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August 2, 2018 **VIA PRIVATE CARRIER**

Mr. James R. Carroll
Program Administrator
Land Restoration Program
Land Management Administration
Maryland Department of the Environment
1800 Washington Boulevard, Suite 625
Baltimore, Maryland 21230

Subject: Transmittal of the Vapor Monitoring Sampling Report Block I Maintenance Building for Lockheed Martin Corporation; Middle River Complex
2323 Eastern Boulevard, Middle River, Baltimore County, Maryland

Dear Mr. Carroll:

Lockheed Martin Corporation (Lockheed Martin) is submitting two hard copies with CD of the subject report for your review. This report summarizes the second sub-slab soil vapor (SV) sampling event in the Block I Maintenance Building at the Middle River Complex in Middle River, Maryland.

We respectfully request to receive MDE's comments or acceptance by September 14, 2018.

If you have any questions, please feel free to contact Thomas Blackman at (301) 548-2209.

Sincerely,

Lynnette M. Drake
Project Lead, Environmental Remediation

cc: (via email without enclosure)
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VAPOR MONITORING POINT SAMPLING REPORT
BLOCK I MAINTENANCE BUILDING
LOCKHEED MARTIN MIDDLE RIVER COMPLEX
2323 EASTERN BOULEVARD
MIDDLE RIVER, MARYLAND

Prepared for:
Lockheed Martin Corporation

Prepared by:
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August 2018

Revision: 0

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ACRONYMS

bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
cis-1,2-DCE	*cis*-1,2-dichloroethene
CSM	conceptual site model
DCA	dichloroethane
DCE	dichloroethene
DPT	direct-push technology
HASP	health and safety plan
Hg	mercury
HI	hazard index
IA	indoor air
LMCPI	LMC Properties, Inc.
Lockheed Martin	Lockheed Martin Corporation
MB	Maintenance Building
MDE	Maryland Department of the Environment
µg/L	microgram(s) per liter
$\mu g/m^3$	microgram(s) per cubic meter
MRC	Middle River Complex
MTBE	methyl tertiary-butyl ether
PCE	tetrachloroethene
QA	quality assurance
QC	quality control
SV	sub-slab soil vapor
TCA	trichloroethane

TCE	trichloroethene
Tetra Tech	Tetra Tech, Inc.
TMB	trimethylbenzene
TO-15	Toxic Organic-15
trans-1,2-DCE	*trans-1,2*-dichloroethene
USEPA	United States Environmental Protection Agency
VI	vapor intrusion
VISL	vapor intrusion screening-level
VMP	vapor monitoring point
VOC(s)	volatile organic compounds

SECTION 1
INTRODUCTION

This report summarizes the second sub-slab soil vapor (SV) sampling event in the Block I Maintenance Building at the Middle River Complex (MRC) in Middle River, Maryland (Figure 1-1). This building is west of Building A and within the contaminated groundwater flow field emanating from Building A. The Maintenance Building is a one-story (no-basement) building currently used by the on-site maintenance contractor (EMCOR), which includes a small office area, lunchroom, and open warehouse space.

Historical groundwater data indicate that trichloroethene (TCE)-impacted groundwater is moving westward from Building A and might be flowing under the Maintenance Building. Maximum trichloroethene concentrations west of Building A have been consistently detected at well MRC-MW96A (3,300–4,000 micrograms per liter [µg/L] between 2010 and 2017); this well is east and upgradient of the Maintenance Building (Figure 1-2). The objective of this investigation was to verify whether sub-slab soil vapor (SV) is accumulating under the building, and to supplement the first round of sub-slab soil-vapor sampling data collected at the Maintenance Building in October 2017.

Before the October 2017 sampling, 10 sub-slab soil vapor monitoring points (VMPs) were installed throughout the Maintenance Building to assess possible vapor intrusion (VI) pathways (Tetra Tech, 2018). One vapor monitoring point was installed in a small office area and another was installed in a lunchroom area, to target smaller enclosed areas where employees would congregate for extended periods. The remaining eight vapor monitoring points were spatially distributed throughout the open warehouse portion of the building.

SECTION 2
SITE DESCRIPTION

2.1 SITE HISTORY

Trichloroethene (TCE) has been found in groundwater west of Building A and is migrating toward Cow Pen Creek (Figure 1-2). This shallow TCE groundwater plume is within the upper permeable zone (the A-Zone aquifer) flowing beneath the Maintenance Building and, therefore, might contribute to vapor intrusion (VI). TCE in shallow subsurface soil beneath Building A likely resulted from historical releases from former vapor degreasers, underground storage tanks, and possibly from former plating, painting, and/or milling operations.

Releases might also have occurred through leaking equipment or equipment overflows and/or spills (Tetra Tech, 2017). The former vapor degreasers in Building A were at the locations of current sub-slab vapor monitoring points (VMPs) SV-136-A and SV-168-A, and in the former plating shop (Figure 1-2). Groundwater exhibiting elevated TCE concentrations is emanating from Building A, and is downgradient of these possible source areas.

Elevated TCE concentrations have been consistently detected west of Building A at well MW96A (3,300–4,000 micrograms per liter [µg/L] from 2010–2017). Lower TCE concentrations were detected hydraulically upgradient in 2017 at newly installed well MW131B (71 µg/L). TCE-impacted groundwater within this area extends north from well MW49A (0.33 µg/L) southward to well MW118A (4.3 µg/L), and is directly downgradient of two known TCE sources: the former location of vapor degreasers near VMPs 136-A and 168-A, and the former plating shop to the south. This area of elevated TCE is centered around MW96A in the upper permeable zone, and extends from MW131B near Building A downgradient toward the Maintenance Building. MW96A is approximately 50 feet east/upgradient of the Maintenance Building.

Before the 2017 site investigation, the conceptual side model (CSM) for this area of the Middle River Complex (MRC) identified four TCE areas west of Building A in the surficial aquifer (Figure 1-2) near the following wells:

- wells MW53A–B (west of the Maintenance Building and hydraulically downgradient of wells MW96A–B)
- well MW96A–B (west of Building A and east of the maintenance building)
- well MW90B (west of the Drop Hammer Building and Building A)
- well MW08B (downgradient, toward Cow Pen Creek)

Additional investigation in 2017 assessed chemical concentrations in groundwater flowing downgradient (i.e., westward) from Building A and the Building A basement toward Cow Pen Creek (Tetra Tech, 2018). Cross-sectional analysis of wells installed during this investigation mapped geology and a permeable layer beneath the thick clay unit in this area.

The cross-section analysis indicated distinct upper and lower permeable zones throughout most of the localized region west of Building A toward Cow Pen Creek. Contamination in the upper permeable zone could potentially cause vapor intrusion (VI). Whether the four areas of TCE were isolated or contiguous was unclear before the 2017 investigation. Groundwater samples with elevated TCE levels obtained from newly installed wells in September 2017 (Tetra Tech, 2018) appear to indicate that these three areas might not be distinct (i.e., they might not originate from separate TCE sources), but are rather part of a larger TCE plume emanating from beneath Building A (Figure 1-2).

Maximum TCE concentrations have been consistently detected at well MW96A in the upper high-permeable zone; elevated TCE concentrations have also been detected in surrounding wells screened in the deeper high-permeable zone (MW119B and MW131B). Low concentrations (non-detect to 1.2 µg/L) of TCE have been detected at monitoring wells MW109A and MW122A. MW109A is screened within the upper high-permeable zone and is upgradient of MW96A. The screened interval for MW122A is also within the upper zone; however, the well screen for MW122A is set within the clay unit. This suggests a possible localized source of TCE just upgradient of, or near, MW96A. TCE concentrations detected at MW117A are likely from the deeper permeable zone, as its well screen was set deeper due to the presence of a thick clay unit.

The area west of Building A is characterized by heterogeneous geology, as indicated by the clay layer and intermittent sand layers in boring logs from wells MW96 and MW109. MW96 has moist, sandy lithology from 12 to 15 feet below grade; this lithology does not exist in nearby well

MW109, which is only 39 feet upgradient. Both wells are screened 10–15 feet below ground surface (bgs); however, MW96A had a TCE concentration of 3,300 µg/L, whereas TCE was not detected in MW109A. A groundwater TCE concentration of 550 µg/L detected in new well MW119B, south of MW96A/B, indicates that the plume within the upper high-permeability zone extends farther south.

Subsurface heterogeneity might account for the differences observed in contaminant concentrations between these two wells (i.e., wells MW96A and MW109A), and/or a separate source area might exist near MW96A. Dense clay and silty-clay soil beneath Building A, together with the absence of precipitation infiltration (due to the large building footprint and associated pavement), has likely limited downward movement of TCE to soil directly beneath the building floor, and subsequently to groundwater. Low or non-detect TCE concentrations in historical soil and groundwater data from soil borings under Building A support this suggestion. However, elevated TCE concentrations have been detected in collected sump water originating from beneath the Building A basement, and in lower permeable zone wells (e.g., MW120B), indicating that TCE is moving downward through preferential pathways, westward from Building A toward Cow Pen Creek.

Cross-sectional analysis indicates that the upper permeable zone is present throughout most of the localized region west of Building A, but appears to pinch out in areas moving west toward Cow Pen Creek. TCE concentrations near wells MW53A and MW110A might be in the shallow permeability zone that pinches out west of MW110A. This shallow zone is not evident in DPT-1A and MW08. TCE concentrations in the upper permeable zone extend upgradient toward Building A, except near well MW109, where TCE was not detected in 2017.

The upper permeable zone does not appear in any transect #2 direct-push technology (DPT) borings (DPT-2A through DPT-2E); thick clay was encountered in these borings from the surface to approximately 45–50 feet below grade. TCE in the “B”-level wells in this area might be part of a more contiguous impacted zone of deeper groundwater beneath the clay unit. TCE (28.9 µg/L) was detected in groundwater at boring DPT-1A during the September 2017 investigation, at a depth of 40–44 feet bgs, indicating that the deeper plume extends farther west toward Cow Pen Creek.

The lower permeable zone mapped west of Building A toward Cow Pen Creek has not been completely delineated by historical borings and monitoring wells. The lower permeable zone is evident from MW131B/MW117B, close to Building A, and extends toward Cow Pen Creek and MW08B, but is only evident in borings installed at depths deep enough to intercept it. The lower permeable zone was evident at the bottom of direct-push technology (DPT) boring DPT-1A in transect #1, and in DPT borings DPT-2C and DPT-2D in transect #2, but DPT refusal prevented access to this zone at other borings in the transect.

Subsurface lithology indicates that the lower permeable zone is shallower closer to Building A, and dips to approximately 20–30 feet bgs as this stratigraphic unit extends toward Cow Pen Creek. A lower concentration (9.9 µg/L) of TCE was detected in the lower permeable zone at DPT-2D, with much higher concentrations detected in newly installed upgradient wells MW119B (550 µg/L) and MW120B (1,400 µg/L). These results indicate that elevated concentrations of TCE are in the lower permeable zone, and suggest that TCE (from either a local source or an upgradient source in Building A [i.e., from the former plating shop and/or vapor degreasers]) has migrated to depth, as TCE was not detected in shallow wells closer to Building A. An investigation of deeper groundwater west of Building A, scheduled for 2018, will provide additional characterization of the lower permeable zone, and will delineate the vertical and horizontal extent of TCE-impacted groundwater west of Building A toward Cow Pen Creek.

2.2 PREVIOUS INVESTIGATIONS

On September 25–26, 2017, 10 new VMPs (SV-178-MB through SV-187-MB) were installed in the Maintenance Building (Figure 2-1) (Tetra Tech, 2018). The locations of these installed VMPs strategically targeted enclosed areas where staff congregates (office space and the lunch/break room) and provided spatial coverage across the building. VMPs were located away from any floor drains in the building that might be possible preferential pathways, as these areas would allow for venting of soil vapor from the subsurface that might affect actual subsurface concentrations. The floor of the maintenance building is in good condition; cracks or other breaches were not noted during the field event. Samples were collected on October 12, 2017 and analyzed for volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method Toxic Organic 15 (TO-15) (USEPA, 1999). Chemical data tables from the October 2017 sampling

are in Appendix A. No analytes detected in sub-slab soil vapor (SV) exceeded their respective screening criteria. A subset (analytes with the highest concentrations) of chlorinated VOC results from the October 2017 sampling event is shown on Figure 2-1. A full list of detected analytes, including other chlorinated VOCs and petroleum compounds, is in Table A-2 in Appendix A.

Trichloroethene (TCE) was detected in two of 10 SV samples at concentrations ranging from 0.39*J* to 2*J* µg/m^3, with the highest detection in sample SV-183-MB. 1,1-DCA was detected in all 10 samples, at concentrations ranging from 0.52*J* to 1,700 µg/m^3 (with the highest concentration at SV-183-MB). Other detected chlorinated VOCs include 1,1-dichloroethene (1,1-DCE) in four of 10 samples (at concentrations ranging from 1.6 to 270 µg/m^3) and 1,1,1-trichloroethane (1,1,1-TCA) in two of 10 samples (at concentrations of 4–190 µg/m^3); both VOCs exhibited their highest detections at SV-183-MB (Tetra Tech, 2018). Carbon tetrachloride, tetrachloroethene, 1,2-dichloroethane, and vinyl chloride were each detected in either one or two of 10 samples at maximum concentrations less than 1 µg/m^3.

The petroleum compounds benzene, toluene, ethylbenzene, and xylenes (BTEX) were detected at low concentrations in all samples, except for SV-183-MB, where only benzene was detected. All petroleum concentrations were several orders of magnitude (i.e., several powers of 10) below their respective screening criteria. This coincides with an existing localized benzene plume upgradient and east of the Maintenance Building near monitoring wells MW96B and MW17A. These results are similar to those detected in soil samples. Low-level petroleum concentrations beneath the Maintenance Building might also be attributable to historical operations in and around the building.

The highest sub-slab VOC concentrations detected in October 2017 were at VMPs in the open central portion of the warehouse, at sampling locations SV-181-MB, SV-182-MB, and SV-183-MB. Elevated concentrations were not detected in the enclosed areas (office space and lunch/break room) of the Maintenance Building. These results indicate that although elevated VOC groundwater concentrations are detected east of the Maintenance Building, and low VOC concentrations are migrating in groundwater beneath the building, SV concentrations above screening levels are not occurring. The clay layer in the shallow subsurface above the upper permeable zone may be hindering significant sub-slab accumulation of impacted SV. To further

confirm this finding, a second round of SV sampling was proposed. The following sections present the field methodology and results of the confirmatory sampling in February 2018.

SECTION 3
INVESTIGATION APPROACH AND FIELD METHODOLOGY

This report documents the second round of sampling for nine vapor monitoring points (VMPs) installed using Vapor Pin® technology in the Maintenance Building of Block I at the Lockheed Martin Middle River Complex (MRC) in Middle River, Maryland. This investigation assessed possible vapor intrusion pathways into the Maintenance Building, focusing on trichloroethene (TCE) contamination. The scope of work associated with this field investigation includes sampling nine VMPs in the Maintenance Building to document sub-slab soil vapor (SV) conditions under the Maintenance Building, and to determine possible SV contamination connected to elevated TCE detections in upgradient groundwater monitoring wells screened within the upper permeable zone. One of 10 VMPs (SV-183-MB) could not be sampled, due to subsurface water in the sampling port.

3.1 MOBILIZATION/DEMOBILIZATION

On February 21, 2018, Tetra Tech mobilized to the Maintenance Building to sample the VMPs. Tetra Tech notified, and coordinated access arrangements through, Lockheed Martin Security and EMCOR (site maintenance) to gain access to the Maintenance Building. MRC tenants were informed and updated about the field investigation at biweekly meetings conducted by LMC Properties, Inc., (LMCPI). LMCPI was notified of the field tasks and schedule, and approved the work and schedule before Tetra Tech mobilized to the field.

The field operations leader coordinated mobilization and demobilization (including equipment inventories, to ensure equipment availability), purchasing and leasing equipment, obtaining Summa® canisters and flow controllers from the laboratory, and staging equipment for efficient loading and transport to and from the site before sampling. Before field operations began, Tetra Tech personnel reviewed the site-specific health and safety plan (HASP) and the respective “safe

work" permits therein. Tetra Tech held mandatory daily health and safety tailgate meetings before all field events.

3.2 VAPOR MONITORING POINT SAMPLING

On February 21, 2018, nine VMPs, newly installed in October 2017, were sampled: SV-178-MB through SV-182-MB, and SV-184-MB through SV-187-MB. VMP sampling location SV-183-MB could not be sampled due to the presence of subsurface water. Why this location was affected by water accumulation is not known. Figure 3-1 shows the locations of Maintenance Building VMPs. Table 3-1 summarizes the Maintenance Building VMP locations and rationales.

Before sampling, the tubing for each VMP was purged of atmospheric air, allowing subsurface vapor to enter the probe and tubing. Purging entailed attaching the sample tubing to a low-flow sampling pump set to an approximate flow rate of 200 cubic centimeters per minute, to minimize the potential mobilization of subsurface vapor that could bias the sample. One to three volumes (i.e., the volume of the sample probe and tube) were purged to ensure that collected samples represented sub-slab SV conditions.

Each SV sample was collected over one hour using preconditioned Summa® canisters to ensure subsurface equilibration and avoid high negative pressure that might mobilize subsurface vapor and bias the results. These specially treated, stainless steel, one-liter canisters were equipped with in-line particulate filters and integral controllers to control the rate of filling during sampling. SV samples were collected through Teflon® tubing attached to the stainless-steel Vapor Pins®. Each sampling location was routinely inspected during the sampling period to ensure appropriate operation of sampling devices, sample integrity, and to document conditions within the area that might affect results.

Samples were collected by opening the canister valve, which allowed air to enter the canister at the rate set by the controller (one liter over a period of one hour). Controllers were calibrated in the laboratory and shipped to the field with a sufficient flow rate to maintain the necessary vacuum pressure in the Summa® canister for the one-hour sampling interval. All starting pressures of the Summa® canister ranged between -30 and -24 inches of mercury (Hg), and ending pressures ranged between -6 and 0 inches Hg.

All Summa® canisters were certified clean (less than 0.2 parts per billion by volume of targeted compounds) by the laboratory before sending, in accordance with the United States Environmental Protection Agency (USEPA) Toxic Organic-15 (TO-15) methodology (USEPA, 1999). SV sample log sheets are in Appendix B. Samples were collected and analyzed for VOCs by TO-15. SV samples were collected in accordance with standard operating procedures developed by the USEPA Environmental Response Team for soil vapor sampling (USEPA, 1996), and methodologies developed by the USEPA Office of Research and Development (USEPA, 2004).

After sampling had been completed, each canister was closed and sent to an off-site laboratory (TestAmerica, Inc. in Knoxville, Tennessee) under proper chain of custody procedures. Tetra Tech's *Site Characterization Report* (Tetra Tech, 2006) identified specific compounds considered primary contributing factors to potential risk at MRC via a vapor intrusion (VI) exposure scenario. These target compounds, identified in groundwater and SV samples, might have been historically used and released at the MRC, and could potentially enter indoor air via subsurface migration. All samples collected during this investigation were analyzed for the following contaminants of concern:

- benzene
- carbon tetrachloride
- chlorodifluoromethane (Freon 22)
- chloroform
- dichlorodifluoromethane
- 1,1-dichloroethane (1,1-DCA)
- 1,2-dichloroethane (1,2-DCA)
- 1,1-dichloroethene (1,1-DCE)
- *cis*-1,2-dichloroethene (*cis*-1,2-DCE)
- *trans*-1,2-dichloroethene (*trans*-1,2-DCE)
- naphthalene
- tetrachloroethene (PCE)
- toluene
- 1,2,4-trichlorobenzene
- 1,1,1-trichloroethane (1,1,1-TCA)
- 1,2,3-trimethylbenzene (1,2,3-TMB)
- 1,2,4-trimethylbenzene (1,2,4-TMB)
- 1,3,5-trimethylbenzene (1,3,5-TMB)
- TCE
- 1,1,2-trichloroethane (1,1,2-TCA)

- ethylbenzene
- methyl tertiary-butyl ether (MTBE)
- methylene chloride
- vinyl chloride (VC)
- xylenes (total)

3.3 SAMPLE NOMENCLATURE

A master site logbook was maintained at the site as an overall record of field activities. Each SV sample collected during this investigation is identified with a unique sample-identification tag consisting of the sample-type designation (i.e., SV for sub-slab soil vapor), followed by the location number, followed by the building identifier (i.e., MB for Maintenance Building), followed by "2" signifying the second sampling event. For example, the SV sample collected during Round 2 from the Maintenance Building at location SV-178 is identified as "SV-178-MB-2."

3.4 DOCUMENTATION

A bound field logbook with consecutively numbered pages was assigned specifically for this project. All entries were recorded in indelible black ink. Any erroneous data in the logbook requiring corrections or modifications were crossed out using a single line, dated, and initialed. At the end of each workday, the responsible sampler signed the logbook pages, and any unused portions of logbook pages were crossed out, signed, and dated. The logbook contains all pertinent project information.

Sample documentation consists of chain of custody reports and matrix-specific sampling log sheets. Information about VMP sampling was recorded on field sheets, and includes start and stop times for sampling, Summa® can and regulator identification numbers, start and stop pressures, and general field observation notes. Field sheets completed for each VMP sampling location are in Appendix B. The chain of custody report is a standardized form summarizing and documenting pertinent sample information, such as sample identification and type, matrix, date and time of collection, preservation, and requested analysis. Sample custody procedures to document sample acquisition and integrity were properly followed. Signed chains of custody are provided in the data validation report in Appendix C.

3.5 SAMPLE HANDLING

Proper custody procedures were followed throughout all phases of sample collection and handling. Chain of custody protocols were used throughout sample handling to establish the evidentiary integrity of the Summa® canisters. These protocols demonstrate that the samples were handled and transferred in a manner that would eliminate (or detect) possible tampering. Summa® canisters were released under signature from the laboratory and were accepted under signature by the sampler or individual responsible for maintaining custody until the canisters were transferred to the sampling team.

Summa® canisters were released under signature from the sampling team and were accepted under signature by the laboratory. Transport containers returning to the laboratory were sealed with strapping tape and a tamper-resistant custody seal. The custody seal includes the signature of the individual releasing the transport container, along with the date and time.

3.6 DATA VALIDATION

Following receipt of the SV analytical data, data were validated by an independent chemist in accordance with USEPA Region 3 protocols. Chemical data were supplied by the laboratory as hard-copy reports and electronic databases. All data were validated for all quality assurance (QA)/quality control (QC) parameters, including laboratory QA/QC and accuracy, precision, completeness, and comparability, in accordance with USEPA guidance. This review is based on the *National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA, 2017), and the specifics of the analytical method used. The data validation report, including complete chain of custody documentation, is in Appendix C (on compact disc). A full chemical data table is also in Appendix C.

Collectively, these data are acceptable for their intended use, except for data that have been qualified as unreliable. For this validation, the following data qualifiers (i.e., flags) were applied to the chemical results presented in this report:

U Not detected. The analyte is considered not detected at the reported value.

J The analyte is considered present in the sample. However, the value is estimated and might not be accurate or precise.

These flags appear on the chemical results tables in Section 4 and Appendix C.

SECTION 4
RESULTS

This section presents the results of the sub-slab soil vapor (SV) sampling conducted in the Maintenance Building. On February 21, 2018, nine vapor monitoring points (VMPs) (SV-178-MB through SV-182-MB, and SV-184-MB through SV-187-MB) were sampled in the Maintenance Building. VMP sampling location SV-183-MB could not be sampled due to the presence of subsurface water. Samples were collected and analyzed for volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method Toxic Organic 15 (TO-15) (USEPA, 1999).

Three large bay doors on the eastern side of the Maintenance Building were open during sampling due to the unseasonably warm weather. The outside temperature during sampling was approximately 64 degrees Fahrenheit and the barometric pressure was 30.233 inches, with overcast skies. Winds averaged approximately six miles per hour, out of the south/southeast.

Validated SV chemical data were used to generate a statistical summary table (Table 4-1) and a detection table (Table 4-2) summarizing detections of chemical analytes in the SV samples. Table 4-1 lists chemicals detected in the SV samples, and does not include analytes that were not detected in any sample. Table 4-2 shows the detected analyte concentrations screened against target shallow soil gas concentrations derived using the USEPA vapor intrusion screening level (VISL) calculator. Screening levels are based on the lower of the commercial/industrial values for each VOC: either a 1×10^{-5} cancer risk (i.e., a one-in-100,000 probability of developing cancer) or a hazard index (HI) of 1 (USEPA, 2014).

The calculator divides indoor-air (IA) screening levels by a conservative (i.e., more protective of human health and the environment) attenuation factor of 0.03. The attenuation factor represents the adjustment applied to IA screening levels to account for concentration reductions due to diffusive, advective, and/or other attenuating mechanisms as vapor migrates from the sub-slab to

IA. No analytes detected in SV exceeded their respective screening criteria (Table 4-2). SV sampling results for chlorinated ethanes and ethenes are on Figure 4-1.

Trichloroethene (TCE) was detected in two of nine SV samples, at concentrations ranging from 1.5 to 2 micrograms per cubic meter (µg/m^3), with the highest detection in sample SV-185-MB. 1,1-Dichloroethane (1,1-DCA) was detected in eight of nine samples, at concentrations ranging from 0.33*J* to 1,500 µg/m^3, with the highest concentration at SV-182-MB. Other detected chlorinated VOCs of interest include: 1,2-dichloroethene (1,1-DCE) in four of nine samples, at concentrations ranging from 1.8 to 53 µg/m^3, and 1,1,1-trichloroethane (1,1,1-TCA) in seven of nine samples, at concentrations ranging from 0.4*J* to 59 µg/m^3. The highest concentrations of 1,1-DCE and 1,1,1-TCA were detected in SV-181-MB and SV-182-MB, respectively. Tetrachloroethene (PCE) was detected in four of nine samples, at concentrations ranging from 0.7*J* to 39 µg/m^3, with the highest concentration detected in SV-185-MB.

The petroleum compounds benzene, toluene, ethylbenzene, and xylenes (BTEX) were detected at low concentrations in most samples, except for SV-179-MB and SV-184-MB, where benzene was not detected. All BTEX concentrations are several orders of magnitude below their respective screening criteria, similar to previous SV sampling data, and coinciding with an existing localized benzene plume upgradient and east of the Maintenance Building near monitoring wells MW96B and MW17A. Low-level petroleum concentrations beneath the Maintenance Building might also be attributable to historical operations in and around the building.

The highest detected VOC concentrations during the February 2018 sampling were detected in the open central portion of the warehouse at sampling location SV-182-MB, similar to results from the previous (October 2017) sampling round, when the highest VOCs were detected in both SV-182-MB and SV-183-MB, also in the central portion of the warehouse. Chemical data tables from the October 2017 sampling are in Appendix A for reference. SV-183-MB was not sampled during the current sampling round (February 2018), due to the presence of subsurface water. No elevated VOC concentrations were detected in Maintenance Building enclosed areas (the office space and the lunch/break room, at sampling locations SV-178-MB and SV-184-MB, respectively).

