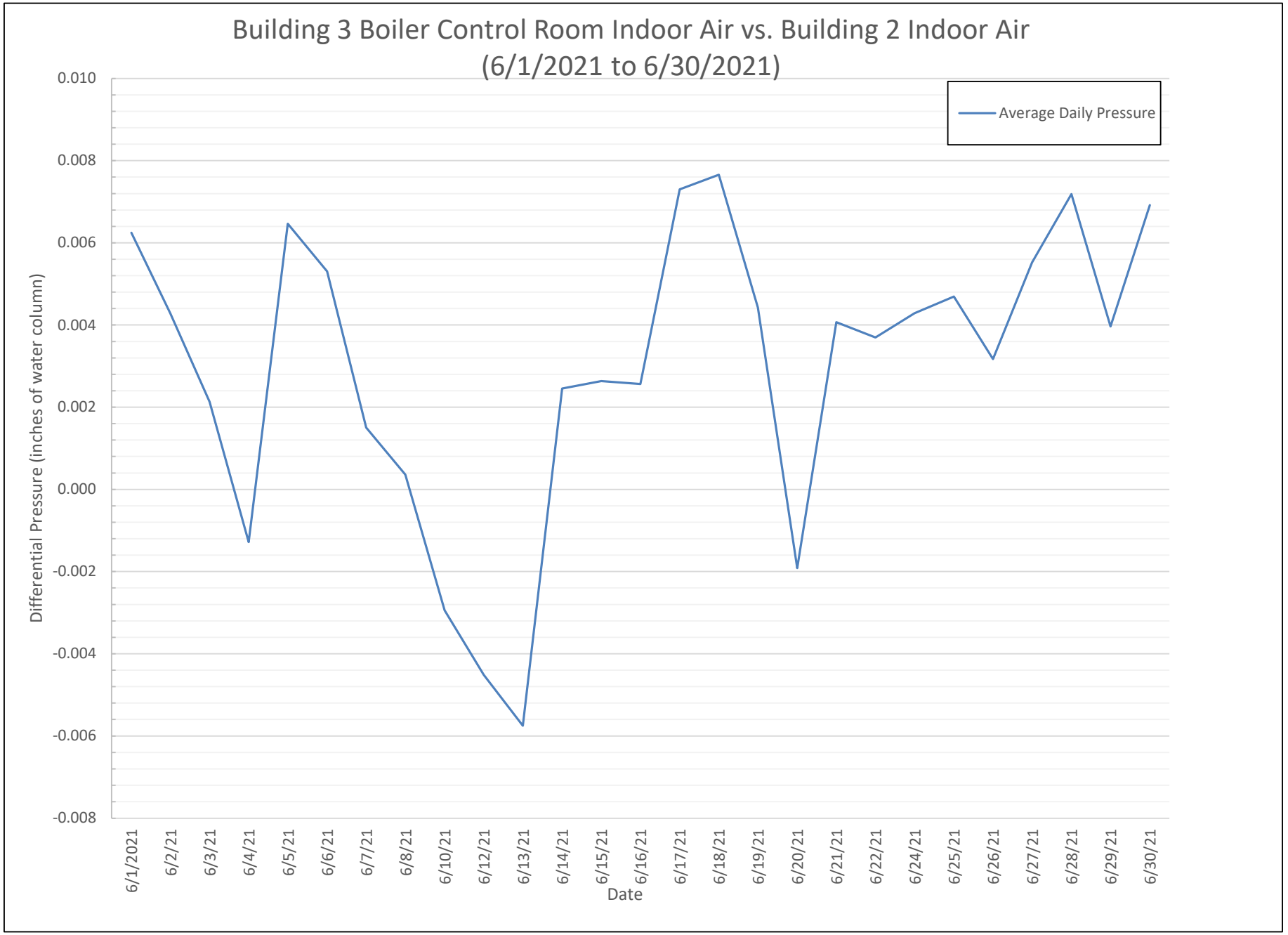
Building 3 Boiler Control Room Indoor Air vs. Floor Drain Air (Beginning 1/14/21)

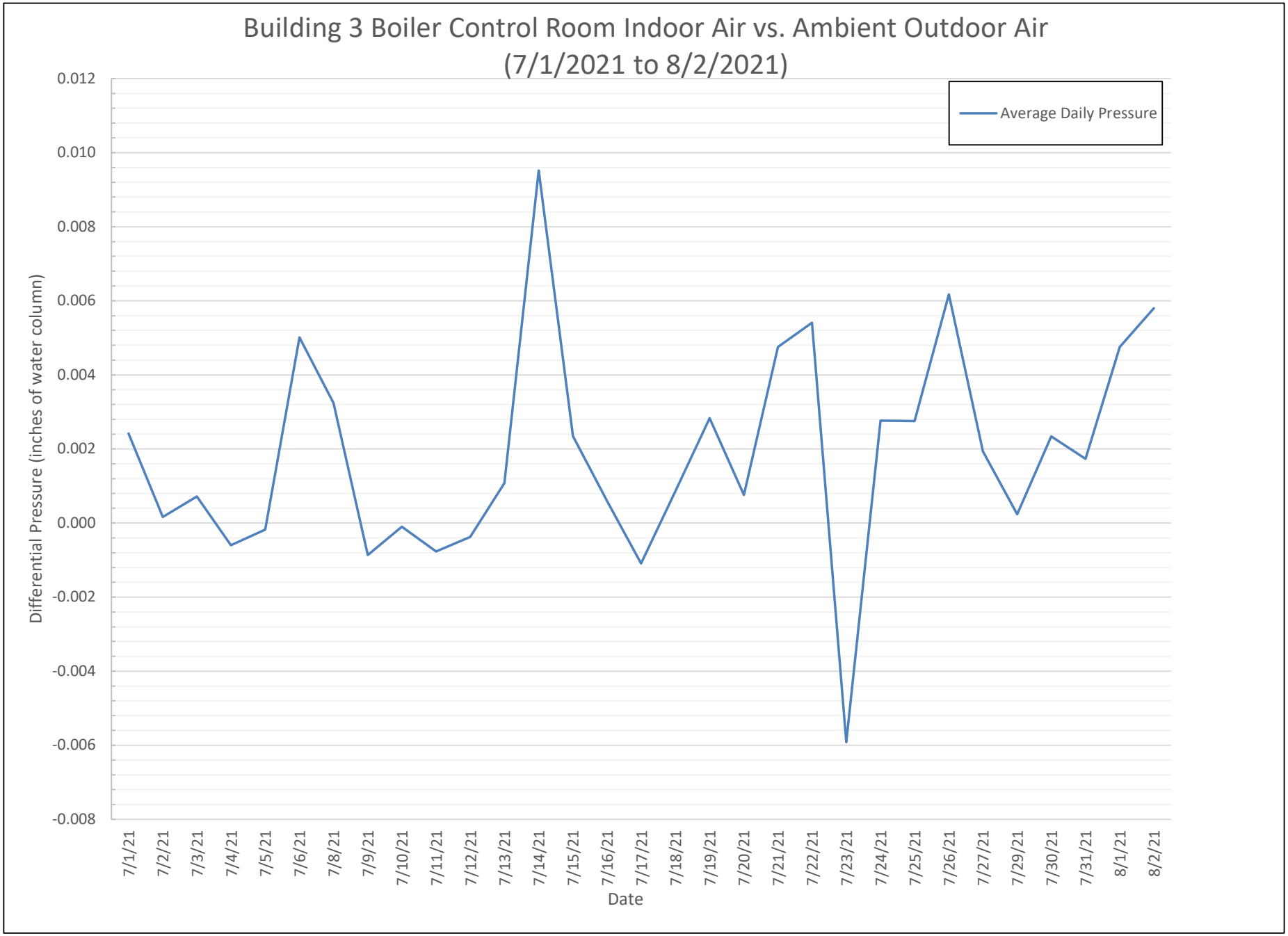


*Reference pressure = floor drain air


Building 3 Boiler Control Room Indoor Air vs. Outdoor Ambient Air (Beginning 1/14/21)
Logged Pressure
Differential Pressure (inches of water column)
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
9:09
12:54
16:39
20:24
0:09
3:54
7:39
11:24
Time (HH:MM)
*Reference pressure = outdoor ambient air


Building 3 Boiler Control Room Indoor Air vs. Building 3 2nd Floor Indoor Air
(7/13/2021 to 7/31/2021)
Average Daily Pressure
Differential Pressure (inches of water column)
0.012
0.010
0.008
0.006
0.004
0.002
0.000
7/13/21
7/14/21
7/15/21
7/16/21
7/18/21
7/19/21
7/20/21
7/21/21
7/22/21
7/23/21
7/24/21
7/25/21
7/26/21
7/27/21
7/28/21
7/29/21
7/30/21
7/31/21
Date


Building 3 Boiler Control Room Indoor Air vs. Building 2 Indoor Air
(6/1/2021 to 6/30/2021)
Average Daily Pressure
Differential Pressure (inches of water column)
0.010
0.008
0.006
0.004
0.002
0.000
-0.002
-0.004
-0.006
-0.008
6/1/2021
6/2/21
6/3/21
6/4/21
6/5/21
6/6/21
6/7/21
6/8/21
6/10/21
6/12/21
6/13/21
6/14/21
6/15/21
6/16/21
6/17/21
6/18/21
6/19/21
6/20/21
6/21/21
6/22/21
6/24/21
6/25/21
6/26/21
6/27/21
6/28/21
6/29/21
6/30/21
Date


Building 3 Boiler Control Room Indoor Air vs. Ambient Outdoor Air
(7/1/2021 to 8/2/2021)
Average Daily Pressure
Differential Pressure (inches of water column)
0.012
0.010
0.008
0.006
0.004
0.002
0.000
-0.002
-0.004
-0.006
-0.008
7/1/21
7/2/21
7/3/21
7/4/21
7/5/21
7/6/21
7/8/21
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8/2/21
Date

Appendix C

Data Usability Summary Reports and Laboratory Report Data

ARCADIS Design & Consultancy for natural and built assets

Bristol Myers Squibb

Thompson Road Investigation

Data Usability Summary Report

Syracuse, NY

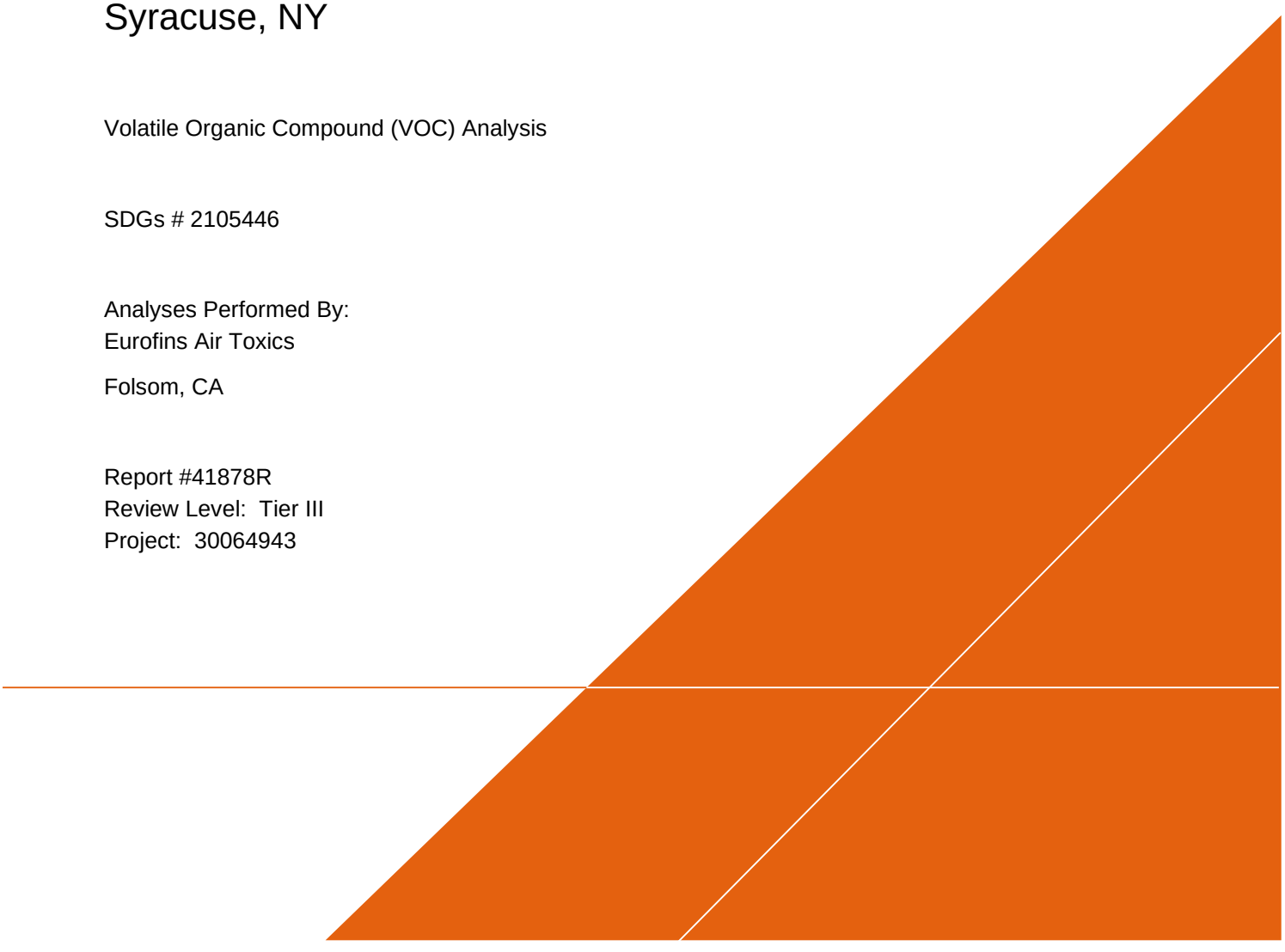
Volatile Organic Compound (VOC) Analysis

SDGs # 2105446

Analyses Performed By:
Eurofins Air Toxics

Folsom, CA

Report #41878R
Review Level: Tier III
Project: 30064943



SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 2105446 for samples collected in association with the Bristol Myers Squibb Thompson Road Site. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
					VOC	SVOC	PFAS	MET	ALD
IA-3	2105446-01A	Air	5/20/2021		X				
Effluent-1	2105446-02A	Air	5/20/2021		X				
Influent-1	2105446-03A	Air	5/20/2021		X				

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

Note:
QA - Quality Assurance

List of Acronyms

%D: Percent Difference

%R: Percent Recovery

AC: Acceptable

ALC/GLY: Alcohols/Glycols

BAL: Blank Action Level

CCV: Continuing Calibration Verification

CRDL: Contract Required Detection Limit

D: Dilution

EIS: Extractable Internal Standard

FB: Field Blank

FD: Field Duplicate

ALD: Aldehydes

GC/ECD: Gas Chromatograph/Electron Capture Detector

GC/MS: Gas Chromatograph/Mass spectrometer

HT: Holding Time

ICP: Inductively Coupled Plasma

ICS: Interference Control Sample

ICV: Initial Calibration Verification

ISTD: Internal Standards

LabDup: Laboratory Duplicate

LCS: Lab Control Sample

LCSD: Lab Control Sample Duplicate

LL: Lower Control Limit

MB: Method Blank

MDL: Method Detection Limit

MET: Metals

MS: Matrix Spike

MSD: Matrix Spike Duplicate

N/A: Not Applicable

NC: Not Compliant

List of Acronyms, Continued

PAH: Polyaromatic Hydrocarbon

PCB: Polychlorinated Biphenyl

PEST: Pesticide

PFAS: Per- and Polyfluoroalkyl Substances

QA: Quality Assurance

QC: Quality Control

RB: Rinse Blank

RL: Reporting Limit

RPD: Relative Percent Difference

RRF: Relative Response Factor

RSD: Relative Standard Deviation

RT: Retention Time

SDG: Sample Delivery Group

SerDil: Serial Dilution

SIM: Single Ion Monitoring

SOP: Standard Operating Procedure

SSTD: Surrogate Standards

SVOC: Semivolatile Organic Compound

TB: Trip Blank

TIC: Tentatively Identified Compound

TOC: Total Organic Carbon

TOTDIS: Total and Dissolved

UL: Upper Control Limit

USEPA: United States Environmental Protection Agency

VOC: Volatile Organic Compound

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999, USEPA Region II SOP HW-31- Validating Air Samples Volatile Organic Analysis of Ambient Air In Canister by Method TO-15 of October 2006, New York State DEC Analytical Method ASP 2005 TO-15 (QA/QC Criteria R9 TO-15), and NYSDEC Modifications to R9 TO-15 QA/QC Criteria October 2009.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
  - UB Analyte considered non-detect at the listed value due to associated blank contamination.
  - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
  - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis	Ambient Temperature	< -1" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

All compounds associated with the QA blanks exhibited a concentration less than the MDL, with the exception of the compounds listed in the following table. Sample results associated with QA blank contamination that were greater than the BAL resulted in the removal of the laboratory qualifier (B) of data. Sample results less than the BAL associated with the following sample locations were qualified as listed in the following table.

Sample Locations	Analytes	Sample Result	Qualification
Effluent-1	Benzene	Detected sample results <RL and <BAL	"UB" at the RL
	Ethylbenzene		
	m,p-Xylenes		

Note:

RL Reporting limit

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

Compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
IA-3 Effluent-1 Influent-1	ICV %RSD	3-Chloropropane	36.3%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
	%RSD >90%	Non-detect	R

Initial/Continuing	Criteria	Sample Result	Qualification
		Detect	J
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J
	%D >90% (increase/decrease in sensitivity)	Non-detect	R
		Detect	J

Note:

[1] RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit a percent recovery within the established acceptance limits of 70% to 130%.

Surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

Internal standard responses were within control limits.

7. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the established acceptance limits of 70% to 130%.

Sample locations associated with LCS/LCSD analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery	LCSD Recovery
IA-3 Effluent-1 Influent-1	3-Chloropropene	>UL	>UL

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

8. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for air matrices.

A field duplicate was not included with this SDG.

9. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Sample results associated with compound that exhibited a concentration greater than the linear range of the instrument calibration are summarized in the following table.

Sample ID	Compound	Original Analysis	Diluted Analysis	Reported Analysis
IA-3	Ethanol	-	1100 E	1100 EJ
Effluent-1	Ethanol	-	840 E	840 EJ
Influent-1	Ethanol	-	560 E	560 EJ

Note: In the instance where both the original analysis and the diluted analysis sample results exhibited a concentration greater than and/or less than the calibration linear range of the instrument; the sample result exhibiting the greatest concentration will be reported as the final result.

Sample results associated with compounds exhibiting concentrations greater than the linear range are qualified as documented in the table below when reported as the final reported sample result.

Reported Sample Results	Qualification
Diluted sample result within calibration range	D

Reported Sample Results	Qualification
Diluted sample result less than the calibration range	DJ
Diluted sample result greater than the calibration range	EDJ
Original sample result greater than the calibration range	EJ

10. System Performance and Overall Assessment

Please note, the laboratory includes a Limit of Detection (LOD) in the laboratory report which is specific to Department of Defense (DOD) reporting and should not be considered for this site/project. Only the Reporting Limit (RL) and Method Detection Limit (MDL) are stored in the database for this data set.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Canister return pressure (<-1"Hg)		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X	X		
B. Equipment blanks	X				X
C. Trip blanks	X				X
Laboratory Control Sample (LCS)		X	X		
Laboratory Control Sample Duplicate (LCSD)		X	X		
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS)	X				X
Matrix Spike Duplicate (MSD)	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X	X		
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	

VOCs: TO-15	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

SAMPLE COMPLIANCE REPORT

Sample Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	ALD	PFAS	MET	
2105446	5/20/2021	SW846	IA-3	Air	Yes	-	-	-	-	VOC: ICV %RSD
	5/20/2021	SW846	Effluent-1	Air	Yes	-	-	-	-	VOC: ICV %RSD, MB
	5/20/2021	SW846	Influent-1	Air	No	-	-	-	-	VOC: ICV %RSD

Note:

1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

VALIDATION PERFORMED BY: Jeffrey L. Davin

SIGNATURE: 

DATE: June 27, 2021

PEER REVIEW: Dennis K. Capria

DATE: June 29, 2021

CHAIN OF CUSTODY

CORRECTED SAMPLE ANALYSIS DATA SHEETS

eurofins | Air Toxics

Analysis Request /Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: 2105446

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

page 1 of 1

Client: Arcadis
Project Name: BMS Building 3 VI
Project Manager: Dom Zuck Project #
Sampler: Dom Zuck
Site Name: BMS

Special Instructions/Notes:
Please Report Results
By Weds. 5/26/21

Turnaround Time (Rush surcharges may apply)
Standard _____ Rush 3 Dax (specify)

Lab ID	Field Sample Identification(Location)	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Canister Vacuum/Pressure		Lab Use Only		Requested Analyses			
				Date	Time	Date	Time	Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N_2 / He	BMS TO-15 LO/HI SIM			
01A	IA-3	6L2210	23977	05/20/21	0829	5/20/21	1628	-28.5	-6			X			
02A	Effluent-1	6L0902	23828*	05/20/21	1545	05/20/21	1550	-29.5	-5			X			
03A	Influent-1	6L0735	23466*	05/20/21	1610	05/20/21	1615	-28.5	-2			X			

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Arcadis	5/20/21	1730	MEATC	5/21/21	1040
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only

Shipper Name: Fedex | Custody Seals Intact? | Yes | No | None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

* Flow Regulator removed to obtain quick grab.

Client ID:	IA-3		
Lab ID:	2105446-01A	**Date/Time Analyzed:**	5/24/21 06:58 PM
Date/Time Collected:	5/20/21 04:28 PM	**Dilution Factor:**	1.42
Media:		**Instrument/Filename:**	msd21.i / 21052417

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	1.8	2.1	5.3	Not Detected
1,2,4-Trimethylbenzene	95-63-6	0.13	0.28	0.70	0.19 J
1,2-Dichlorobenzene	95-50-1	0.11	0.34	0.85	Not Detected
1,2-Dichloropropane	78-87-5	0.067	0.26	0.66	Not Detected
1,3,5-Trimethylbenzene	108-67-8	0.15	0.28	0.70	Not Detected
1,3-Butadiene	106-99-0	0.049	0.12	0.31	Not Detected
1,3-Dichlorobenzene	541-73-1	0.086	0.34	0.85	Not Detected
1,4-Dioxane	123-91-1	0.074	0.20	0.51	0.38 J
2,2,4-Trimethylpentane	540-84-1	0.21	1.3	3.3	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.16	0.84	2.1	1.6 J
2-Hexanone	591-78-6	0.16	1.2	2.9	Not Detected
2-Propanol	67-63-0	0.15	0.70	1.7	42
3-Chloropropene	107-05-1	0.69	0.89	2.2	Not Detected
4-Ethyltoluene	622-96-8	0.12	0.28	0.70	0.15 J
4-Methyl-2-pentanone	108-10-1	0.13	0.23	0.58	0.19 J
Acetone	67-64-1	0.55	0.67	3.4	27
alpha-Chlorotoluene	100-44-7	0.12	0.29	0.74	Not Detected
Bromodichloromethane	75-27-4	0.10	0.38	0.95	Not Detected
Bromoform	75-25-2	0.20	0.59	1.5	Not Detected
Bromomethane	74-83-9	0.33	1.1	2.8	Not Detected
Carbon Disulfide	75-15-0	0.39	0.88	2.2	Not Detected
Chlorobenzene	108-90-7	0.061	0.26	0.65	Not Detected
cis-1,3-Dichloropropene	10061-01-5	0.064	0.26	0.64	Not Detected
Cumene	98-82-8	0.074	0.28	0.70	Not Detected

Client ID:	IA-3		
Lab ID:	2105446-01A	**Date/Time Analyzed:**	5/24/21 06:58 PM
Date/Time Collected:	5/20/21 04:28 PM	**Dilution Factor:**	1.42
Media:		**Instrument/Filename:**	msd21.i / 21052417

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Cyclohexane	110-82-7	0.13	0.98	2.4	Not Detected
Dibromochloromethane	124-48-1	0.15	0.48	1.2	Not Detected
Ethanol	64-17-5	0.14	0.54	1.3	1100 E J
Freon 11	75-69-4	0.070	0.32	0.80	1.4
Freon 113	76-13-1	0.15	0.44	1.1	0.36 J
Heptane	142-82-5	0.18	1.2	2.9	0.60 J
Hexachlorobutadiene	87-68-3	1.4	3.0	7.6	Not Detected
Hexane	110-54-3	0.15	1.0	2.5	0.18 J
Methylene Chloride	75-09-2	0.80	2.0	2.5	Not Detected
Propylbenzene	103-65-1	0.10	0.28	0.70	Not Detected
Styrene	100-42-5	0.061	0.24	0.60	0.14 J
Tetrahydrofuran	109-99-9	0.21	0.84	2.1	0.57 J
trans-1,3-Dichloropropene	10061-02-6	0.068	0.26	0.64	Not Detected

D: Analyte not within the DoD scope of accreditation.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
1,2,3-Trimethylbenzene	526-73-8	NA		Not Detected
2-Nitropropane	79-46-9	NA		Not Detected
4-Chlorotoluene	106-43-4	NA		Not Detected
Acetonitrile	75-05-8	NA		Not Detected
Benzaldehyde	100-52-7	NA		Not Detected
bis(2-Chloroethyl) Ether	111-44-4	NA		Not Detected

Client ID:	IA-3		
Lab ID:	2105446-01A	**Date/Time Analyzed:**	5/24/21 06:58 PM
Date/Time Collected:	5/20/21 04:28 PM	**Dilution Factor:**	1.42
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21052417

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
Cyclohexene	110-83-8	NA		Not Detected
Epichlorohydrin	106-89-8	NA		Not Detected
Ethyl Acetate	141-78-6	NA		Not Detected
Isobutanol	78-83-1	NA		Not Detected
Isopropyl ether	108-20-3	NA		Not Detected
Methacrylonitrile	126-98-7	NA		Not Detected
Methyl Acetate	79-20-9	NA		Not Detected
N,N-Dimethyl Aniline	121-69-7	NA		Not Detected
n-Butanol	71-36-3	NA		Not Detected
Nitrobenzene	98-95-3	NA		Not Detected
Pentane	109-66-0	86%		1.1 NJ
Propylene	115-07-1	NA		Not Detected
Pyridine	110-86-1	NA		Not Detected

E = Exceeds instrument calibration range.
J = Estimated value.
NJ =The identification is based on presumptive evidence; estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	86
Toluene-d8	2037-26-5	70-130	92

Client ID:	IA-3		
Lab ID:	2105446-01B	**Date/Time Analyzed:**	5/24/21 06:58 PM
Date/Time Collected:	5/20/21 04:28 PM	**Dilution Factor:**	1.42
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21052417sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.0043	0.062	0.15	0.014 J
1,1,2,2-Tetrachloroethane	79-34-5	0.025	0.078	0.19	Not Detected
1,1,2-Trichloroethane	79-00-5	0.014	0.062	0.15	Not Detected
1,1-Dichloroethane	75-34-3	0.031	0.046	0.11	Not Detected
1,1-Dichloroethene	75-35-4	0.0041	0.045	0.056	Not Detected
1,2-Dibromoethane (EDB)	106-93-4	0.014	0.087	0.22	0.024 J
1,2-Dichloroethane	107-06-2	0.0060	0.046	0.11	0.057 J
1,4-Dichlorobenzene	106-46-7	0.056	0.068	0.17	Not Detected
Benzene	71-43-2	0.013	0.036	0.23	0.22 J
Carbon Tetrachloride	56-23-5	0.0089	0.071	0.18	0.30
Chloroethane	75-00-3	0.0060	0.030	0.19	0.10 J
Chloroform	67-66-3	0.011	0.055	0.14	0.24
Chloromethane	74-87-3	0.18	0.59	1.5	0.98 J
cis-1,2-Dichloroethene	156-59-2	0.0068	0.045	0.11	0.042 J
Ethyl Benzene	100-41-4	0.0046	0.049	0.12	0.12
Freon 114	76-14-2	0.017	0.079	0.20	0.12 J
Freon 12	75-71-8	0.0052	0.056	3.5	2.4 J
m,p-Xylene	108-38-3	0.0075	0.049	0.25	0.39
Methyl tert-butyl ether	1634-04-4	0.0092	0.041	0.51	Not Detected
Naphthalene	91-20-3	0.094	0.15	0.37	0.61
o-Xylene	95-47-6	0.0086	0.049	0.12	0.15
Tetrachloroethene	127-18-4	0.010	0.077	0.19	0.20
Toluene	108-88-3	0.0098	0.043	0.27	0.52
trans-1,2-Dichloroethene	156-60-5	0.0058	0.045	0.56	Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Building 3VI

Client ID:	IA-3		
Lab ID:	2105446-01B	**Date/Time Analyzed:**	5/24/21 06:58 PM
Date/Time Collected:	5/20/21 04:28 PM	**Dilution Factor:**	1.42
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21052417sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.014	0.061	0.15	0.053 J
Vinyl Chloride	75-01-4	0.0046	0.029	0.036	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	88
Toluene-d8	2037-26-5	70-130	94

Client ID:	Effluent-1		
Lab ID:	2105446-02A	**Date/Time Analyzed:**	5/24/21 07:35 PM
Date/Time Collected:	5/20/21 03:50 PM	**Dilution Factor:**	1.34
Media:		**Instrument/Filename:**	msd21.i / 21052418

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	1.7	2.0	5.0	Not Detected
1,2,4-Trimethylbenzene	95-63-6	0.12	0.26	0.66	Not Detected
1,2-Dichlorobenzene	95-50-1	0.11	0.32	0.80	Not Detected
1,2-Dichloropropane	78-87-5	0.063	0.25	0.62	Not Detected
1,3,5-Trimethylbenzene	108-67-8	0.14	0.26	0.66	Not Detected
1,3-Butadiene	106-99-0	0.046	0.12	0.30	Not Detected
1,3-Dichlorobenzene	541-73-1	0.081	0.32	0.80	Not Detected
1,4-Dioxane	123-91-1	0.070	0.19	0.48	0.093 J
2,2,4-Trimethylpentane	540-84-1	0.20	1.2	3.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.15	0.79	2.0	Not Detected
2-Hexanone	591-78-6	0.15	1.1	2.7	Not Detected
2-Propanol	67-63-0	0.14	0.66	1.6	88
3-Chloropropene	107-05-1	0.66	0.84	2.1	Not Detected
4-Ethyltoluene	622-96-8	0.11	0.26	0.66	Not Detected
4-Methyl-2-pentanone	108-10-1	0.12	0.22	0.55	Not Detected
Acetone	67-64-1	0.52	0.64	3.2	14
alpha-Chlorotoluene	100-44-7	0.11	0.28	0.69	Not Detected
Bromodichloromethane	75-27-4	0.097	0.36	0.90	Not Detected
Bromoform	75-25-2	0.19	0.55	1.4	Not Detected
Bromomethane	74-83-9	0.31	1.0	2.6	Not Detected
Carbon Disulfide	75-15-0	0.37	0.83	2.1	Not Detected
Chlorobenzene	108-90-7	0.057	0.25	0.62	Not Detected
cis-1,3-Dichloropropene	10061-01-5	0.060	0.24	0.61	Not Detected
Cumene	98-82-8	0.070	0.26	0.66	Not Detected

Client ID:	Effluent-1		
Lab ID:	2105446-02A	**Date/Time Analyzed:**	5/24/21 07:35 PM
Date/Time Collected:	5/20/21 03:50 PM	**Dilution Factor:**	1.34
Media:		**Instrument/Filename:**	msd21.i / 21052418

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Cyclohexane	110-82-7	0.12	0.92	2.3	Not Detected
Dibromochloromethane	124-48-1	0.14	0.46	1.1	Not Detected
Ethanol	64-17-5	0.14	0.50	1.3	840 EJ
Freon 11	75-69-4	0.066	0.30	0.75	1.9
Freon 113	76-13-1	0.14	0.41	1.0	0.26 J
Heptane	142-82-5	0.17	1.1	2.7	Not Detected
Hexachlorobutadiene	87-68-3	1.3	2.8	7.1	Not Detected
Hexane	110-54-3	0.14	0.94	2.4	Not Detected
Methylene Chloride	75-09-2	0.75	1.9	2.3	Not Detected
Propylbenzene	103-65-1	0.10	0.26	0.66	Not Detected
Styrene	100-42-5	0.057	0.23	0.57	0.081 J
Tetrahydrofuran	109-99-9	0.20	0.79	2.0	0.36 J
trans-1,3-Dichloropropene	10061-02-6	0.064	0.24	0.61	Not Detected

D: Analyte not within the DoD scope of accreditation.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
1,2,3-Trimethylbenzene	526-73-8	NA		Not Detected
2-Nitropropane	79-46-9	NA		Not Detected
4-Chlorotoluene	106-43-4	NA		Not Detected
Acetonitrile	75-05-8	NA		Not Detected
Benzaldehyde	100-52-7	NA		Not Detected
bis(2-Chloroethyl) Ether	111-44-4	NA		Not Detected

Client ID:	Effluent-1		
Lab ID:	2105446-02A	**Date/Time Analyzed:**	5/24/21 07:35 PM
Date/Time Collected:	5/20/21 03:50 PM	**Dilution Factor:**	1.34
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21052418

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
Cyclohexene	110-83-8	NA		Not Detected
Epichlorohydrin	106-89-8	NA		Not Detected
Ethyl Acetate	141-78-6	NA		Not Detected
Isobutanol	78-83-1	NA		Not Detected
Isopropyl ether	108-20-3	NA		Not Detected
Methacrylonitrile	126-98-7	NA		Not Detected
Methyl Acetate	79-20-9	NA		Not Detected
N,N-Dimethyl Aniline	121-69-7	NA		Not Detected
n-Butanol	71-36-3	NA		Not Detected
Nitrobenzene	98-95-3	NA		Not Detected
Pentane	109-66-0	NA		Not Detected
Propylene	115-07-1	NA		Not Detected
Pyridine	110-86-1	NA		Not Detected

E = Exceeds instrument calibration range.
J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	107
4-Bromofluorobenzene	460-00-4	70-130	87
Toluene-d8	2037-26-5	70-130	92

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Client ID:	Effluent-1		
Lab ID:	2105446-02B	**Date/Time Analyzed:**	5/24/21 07:35 PM
Date/Time Collected:	5/20/21 03:50 PM	**Dilution Factor:**	1.34
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21052418sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)		Amount (ug/m3)	
1,1,1-Trichloroethane	71-55-6	0.0040	0.058	0.15		0.0068 J	
1,1,2,2-Tetrachloroethane	79-34-5	0.023	0.074	0.18		Not Detected	
1,1,2-Trichloroethane	79-00-5	0.013	0.058	0.15		Not Detected	
1,1-Dichloroethane	75-34-3	0.030	0.043	0.11		Not Detected	
1,1-Dichloroethene	75-35-4	0.0039	0.042	0.053		Not Detected	
1,2-Dibromoethane (EDB)	106-93-4	0.013	0.082	0.20		Not Detected	
1,2-Dichloroethane	107-06-2	0.0056	0.043	0.11		0.037 J	
1,4-Dichlorobenzene	106-46-7	0.053	0.064	0.16		Not Detected	
Benzene	71-43-2	0.012	0.034	0.21	0.21	~~0.020 J~~	UB
Carbon Tetrachloride	56-23-5	0.0084	0.067	0.17		0.092 J	
Chloroethane	75-00-3	0.0056	0.028	0.18		0.052 J	
Chloroform	67-66-3	0.010	0.052	0.13		0.29	
Chloromethane	74-87-3	0.17	0.55	1.4		0.86 J	
cis-1,2-Dichloroethene	156-59-2	0.0064	0.042	0.11		0.072 J	
Ethyl Benzene	100-41-4	0.0043	0.046	0.12	0.12	~~0.0048 J~~	UB
Freon 114	76-14-2	0.016	0.075	0.19		0.15 J	
Freon 12	75-71-8	0.0049	0.053	3.3		2.2 J	
m,p-Xylene	108-38-3	0.0071	0.046	0.23	0.23	~~0.023 J~~	UB
Methyl tert-butyl ether	1634-04-4	0.0087	0.039	0.48		Not Detected	
Naphthalene	91-20-3	0.089	0.14	0.35		Not Detected	
o-Xylene	95-47-6	0.0081	0.046	0.12		0.013 J	
Tetrachloroethene	127-18-4	0.0094	0.073	0.18		0.015 J	
Toluene	108-88-3	0.0092	0.040	0.25		0.018 J	
trans-1,2-Dichloroethene	156-60-5	0.0055	0.042	0.53		0.013 J	

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Building 3VI

Client ID:	Effluent-1		
Lab ID:	2105446-02B	**Date/Time Analyzed:**	5/24/21 07:35 PM
Date/Time Collected:	5/20/21 03:50 PM	**Dilution Factor:**	1.34
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21052418sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.014	0.058	0.14	Not Detected
Vinyl Chloride	75-01-4	0.0043	0.027	0.034	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	101
4-Bromofluorobenzene	460-00-4	70-130	89
Toluene-d8	2037-26-5	70-130	94

Client ID:	Influent-1		
Lab ID:	2105446-03A	**Date/Time Analyzed:**	5/24/21 08:39 PM
Date/Time Collected:	5/20/21 04:15 PM	**Dilution Factor:**	1.16
Media:		**Instrument/Filename:**	msd21.i / 21052419

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	1.4	1.7	4.3	Not Detected
1,2,4-Trimethylbenzene	95-63-6	0.10	0.23	0.57	0.20 J
1,2-Dichlorobenzene	95-50-1	0.092	0.28	0.70	Not Detected
1,2-Dichloropropane	78-87-5	0.054	0.21	0.54	0.26 J
1,3,5-Trimethylbenzene	108-67-8	0.12	0.23	0.57	Not Detected
1,3-Butadiene	106-99-0	0.040	0.10	0.26	Not Detected
1,3-Dichlorobenzene	541-73-1	0.070	0.28	0.70	Not Detected
1,4-Dioxane	123-91-1	0.060	0.17	0.42	0.14 J
2,2,4-Trimethylpentane	540-84-1	0.17	1.1	2.7	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.13	0.68	1.7	3.9
2-Hexanone	591-78-6	0.13	0.95	2.4	Not Detected
2-Propanol	67-63-0	0.12	0.57	1.4	49
3-Chloropropene	107-05-1	0.57	0.73	1.8	Not Detected
4-Ethyltoluene	622-96-8	0.096	0.23	0.57	0.17 J
4-Methyl-2-pentanone	108-10-1	0.11	0.19	0.48	0.21 J
Acetone	67-64-1	0.45	0.55	2.8	24
alpha-Chlorotoluene	100-44-7	0.098	0.24	0.60	Not Detected
Bromodichloromethane	75-27-4	0.084	0.31	0.78	Not Detected
Bromoform	75-25-2	0.17	0.48	1.2	Not Detected
Bromomethane	74-83-9	0.27	0.90	2.2	Not Detected
Carbon Disulfide	75-15-0	0.32	0.72	1.8	1.4 J
Chlorobenzene	108-90-7	0.050	0.21	0.53	Not Detected
cis-1,3-Dichloropropene	10061-01-5	0.052	0.21	0.53	Not Detected
Cumene	98-82-8	0.060	0.23	0.57	0.073 J

Client ID:	Influent-1		
Lab ID:	2105446-03A	**Date/Time Analyzed:**	5/24/21 08:39 PM
Date/Time Collected:	5/20/21 04:15 PM	**Dilution Factor:**	1.16
Media:		**Instrument/Filename:**	msd21.i / 21052419