SECTION 5
SUMMARY AND CONCLUSIONS

The objective of this investigation was to sample 10 sub-slab soil vapor monitoring points (VMPs) to assess possible vapor intrusion (VI) into the Block I Maintenance Building at the Lockheed Martin Middle River Complex (MRC) in Middle River, Maryland. Nine of 10 vapor monitoring point sampling locations were sampled in February 2018; one location (SV-183-MB) could not be sampled due to the presence of subsurface water. This sampling event was intended to confirm and supplement data from the previous (October 2017) sampling. The Maintenance Building is currently used by the on-site maintenance contractor (EMCOR), and includes a small office area, a lunchroom, and open warehouse space. Detected analyte concentrations were screened against target shallow soil gas concentrations derived using commercial/industrial values from the United States Environmental Protection Agency (USEPA) vapor intrusion screening level (VISL) calculator, and based on the lowest value for either a 1×10^{-5} cancer risk or a hazard index (HI) of 1 (USEPA, 2014).

No analytes detected in sub-slab soil vapor (SV) exceeded their respective screening criteria. Trichloroethene (TCE), which historically has been the focus in this area west of Building A, was detected in two of nine sub-slab soil vapor samples collected from the Maintenance Building, at concentrations of 1.5 and 2 micrograms per cubic meter ($\mu g/m^3$), with the highest detection in sample SV-185-MB. 1,1-Dichloroethane (1,1-DCA) has consistently had the highest detected concentrations (of all chlorinated volatile organic compounds). It was detected in all nine samples in October 2017 (at concentrations ranging from 0.52*J* to 1,700 $\mu g/m^3$) and in eight of nine samples in February 2018 (at concentrations ranging from 0.33*J* to 1,500 $\mu g/m^3$). The petroleum compounds benzene, toluene, ethylbenzene, and xylenes (BTEX) were detected at low concentrations in most samples, except for SV-179-MB and SV-184-MB, where all but benzene was detected. All detected petroleum concentrations were several orders of magnitude below their respective screening criteria. The highest volatile organic compound (VOC) concentrations were detected in the open central portion of the warehouse, at sampling location SV-182-MB. This

location, along with SV-183-MB, is where the highest sub-slab chlorinated volatile organic compound concentrations were detected during the previous (October 2017) sampling. Note that location SV-183-MB was not sampled in February 2018, because subsurface water was at that location. Elevated concentrations of volatile organic compounds were not detected in the enclosed areas (office space and lunch/break room) of the Maintenance Building.

The February 2018 sampling results indicate that elevated volatile organic compound concentrations detected in east/upgradient groundwater are not significantly affecting sub-slab soil vapor beneath the Maintenance Building, and generally confirm results from the previous (October 2017) sampling round. Although no soil vapor concentrations detected exceeded respective screening levels during the two successive sampling events, 1,1-dichloroethane concentrations were approaching the screening level (including its increase from October 2017 to February 2018) in the central portion of the warehouse. In addition, sampling location SV-183-MB, the location of the highest 1,1-dichloroethane concentration in October 2017 (1,700 µg/m^3), could not be sampled in February 2018 due to the presence of water, and nearby sampling location SV-182MB showed an increase in 1,1-dichloroethane from 280 µg/m^3 to 1,500 µg/m^3 in February 2018.

Since the 1,1-dichloroethane data do not show a consistent pattern and the concentrations are approaching the screening criteria, we recommend additional sampling next winter (February 2019) be done simultaneously with the semiannual sampling of Buildings A, B and C. Future annual groundwater sampling will include nearby shallow wells (e.g., MW41A, MW69A, MW119A, and MW120A), and if elevated concentrations of chlorinated volatile compounds are detected in those wells, then additional sub-slab soil vapor sampling in the Maintenance Building might be required.

SECTION 6
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FIGURES

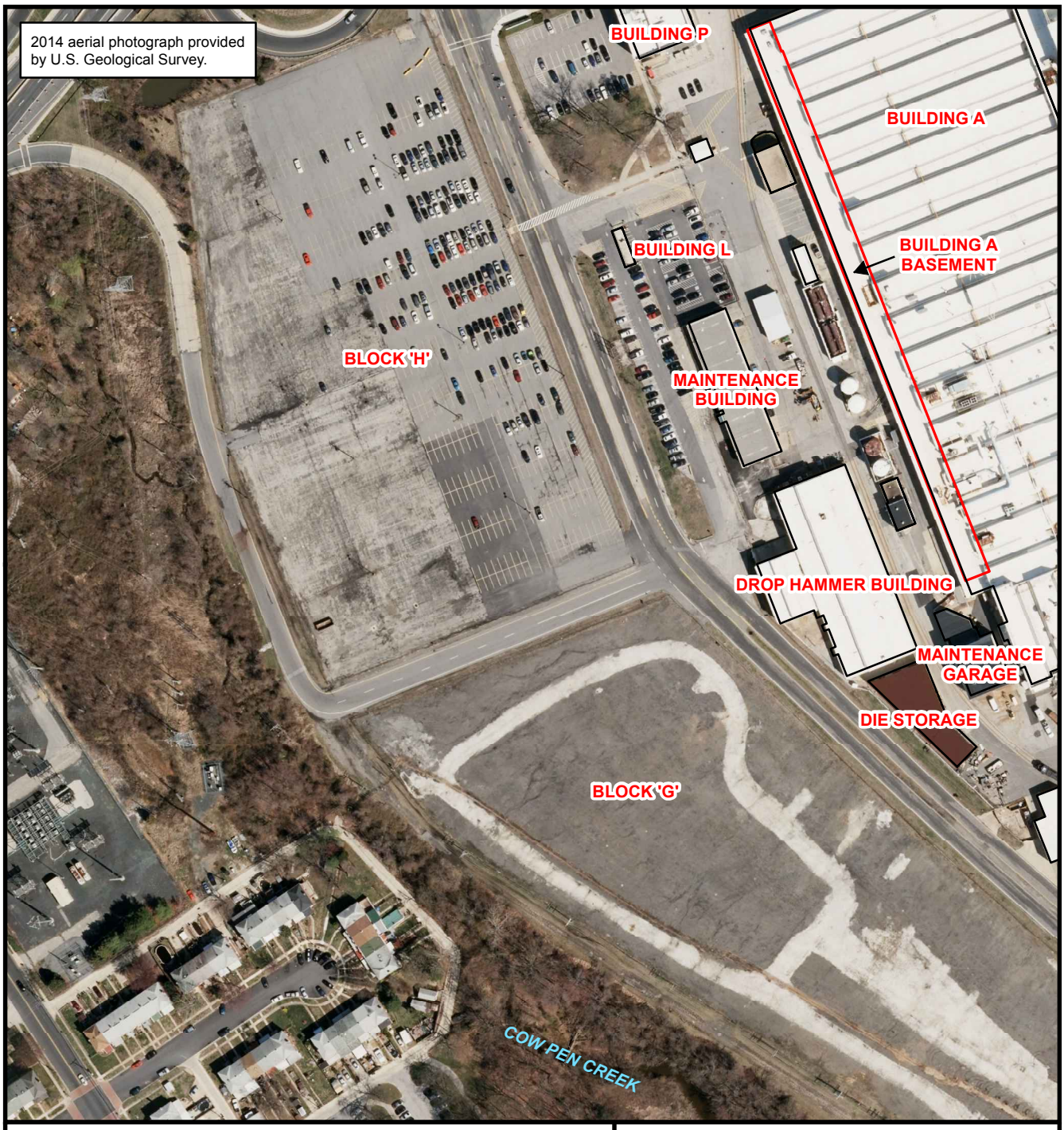
Figure 1-1 Site Location Map, Area West of Building A and Building A Basement

Figure 1-2 Distribution of TCE in Groundwater, 2017— Maintenance Building and Surrounding Areas

Figure 2-1 October 2017 Sub-Slab Soil Vapor Chlorinated VOC Results, Maintenance Building

Figure 3-1 Vapor Monitoring Point Location Map, Maintenance Building

Figure 4-1 February 2018 Sub-Slab Soil Vapor Chlorinated VOC Results Maintenance Building



LEGEND

STRUCTURE

FIGURE 1-1
SITE LOCATION MAP
AREA WEST OF BUILDING A
AND BUILDING A BASEMENT

Lockheed Martin Middle River Complex
Middle River, Maryland

DATE MODIFIED: 02/01/18

CREATED BY: JEE

0 75 150 Feet

N

TETRA TECH

Map Document: (P:\GIS\Middle_River\MapDocs\MXD\maintenance_bldg_site_layout.mxd)
02/01/18 -- JEE

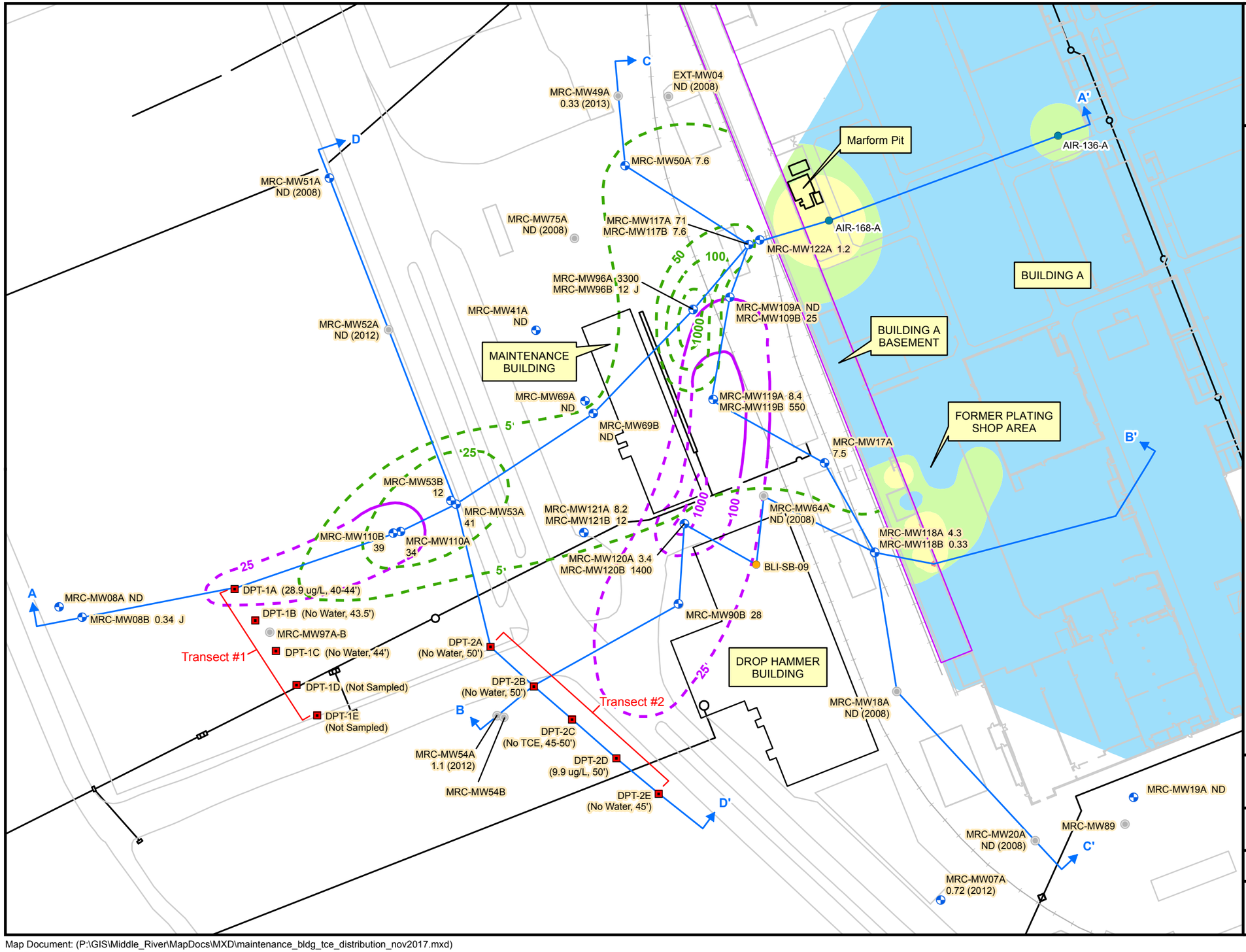


FIGURE 1-2

DISTRIBUTION OF TCE IN GROUNDWATER, 2017 MAINTENANCE BUILDING AND SURROUNDING AREAS

LEGEND

- SURFICIAL AQUIFER GROUNDWATER MONITORING WELL (2017)
- SOIL BORING
- DPT BORING
- WELL NOT SAMPLED FOR TCE
- SURFACE VAPOR SAMPLE LOCATION
- CROSS-SECTION TRANSECT
- UPPER PERMEABLE ZONE TCE ISOCONCENTRATION (UG/L, DASHED WHERE INFERRED)
- LOWER PERMEABLE ZONE TCE ISOCONCENTRATION (UG/L, DASHED WHERE INFERRED)
- STORM DRAIN LINE
- STRUCTURE
- RAILROAD TRACKS
- 15 — MAXIMUM CONCENTRATION IN WELL (UG/L)
- (2008) — YEAR OF MOST RECENT SAMPLE IF WELL WAS NOT SAMPLED IN 2017

J = ESTIMATED VALUE
MPE = MULTI-PHASE EXTRACTION
ND = NOT DETECTED
NS = NOT SAMPLED
TCE = TRICHLOROETHENE
UG/L = MICROGRAMS PER LITER

GROUNDWATER STANDARD FOR TCE IS 5 UG/L.
THE VALUE SHOWN IS THE HIGHER OF THE SAMPLE OR SAMPLE DUPLICATE.

AUGUST 2017 SUB-SLAB VAPOR TCE CONCENTRATION

- 10000 ug/m3
- 1000 ug/m3
- 293 ug/m3
- 0.1 ug/m3

Lockheed Martin Middle River Complex
Middle River, Maryland

0 50 100 Feet

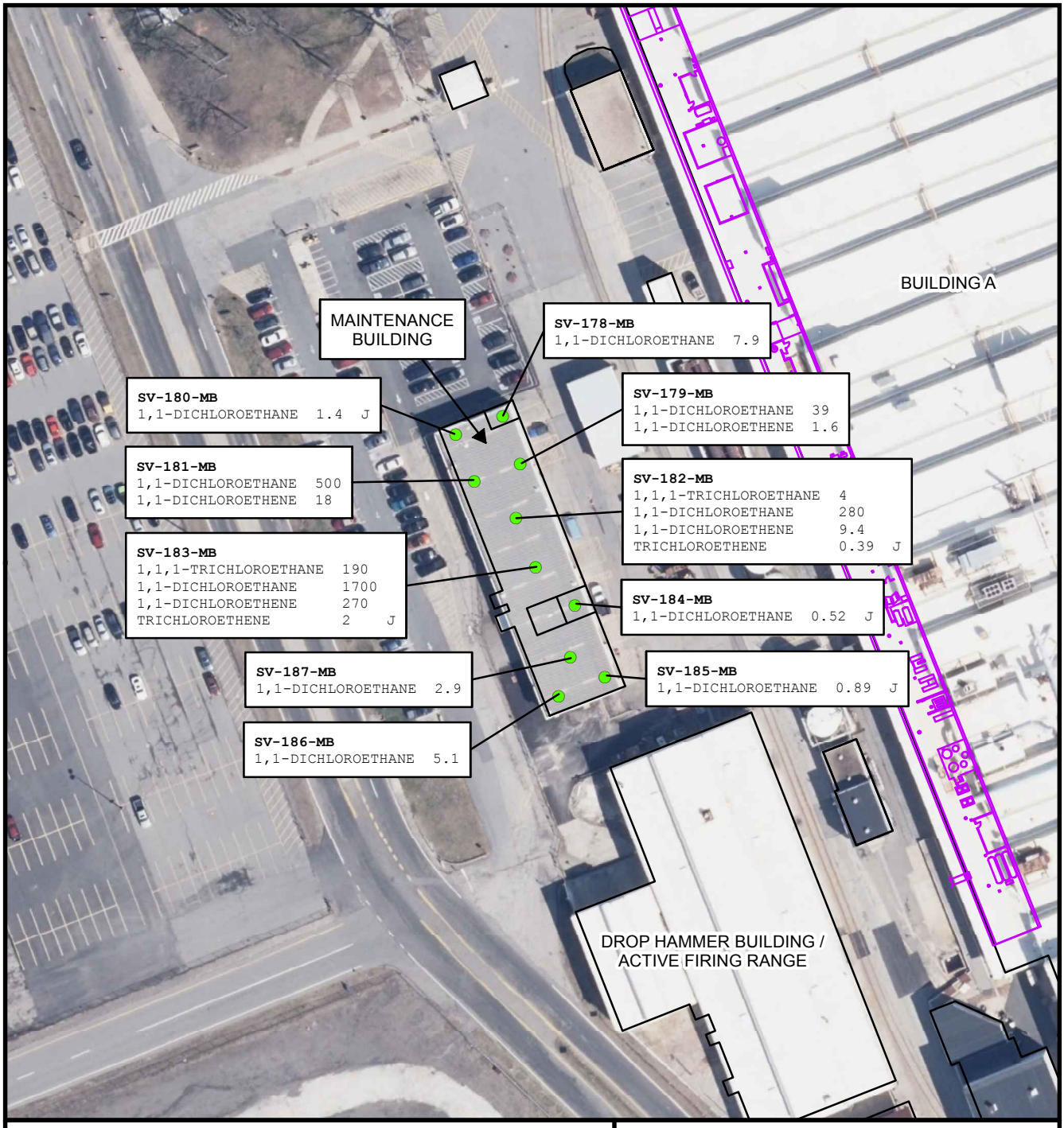
N

DATE MODIFIED: 12/27/17

CREATED BY: JEE

TETRA TECH

Map Document: (P:\GIS\Middle_River\MapDocs\MXD\maintenance_bldg_tce_distribution_nov2017.mxd)
12/27/17 -- JEE



LEGEND

- VAPOR MONITORING POINT
- STRUCTURE
- BUILDING A BASEMENT INTERIOR LAYOUT
- SV SOIL VAPOR
- MB MAINTENANCE BUILDING

All results shown in milligrams per cubic meter (mg/m^3).
2014 aerial photograph provided by U.S. Geological Survey.

0 50 100 Feet

N

FIGURE 2-1

OCTOBER 2017 SUB-SLAB SOIL VAPOR CHLORINATED VOC RESULTS MAINTENANCE BUILDING

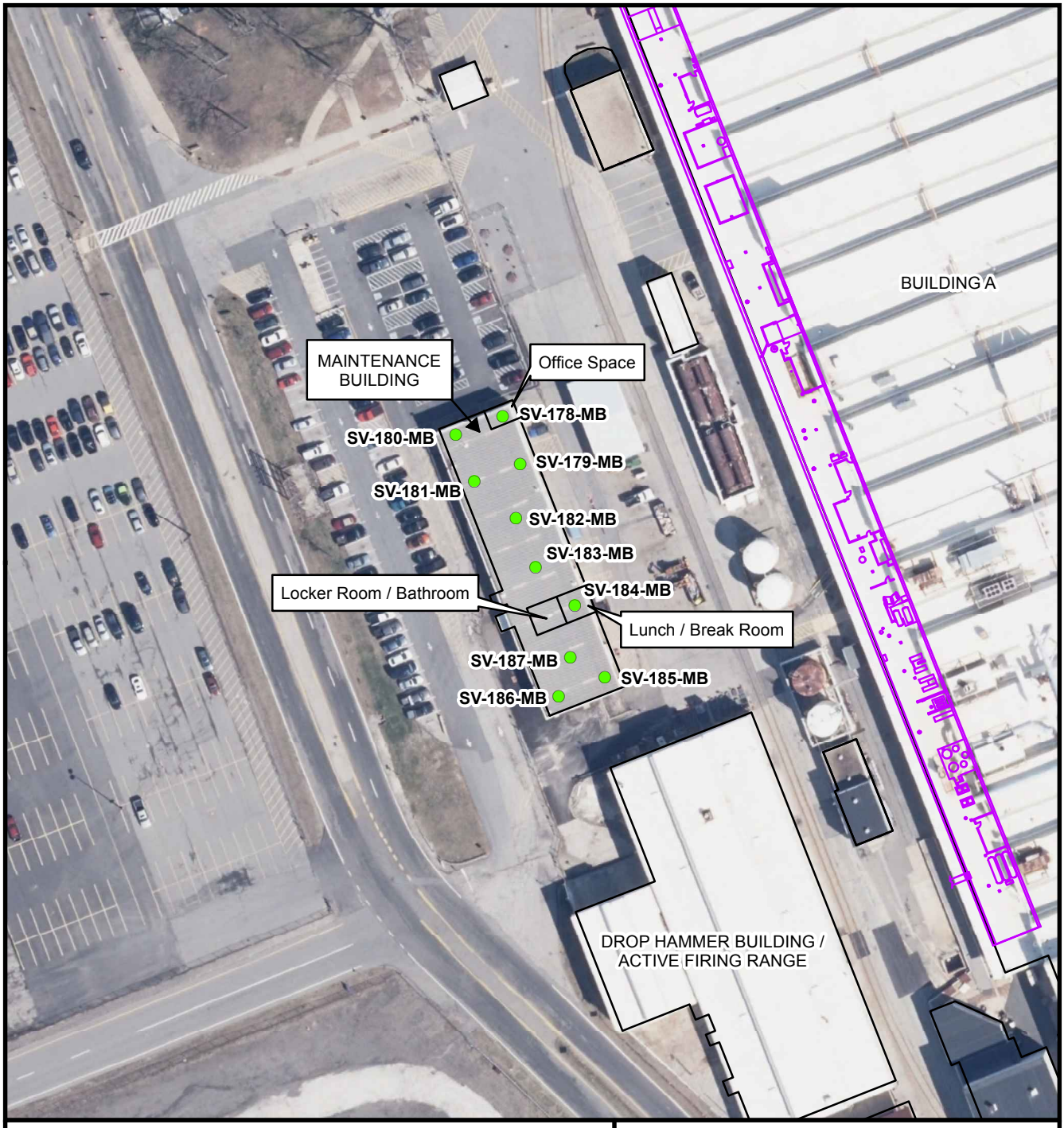
Lockheed Martin Middle River Complex
Middle River, Maryland

DATE MODIFIED: 05/09/18

CREATED BY: JEE

TETRA TECH

Map Document: (P:\GIS\Middle_River\MapDocs\MXD\maintenance_bldg_vapor_tags_oct2017.mxd)
05/09/18 -- JEE



LEGEND

- VAPOR MONITORING POINT (VMP)
- STRUCTURE
- BUILDING A BASEMENT INTERIOR LAYOUT
- SV SOIL VAPOR
- MB MAINTENANCE BUILDING

2014 aerial photograph provided by U.S. Geological Survey.

0 50 100 Feet

N

FIGURE 3-1

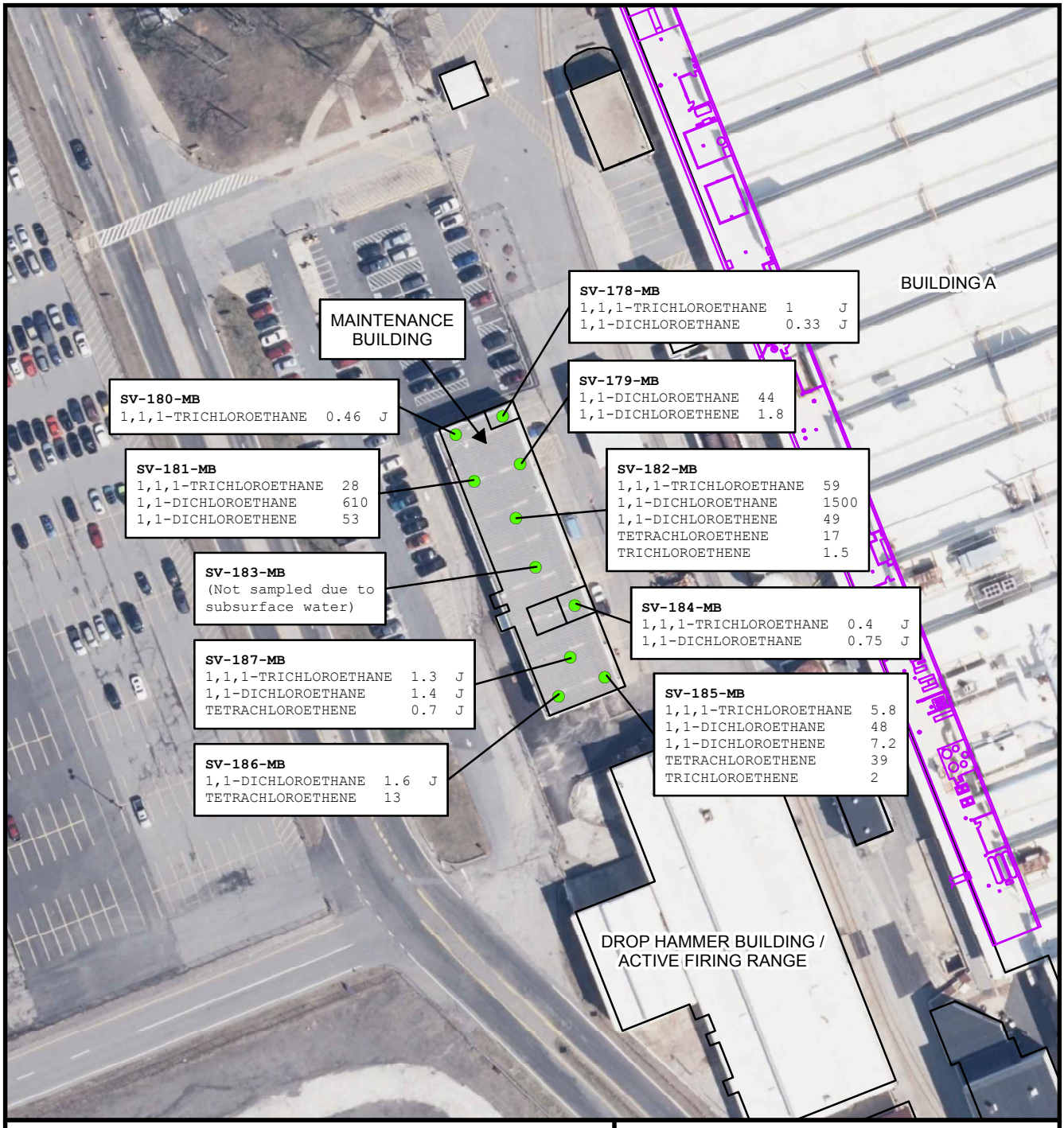
VAPOR MONITORING POINT LOCATION MAP
MAINTENANCE BUILDING

Lockheed Martin Middle River Complex
Middle River, Maryland

DATE MODIFIED:	CREATED BY:
05/09/18	JEE

TETRA TECH

Map Document: (P:\GIS\Middle_River\MapDocs\MXD\maintenance_bldg_vapor_samplocs_may2018.mxd)
05/09/18 -- JEE



LEGEND

- VAPOR MONITORING POINT
- STRUCTURE
- BUILDING A BASEMENT INTERIOR LAYOUT
- SV SOIL VAPOR
- MB MAINTENANCE BUILDING

All results shown in micrograms per cubic meter (µg/m^3).
2014 aerial photograph provided by U.S. Geological Survey.

FIGURE 4-1

FEBRUARY 2018 SUB-SLAB SOIL VAPOR CHLORINATED VOC RESULTS MAINTENANCE BUILDING

Lockheed Martin Middle River Complex
Middle River, Maryland

DATE MODIFIED: 05/16/18

CREATED BY: JEE

0 50 100 Feet

N

TETRA TECH

Map Document: (P:\GIS\Middle_River\MapDocs\MXD\maintenance_bldg_vapor_tags_feb2018.mxd)
05/16/18 -- JEE

TABLES

Table 3-1 Summary of Vapor Monitoring Point Sampling Locations and Rationale

Table 4-1 2018 Statistical Summary of Analytes Detected in Sub-Slab Soil Vapor Samples—February 2018

Table 4-2 Detected Analytes and Screening-Level Exceedances in Sub-Slab Soil Vapor Samples—February

Table 3-1

Summary of Vapor Monitoring Point Sampling Locations and Rationale
Maintenance Building
Middle River Complex, Middle River, Maryland

Vapor monitoring point number	Vapor monitoring point location	Sample analysis (laboratory method)	Rationale/ purpose
SV-178-MB	Maintenance Building office space in northeastern corner of building	VOCs (TO-15)	To assess the sub-slab SV in a small office space within the Maintenance Building.
SV-184-MB	Maintenance Building lunchroom in east/central portion of building	VOCs (TO-15)	To assess the sub-slab SV in the lunchroom space within the Maintenance Building.
SV-179-MB, SV-180-MB, SV-181-MB, SV-182-MB, SV-183-MB[(1)], SV-185-MB, SV-186-MB, SV-187-MB	Maintenance Building open warehouse space	VOCs (TO-15)	To assess the sub-slab SV in the open warehouse space of the Maintenance Building.

[(1)] SV-183-MB was not sampled during the February 2018 sampling event due to the presence of subsurface water.

MB = Maintenance Building
SV = soil vapor
TCE = trichloroethene
VOCs = volatile organic compounds

Table 4-1

Statistical Summary of Analytes Detected in Sub-Slab Soil Vapor Samples- February 2018
Lockheed Martin Middle River Complex, Middle River, Maryland

Parameter	Frequency of detection	Minumum dected result		Maximum dected result		Location of maximum	Sample with maximum result	Minimum nondetect	Maximum nondetect	Average-detects	Average-all samples	Standard deviation	Sampling date
Volatile organic compounds (µg/m^3)													
1,1,1-TRICHLOROETHANE	7/9	0.4	J	59		SV-182	SV-182-MB-2_20180221	0.33	0.33	13.708571	10.698888	20.2223887	20180221
1,1-DICHLOROETHANE	8/9	0.33	J	1500		SV-182	SV-182-MB-2_20180221	0.2	0.2	275.76	245.131111	510.580778	20180221
1,1-DICHLOROETHENE	4/9	1.8		53		SV-181	SV-181-MB-2_20180221	0.28	0.28	27.75	12.411111	22.01947118	20180221
1,2,4-TRIMETHYLBENZENE	9/9	1.6	J	2.1		SV-178	SV-178-MB-2_20180221	NULL	NULL	1.788888	1.788888	0.161589329	20180221
BENZENE	7/9	0.37	J	0.9	J	SV-186	SV-186-MB-2_20180221	0.37	0.37	0.65	0.546666	0.263758886	20180221
CARBON TETRACHLORIDE	5/9	0.5	J	3.6		SV-187	SV-187-MB-2_20180221	0.47	0.47	1.138	0.736666	1.083449353	20180221
CHLORODIFLUOROMETHANE	9/9	1	J	1.3	J	SV-178	SV-178-MB-2_20180221	NULL	NULL	1.111111	1.111111	0.105409255	20180221
CHLOROFORM	2/9	0.55	J	0.58	J	SV-182	SV-182-MB-2_20180221	0.37	0.37	0.565	0.269444	0.167732012	20180221
DICHLORODIFLUOROMETHANE	9/9	1.7	J	2.1		SV-178	SV-178-MB-2_20180221	NULL	NULL	1.933333	1.933333	0.132287566	20180221
DICHLORODIFLUOROMETHANE	9/9	1.7	J	2.1		SV-181	SV-181-MB-2_20180221	NULL	NULL	1.933333	1.933333	0.132287566	20180221
ETHYLBENZENE	9/9	0.77	J	1.4	J	SV-186	SV-186-MB-2_20180221	NULL	NULL	1.03	1.03	0.212426458	20180221
METHYLENE CHLORIDE	9/9	2.3	J	8		SV-185	SV-185-MB-2_20180221	NULL	NULL	3.611111	3.611111	2.076321534	20180221
NAPHTHALENE	1/9	1.3		1.3		SV-178	SV-178-MB-2_20180221	1	1	1.3	0.588888	0.266666667	20180221
TETRACHLOROETHENE	4/9	0.7	J	39		SV-185	SV-185-MB-2_20180221	0.54	0.54	17.425	7.894444	13.31800577	20180221
TOLUENE	9/9	3		6.5		SV-186	SV-186-MB-2_20180221	NULL	NULL	4.333333	4.333333	1.288409873	20180221
TOTAL XYLENES	9/9	4.6		7.2		SV-180	SV-180-MB-2_20180221	NULL	NULL	5.933333	5.933333	0.973396117	20180221
TOTAL XYLENES	9/9	4.6		7.2		SV-186	SV-186-MB-2_20180221	NULL	NULL	5.933333	5.933333	0.973396117	20180221
TRICHLOROETHENE	2/9	1.5		2		SV-185	SV-185-MB-2_20180221	0.38	0.38	1.75	0.536666	0.699160211	20180221

J = estimated value
µg/m^3 = micrograms per cubic meter
ppbv = parts per billion volume

Associated Samples:

SV-178-MB-2_20180221	SV-181-MB-2_20180221	SV-185-MB-2_20180221
SV-179-MB-2_20180221	SV-182-MB-2_20180221	SV-186-MB-2_20180221
SV-180-MB-2_20180221	SV-184-MB-2_20180221	SV-187-MB-2_20180221

Table 4-2

Detected Analytes and Screening- Level Exceedances in Sub-Slab Soil Vapor Samples-February 2018
Lockheed Martin Middle River Complex, Middle River, Maryland

LOCATION SAMPLE ID SAMPLE DATE	Target Shallow Soil Gas Concentration ($\mu g/m^3$)(1)	Key	SV-178 SV-178-MB-2 20180221	SV-179 SV-179-MB-2 20180221	SV-180 SV-180-MB-2 20180221	SV-181 SV-181-MB-2 20180221	SV-182 SV-182-MB-2 20180221	SV-184 SV-184-MB-2 20180221	SV-185 SV-185-MB-2 20180221	SV-186 SV-186-MB-2 20180221	SV-187 SV-187-MB-2 20180221
Volatile organic compounds ($\mu g/m^3$)											
BENZENE	550	ca	0.37 J	--	0.51 J	0.53 J	0.81 J	--	0.79 J	0.9 J	0.64 J
CARBON TETRACHLORIDE	700	ca	0.56 J	--	0.51 J	--	--	--	0.52 J	0.5 J	3.6
CHLORODIFLUOROMETHANE	7,500,000	nc	1.3 J	1.1 J	1.2 J	1.2 J	1 J	1.1 J	1.1 J	1 J	1 J
CHLOROFORM	180	ca	--	--	--	--	0.58 J	--	0.55 J	--	--
DICHLORODIFLUOROMETHANE	15,000	nc	2.1	2	1.7 J	2.1	1.8 J	2	1.9 J	1.9 J	1.9 J
1,1-DICHLOROETHANE	2,600	ca	0.33 J	44	--	610	1500	0.75 J	48	1.6 J	1.4 J
1,1-DICHLOROETHENE	30,000	nc	--	1.8	--	53	49	--	7.2	--	--
ETHYLBENZENE	1,700	ca	0.93 J	0.84 J	1.3 J	0.89 J	1.1 J	0.77 J	1.1 J	1.4 J	0.94 J
METHYLENE CHLORIDE	88,000	nc	2.3 J	2.3 J	2.4 J	3.7	2.8 J	2.3 J	8	6.2	2.5 J
NAPHTHALENE	120	ca	1.3	--	--	--	--	--	--	--	--
TETRACHLOROETHENE	5,900	nc	--	--	--	--	17	--	39	13	0.7 J
TOLUENE	740,000	nc	3.5	3	4.4	3.5	4.2	3	6.2	6.5	4.7
1,1,1-TRICHLOROETHANE	750,000	nc	1 J	--	0.46 J	28	59	0.4 J	5.8	--	1.3 J
TRICHLOROETHENE	293	nc	--	--	--	--	1.5	--	2	--	--
1,2,4-TRIMETHYLBENZENE	1,020	nc	2.1	1.6 J	1.7 J	1.8 J	1.8 J	1.7 J	1.7 J	1.7 J	2
TOTAL XYLENES	15,000	nc	5.3	4.8	7.2	5.3	6.4	4.6	6.4	7.2	6.2

Notes: All sample concentrations are in micrograms per cubic meter ($\mu g/m^3$)

Shaded cells indicate a concentration greater than risk-based screening level

$\mu g/m^3$ = micrograms per cubic meter

-- = not detected

J = estimated value

USEPA = United States Environmental Protection Agency

VISL = vapor intrusion screening level

ca = screening value based on carcinogenic effects

nc = screening value based on noncarcinogenic effects

(1) VISLs for soil vapor calculated from USEPA's online VISL calculator; lowest value selected from 1x10-5 cancer risk or HI=1 for commercial/industrial exposure setting.

APPENDICES

Appendix A—October 2017 Sub-Slab Soil Vapor Data Tables

Appendix B—Soil Vapor Sample Log Sheets

Appendix C—Data-Validation Report and Chemical Data Table

Appendix A—October 2017 Sub-Slab Soil Vapor Data Tables

Appendix A-1

Sub-Slab Soil Vapor Sample Results - February 2017, Block I Maintenance Building and Surrounding Area
Lockheed Martin Middle River Complex. Middle River, Maryland

LOCATION	SV-178	SV-179	SV-180	SV-181	SV-182	SV-183	SV-184	SV-185	SV-186	SV-187
SAMPLE ID	SV-178-MB-1	SV-179-MB-1	SV-180-MB-1	SV-181-MB-1	SV-182-MB-1	SV-183-MB-1	SV-184-MB-1	SV-185-MB-1	SV-186-MB-1	SV-187-MB-1
SAMPLE DATE	20171012	20171012	20171012	20171012	20171012	20171012	20171012	20171012	20171012	20171012
SAMPLE CODE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX	AS	AS	AS	AS	AS	AS	AS	AS	AS	AS
VOLATILE ORGANICS (UG/M3)										
1,1,1-TRICHLOROETHANE	2 U	0.33 U	0.44 U	0.98 U	4	190	0.43 U	0.8 U	0.39 U	1.1 U
1,1,2-TRICHLOROETHANE	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	1.1 U	0.57 U	0.57 U	0.57 U	0.57 U
1,1-DICHLOROETHANE	7.9	39	1.4 J	500	280	1700	0.52 J	0.89 J	5.1	2.9
1,1-DICHLOROETHENE	0.28 U	1.6	0.28 U	18	9.4	270	0.28 U	0.28 U	0.28 U	0.28 U
1,2,3-TRIMETHYLBENZENE	0.84 U	0.84 U	0.84 U	0.84 U	0.84 U	1.7 U	0.84 U	0.84 U	0.84 U	0.84 U
1,2,4-TRICHLOROBENZENE	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	2.9 U	1.4 U	1.4 U	1.4 U	1.4 U
1,2,4-TRIMETHYLBENZENE	1.8 J	1 J	1.1 J	1.3 J	1.2 J	1.2 U	1.5 J	1.3 J	1.3 J	1.5 J
1,2-DICHLOROETHANE	0.38 U	0.59 J	0.38 U	0.38 U	0.38 U	0.77 U	0.38 U	0.38 U	0.38 U	0.38 U
1,3,5-TRIMETHYLBENZENE	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	1.3 U	0.64 U	0.64 U	0.64 U	0.64 U
BENZENE	0.76 J	0.66 J	0.4 J	0.62 J	0.8 J	1 J	0.59 J	0.93 J	1.3	0.63 J
CARBON TETRACHLORIDE	0.47 U	0.55 J	0.47 U	0.47 U	0.47 U	0.94 U	0.48 J	0.47 U	0.47 U	0.47 U
CHLORODIFLUOROMETHANE	1.3 J	1.1 J	1.2 J	1.3 J	1.1 J	0.53 U	0.96 J	0.93 J	0.27 U	1.1 J
CHLOROFORM	2.8	1.1 J	0.37 U	0.56 J	0.37 U	0.93 J	0.37 U	0.37 U	0.37 U	0.37 U
CIS-1,2-DICHLOROETHENE	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.95 U	0.48 U	0.48 U	0.48 U	0.48 U
DICHLORODIFLUOROMETHANE	2.5	2.7	2.4	2.9	2.8	2.6 J	2.5	2.3	2.4	2.6
ETHYLBENZENE	1 J	0.95 J	0.71 J	0.93 J	0.68 J	1.2 U	0.79 J	1 J	1.1 J	1.1 J
METHYL TERT-BUTYL ETHER	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	2.5 U	1.2 U	1.2 U	1.2 U	1.2 U
METHYLENE CHLORIDE	6.6	5.9	6.7	6.6	7.2	7.8	5.4	7	8	6.2
NAPHTHALENE	1 U	1 U	1 U	1 U	1 U	2.1 U	1 U	1 U	1 U	1 U
TETRACHLOROETHENE	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	1.1 U	0.54 U	0.61 J	0.94 J	0.54 U
TOLUENE	7.3	6.7	4.2	6.8	4.3	4.5 U	5.4	6.5	6.9	6.9
TOTAL XYLENES	6	5.1	3.9	5.3	4	1 U	4.5	5.6	5.5	5.8
TRANS-1,2-DICHLOROETHENE	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.79 U	0.4 U	0.4 U	0.4 U	0.4 U
TRICHLOROETHENE	0.38 U	0.38 U	0.38 U	0.38 U	0.39 J	2 J	0.38 U	0.38 U	0.38 U	0.38 U
VINYL CHLORIDE	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.75 J	0.37 U	0.37 U	0.37 U	0.37 U

Notes:

Shaded cells indicate a concentration greater than risk-based screening level

J = estimated value

µg/m^3 = micrograms per cubic meter

U = nondetect

Appendix A-2
Detected Analytes and Screening- Level Exceedances in Sub-Slab Soil Vapor Samples-October 2017
Lockheed Martin Middle River Complex, Middle River, Maryland

LOCATION SAMPLE ID SAMPLE DATE	Target Shallow Soil Gas Concentration ($\mu g/m^3$)(1)	Key	SV-178 SV-178-MB-1 20171012	SV-179 SV-179-MB-1 20171012	SV-180 SV-180-MB-1 20171012	SV-181 SV-181-MB-1 20171012	SV-182 SV-182-MB-1 20171012	SV-183 SV-183-MB-1 20171012	SV-184 SV-184-MB-1 20171012	SV-185 SV-185-MB-1 20171012	SV-186 SV-186-MB-1 20171012	SV-187 SV-187-MB-1 20171012
Volatile organic compounds ($\mu g/m^3$)												
BENZENE	550	ca	0.76 J	0.66 J	0.4 J	0.62 J	0.8 J	1 J	0.59 J	0.93 J	1.3	0.63 J
CARBON TETRACHLORIDE	700	ca	--	0.55 J	--	--	--	--	0.48 J	--	--	--
CHLORODIFLUOROMETHANE	7,500,000	nc	1.3 J	1.1 J	1.2 J	1.3 J	1.1 J	--	0.96 J	0.93 J	--	1.1 J
CHLOROFORM	180	ca	2.8	1.1 J	--	0.56 J	--	0.93 J	--	--	--	--
DICHLORODIFLUOROMETHANE	15,000	nc	2.5	2.7	2.4	2.9	2.8	2.6 J	2.5	2.3	2.4	2.6
1,1-DICHLOROETHANE	2,600	ca	7.9	39	1.4 J	500	280	1700	0.52 J	0.89 J	5.1	2.9
1,2-DICHLOROETHANE	160	ca	--	0.59 J	--	--	--	--	--	--	--	--
1,1-DICHLOROETHENE	30,000	nc	--	1.6	--	18	9.4	270	--	--	--	--
ETHYLBENZENE	1,700	ca	1 J	0.95 J	0.71 J	0.93 J	0.68 J	--	0.79 J	1 J	1.1 J	1.1 J
METHYLENE CHLORIDE	88,000	nc	6.6	5.9	6.7	6.6	7.2	7.8	5.4	7	8	6.2
TETRACHLOROETHENE	5,900	nc	--	--	--	--	--	--	--	0.61 J	0.94 J	--
TOLUENE	740,000	nc	7.3	6.7	4.2	6.8	4.3	--	5.4	6.5	6.9	6.9
1,1,1-TRICHLOROETHANE	750,000	nc	--	--	--	--	4	190	--	--	--	--
TRICHLOROETHENE	293	nc	--	--	--	--	0.39 J	2 J	--	--	--	--
1,2,4-TRIMETHYLBENZENE	1,020	nc	1.8 J	1 J	1.1 J	1.3 J	1.2 J	--	1.5 J	1.3 J	1.3 J	1.5 J
VINYL CHLORIDE	930	ca	--	--	--	--	--	0.75 J	--	--	--	--
TOTAL XYLENES	15,000	nc	6	5.1	3.9	5.3	4	--	4.5	5.6	5.5	5.8

Notes: All sample concentrations are in micrograms per cubic meter ($\mu g/m^3$)
Shaded cells indicate a concentration greater than risk-based screening level

$\mu g/m^3$ = micrograms per cubic meter
-- = not available
J = estimated value
U = nondetect
UJ = non-detected value is estimated
USEPA = United States Environmental Protection Agency
VISL = vapor intrusion screening level
ca = screening value based on carcinogenic effects
nc = screening value based on noncarcinogenic effects
(1) VISLs for soil vapor calculated from USEPA's online VISL calculator; lowest value selected from 1x10-5 cancer risk or HI=1 for commercial/industrial exposure setting

Appendix A-3
Statistical Summary of Analytes Detected in Sub-Slab Soil Vapor Samples- October 2017
Lockheed Martin Middle River Complex, Middle River, Maryland

Parameter	Frequency of detection	Minumum dected result	Maximum dected result	Location of maximum	Sample with maximum result	Minimum nondetect	Maximum nondetect	Average-detects	Average-all samples	Standard deviation	Sampling date
Volatile organic compounds (µg/m^3)											
1,1-DICHLOROETHANE	10/10	0.52 J	1700	SV-183	SV-183-MB-1	NULL	NULL	253.77	253.77	535.00	20171012
BENZENE	10/10	0.4 J	1.3	SV-186	SV-186-MB-1	NULL	NULL	0.77	0.77	0.25	20171012
DICHLORODIFLUOROMETHANE	10/10	2.3	2.9	SV-181	SV-181-MB-1	NULL	NULL	2.57	2.57	0.19	20171012
METHYLENE CHLORIDE	10/10	5.4	8	SV-186	SV-186-MB-1	NULL	NULL	6.74	6.74	0.80	20171012
1,2,4-TRIMETHYLBENZENE	9/10	1 J	1.8 J	SV-178	SV-178-MB-1	1.2	1.2	1.33	1.26	0.32	20171012
ETHYLBENZENE	9/10	0.68 J	1.1 J	SV-186/187	SV-186/187-MB-1	1.2	1.2	0.92	0.89	0.18	20171012
TOLUENE	9/10	4.2	7.3	SV-178	SV-178-MB-1	4.5	4.5	6.11	5.73	1.65	20171012
TOTAL XYLENES	9/10	3.9	6	SV-178	SV-178-MB-1	1	1	5.08	4.62	1.62	20171012
CHLORODIFLUOROMETHANE	8/10	0.93 J	1.3 J	SV-178	SV-178-MB-1	0.27	0.53	1.12	0.94	0.41	20171012
CHLORODIFLUOROMETHANE	8/10	0.93 J	1.3 J	SV-181	SV-181-MB-1	0.27	0.53	1.12	0.94	0.41	20171012
1,1-DICHLOROETHENE	4/10	1.6	270	SV-183	SV-183-MB-1	0.28	0.28	74.75	29.98	84.54	20171012
CHLOROFORM	4/10	0.56 J	2.8	SV-178	SV-178-MB-1	0.37	0.37	1.35	0.65	0.83	20171012
1,1,1-TRICHLOROETHANE	2/10	4	190	SV-183	SV-183-MB-1	0.33	2	97.00	19.72	59.84	20171012
CARBON TETRACHLORIDE	2/10	0.48 J	0.55 J	SV-179	SV-179-MB-1	0.47	0.94	0.52	0.31	0.13	20171012
TETRACHLOROETHENE	2/10	0.61 J	0.94 J	SV-186	SV-186-MB-1	0.54	1.1	0.78	0.40	0.23	20171012
TRICHLOROETHENE	2/10	0.39 J	2 J	SV-183	SV-183-MB-1	0.38	0.38	1.20	0.39	0.57	20171012
1,2-DICHLOROETHANE	1/10	0.59 J	0.59 J	SV-179	SV-179-MB-1	0.38	0.77	0.59	0.25	0.13	20171012
VINYL CHLORIDE	1/10	0.75 J	0.75 J	SV-183	SV-183-MB-1	0.37	0.37	0.75	0.24	0.18	20171012

J = estimated value

µg/m^3 = micrograms per cubic meter

ppbv = parts per billion volume

Associated Samples:

SV-178-MB-1	20171012	SV-181-MB-1	20171012		SV-184-MB-1	20171012	SV-187-MB-1	20171012	
SV-179-MB-1	20171012	SV-182-MB-1	20171012		SV-185-MB-1	20171012			
SV-180-MB-1	20171012	SV-183-MB-1	20171012		SV-186-MB-1	20171012			

Appendix B—Soil Vapor Sample Log Sheets

TETRA TECH

SOIL VAPOR AND INDOOR AIR QUALITY SAMPLE LOG SHEET

Project Site Name:	MRC Maintenance Building VMP	Date:	2/21/2018
Project Number - Task:	112IC08388	Sampled By:	TA/MW

SAMPLING DATA:

SOIL VAPOR SAMPLE		INDOOR AIR QUALITY SAMPLE	
SV Sample ID:	**SV-178-MB-2**	IAQ Sample ID:	
SV Canister #:	**11825**	IAQ Canister #:	
SV Regulator #:	**10140**	IAQ Regulator #:	
SV Start Time:	**1058**	IAQ Start Time:	
SV Start Pressure:	**-30**	IAQ Start Pressure:	
SV Stop Time:	**1216**	IAQ Stop Time:	
SV Stop Pressure:	**0**	IAQ Stop Pressure:	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected
TO15	1L	X
	Summa Can	

LOCATION:

EMCOR Maintenance Building

OBSERVATIONS / NOTES:

Located in Office Space

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

TETRA TECH

SOIL VAPOR AND INDOOR AIR QUALITY SAMPLE LOG SHEET

Project Site Name:	MRC Maintenance Building VMP	Date:	2/21/2018
Project Number - Task:	112IC08388	Sampled By:	TA/MW

SAMPLING DATA:

SOIL VAPOR SAMPLE		INDOOR AIR QUALITY SAMPLE	
SV Sample ID:	**SV-179-MB-2**	IAQ Sample ID:	
SV Canister #:	**11820**	IAQ Canister #:	
SV Regulator #:	**10294**	IAQ Regulator #:	
SV Start Time:	**1108**	IAQ Start Time:	
SV Start Pressure:	**-30**	IAQ Start Pressure:	
SV Stop Time:	**1219**	IAQ Stop Time:	
SV Stop Pressure:	**0**	IAQ Stop Pressure:	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected
TO15	1L	X
	Summa Can	

LOCATION:

EMCOR Maintenance Building

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

TETRA TECH

SOIL VAPOR AND INDOOR AIR QUALITY SAMPLE LOG SHEET

Project Site Name:	MRC Maintenance Building VMP	Date:	2/21/2018
Project Number - Task:	112IC08388	Sampled By:	TA/MW

SAMPLING DATA:

SOIL VAPOR SAMPLE		INDOOR AIR QUALITY SAMPLE	
SV Sample ID:	**SV-180-MB-2**	IAQ Sample ID:	
SV Canister #:	**11830**	IAQ Canister #:	
SV Regulator #:	**09753**	IAQ Regulator #:	
SV Start Time:	**1102**	IAQ Start Time:	
SV Start Pressure:	**-30**	IAQ Start Pressure:	
SV Stop Time:	**1218**	IAQ Stop Time:	
SV Stop Pressure:	**-5**	IAQ Stop Pressure:	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected
TO15	1L	X
	Summa Can	

LOCATION:

EMCOR Maintenance Building

OBSERVATIONS / NOTES:

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

TETRA TECH

SOIL VAPOR AND INDOOR AIR QUALITY SAMPLE LOG SHEET

Project Site Name:	MRC Maintenance Building VMP	Date:	2/21/2018
Project Number - Task:	112IC08388	Sampled By:	TA/MW

SAMPLING DATA:

SOIL VAPOR SAMPLE		INDOOR AIR QUALITY SAMPLE	
SV Sample ID:	**SV-181-MB-2**	IAQ Sample ID:	
SV Canister #:	**11828**	IAQ Canister #:	
SV Regulator #:	**10665**	IAQ Regulator #:	
SV Start Time:	**1108**	IAQ Start Time:	
SV Start Pressure:	**-29.5**	IAQ Start Pressure:	
SV Stop Time:	**1219**	IAQ Stop Time:	
SV Stop Pressure:	**-1**	IAQ Stop Pressure:	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected
TO15	1L	X
	Summa Can	

LOCATION:

EMCOR Maintenance Building

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

TETRA TECH

SOIL VAPOR AND INDOOR AIR QUALITY SAMPLE LOG SHEET

Project Site Name:	MRC Maintenance Building VMP	Date:	2/21/2018
Project Number - Task:	112IC08388	Sampled By:	TA/MW