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Cyclohexane	110-82-7	0.10	0.80	2.0	0.36 J
Dibromochloromethane	124-48-1	0.12	0.40	0.99	Not Detected
Ethanol	64-17-5	0.12	0.44	1.1	560 E J
Freon 11	75-69-4	0.057	0.26	0.65	1.4
Freon 113	76-13-1	0.12	0.36	0.89	0.41 J
Heptane	142-82-5	0.15	0.95	2.4	0.50 J
Hexachlorobutadiene	87-68-3	1.1	2.5	6.2	Not Detected
Hexane	110-54-3	0.12	0.82	2.0	0.45 J
Methylene Chloride	75-09-2	0.65	1.6	2.0	0.92 J
Propylbenzene	103-65-1	0.086	0.23	0.57	Not Detected
Styrene	100-42-5	0.050	0.20	0.49	0.078 J
Tetrahydrofuran	109-99-9	0.17	0.68	1.7	0.40 J
trans-1,3-Dichloropropene	10061-02-6	0.055	0.21	0.53	Not Detected

D: Analyte not within the DoD scope of accreditation.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
1,2,3-Trimethylbenzene	526-73-8	NA		Not Detected
1-Propanol, 2-methyl-	78-83-1	50%		1.1 NJ
2-Nitropropane	79-46-9	NA		Not Detected
4-Chlorotoluene	106-43-4	NA		Not Detected
Acetonitrile	75-05-8	NA		Not Detected
Benzaldehyde	100-52-7	NA		Not Detected

Client ID:	Influent-1		
Lab ID:	2105446-03A	**Date/Time Analyzed:**	5/24/21 08:39 PM
Date/Time Collected:	5/20/21 04:15 PM	**Dilution Factor:**	1.16
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21052419

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
bis(2-Chloroethyl) Ether	111-44-4	NA		Not Detected
Cyclohexene	110-83-8	NA		Not Detected
Epichlorohydrin	106-89-8	NA		Not Detected
Ethyl Acetate	141-78-6	NA		Not Detected
Isopropyl ether	108-20-3	NA		Not Detected
Methacrylonitrile	126-98-7	NA		Not Detected
Methyl Acetate	79-20-9	NA		Not Detected
N,N-Dimethyl Aniline	121-69-7	NA		Not Detected
n-Butanol	71-36-3	NA		Not Detected
Nitrobenzene	98-95-3	NA		Not Detected
Pentane	109-66-0	80%		5.8 NJ
Propylene	115-07-1	NA		Not Detected
Pyridine	110-86-1	NA		Not Detected

E = Exceeds instrument calibration range.
J = Estimated value.
NJ =The identification is based on presumptive evidence; estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	106
4-Bromofluorobenzene	460-00-4	70-130	81
Toluene-d8	2037-26-5	70-130	94

Client ID:	Influent-1		
Lab ID:	2105446-03B	**Date/Time Analyzed:**	5/24/21 08:39 PM
Date/Time Collected:	5/20/21 04:15 PM	**Dilution Factor:**	1.16
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21052419sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.0035	0.051	0.13	0.014 J
1,1,2,2-Tetrachloroethane	79-34-5	0.020	0.064	0.16	Not Detected
1,1,2-Trichloroethane	79-00-5	0.012	0.051	0.13	Not Detected
1,1-Dichloroethane	75-34-3	0.026	0.038	0.094	Not Detected
1,1-Dichloroethene	75-35-4	0.0034	0.037	0.046	Not Detected
1,2-Dibromoethane (EDB)	106-93-4	0.012	0.071	0.18	0.021 J
1,2-Dichloroethane	107-06-2	0.0049	0.038	0.094	0.087 J
1,4-Dichlorobenzene	106-46-7	0.046	0.056	0.14	Not Detected
Benzene	71-43-2	0.010	0.030	0.18	0.23
Carbon Tetrachloride	56-23-5	0.0073	0.058	0.14	0.32
Chloroethane	75-00-3	0.0049	0.024	0.15	0.051 J
Chloroform	67-66-3	0.0089	0.045	0.11	0.36
Chloromethane	74-87-3	0.14	0.48	1.2	0.93 J
cis-1,2-Dichloroethene	156-59-2	0.0056	0.037	0.092	0.039 J
Ethyl Benzene	100-41-4	0.0037	0.040	0.10	0.19
Freon 114	76-14-2	0.014	0.065	0.16	0.12 J
Freon 12	75-71-8	0.0042	0.046	2.9	2.3 J
m,p-Xylene	108-38-3	0.0061	0.040	0.20	0.52
Methyl tert-butyl ether	1634-04-4	0.0075	0.033	0.42	0.032 J
Naphthalene	91-20-3	0.077	0.12	0.30	0.67
o-Xylene	95-47-6	0.0070	0.040	0.10	0.22
Tetrachloroethene	127-18-4	0.0082	0.063	0.16	0.18
Toluene	108-88-3	0.0080	0.035	0.22	16
trans-1,2-Dichloroethene	156-60-5	0.0048	0.037	0.46	0.012 J

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Building 3VI

Client ID:	Influent-1		
Lab ID:	2105446-03B	**Date/Time Analyzed:**	5/24/21 08:39 PM
Date/Time Collected:	5/20/21 04:15 PM	**Dilution Factor:**	1.16
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21052419sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.012	0.050	0.12	0.058 J
Vinyl Chloride	75-01-4	0.0037	0.024	0.030	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	103
4-Bromofluorobenzene	460-00-4	70-130	84
Toluene-d8	2037-26-5	70-130	93

ARCADIS Design & Consultancy for natural and built assets

Bristol Myers Squibb

Thompson Road Investigation

Data Usability Summary Report

Syracuse, NY

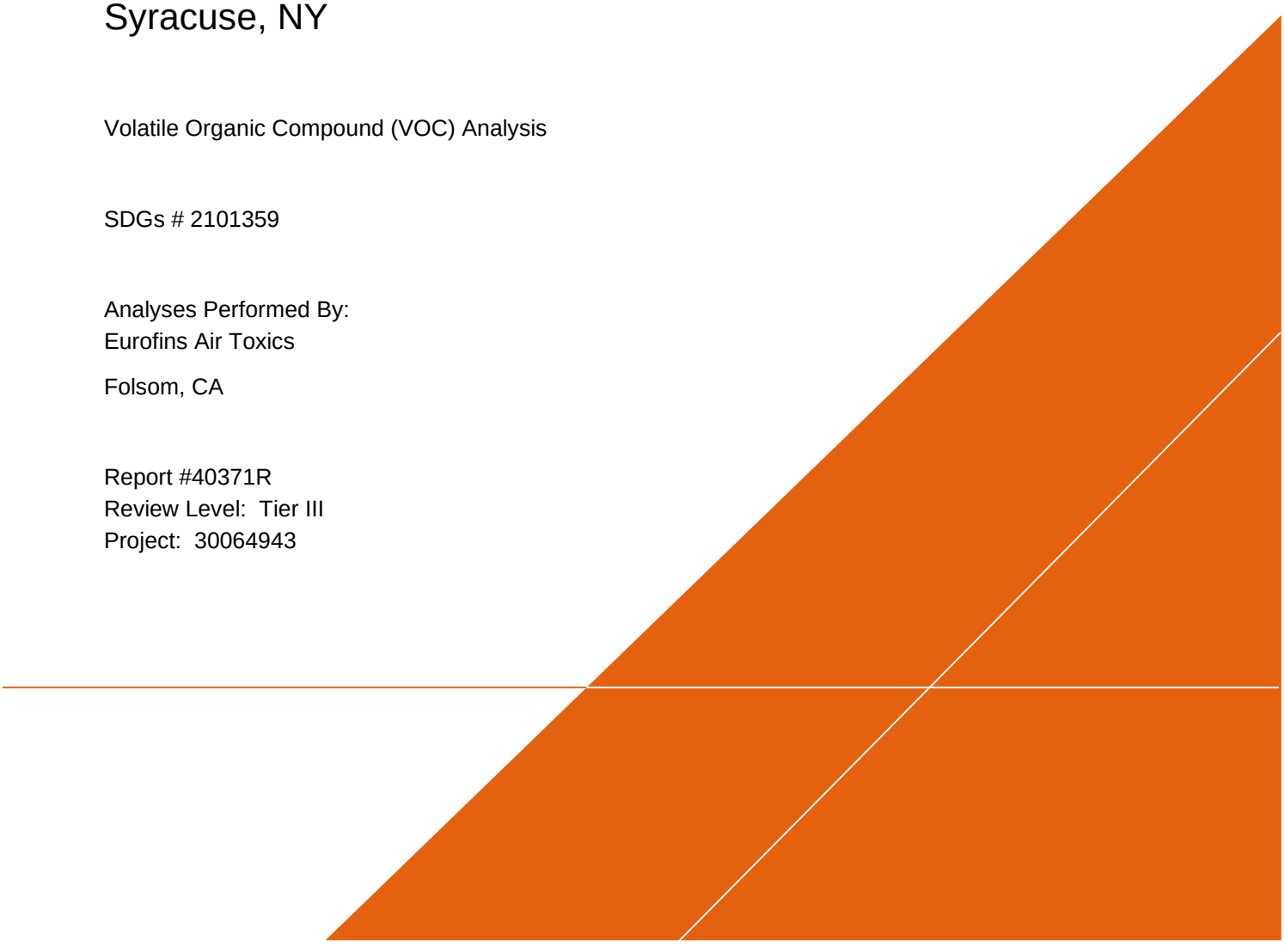
Volatile Organic Compound (VOC) Analysis

SDGs # 2101359

Analyses Performed By:
Eurofins Air Toxics

Folsom, CA

Report #40371R
Review Level: Tier III
Project: 30064943



SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 2101359 for samples collected in association with the Bristol Myers Squibb Thompson Road Site. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
					VOC	SVOC	PFAS	MET	ALD
IA-3	2011359-01A	Air	1/14/2021		X				
AMB-011421	2011359-02A	Air	1/14/2021		X				
DUP-011421	2011359-03A	Air	1/14/2021	IA-3	X				

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

Note:
QA - Quality Assurance

List of Acronyms

%D: Percent Difference

%R: Percent Recovery

AC: Acceptable

ALC/GLY: Alcohols/Glycols

BAL: Blank Action Level

CCV: Continuing Calibration Verification

CRDL: Contract Required Detection Limit

D: Dilution

EIS: Extractable Internal Standard

FB: Field Blank

FD: Field Duplicate

ALD: Aldehydes

GC/ECD: Gas Chromatograph/Electron Capture Detector

GC/MS: Gas Chromatograph/Mass spectrometer

HT: Holding Time

ICP: Inductively Coupled Plasma

ICS: Interference Control Sample

ICV: Initial Calibration Verification

ISTD: Internal Standards

LabDup: Laboratory Duplicate

LCS: Lab Control Sample

LCSD: Lab Control Sample Duplicate

LL: Lower Control Limit

MB: Method Blank

MDL: Method Detection Limit

MET: Metals

MS: Matrix Spike

MSD: Matrix Spike Duplicate

N/A: Not Applicable

NC: Not Compliant

List of Acronyms, Continued

PAH: Polyaromatic Hydrocarbon

PCB: Polychlorinated Biphenyl

PEST: Pesticide

PFAS: Per- and Polyfluoroalkyl Substances

QA: Quality Assurance

QC: Quality Control

RB: Rinse Blank

RL: Reporting Limit

RPD: Relative Percent Difference

RRF: Relative Response Factor

RSD: Relative Standard Deviation

RT: Retention Time

SDG: Sample Delivery Group

SerDil: Serial Dilution

SIM: Single Ion Monitoring

SOP: Standard Operating Procedure

SSTD: Surrogate Standards

SVOC: Semivolatile Organic Compound

TB: Trip Blank

TIC: Tentatively Identified Compound

TOC: Total Organic Carbon

TOTDIS: Total and Dissolved

UL: Upper Control Limit

USEPA: United States Environmental Protection Agency

VOC: Volatile Organic Compound

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999, USEPA Region II SOP HW-31- Validating Air Samples Volatile Organic Analysis of Ambient Air In Canister by Method TO-15 of October 2006, New York State DEC Analytical Method ASP 2005 TO-15 (QA/QC Criteria R9 TO-15), and NYSDEC Modifications to R9 TO-15 QA/QC Criteria October 2009.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
  - UB Analyte considered non-detect at the listed value due to associated blank contamination.
  - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
  - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis	Ambient Temperature	< -1" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

All compounds associated with the QA blanks exhibited a concentration less than the MDL, with the exception of the compounds listed in the following table. Sample results associated with QA blank contamination that were greater than the BAL resulted in the removal of the laboratory qualifier (B) of data. Sample results less than the BAL associated with the following sample locations were qualified as listed in the following table.

Sample Locations	Analytes	Sample Result	Qualification
IA-3	Methylene chloride	Detected sample results <RL and <BAL	"UB" at the RL
AMB-011421	2-Propanol		

Note:

RL Reporting limit

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

Compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
IA-3 AMB-011421 DUP-011421	ICV %RSD	3-Chloropropane	35.2%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
	%RSD >90%	Non-detect	R
		Detect	J

Initial/Continuing	Criteria	Sample Result	Qualification
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J
	%D >90% (increase/decrease in sensitivity)	Non-detect	R
		Detect	J

Note:

[1] RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit a percent recovery within the established acceptance limits of 70% to 130%.

Surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

Internal standard responses were within control limits.

7. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the established acceptance limits of 70% to 130%.

Compounds associated with the LCS analysis exhibited recoveries within the control limits.

8. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for air matrices.

Results for duplicate samples are summarized in the following table (ug/m3).

Sample ID/Duplicate ID	Analyte	Sample Result	Duplicate Result	RPD
	1,2,4-Trimethylbenzene	0.16 J	0.17 J	AC

Sample ID/Duplicate ID	Analyte	Sample Result	Duplicate Result	RPD
IA-3/ DUP-011421	1,4-Dioxane	0.065 J	0.13 J	AC
	2-Butanone (Methyl Ethyl Ketone)	0.94 J	1.3 J	AC
	2-Propanol	19	18	5.4%
	4-Ethyltoluene	0.14 J	0.14 J	AC
	Acetone	7.9	7.6	AC
	Bromodichloromethane	0.057 J	0.061 J	AC
	Cumene	0.053 J	0.057 J	AC
	Ethanol	580 E	550 E	5.3%
	Freon 11	1.4	1.2	AC
	Freon 113	0.52 J	0.47 J	AC
	Heptane	0.29 J	0.27 J	AC
	Hexane	0.54 J	0.42 J	AC
	Styrene	0.045 J	0.053 J	AC
	Pentane	1.6	1.3	20.7
	1,1,1-Trichloroethane	0.32 J	0.32 J	AC
	1,2-Dibromoethane (EDB)	0.027 J	0.22 U	AC
	1,2-Dichloroethane	0.069 J	0.068 J	AC
	Benzene	0.67	0.63	AC
	Carbon Tetrachloride	0.44	0.42	AC
	Chloroethane	0.041 J	0.046 J	AC
	Chloroform	0.38	0.38	AC
	Chloromethane	0.64 J	0.64 J	AC
	cis-1,2-Dichloroethene	0.069 J	0.064 J	AC
	Ethyl Benzene	0.11 J	0.10 J	AC
	Freon 114	0.10 J	0.098 J	AC
	Freon 12	2.3 J	2.3 J	AC
	m,p-Xylene	0.35	0.30	AC
	Naphthalene	0.22 J	0.26 J	AC
	o-Xylene	0.12	0.12 J	AC
	Tetrachloroethene	0.74	0.26	AC
	Toluene	0.67	0.65	AC
	Trichloroethene	0.54	0.52	AC

Notes:
AC = Acceptable
NC = Not Compliant

The calculated RPDs between the parent sample and field duplicate were acceptable.

9. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Sample results associated with compound that exhibited a concentration greater than the linear range of the instrument calibration are summarized in the following table.

Sample ID	Compound	Original Analysis	Diluted Analysis	Reported Analysis
IA-3	Ethanol	-	580 E	580 EJ
DUP-011421	Ethanol	-	550 E	550 EJ

Note: In the instance where both the original analysis and the diluted analysis sample results exhibited a concentration greater than and/or less than the calibration linear range of the instrument; the sample result exhibiting the greatest concentration will be reported as the final result.

Sample results associated with compounds exhibiting concentrations greater than the linear range are qualified as documented in the table below when reported as the final reported sample result.

Reported Sample Results	Qualification
Diluted sample result within calibration range	D
Diluted sample result less than the calibration range	DJ
Diluted sample result greater than the calibration range	EDJ
Original sample result greater than the calibration range	EJ

10. System Performance and Overall Assessment

Please note, the laboratory includes a Limit of Detection (LOD) in the laboratory report which is specific to Department of Defense (DOD) reporting and should not be considered for this site/project. Only the Reporting Limit (RL) and Method Detection Limit (MDL) are stored in the database for this data set.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Canister return pressure (<-1"Hg)		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X	X		
B. Equipment blanks	X				X
C. Trip blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate (LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)	X				X
Matrix Spike Duplicate (MSD)	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X	X		
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	

VOCs: TO-15	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

SAMPLE COMPLIANCE REPORT

Sample Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	ALD	PFAS	MET	
2101359	1/14/2021	SW846	IA-3	Air	Yes	No	Yes	-	-	VOC: MB, ICV %RSD
	1/14/2021	SW846	AMB-011421	Air	Yes	No	Yes	-	-	VOC: MB, ICV %RSD
	1/14/2021	SW846	DUP-011421	Air	No	No	Yes	-	-	VOC: ICV %RSD

Note:

1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

VALIDATION PERFORMED BY: Jeffrey L. Davin

SIGNATURE: 

DATE: February 28, 2021

PEER REVIEW: Dennis K. Capria

DATE: March 3, 2021

CHAIN OF CUSTODY

CORRECTED SAMPLE ANALYSIS DATA SHEETS

eurofins | Air Toxics

Analysis Request /Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: 136537

2101359

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

page 1 of 1

Client: Arcadis
Project Name: BMS Syracuse Bldg 3
Project Manager: William McLane Project # 30064943.01
Sampler: Daniel Zuck
Site Name: BMS Bldg 3

Special Instructions/Notes:

Turnaround Time (Rush surcharges may apply)
Standard X Rush _____ (specify)

Lab ID	Field Sample Identification(Location)	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Canister Vacuum/Pressure		Lab Use Only		Requested Analyses			
				Date	Time	Date	Time	Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N_2 / He	BMS Full TO-15 Compound List*			
01A	IA-3	6L0764	23485	1/14/21	0840	1/14/21	1642	-27.5	-6.25			X			
02A	AMB-011421	6L0505	23522	↓	0838	↓	1640	-28.75	-0.5			X			
03A	DUP-011421	2290	24335					-27.5	-6.75			X			

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Daniel Zuck Arcadis	1/14/21	1700		1/18/21	0921
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only

Shipper Name: Daniel Zuck Custody Seals Intact? Yes No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

* See work order for List of Compounds

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Syracuse Bldg 3

eurofins | Air Toxics

Client ID:	IA-3		
Lab ID:	2101359-01A	**Date/Time Analyzed:**	1/25/21 09:27 PM
Date/Time Collected:	1/14/21 04:42 PM	**Dilution Factor:**	1.42
Media:		**Instrument/Filename:**	msd21.i / 21012523