SAMPLING DATA:

SOIL VAPOR SAMPLE		INDOOR AIR QUALITY SAMPLE	
SV Sample ID:	**SV-182-MB-2**	IAQ Sample ID:	
SV Canister #:	**10494**	IAQ Canister #:	
SV Regulator #:	**11550**	IAQ Regulator #:	
SV Start Time:	**1112**	IAQ Start Time:	
SV Start Pressure:	**-30**	IAQ Start Pressure:	
SV Stop Time:	**1222**	IAQ Stop Time:	
SV Stop Pressure:	**-6**	IAQ Stop Pressure:	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected
TO15	1L	X
	Summa Can	

LOCATION:

EMCOR Maintenance Building

OBSERVATIONS / NOTES:

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

TETRA TECH

SOIL VAPOR AND INDOOR AIR QUALITY SAMPLE LOG SHEET

Project Site Name:	MRC Maintenance Building VMP	Date:	2/21/2018
Project Number - Task:	112IC08388	Sampled By:	TA/MW

SAMPLING DATA:

SOIL VAPOR SAMPLE		INDOOR AIR QUALITY SAMPLE	
SV Sample ID:	**SV-184-MB-2**	IAQ Sample ID:	
SV Canister #:	**11645**	IAQ Canister #:	
SV Regulator #:	**10845**	IAQ Regulator #:	
SV Start Time:	**1118**	IAQ Start Time:	
SV Start Pressure:	**-29**	IAQ Start Pressure:	
SV Stop Time:	**1224**	IAQ Stop Time:	
SV Stop Pressure:	**0**	IAQ Stop Pressure:	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected
TO15	1L	X
	Summa Can	

LOCATION:

EMCOR Maintenance Building

OBSERVATIONS / NOTES:

Located in lunch room/break room

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

TETRA TECH

SOIL VAPOR AND INDOOR AIR QUALITY SAMPLE LOG SHEET

Project Site Name:	MRC Maintenance Building VMP	Date:	2/21/2018
Project Number - Task:	112IC08388	Sampled By:	TA/MW

SAMPLING DATA:

SOIL VAPOR SAMPLE		INDOOR AIR QUALITY SAMPLE	
SV Sample ID:	**SV-185-MB-2**	IAQ Sample ID:	
SV Canister #:	**9736**	IAQ Canister #:	
SV Regulator #:	**10583**	IAQ Regulator #:	
SV Start Time:	**1132**	IAQ Start Time:	
SV Start Pressure:	**-26**	IAQ Start Pressure:	
SV Stop Time:	**1234**	IAQ Stop Time:	
SV Stop Pressure:	**0**	IAQ Stop Pressure:	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected
TO15	1L	X
	Summa Can	

LOCATION:

EMCOR Maintenance Building

OBSERVATIONS / NOTES:

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

TETRA TECH

SOIL VAPOR AND INDOOR AIR QUALITY SAMPLE LOG SHEET

Project Site Name:	MRC Maintenance Building VMP	Date:	2/21/2018
Project Number - Task:	112IC08388	Sampled By:	TA/MW

SAMPLING DATA:

SOIL VAPOR SAMPLE		INDOOR AIR QUALITY SAMPLE	
SV Sample ID:	**SV-186-MB-2**	IAQ Sample ID:	
SV Canister #:	**11591**	IAQ Canister #:	
SV Regulator #:	**10289**	IAQ Regulator #:	
SV Start Time:	**1130**	IAQ Start Time:	
SV Start Pressure:	**-30**	IAQ Start Pressure:	
SV Stop Time:	**1233**	IAQ Stop Time:	
SV Stop Pressure:	**-3**	IAQ Stop Pressure:	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected
TO15	1L	X
	Summa Can	

LOCATION:

EMCOR Maintenance Building

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

TETRA TECH

SOIL VAPOR AND INDOOR AIR QUALITY SAMPLE LOG SHEET

Project Site Name:	MRC Maintenance Building VMP	Date:	2/21/2018
Project Number - Task:	112IC08388	Sampled By:	TA/MW

SAMPLING DATA:

SOIL VAPOR SAMPLE		INDOOR AIR QUALITY SAMPLE	
SV Sample ID:	**SV-187-MB-2**	IAQ Sample ID:	
SV Canister #:	**11710**	IAQ Canister #:	
SV Regulator #:	**11515**	IAQ Regulator #:	
SV Start Time:	**1122**	IAQ Start Time:	
SV Start Pressure:	**-30**	IAQ Start Pressure:	
SV Stop Time:	**1226**	IAQ Stop Time:	
SV Stop Pressure:	**-2**	IAQ Stop Pressure:	

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected
TO15	1L	X
	Summa Can	

LOCATION:

EMCOR Maintenance Building

OBSERVATIONS / NOTES:

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

Appendix C—Data-Validation Report and Chemical Data Table

TETRA TECH

INTERNAL CORRESPONDENCE

TO: **A. APANAVAGE** **DATE:** **APRIL 6, 2018**

FROM: **LEIGH A. CIOFANI** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC**
LOCKHEED MARTIN CORPORATION (LMC) – MIDDLE RIVER COMPLEX (MRC)
SAMPLE DELIVERY GROUP (SDG) 140-10792-1

SAMPLES: 12 / Air / VOC

SV-075-A-24	SV-095-A-24	SV-168-A-24
SV-178-MB-2	SV-179-MB-2	SV-180-MB-2
SV-181-MB-2	SV-182-MB-2	SV-184-MB-2
SV-185-MB-2	SV-186-MB-2	SV-187-MB-2

OVERVIEW

The sample set for LMC – MRC, SDG 140-10792-1, consists of twelve (12) soil vapor (SV) environmental samples. All samples were analyzed for select volatile organic compounds (VOCs). No field duplicate pairs are included in this SDG.

The samples were collected by Tetra Tech on February 21, 2018, and analyzed by TestAmerica. All analyses were conducted in accordance with EPA Method TO-15 analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, GC/MS tuning, initial/continuing calibrations, laboratory method blank results, laboratory control sample results, surrogate recoveries, internal standard areas, chromatographic resolution, compound identification, compound quantitation, and detection limits. Areas of concern are listed below.

MAJOR PROBLEMS

- None.

MINOR PROBLEMS

- Detected results reported below the reporting limit (RL) but above the method detection limit (MDL) were qualified as estimated (J).

NOTES

Twenty-five VOC target compounds were reported for the TO-15 analysis of the samples.

Non-detected results were reported to the MDL.

The laboratory case narrative indicates that a sample SV-183-MB-2 was received by the laboratory but was not listed on the chain of custody. The case narrative notes that the sample was not analyzed, as per client instructions.

In samples SV-181-MB-2 and SV-182-MB-2, the analyte 1,1-dichloroethane exceeded the instrument calibration range during the original analysis. Samples SV-181-MB-2 and SV-182-MB-2 were reanalyzed at a dilution factors of 5 and 10, respectively, and the laboratory reported the result for 1,1-dichloroethane from the reanalysis.

EXECUTIVE SUMMARY

Laboratory Performance: None.

Other Factors Affecting Data Quality: Results above the MDL but below the RL were qualified as estimated.

The data for these analyses were reviewed with reference to the USEPA "National Functional Guidelines for Organic Superfund Methods Data Review" (January 2017) and USEPA Method TO-15 analytical and reporting protocols. The text of this report has been formulated to address only those areas affecting data quality.

Leigh A. Ciofani

Tetra Tech, Inc.
Leigh A. Ciofani
Environmental Scientist/Data Validator

Joseph A. Samchuck

Tetra Tech, Inc.
Joseph A. Samchuck
Data Validation Manager

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Data Qualifier Definitions

The following definitions provide brief explanations of the validation qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted method detection limit for sample and method.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the reporting limit).
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported detection limit is approximate and may be inaccurate or imprecise.
R	The sample result (detected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
UR	The sample result (nondetected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed
Z3 = Tentatively Identified Compound aldol condensate
Z4 = Sample activity is less than the at uncertainty at 3 standard deviations and greater than the MDC
Z5 = Sample activity is less than the at uncertainty at 3 standard deviations and less than the MDC

PROJ_NO: 08388	NSAMPLE	SV-075-A-24			SV-095-A-24			SV-168-A-24			SV-178-MB-2		
SDG: 140-10792-1	LAB_ID	140-10792-3			140-10792-2			140-10792-1			140-10792-4		
FRACTION: OV-M3	SAMP_DATE	2/21/2018			2/21/2018			2/21/2018			2/21/2018		
MEDIA: AIR	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/M3			UG/M3			UG/M3			UG/M3		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.33	U		0.33	U		9.3	J	P	1	J	P
1,1,2-TRICHLOROETHANE		0.57	U		0.57	U		2.9	U		0.57	U	
1,1-DICHLOROETHANE		0.2	U		0.2	U		3.6	J	P	0.33	J	P
1,1-DICHLOROETHENE		0.28	U		0.28	U		500			0.28	U	
1,2,3-TRIMETHYLBENZENE		29			0.84	U		4.2	U		0.84	U	
1,2,4-TRICHLOROBENZENE		1.4	U		1.4	U		7.2	U		1.4	U	
1,2,4-TRIMETHYLBENZENE		94			3			3.1	U		2.1		
1,2-DICHLOROETHANE		0.38	U		0.38	U		1.9	U		0.38	U	
1,3,5-TRIMETHYLBENZENE		52			1.2	J	P	3.2	U		0.64	U	
BENZENE		0.51	J	P	0.37	U		1.8	U		0.37	J	P
CARBON TETRACHLORIDE		0.47	U		0.47	U		2.4	U		0.56	J	P
CHLORODIFLUOROMETHANE		1.5			3.5			1.5	J	P	1.3	J	P
CHLOROFORM		0.37	U		0.37	U		3.6	J	P	0.37	U	
CIS-1,2-DICHLOROETHENE		0.48	U		0.48	U		6.1	J	P	0.48	U	
DICHLORODIFLUOROMETHANE		2.3			1.9	J	P	3.5	J	P	2.1		
ETHYLBENZENE		1.2	J	P	1.7			2.9	U		0.93	J	P
METHYL TERT-BUTYL ETHER		1.2	U		1.2	U		6.1	U		1.2	U	
METHYLENE CHLORIDE		3.3	J	P	2.4	J	P	14	J	P	2.3	J	P
NAPHTHALENE		84			1	U		5.2	U		1.3		
TETRACHLOROETHENE		1.1	J	P	1.7	J	P	23			0.54	U	
TOLUENE		4.9			3.3			11	U		3.5		
TOTAL XYLENES		13			9.2			2.6	U		5.3		
TRANS-1,2-DICHLOROETHENE		0.4	U		0.4	U		2	U		0.4	U	
TRICHLOROETHENE		2.6			6			1300			0.38	U	
VINYL CHLORIDE		0.37	U		0.37	U		1.9	U		0.37	U	

PROJ_NO: 08388	NSAMPLE	SV-179-MB-2			SV-180-MB-2			SV-181-MB-2			SV-182-MB-2		
SDG: 140-10792-1	LAB_ID	140-10792-6			140-10792-5			140-10792-7			140-10792-8		
FRACTION: OV-M3	SAMP_DATE	2/21/2018			2/21/2018			2/21/2018			2/21/2018		
MEDIA: AIR	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/M3			UG/M3			UG/M3			UG/M3		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.33	U		0.46	J	P	28			59		
1,1,2-TRICHLOROETHANE		0.57	U		0.57	U		0.57	U		0.57	U	
1,1-DICHLOROETHANE		44			0.2	U		610			1500		
1,1-DICHLOROETHENE		1.8			0.28	U		53			49		
1,2,3-TRIMETHYLBENZENE		0.84	U		0.84	U		0.84	U		0.84	U	
1,2,4-TRICHLOROBENZENE		1.4	U		1.4	U		1.4	U		1.4	U	
1,2,4-TRIMETHYLBENZENE		1.6	J	P	1.7	J	P	1.8	J	P	1.8	J	P
1,2-DICHLOROETHANE		0.38	U		0.38	U		0.38	U		0.38	U	
1,3,5-TRIMETHYLBENZENE		0.64	U		0.64	U		0.64	U		0.64	U	
BENZENE		0.37	U		0.51	J	P	0.53	J	P	0.81	J	P
CARBON TETRACHLORIDE		0.47	U		0.51	J	P	0.47	U		0.47	U	
CHLORODIFLUOROMETHANE		1.1	J	P	1.2	J	P	1.2	J	P	1	J	P
CHLOROFORM		0.37	U		0.37	U		0.37	U		0.58	J	P
CIS-1,2-DICHLOROETHENE		0.48	U		0.48	U		0.48	U		0.48	U	
DICHLORODIFLUOROMETHANE		2			1.7	J	P	2.1			1.8	J	P
ETHYLBENZENE		0.84	J	P	1.3	J	P	0.89	J	P	1.1	J	P
METHYL TERT-BUTYL ETHER		1.2	U		1.2	U		1.2	U		1.2	U	
METHYLENE CHLORIDE		2.3	J	P	2.4	J	P	3.7			2.8	J	P
NAPHTHALENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		0.54	U		0.54	U		0.54	U		17		
TOLUENE		3			4.4			3.5			4.2		
TOTAL XYLENES		4.8			7.2			5.3			6.4		
TRANS-1,2-DICHLOROETHENE		0.4	U		0.4	U		0.4	U		0.4	U	
TRICHLOROETHENE		0.38	U		0.38	U		0.38	U		1.5		
VINYL CHLORIDE		0.37	U		0.37	U		0.37	U		0.37	U	

PROJ_NO: 08388	NSAMPLE	SV-184-MB-2			SV-185-MB-2			SV-186-MB-2			SV-187-MB-2		
SDG: 140-10792-1	LAB_ID	140-10792-9			140-10792-12			140-10792-11			140-10792-10		
FRACTION: OV-M3	SAMP_DATE	2/21/2018			2/21/2018			2/21/2018			2/21/2018		
MEDIA: AIR	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/M3			UG/M3			UG/M3			UG/M3		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.4	J	P	5.8			0.33	U		1.3	J	P
1,1,2-TRICHLOROETHANE		0.57	U		0.57	U		0.57	U		0.57	U	
1,1-DICHLOROETHANE		0.75	J	P	48			1.6	J	P	1.4	J	P
1,1-DICHLOROETHENE		0.28	U		7.2			0.28	U		0.28	U	
1,2,3-TRIMETHYLBENZENE		0.84	U		0.84	U		0.84	U		0.84	U	
1,2,4-TRICHLOROBENZENE		1.4	U		1.4	U		1.4	U		1.4	U	
1,2,4-TRIMETHYLBENZENE		1.7	J	P	1.7	J	P	1.7	J	P	2		
1,2-DICHLOROETHANE		0.38	U		0.38	U		0.38	U		0.38	U	
1,3,5-TRIMETHYLBENZENE		0.64	U		0.64	U		0.64	U		0.64	U	
BENZENE		0.37	U		0.79	J	P	0.9	J	P	0.64	J	P
CARBON TETRACHLORIDE		0.47	U		0.52	J	P	0.5	J	P	3.6		
CHLORODIFLUOROMETHANE		1.1	J	P	1.1	J	P	1	J	P	1	J	P
CHLOROFORM		0.37	U		0.55	J	P	0.37	U		0.37	U	
CIS-1,2-DICHLOROETHENE		0.48	U		0.48	U		0.48	U		0.48	U	
DICHLORODIFLUOROMETHANE		2			1.9	J	P	1.9	J	P	1.9	J	P
ETHYLBENZENE		0.77	J	P	1.1	J	P	1.4	J	P	0.94	J	P
METHYL TERT-BUTYL ETHER		1.2	U		1.2	U		1.2	U		1.2	U	
METHYLENE CHLORIDE		2.3	J	P	8			6.2			2.5	J	P
NAPHTHALENE		1	U		1	U		1	U		1	U	
TETRACHLOROETHENE		0.54	U		39			13			0.7	J	P
TOLUENE		3			6.2			6.5			4.7		
TOTAL XYLENES		4.6			6.4			7.2			6.2		
TRANS-1,2-DICHLOROETHENE		0.4	U		0.4	U		0.4	U		0.4	U	
TRICHLOROETHENE		0.38	U		2			0.38	U		0.38	U	
VINYL CHLORIDE		0.37	U		0.37	U		0.37	U		0.37	U	

Appendix B

Results as Reported by the Laboratory

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-075-A-24 | Lab Sample ID: 140-10792-3

Matrix: Air | Lab File ID: RC01P103.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:10

Sample wt/vol: 100(mL) | Date Analyzed: 03/01/2018 15:39

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.16	J	0.40	0.12
56-23-5	Carbon tetrachloride	153.81	ND		0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	0.41		0.40	0.075
67-66-3	Chloroform	119.38	ND		0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.46		0.40	0.14
75-34-3	1,1-Dichloroethane	98.96	ND		0.40	0.050
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	ND		0.40	0.070
100-41-4	Ethylbenzene	106.17	0.28	J	0.40	0.14
75-09-2	Methylene Chloride	84.93	0.96	J	1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	16		0.20	0.20
127-18-4	Tetrachloroethene	165.83	0.16	J	0.40	0.080
108-88-3	Toluene	92.14	1.3		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	ND		0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	0.49		0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	5.8		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	19		0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	11		0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	3.0		0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	102		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-075-A-24 Lab Sample ID: 140-10792-3

Matrix: Air Lab File ID: RC01P103.D

Analysis Method: TO 15 LL Date Collected: 02/21/2018 12:10

Sample wt/vol: 100(mL) Date Analyzed: 03/01/2018 15:39

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 18444 Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.51	J	1.3	0.37
56-23-5	Carbon tetrachloride	153.81	ND		2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	1.5		1.4	0.27
67-66-3	Chloroform	119.38	ND		2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	2.3		2.0	0.67
75-34-3	1,1-Dichloroethane	98.96	ND		1.6	0.20
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	ND		1.6	0.28
100-41-4	Ethylbenzene	106.17	1.2	J	1.7	0.59
75-09-2	Methylene Chloride	84.93	3.3	J	3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	84		1.0	1.0
127-18-4	Tetrachloroethene	165.83	1.1	J	2.7	0.54
108-88-3	Toluene	92.14	4.9		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	ND		2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	2.6		1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	29		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	94		2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	52		2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	13		3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	102		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-095-A-24 | Lab Sample ID: 140-10792-2

Matrix: Air | Lab File ID: RC01P102.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 13:05

Sample wt/vol: 100(mL) | Date Analyzed: 03/01/2018 14:52

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	ND		0.40	0.12
56-23-5	Carbon tetrachloride	153.81	ND		0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	1.0		0.40	0.075
67-66-3	Chloroform	119.38	ND		0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.39	J	0.40	0.14
75-34-3	1,1-Dichloroethane	98.96	ND		0.40	0.050
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	ND		0.40	0.070
100-41-4	Ethylbenzene	106.17	0.40		0.40	0.14
75-09-2	Methylene Chloride	84.93	0.69	J	1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	ND		0.20	0.20
127-18-4	Tetrachloroethene	165.83	0.25	J	0.40	0.080
108-88-3	Toluene	92.14	0.86		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	ND		0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	1.1		0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	0.61		0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	0.24	J	0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	2.1		0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	105		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-095-A-24 | Lab Sample ID: 140-10792-2

Matrix: Air | Lab File ID: RC01P102.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 13:05

Sample wt/vol: 100(mL) | Date Analyzed: 03/01/2018 14:52

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	ND		1.3	0.37
56-23-5	Carbon tetrachloride	153.81	ND		2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	3.5		1.4	0.27
67-66-3	Chloroform	119.38	ND		2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	1.9	J	2.0	0.67
75-34-3	1,1-Dichloroethane	98.96	ND		1.6	0.20
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	ND		1.6	0.28
100-41-4	Ethylbenzene	106.17	1.7		1.7	0.59
75-09-2	Methylene Chloride	84.93	2.4	J	3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	1.7	J	2.7	0.54
108-88-3	Toluene	92.14	3.3		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	ND		2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	6.0		1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	3.0		2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	1.2	J	2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	9.2		3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	105		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-168-A-24 | Lab Sample ID: 140-10792-1

Matrix: Air | Lab File ID: RC01P101.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:07

Sample wt/vol: 20(mL) | Date Analyzed: 03/01/2018 14:05

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	ND		2.0	0.58
56-23-5	Carbon tetrachloride	153.81	ND		2.0	0.38
75-45-6	Chlorodifluoromethane	86.47	0.42	J	2.0	0.38
67-66-3	Chloroform	119.38	0.74	J	2.0	0.38
156-59-2	cis-1,2-Dichloroethene	96.94	1.5	J	2.0	0.60
75-71-8	Dichlorodifluoromethane	120.91	0.71	J	2.0	0.68
75-34-3	1,1-Dichloroethane	98.96	0.88	J	2.0	0.25
107-06-2	1,2-Dichloroethane	98.96	ND		2.0	0.48
75-35-4	1,1-Dichloroethene	96.94	130		2.0	0.35
100-41-4	Ethylbenzene	106.17	ND		2.0	0.68
75-09-2	Methylene Chloride	84.93	3.9	J	5.0	3.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		10	1.7
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	3.5		2.0	0.40
108-88-3	Toluene	92.14	ND		3.0	3.0
156-60-5	trans-1,2-Dichloroethene	96.94	ND		2.0	0.50
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		2.0	0.98
71-55-6	1,1,1-Trichloroethane	133.41	1.7	J	2.0	0.30
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.0	0.53
79-01-6	Trichloroethene	131.39	250		1.0	0.35
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.85
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		2.0	0.63
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.65
75-01-4	Vinyl chloride	62.50	ND		1.0	0.73
1330-20-7	Xylenes, Total	106.17	ND		4.0	0.60

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	101		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-168-A-24 | Lab Sample ID: 140-10792-1

Matrix: Air | Lab File ID: RC01P101.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:07

Sample wt/vol: 20(mL) | Date Analyzed: 03/01/2018 14:05

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	ND		6.4	1.8
56-23-5	Carbon tetrachloride	153.81	ND		13	2.4
75-45-6	Chlorodifluoromethane	86.47	1.5	J	7.1	1.3
67-66-3	Chloroform	119.38	3.6	J	9.8	1.8
156-59-2	cis-1,2-Dichloroethene	96.94	6.1	J	7.9	2.4
75-71-8	Dichlorodifluoromethane	120.91	3.5	J	9.9	3.3
75-34-3	1,1-Dichloroethane	98.96	3.6	J	8.1	1.0
107-06-2	1,2-Dichloroethane	98.96	ND		8.1	1.9
75-35-4	1,1-Dichloroethene	96.94	500		7.9	1.4
100-41-4	Ethylbenzene	106.17	ND		8.7	2.9
75-09-2	Methylene Chloride	84.93	14	J	17	11
1634-04-4	Methyl tert-butyl ether	88.15	ND		36	6.1
91-20-3	Naphthalene	128.17	ND		5.2	5.2
127-18-4	Tetrachloroethene	165.83	23		14	2.7
108-88-3	Toluene	92.14	ND		11	11
156-60-5	trans-1,2-Dichloroethene	96.94	ND		7.9	2.0
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		15	7.2
71-55-6	1,1,1-Trichloroethane	133.41	9.3	J	11	1.6
79-00-5	1,1,2-Trichloroethane	133.41	ND		11	2.9
79-01-6	Trichloroethene	131.39	1300		5.4	1.9
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		9.8	4.2
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		9.8	3.1
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		9.8	3.2
75-01-4	Vinyl chloride	62.50	ND		2.6	1.9
1330-20-7	Xylenes, Total	106.17	ND		17	2.6

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	101		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-178-MB-2 | Lab Sample ID: 140-10792-4

Matrix: Air | Lab File ID: RC01P104.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:16

Sample wt/vol: 100(mL) | Date Analyzed: 03/01/2018 16:26

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.12	J	0.40	0.12
56-23-5	Carbon tetrachloride	153.81	0.089	J	0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	0.38	J	0.40	0.075
67-66-3	Chloroform	119.38	ND		0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.42		0.40	0.14
75-34-3	1,1-Dichloroethane	98.96	0.081	J	0.40	0.050
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	ND		0.40	0.070
100-41-4	Ethylbenzene	106.17	0.21	J	0.40	0.14
75-09-2	Methylene Chloride	84.93	0.68	J	1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	0.26		0.20	0.20
127-18-4	Tetrachloroethene	165.83	ND		0.40	0.080
108-88-3	Toluene	92.14	0.93		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	0.19	J	0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	ND		0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	0.42		0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	1.2		0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	107		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-178-MB-2 | Lab Sample ID: 140-10792-4

Matrix: Air | Lab File ID: RC01P104.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:16

Sample wt/vol: 100(mL) | Date Analyzed: 03/01/2018 16:26

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.37	J	1.3	0.37
56-23-5	Carbon tetrachloride	153.81	0.56	J	2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	1.3	J	1.4	0.27
67-66-3	Chloroform	119.38	ND		2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	2.1		2.0	0.67
75-34-3	1,1-Dichloroethane	98.96	0.33	J	1.6	0.20
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	ND		1.6	0.28
100-41-4	Ethylbenzene	106.17	0.93	J	1.7	0.59
75-09-2	Methylene Chloride	84.93	2.3	J	3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	1.3		1.0	1.0
127-18-4	Tetrachloroethene	165.83	ND		2.7	0.54
108-88-3	Toluene	92.14	3.5		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	1.0	J	2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	ND		1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	2.1		2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	5.3		3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	107		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-179-MB-2 | Lab Sample ID: 140-10792-6

Matrix: Air | Lab File ID: RC01P106.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:19

Sample wt/vol: 100(mL) | Date Analyzed: 03/01/2018 18:00

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	ND		0.40	0.12
56-23-5	Carbon tetrachloride	153.81	ND		0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	0.30	J	0.40	0.075
67-66-3	Chloroform	119.38	ND		0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.41		0.40	0.14
75-34-3	1,1-Dichloroethane	98.96	11		0.40	0.050
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	0.45		0.40	0.070
100-41-4	Ethylbenzene	106.17	0.19	J	0.40	0.14
75-09-2	Methylene Chloride	84.93	0.66	J	1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	ND		0.20	0.20
127-18-4	Tetrachloroethene	165.83	ND		0.40	0.080
108-88-3	Toluene	92.14	0.79		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	ND		0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	ND		0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	0.33	J	0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	1.1		0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	107		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-179-MB-2 | Lab Sample ID: 140-10792-6

Matrix: Air | Lab File ID: RC01P106.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:19