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)	
1,2,4-Trichlorobenzene	120-82-1	1.2	1.6	5.3	Not Detected	
1,2,4-Trimethylbenzene	95-63-6	0.049	0.17	0.70	0.16 J	
1,2-Dichlorobenzene	95-50-1	0.098	0.21	0.85	Not Detected	
1,2-Dichloropropane	78-87-5	0.036	0.16	0.66	Not Detected	
1,3,5-Trimethylbenzene	108-67-8	0.047	0.17	0.70	Not Detected	
1,3-Butadiene	106-99-0	0.017	0.078	0.31	Not Detected	
1,3-Dichlorobenzene	541-73-1	0.060	0.21	0.85	Not Detected	
1,4-Dioxane	123-91-1	0.035	0.13	0.51	0.065 J	
2,2,4-Trimethylpentane	540-84-1	0.35	1.0	3.3	Not Detected	
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.15	0.63	2.1	0.94 J	
2-Hexanone	591-78-6	0.20	0.87	2.9	Not Detected	
2-Propanol	67-63-0	0.30	0.52	1.7	19	
3-Chloropropene	107-05-1	0.53	0.67	4.4	Not Detected	J
4-Ethyltoluene	622-96-8	0.035	0.17	0.70	0.14 J	
4-Methyl-2-pentanone	108-10-1	0.054	0.14	0.58	Not Detected	
Acetone	67-64-1	0.43	0.50	3.4	7.9	
alpha-Chlorotoluene	100-44-7	0.13	0.18	0.74	Not Detected	
Bromodichloromethane	75-27-4	0.029	0.24	0.95	0.057 J	
Bromoform	75-25-2	0.094	0.37	1.5	Not Detected	
Bromomethane	74-83-9	0.36	0.83	2.8	Not Detected	
Carbon Disulfide	75-15-0	0.39	0.66	2.2	Not Detected	
Chlorobenzene	108-90-7	0.020	0.16	0.65	Not Detected	
cis-1,3-Dichloropropene	10061-01-5	0.031	0.16	0.64	Not Detected	
Cumene	98-82-8	0.024	0.17	0.70	0.053 J	

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Syracuse Bldg 3

Client ID:	IA-3		
Lab ID:	2101359-01A	**Date/Time Analyzed:**	1/25/21 09:27 PM
Date/Time Collected:	1/14/21 04:42 PM	**Dilution Factor:**	1.42
Media:		**Instrument/Filename:**	msd21.i / 21012523

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Cyclohexane	110-82-7	0.26	0.73	2.4	Not Detected
Dibromochloromethane	124-48-1	0.078	0.30	1.2	Not Detected
Ethanol	64-17-5	0.31	0.40	1.3	580 E J
Freon 11	75-69-4	0.033	0.20	0.80	1.4
Freon 113	76-13-1	0.11	0.27	1.1	0.52 J
Heptane	142-82-5	0.098	0.87	2.9	0.29 J
Hexachlorobutadiene	87-68-3	1.6	2.3	7.6	Not Detected
Hexane	110-54-3	0.19	0.75	2.5	0.54 J
Methylene Chloride	75-09-2	0.49	0.74	0.99	0.99 ~~0.50 J~~ UB
Propylbenzene	103-65-1	0.044	0.17	0.70	Not Detected
Styrene	100-42-5	0.024	0.15	0.60	0.045 J
Tetrahydrofuran	109-99-9	0.22	0.63	2.1	Not Detected
trans-1,3-Dichloropropene	10061-02-6	0.039	0.16	0.64	Not Detected

D: Analyte not within the DoD scope of accreditation.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
1,2,3-Trimethylbenzene	526-73-8	NA		Not Detected
2-Nitropropane	79-46-9	NA		Not Detected
4-Chlorotoluene	106-43-4	NA		Not Detected
Acetonitrile	75-05-8	NA		Not Detected
Benzaldehyde	100-52-7	NA		Not Detected
bis(2-Chloroethyl) Ether	111-44-4	NA		Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Syracuse Bldg 3

Client ID:	IA-3		
Lab ID:	2101359-01A	**Date/Time Analyzed:**	1/25/21 09:27 PM
Date/Time Collected:	1/14/21 04:42 PM	**Dilution Factor:**	1.42
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21012523

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
Cyclohexene	110-83-8	NA		Not Detected
Epichlorohydrin	106-89-8	NA		Not Detected
Ethyl Acetate	141-78-6	NA		Not Detected
Isobutanol	78-83-1	NA		Not Detected
Isopropyl ether	108-20-3	NA		Not Detected
Methacrylonitrile	126-98-7	NA		Not Detected
Methyl Acetate	79-20-9	NA		Not Detected
N,N-Dimethyl Aniline	121-69-7	NA		Not Detected
n-Butanol	71-36-3	NA		Not Detected
Nitrobenzene	98-95-3	NA		Not Detected
Pentane	109-66-0	72%		1.6
Propylene	115-07-1	NA		Not Detected
Pyridine	110-86-1	NA		Not Detected

E = Exceeds instrument calibration range.
J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	111
4-Bromofluorobenzene	460-00-4	70-130	82
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Syracuse Bldg 3

Client ID:	IA-3		
Lab ID:	2101359-01B	**Date/Time Analyzed:**	1/25/21 09:27 PM
Date/Time Collected:	1/14/21 04:42 PM	**Dilution Factor:**	1.42
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21012523sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.0092	0.062	0.15	0.032 J
1,1,2,2-Tetrachloroethane	79-34-5	0.038	0.078	0.19	Not Detected
1,1,2-Trichloroethane	79-00-5	0.017	0.062	0.15	Not Detected
1,1-Dichloroethane	75-34-3	0.033	0.046	0.11	Not Detected
1,1-Dichloroethene	75-35-4	0.019	0.045	0.056	Not Detected
1,2-Dibromoethane (EDB)	106-93-4	0.026	0.087	0.22	0.027 J
1,2-Dichloroethane	107-06-2	0.017	0.046	0.11	0.069 J
1,4-Dichlorobenzene	106-46-7	0.085	0.13	0.17	Not Detected
Benzene	71-43-2	0.022	0.036	0.23	0.67
Carbon Tetrachloride	56-23-5	0.066	0.071	0.18	0.44
Chloroethane	75-00-3	0.012	0.030	0.19	0.041 J
Chloroform	67-66-3	0.022	0.055	0.14	0.38
Chloromethane	74-87-3	0.019	0.023	1.5	0.64 J
cis-1,2-Dichloroethene	156-59-2	0.020	0.045	0.11	0.069 J
Ethyl Benzene	100-41-4	0.019	0.049	0.12	0.11 J
Freon 114	76-14-2	0.013	0.079	0.20	0.10 J
Freon 12	75-71-8	0.016	0.056	3.5	2.3 J
m,p-Xylene	108-38-3	0.025	0.049	0.25	0.35
Methyl tert-butyl ether	1634-04-4	0.022	0.041	0.51	Not Detected
Naphthalene	91-20-3	0.15	0.28	0.37	0.22 J
o-Xylene	95-47-6	0.026	0.049	0.12	0.12
Tetrachloroethene	127-18-4	0.0077	0.077	0.19	0.74
Toluene	108-88-3	0.017	0.043	0.27	0.67
trans-1,2-Dichloroethene	156-60-5	0.017	0.045	0.56	Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Syracuse Bldg 3

Client ID:	IA-3		
Lab ID:	2101359-01B	**Date/Time Analyzed:**	1/25/21 09:27 PM
Date/Time Collected:	1/14/21 04:42 PM	**Dilution Factor:**	1.42
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21012523sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.015	0.061	0.15	0.54
Vinyl Chloride	75-01-4	0.0083	0.029	0.036	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	92

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Syracuse Bldg 3

eurofins | Air Toxics

Client ID:	AMB-011421		
Lab ID:	2101359-02A	**Date/Time Analyzed:**	1/25/21 08:14 PM
Date/Time Collected:	1/14/21 04:40 PM	**Dilution Factor:**	1.40
Media:		**Instrument/Filename:**	msd21.i / 21012521

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	1.2	1.6	5.2	Not Detected
1,2,4-Trimethylbenzene	95-63-6	0.048	0.17	0.69	0.15 J
1,2-Dichlorobenzene	95-50-1	0.097	0.21	0.84	Not Detected
1,2-Dichloropropane	78-87-5	0.036	0.16	0.65	Not Detected
1,3,5-Trimethylbenzene	108-67-8	0.047	0.17	0.69	Not Detected
1,3-Butadiene	106-99-0	0.017	0.077	0.31	Not Detected
1,3-Dichlorobenzene	541-73-1	0.059	0.21	0.84	Not Detected
1,4-Dioxane	123-91-1	0.034	0.13	0.50	0.047 J
2,2,4-Trimethylpentane	540-84-1	0.34	0.98	3.3	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.14	0.62	2.1	0.50 J
2-Hexanone	591-78-6	0.20	0.86	2.9	Not Detected
2-Propanol	67-63-0	0.30	0.52	1.7	1.7 ~~1.4 J~~ UB
3-Chloropropene	107-05-1	0.52	0.66	4.4	Not Detected J
4-Ethyltoluene	622-96-8	0.035	0.17	0.69	0.15 J
4-Methyl-2-pentanone	108-10-1	0.054	0.14	0.57	Not Detected
Acetone	67-64-1	0.42	0.50	3.3	4.1
alpha-Chlorotoluene	100-44-7	0.13	0.18	0.72	Not Detected
Bromodichloromethane	75-27-4	0.028	0.23	0.94	Not Detected
Bromoform	75-25-2	0.093	0.36	1.4	Not Detected
Bromomethane	74-83-9	0.36	0.82	2.7	Not Detected
Carbon Disulfide	75-15-0	0.39	0.65	2.2	Not Detected
Chlorobenzene	108-90-7	0.020	0.16	0.64	Not Detected
cis-1,3-Dichloropropene	10061-01-5	0.030	0.16	0.64	Not Detected
Cumene	98-82-8	0.024	0.17	0.69	Not Detected

Client ID:	AMB-011421		
Lab ID:	2101359-02A	**Date/Time Analyzed:**	1/25/21 08:14 PM
Date/Time Collected:	1/14/21 04:40 PM	**Dilution Factor:**	1.40
Media:		**Instrument/Filename:**	msd21.i / 21012521

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Cyclohexane	110-82-7	0.25	0.72	2.4	Not Detected
Dibromochloromethane	124-48-1	0.077	0.30	1.2	Not Detected
Ethanol	64-17-5	0.31	0.40	1.3	3.4
Freon 11	75-69-4	0.032	0.20	0.79	1.2
Freon 113	76-13-1	0.11	0.27	1.1	0.43 J
Heptane	142-82-5	0.097	0.86	2.9	0.23 J
Hexachlorobutadiene	87-68-3	1.6	2.2	7.5	Not Detected
Hexane	110-54-3	0.19	0.74	2.5	0.36 J
Methylene Chloride	75-09-2	0.49	0.73	0.97	Not Detected
Propylbenzene	103-65-1	0.044	0.17	0.69	Not Detected
Styrene	100-42-5	0.024	0.15	0.60	0.027 J
Tetrahydrofuran	109-99-9	0.22	0.62	2.1	Not Detected
trans-1,3-Dichloropropene	10061-02-6	0.039	0.16	0.64	Not Detected

D: Analyte not within the DoD scope of accreditation.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
1,2,3-Trimethylbenzene	526-73-8	NA		Not Detected
2-Nitropropane	79-46-9	NA		Not Detected
4-Chlorotoluene	106-43-4	NA		Not Detected
Acetonitrile	75-05-8	NA		Not Detected
Benzaldehyde	100-52-7	NA		Not Detected
bis(2-Chloroethyl) Ether	111-44-4	NA		Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Syracuse Bldg 3

Client ID:	AMB-011421		
Lab ID:	2101359-02A	**Date/Time Analyzed:**	1/25/21 08:14 PM
Date/Time Collected:	1/14/21 04:40 PM	**Dilution Factor:**	1.40
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21012521

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
Cyclohexene	110-83-8	NA		Not Detected
Epichlorohydrin	106-89-8	NA		Not Detected
Ethyl Acetate	141-78-6	NA		Not Detected
Isobutanol	78-83-1	NA		Not Detected
Isopropyl ether	108-20-3	NA		Not Detected
Methacrylonitrile	126-98-7	NA		Not Detected
Methyl Acetate	79-20-9	NA		Not Detected
N,N-Dimethyl Aniline	121-69-7	NA		Not Detected
n-Butanol	71-36-3	NA		Not Detected
Nitrobenzene	98-95-3	NA		Not Detected
Pentane	109-66-0	NA		Not Detected
Propylene	115-07-1	NA		Not Detected
Pyridine	110-86-1	NA		Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	84
Toluene-d8	2037-26-5	70-130	93

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Syracuse Bldg 3

Client ID:	AMB-011421		
Lab ID:	2101359-02B	**Date/Time Analyzed:**	1/25/21 08:14 PM
Date/Time Collected:	1/14/21 04:40 PM	**Dilution Factor:**	1.40
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21012521sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.0091	0.061	0.15	Not Detected
1,1,2,2-Tetrachloroethane	79-34-5	0.038	0.077	0.19	Not Detected
1,1,2-Trichloroethane	79-00-5	0.016	0.061	0.15	Not Detected
1,1-Dichloroethane	75-34-3	0.033	0.045	0.11	Not Detected
1,1-Dichloroethene	75-35-4	0.018	0.044	0.056	Not Detected
1,2-Dibromoethane (EDB)	106-93-4	0.026	0.086	0.22	Not Detected
1,2-Dichloroethane	107-06-2	0.017	0.045	0.11	0.10 J
1,4-Dichlorobenzene	106-46-7	0.084	0.13	0.17	Not Detected
Benzene	71-43-2	0.022	0.036	0.22	0.65
Carbon Tetrachloride	56-23-5	0.066	0.070	0.18	0.46
Chloroethane	75-00-3	0.012	0.030	0.18	0.027 J
Chloroform	67-66-3	0.022	0.055	0.14	0.070 J
Chloromethane	74-87-3	0.019	0.023	1.4	0.62 J
cis-1,2-Dichloroethene	156-59-2	0.019	0.044	0.11	Not Detected
Ethyl Benzene	100-41-4	0.018	0.049	0.12	0.10 J
Freon 114	76-14-2	0.012	0.078	0.20	0.10 J
Freon 12	75-71-8	0.016	0.055	3.5	2.3 J
m,p-Xylene	108-38-3	0.025	0.049	0.24	0.29
Methyl tert-butyl ether	1634-04-4	0.022	0.040	0.50	Not Detected
Naphthalene	91-20-3	0.15	0.28	0.37	Not Detected
o-Xylene	95-47-6	0.025	0.049	0.12	0.11 J
Tetrachloroethene	127-18-4	0.0076	0.076	0.19	0.13 J
Toluene	108-88-3	0.017	0.042	0.26	0.65
trans-1,2-Dichloroethene	156-60-5	0.016	0.044	0.56	Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Syracuse Bldg 3

Client ID:	AMB-011421		
Lab ID:	2101359-02B	**Date/Time Analyzed:**	1/25/21 08:14 PM
Date/Time Collected:	1/14/21 04:40 PM	**Dilution Factor:**	1.40
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21012521sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.015	0.060	0.15	0.023 J
Vinyl Chloride	75-01-4	0.0082	0.029	0.036	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	92
Toluene-d8	2037-26-5	70-130	91

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Syracuse Bldg 3

eurofins | Air Toxics

Client ID:	DUP-011421		
Lab ID:	2101359-03A	**Date/Time Analyzed:**	1/25/21 08:50 PM
Date/Time Collected:	1/14/21 12:00 AM	**Dilution Factor:**	1.46
Media:		**Instrument/Filename:**	msd21.i / 21012522

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)	
1,2,4-Trichlorobenzene	120-82-1	1.2	1.6	5.4	Not Detected	
1,2,4-Trimethylbenzene	95-63-6	0.050	0.18	0.72	0.17 J	
1,2-Dichlorobenzene	95-50-1	0.10	0.22	0.88	Not Detected	
1,2-Dichloropropane	78-87-5	0.038	0.17	0.67	Not Detected	
1,3,5-Trimethylbenzene	108-67-8	0.049	0.18	0.72	Not Detected	
1,3-Butadiene	106-99-0	0.018	0.081	0.32	Not Detected	
1,3-Dichlorobenzene	541-73-1	0.061	0.22	0.88	Not Detected	
1,4-Dioxane	123-91-1	0.036	0.13	0.53	0.13 J	
2,2,4-Trimethylpentane	540-84-1	0.36	1.0	3.4	Not Detected	
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.15	0.64	2.2	1.3 J	
2-Hexanone	591-78-6	0.21	0.90	3.0	Not Detected	
2-Propanol	67-63-0	0.31	0.54	1.8	18	
3-Chloropropene	107-05-1	0.54	0.68	4.6	Not Detected	J
4-Ethyltoluene	622-96-8	0.036	0.18	0.72	0.14 J	
4-Methyl-2-pentanone	108-10-1	0.056	0.15	0.60	Not Detected	
Acetone	67-64-1	0.44	0.52	3.5	7.6	
alpha-Chlorotoluene	100-44-7	0.14	0.19	0.76	Not Detected	
Bromodichloromethane	75-27-4	0.030	0.24	0.98	0.061 J	
Bromoform	75-25-2	0.097	0.38	1.5	Not Detected	
Bromomethane	74-83-9	0.37	0.85	2.8	Not Detected	
Carbon Disulfide	75-15-0	0.40	0.68	2.3	Not Detected	
Chlorobenzene	108-90-7	0.020	0.17	0.67	Not Detected	
cis-1,3-Dichloropropene	10061-01-5	0.032	0.16	0.66	Not Detected	
Cumene	98-82-8	0.025	0.18	0.72	0.057 J	

Client ID:	DUP-011421		
Lab ID:	2101359-03A	**Date/Time Analyzed:**	1/25/21 08:50 PM
Date/Time Collected:	1/14/21 12:00 AM	**Dilution Factor:**	1.46
Media:		**Instrument/Filename:**	msd21.i / 21012522

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Cyclohexane	110-82-7	0.26	0.75	2.5	Not Detected
Dibromochloromethane	124-48-1	0.080	0.31	1.2	Not Detected
Ethanol	64-17-5	0.32	0.41	1.4	550 E J
Freon 11	75-69-4	0.034	0.20	0.82	1.2
Freon 113	76-13-1	0.12	0.28	1.1	0.47 J
Heptane	142-82-5	0.10	0.90	3.0	0.27 J
Hexachlorobutadiene	87-68-3	1.7	2.3	7.8	Not Detected
Hexane	110-54-3	0.20	0.77	2.6	0.42 J
Methylene Chloride	75-09-2	0.51	0.76	1.0	Not Detected
Propylbenzene	103-65-1	0.046	0.18	0.72	Not Detected
Styrene	100-42-5	0.025	0.16	0.62	0.053 J
Tetrahydrofuran	109-99-9	0.23	0.64	2.2	Not Detected
trans-1,3-Dichloropropene	10061-02-6	0.040	0.16	0.66	Not Detected

D: Analyte not within the DoD scope of accreditation.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
1,2,3-Trimethylbenzene	526-73-8	NA		Not Detected
2-Nitropropane	79-46-9	NA		Not Detected
4-Chlorotoluene	106-43-4	NA		Not Detected
Acetonitrile	75-05-8	NA		Not Detected
Benzaldehyde	100-52-7	NA		Not Detected
bis(2-Chloroethyl) Ether	111-44-4	NA		Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Syracuse Bldg 3

Client ID:	DUP-011421		
Lab ID:	2101359-03A	**Date/Time Analyzed:**	1/25/21 08:50 PM
Date/Time Collected:	1/14/21 12:00 AM	**Dilution Factor:**	1.46
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21012522

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
Cyclohexene	110-83-8	NA		Not Detected
Epichlorohydrin	106-89-8	NA		Not Detected
Ethyl Acetate	141-78-6	NA		Not Detected
Isobutanol	78-83-1	NA		Not Detected
Isopropyl ether	108-20-3	NA		Not Detected
Methacrylonitrile	126-98-7	NA		Not Detected
Methyl Acetate	79-20-9	NA		Not Detected
N,N-Dimethyl Aniline	121-69-7	NA		Not Detected
n-Butanol	71-36-3	NA		Not Detected
Nitrobenzene	98-95-3	NA		Not Detected
Pentane	109-66-0	78%		1.3
Propylene	115-07-1	NA		Not Detected
Pyridine	110-86-1	NA		Not Detected

E = Exceeds instrument calibration range.
J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	105
4-Bromofluorobenzene	460-00-4	70-130	84
Toluene-d8	2037-26-5	70-130	94