Sample wt/vol: 100(mL) | Date Analyzed: 03/01/2018 18:00

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	ND		1.3	0.37
56-23-5	Carbon tetrachloride	153.81	ND		2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	1.1	J	1.4	0.27
67-66-3	Chloroform	119.38	ND		2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	2.0		2.0	0.67
75-34-3	1,1-Dichloroethane	98.96	44		1.6	0.20
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	1.8		1.6	0.28
100-41-4	Ethylbenzene	106.17	0.84	J	1.7	0.59
75-09-2	Methylene Chloride	84.93	2.3	J	3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	ND		2.7	0.54
108-88-3	Toluene	92.14	3.0		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	ND		2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	ND		1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	1.6	J	2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	4.8		3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	107		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-180-MB-2 | Lab Sample ID: 140-10792-5

Matrix: Air | Lab File ID: RC01P105.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:18

Sample wt/vol: 100(mL) | Date Analyzed: 03/01/2018 17:13

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.16	J	0.40	0.12
56-23-5	Carbon tetrachloride	153.81	0.080	J	0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	0.33	J	0.40	0.075
67-66-3	Chloroform	119.38	ND		0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.35	J	0.40	0.14
75-34-3	1,1-Dichloroethane	98.96	ND		0.40	0.050
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	ND		0.40	0.070
100-41-4	Ethylbenzene	106.17	0.30	J	0.40	0.14
75-09-2	Methylene Chloride	84.93	0.69	J	1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	ND		0.20	0.20
127-18-4	Tetrachloroethene	165.83	ND		0.40	0.080
108-88-3	Toluene	92.14	1.2		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	0.084	J	0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	ND		0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	0.34	J	0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	1.7		0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	106		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-180-MB-2 | Lab Sample ID: 140-10792-5

Matrix: Air | Lab File ID: RC01P105.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:18

Sample wt/vol: 100(mL) | Date Analyzed: 03/01/2018 17:13

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.51	J	1.3	0.37
56-23-5	Carbon tetrachloride	153.81	0.51	J	2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	1.2	J	1.4	0.27
67-66-3	Chloroform	119.38	ND		2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	1.7	J	2.0	0.67
75-34-3	1,1-Dichloroethane	98.96	ND		1.6	0.20
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	ND		1.6	0.28
100-41-4	Ethylbenzene	106.17	1.3	J	1.7	0.59
75-09-2	Methylene Chloride	84.93	2.4	J	3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	ND		2.7	0.54
108-88-3	Toluene	92.14	4.4		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	0.46	J	2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	ND		1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	1.7	J	2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	7.2		3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	106		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-181-MB-2 | Lab Sample ID: 140-10792-7

Matrix: Air | Lab File ID: RC01P107.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:19

Sample wt/vol: 100(mL) | Date Analyzed: 03/01/2018 18:46

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.17	J	0.40	0.12
56-23-5	Carbon tetrachloride	153.81	ND		0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	0.33	J	0.40	0.075
67-66-3	Chloroform	119.38	ND		0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.42		0.40	0.14
75-34-3	*1,1-Dichloroethane*	*98.96*	*150*	*E*	*0.40*	*0.050*
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	13		0.40	0.070
100-41-4	Ethylbenzene	106.17	0.21	J	0.40	0.14
75-09-2	Methylene Chloride	84.93	1.1		1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	ND		0.20	0.20
127-18-4	Tetrachloroethene	165.83	ND		0.40	0.080
108-88-3	Toluene	92.14	0.93		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	5.2		0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	ND		0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	0.37	J	0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	1.2		0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	106		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-181-MB-2 | Lab Sample ID: 140-10792-7

Matrix: Air | Lab File ID: RC01P107.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:19

Sample wt/vol: 100(mL) | Date Analyzed: 03/01/2018 18:46

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.53	J	1.3	0.37
56-23-5	Carbon tetrachloride	153.81	ND		2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	1.2	J	1.4	0.27
67-66-3	Chloroform	119.38	ND		2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	2.1		2.0	0.67
75-34-3	*1,1-Dichloroethane*	*98.96*	*600*	*E*	*1.6*	*0.20*
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	53		1.6	0.28
100-41-4	Ethylbenzene	106.17	0.89	J	1.7	0.59
75-09-2	Methylene Chloride	84.93	3.7		3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	ND		2.7	0.54
108-88-3	Toluene	92.14	3.5		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	28		2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	ND		1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	1.8	J	2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	5.3		3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	106		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-181-MB-2 DL Lab Sample ID: 140-10792-7 DL

Matrix: Air Lab File ID: RC02P116.D

Analysis Method: TO 15 LL Date Collected: 02/21/2018 12:19

Sample wt/vol: 20(mL) Date Analyzed: 03/03/2018 04:19

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 18530 Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
75-34-3	1,1-Dichloroethane	98.96	150		2.0	0.25

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	100		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-181-MB-2 DL Lab Sample ID: 140-10792-7 DL

Matrix: Air Lab File ID: RC02P116.D

Analysis Method: TO 15 LL Date Collected: 02/21/2018 12:19

Sample wt/vol: 20(mL) Date Analyzed: 03/03/2018 04:19

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 18530 Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
75-34-3	1,1-Dichloroethane	98.96	610		8.1	1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	100		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-182-MB-2 Lab Sample ID: 140-10792-8

Matrix: Air Lab File ID: RC01P108.D

Analysis Method: TO 15 LL Date Collected: 02/21/2018 12:22

Sample wt/vol: 100(mL) Date Analyzed: 03/01/2018 19:33

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 18444 Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.25	J	0.40	0.12
56-23-5	Carbon tetrachloride	153.81	ND		0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	0.29	J	0.40	0.075
67-66-3	Chloroform	119.38	0.12	J	0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.37	J	0.40	0.14
75-34-3	*1,1-Dichloroethane*	*98.96*	*260*	*E*	*0.40*	*0.050*
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	12		0.40	0.070
100-41-4	Ethylbenzene	106.17	0.26	J	0.40	0.14
75-09-2	Methylene Chloride	84.93	0.81	J	1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	ND		0.20	0.20
127-18-4	Tetrachloroethene	165.83	2.4		0.40	0.080
108-88-3	Toluene	92.14	1.1		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	11		0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	0.28		0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	0.36	J	0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	1.5		0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	109		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-182-MB-2 | Lab Sample ID: 140-10792-8

Matrix: Air | Lab File ID: RC01P108.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:22

Sample wt/vol: 100(mL) | Date Analyzed: 03/01/2018 19:33

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.81	J	1.3	0.37
56-23-5	Carbon tetrachloride	153.81	ND		2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	1.0	J	1.4	0.27
67-66-3	Chloroform	119.38	0.58	J	2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	1.8	J	2.0	0.67
75-34-3	*1,1-Dichloroethane*	*98.96*	*1100*	*E*	*1.6*	*0.20*
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	49		1.6	0.28
100-41-4	Ethylbenzene	106.17	1.1	J	1.7	0.59
75-09-2	Methylene Chloride	84.93	2.8	J	3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	17		2.7	0.54
108-88-3	Toluene	92.14	4.2		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	59		2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	1.5		1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	1.8	J	2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	6.4		3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	109		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-182-MB-2 DL Lab Sample ID: 140-10792-8 DL

Matrix: Air Lab File ID: RC02P201.D

Analysis Method: TO 15 LL Date Collected: 02/21/2018 12:22

Sample wt/vol: 10(mL) Date Analyzed: 03/03/2018 05:55

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 18530 Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
75-34-3	1,1-Dichloroethane	98.96	360		4.0	0.50

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	100		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-182-MB-2 DL Lab Sample ID: 140-10792-8 DL

Matrix: Air Lab File ID: RC02P201.D

Analysis Method: TO 15 LL Date Collected: 02/21/2018 12:22

Sample wt/vol: 10(mL) Date Analyzed: 03/03/2018 05:55

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 18530 Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
75-34-3	1,1-Dichloroethane	98.96	1500		16	2.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	100		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-184-MB-2 | Lab Sample ID: 140-10792-9

Matrix: Air | Lab File ID: RC01P109.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:24

Sample wt/vol: 100(mL) | Date Analyzed: 03/01/2018 20:20

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	ND		0.40	0.12
56-23-5	Carbon tetrachloride	153.81	ND		0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	0.32	J	0.40	0.075
67-66-3	Chloroform	119.38	ND		0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.40		0.40	0.14
75-34-3	1,1-Dichloroethane	98.96	0.19	J	0.40	0.050
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	ND		0.40	0.070
100-41-4	Ethylbenzene	106.17	0.18	J	0.40	0.14
75-09-2	Methylene Chloride	84.93	0.67	J	1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	ND		0.20	0.20
127-18-4	Tetrachloroethene	165.83	ND		0.40	0.080
108-88-3	Toluene	92.14	0.79		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	0.074	J	0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	ND		0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	0.34	J	0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	1.1		0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	107		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-184-MB-2 Lab Sample ID: 140-10792-9

Matrix: Air Lab File ID: RC01P109.D

Analysis Method: TO 15 LL Date Collected: 02/21/2018 12:24

Sample wt/vol: 100(mL) Date Analyzed: 03/01/2018 20:20

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 18444 Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	ND		1.3	0.37
56-23-5	Carbon tetrachloride	153.81	ND		2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	1.1	J	1.4	0.27
67-66-3	Chloroform	119.38	ND		2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	2.0		2.0	0.67
75-34-3	1,1-Dichloroethane	98.96	0.75	J	1.6	0.20
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	ND		1.6	0.28
100-41-4	Ethylbenzene	106.17	0.77	J	1.7	0.59
75-09-2	Methylene Chloride	84.93	2.3	J	3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	ND		2.7	0.54
108-88-3	Toluene	92.14	3.0		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	0.40	J	2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	ND		1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	1.7	J	2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	4.6		3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	107		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-185-MB-2 | Lab Sample ID: 140-10792-12

Matrix: Air | Lab File ID: RC01P112D.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:34

Sample wt/vol: 100(mL) | Date Analyzed: 03/01/2018 22:42

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.25	J	0.40	0.12
56-23-5	Carbon tetrachloride	153.81	0.083	J	0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	0.32	J	0.40	0.075
67-66-3	Chloroform	119.38	0.11	J	0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.39	J	0.40	0.14
75-34-3	1,1-Dichloroethane	98.96	12		0.40	0.050
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	1.8		0.40	0.070
100-41-4	Ethylbenzene	106.17	0.26	J	0.40	0.14
75-09-2	Methylene Chloride	84.93	2.3		1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	ND		0.20	0.20
127-18-4	Tetrachloroethene	165.83	5.8		0.40	0.080
108-88-3	Toluene	92.14	1.7		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	1.1		0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	0.38		0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	0.35	J	0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	1.5		0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	107		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-185-MB-2 | Lab Sample ID: 140-10792-12

Matrix: Air | Lab File ID: RC01P112D.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:34

Sample wt/vol: 100(mL) | Date Analyzed: 03/01/2018 22:42

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.79	J	1.3	0.37
56-23-5	Carbon tetrachloride	153.81	0.52	J	2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	1.1	J	1.4	0.27
67-66-3	Chloroform	119.38	0.55	J	2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	1.9	J	2.0	0.67
75-34-3	1,1-Dichloroethane	98.96	48		1.6	0.20
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	7.2		1.6	0.28
100-41-4	Ethylbenzene	106.17	1.1	J	1.7	0.59
75-09-2	Methylene Chloride	84.93	8.0		3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	39		2.7	0.54
108-88-3	Toluene	92.14	6.2		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	5.8		2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	2.0		1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	1.7	J	2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	6.4		3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	107		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-186-MB-2 | Lab Sample ID: 140-10792-11

Matrix: Air | Lab File ID: RC01P111.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:33

Sample wt/vol: 100(mL) | Date Analyzed: 03/01/2018 21:55

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.28	J	0.40	0.12
56-23-5	Carbon tetrachloride	153.81	0.080	J	0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	0.29	J	0.40	0.075
67-66-3	Chloroform	119.38	ND		0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.39	J	0.40	0.14
75-34-3	1,1-Dichloroethane	98.96	0.39	J	0.40	0.050
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	ND		0.40	0.070
100-41-4	Ethylbenzene	106.17	0.31	J	0.40	0.14
75-09-2	Methylene Chloride	84.93	1.8		1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	ND		0.20	0.20
127-18-4	Tetrachloroethene	165.83	1.9		0.40	0.080
108-88-3	Toluene	92.14	1.7		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	ND		0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	ND		0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	0.36	J	0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	1.7		0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	107		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-186-MB-2 | Lab Sample ID: 140-10792-11

Matrix: Air | Lab File ID: RC01P111.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:33

Sample wt/vol: 100(mL) | Date Analyzed: 03/01/2018 21:55

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.90	J	1.3	0.37
56-23-5	Carbon tetrachloride	153.81	0.50	J	2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	1.0	J	1.4	0.27
67-66-3	Chloroform	119.38	ND		2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	1.9	J	2.0	0.67
75-34-3	1,1-Dichloroethane	98.96	1.6	J	1.6	0.20
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	ND		1.6	0.28
100-41-4	Ethylbenzene	106.17	1.4	J	1.7	0.59
75-09-2	Methylene Chloride	84.93	6.2		3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	13		2.7	0.54
108-88-3	Toluene	92.14	6.5		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	ND		2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	ND		1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	1.7	J	2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	7.2		3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	107		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-187-MB-2 | Lab Sample ID: 140-10792-10

Matrix: Air | Lab File ID: RC01P110.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:26

Sample wt/vol: 100(mL) | Date Analyzed: 03/01/2018 21:08

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.20	J	0.40	0.12
56-23-5	Carbon tetrachloride	153.81	0.58		0.40	0.075
75-45-6	Chlorodifluoromethane	86.47	0.29	J	0.40	0.075
67-66-3	Chloroform	119.38	ND		0.40	0.075
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.40	0.12
75-71-8	Dichlorodifluoromethane	120.91	0.39	J	0.40	0.14
75-34-3	1,1-Dichloroethane	98.96	0.35	J	0.40	0.050
107-06-2	1,2-Dichloroethane	98.96	ND		0.40	0.095
75-35-4	1,1-Dichloroethene	96.94	ND		0.40	0.070
100-41-4	Ethylbenzene	106.17	0.22	J	0.40	0.14
75-09-2	Methylene Chloride	84.93	0.73	J	1.0	0.65
1634-04-4	Methyl tert-butyl ether	88.15	ND		2.0	0.34
91-20-3	Naphthalene	128.17	ND		0.20	0.20
127-18-4	Tetrachloroethene	165.83	0.10	J	0.40	0.080
108-88-3	Toluene	92.14	1.2		0.60	0.60
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.40	0.10
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.40	0.20
71-55-6	1,1,1-Trichloroethane	133.41	0.24	J	0.40	0.060
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.40	0.11
79-01-6	Trichloroethene	131.39	ND		0.20	0.070
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	0.40		0.40	0.13
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.40	0.13
75-01-4	Vinyl chloride	62.50	ND		0.20	0.15
1330-20-7	Xylenes, Total	106.17	1.4		0.80	0.12

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	107		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-187-MB-2 | Lab Sample ID: 140-10792-10

Matrix: Air | Lab File ID: RC01P110.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:26

Sample wt/vol: 100(mL) | Date Analyzed: 03/01/2018 21:08

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	0.64	J	1.3	0.37
56-23-5	Carbon tetrachloride	153.81	3.6		2.5	0.47
75-45-6	Chlorodifluoromethane	86.47	1.0	J	1.4	0.27
67-66-3	Chloroform	119.38	ND		2.0	0.37
156-59-2	cis-1,2-Dichloroethene	96.94	ND		1.6	0.48
75-71-8	Dichlorodifluoromethane	120.91	1.9	J	2.0	0.67
75-34-3	1,1-Dichloroethane	98.96	1.4	J	1.6	0.20
107-06-2	1,2-Dichloroethane	98.96	ND		1.6	0.38
75-35-4	1,1-Dichloroethene	96.94	ND		1.6	0.28
100-41-4	Ethylbenzene	106.17	0.94	J	1.7	0.59
75-09-2	Methylene Chloride	84.93	2.5	J	3.5	2.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		7.2	1.2
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	0.70	J	2.7	0.54
108-88-3	Toluene	92.14	4.7		2.3	2.3
156-60-5	trans-1,2-Dichloroethene	96.94	ND		1.6	0.40
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		3.0	1.4
71-55-6	1,1,1-Trichloroethane	133.41	1.3	J	2.2	0.33
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.2	0.57
79-01-6	Trichloroethene	131.39	ND		1.1	0.38
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.84
95-63-6	1,2,4-Trimethylbenzene	120.20	2.0		2.0	0.61
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.64
75-01-4	Vinyl chloride	62.50	ND		0.51	0.37
1330-20-7	Xylenes, Total	106.17	6.2		3.5	0.52

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	107		60-140

Appendix C

Support Documentation

Job Narrative
140-10792-1

Receipt
The samples were received on 2/23/2018 at 10:30 AM. The samples arrived in good condition and properly preserved.

Receipt Exceptions
Sample SV-183-MB-2 (140-10792-13) was received by the lab, but it was not listed on the Chain-of-Custody (COC). The client confirmed this sample was not to be analyzed.

Air - GC/MS VOA - Method TO-15 LL
EPA methods TO-14A and TO-15 specify the use of humidified “zero air” as the blank reagent for canister cleaning, instrument calibration and sample analysis. Ultra-high purity humidified nitrogen from a cryogenic reservoir is used in place of “zero air” by TestAmerica Knoxville.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Comments
No additional comments.

Qualifiers

Air - GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
E	Result exceeded calibration range.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Middle River, MD

TestAmerica Job ID: 140-10792-1

Method	Method Description	Protocol	Laboratory
TO 15 LL	Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)	EPA	TAL KNX

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL KNX = TestAmerica Knoxville, 5815 Middlebrook Pike, Knoxville, TN 37921, TEL (865)291-3000

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: Middle River, MD

TestAmerica Job ID: 140-10792-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
140-10792-1	SV-168-A-24	Air	02/21/18 12:07	02/23/18 10:30
140-10792-2	SV-095-A-24	Air	02/21/18 13:05	02/23/18 10:30
140-10792-3	SV-075-A-24	Air	02/21/18 12:10	02/23/18 10:30
140-10792-4	SV-178-MB-2	Air	02/21/18 12:16	02/23/18 10:30
140-10792-5	SV-180-MB-2	Air	02/21/18 12:18	02/23/18 10:30
140-10792-6	SV-179-MB-2	Air	02/21/18 12:19	02/23/18 10:30
140-10792-7	SV-181-MB-2	Air	02/21/18 12:19	02/23/18 10:30
140-10792-8	SV-182-MB-2	Air	02/21/18 12:22	02/23/18 10:30
140-10792-9	SV-184-MB-2	Air	02/21/18 12:24	02/23/18 10:30
140-10792-10	SV-187-MB-2	Air	02/21/18 12:26	02/23/18 10:30
140-10792-11	SV-186-MB-2	Air	02/21/18 12:33	02/23/18 10:30
140-10792-12	SV-185-MB-2	Air	02/21/18 12:34	02/23/18 10:30

Knoxville
5815 Middlebrook Pike

Knoxville, TN 37921
phone 865.291.3000 fax 865.584.4315

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Tony Apanavage	Site Contact: Tony Apanavage	Date: 2/21/2018	COC No.
Tera Tech	Tel/Fax: (301)528-3021	Lab Contact: John McFadden	Carrier: Fedex	9 of 9 COCs
20251 Century Blvd. Ste 200	Analysis Turnaround Time			Job No. 180325
Germantown, Maryland 20874	Calendar (C) or Work Days (W) _____			
Phone: (301)528-5552	TAT if different from Below ___Standard_____			
	☐ 2 weeks			SDG No.
Project Name: 112IC08388	☐ 1 week			
Site: Middle River, MD	☐ 2 days	140-10792 Chain of Custody		
P O #	☐ 1 day			Sampler: MULLIS/PRYOR

Sample Identification	Sample Date	Time Start	Time Stop	Canister Volume in Field "Hg (Start)	Canister Volume in Field "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	Sample Specific Notes:
SV-168-A-24	2/21/2018	1026	1207	-30	0	09717	11663	X	
SV-095-A-24	2/21/2018	1205	1305	-30	-3	10080	11833	X	
SV-075-A-24	2/21/2018	1038	1210	-24	0	09841	09586	X	
SV-178-MB-2	2/21/2018	1058	1216	-30	0	10140	11825	X	Received @ ambient
SV-180-MB-2	2/21/2018	1102	1218	-30	-5	09753	11830	X	1 box, Fedex so
SV-179-MB-2	2/21/2018	1108	1219	-30	0	10294	11820	X	tr K# 77 4905 9458
SV-181-MB-2	2/21/2018	1108	1219	-29.5	-1	10665	11828	X	No Custody seal
SV-182-MB-2	2/21/2018	1112	1222	-30	-6	11550	10494	X	KW 2/23/18
SV-184-MB-2	2/21/2018	1118	1224	-29	0	10845	11645	X	
SV-187-MB-2	2/21/2018	1122	1226	-30	-2	11515	11710	X	
SV-186-MB-2	2/21/2018	1130	1233	-30	-3	10289	11591	X	
SV-185-MB-2	2/21/2018	1132	1234	-26	0	10583	09736	X	
									1 T, 18 cams
									~~20 cams~~ KW 2/23/18
									16 flows

Special Instructions/QC Requirements & Comments: **Contracted Analyte List**

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Walt [signature]	TT Inc	2/22/18 / 1150	[signature]		2/22/18 / 1150
			[signature]	TA-[illegible]	2/23/18 1030

Form No. CA-C-WI-002, Rev. 2, dated 03/06/2012

03/08/2018

Loc: 140
10792

TESTAMERICA KNOXVILLE SAMPLE RECEIPT/CONDITION UPON RECEIPT ANOMALY CHECKLIST **Log In Number:**

Review Items	Yes	No	NA	If No, what was the problem?
1. Are the shipping containers intact?	/			☐ **Containers, Broken**
2. Were ambient air containers received intact?			/	☒ Checked in lab
3. The coolers/containers custody seal if present, is it intact?			/	☐ Yes ☐ NA
4. Is the cooler temperature within limits? (> freezing temp. of water to 6 °C, VOST: 10°C) Thermometer ID :_____ Correction factor: _____			/	☐ **Cooler Out of Temp, Client Contacted, Proceed/Cancel** ☐ **Cooler Out of Temp, Same Day Receipt**
5. Were all of the sample containers received intact?	/			☐ **Containers, Broken**
6. Were samples received in appropriate containers?	/			☐ **Containers, Improper; Client Contacted; Proceed/Cancel**
7. Do sample container labels match COC? (IDs, Dates, Times)	/			☐ **COC & Samples Do Not Match** ☐ **COC Incorrect/Incomplete** ☐ **COC Not Received**
8. Were all of the samples listed on the COC received?	/			☒ **Sample Received, Not on COC** ☐ **Sample on COC, Not Received**
9. Is the date/time of sample collection noted?	/			☐ **COC; No Date/Time; Client Contacted**
10. Was the sampler identified on the COC?	/			☐ **Sample Not Listed on COC**
11. Is the client and project name/# identified?	/			☐ **COC Incorrect/Incomplete**
12. Are tests/parameters listed for each sample?	/			☐ **COC No tests on COC**
13. Is the matrix of the samples noted?	/			☐ **COC Incorrect/Incomplete**
14. Was COC relinquished? (Signed/Dated/Timed)	/			☐ **COC Incorrect/Incomplete**
15. Were samples received within holding time?	/			☐ **Holding Time - Receipt**
16. Were samples received with correct chemical preservative (excluding Encore)?			/	☐ **pH Adjusted, pH Included (See box 16A)** ☐ **Incorrect Preservative**
17. Were VOA samples received without headspace?			/	☐ **Headspace (VOA only)**
18. Did you check for residual chlorine, if necessary? (e.g. 1613B, 1668) Chlorine test strip lot number:			/	☐ **Residual Chlorine**
19. For 1613B water samples is pH<9?			/	☐ If no, lab will adjust
20. For rad samples was sample activity info. Provided?			/	☐ Project missing info

Comments/Actions Taken

8. sample SV-183-MB-2 was received, but is not listed on the COC.

Labeling Verified by: **Date:**

pH test strip lot number:

Box 16A: pH Preservation	Box 18A: Residual Chlorine
Preservative:	
Lot Number:	
Exp Date:	
Analyst:	
Date:	
Time:	

Project #: 14002945 PM Instructions: _____

Sample Receiving Associate: _____ Date: 2/23/18

QA026R30.doc, 080916

TestAmerica Knoxville - Air Canister Initial Pressure Check

Gauge ID: G5
Date: 2/27/2018

Analyst	Sample ID	Asset #	Cleaning Job	Cert	Size (L)	Pressure @ Receipt (-in Hg or +psig)	Time	Comments
afb	140-10792-A-1	11663	10477	b	1	0	1100	
afb	140-10792-A-2	11833	10631	b	1	-3.5	1101	
afb	140-10792-A-3	09586	10600	b	1	0	1102	
afb	140-10792-A-4	11825	10631	b	1	0	1103	
afb	140-10792-A-5	11830	10631	b	1	-6.8	1104	
afb	140-10792-A-6	11820	10631	b	1	-1.1	1105	
afb	140-10792-A-7	11828	10631	b	1	-1.5	1106	
afb	140-10792-A-8	10494	10549	b	1	-6.3	1107	
afb	140-10792-A-9	11645	10600	b	1	-2.2	1108	
afb	140-10792-A-10	11710	10600	b	1	-3.1	1109	
afb	140-10792-A-11	11591	10477	b	1	-2.9	1110	
afb	140-10792-A-12	09736	10477	b	1	-2.5	1111	
afb	140-10792-A-13	10969	10549	b	1	-29.2	1112	not used

Method TO15 Low Level

Volatile Organic Compounds - Low level (GC/MS) by Method TO 15

FORM V
AIR - GC/MS VOA INSTRUMENT PERFORMANCE CHECK

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab File ID: RBFBA30.D BFB Injection Date: 01/30/2018

Instrument ID: MR BFB Injection Time: 11:12

Analysis Batch No.: 17762

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	19.1	
75	30.0 - 60.0 % of mass 95	54.8	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	7.0	
173	Less than 2.0 % of mass 174	0.0	(0.0) 1
174	50.0 - 120.00 % of mass 95	78.1	
175	5.0 - 9.0 % of mass 174	5.7	(7.3) 1
176	95.0 - 101.0 % of mass 174	76.6	(98.2) 1
177	5.0 - 9.0 % of mass 176	5.0	(6.5) 2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	IC 140-17762/3	RA30IC01.D	01/30/2018	12:29
	IC 140-17762/4	RA30IC02.D	01/30/2018	13:16
	IC 140-17762/5	RA30IC03.D	01/30/2018	14:04
	IC 140-17762/6	RA30IC04.D	01/30/2018	14:50
	IC 140-17762/7	RA30IC05.D	01/30/2018	15:39
	IC 140-17762/8	RA30IC06.D	01/30/2018	16:27
	ICIS 140-17762/9	RA30IC07.D	01/30/2018	17:15
	IC 140-17762/10	RA30IC08.D	01/30/2018	18:03
	IC 140-17762/11	RA30IC09.D	01/30/2018	18:50
	IC 140-17762/12	RA30IC10.D	01/30/2018	19:38
	ICV 140-17762/14	RA30ICV.D	01/30/2018	21:11

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1 Analy Batch No.: 17762

SDG No.:

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/30/2018 12:29 Calibration End Date: 01/30/2018 19:38 Calibration ID: 1371

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 140-17762/3	RA30IC01.D
Level 2	IC 140-17762/4	RA30IC02.D
Level 3	IC 140-17762/5	RA30IC03.D
Level 4	IC 140-17762/6	RA30IC04.D
Level 5	IC 140-17762/7	RA30IC05.D
Level 6	IC 140-17762/8	RA30IC06.D
Level 7	ICIS 140-17762/9	RA30IC07.D
Level 8	IC 140-17762/10	RA30IC08.D
Level 9	IC 140-17762/11	RA30IC09.D
Level 10	IC 140-17762/12	RA30IC10.D

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10		B	M1	M2								
Chlorodifluoromethane	+++++ 0.4996	+++++ 0.5018	0.5364 0.4761	0.5007 0.4556	0.4969 0.4366	Ave		0.4879				6.4		30.0			
Propene	+++++ 1.0148	+++++ 1.0127	+++++ 0.9251	1.0749 0.8535	1.0335 0.7750	Ave		0.9557				11.4		30.0			
Dichlorodifluoromethane	+++++ 3.8576	+++++ 3.8716	3.9445 3.4238	4.4278 3.3920	3.8443 3.2841	Ave		3.7557				10.0		30.0			
Chloromethane	+++++ 0.3356	+++++ 0.3504	+++++ 0.3161	0.4352 0.2922	0.3844 0.2804	Ave		0.3421				15.8		30.0			
1,2-Dichloro-1,1,2,2-tetrafluoroethane	2.9869 2.5228	2.8020 2.5888	2.6799 2.4191	2.4834 2.2928	2.5057 2.1607	Ave		2.5442				9.4		30.0			
Vinyl chloride	1.2473 1.0050	1.2981 1.0133	1.0342 0.9733	1.0613 0.9642	1.0145 0.8783	Ave		1.0490				12.2		30.0			
1,3-Butadiene	+++++ 0.6759	+++++ 0.6901	0.7589 0.6575	0.7160 0.6429	0.6702 0.6007	Ave		0.6765				7.0		30.0			
Butane	+++++ 1.1770	+++++ 1.1571	1.1761 1.0993	1.1870 1.0664	1.1472 0.9821	Ave		1.1240				6.3		30.0			
Bromomethane	+++++ 0.9756	+++++ 0.9799	1.0961 0.9468	0.9664 0.9339	0.9805 0.8851	Ave		0.9705				6.2		30.0			
Chloroethane	+++++ 0.4798	+++++ 0.4684	0.5400 0.4543	0.5007 0.4508	0.4816 0.4272	Ave		0.4754				7.2		30.0			
Ethanol	+++++ 0.3138	+++++ 0.3115	+++++ 0.2974	0.3206 0.2839	0.3092 0.2628	Ave		0.2999				6.8		30.0			
Vinyl bromide	+++++ 0.9734	+++++ 0.9603	1.0223 0.9264	0.9931 0.9030	0.9628 0.8698	Ave		0.9514				5.2		30.0			
2-Methylbutane	+++++ 0.7927	0.8473 0.7870	0.8827 0.7573	0.8140 0.7354	0.8057 0.7063	Ave		0.7921				6.9		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1 Analy Batch No.: 17762

SDG No.:

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/30/2018 12:29 Calibration End Date: 01/30/2018 19:38 Calibration ID: 1371

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10		B	M1	M2								
Acrolein	+++++ 0.2131	+++++ 0.2023	+++++ 0.1714	0.2463 0.2369	0.2775 0.1986	Ave		0.2209				16.0		30.0			
Trichlorofluoromethane	3.8163 3.6210	3.8962 3.5670	3.7377 3.3875	3.7221 3.2631	3.6118 3.0510	Ave		3.5674				7.4		30.0			
Acetonitrile	+++++ 0.2710	+++++ 0.2792	+++++ 0.2690	+++++ 0.2590	0.3012 0.2516	Ave		0.2718				6.4		30.0			
Acetone	+++++ 0.4445	+++++ 0.4298	+++++ 0.3730	+++++ 0.3559	0.5743 0.3319	Ave		0.4182				21.0		30.0			
Isopropyl alcohol	+++++ 1.7615	+++++ 1.7262	+++++ 1.6035	1.7601 1.4471	1.7064 1.2490	Ave		1.6077				12.0		30.0			
Pentane	+++++ 0.2821	0.3253 0.2863	0.3062 0.2706	0.2848 0.2514	0.2797 0.2238	Ave		0.2789				10.5		30.0			
Ethyl ether	+++++ 1.0595	+++++ 1.0591	1.1464 0.9558	1.0861 0.8868	1.0639 0.8197	Ave		1.0097				11.0		30.0			
1,1-Dichloroethene	1.8230 1.4732	1.6952 1.5251	1.5415 1.4388	1.4628 1.3846	1.4710 1.3297	Ave		1.5145				9.6		30.0			
Acrylonitrile	+++++ 0.9755	1.0491 1.0149	0.9699 0.9431	0.9648 0.8986	0.9313 0.8597	Ave		0.9563				6.0		30.0			
tert-Butyl alcohol	+++++ 3.0919	+++++ 3.1666	3.2956 2.9405	3.0814 2.8297	3.0612 2.6483	Ave		3.0144				6.7		30.0			
1,1,2-Trichloro-1,2,2-trifluoroethane	3.6835 3.3085	3.3240 3.3647	3.3270 3.1386	3.2027 2.9781	3.2883 2.7719	Ave		3.2387				7.5		30.0			
Methylene Chloride	+++++ 1.5226	+++++ 1.4846	+++++ 1.3365	2.3963 1.2627	1.7575 1.1890	Ave		1.5642				26.4		30.0			
3-Chloropropene	+++++ 1.2912	1.4624 1.2679	1.3517 1.1239	1.2960 1.1775	1.2499 1.0934	Ave		1.2571				9.1		30.0			
Carbon disulfide	+++++ 4.3010	4.5429 4.3495	4.2824 4.0908	4.2202 3.9413	4.1883 3.7920	Ave		4.1898				5.3		30.0			
trans-1,2-Dichloroethene	+++++ 1.5663	1.6529 1.6054	1.5536 1.5101	1.5451 1.4740	1.5012 1.4213	Ave		1.5366				4.5		30.0			
Methyl tert-butyl ether	+++++ 4.8878	4.9780 5.0046	4.7681 4.7335	4.6401 4.5480	4.7610 4.3260	Ave		4.7386				4.5		30.0			
1,1-Dichloroethane	3.2552 2.9583	3.2402 2.9974	3.0427 2.7728	2.9120 2.6386	2.9342 2.5185	Ave		2.9270				8.0		30.0			
Vinyl acetate	+++++ 3.0422	+++++ 3.0483	2.4722 2.8443	2.4587 3.0745	2.7400 2.9503	Ave		2.8288				8.9		30.0			
2-Butanone (MEK)	+++++ 0.7255	+++++ 0.7913	+++++ 0.7057	0.7096 0.7007	0.7825 0.6631	Ave		0.7255				6.4		30.0			
Hexane	+++++ 1.2050	1.3784 1.2187	1.2369 1.1204	1.1721 1.0624	1.1769 0.9868	Ave		1.1731				9.5		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1 Analy Batch No.: 17762

SDG No.:

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/30/2018 12:29 Calibration End Date: 01/30/2018 19:38 Calibration ID: 1371

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10		B	M1	M2								
cis-1,2-Dichloroethene	1.9071 1.6125	1.8156 1.6678	1.6641 1.5780	1.6147 1.5302	1.6025 1.4817	Ave		1.6474				7.8		30.0			
Ethyl acetate	+++++ 2.7290	+++++ 2.8405	2.1840 2.6632	2.2813 2.5958	2.5408 2.4854	Ave		2.5400				8.7		30.0			
Chloroform	4.2863 3.7052	3.8694 3.7903	3.7705 3.5491	3.6794 3.4047	3.6984 3.2578	Ave		3.7011				7.5		30.0			
Tetrahydrofuran	+++++ 1.3407	+++++ 1.3730	1.3680 1.2688	1.3174 1.2195	1.3030 1.1665	Ave		1.2946				5.6		30.0			
1,1,1-Trichloroethane	4.1703 3.9689	4.0153 4.0994	3.8140 3.8790	3.6871 3.7835	3.8389 3.6271	Ave		3.8883				4.5		30.0			
1,2-Dichloroethane	0.4598 0.4390	0.4262 0.4435	0.4288 0.4170	0.3913 0.4087	0.4251 0.3915	Ave		0.4231				5.2		30.0			
Benzene	0.8742 0.7844	0.8183 0.7925	0.7957 0.7383	0.7735 0.6873	0.7655 0.6121	Ave		0.7642				9.5		30.0			
1-Butanol	+++++ 0.0491	+++++ 0.0535	+++++ 0.0554	+++++ 0.0549	0.0399 0.0507	Ave		0.0506				11.4		30.0			
Cyclohexane	+++++ 0.1282	0.1302 0.1319	0.1361 0.1198	0.1248 0.1109	0.1254 0.0971	Ave		0.1227				9.8		30.0			
Carbon tetrachloride	0.6377 0.6481	0.5867 0.6494	0.5971 0.6370	0.5827 0.6239	0.6061 0.5914	Ave		0.6160				4.2		30.0			
2,2,4-Trimethylpentane	+++++ 1.1700	+++++ 1.1823	1.1763 1.1037	1.1213 1.0350	1.1405 0.9359	Ave		1.1081				7.6		30.0			
1,2-Dichloropropane	0.2892 0.2749	0.2827 0.2781	0.2783 0.2608	0.2653 0.2439	0.2652 0.2201	Ave		0.2659				7.7		30.0			
Heptane	+++++ 0.2794	0.2806 0.2826	0.2727 0.2668	0.2557 0.2502	0.2719 0.2244	Ave		0.2649				7.1		30.0			
Trichloroethene	0.3941 0.3561	0.3498 0.3989	0.3569 0.4050	0.3383 0.3430	0.3431 0.3253	Ave		0.3611				7.8		30.0			
Dibromomethane	+++++ 0.3180	+++++ 0.3337	0.3335 0.3154	0.3130 0.3075	0.3081 0.2866	Ave		0.3145				4.8		30.0			
Bromodichloromethane	0.5552 0.5927	0.5165 0.6275	0.5155 0.6065	0.5215 0.5926	0.5443 0.5621	Ave		0.5634				7.1		30.0			
1,4-Dioxane	+++++ 0.1244	0.1026 0.1255	0.1107 0.1188	0.1100 0.1111	0.1114 0.0998	Ave		0.1127				7.8		30.0			
Methyl methacrylate	+++++ 0.2534	+++++ 0.2814	+++++ 0.2766	0.1921 0.2732	0.2185 0.2613	Ave		0.2509				13.3		30.0			
4-Methyl-2-pentanone (MIBK)	+++++ 0.4476	+++++ 0.4761	0.4073 0.4607	0.3703 0.4462	0.4067 0.4120	Ave		0.4284				8.2		30.0			
cis-1,3-Dichloropropene	0.4432 0.4616	0.4182 0.4890	0.4016 0.4666	0.4077 0.4542	0.4258 0.4244	Ave		0.4392				6.4		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1 Analy Batch No.: 17762

SDG No.:

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/30/2018 12:29 Calibration End Date: 01/30/2018 19:38 Calibration ID: 1371

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10		B	M1	M2								
trans-1,3-Dichloropropene	0.5110 0.5036	0.4535 0.5257	0.4406 0.5134	0.4431 0.5163	0.4525 0.4903	Ave		0.4850				7.0		30.0			
Toluene	1.2824 1.1325	1.1432 1.1561	1.0870 1.0939	1.0545 1.0385	1.0799 0.9486	Ave		1.1017				7.9		30.0			
1,1,2-Trichloroethane	0.3289 0.3161	0.3191 0.3218	0.2970 0.3044	0.2890 0.2905	0.3016 0.2671	Ave		0.3035				6.1		30.0			
2-Hexanone	+++++ 0.2856	+++++ 0.3067	0.1978 0.3130	0.1839 0.2994	0.2390 0.2768	Ave		0.2628				19.0		30.0			
Dibromochloromethane	0.5478 0.6218	0.4611 0.6757	0.5045 0.6734	0.4783 0.6763	0.5239 0.6415	Ave		0.5804				14.9		30.0			
Octane	0.3713 0.3761	0.3521 0.3823	0.3634 0.3590	0.3351 0.3411	0.3561 0.3074	Ave		0.3544				6.2		30.0			
1,2-Dibromoethane (EDB)	0.5777 0.5703	0.4862 0.5934	0.5028 0.5775	0.5036 0.5627	0.5214 0.5228	Ave		0.5418				7.1		30.0			
Tetrachloroethene	0.4510 0.4222	0.4302 0.4299	0.4096 0.4116	0.3928 0.3938	0.4006 0.3646	Ave		0.4106				5.9		30.0			
Chlorobenzene	1.0111 0.8808	0.9072 0.8981	0.8780 0.8583	0.8277 0.8176	0.8488 0.7523	Ave		0.8680				7.8		30.0			
Ethylbenzene	1.6592 1.4956	1.4733 1.5265	1.4692 1.4423	1.3826 1.3480	1.4274 1.1942	Ave		1.4418				8.4		30.0			
m-Xylene & p-Xylene	1.2623 1.1995	1.1484 1.2020	1.1693 1.1112	1.0926 1.0102	1.1299 0.8551	Ave		1.1181				10.3		30.0			
Bromoform	0.4567 0.5340	0.3917 0.5876	0.3879 0.5961	0.3803 0.6243	0.4243 0.6099	Ave		0.4993				20.2		30.0			
Styrene	+++++ 0.7708	+++++ 0.8353	0.5730 0.8116	0.5596 0.7867	0.6410 0.7271	Ave		0.7131				15.2		30.0			
Nonane	0.6231 0.6749	0.6344 0.6650	0.6202 0.5965	0.5897 0.5334	0.6338 0.4526	Ave		0.6024				11.0		30.0			
o-Xylene	1.3802 1.2416	1.2323 1.2309	1.2402 1.1408	1.1662 1.0563	1.1911 0.9246	Ave		1.1804				10.4		30.0			
1,1,2,2-Tetrachloroethane	0.7571 0.7998	0.6769 0.7375	0.6943 0.6416	0.6940 0.7009	0.7398 0.6230	Ave		0.7065				7.6		30.0			
1,2,3-Trichloropropane	0.2821 0.2687	0.2608 0.2698	0.2586 0.2533	0.2448 0.2410	0.2532 0.2251	Ave		0.2557				6.4		30.0			
Isopropylbenzene	+++++ 1.6847	1.7627 1.6664	1.6980 1.5413	1.5734 1.4182	1.6200 1.2451	Ave		1.5789				10.2		30.0			
Propylbenzene	0.4393 0.4800	0.4121 0.4854	0.4266 0.4494	0.4019 0.4134	0.4353 0.3689	Ave		0.4312				8.2		30.0			
2-Chlorotoluene	0.4307 0.4308	0.4121 0.4227	0.4100 0.3945	0.3900 0.3647	0.4077 0.3250	Ave		0.3988				8.2		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1 Analy Batch No.: 17762

SDG No.:

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/30/2018 12:29 Calibration End Date: 01/30/2018 19:38 Calibration ID: 1371

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10		B	M1	M2								
4-Ethyltoluene	1.6721 1.8578	1.5887 1.8488	1.6064 1.7062	1.5559 1.5414	1.6697 1.3406	Ave		1.6388				9.3		30.0			
1,3,5-Trimethylbenzene	0.6886 0.7368	0.6438 0.7377	0.6390 0.6854	0.6228 0.6329	0.6583 0.5712	Ave		0.6617				7.8		30.0			
Alpha Methyl Styrene	+++++ 0.5961	+++++ 0.6811	+++++ 0.6723	0.3867 0.6319	0.4651 0.5717	Ave		0.5721				19.1		30.0			
Decane	0.7782 0.9615	0.7577 0.9673	0.8036 0.8765	0.7851 0.7693	0.8536 0.6351	Ave		0.8188				12.2		30.0			
tert-Butylbenzene	1.6747 1.7037	1.5629 1.6867	1.5711 1.5356	1.5162 1.3829	1.5602 1.1822	Ave		1.5376				10.2		30.0			
1,2,4-Trimethylbenzene	1.4061 1.5971	1.3356 1.5702	1.4117 1.4079	1.3483 1.2376	1.4396 1.0385	Ave		1.3793				11.6		30.0			
1,3-Dichlorobenzene	0.9382 0.9839	0.8463 0.9937	0.8839 0.9167	0.8388 0.8391	0.8924 0.7369	Ave		0.8870				8.7		30.0			
sec-Butylbenzene	2.1386 2.2501	1.9617 2.2330	1.9986 2.0283	1.9397 1.7523	2.0522 1.4290	Ave		1.9784				12.2		30.0			
Benzyl chloride	0.9176 1.2280	0.8673 1.3521	0.8700 1.2619	0.8429 1.1005	1.0250 0.9090	Ave		1.0374				18.1		30.0			
1,4-Dichlorobenzene	0.9388 0.9885	0.8643 0.9957	0.8741 0.9128	0.8360 0.8274	0.8810 0.7278	Ave		0.8846				9.0		30.0			
4-Isopropyltoluene	1.7285 1.9959	1.5857 2.0202	1.7817 1.8554	1.6423 1.6625	1.7503 1.3675	Ave		1.7390				11.1		30.0			
1,2,3-Trimethylbenzene	1.5856 1.7943	1.5711 1.7803	1.5668 1.6018	1.4899 1.4272	1.6163 1.2294	Ave		1.5663				10.4		30.0			
1,2-Dichlorobenzene	0.8942 0.9621	0.8150 0.9678	0.8654 0.8979	0.8005 0.8158	0.8702 0.7264	Ave		0.8615				8.7		30.0			
Butylbenzene	1.4292 1.8444	1.3568 1.8896	1.4519 1.7531	1.4134 1.5467	1.5664 1.2564	Ave		1.5508				13.8		30.0			
Undecane	0.7892 1.0726	0.7390 1.1100	0.7934 1.0270	0.8096 0.9132	0.8805 0.7285	Ave		0.8863				15.8		30.0			
1,2-Dibromo-3-Chloropropane	+++++ 0.5969	+++++ 0.6647	0.3685 0.6164	0.3739 0.6149	0.4386 0.5398	Ave		0.5267				22.2		30.0			
1,2,4,5-Tetramethylbenzene	+++++ 0.9191	+++++ 0.9859	0.7212 0.9676	0.6936 0.9342	0.7408 0.8332	Ave		0.8495				13.9		30.0			
Dodecane	+++++ 0.9928	+++++ 1.1283	0.5865 1.0229	0.6183 0.9289	0.6706 0.6900	Ave		0.8298				25.4		30.0			
1,2,4-Trichlorobenzene	+++++ 0.7149	0.4150 0.8253	0.4838 0.8320	0.4553 0.8417	0.5017 0.7379	Ave		0.6453				27.7		30.0			
Naphthalene	1.0448 1.6712	0.9243 1.9078	1.1299 1.8929	1.1276 1.8463	1.2769 1.5182	Ave		1.4340				26.4		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1 Analy Batch No.: 17762

SDG No.:

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/30/2018 12:29 Calibration End Date: 01/30/2018 19:38 Calibration ID: 1371

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10		B	M1	M2								
Hexachlorobutadiene	0.7046 0.7752	0.6195 0.8332	0.6587 0.8074	0.6012 0.7762	0.6084 0.6733	Ave		0.7058				12.3		30.0			
1,2,3-Trichlorobenzene	+++++ 0.6757	+++++ 0.7953	0.4965 0.7779	0.4801 0.7989	0.4939 0.7046	Ave		0.6529				21.7		30.0			
2-Methylnaphthalene	+++++ 0.2487	+++++ 0.4641	+++++ 0.4569	+++++ 0.4755	0.1340 0.3372	Ave		0.3527				39.5		50.0			
1-Methylnaphthalene	+++++ 0.2715	+++++ 0.5022	+++++ 0.4656	0.2315 0.4794	0.1676 0.3359	Ave		0.3505				38.1		50.0			
4-Bromofluorobenzene (Surr)	0.7650 0.7800	0.7779 0.7658	0.7890 0.7351	0.7826 0.7176	0.7941 0.6764	Ave		0.7584				5.0		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1 Analy Batch No.: 17762

SDG No.:

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/30/2018 12:29 Calibration End Date: 01/30/2018 19:38 Calibration ID: 1371

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 140-17762/3	RA30IC01.D
Level 2	IC 140-17762/4	RA30IC02.D
Level 3	IC 140-17762/5	RA30IC03.D
Level 4	IC 140-17762/6	RA30IC04.D
Level 5	IC 140-17762/7	RA30IC05.D
Level 6	IC 140-17762/8	RA30IC06.D
Level 7	ICIS 140-17762/9	RA30IC07.D
Level 8	IC 140-17762/10	RA30IC08.D
Level 9	IC 140-17762/11	RA30IC09.D
Level 10	IC 140-17762/12	RA30IC10.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (PPB V/V)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10
Chlorodifluoromethane	CBM	Ave	+++++	+++++	4119	7784	19042	+++++	+++++	0.0784	0.160	0.400
			49960	99602	192008	373011	719553	1.00	2.00	4.00	8.00	16.0
Propene	CBM	Ave	+++++	+++++	+++++	16712	39604	+++++	+++++	+++++	0.160	0.400
			101480	201013	373101	698857	1277376	1.00	2.00	4.00	8.00	16.0
Dichlorodifluoromethane	CBM	Ave	+++++	+++++	30290	68839	147314	+++++	+++++	0.0784	0.160	0.400
			385761	768499	1380786	2777340	5412793	1.00	2.00	4.00	8.00	16.0
Chloromethane	CBM	Ave	+++++	+++++	+++++	6766	14731	+++++	+++++	+++++	0.160	0.400
			33564	69549	127494	239224	462204	1.00	2.00	4.00	8.00	16.0
1,2-Dichloro-1,1,2,2-tetrafluoroeth ane	CBM	Ave	5510	10542	20579	38610	96019	0.0196	0.0392	0.0784	0.160	0.400
			252275	513872	975595	1877362	3561275	1.00	2.00	4.00	8.00	16.0
Vinyl chloride	CBM	Ave	2301	4884	7942	16500	38877	0.0196	0.0392	0.0784	0.160	0.400
			100495	201144	392525	789520	1447608	1.00	2.00	4.00	8.00	16.0
1,3-Butadiene	CBM	Ave	+++++	+++++	5828	11132	25683	+++++	+++++	0.0784	0.160	0.400
			67588	136978	265156	526420	990068	1.00	2.00	4.00	8.00	16.0
Butane	CBM	Ave	+++++	+++++	9031	18455	43962	+++++	+++++	0.0784	0.160	0.400
			117697	229678	443357	873129	1618667	1.00	2.00	4.00	8.00	16.0
Bromomethane	CBM	Ave	+++++	+++++	8417	15024	37574	+++++	+++++	0.0784	0.160	0.400
			97562	194501	381835	764670	1458793	1.00	2.00	4.00	8.00	16.0
Chloroethane	CBM	Ave	+++++	+++++	4147	7784	18456	+++++	+++++	0.0784	0.160	0.400
			47978	92980	183236	369095	704038	1.00	2.00	4.00	8.00	16.0
Ethanol	CBM	Ave	+++++	+++++	+++++	24919	59239	+++++	+++++	+++++	0.800	2.00
			156896	309152	599728	1162228	2165410	5.01	9.99	20.0	40.0	80.0
Vinyl bromide	CBM	Ave	+++++	+++++	7850	15440	36894	+++++	+++++	0.0784	0.160	0.400
			97338	190610	373599	739337	1433559	1.00	2.00	4.00	8.00	16.0
2-Methylbutane	CBM	Ave	+++++	3188	6778	12656	30876	+++++	0.0392	0.0784	0.160	0.400
			79273	156213	305420	602150	1164068	1.00	2.00	4.00	8.00	16.0
Acrolein	CBM	Ave	+++++	+++++	+++++	3830	10635	+++++	+++++	+++++	0.160	0.400
			21312	40157	69130	193944	327310	1.00	2.00	4.00	8.00	16.0

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1 Analy Batch No.: 17762

SDG No.:

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/30/2018 12:29 Calibration End Date: 01/30/2018 19:38 Calibration ID: 1371

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (PPB V/V)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10
Trichlorofluoromethane	CBM	Ave	7040 362096	14659 708040	28702 1366159	57868 2671794	138405 5028632	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Acetonitrile	CBM	Ave	+++++ 27104	+++++ 55420	+++++ 108488	+++++ 212047	11541 414724	+++++ 1.00	+++++ 2.00	+++++ 4.00	+++++ 8.00	0.400 16.0
Acetone	CBM	Ave	+++++ 133362	+++++ 255969	+++++ 451316	+++++ 874182	66025 1641135	+++++ 3.01	+++++ 5.99	+++++ 12.0	+++++ 24.0	1.20 48.0
Isopropyl alcohol	CBM	Ave	+++++ 528496	+++++ 1027986	+++++ 1940134	82100 3554966	196181 6176210	+++++ 3.01	+++++ 5.99	+++++ 12.0	0.480 24.0	1.20 48.0
Pentane	CBM	Ave	+++++ 28211	1224 56821	2351 109148	4428 205846	10720 368799	+++++ 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Ethyl ether	CBM	Ave	+++++ 105952	+++++ 210233	8803 385484	16886 726094	40771 1351034	+++++ 1.00	+++++ 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,1-Dichloroethene	CBM	Ave	3363 147316	6378 302733	11837 580273	22742 1133673	56370 2191529	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Acrylonitrile	CBM	Ave	+++++ 97550	3947 201452	7448 380336	15000 735807	35688 1416916	+++++ 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
tert-Butyl alcohol	CBM	Ave	+++++ 309191	+++++ 628551	25307 1185900	47907 2316983	117307 4364855	+++++ 1.00	+++++ 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,1,2-Trichloro-1,2,2-trifluoroetha ne	CBM	Ave	6795 330843	12506 667885	25548 1265800	49793 2438487	126008 4568598	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Methylene Chloride	CBM	Ave	+++++ 152260	+++++ 294696	+++++ 539025	37255 1033868	67350 1959635	+++++ 1.00	+++++ 2.00	+++++ 4.00	0.160 8.00	0.400 16.0
3-Chloropropene	CBM	Ave	+++++ 129123	5502 251667	10380 453252	20149 964101	47897 1802055	+++++ 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Carbon disulfide	CBM	Ave	+++++ 430092	17092 863361	32885 1649806	65612 3227149	160500 6249903	+++++ 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
trans-1,2-Dichloroethene	CBM	Ave	+++++ 156625	6219 318661	11930 609026	24021 1206934	57527 2342499	+++++ 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Methyl tert-butyl ether	CBM	Ave	+++++ 488775	18729 993401	36615 1909019	72140 3723922	182444 7130125	+++++ 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,1-Dichloroethane	CBM	Ave	6005 295826	12191 594968	23365 1118272	45273 2160451	112441 4150884	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Vinyl acetate	CBM	Ave	+++++ 304213	+++++ 605079	18984 1147099	38225 2517397	104997 4862704	+++++ 1.00	+++++ 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
2-Butanone (MEK)	CBM	Ave	+++++ 72547	+++++ 157076	+++++ 284611	11032 573697	29985 1092853	+++++ 1.00	+++++ 2.00	+++++ 4.00	0.160 8.00	0.400 16.0
Hexane	CBM	Ave	+++++ 120502	5186 241914	9498 451862	18222 869891	45099 1626366	+++++ 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
cis-1,2-Dichloroethene	CBM	Ave	3518 161247	6831 331061	12779 636383	25103 1252882	61408 2442184	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Ethyl acetate	CBM	Ave	+++++ 272902	+++++ 563824	16771 1074075	35467 2125431	97364 4096409	+++++ 1.00	+++++ 2.00	0.0784 4.00	0.160 8.00	0.400 16.0