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Syracuse Bldg 3

eurofins | Air Toxics

Client ID:	DUP-011421		
Lab ID:	2101359-03B	**Date/Time Analyzed:**	1/25/21 08:50 PM
Date/Time Collected:	1/14/21 12:00 AM	**Dilution Factor:**	1.46
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21012522sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.0095	0.064	0.16	0.032 J
1,1,2,2-Tetrachloroethane	79-34-5	0.039	0.080	0.20	Not Detected
1,1,2-Trichloroethane	79-00-5	0.017	0.064	0.16	Not Detected
1,1-Dichloroethane	75-34-3	0.034	0.047	0.12	Not Detected
1,1-Dichloroethene	75-35-4	0.019	0.046	0.058	Not Detected
1,2-Dibromoethane (EDB)	106-93-4	0.027	0.090	0.22	Not Detected
1,2-Dichloroethane	107-06-2	0.018	0.047	0.12	0.068 J
1,4-Dichlorobenzene	106-46-7	0.087	0.13	0.18	Not Detected
Benzene	71-43-2	0.023	0.037	0.23	0.63
Carbon Tetrachloride	56-23-5	0.068	0.073	0.18	0.42
Chloroethane	75-00-3	0.012	0.031	0.19	0.046 J
Chloroform	67-66-3	0.023	0.057	0.14	0.38
Chloromethane	74-87-3	0.020	0.024	1.5	0.64 J
cis-1,2-Dichloroethene	156-59-2	0.020	0.046	0.12	0.064 J
Ethyl Benzene	100-41-4	0.019	0.051	0.13	0.10 J
Freon 114	76-14-2	0.013	0.082	0.20	0.098 J
Freon 12	75-71-8	0.017	0.058	3.6	2.3 J
m,p-Xylene	108-38-3	0.026	0.051	0.25	0.30
Methyl tert-butyl ether	1634-04-4	0.023	0.042	0.53	Not Detected
Naphthalene	91-20-3	0.16	0.29	0.38	0.26 J
o-Xylene	95-47-6	0.026	0.051	0.13	0.12 J
Tetrachloroethene	127-18-4	0.0079	0.079	0.20	0.26
Toluene	108-88-3	0.018	0.044	0.28	0.65
trans-1,2-Dichloroethene	156-60-5	0.017	0.046	0.58	Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Syracuse Bldg 3

Client ID:	DUP-011421		
Lab ID:	2101359-03B	**Date/Time Analyzed:**	1/25/21 08:50 PM
Date/Time Collected:	1/14/21 12:00 AM	**Dilution Factor:**	1.46
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21012522sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.016	0.063	0.16	0.52
Vinyl Chloride	75-01-4	0.0086	0.030	0.037	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	90
Toluene-d8	2037-26-5	70-130	92

ARCADIS Design & Consultancy for natural and built assets

Bristol Myers Squibb

Thompson Road Investigation

Data Usability Summary Report

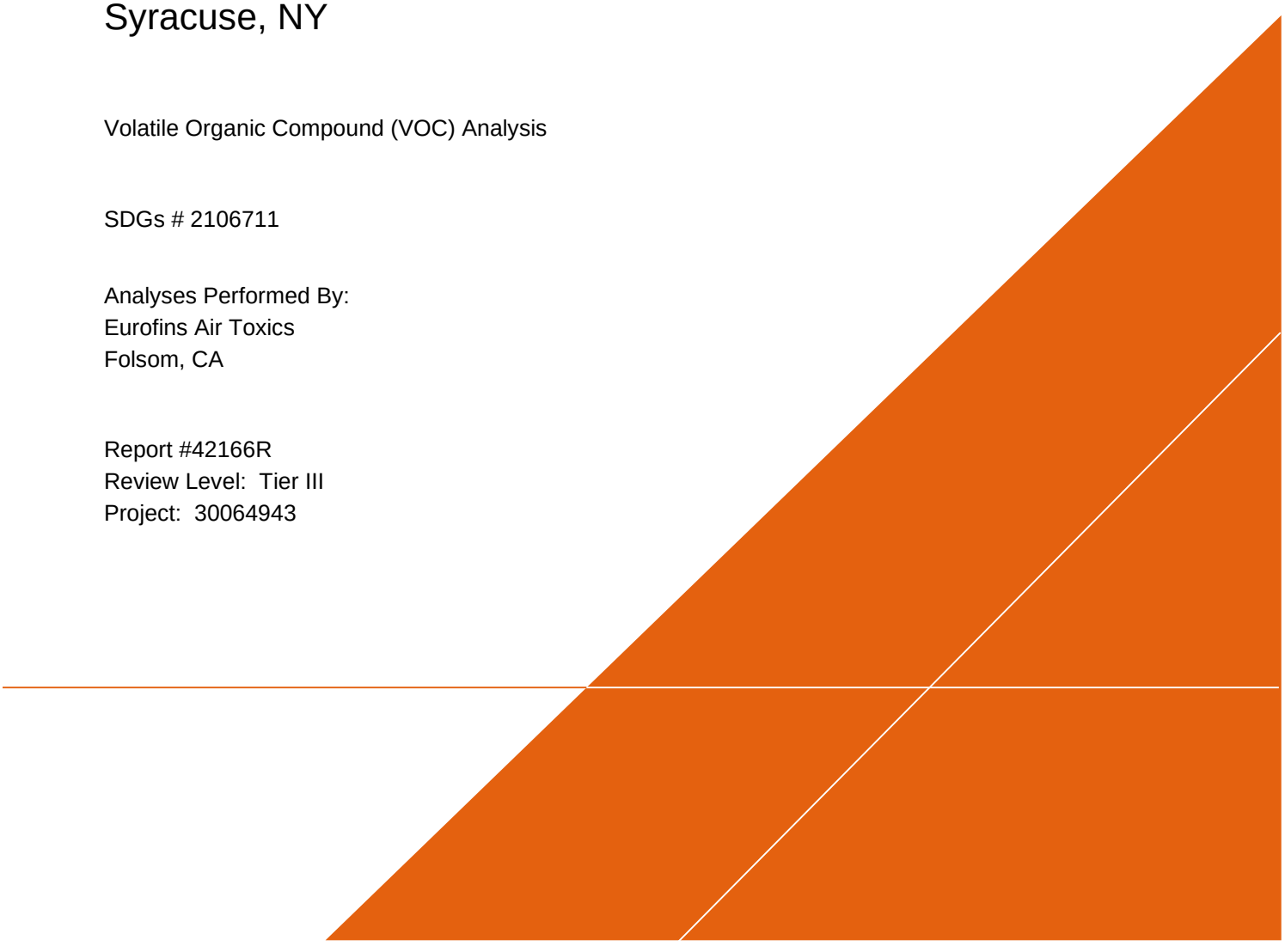
Syracuse, NY

Volatile Organic Compound (VOC) Analysis

SDGs # 2106711

Analyses Performed By:
Eurofins Air Toxics
Folsom, CA

Report #42166R
Review Level: Tier III
Project: 30064943



SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # 2106711 for samples collected in association with the Bristol Myers Squibb Thompson Road Site. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
					VOC	SVOC	PFAS	MET	ALD
IA-3	2106711-01A	Air	6/24/2021	DUP-062421	X				
AA-3	2106711-02A	Air	6/24/2021		X				
DUP-062421	2106711-03A	Air	6/24/2021		X				

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

Note:
QA - Quality Assurance

List of Acronyms

%D: Percent Difference

%R: Percent Recovery

AC: Acceptable

ALC/GLY: Alcohols/Glycols

BAL: Blank Action Level

CCV: Continuing Calibration Verification

CRDL: Contract Required Detection Limit

D: Dilution

EIS: Extractable Internal Standard

FB: Field Blank

FD: Field Duplicate

ALD: Aldehydes

GC/ECD: Gas Chromatograph/Electron Capture Detector

GC/MS: Gas Chromatograph/Mass spectrometer

HT: Holding Time

ICP: Inductively Coupled Plasma

ICS: Interference Control Sample

ICV: Initial Calibration Verification

ISTD: Internal Standards

LabDup: Laboratory Duplicate

LCS: Lab Control Sample

LCSD: Lab Control Sample Duplicate

LL: Lower Control Limit

MB: Method Blank

MDL: Method Detection Limit

MET: Metals

MS: Matrix Spike

MSD: Matrix Spike Duplicate

N/A: Not Applicable

NC: Not Compliant

List of Acronyms, Continued

PAH: Polyaromatic Hydrocarbon

PCB: Polychlorinated Biphenyl

PEST: Pesticide

PFAS: Per- and Polyfluoroalkyl Substances

QA: Quality Assurance

QC: Quality Control

RB: Rinse Blank

RL: Reporting Limit

RPD: Relative Percent Difference

RRF: Relative Response Factor

RSD: Relative Standard Deviation

RT: Retention Time

SDG: Sample Delivery Group

SerDil: Serial Dilution

SIM: Single Ion Monitoring

SOP: Standard Operating Procedure

SSTD: Surrogate Standards

SVOC: Semivolatile Organic Compound

TB: Trip Blank

TIC: Tentatively Identified Compound

TOC: Total Organic Carbon

TOTDIS: Total and Dissolved

UL: Upper Control Limit

USEPA: United States Environmental Protection Agency

VOC: Volatile Organic Compound

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999, USEPA Region II SOP HW-31- Validating Air Samples Volatile Organic Analysis of Ambient Air In Canister by Method TO-15 of October 2006, New York State DEC Analytical Method ASP 2005 TO-15 (QA/QC Criteria R9 TO-15), and NYSDEC Modifications to R9 TO-15 QA/QC Criteria October 2009.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
  - UB Analyte considered non-detect at the listed value due to associated blank contamination.
  - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
  - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis	Ambient Temperature	< -1" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

Compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
IA-3 AA-3 DUP-062421	ICV %RSD	3-Chloropropane	36.3%
	CCV %D	3-Chloropropane	33.0%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
	%RSD >90%	Non-detect	R
		Detect	J
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J
	%D >90% (increase/decrease in sensitivity)	Non-detect	R
		Detect	J

Note:

[1] RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit a percent recovery within the established acceptance limits of 70% to 130%.

Surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

Internal standard responses were within control limits.

7. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the established acceptance limits of 70% to 130%.

Sample locations associated with LCS/LCSD analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery	LCSD Recovery
IA-3 AA-3 DUP-062421	3-Chloropropene	>UL	>UL
	Ethanol	<LL but >10%	<LL but >10%

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

8. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for air matrices is applied to the RPD between the parent

sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for air matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
IA-3/DUP-062421	1,4-Dioxane	0.14 J	0.19 J	AC
	2-Butanone	1.1 J	1.4 J	AC
	2-Hexanone	2.9 U	0.19 J	AC
	2-Propanol	6.2	6.4	AC
	4-Methyl-2-pentanone	0.14 J	0.15 J	AC
	Acetone	11	12	AC
	Carbon Disulfide	2.2 U	0.65 J	AC
	Cyclohexane	2.4 U	1.6 J	AC
	Ethanol	100	100	0%
	Freon 11	1.1	1.1	AC
	Freon 113	0.42 J	0.38 J	AC
	Styrene	0.070 J	0.093 J	AC
	Tetrahydrofuran	2.1 U	0.22 J	AC
	1,1,1-Trichloroethane	0.013 J	0.015 J	AC
	1,2-Dichloroethane	0.042 J	0.043 J	AC
	Benzene	0.11 J	0.12 J	AC
	Carbon Tetrachloride	0.32	0.33	AC
	Chloroethane	0.041 J	0.026 J	AC
	Chloroform	0.14	0.15	AC
	Chloromethane	0.74 J	0.74 J	AC
	cis-1,2-Dichloroethene	0.021 J	0.022 J	AC
	Ethyl Benzene	0.058 J	0.065 J	AC
	Freon 114	0.092 J	0.095 J	AC
	Freon 12	2.2 J	2.2 J	AC
	m,p-Xylene	0.20 J	0.22 J	AC
	Naphthalene	0.43	0.42	AC
	o-Xylene	0.071 J	0.093 J	AC
	Tetrachloroethene	0.082 J	0.060 J	AC

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
	Toluene	0.45	0.51	AC
	Trichloroethene	0.16	0.15	AC

The calculated RPDs between the parent sample and field duplicate were acceptable.

9. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

10. System Performance and Overall Assessment

Please note, the laboratory includes a Limit of Detection (LOD) in the laboratory report which is specific to Department of Defense (DOD) reporting and should not be considered for this site/project. Only the Reporting Limit (RL) and Method Detection Limit (MDL) are stored in the database for this data set.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Canister return pressure (<-1"Hg)		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks	X				X
Laboratory Control Sample (LCS)		X	X		
Laboratory Control Sample Duplicate (LCSD)		X	X		
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS)	X				X
Matrix Spike Duplicate (MSD)	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X	X		
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X		X	
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	

VOCs: TO-15	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

SAMPLE COMPLIANCE REPORT

Sample Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	ALD	PFAS	MET	
2106711	6/24/2021	SW846	IA-3	Air	No	-	-	-	-	VOC: ICV %RSD, LCS %R
	6/24/2021	SW846	AA-3	Air	No	-	-	-	-	VOC: ICV %RSD, LCS %R
	6/24/2021	SW846	DUP-062421	Air	No	-	-	-	-	VOC: ICV %RSD, LCS %R

Note:

1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

VALIDATION PERFORMED BY: Jeffrey L. Davin

SIGNATURE: 

DATE: February 28, 2021

PEER REVIEW: Todd Church

DATE: July 30, 2021

CHAIN OF CUSTODY

CORRECTED SAMPLE ANALYSIS DATA SHEETS

eurofins | Air Toxics

Analysis Request/Canister Chain of Custody

For Laboratory Use Only
PID: _____ Workorder #: 2106711

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:
Canister Sampling Guide
Helium Shroud Video

Client: Arcadis PID: _____
Project Name: BMS Building 3 VI
Project Manager: Daniel Zuck P.O.# _____
Sampler: Daniel Zuck
Site Name: BMS Building 3 VI

Special Instructions/Notes:
Please Report Results
TO DZuck@Arcadis-US.com

Turnaround Time (Rush surcharges may apply)
Select TAT from drop down box: Std 2wk

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Canister Vacuum/Pressure		Lab Use Only		Requested Analyses			
				Date	Time	Date	Time	Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N_2 / He	BMS Project TO-15 Hi/Lo Sim			
01A	IA-3	6L0384	23593	6/24/21	1025	6/24/21	1825	-30	-6			X			
02A	AA-3	6L1321	23401	6/24/21	1030	6/24/21	1830	-30	-7			X			
03A	DUP-062421	6L0062	23399	6/24/21	NA	6/24/21	NA	-30	-6			X			

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Josh Sinay	6/24/21	1845	[illegible] FAT	6-28-21	0930
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only

Shipper Name: Fed Ex | Custody Seals Intact? Yes No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Building 3VI

eurofins | Air Toxics

Client ID:	IA-3		
Lab ID:	2106711-01A	**Date/Time Analyzed:**	7/2/21 03:46 PM
Date/Time Collected:	6/24/21 06:25 PM	**Dilution Factor:**	1.42
Media:		**Instrument/Filename:**	msd21.i / 21070214

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)	
1,2,4-Trichlorobenzene	120-82-1	1.8	2.1	5.3	Not Detected	
1,2,4-Trimethylbenzene	95-63-6	0.13	0.28	0.70	Not Detected	
1,2-Dichlorobenzene	95-50-1	0.11	0.34	0.85	Not Detected	
1,2-Dichloropropane	78-87-5	0.067	0.26	0.66	Not Detected	
1,3,5-Trimethylbenzene	108-67-8	0.15	0.28	0.70	Not Detected	
1,3-Butadiene	106-99-0	0.049	0.12	0.31	Not Detected	
1,3-Dichlorobenzene	541-73-1	0.086	0.34	0.85	Not Detected	
1,4-Dioxane	123-91-1	0.074	0.20	0.51	0.14 J	
2,2,4-Trimethylpentane	540-84-1	0.21	1.3	3.3	Not Detected	
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.16	0.84	2.1	1.1 J	
2-Hexanone	591-78-6	0.16	1.2	2.9	Not Detected	
2-Propanol	67-63-0	0.15	0.70	1.7	6.2	
3-Chloropropene	107-05-1	0.69	0.89	2.2	Not Detected	J
4-Ethyltoluene	622-96-8	0.12	0.28	0.70	Not Detected	
4-Methyl-2-pentanone	108-10-1	0.13	0.23	0.58	0.14 J	
Acetone	67-64-1	0.55	0.67	3.4	11	
alpha-Chlorotoluene	100-44-7	0.12	0.29	0.74	Not Detected	
Bromodichloromethane	75-27-4	0.10	0.38	0.95	Not Detected	
Bromoform	75-25-2	0.20	0.59	1.5	Not Detected	
Bromomethane	74-83-9	0.33	1.1	2.8	Not Detected	
Carbon Disulfide	75-15-0	0.39	0.88	2.2	Not Detected	
Chlorobenzene	108-90-7	0.061	0.26	0.65	Not Detected	
cis-1,3-Dichloropropene	10061-01-5	0.064	0.26	0.64	Not Detected	
Cumene	98-82-8	0.074	0.28	0.70	Not Detected	

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Building 3VI

Client ID:	IA-3		
Lab ID:	2106711-01A	**Date/Time Analyzed:**	7/2/21 03:46 PM
Date/Time Collected:	6/24/21 06:25 PM	**Dilution Factor:**	1.42
Media:		**Instrument/Filename:**	msd21.i / 21070214

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)	
Cyclohexane	110-82-7	0.13	0.98	2.4	Not Detected	
Dibromochloromethane	124-48-1	0.15	0.48	1.2	Not Detected	
Ethanol	64-17-5	0.14	0.54	1.3	100	J
Freon 11	75-69-4	0.070	0.32	0.80	1.1	
Freon 113	76-13-1	0.15	0.44	1.1	0.42 J	
Heptane	142-82-5	0.18	1.2	2.9	Not Detected	
Hexachlorobutadiene	87-68-3	1.4	3.0	7.6	Not Detected	
Hexane	110-54-3	0.15	1.0	2.5	Not Detected	
Methylene Chloride	75-09-2	0.80	2.0	0.99	Not Detected	
Propylbenzene	103-65-1	0.10	0.28	0.70	Not Detected	
Styrene	100-42-5	0.061	0.24	0.60	0.070 J	
Tetrahydrofuran	109-99-9	0.21	0.84	2.1	Not Detected	
trans-1,3-Dichloropropene	10061-02-6	0.068	0.26	0.64	Not Detected	

D: Analyte not within the DoD scope of accreditation.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
1,2,3-Trimethylbenzene	526-73-8	NA		Not Detected
2-Nitropropane	79-46-9	NA		Not Detected
4-Chlorotoluene	106-43-4	NA		Not Detected
Acetonitrile	75-05-8	NA		Not Detected
Benzaldehyde	100-52-7	NA		Not Detected
bis(2-Chloroethyl) Ether	111-44-4	NA		Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Building 3VI

Client ID:	IA-3		
Lab ID:	2106711-01A	**Date/Time Analyzed:**	7/2/21 03:46 PM
Date/Time Collected:	6/24/21 06:25 PM	**Dilution Factor:**	1.42
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21070214

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
Cyclohexene	110-83-8	NA		Not Detected
Epichlorohydrin	106-89-8	NA		Not Detected
Ethyl Acetate	141-78-6	NA		Not Detected
Isobutanol	78-83-1	NA		Not Detected
Isopropyl ether	108-20-3	NA		Not Detected
Methacrylonitrile	126-98-7	NA		Not Detected
Methyl Acetate	79-20-9	NA		Not Detected
N,N-Dimethyl Aniline	121-69-7	NA		Not Detected
n-Butanol	71-36-3	NA		Not Detected
Nitrobenzene	98-95-3	NA		Not Detected
Pentane	109-66-0	78%		1.6 NJ
Propylene	115-07-1	NA		Not Detected
Pyridine	110-86-1	NA		Not Detected

J = Estimated value.
NJ =The identification is based on presumptive evidence; estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	85
Toluene-d8	2037-26-5	70-130	96

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Building 3VI

eurofins | Air Toxics

Client ID:	IA-3		
Lab ID:	2106711-01B	**Date/Time Analyzed:**	7/2/21 03:46 PM
Date/Time Collected:	6/24/21 06:25 PM	**Dilution Factor:**	1.42
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21070214sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.0043	0.062	0.15	0.013 J
1,1,2,2-Tetrachloroethane	79-34-5	0.025	0.078	0.19	Not Detected
1,1,2-Trichloroethane	79-00-5	0.014	0.062	0.15	Not Detected
1,1-Dichloroethane	75-34-3	0.031	0.046	0.11	Not Detected
1,1-Dichloroethene	75-35-4	0.0041	0.045	0.056	Not Detected
1,2-Dibromoethane (EDB)	106-93-4	0.014	0.087	0.22	Not Detected
1,2-Dichloroethane	107-06-2	0.0060	0.046	0.11	0.042 J
1,4-Dichlorobenzene	106-46-7	0.056	0.068	0.17	Not Detected
Benzene	71-43-2	0.013	0.036	0.23	0.11 J
Carbon Tetrachloride	56-23-5	0.0089	0.071	0.18	0.32
Chloroethane	75-00-3	0.0060	0.030	0.19	0.041 J
Chloroform	67-66-3	0.011	0.055	0.14	0.14
Chloromethane	74-87-3	0.18	0.59	1.5	0.74 J
cis-1,2-Dichloroethene	156-59-2	0.0068	0.045	0.11	0.021 J
Ethyl Benzene	100-41-4	0.0046	0.049	0.12	0.058 J
Freon 114	76-14-2	0.017	0.079	0.20	0.092 J
Freon 12	75-71-8	0.0052	0.056	3.5	2.2 J
m,p-Xylene	108-38-3	0.0075	0.049	0.25	0.20 J
Methyl tert-butyl ether	1634-04-4	0.0092	0.041	0.51	Not Detected
Naphthalene	91-20-3	0.094	0.15	0.37	0.43
o-Xylene	95-47-6	0.0086	0.049	0.12	0.071 J
Tetrachloroethene	127-18-4	0.010	0.077	0.19	0.082 J
Toluene	108-88-3	0.0098	0.043	0.27	0.45
trans-1,2-Dichloroethene	156-60-5	0.0058	0.045	0.56	Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Building 3VI

Client ID:	IA-3		
Lab ID:	2106711-01B	**Date/Time Analyzed:**	7/2/21 03:46 PM
Date/Time Collected:	6/24/21 06:25 PM	**Dilution Factor:**	1.42
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21070214sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.014	0.061	0.15	0.16
Vinyl Chloride	75-01-4	0.0046	0.029	0.036	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	88
Toluene-d8	2037-26-5	70-130	94

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Building 3VI

eurofins | Air Toxics

Client ID:	AA-3		
Lab ID:	2106711-02A	**Date/Time Analyzed:**	7/2/21 04:24 PM
Date/Time Collected:	6/24/21 06:30 PM	**Dilution Factor:**	1.51
Media:		**Instrument/Filename:**	msd21.i / 21070215

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)	
1,2,4-Trichlorobenzene	120-82-1	1.9	2.2	5.6	Not Detected	
1,2,4-Trimethylbenzene	95-63-6	0.14	0.30	0.74	Not Detected	
1,2-Dichlorobenzene	95-50-1	0.12	0.36	0.91	Not Detected	
1,2-Dichloropropane	78-87-5	0.071	0.28	0.70	Not Detected	
1,3,5-Trimethylbenzene	108-67-8	0.16	0.30	0.74	Not Detected	
1,3-Butadiene	106-99-0	0.052	0.13	0.33	Not Detected	
1,3-Dichlorobenzene	541-73-1	0.092	0.36	0.91	Not Detected	
1,4-Dioxane	123-91-1	0.079	0.22	0.54	0.098 J	
2,2,4-Trimethylpentane	540-84-1	0.22	1.4	3.5	Not Detected	
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.17	0.89	2.2	1.0 J	
2-Hexanone	591-78-6	0.17	1.2	3.1	Not Detected	
2-Propanol	67-63-0	0.16	0.74	1.8	2.6	
3-Chloropropene	107-05-1	0.74	0.94	2.4	Not Detected	J
4-Ethyltoluene	622-96-8	0.12	0.30	0.74	Not Detected	
4-Methyl-2-pentanone	108-10-1	0.14	0.25	0.62	Not Detected	
Acetone	67-64-1	0.58	0.72	3.6	9.9	
alpha-Chlorotoluene	100-44-7	0.13	0.31	0.78	Not Detected	
Bromodichloromethane	75-27-4	0.11	0.40	1.0	Not Detected	
Bromoform	75-25-2	0.22	0.62	1.6	Not Detected	
Bromomethane	74-83-9	0.35	1.2	2.9	Not Detected	
Carbon Disulfide	75-15-0	0.42	0.94	2.4	Not Detected	
Chlorobenzene	108-90-7	0.065	0.28	0.70	Not Detected	
cis-1,3-Dichloropropene	10061-01-5	0.068	0.27	0.68	Not Detected	
Cumene	98-82-8	0.078	0.30	0.74	Not Detected	

Client ID:	AA-3		
Lab ID:	2106711-02A	**Date/Time Analyzed:**	7/2/21 04:24 PM
Date/Time Collected:	6/24/21 06:30 PM	**Dilution Factor:**	1.51
Media:		**Instrument/Filename:**	msd21.i / 21070215

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)	
Cyclohexane	110-82-7	0.13	1.0	2.6	0.21 J	
Dibromochloromethane	124-48-1	0.16	0.51	1.3	Not Detected	
Ethanol	64-17-5	0.15	0.57	1.4	1.9	J
Freon 11	75-69-4	0.074	0.34	0.85	1.2	
Freon 113	76-13-1	0.16	0.46	1.2	0.46 J	
Heptane	142-82-5	0.19	1.2	3.1	Not Detected	
Hexachlorobutadiene	87-68-3	1.5	3.2	8.0	Not Detected	
Hexane	110-54-3	0.16	1.1	2.7	Not Detected	
Methylene Chloride	75-09-2	0.85	2.1	1.0	Not Detected	
Propylbenzene	103-65-1	0.11	0.30	0.74	Not Detected	
Styrene	100-42-5	0.065	0.26	0.64	Not Detected	
Tetrahydrofuran	109-99-9	0.22	0.89	2.2	Not Detected	
trans-1,3-Dichloropropene	10061-02-6	0.072	0.27	0.68	Not Detected	

D: Analyte not within the DoD scope of accreditation.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
1,2,3-Trimethylbenzene	526-73-8	NA		Not Detected
2-Nitropropane	79-46-9	NA		Not Detected
4-Chlorotoluene	106-43-4	NA		Not Detected
Acetonitrile	75-05-8	NA		Not Detected
Benzaldehyde	100-52-7	NA		Not Detected
bis(2-Chloroethyl) Ether	111-44-4	NA		Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Building 3VI

Client ID:	AA-3		
Lab ID:	2106711-02A	**Date/Time Analyzed:**	7/2/21 04:24 PM
Date/Time Collected:	6/24/21 06:30 PM	**Dilution Factor:**	1.51
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21070215

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
Cyclohexene	110-83-8	NA		Not Detected
Epichlorohydrin	106-89-8	NA		Not Detected
Ethyl Acetate	141-78-6	NA		Not Detected
Isobutanol	78-83-1	NA		Not Detected
Isopropyl ether	108-20-3	NA		Not Detected
Methacrylonitrile	126-98-7	NA		Not Detected
Methyl Acetate	79-20-9	NA		Not Detected
N,N-Dimethyl Aniline	121-69-7	NA		Not Detected
n-Butanol	71-36-3	NA		Not Detected
Nitrobenzene	98-95-3	NA		Not Detected
Pentane	109-66-0	NA		Not Detected
Propylene	115-07-1	NA		Not Detected
Pyridine	110-86-1	NA		Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	83
Toluene-d8	2037-26-5	70-130	99

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Building 3VI

Client ID:	AA-3		
Lab ID:	2106711-02B	**Date/Time Analyzed:**	7/2/21 04:24 PM
Date/Time Collected:	6/24/21 06:30 PM	**Dilution Factor:**	1.51
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21070215sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.0045	0.066	0.16	0.0082 J
1,1,2,2-Tetrachloroethane	79-34-5	0.026	0.083	0.21	Not Detected
1,1,2-Trichloroethane	79-00-5	0.015	0.066	0.16	Not Detected
1,1-Dichloroethane	75-34-3	0.033	0.049	0.12	Not Detected
1,1-Dichloroethene	75-35-4	0.0044	0.048	0.060	Not Detected
1,2-Dibromoethane (EDB)	106-93-4	0.015	0.093	0.23	Not Detected
1,2-Dichloroethane	107-06-2	0.0064	0.049	0.12	0.049 J
1,4-Dichlorobenzene	106-46-7	0.060	0.073	0.18	Not Detected
Benzene	71-43-2	0.014	0.038	0.24	0.10 J
Carbon Tetrachloride	56-23-5	0.0095	0.076	0.19	0.40
Chloroethane	75-00-3	0.0064	0.032	0.20	0.030 J
Chloroform	67-66-3	0.012	0.059	0.15	0.065 J
Chloromethane	74-87-3	0.19	0.62	1.6	0.71 J
cis-1,2-Dichloroethene	156-59-2	0.0072	0.048	0.12	Not Detected
Ethyl Benzene	100-41-4	0.0048	0.052	0.13	0.044 J
Freon 114	76-14-2	0.018	0.084	0.21	0.10 J
Freon 12	75-71-8	0.0055	0.060	3.7	2.1 J
m,p-Xylene	108-38-3	0.0080	0.052	0.26	0.15 J
Methyl tert-butyl ether	1634-04-4	0.0098	0.044	0.54	Not Detected
Naphthalene	91-20-3	0.10	0.16	0.40	0.12 J
o-Xylene	95-47-6	0.0092	0.052	0.13	0.052 J
Tetrachloroethene	127-18-4	0.011	0.082	0.20	0.048 J
Toluene	108-88-3	0.010	0.046	0.28	0.24 J
trans-1,2-Dichloroethene	156-60-5	0.0062	0.048	0.60	Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Building 3VI

Client ID:	AA-3		
Lab ID:	2106711-02B	**Date/Time Analyzed:**	7/2/21 04:24 PM
Date/Time Collected:	6/24/21 06:30 PM	**Dilution Factor:**	1.51
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21070215sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.015	0.065	0.16	0.017 J
Vinyl Chloride	75-01-4	0.0049	0.031	0.038	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	84
Toluene-d8	2037-26-5	70-130	93

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Building 3VI

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Client ID:	DUP-062421		
Lab ID:	2106711-03A	**Date/Time Analyzed:**	7/2/21 05:01 PM
Date/Time Collected:	6/24/21 12:00 AM	**Dilution Factor:**	1.39
Media:		**Instrument/Filename:**	msd21.i / 21070216

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)	
1,2,4-Trichlorobenzene	120-82-1	1.7	2.1	5.2	Not Detected	
1,2,4-Trimethylbenzene	95-63-6	0.12	0.27	0.68	Not Detected	
1,2-Dichlorobenzene	95-50-1	0.11	0.33	0.84	Not Detected	
1,2-Dichloropropane	78-87-5	0.065	0.26	0.64	Not Detected	
1,3,5-Trimethylbenzene	108-67-8	0.15	0.27	0.68	Not Detected	
1,3-Butadiene	106-99-0	0.048	0.12	0.31	Not Detected	
1,3-Dichlorobenzene	541-73-1	0.084	0.33	0.84	Not Detected	
1,4-Dioxane	123-91-1	0.072	0.20	0.50	0.19 J	
2,2,4-Trimethylpentane	540-84-1	0.20	1.3	3.2	Not Detected	
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.15	0.82	2.0	1.4 J	
2-Hexanone	591-78-6	0.16	1.1	2.8	0.19 J	
2-Propanol	67-63-0	0.15	0.68	1.7	6.4	
3-Chloropropene	107-05-1	0.68	0.87	2.2	Not Detected	J
4-Ethyltoluene	622-96-8	0.11	0.27	0.68	Not Detected	
4-Methyl-2-pentanone	108-10-1	0.13	0.23	0.57	0.15 J	
Acetone	67-64-1	0.54	0.66	3.3	12	
alpha-Chlorotoluene	100-44-7	0.12	0.29	0.72	Not Detected	
Bromodichloromethane	75-27-4	0.10	0.37	0.93	Not Detected	
Bromoform	75-25-2	0.20	0.57	1.4	Not Detected	
Bromomethane	74-83-9	0.32	1.1	2.7	Not Detected	
Carbon Disulfide	75-15-0	0.38	0.86	2.2	0.65 J	
Chlorobenzene	108-90-7	0.060	0.26	0.64	Not Detected	
cis-1,3-Dichloropropene	10061-01-5	0.062	0.25	0.63	Not Detected	
Cumene	98-82-8	0.072	0.27	0.68	Not Detected	

Client ID:	DUP-062421		
Lab ID:	2106711-03A	**Date/Time Analyzed:**	7/2/21 05:01 PM
Date/Time Collected:	6/24/21 12:00 AM	**Dilution Factor:**	1.39
Media:		**Instrument/Filename:**	msd21.i / 21070216

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Cyclohexane	110-82-7	0.12	0.96	2.4	1.6 J
Dibromochloromethane	124-48-1	0.14	0.47	1.2	Not Detected
Ethanol	64-17-5	0.14	0.52	1.3	100 J
Freon 11	75-69-4	0.068	0.31	0.78	1.1
Freon 113	76-13-1	0.15	0.43	1.1	0.38 J
Heptane	142-82-5	0.18	1.1	2.8	Not Detected
Hexachlorobutadiene	87-68-3	1.4	3.0	7.4	Not Detected
Hexane	110-54-3	0.14	0.98	2.4	Not Detected
Methylene Chloride	75-09-2	0.78	1.9	0.96	Not Detected
Propylbenzene	103-65-1	0.10	0.27	0.68	Not Detected
Styrene	100-42-5	0.060	0.24	0.59	0.093 J
Tetrahydrofuran	109-99-9	0.20	0.82	2.0	0.22 J
trans-1,3-Dichloropropene	10061-02-6	0.066	0.25	0.63	Not Detected

D: Analyte not within the DoD scope of accreditation.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
1,2,3-Trimethylbenzene	526-73-8	NA		Not Detected
2-Nitropropane	79-46-9	NA		Not Detected
4-Chlorotoluene	106-43-4	NA		Not Detected
Acetonitrile	75-05-8	NA		Not Detected
Benzaldehyde	100-52-7	NA		Not Detected
bis(2-Chloroethyl) Ether	111-44-4	NA		Not Detected

Client ID:	DUP-062421		
Lab ID:	2106711-03A	**Date/Time Analyzed:**	7/2/21 05:01 PM
Date/Time Collected:	6/24/21 12:00 AM	**Dilution Factor:**	1.39
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21070216

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
Cyclohexene	110-83-8	NA		Not Detected
Epichlorohydrin	106-89-8	NA		Not Detected
Ethyl Acetate	141-78-6	NA		Not Detected
Isobutanol	78-83-1	NA		Not Detected
Isopropyl ether	108-20-3	NA		Not Detected
Methacrylonitrile	126-98-7	NA		Not Detected
Methyl Acetate	79-20-9	NA		Not Detected
N,N-Dimethyl Aniline	121-69-7	NA		Not Detected
n-Butanol	71-36-3	NA		Not Detected
Nitrobenzene	98-95-3	NA		Not Detected
Pentane	109-66-0	86%		1.6 NJ
Propylene	115-07-1	NA		Not Detected
Pyridine	110-86-1	NA		Not Detected

J = Estimated value.
NJ =The identification is based on presumptive evidence; estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	80
Toluene-d8	2037-26-5	70-130	94

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Building 3VI

eurofins | Air Toxics

Client ID:	DUP-062421		
Lab ID:	2106711-03B	**Date/Time Analyzed:**	7/2/21 05:01 PM
Date/Time Collected:	6/24/21 12:00 AM	**Dilution Factor:**	1.39
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21070216sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.0042	0.061	0.15	0.015 J
1,1,2,2-Tetrachloroethane	79-34-5	0.024	0.076	0.19	Not Detected
1,1,2-Trichloroethane	79-00-5	0.014	0.061	0.15	Not Detected
1,1-Dichloroethane	75-34-3	0.031	0.045	0.11	Not Detected
1,1-Dichloroethene	75-35-4	0.0040	0.044	0.055	Not Detected
1,2-Dibromoethane (EDB)	106-93-4	0.014	0.085	0.21	Not Detected
1,2-Dichloroethane	107-06-2	0.0058	0.045	0.11	0.043 J
1,4-Dichlorobenzene	106-46-7	0.055	0.067	0.17	Not Detected
Benzene	71-43-2	0.012	0.036	0.22	0.12 J
Carbon Tetrachloride	56-23-5	0.0087	0.070	0.17	0.33
Chloroethane	75-00-3	0.0059	0.029	0.18	0.026 J
Chloroform	67-66-3	0.011	0.054	0.14	0.15
Chloromethane	74-87-3	0.17	0.57	1.4	0.74 J
cis-1,2-Dichloroethene	156-59-2	0.0067	0.044	0.11	0.022 J
Ethyl Benzene	100-41-4	0.0045	0.048	0.12	0.065 J
Freon 114	76-14-2	0.017	0.078	0.19	0.095 J
Freon 12	75-71-8	0.0051	0.055	3.4	2.2 J
m,p-Xylene	108-38-3	0.0074	0.048	0.24	0.22 J
Methyl tert-butyl ether	1634-04-4	0.0090	0.040	0.50	Not Detected
Naphthalene	91-20-3	0.092	0.14	0.36	0.42
o-Xylene	95-47-6	0.0084	0.048	0.12	0.093 J
Tetrachloroethene	127-18-4	0.0098	0.075	0.19	0.060 J
Toluene	108-88-3	0.0096	0.042	0.26	0.51
trans-1,2-Dichloroethene	156-60-5	0.0057	0.044	0.55	Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Building 3VI

Client ID:	DUP-062421		
Lab ID:	2106711-03B	**Date/Time Analyzed:**	7/2/21 05:01 PM
Date/Time Collected:	6/24/21 12:00 AM	**Dilution Factor:**	1.39
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd21.i / 21070216sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.014	0.060	0.15	0.15
Vinyl Chloride	75-01-4	0.0045	0.028	0.036	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	85
Toluene-d8	2037-26-5	70-130	94