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1 Analy Batch No.: 17762

SDG No.:

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/30/2018 12:29 Calibration End Date: 01/30/2018 19:38 Calibration ID: 1371

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (PPB V/V)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10
Chloroform	CBM	Ave	7907 370515	14558 752364	28954 1431329	57203 2787766	141724 5369459	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Tetrahydrofuran	CBM	Ave	+++++ 134069	+++++ 272546	10505 511682	20481 998545	49933 1922640	+++++ 1.00	+++++ 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,1,1-Trichloroethane	CBM	Ave	7693 396883	15107 813727	29288 1564396	57324 3097922	147109 5978105	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,2-Dichloroethane	DFBZ	Ave	5237 266293	9999 535650	20209 1019982	37522 2013816	100014 3907140	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Benzene	DFBZ	Ave	9957 475845	19199 957247	37499 1805776	74171 3386082	180099 6108554	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1-Butanol	DFBZ	Ave	+++++ 29797	+++++ 64569	+++++ 135506	+++++ 270253	9384 506348	+++++ 1.00	+++++ 2.00	+++++ 4.00	+++++ 8.00	0.400 16.0
Cyclohexane	DFBZ	Ave	+++++ 77754	3056 159306	6414 293021	11967 546616	29509 968821	+++++ 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Carbon tetrachloride	DFBZ	Ave	7263 393178	13765 784365	28139 1557932	55870 3073958	142596 5902097	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
2,2,4-Trimethylpentane	DFBZ	Ave	+++++ 709763	+++++ 1428084	55433 2699507	107521 5099511	268337 9340512	+++++ 1.00	+++++ 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,2-Dichloropropane	DFBZ	Ave	3294 166795	6633 335945	13116 637774	25436 1201630	62400 2196910	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Heptane	DFBZ	Ave	+++++ 169496	6584 341354	12852 652666	24522 1232469	63962 2239236	+++++ 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Trichloroethene	DFBZ	Ave	4489 216055	8207 481860	16817 990611	32437 1689959	80726 3246702	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Dibromomethane	DFBZ	Ave	+++++ 192925	+++++ 403081	15715 771427	30017 1514919	72482 2859943	+++++ 1.00	+++++ 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Bromodichloromethane	DFBZ	Ave	6323 359583	12118 757973	24293 1483398	50003 2919706	128060 5610234	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,4-Dioxane	DFBZ	Ave	+++++ 75444	2408 151582	5216 290497	10547 547334	26213 995848	+++++ 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Methyl methacrylate	DFBZ	Ave	+++++ 153737	+++++ 339847	+++++ 676432	18423 1346179	51419 2607373	+++++ 1.00	+++++ 2.00	+++++ 4.00	0.160 8.00	0.400 16.0
4-Methyl-2-pentanone (MIBK)	DFBZ	Ave	+++++ 271515	+++++ 575108	19192 1126777	35511 2198186	95687 4112261	+++++ 1.00	+++++ 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
cis-1,3-Dichloropropene	DFBZ	Ave	5048 280020	9812 590578	18927 1141143	39090 2237825	100184 4235998	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
trans-1,3-Dichloropropene	CBZd5	Ave	5113 264281	9248 552390	18004 1089547	37170 2203158	93053 4251750	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Toluene	CBZd5	Ave	12831 594266	23313 1214847	44415 2321715	88464 4431626	222095 8226314	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,1,2-Trichloroethane	CBZd5	Ave	3291 165862	6507 338126	12134 646119	24240 1239731	62032 2316335	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1 Analy Batch No.: 17762

SDG No.:

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/30/2018 12:29 Calibration End Date: 01/30/2018 19:38 Calibration ID: 1371

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (PPB V/V)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10
2-Hexanone	CBZd 5	Ave	+++++ 149844	+++++ 322256	8080 664344	15426 1277875	49161 2400790	+++++ 1.00	+++++ 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Dibromochloromethane	CBZd 5	Ave	5481 326299	9403 710033	20613 1429129	40122 2886064	107735 5563126	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Octane	CBZd 5	Ave	3715 197364	7181 401741	14847 761888	28115 1455739	73235 2665696	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,2-Dibromoethane (EDB)	CBZd 5	Ave	5780 299269	9915 623528	20544 1225652	42246 2401387	107221 4533785	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Tetrachloroethene	CBZd 5	Ave	4512 221546	8773 451735	16736 873561	32954 1680400	82386 3162320	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Chlorobenzene	CBZd 5	Ave	10116 462209	18500 943722	35874 1821596	69433 3488920	174562 6524458	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Ethylbenzene	CBZd 5	Ave	16601 784804	30045 1604021	60028 3061101	115987 5752584	293553 10356375	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
m-Xylene & p-Xylene	CBZd 5	Ave	25259 1258868	46840 2526057	95548 4717005	183320 8622122	464738 14832360	0.0392 2.00	0.0784 3.99	0.157 8.00	0.320 16.0	0.800 32.0
Bromoform	CBZd 5	Ave	4569 280201	7987 617419	15850 1265260	31906 2664358	87253 5289308	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Styrene	CBZd 5	Ave	+++++ 404492	+++++ 877726	23411 1722436	46940 3357063	131824 6305273	+++++ 1.00	+++++ 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Nonane	CBZd 5	Ave	6234 354142	12938 698726	25340 1266112	49466 2276291	130349 3925374	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
o-Xylene	CBZd 5	Ave	13809 651529	25131 1293453	50674 2421285	97828 4507688	244961 8018750	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,1,2,2-Tetrachloroethane	CBZd 5	Ave	7575 419698	13804 774984	28370 1361818	58220 2991028	152141 5403129	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,2,3-Trichloropropane	CBZd 5	Ave	2822 140977	5319 283509	10568 537694	20539 1028585	52066 1952171	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Isopropylbenzene	CBZd 5	Ave	+++++ 884009	35946 1751008	69379 3271189	131986 6052009	333169 10798333	+++++ 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Propylbenzene	CBZd 5	Ave	4395 251895	8404 510087	17429 953864	33714 1764153	89517 3199258	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
2-Chlorotoluene	CBZd 5	Ave	4309 226074	8403 444172	16753 837183	32718 1556290	83842 2818704	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
4-Ethyltoluene	CBZd 5	Ave	16730 974862	32398 1942649	65633 3621190	130522 6577901	343391 11626420	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,3,5-Trimethylbenzene	CBZd 5	Ave	6890 386617	13130 775132	26109 1454797	52246 2700808	135393 4953675	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Alpha Methyl Styrene	CBZd 5	Ave	+++++ 312791	+++++ 715672	+++++ 1426907	32438 2696582	95659 4958200	+++++ 1.00	+++++ 2.00	+++++ 4.00	0.160 8.00	0.400 16.0
Decane	CBZd 5	Ave	7786 504552	15452 1016420	32834 1860379	65857 3283161	175546 5508017	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1 Analy Batch No.: 17762

SDG No.:

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/30/2018 12:29 Calibration End Date: 01/30/2018 19:38 Calibration ID: 1371

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (PPB V/V)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10
tert-Butylbenzene	CBZd 5	Ave	16756 894018	31873 1772333	64192 3259179	127195 5901403	320875 10252438	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,2,4-Trimethylbenzene	CBZd 5	Ave	14068 838081	27236 1649904	57678 2988133	113107 5281375	296062 9006683	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,3-Dichlorobenzene	CBZd 5	Ave	9387 516305	17259 1044130	36114 1945670	70364 3580637	183533 6390995	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
sec-Butylbenzene	CBZd 5	Ave	21397 1180727	40006 2346383	81660 4304932	162720 7478024	422045 12393102	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Benzyl chloride	CBZd 5	Ave	9181 644403	17686 1420806	35545 2678333	70710 4696324	210797 7883232	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,4-Dichlorobenzene	CBZd 5	Ave	9393 518691	17625 1046250	35715 1937249	70131 3530827	181180 6311344	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
4-Isopropyltoluene	CBZd 5	Ave	17294 1047342	32338 2122805	72796 3937880	137773 7094422	359958 11859110	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,2,3-Trimethylbenzene	CBZd 5	Ave	15864 941539	32040 1870714	64016 3399572	124983 6090386	332416 10662003	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,2-Dichlorobenzene	CBZd 5	Ave	8947 504861	16621 1016927	35357 1905685	67149 3481297	178966 6299641	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Butylbenzene	CBZd 5	Ave	14299 967842	27670 1985514	59321 3720801	118568 6600625	322145 10895604	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Undecane	CBZd 5	Ave	7896 562815	15070 1166396	32417 2179717	67912 3897040	181085 6317836	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,2-Dibromo-3-Chloropropane	CBZd 5	Ave	+++++ 313235	+++++ 698408	15056 1308310	31369 2624159	90207 4681454	+++++ 1.00	+++++ 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,2,4,5-Tetramethylbenzene	CBZd 5	Ave	+++++ 482300	+++++ 1035933	29468 2053724	58187 3986557	152347 7226247	+++++ 1.00	+++++ 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Dodecane	CBZd 5	Ave	+++++ 520941	+++++ 1185570	23965 2170914	51872 3963852	137913 5984092	+++++ 1.00	+++++ 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,2,4-Trichlorobenzene	CBZd 5	Ave	+++++ 375125	8463 867227	19766 1765909	38197 3591958	103182 6399037	+++++ 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Naphthalene	CBZd 5	Ave	10453 876926	18850 2004705	46167 4017474	94589 7879181	262605 13166564	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
Hexachlorobutadiene	CBZd 5	Ave	7050 406766	12634 875521	26912 1713702	50435 3312283	125133 5838950	0.0196 1.00	0.0392 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
1,2,3-Trichlorobenzene	CBZd 5	Ave	+++++ 354574	+++++ 835689	20286 1650977	40272 3409456	101572 6110654	+++++ 1.00	+++++ 2.00	0.0784 4.00	0.160 8.00	0.400 16.0
2-Methylnaphthalene	CBZd 5	Ave	+++++ 300143	+++++ 1121735	+++++ 2230513	+++++ 4666996	63395 6724954	+++++ 2.30	+++++ 4.59	+++++ 9.20	+++++ 18.4	0.920 36.8
1-Methylnaphthalene	CBZd 5	Ave	+++++ 327721	+++++ 1213833	+++++ 2273024	44657 4705374	79264 6700143	+++++ 2.30	+++++ 4.59	+++++ 9.20	0.368 18.4	0.920 36.8
4-Bromofluorobenzene (Surr)	CBZd 5	Ave	1562115 1634670	1618846 1611533	1644837 1560168	1641285 1531137	1633174 1466410	4.00 4.00	4.00 4.00	4.00 4.00	4.00 4.00	4.00 4.00

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1 Analy Batch No.: 17762

SDG No.:

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/30/2018 12:29 Calibration End Date: 01/30/2018 19:38 Calibration ID: 1371

Curve Type Legend:
Ave = Average ISTD

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1 Analy Batch No.: 17762

SDG No.:

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/30/2018 12:29 Calibration End Date: 01/30/2018 19:38 Calibration ID: 1371

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 140-17762/3	RA30IC01.D
Level 2	IC 140-17762/4	RA30IC02.D
Level 3	IC 140-17762/5	RA30IC03.D
Level 4	IC 140-17762/6	RA30IC04.D
Level 5	IC 140-17762/7	RA30IC05.D
Level 6	IC 140-17762/8	RA30IC06.D
Level 7	ICIS 140-17762/9	RA30IC07.D
Level 8	IC 140-17762/10	RA30IC08.D
Level 9	IC 140-17762/11	RA30IC09.D
Level 10	IC 140-17762/12	RA30IC10.D

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 # LVL 8 #	LVL 3 # LVL 9 #	LVL 4 # LVL 10 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2 LVL 8	LVL 3 LVL 9	LVL 4 LVL 10	LVL 5	LVL 6
Chlorodifluoromethane	+++++	+++++	9.9						50			
Propene	+++++	+++++	+++++	12.5						50		
Dichlorodifluoromethane	+++++	+++++	5.0						50			
Chloromethane	+++++	+++++	+++++	27.2						50		
1,2-Dichloro-1,1,2,2-tetrafluoroethane	17.4						50					
Vinyl chloride	18.9						50					
1,3-Butadiene	+++++	+++++	12.2						50			
Butane	+++++	+++++	4.6						50			
Bromomethane	+++++	+++++	12.9						50			
Chloroethane	+++++	+++++	13.6						50			
Ethanol	+++++	+++++	+++++	6.9						50		
Vinyl bromide	+++++	+++++	7.5						50			
2-Methylbutane	+++++	7.0						50				
Acrolein	+++++	+++++	+++++	11.5						50		

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1 Analy Batch No.: 17762

SDG No.:

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/30/2018 12:29 Calibration End Date: 01/30/2018 19:38 Calibration ID: 1371

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 # LVL 8 #	LVL 3 # LVL 9 #	LVL 4 # LVL 10 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2 LVL 8	LVL 3 LVL 9	LVL 4 LVL 10	LVL 5	LVL 6
Trichlorofluoromethane	7.0						50					
Acetonitrile	+++++	+++++	+++++	+++++	10.8						50	
Acetone	+++++	+++++	+++++	+++++	37.3						80	
Isopropyl alcohol	+++++	+++++	+++++	9.5						50		
Pentane	+++++	16.6						50				
Ethyl ether	+++++	+++++	13.5						50			
1,1-Dichloroethene	20.4						50					
Acrylonitrile	+++++	9.7						50				
tert-Butyl alcohol	+++++	+++++	9.3						50			
1,1,2-Trichloro-1,2,2-trifluoroethane	13.7						50					
Methylene Chloride	+++++	+++++	+++++	53.2						80		
3-Chloropropene	+++++	16.3						50				
Carbon disulfide	+++++	8.4						50				
trans-1,2-Dichloroethene	+++++	7.6						50				
Methyl tert-butyl ether	+++++	5.1						50				
1,1-Dichloroethane	11.2						50					
Vinyl acetate	+++++	+++++	-12.6						50			
2-Butanone (MEK)	+++++	+++++	+++++	-2.2						50		
Hexane	+++++	17.5						50				
cis-1,2-Dichloroethene	15.8						50					
Ethyl acetate	+++++	+++++	-14.0						50			

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1 Analy Batch No.: 17762

SDG No.:

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/30/2018 12:29 Calibration End Date: 01/30/2018 19:38 Calibration ID: 1371

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 # LVL 8 #	LVL 3 # LVL 9 #	LVL 4 # LVL 10 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2 LVL 8	LVL 3 LVL 9	LVL 4 LVL 10	LVL 5	LVL 6
Chloroform	15.8						50					
Tetrahydrofuran	+++++	+++++	5.7						50			
1,1,1-Trichloroethane	7.2						50					
1,2-Dichloroethane	8.7						50					
Benzene	14.4						50					
1-Butanol	+++++	+++++	+++++	+++++	-21.1						50	
Cyclohexane	+++++	6.1						50				
Carbon tetrachloride	3.5						50					
2,2,4-Trimethylpentane	+++++	+++++	6.1						50			
1,2-Dichloropropane	8.8						50					
Heptane	+++++	5.9						50				
Trichloroethene	9.2						50					
Dibromomethane	+++++	+++++	6.0						50			
Bromodichloromethane	-1.5						50					
1,4-Dioxane	+++++	-8.9						50				
Methyl methacrylate	+++++	+++++	+++++	-23.4						50		
4-Methyl-2-pentanone (MIBK)	+++++	+++++	-4.9						50			
cis-1,3-Dichloropropene	0.9						50					
trans-1,3-Dichloropropene	5.4						50					
Toluene	16.4						50					
1,1,2-Trichloroethane	8.4						50					

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1 Analy Batch No.: 17762

SDG No.:

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/30/2018 12:29 Calibration End Date: 01/30/2018 19:38 Calibration ID: 1371

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 # LVL 8 #	LVL 3 # LVL 9 #	LVL 4 # LVL 10 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2 LVL 8	LVL 3 LVL 9	LVL 4 LVL 10	LVL 5	LVL 6
2-Hexanone	+++++	+++++	-24.7						50			
Dibromochloromethane	-5.6						50					
Octane	4.8						50					
1,2-Dibromoethane (EDB)	6.6						50					
Tetrachloroethene	9.8						50					
Chlorobenzene	16.5						50					
Ethylbenzene	15.1						50					
m-Xylene & p-Xylene	12.9						50					
Bromoform	-8.5						50					
Styrene	+++++	+++++	-19.7						50			
Nonane	3.4						50					
o-Xylene	16.9						50					
1,1,2,2-Tetrachloroethane	7.2						50					
1,2,3-Trichloropropane	10.3						50					
Isopropylbenzene	+++++	11.6						50				
Propylbenzene	1.9						50					
2-Chlorotoluene	8.0						50					
4-Ethyltoluene	2.0						50					
1,3,5-Trimethylbenzene	4.1						50					
Alpha Methyl Styrene	+++++	+++++	+++++	-32.4						50		
Decane	-5.0						50					

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1 Analy Batch No.: 17762

SDG No.:

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/30/2018 12:29 Calibration End Date: 01/30/2018 19:38 Calibration ID: 1371

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 # LVL 8 #	LVL 3 # LVL 9 #	LVL 4 # LVL 10 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2 LVL 8	LVL 3 LVL 9	LVL 4 LVL 10	LVL 5	LVL 6
tert-Butylbenzene	8.9						50					
1,2,4-Trimethylbenzene	1.9						50					
1,3-Dichlorobenzene	5.8						50					
sec-Butylbenzene	8.1						50					
Benzyl chloride	-11.5						50					
1,4-Dichlorobenzene	6.1						50					
4-Isopropyltoluene	-0.6						50					
1,2,3-Trimethylbenzene	1.2						50					
1,2-Dichlorobenzene	3.8						50					
Butylbenzene	-7.8						50					
Undecane	-11.0						50					
1,2-Dibromo-3-Chloropropane	+++++	+++++	-30.0						50			
1,2,4,5-Tetramethylbenzene	+++++	+++++	-15.1						50			
Dodecane	+++++	+++++	-29.3						50			
1,2,4-Trichlorobenzene	+++++	-35.7						50				
Naphthalene	-27.1						80					
Hexachlorobutadiene	-0.2						50					
1,2,3-Trichlorobenzene	+++++	+++++	-24.0						50			
2-Methylnaphthalene	+++++	+++++	+++++	+++++	-62.0						80	
1-Methylnaphthalene	+++++	+++++	+++++	-34.0						80		

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab Sample ID: ICV 140-17762/14 Calibration Date: 01/30/2018 21:11

Instrument ID: MR Calib Start Date: 01/30/2018 12:29

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 01/30/2018 19:38

Lab File ID: RA30ICV.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Chlorodifluoromethane	Ave	0.4879	0.5051		2.56	2.47	3.5	35.0
Propene	Ave	0.9557	0.9570		2.47	2.47	0.1	35.0
Dichlorodifluoromethane	Ave	3.756	4.377		2.88	2.47	16.6	35.0
Chloromethane	Ave	0.3421	0.3220		2.32	2.47	-5.9	35.0
1,2-Dichloro-1,1,2,2-tetrafluoroethane	Ave	2.544	2.591		2.52	2.47	1.9	35.0
Vinyl chloride	Ave	1.049	1.041		2.45	2.47	-0.8	35.0
1,3-Butadiene	Ave	0.6765	0.6768		2.47	2.47	0.0	35.0
Butane	Ave	1.124	1.183		2.60	2.47	5.2	35.0
Bromomethane	Ave	0.9705	0.9841		2.50	2.47	1.4	35.0
Chloroethane	Ave	0.4754	0.4775		2.48	2.47	0.5	35.0
Ethanol	Ave	0.2999	0.2849		11.7	12.3	-5.0	35.0
Vinyl bromide	Ave	0.9514	1.041		2.70	2.47	9.4	35.0
2-Methylbutane	Ave	0.7921	0.8138		2.54	2.47	2.8	35.0
Acrolein	Ave	0.2209	0.2275		2.54	2.47	3.0	35.0
Trichlorofluoromethane	Ave	3.567	3.678		2.55	2.47	3.1	35.0
Acetonitrile	Ave	0.2718	0.2877		2.61	2.47	5.8	35.0
Acetone	Ave	0.4182	0.3903		6.91	7.41	-6.7	35.0
Isopropyl alcohol	Ave	1.608	1.805		8.32	7.41	12.3	35.0
Pentane	Ave	0.2789	0.2842		2.52	2.47	1.9	35.0
Ethyl ether	Ave	1.010	1.023		2.50	2.47	1.4	35.0
1,1-Dichloroethene	Ave	1.514	1.434		2.34	2.47	-5.3	35.0
Acrylonitrile	Ave	0.9563	0.9635		2.49	2.47	0.8	35.0
tert-Butyl alcohol	Ave	3.014	3.014		2.47	2.47	0.0	35.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	3.239	3.252		2.48	2.47	0.4	35.0
Methylene Chloride	Ave	1.564	1.381		2.18	2.47	-11.7	35.0
3-Chloropropene	Ave	1.257	1.307		2.57	2.47	4.0	35.0
Carbon disulfide	Ave	4.190	4.077		2.40	2.47	-2.7	35.0
trans-1,2-Dichloroethene	Ave	1.537	1.515		2.44	2.47	-1.4	35.0
Methyl tert-butyl ether	Ave	4.739	4.873		2.54	2.47	2.8	35.0
1,1-Dichloroethane	Ave	2.927	2.890		2.44	2.47	-1.2	35.0
Vinyl acetate	Ave	2.829	3.271		2.85	2.47	15.6	35.0
2-Butanone (MEK)	Ave	0.7255	0.7119		2.42	2.47	-1.9	35.0
Hexane	Ave	1.173	1.154		2.43	2.47	-1.7	35.0
cis-1,2-Dichloroethene	Ave	1.647	1.637		2.45	2.47	-0.6	35.0
Ethyl acetate	Ave	2.540	2.598		2.53	2.47	2.3	35.0
Chloroform	Ave	3.701	3.702		2.47	2.47	0.0	35.0
Tetrahydrofuran	Ave	1.295	1.329		2.54	2.47	2.7	35.0
1,1,1-Trichloroethane	Ave	3.888	4.070		2.58	2.47	4.7	35.0
1,2-Dichloroethane	Ave	0.4231	0.4407		2.57	2.47	4.2	35.0
1-Butanol	Ave	0.0506	0.0556		2.72	2.47	10.0	35.0

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab Sample ID: ICV 140-17762/14 Calibration Date: 01/30/2018 21:11

Instrument ID: MR Calib Start Date: 01/30/2018 12:29

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 01/30/2018 19:38

Lab File ID: RA30ICV.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Benzene	Ave	0.7642	0.7746		2.50	2.47	1.4	35.0
Cyclohexane	Ave	0.1227	0.1250		2.51	2.47	1.8	35.0
Carbon tetrachloride	Ave	0.6160	0.6889		2.76	2.47	11.8	35.0
2,2,4-Trimethylpentane	Ave	1.108	1.146		2.55	2.47	3.4	35.0
1,2-Dichloropropane	Ave	0.2659	0.2696		2.50	2.47	1.4	35.0
Heptane	Ave	0.2649	0.2721		2.54	2.47	2.7	35.0
Trichloroethene	Ave	0.3611	0.3691		2.52	2.47	2.2	35.0
Dibromomethane	Ave	0.3145	0.3283		2.58	2.47	4.4	35.0
Bromodichloromethane	Ave	0.5634	0.6271		2.75	2.47	11.3	35.0
1,4-Dioxane	Ave	0.1127	0.1179		2.58	2.47	4.7	35.0
Methyl methacrylate	Ave	0.2509	0.2746		2.70	2.47	9.4	35.0
4-Methyl-2-pentanone (MIBK)	Ave	0.4284	0.4624		2.67	2.47	7.9	35.0
cis-1,3-Dichloropropene	Ave	0.4392	0.4887		2.75	2.47	11.3	35.0
trans-1,3-Dichloropropene	Ave	0.4850	0.5351		2.72	2.47	10.3	35.0
Toluene	Ave	1.102	1.122		2.52	2.47	1.9	35.0
1,1,2-Trichloroethane	Ave	0.3035	0.3092		2.52	2.47	1.9	35.0
2-Hexanone	Ave	0.2628	0.2981		2.80	2.47	13.5	35.0
Dibromochloromethane	Ave	0.5804	0.6993		2.98	2.47	20.5	35.0
Octane	Ave	0.3544	0.3754		2.62	2.47	5.9	35.0
1,2-Dibromoethane (EDB)	Ave	0.5418	0.5896		2.69	2.47	8.8	35.0
Tetrachloroethene	Ave	0.4106	0.4276		2.57	2.47	4.1	35.0
Chlorobenzene	Ave	0.8680	0.8977		2.55	2.47	3.4	35.0
Ethylbenzene	Ave	1.442	1.497		2.56	2.47	3.8	35.0
m-Xylene & p-Xylene	Ave	1.118	1.183		5.23	4.94	5.8	35.0
Bromoform	Ave	0.4993	0.6381		3.16	2.47	27.8	35.0
Styrene	Ave	0.7131	0.8370		2.90	2.47	17.4	35.0
Nonane	Ave	0.6024	0.6373		2.61	2.47	5.8	35.0
o-Xylene	Ave	1.180	1.193		2.49	2.47	1.0	35.0
1,1,2,2-Tetrachloroethane	Ave	0.7065	0.7765		2.71	2.47	9.9	35.0
1,2,3-Trichloropropane	Ave	0.2557	0.2673		2.58	2.47	4.5	35.0
Isopropylbenzene	Ave	1.579	1.681		2.63	2.47	6.5	35.0
Propylbenzene	Ave	0.4312	0.4920		2.82	2.47	14.1	35.0
2-Chlorotoluene	Ave	0.3988	0.4292		2.66	2.47	7.6	35.0
4-Ethyltoluene	Ave	1.639	1.745		2.63	2.47	6.5	35.0
1,3,5-Trimethylbenzene	Ave	0.6617	0.7303		2.73	2.47	10.4	35.0
Alpha Methyl Styrene	Ave	0.5721	0.6952		3.00	2.47	21.5	35.0
Decane	Ave	0.8188	0.9370		2.83	2.47	14.4	35.0
tert-Butylbenzene	Ave	1.538	1.672		2.69	2.47	8.8	35.0
1,2,4-Trimethylbenzene	Ave	1.379	1.533		2.74	2.47	11.1	35.0
1,3-Dichlorobenzene	Ave	0.8870	0.9882		2.75	2.47	11.4	35.0
sec-Butylbenzene	Ave	1.978	2.196		2.74	2.47	11.0	35.0