ARCADIS Design & Consultancy for natural and built assets

Bristol Myers Squibb

Thompson Road Investigation

Data Usability Summary Report

Syracuse, NY

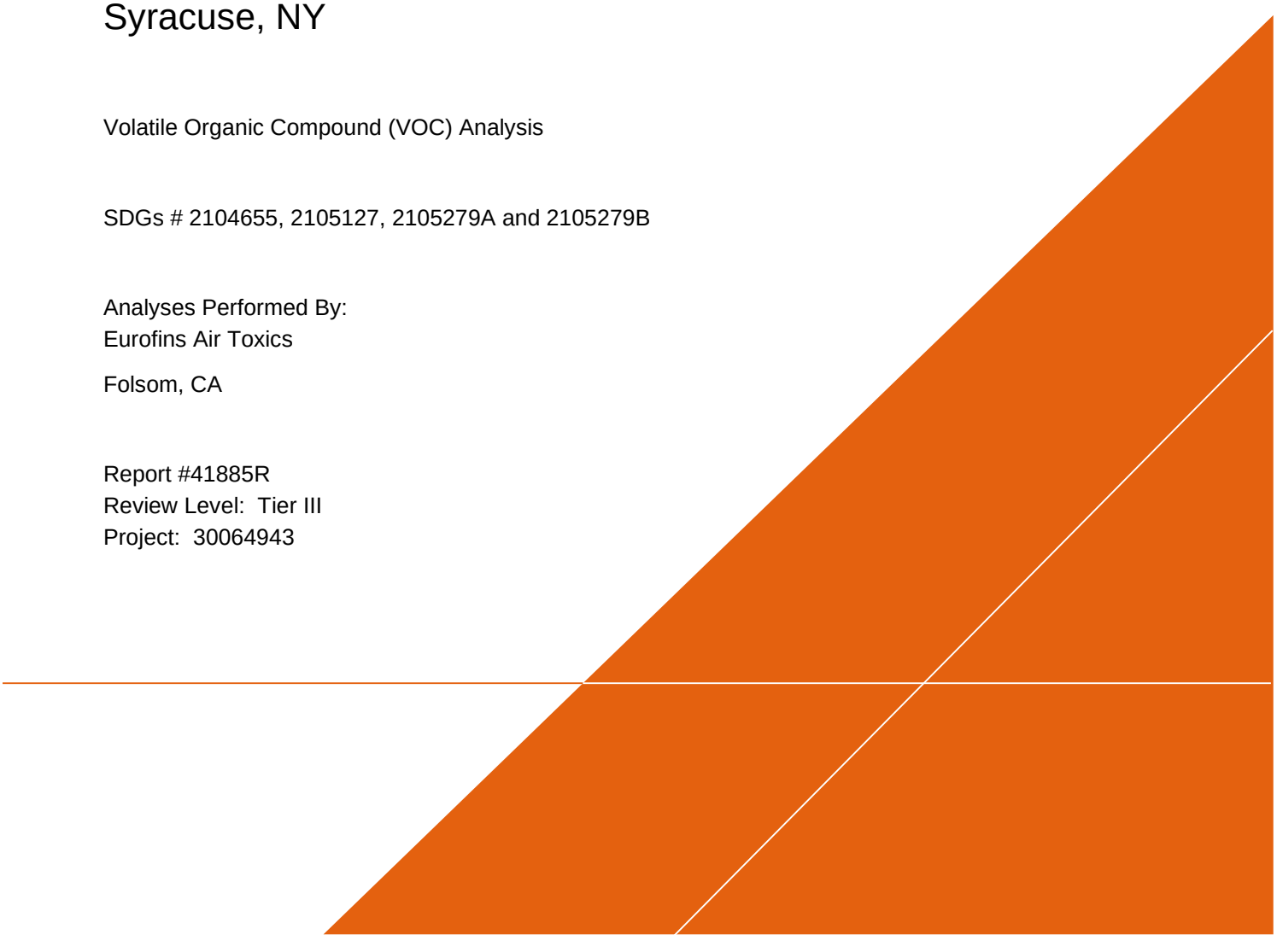
Volatile Organic Compound (VOC) Analysis

SDGs # 2104655, 2105127, 2105279A and 2105279B

Analyses Performed By:
Eurofins Air Toxics

Folsom, CA

Report #41885R
Review Level: Tier III
Project: 30064943



SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) # 2104655, 2105127, 2105279A and 2105279B for samples collected in association with the Bristol Myers Squibb Thompson Road Site. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

SDG Number	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PFAS	MET	ALD
2104655	IA-3_042921	2104655-01	Air	4/29/2021		X				
2105127	IA-3_050621	2105127-01	Air	5/6/2021		X				
2105279A	IA-3_051321	2105279A-01	Air	5/13/2021		X				
2105279B	IA-3_051321	2105279B-01	Air	5/13/2021		X				

Note: SDG 2105279B is a reanalysis of the sample in 2105279A to meet the required action limits for Trichloroethene.

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

Note:
QA - Quality Assurance

List of Acronyms

%D: Percent Difference

%R: Percent Recovery

AC: Acceptable

ALC/GLY: Alcohols/Glycols

BAL: Blank Action Level

CCV: Continuing Calibration Verification

CRDL: Contract Required Detection Limit

D: Dilution

EIS: Extractable Internal Standard

FB: Field Blank

FD: Field Duplicate

ALD: Aldehydes

GC/ECD: Gas Chromatograph/Electron Capture Detector

GC/MS: Gas Chromatograph/Mass spectrometer

HT: Holding Time

ICP: Inductively Coupled Plasma

ICS: Interference Control Sample

ICV: Initial Calibration Verification

ISTD: Internal Standards

LabDup: Laboratory Duplicate

LCS: Lab Control Sample

LCSD: Lab Control Sample Duplicate

LL: Lower Control Limit

MB: Method Blank

MDL: Method Detection Limit

MET: Metals

MS: Matrix Spike

MSD: Matrix Spike Duplicate

N/A: Not Applicable

NC: Not Compliant

List of Acronyms, Continued

PAH: Polyaromatic Hydrocarbon

PCB: Polychlorinated Biphenyl

PEST: Pesticide

PFAS: Per- and Polyfluoroalkyl Substances

QA: Quality Assurance

QC: Quality Control

RB: Rinse Blank

RL: Reporting Limit

RPD: Relative Percent Difference

RRF: Relative Response Factor

RSD: Relative Standard Deviation

RT: Retention Time

SDG: Sample Delivery Group

SerDil: Serial Dilution

SIM: Single Ion Monitoring

SOP: Standard Operating Procedure

SSTD: Surrogate Standards

SVOC: Semivolatile Organic Compound

TB: Trip Blank

TIC: Tentatively Identified Compound

TOC: Total Organic Carbon

TOTDIS: Total and Dissolved

UL: Upper Control Limit

USEPA: United States Environmental Protection Agency

VOC: Volatile Organic Compound

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Method TO-15. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999, USEPA Region II SOP HW-31- Validating Air Samples Volatile Organic Analysis of Ambient Air In Canister by Method TO-15 of October 2006, New York State DEC Analytical Method ASP 2005 TO-15 (QA/QC Criteria R9 TO-15), and NYSDEC Modifications to R9 TO-15 QA/QC Criteria October 2009.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
  - UB Analyte considered non-detect at the listed value due to associated blank contamination.
  - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
  - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation	Return Canister Pressure
USEPA TO-15	Air	30 days from collection to analysis	Ambient Temperature	< -1" Hg

All samples were analyzed within the specified holding time and canister return pressure / vacuum criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

All compounds associated with the QA blanks exhibited a concentration less than the MDL, with the exception of the compounds listed in the following table. Sample results associated with QA blank contamination that were greater than the BAL resulted in the removal of the laboratory qualifier (B) of data. Sample results less than the BAL associated with the following sample locations were qualified as listed in the following table.

Sample Locations	Analytes	Sample Result	Qualification
IA-3_051321	Trichloroethene	Detected sample results <RL and <BAL	“UB” at the RL

Note:

RL Reporting limit

3. Mass Spectrometer Tuning

Mass spectrometer performance was acceptable and all analyses were performed within a 12-hour tune clock.

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

The method specifies percent relative standard deviation (%RSD) and relative response factor (RRF) limits for select compounds only. A technical review of the data applies limits to all compounds with no exceptions.

All target compounds associated with the initial calibration standards must exhibit a %RSD less than the control limit (30%) or a correlation coefficient greater than 0.99 and an RRF value greater than control limit (0.05).

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (30%) and RRF value greater than control limit (0.05).

Compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compound	Criteria
IA-3_042921 IA-3_051321	ICV %RSD	Bromomethane	32.9%
IA-3_050621	ICV %RSD	Freon 11	33.1%
	CCV %D	Bromomethane	-33.1%
	CCV %D	Carbon Tetrachloride	39.0%
IA-3_051321	CCV %D	Carbon Tetrachloride	30.7%

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified.

Initial/Continuing	Criteria	Sample Result	Qualification
Initial and Continuing Calibration	RRF <0.05	Non-detect	R
		Detect	J
	RRF <0.01[1]	Non-detect	R
		Detect	J
	RRF >0.05 or RRF >0.01[1]	Non-detect	No Action

Initial/Continuing	Criteria	Sample Result	Qualification
		Detect	
Initial Calibration	%RSD > 15% or a correlation coefficient <0.99	Non-detect	UJ
		Detect	J
	%RSD >90%	Non-detect	R
		Detect	J
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J
	%D >90% (increase/decrease in sensitivity)	Non-detect	R
		Detect	J

Note:

[1] RRF of 0.01 only applies to compounds which are typically poor responding compounds (i.e., ketones, 1,4-dioxane, etc.)

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit a percent recovery within the established acceptance limits of 70% to 130%.

Surrogate recoveries were within control limits.

6. Internal Standard Performance

Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria requires the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

Internal standard responses were within control limits.

7. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the established acceptance limits of 70% to 130%.

Sample locations associated with LCS/LCSD analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery	LCSD Recovery
IA-3_050621	Carbon Tetrachloride	<LL but >10%	<LL but >10%
	Hexachlorobutadiene	>UL	AC

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

8. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for air matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for air matrices.

A field duplicate was not included with this SDG.

9. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Sample results associated with compound that exhibited a concentration greater than the linear range of the instrument calibration are summarized in the following table.

Sample ID	Compound	Original Analysis	Diluted Analysis	Reported Analysis
IA-3_042921	Ethanol	-	3000 E	3000 EJ
IA-3_050621	Ethanol	-	1600 E	1600 EJ
IA-3_051321	Ethanol	-	3300 E	3300 EJ

Note: In the instance where both the original analysis and the diluted analysis sample results exhibited a concentration greater than and/or less than the calibration linear range of the instrument; the sample result exhibiting the greatest concentration will be reported as the final result.

Sample results associated with compounds exhibiting concentrations greater than the linear range are qualified as documented in the table below when reported as the final reported sample result.

Reported Sample Results	Qualification
Diluted sample result within calibration range	D
Diluted sample result less than the calibration range	DJ
Diluted sample result greater than the calibration range	EDJ
Original sample result greater than the calibration range	EJ

10. System Performance and Overall Assessment

Please note, the laboratory includes a Limit of Detection (LOD) in the laboratory report which is specific to Department of Defense (DOD) reporting and should not be considered for this site/project. Only the Reporting Limit (RL) and Method Detection Limit (MDL) are stored in the database for this data set.

SDG 2105279B is a reanalysis of the sample in 2105279A to meet the required action limits for Trichloroethene. The result for Trichloroethene associated with IA-3_051321 is reported from SDG 2105279B.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: TO-15	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Canister return pressure (<-1"Hg)		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X	X		
B. Equipment blanks	X				X
C. Trip blanks	X				X
Laboratory Control Sample (LCS)		X	X		
Laboratory Control Sample Duplicate (LCSD)		X	X		
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS)	X				X
Matrix Spike Duplicate (MSD)	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X
Tier III Validation					
System performance and column resolution		X		X	
Initial calibration %RSDs		X	X		
Continuing calibration RRFs		X		X	
Continuing calibration %Ds		X	X		
Instrument tune and performance check		X		X	
Ion abundance criteria for each instrument used		X		X	
Internal standard		X		X	
Compound identification and quantitation					
A. Reconstructed ion chromatograms		X		X	

VOCs: TO-15	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
B. Quantitation Reports		X		X	
C. RT of sample compounds within the established RT windows		X		X	
D. Transcription/calculation errors present		X		X	
E. Reporting limits adjusted to reflect sample dilutions		X		X	

Notes:

%RSD Relative standard deviation
%R Percent recovery
RPD Relative percent difference
%D Percent difference

SAMPLE COMPLIANCE REPORT

Sample Delivery Group (SDG)	Sampling Date	Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	ALD	PFAS	MET	
2104655	4/29/2021	SW846	IA-3_042921	Air	No	-	-	-	-	VOC: ICV %RSD
2105127	5/6/2021	SW846	IA-3_050621	Air	No	-	-	-	-	VOC: CCV %D
2105279A	5/13/2021	SW846	IA-3_051321	Air	No					VOC: ICV %RSD
2105279B	5/13/2021	SW846	IA-3_051321	Air	No	-	-	-	-	VOC: ICV %RSD, MB

Note:

1 Samples which are compliant with no added validation qualifiers are listed as "yes". Samples which are non-compliant or which have added qualifiers are listed as "no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

VALIDATION PERFORMED BY: Jeffrey L. Davin

SIGNATURE: 

DATE: June 24, 2021

PEER REVIEW: Dennis K. Capria

DATE: June 29, 2021

CHAIN OF CUSTODY

CORRECTED SAMPLE ANALYSIS DATA SHEETS

Eurofins | Air Toxics

Analysis Request/Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: 2104655

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:
Canister Sampling Guide
Helium Shroud Video

Client: Arcadis PID:
Project Name: BMS Bldg 3
Project Manager: Daniel Zuck P.O.# 3006494
Sampler: Daniel Zuck
Site Name:

Special Instructions/Notes:
Report Prelim Results by 5/5/21 to Daniel.Zuck@Arcadis.com

Turnaround Time (Rush surcharges may apply)
Select TAT from drop down box: Due By 5/5/21

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Canister Vacuum/Pressure		Lab Use Only		Requested Analyses			
				Date	Time	Date	Time	Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N_2 / He	BMS Project TO-15 List			
01A	IA-3	6L0742	23409	4/29/21	0805	4/29/21	1610	-29.5	-6			X			

Relinquished by: (Signature/Affiliation)	Date 4/29/21	Time 1700	Received by: (Signature/Affiliation)	Date 4/30/21 Time 1005
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date Time

Lab Use Only

Shipper Name: Daniel Zuck via Fedex Custody Seals Intact? Yes No None

c signature only No date. JL 4/30/21

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

Client ID:	IA-3		
Lab ID:	2104655-01A	**Date/Time Analyzed:**	5/3/21 01:01 PM
Date/Time Collected:	4/29/21 04:10 PM	**Dilution Factor:**	1.45
Media:		**Instrument/Filename:**	msdv.i / v050309

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	2.4	4.3	5.4	Not Detected
1,2,4-Trimethylbenzene	95-63-6	0.30	0.57	0.71	Not Detected
1,2-Dichlorobenzene	95-50-1	0.52	0.70	0.87	Not Detected
1,2-Dichloropropane	78-87-5	0.31	0.54	0.67	Not Detected
1,3,5-Trimethylbenzene	108-67-8	0.36	0.57	0.71	Not Detected
1,3-Butadiene	106-99-0	0.13	0.26	0.32	Not Detected
1,3-Dichlorobenzene	541-73-1	0.26	0.70	0.87	Not Detected
1,4-Dioxane	123-91-1	0.29	0.42	0.52	0.36 J
2,2,4-Trimethylpentane	540-84-1	0.75	2.7	3.4	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	0.35	1.7	2.1	1.5 J
2-Hexanone	591-78-6	0.43	2.4	3.0	Not Detected
2-Propanol	67-63-0	0.39	1.4	1.8	130
3-Chloropropene	107-05-1	1.1	1.8	2.3	Not Detected
4-Ethyltoluene	622-96-8	0.27	0.57	0.71	Not Detected
4-Methyl-2-pentanone	108-10-1	0.13	0.48	0.59	Not Detected
Acetone	67-64-1	0.62	1.4	3.4	22
alpha-Chlorotoluene	100-44-7	0.46	0.60	0.75	Not Detected
Bromodichloromethane	75-27-4	0.30	0.78	0.97	Not Detected
Bromoform	75-25-2	0.46	1.2	1.5	Not Detected
Bromomethane	74-83-9	0.55	2.2	2.8	Not Detected J
Carbon Disulfide	75-15-0	0.33	1.8	2.2	Not Detected
Chlorobenzene	108-90-7	0.21	0.53	0.67	Not Detected
cis-1,3-Dichloropropene	10061-01-5	0.25	0.53	0.66	Not Detected
Cumene	98-82-8	0.094	0.57	0.71	Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Bldg 3

eurofins | Air Toxics

Client ID:	IA-3		
Lab ID:	2104655-01A	**Date/Time Analyzed:**	5/3/21 01:01 PM
Date/Time Collected:	4/29/21 04:10 PM	**Dilution Factor:**	1.45
Media:		**Instrument/Filename:**	msdv.i / v050309

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Cyclohexane	110-82-7	0.20	0.40	2.5	Not Detected
Dibromochloromethane	124-48-1	0.49	0.99	1.2	Not Detected
Ethanol	64-17-5	0.39	1.1	1.4	3000 E J
Freon 11	75-69-4	0.18	0.65	0.81	1.3
Freon 113	76-13-1	0.46	0.89	1.1	Not Detected
Heptane	142-82-5	0.55	2.4	3.0	Not Detected
Hexachlorobutadiene	87-68-3	2.4	6.2	7.7	Not Detected
Hexane	110-54-3	0.43	2.0	2.6	Not Detected
Methylene Chloride	75-09-2	0.25	0.40	1.0	0.69 J
Propylbenzene	103-65-1	0.42	0.57	0.71	Not Detected
Styrene	100-42-5	0.18	0.49	0.62	0.52 J
Tetrahydrofuran	109-99-9	0.73	1.7	2.1	0.93 J
trans-1,3-Dichloropropene	10061-02-6	0.28	0.53	0.66	Not Detected

D: Analyte not within the DoD scope of accreditation.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
1,2,3-Trimethylbenzene	526-73-8	NA		Not Detected
2-Nitropropane	79-46-9	NA		Not Detected
4-Chlorotoluene	106-43-4	NA		Not Detected
Acetonitrile	75-05-8	NA		Not Detected
Benzaldehyde	100-52-7	NA		Not Detected
bis(2-Chloroethyl) Ether	111-44-4	NA		Not Detected

Client ID:	IA-3		
Lab ID:	2104655-01A	**Date/Time Analyzed:**	5/3/21 01:01 PM
Date/Time Collected:	4/29/21 04:10 PM	**Dilution Factor:**	1.45
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msdv.i / v050309

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
Cyclohexene	110-83-8	NA		Not Detected
Epichlorohydrin	106-89-8	NA		Not Detected
Ethyl Acetate	141-78-6	NA		Not Detected
Isobutanol	78-83-1	NA		Not Detected
Isopropyl ether	108-20-3	NA		Not Detected
Methacrylonitrile	126-98-7	NA		Not Detected
Methyl Acetate	79-20-9	NA		Not Detected
N,N-Dimethyl Aniline	121-69-7	NA		Not Detected
n-Butanol	71-36-3	NA		Not Detected
Nitrobenzene	98-95-3	NA		Not Detected
Pentane	109-66-0	NA		Not Detected
Propylene	115-07-1	72%		2.1 NJ
Pyridine	110-86-1	NA		Not Detected

E = Exceeds instrument calibration range.
J = Estimated value.
NJ =The identification is based on presumptive evidence; estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	96

Client ID:	IA-3		
Lab ID:	2104655-01B	**Date/Time Analyzed:**	5/3/21 01:01 PM
Date/Time Collected:	4/29/21 04:10 PM	**Dilution Factor:**	1.45
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msdv.i / v050309sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.045	0.14	0.16	Not Detected
1,1,2,2-Tetrachloroethane	79-34-5	0.11	0.18	0.20	Not Detected
1,1,2-Trichloroethane	79-00-5	0.061	0.14	0.16	Not Detected
1,1-Dichloroethane	75-34-3	0.035	0.10	0.12	Not Detected
1,1-Dichloroethene	75-35-4	0.049	0.053	0.057	Not Detected
1,2-Dibromoethane (EDB)	106-93-4	0.088	0.20	0.22	Not Detected
1,2-Dichloroethane	107-06-2	0.048	0.10	0.12	0.051 J
1,4-Dichlorobenzene	106-46-7	0.16	0.16	0.17	Not Detected
Benzene	71-43-2	0.031	0.083	0.23	0.46
Carbon Tetrachloride	56-23-5	0.11	0.16	0.18	0.33
Chloroethane	75-00-3	0.030	0.069	0.19	0.10 J
Chloroform	67-66-3	0.061	0.13	0.14	0.15
Chloromethane	74-87-3	0.042	0.054	1.5	1.1 J
cis-1,2-Dichloroethene	156-59-2	0.038	0.10	0.11	0.060 J
Ethyl Benzene	100-41-4	0.042	0.11	0.12	0.12 J
Freon 114	76-14-2	0.054	0.18	0.20	0.11 J
Freon 12	75-71-8	0.057	0.13	3.6	2.1 J
m,p-Xylene	108-38-3	0.041	0.11	0.25	0.38
Methyl tert-butyl ether	1634-04-4	0.029	0.094	0.52	Not Detected
Naphthalene	91-20-3	0.093	0.19	0.38	0.22 J
o-Xylene	95-47-6	0.034	0.11	0.12	0.15
Tetrachloroethene	127-18-4	0.080	0.18	0.20	0.16 J
Toluene	108-88-3	0.052	0.098	0.27	0.58
trans-1,2-Dichloroethene	156-60-5	0.044	0.10	0.57	Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Bldg 3

Client ID:	IA-3		
Lab ID:	2104655-01B	**Date/Time Analyzed:**	5/3/21 01:01 PM
Date/Time Collected:	4/29/21 04:10 PM	**Dilution Factor:**	1.45
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msdv.i / v050309sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.060	0.14	0.16	0.28
Vinyl Chloride	75-01-4	0.020	0.034	0.037	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	98
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	98

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Analysis Request/Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: 2105127

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:
Canister Sampling Guide
Helium Shroud Video

Client: Arcadis PID: _____
Project Name: BMS Syracuse
Project Manager: Daniel Zuck P.O.# 30064943.1
Sampler: Daniel Zuck
Site Name: BMS Building 3 VI

Special Instructions/Notes:
Please Report Results By Weds. 5/12/2021.

Turnaround Time (Rush surcharges may apply)
Select TAT from drop down box: 3 Day TAT

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Canister Vacuum/Pressure		Lab Use Only		Requested Analyses			
				Date	Time	Date	Time	Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N_2 / He	TO-15 BMS list			
OA	IA-3	6L0736	25317	5/6/21	0825	5/6/21	1632	-30	-6						

Relinquished by: (Signature/Affiliation) Arcadis	Date 5/6/21	Time 1645	Received by: (Signature/Affiliation)	Date 5/7/21 Time 1030
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date Time

Lab Use Only

Shipper Name: Fedex | Custody Seals Intact? (Yes) No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

Client ID:	IA-3		
Lab ID:	2105127-01A	**Date/Time Analyzed:**	5/10/21 04:52 PM
Date/Time Collected:	5/6/21 04:32 PM	**Dilution Factor:**	6.65
Media:		**Instrument/Filename:**	msd20.i / 20051014

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	3.5	15	25	Not Detected
1,2,4-Trimethylbenzene	95-63-6	0.23	2.0	3.3	Not Detected
1,2-Dichlorobenzene	95-50-1	0.39	2.4	4.0	Not Detected
1,2-Dichloropropane	78-87-5	0.90	1.8	3.1	Not Detected
1,3,5-Trimethylbenzene	108-67-8	0.46	2.0	3.3	Not Detected
1,3-Butadiene	106-99-0	0.30	0.88	1.5	Not Detected
1,3-Dichlorobenzene	541-73-1	0.43	2.4	4.0	Not Detected
1,4-Dioxane	123-91-1	0.50	1.4	2.4	Not Detected
2,2,4-Trimethylpentane	540-84-1	1.6	9.3	16	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	1.1	5.9	9.8	Not Detected
2-Hexanone	591-78-6	1.2	8.2	14	Not Detected
2-Propanol	67-63-0	1.9	4.9	8.2	68
3-Chloropropene	107-05-1	1.6	6.2	10	Not Detected
4-Ethyltoluene	622-96-8	0.39	2.0	3.3	Not Detected
4-Methyl-2-pentanone	108-10-1	0.33	1.6	2.7	Not Detected
Acetone	67-64-1	7.0	7.9	16	11 J
alpha-Chlorotoluene	100-44-7	0.70	2.1	3.4	Not Detected
Bromodichloromethane	75-27-4	0.63	2.7	4.4	Not Detected
Bromoform	75-25-2	0.75	4.1	6.9	Not Detected
Bromomethane	74-83-9	5.9	12	13	Not Detected J
Carbon Disulfide	75-15-0	0.92	6.2	10	Not Detected
Chlorobenzene	108-90-7	0.44	1.8	3.1	Not Detected
cis-1,3-Dichloropropene	10061-01-5	0.49	1.8	3.0	Not Detected
Cumene	98-82-8	0.26	2.0	3.3	Not Detected

Client ID:	IA-3		
Lab ID:	2105127-01A	**Date/Time Analyzed:**	5/10/21 04:52 PM
Date/Time Collected:	5/6/21 04:32 PM	**Dilution Factor:**	6.65
Media:		**Instrument/Filename:**	msd20.i / 20051014

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Cyclohexane	110-82-7	1.8	6.9	11	Not Detected
Dibromochloromethane	124-48-1	0.59	3.4	5.7	Not Detected
Ethanol	64-17-5	2.3	3.8	6.3	1600 E J
Freon 11	75-69-4	1.0	2.2	3.7	1.1 J
Freon 113	76-13-1	0.75	3.0	5.1	Not Detected
Heptane	142-82-5	1.4	8.2	14	Not Detected
Hexachlorobutadiene	87-68-3	5.0	21	35	Not Detected
Hexane	110-54-3	1.1	7.0	12	Not Detected
Methylene Chloride	75-09-2	2.2	4.2	4.6	Not Detected
Propylbenzene	103-65-1	0.32	2.0	3.3	Not Detected
Styrene	100-42-5	0.29	1.7	2.8	Not Detected
Tetrahydrofuran	109-99-9	1.1	5.9	9.8	Not Detected
trans-1,3-Dichloropropene	10061-02-6	0.57	1.8	3.0	Not Detected

D: Analyte not within the DoD scope of accreditation.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
1,2,3-Trimethylbenzene	526-73-8	NA		Not Detected
2-Nitropropane	79-46-9	NA		Not Detected
4-Chlorotoluene	106-43-4	NA		Not Detected
Acetonitrile	75-05-8	NA		Not Detected
Benzaldehyde	100-52-7	NA		Not Detected
bis(2-Chloroethyl) Ether	111-44-4	NA		Not Detected

Client ID:	IA-3		
Lab ID:	2105127-01A	**Date/Time Analyzed:**	5/10/21 04:52 PM
Date/Time Collected:	5/6/21 04:32 PM	**Dilution Factor:**	6.65
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd20.i / 20051014

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
Cyclohexene	110-83-8	NA		Not Detected
Epichlorohydrin	106-89-8	NA		Not Detected
Ethyl Acetate	141-78-6	NA		Not Detected
Isobutanol	78-83-1	NA		Not Detected
Isopropyl ether	108-20-3	NA		Not Detected
Methacrylonitrile	126-98-7	NA		Not Detected
Methyl Acetate	79-20-9	NA		Not Detected
N,N-Dimethyl Aniline	121-69-7	NA		Not Detected
n-Butanol	71-36-3	NA		Not Detected
Nitrobenzene	98-95-3	NA		Not Detected
Pentane	109-66-0	NA		Not Detected
Propylene	115-07-1	NA		Not Detected
Pyridine	110-86-1	NA		Not Detected

J = Estimated value.
E = Exceeds instrument calibration range.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	104
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Syracuse

Client ID:	IA-3		
Lab ID:	2105127-01B	**Date/Time Analyzed:**	5/10/21 04:52 PM
Date/Time Collected:	5/6/21 04:32 PM	**Dilution Factor:**	6.65
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd20.i / 20051014sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.041	0.69	0.72	Not Detected
1,1,2,2-Tetrachloroethane	79-34-5	0.60	0.87	0.91	Not Detected
1,1,2-Trichloroethane	79-00-5	0.14	0.69	0.72	Not Detected
1,1-Dichloroethane	75-34-3	0.075	0.51	0.54	Not Detected
1,1-Dichloroethene	75-35-4	0.016	0.053	0.26	Not Detected
1,2-Dibromoethane (EDB)	106-93-4	0.29	0.97	1.0	Not Detected
1,2-Dichloroethane	107-06-2	0.096	0.51	0.54	Not Detected
1,4-Dichlorobenzene	106-46-7	0.52	0.76	0.80	Not Detected
Benzene	71-43-2	0.087	0.40	1.1	0.21 J
Carbon Tetrachloride	56-23-5	0.21	0.80	0.84	0.28 J
Chloroethane	75-00-3	0.063	0.33	0.88	Not Detected
Chloroform	67-66-3	0.14	0.62	0.65	0.15 J
Chloromethane	74-87-3	0.11	0.26	6.9	0.87 J
cis-1,2-Dichloroethene	156-59-2	0.082	0.50	0.53	Not Detected
Ethyl Benzene	100-41-4	0.11	0.55	0.58	Not Detected
Freon 114	76-14-2	0.12	0.88	0.93	Not Detected
Freon 12	75-71-8	0.13	0.62	16	2.0 J
m,p-Xylene	108-38-3	0.12	0.55	1.2	0.28 J
Methyl tert-butyl ether	1634-04-4	0.12	0.46	2.4	Not Detected
Naphthalene	91-20-3	0.23	0.26	1.7	Not Detected
o-Xylene	95-47-6	0.11	0.55	0.58	Not Detected
Tetrachloroethene	127-18-4	0.20	0.86	0.90	Not Detected
Toluene	108-88-3	0.079	0.48	1.2	0.72 J
trans-1,2-Dichloroethene	156-60-5	0.059	0.50	2.6	Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Syracuse

Client ID:	IA-3		
Lab ID:	2105127-01B	**Date/Time Analyzed:**	5/10/21 04:52 PM
Date/Time Collected:	5/6/21 04:32 PM	**Dilution Factor:**	6.65
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd20.i / 20051014sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.12	0.68	0.71	0.26 J
Vinyl Chloride	75-01-4	0.014	0.034	0.17	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	99
4-Bromofluorobenzene	460-00-4	70-130	95
Toluene-d8	2037-26-5	70-130	100

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Analysis Request/Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: 2105279

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Phone (800) 985-5955; Fax (916) 351-8279

Click links below to view:
Canister Sampling Guide
Helium Shroud Video

Client: Arcadis PID: _____
Project Name: BMS Syracuse
Project Manager: Daniel Zuck P.O.#: _____
Sampler: Daniel Zuck
Site Name: Building 3 VI

Special Instructions/Notes:
Please Report Results
Bx

Turnaround Time (Rush surcharges may apply)
Select TAT from drop down box: 3 Day

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Canister Vacuum/Pressure		Lab Use Only		Requested Analyses			
				Date	Time	Date	Time	Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N_2 / He	BMS 1,4 Dioxane, 1,4 TICs			
01A	IA-3	6L0453	23255	5/13/21	0815	5/13/21	1615	-31	-4			1			

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Arcadis	5/13/21	1630	FAL	05/14/21	1005
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only

Shipper Name: Fedex | Custody Seals Intact? | Yes | No | None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

Client ID:	IA-3		
Lab ID:	2105279A-01A	**Date/Time Analyzed:**	5/17/21 07:24 PM
Date/Time Collected:	5/13/21 04:15 PM	**Dilution Factor:**	14.3
Media:		**Instrument/Filename:**	msdv.i / v051717

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,2,4-Trichlorobenzene	120-82-1	24	42	53	Not Detected
1,2,4-Trimethylbenzene	95-63-6	3.0	5.6	7.0	Not Detected
1,2-Dichlorobenzene	95-50-1	5.1	6.9	8.6	Not Detected
1,2-Dichloropropane	78-87-5	3.1	5.3	6.6	Not Detected
1,3,5-Trimethylbenzene	108-67-8	3.6	5.6	7.0	Not Detected
1,3-Butadiene	106-99-0	1.3	2.5	3.2	Not Detected
1,3-Dichlorobenzene	541-73-1	2.6	6.9	8.6	Not Detected
1,4-Dioxane	123-91-1	2.9	4.1	5.2	Not Detected
2,2,4-Trimethylpentane	540-84-1	7.4	27	33	Not Detected
2-Butanone (Methyl Ethyl Ketone)	78-93-3	3.4	17	21	Not Detected
2-Hexanone	591-78-6	4.2	23	29	Not Detected
2-Propanol	67-63-0	3.8	14	18	82
3-Chloropropene	107-05-1	11	18	22	Not Detected
4-Ethyltoluene	622-96-8	2.7	5.6	7.0	Not Detected
4-Methyl-2-pentanone	108-10-1	1.3	4.7	5.8	Not Detected
Acetone	67-64-1	6.1	14	34	11 J
alpha-Chlorotoluene	100-44-7	4.6	5.9	7.4	Not Detected
Bromodichloromethane	75-27-4	3.0	7.7	9.6	Not Detected
Bromoform	75-25-2	4.6	12	15	Not Detected
Bromomethane	74-83-9	5.4	22	28	Not Detected J
Carbon Disulfide	75-15-0	3.3	18	22	Not Detected
Chlorobenzene	108-90-7	2.0	5.3	6.6	Not Detected
cis-1,3-Dichloropropene	10061-01-5	2.5	5.2	6.5	Not Detected
Cumene	98-82-8	0.92	5.6	7.0	Not Detected

Client ID:	IA-3		
Lab ID:	2105279A-01A	**Date/Time Analyzed:**	5/17/21 07:24 PM
Date/Time Collected:	5/13/21 04:15 PM	**Dilution Factor:**	14.3
Media:		**Instrument/Filename:**	msdv.i / v051717

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Cyclohexane	110-82-7	1.9	3.9	25	Not Detected
Dibromochloromethane	124-48-1	4.8	9.7	12	Not Detected
Ethanol	64-17-5	3.9	11	13	3300 E J
Freon 11	75-69-4	1.8	6.4	8.0	Not Detected
Freon 113	76-13-1	4.5	8.8	11	Not Detected
Heptane	142-82-5	5.4	23	29	Not Detected
Hexachlorobutadiene	87-68-3	24	61	76	Not Detected
Hexane	110-54-3	4.2	20	25	Not Detected
Methylene Chloride	75-09-2	2.4	4.0	9.9	Not Detected
Propylbenzene	103-65-1	4.1	5.6	7.0	Not Detected
Styrene	100-42-5	1.7	4.9	6.1	Not Detected
Tetrahydrofuran	109-99-9	7.2	17	21	Not Detected
trans-1,3-Dichloropropene	10061-02-6	2.7	5.2	6.5	Not Detected

D: Analyte not within the DoD scope of accreditation.

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
1,2,3-Trimethylbenzene	526-73-8	NA		Not Detected
2-Nitropropane	79-46-9	NA		Not Detected
4-Chlorotoluene	106-43-4	NA		Not Detected
Acetonitrile	75-05-8	NA		Not Detected
Benzaldehyde	100-52-7	NA		Not Detected
bis(2-Chloroethyl) Ether	111-44-4	NA		Not Detected

Client ID:	IA-3		
Lab ID:	2105279A-01A	**Date/Time Analyzed:**	5/17/21 07:24 PM
Date/Time Collected:	5/13/21 04:15 PM	**Dilution Factor:**	14.3
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msdv.i / v051717

TENTATIVELY IDENTIFIED COMPOUNDS

Compound	CAS#	Match	LOD	Amount ppbv
Cyclohexene	110-83-8	NA		Not Detected
Epichlorohydrin	106-89-8	NA		Not Detected
Ethyl Acetate	141-78-6	NA		Not Detected
Isobutanol	78-83-1	NA		Not Detected
Isopropyl ether	108-20-3	NA		Not Detected
Methacrylonitrile	126-98-7	NA		Not Detected
Methyl Acetate	79-20-9	NA		Not Detected
N,N-Dimethyl Aniline	121-69-7	NA		Not Detected
n-Butanol	71-36-3	NA		Not Detected
Nitrobenzene	98-95-3	NA		Not Detected
Pentane	109-66-0	NA		Not Detected
Propylene	115-07-1	NA		Not Detected
Pyridine	110-86-1	NA		Not Detected

E = Exceeds instrument calibration range.
J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	96
Toluene-d8	2037-26-5	70-130	93

Client ID:	IA-3		
Lab ID:	2105279A-01B	**Date/Time Analyzed:**	5/17/21 07:24 PM
Date/Time Collected:	5/13/21 04:15 PM	**Dilution Factor:**	14.3
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msdv.i / v051717sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.45	1.4	1.6	Not Detected
1,1,2,2-Tetrachloroethane	79-34-5	1.1	1.8	2.0	Not Detected
1,1,2-Trichloroethane	79-00-5	0.60	1.4	1.6	Not Detected
1,1-Dichloroethane	75-34-3	0.35	1.0	1.2	Not Detected
1,1-Dichloroethene	75-35-4	0.49	0.52	0.57	Not Detected
1,2-Dibromoethane (EDB)	106-93-4	0.87	2.0	2.2	Not Detected
1,2-Dichloroethane	107-06-2	0.47	1.0	1.2	Not Detected
1,4-Dichlorobenzene	106-46-7	1.6	1.6	1.7	Not Detected
Benzene	71-43-2	0.30	0.82	2.3	Not Detected
Carbon Tetrachloride	56-23-5	1.1	1.6	1.8	Not Detected
Chloroethane	75-00-3	0.29	0.68	1.9	Not Detected
Chloroform	67-66-3	0.60	1.2	1.4	Not Detected
Chloromethane	74-87-3	0.41	0.53	15	1.0 J
cis-1,2-Dichloroethene	156-59-2	0.37	1.0	1.1	Not Detected
Ethyl Benzene	100-41-4	0.41	1.1	1.2	Not Detected
Freon 114	76-14-2	0.54	1.8	2.0	Not Detected
Freon 12	75-71-8	0.56	1.3	35	2.3 J
m,p-Xylene	108-38-3	0.40	1.1	2.5	Not Detected
Methyl tert-butyl ether	1634-04-4	0.29	0.93	5.2	Not Detected
Naphthalene	91-20-3	0.92	1.9	3.7	Not Detected
o-Xylene	95-47-6	0.34	1.1	1.2	Not Detected
Tetrachloroethene	127-18-4	0.79	1.7	1.9	Not Detected
Toluene	108-88-3	0.51	0.97	2.7	0.70 J
trans-1,2-Dichloroethene	156-60-5	0.43	1.0	5.7	Not Detected

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN
BMS Syracuse

Client ID:	IA-3		
Lab ID:	2105279A-01B	**Date/Time Analyzed:**	5/17/21 07:24 PM
Date/Time Collected:	5/13/21 04:15 PM	**Dilution Factor:**	14.3
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msdv.i / v051717sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	79-01-6	0.59	1.4	1.5	Not Detected
Vinyl Chloride	75-01-4	0.20	0.34	0.36	Not Detected

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	97

eurofins | Air Toxics

Analysis Request/Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: 2105279

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Click links below to view:
Canister Sampling Guide
Helium Shroud Video

Client: Arcadis PID: _____
Project Name: BMS Syracuse
Project Manager: Daniel Zuck P.O.#: _____
Sampler: Daniel Zuck
Site Name: Building 3 VE

Special Instructions/Notes:
Please Report Results
BX

Turnaround Time (Rush surcharges may apply)
Select TAT from drop down box: 3 Day

Lab ID	Sample Identification	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Canister Vacuum/Pressure		Lab Use Only		Requested Analyses			
				Date	Time	Date	Time	Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N_2 / He	BMS 1,4 Dioxane + TICs			
01A	IA-3	6L0453	23255	5/13/21	0815	5/13/21	1615	-31	-4			1			

Relinquished by: (Signature/Affiliation) Daniel Zuck / Arcadis — Date 5/13/21 — Time 1630
Received by: (Signature/Affiliation) FedEx — Date 05/14/21 — Time 1005

Relinquished by: (Signature/Affiliation) — Date — Time
Received by: (Signature/Affiliation) — Date — Time

Relinquished by: (Signature/Affiliation) — Date — Time
Received by: (Signature/Affiliation) — Date — Time

Lab Use Only

Shipper Name: FedEx — Custody Seals Intact? Yes No None

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

MODIFIED EPA METHOD TO-15 GC/MS SIM
BMS Syracuse

Client ID:	IA-3		
Lab ID:	2105279B-01A	**Date/Time Analyzed:**	5/20/21 12:41 PM
Date/Time Collected:	5/13/21 04:15 PM	**Dilution Factor:**	4.75
Media:	6 Liter Summa Canister (SIM Certified)	**Instrument/Filename:**	msd20.i / 20052008sim

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)		Amount (ug/m3)	
Trichloroethene	79-01-6	0.084	0.48	0.51	0.51	~~0.28 J~~	UB

J = Estimated value.
D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	102
4-Bromofluorobenzene	460-00-4	70-130	86
Toluene-d8	2037-26-5	70-130	100