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab Sample ID: ICV 140-17762/14 Calibration Date: 01/30/2018 21:11

Instrument ID: MR Calib Start Date: 01/30/2018 12:29

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 01/30/2018 19:38

Lab File ID: RA30ICV.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Benzyl chloride	Ave	1.037	1.335		3.18	2.47	28.7	35.0
1,4-Dichlorobenzene	Ave	0.8846	0.9798		2.74	2.47	10.8	35.0
4-Isopropyltoluene	Ave	1.739	1.961		2.78	2.47	12.7	35.0
1,2,3-Trimethylbenzene	Ave	1.566	1.539		2.43	2.47	-1.7	35.0
1,2-Dichlorobenzene	Ave	0.8615	0.9599		2.75	2.47	11.4	35.0
Butylbenzene	Ave	1.551	1.840		2.93	2.47	18.7	35.0
Undecane	Ave	0.8863	1.046		2.91	2.47	18.0	35.0
1,2-Dibromo-3-Chloropropane	Ave	0.5267	0.4263		2.00	2.47	-19.1	35.0
1,2,4,5-Tetramethylbenzene	Ave	0.8495	1.694		4.92	2.47	99.4*	35.0
Dodecane	Ave	0.8298	0.9946		2.96	2.47	19.9	35.0
1,2,4-Trichlorobenzene	Ave	0.6453	0.7696		2.94	2.47	19.3	35.0
Naphthalene	Ave	1.434	1.710		2.95	2.47	19.3	35.0
Hexachlorobutadiene	Ave	0.7058	0.7878		2.76	2.47	11.6	35.0
1,2,3-Trichlorobenzene	Ave	0.6529	0.7394		2.80	2.47	13.3	35.0
2-Methylnaphthalene	Ave	0.3527	0.1484		2.38	5.67	-57.9*	50.0
1-Methylnaphthalene	Ave	0.3505	0.1569		2.54	5.68	-55.3*	50.0
4-Bromofluorobenzene (Surr)	Ave	0.7584	0.7641		4.03	4.00	0.8	35.0

FORM V
AIR - GC/MS VOA INSTRUMENT PERFORMANCE CHECK

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab File ID: RBFBC01.D BFB Injection Date: 03/01/2018

Instrument ID: MR BFB Injection Time: 10:28

Analysis Batch No.: 18444

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	19.0	
75	30.0 - 60.0 % of mass 95	54.9	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.9	
173	Less than 2.0 % of mass 174	0.2	(0.2) 1
174	50.0 - 120.00 % of mass 95	78.6	
175	5.0 - 9.0 % of mass 174	5.6	(7.2) 1
176	95.0 - 101.0 % of mass 174	76.5	(97.2) 1
177	5.0 - 9.0 % of mass 176	5.1	(6.6) 2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 140-18444/2	RCCVC01.D	03/01/2018	10:59
	LCS 140-18444/1002	RCCVC01-LCS.d	03/01/2018	10:59
	MB 140-18444/4	R500BC01.D	03/01/2018	13:19
SV-168-A-24	140-10792-1	RC01P101.D	03/01/2018	14:05
SV-095-A-24	140-10792-2	RC01P102.D	03/01/2018	14:52
SV-075-A-24	140-10792-3	RC01P103.D	03/01/2018	15:39
SV-178-MB-2	140-10792-4	RC01P104.D	03/01/2018	16:26
SV-180-MB-2	140-10792-5	RC01P105.D	03/01/2018	17:13
SV-179-MB-2	140-10792-6	RC01P106.D	03/01/2018	18:00
SV-181-MB-2	140-10792-7	RC01P107.D	03/01/2018	18:46
SV-182-MB-2	140-10792-8	RC01P108.D	03/01/2018	19:33
SV-184-MB-2	140-10792-9	RC01P109.D	03/01/2018	20:20
SV-187-MB-2	140-10792-10	RC01P110.D	03/01/2018	21:08
SV-186-MB-2	140-10792-11	RC01P111.D	03/01/2018	21:55
SV-185-MB-2	140-10792-12	RC01P112D.D	03/01/2018	22:42

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab Sample ID: CCVIS 140-18444/2 Calibration Date: 03/01/2018 10:59

Instrument ID: MR Calib Start Date: 06/28/2017 15:35

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 06/28/2017 21:58

Lab File ID: RCCVC01.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Acetaldehyde	Ave	0.3474	0.2588			10.0	-25.5	30.0
2-Methylpentane	Ave	1.822	2.395			2.00	31.4*	30.0
2,3-Dimethylpentane	Ave	0.1274	0.1709			2.00	34.1*	30.0
Thiophene	Ave	0.3433	0.4415			2.00	28.6	30.0
Methylcyclohexane	Ave	0.4439	0.5765			2.00	29.9	30.0
3-Methylthiophene	Ave	0.6908	0.8912			2.00	29.0	30.0
2,3-Dimethylheptane	Ave	0.5998	0.6593			2.00	9.9	30.0
2-Ethylthiophene	Ave	0.9153	1.103			2.00	20.5	30.0
Butylcyclohexane	Ave	0.7978	1.154			2.00	44.6*	30.0
Indane	Ave	1.030	1.364			2.00	32.4*	30.0
Indene	QuaF		0.9760			2.00		30.0
1,2-Dimethyl-4-Ethylbenzene	QuaF		0.0026			2.00		30.0
1,2,3,5-Tetramethylbenzene	Ave	0.9142	1.044			2.00	14.3	30.0
1,2,3,4-Tetramethylbenzene	Ave	1.236	1.370			2.00	10.8	30.0
Benzo(b)thiophene	Ave	0.9147	0.8533			2.00	-6.7	30.0
2-Methylthiophene	Ave	0.6999				2.00		

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab Sample ID: CCVIS 140-18444/2 Calibration Date: 03/01/2018 10:59

Instrument ID: MR Calib Start Date: 01/30/2018 12:29

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 01/30/2018 19:38

Lab File ID: RCCVC01.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Chlorodifluoromethane	Ave	0.4879	0.5009		2.05	2.00	2.7	30.0
Propene	Ave	0.9557	0.8743		1.83	2.00	-8.5	30.0
Dichlorodifluoromethane	Ave	3.756	4.118		2.19	2.00	9.7	30.0
Chloromethane	Ave	0.3421	0.3671		2.15	2.00	7.3	30.0
1,2-Dichloro-1,1,2,2-tetrafluoroethane	Ave	2.544	2.855		2.24	2.00	12.2	30.0
Vinyl chloride	Ave	1.049	1.044		1.99	2.00	-0.5	30.0
1,3-Butadiene	Ave	0.6765	0.6916		2.04	2.00	2.2	30.0
Butane	Ave	1.124	1.166		2.08	2.00	3.8	30.0
Bromomethane	Ave	0.9705	1.039		2.14	2.00	7.0	30.0
Chloroethane	Ave	0.4754	0.4875		2.05	2.00	2.5	30.0
Ethanol	Ave	0.2999	0.1883		6.28	10.0	-37.2*	30.0
Vinyl bromide	Ave	0.9514	1.067		2.24	2.00	12.2	30.0
2-Methylbutane	Ave	0.7921	0.7807		1.97	2.00	-1.4	30.0
Acrolein	Ave	0.2209	0.2973		2.69	2.00	34.6*	30.0
Trichlorofluoromethane	Ave	3.567	3.773		2.12	2.00	5.8	30.0
Acetonitrile	Ave	0.2718	0.2523		1.86	2.00	-7.2	30.0
Acetone	Ave	0.4182	0.4309		2.06	2.00	3.0	30.0
Isopropyl alcohol	Ave	1.608	2.046		2.55	2.00	27.3	30.0
Pentane	Ave	0.2789	0.3188		2.29	2.00	14.3	30.0
Ethyl ether	Ave	1.010	0.9905		1.96	2.00	-1.9	30.0
1,1-Dichloroethene	Ave	1.514	1.517		2.00	2.00	0.2	30.0
Acrylonitrile	Ave	0.9563	0.9440		1.97	2.00	-1.3	30.0
tert-Butyl alcohol	Ave	3.014	2.781		1.84	2.00	-7.8	30.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	3.239	3.419		2.11	2.00	5.6	30.0
Methylene Chloride	Ave	1.564	1.481		1.89	2.00	-5.3	30.0
3-Chloropropene	Ave	1.257	1.217		1.94	2.00	-3.2	30.0
Carbon disulfide	Ave	4.190	4.242		2.03	2.00	1.3	30.0
trans-1,2-Dichloroethene	Ave	1.537	1.565		2.04	2.00	1.8	30.0
Methyl tert-butyl ether	Ave	4.739	4.802		2.03	2.00	1.3	30.0
1,1-Dichloroethane	Ave	2.927	2.849		1.95	2.00	-2.7	30.0
Vinyl acetate	Ave	2.829	2.956		2.09	2.00	4.5	30.0
2-Butanone (MEK)	Ave	0.7255	0.6686		1.84	2.00	-7.8	30.0
Hexane	Ave	1.173	1.117		1.91	2.00	-4.7	30.0
cis-1,2-Dichloroethene	Ave	1.647	1.650		2.00	2.00	0.1	30.0
Ethyl acetate	Ave	2.540	2.371		1.87	2.00	-6.7	30.0
Chloroform	Ave	3.701	3.703		2.00	2.00	0.0	30.0
Tetrahydrofuran	Ave	1.295	1.178		1.82	2.00	-9.0	30.0
1,1,1-Trichloroethane	Ave	3.888	3.945		2.03	2.00	1.5	30.0
1,2-Dichloroethane	Ave	0.4231	0.4265		2.02	2.00	0.8	30.0
1-Butanol	Ave	0.0506	0.0405		1.60	2.00	-20.0	30.0

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab Sample ID: CCVIS 140-18444/2 Calibration Date: 03/01/2018 10:59

Instrument ID: MR Calib Start Date: 01/30/2018 12:29

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 01/30/2018 19:38

Lab File ID: RCCVC01.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Benzene	Ave	0.7642	0.7838		2.05	2.00	2.6	30.0
Cyclohexane	Ave	0.1227	0.1242		2.02	2.00	1.2	30.0
Carbon tetrachloride	Ave	0.6160	0.6819		2.21	2.00	10.7	30.0
2,2,4-Trimethylpentane	Ave	1.108	1.100		1.99	2.00	-0.7	30.0
1,2-Dichloropropane	Ave	0.2659	0.2588		1.95	2.00	-2.6	30.0
Heptane	Ave	0.2649	0.2669		2.01	2.00	0.7	30.0
Trichloroethene	Ave	0.3611	0.3743		2.07	2.00	3.7	30.0
Dibromomethane	Ave	0.3145	0.3234		2.06	2.00	2.9	30.0
Bromodichloromethane	Ave	0.5634	0.6060		2.15	2.00	7.6	30.0
1,4-Dioxane	Ave	0.1127	0.1048		1.86	2.00	-7.0	30.0
Methyl methacrylate	Ave	0.2509	0.2375		1.89	2.00	-5.3	30.0
4-Methyl-2-pentanone (MIBK)	Ave	0.4284	0.3996		1.87	2.00	-6.7	30.0
cis-1,3-Dichloropropene	Ave	0.4392	0.4611		2.10	2.00	5.0	30.0
trans-1,3-Dichloropropene	Ave	0.4850	0.5083		2.10	2.00	4.8	30.0
Toluene	Ave	1.102	1.132		2.06	2.00	2.8	30.0
1,1,2-Trichloroethane	Ave	0.3035	0.3096		2.04	2.00	2.0	30.0
2-Hexanone	Ave	0.2628	0.2691		2.05	2.00	2.4	30.0
Dibromochloromethane	Ave	0.5804	0.6800		2.34	2.00	17.1	30.0
Octane	Ave	0.3544	0.3726		2.10	2.00	5.1	30.0
1,2-Dibromoethane (EDB)	Ave	0.5418	0.5790		2.14	2.00	6.9	30.0
Tetrachloroethene	Ave	0.4106	0.4362		2.12	2.00	6.2	30.0
Chlorobenzene	Ave	0.8680	0.9022		2.08	2.00	3.9	30.0
Ethylbenzene	Ave	1.442	1.468		2.04	2.00	1.8	30.0
m-Xylene & p-Xylene	Ave	1.118	1.173		4.20	4.00	4.9	30.0
Bromoform	Ave	0.4993	0.5881		2.36	2.00	17.8	30.0
Styrene	Ave	0.7131	0.7930		2.22	2.00	11.2	30.0
Nonane	Ave	0.6024	0.6125		2.03	2.00	1.7	30.0
o-Xylene	Ave	1.180	1.173		1.99	2.00	-0.6	30.0
1,1,2,2-Tetrachloroethane	Ave	0.7065	0.7456		2.11	2.00	5.5	30.0
1,2,3-Trichloropropane	Ave	0.2557	0.2604		2.04	2.00	1.8	30.0
Isopropylbenzene	Ave	1.579	1.657		2.10	2.00	4.9	30.0
Propylbenzene	Ave	0.4312	0.4863		2.26	2.00	12.8	30.0
2-Chlorotoluene	Ave	0.3988	0.4328		2.17	2.00	8.5	30.0
4-Ethyltoluene	Ave	1.639	1.751		2.14	2.00	6.9	30.0
1,3,5-Trimethylbenzene	Ave	0.6617	0.8408		2.54	2.00	27.1	30.0
Alpha Methyl Styrene	Ave	0.5721	0.6578		2.30	2.00	15.0	30.0
Decane	Ave	0.8188	0.9208		2.25	2.00	12.5	30.0
tert-Butylbenzene	Ave	1.538	1.712		2.23	2.00	11.3	30.0
1,2,4-Trimethylbenzene	Ave	1.379	1.582		2.29	2.00	14.7	30.0
1,3-Dichlorobenzene	Ave	0.8870	1.008		2.27	2.00	13.7	30.0
sec-Butylbenzene	Ave	1.978	2.240		2.26	2.00	13.2	30.0

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab Sample ID: CCVIS 140-18444/2 Calibration Date: 03/01/2018 10:59

Instrument ID: MR Calib Start Date: 01/30/2018 12:29

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 01/30/2018 19:38

Lab File ID: RCCVC01.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Benzyl chloride	Ave	1.037	1.286		2.48	2.00	24.0	30.0
1,4-Dichlorobenzene	Ave	0.8846	1.004		2.27	2.00	13.5	30.0
4-Isopropyltoluene	Ave	1.739	1.995		2.29	2.00	14.7	30.0
1,2,3-Trimethylbenzene	Ave	1.566	1.279		1.63	2.00	-18.4	30.0
1,2-Dichlorobenzene	Ave	0.8615	0.9645		2.24	2.00	12.0	30.0
Butylbenzene	Ave	1.551	1.872		2.41	2.00	20.7	30.0
Undecane	Ave	0.8863	1.017		2.29	2.00	14.7	30.0
1,2-Dibromo-3-Chloropropane	Ave	0.5267	0.4090		1.55	2.00	-22.4	30.0
1,2,4,5-Tetramethylbenzene	Ave	0.8495	1.702		4.01	2.00	100.3*	30.0
Dodecane	Ave	0.8298	0.9474		2.28	2.00	14.2	30.0
1,2,4-Trichlorobenzene	Ave	0.6453	0.7817		2.42	2.00	21.1	30.0
Naphthalene	Ave	1.434	1.686		2.35	2.00	17.5	30.0
Hexachlorobutadiene	Ave	0.7058	0.7822		2.22	2.00	10.8	30.0
1,2,3-Trichlorobenzene	Ave	0.6529	0.7099		2.17	2.00	8.7	30.0
4-Bromofluorobenzene (Surr)	Ave	0.7584	0.7565		3.99	4.00	-0.2	30.0

FORM V
AIR - GC/MS VOA INSTRUMENT PERFORMANCE CHECK

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab File ID: RBFBC02.D BFB Injection Date: 03/02/2018

Instrument ID: MR BFB Injection Time: 10:01

Analysis Batch No.: 18530

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	19.0	
75	30.0 - 60.0 % of mass 95	54.9	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	7.0	
173	Less than 2.0 % of mass 174	0.4	(0.5) 1
174	50.0 - 120.00 % of mass 95	78.5	
175	5.0 - 9.0 % of mass 174	5.7	(7.3) 1
176	95.0 - 101.0 % of mass 174	75.9	(96.7) 1
177	5.0 - 9.0 % of mass 176	5.0	(6.6) 2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 140-18530/2	RCCVC02.D	03/02/2018	10:33
	LCS 140-18530/1002	RCCVC02-LCS.d	03/02/2018	10:33
	MB 140-18530/4	R500BC02.D	03/02/2018	13:15
SV-181-MB-2 DL	140-10792-7 DL	RC02P116.D	03/03/2018	04:19
SV-182-MB-2 DL	140-10792-8 DL	RC02P201.D	03/03/2018	05:55

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab Sample ID: CCVIS 140-18530/2 Calibration Date: 03/02/2018 10:33

Instrument ID: MR Calib Start Date: 06/28/2017 15:35

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 06/28/2017 21:58

Lab File ID: RCCVC02.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Acetaldehyde	Ave	0.3474	0.2841			10.0	-18.2	30.0
2-Methylpentane	Ave	1.822	2.436			2.00	33.7*	30.0
2,3-Dimethylpentane	Ave	0.1274	0.1715			2.00	34.6*	30.0
Thiophene	Ave	0.3433	0.4410			2.00	28.5	30.0
Methylcyclohexane	Ave	0.4439	0.5783			2.00	30.3*	30.0
3-Methylthiophene	Ave	0.6908	0.8823			2.00	27.7	30.0
2,3-Dimethylheptane	Ave	0.5998	0.6714			2.00	11.9	30.0
2-Ethylthiophene	Ave	0.9153	1.091			2.00	19.2	30.0
Butylcyclohexane	Ave	0.7978	1.155			2.00	44.7*	30.0
Indane	Ave	1.030	1.352			2.00	31.3*	30.0
Indene	QuaF		0.9557			2.00		30.0
1,2,3,5-Tetramethylbenzene	Ave	0.9142	1.030			2.00	12.6	30.0
1,2,3,4-Tetramethylbenzene	Ave	1.236	1.350			2.00	9.2	30.0
Benzo(b)thiophene	Ave	0.9147	0.8106			2.00	-11.4	30.0
1,2-Dimethyl-4-Ethylbenzene	QuaF					2.00		
2-Methylthiophene	Ave	0.6999				2.00		

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab Sample ID: CCVIS 140-18530/2 Calibration Date: 03/02/2018 10:33

Instrument ID: MR Calib Start Date: 01/30/2018 12:29

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 01/30/2018 19:38

Lab File ID: RCCVC02.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Chlorodifluoromethane	Ave	0.4879	0.5138		2.11	2.00	5.3	30.0
Propene	Ave	0.9557	0.9051		1.89	2.00	-5.3	30.0
Dichlorodifluoromethane	Ave	3.756	4.156		2.21	2.00	10.6	30.0
Chloromethane	Ave	0.3421	0.3870		2.26	2.00	13.1	30.0
1,2-Dichloro-1,1,2,2-tetrafluoroethane	Ave	2.544	2.902		2.28	2.00	14.1	30.0
Vinyl chloride	Ave	1.049	1.121		2.14	2.00	6.8	30.0
1,3-Butadiene	Ave	0.6765	0.7243		2.14	2.00	7.1	30.0
Butane	Ave	1.124	1.223		2.18	2.00	8.8	30.0
Bromomethane	Ave	0.9705	1.080		2.23	2.00	11.3	30.0
Chloroethane	Ave	0.4754	0.5159		2.17	2.00	8.5	30.0
Ethanol	Ave	0.2999	0.1975		6.59	10.0	-34.1*	30.0
Vinyl bromide	Ave	0.9514	1.109		2.33	2.00	16.6	30.0
2-Methylbutane	Ave	0.7921	0.8073		2.04	2.00	1.9	30.0
Acrolein	Ave	0.2209	0.3041		2.75	2.00	37.7*	30.0
Trichlorofluoromethane	Ave	3.567	3.949		2.21	2.00	10.7	30.0
Acetonitrile	Ave	0.2718	0.2423		1.78	2.00	-10.9	30.0
Acetone	Ave	0.4182	0.4550		2.18	2.00	8.8	30.0
Isopropyl alcohol	Ave	1.608	2.086		2.59	2.00	29.7	30.0
Pentane	Ave	0.2789	0.3190		2.29	2.00	14.4	30.0
Ethyl ether	Ave	1.010	1.021		2.02	2.00	1.1	30.0
1,1-Dichloroethene	Ave	1.514	1.502		1.98	2.00	-0.8	30.0
Acrylonitrile	Ave	0.9563	0.9441		1.97	2.00	-1.3	30.0
tert-Butyl alcohol	Ave	3.014	2.752		1.83	2.00	-8.7	30.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	3.239	3.425		2.12	2.00	5.8	30.0
Methylene Chloride	Ave	1.564	1.474		1.88	2.00	-5.8	30.0
3-Chloropropene	Ave	1.257	1.266		2.01	2.00	0.7	30.0
Carbon disulfide	Ave	4.190	4.276		2.04	2.00	2.0	30.0
trans-1,2-Dichloroethene	Ave	1.537	1.559		2.03	2.00	1.4	30.0
Methyl tert-butyl ether	Ave	4.739	4.762		2.01	2.00	0.5	30.0
1,1-Dichloroethane	Ave	2.927	2.861		1.96	2.00	-2.2	30.0
Vinyl acetate	Ave	2.829	2.984		2.11	2.00	5.5	30.0
2-Butanone (MEK)	Ave	0.7255	0.6546		1.80	2.00	-9.8	30.0
Hexane	Ave	1.173	1.128		1.92	2.00	-3.8	30.0
cis-1,2-Dichloroethene	Ave	1.647	1.640		1.99	2.00	-0.5	30.0
Ethyl acetate	Ave	2.540	2.377		1.87	2.00	-6.4	30.0
Chloroform	Ave	3.701	3.728		2.01	2.00	0.7	30.0
Tetrahydrofuran	Ave	1.295	1.210		1.87	2.00	-6.5	30.0
1,1,1-Trichloroethane	Ave	3.888	3.951		2.03	2.00	1.6	30.0
1,2-Dichloroethane	Ave	0.4231	0.4344		2.05	2.00	2.7	30.0
1-Butanol	Ave	0.0506	0.0405		1.60	2.00	-19.9	30.0

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab Sample ID: CCVIS 140-18530/2 Calibration Date: 03/02/2018 10:33

Instrument ID: MR Calib Start Date: 01/30/2018 12:29

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 01/30/2018 19:38

Lab File ID: RCCVC02.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Benzene	Ave	0.7642	0.7921		2.07	2.00	3.7	30.0
Cyclohexane	Ave	0.1227	0.1244		2.03	2.00	1.3	30.0
Carbon tetrachloride	Ave	0.6160	0.6926		2.25	2.00	12.4	30.0
2,2,4-Trimethylpentane	Ave	1.108	1.112		2.01	2.00	0.3	30.0
1,2-Dichloropropane	Ave	0.2659	0.2623		1.97	2.00	-1.3	30.0
Heptane	Ave	0.2649	0.2663		2.01	2.00	0.5	30.0
Trichloroethene	Ave	0.3611	0.3718		2.06	2.00	3.0	30.0
Dibromomethane	Ave	0.3145	0.3251		2.07	2.00	3.4	30.0
Bromodichloromethane	Ave	0.5634	0.6131		2.18	2.00	8.8	30.0
1,4-Dioxane	Ave	0.1127	0.1052		1.87	2.00	-6.7	30.0
Methyl methacrylate	Ave	0.2509	0.2403		1.92	2.00	-4.2	30.0
4-Methyl-2-pentanone (MIBK)	Ave	0.4284	0.4160		1.94	2.00	-2.9	30.0
cis-1,3-Dichloropropene	Ave	0.4392	0.4673		2.13	2.00	6.4	30.0
trans-1,3-Dichloropropene	Ave	0.4850	0.5109		2.11	2.00	5.3	30.0
Toluene	Ave	1.102	1.122		2.04	2.00	1.9	30.0
1,1,2-Trichloroethane	Ave	0.3035	0.3090		2.04	2.00	1.8	30.0
2-Hexanone	Ave	0.2628	0.2712		2.06	2.00	3.2	30.0
Dibromochloromethane	Ave	0.5804	0.6782		2.34	2.00	16.8	30.0
Octane	Ave	0.3544	0.3731		2.11	2.00	5.3	30.0
1,2-Dibromoethane (EDB)	Ave	0.5418	0.5772		2.13	2.00	6.5	30.0
Tetrachloroethene	Ave	0.4106	0.4330		2.11	2.00	5.5	30.0
Chlorobenzene	Ave	0.8680	0.8901		2.05	2.00	2.5	30.0
Ethylbenzene	Ave	1.442	1.437		1.99	2.00	-0.3	30.0
m-Xylene & p-Xylene	Ave	1.118	1.155		4.13	4.00	3.3	30.0
Bromoform	Ave	0.4993	0.5740		2.30	2.00	15.0	30.0
Styrene	Ave	0.7131	0.7680		2.15	2.00	7.7	30.0
Nonane	Ave	0.6024	0.6215		2.06	2.00	3.2	30.0
o-Xylene	Ave	1.180	1.143		1.94	2.00	-3.2	30.0
1,1,2,2-Tetrachloroethane	Ave	0.7065	0.7353		2.08	2.00	4.1	30.0
1,2,3-Trichloropropane	Ave	0.2557	0.2546		1.99	2.00	-0.4	30.0
Isopropylbenzene	Ave	1.579	1.614		2.04	2.00	2.2	30.0
Propylbenzene	Ave	0.4312	0.4763		2.21	2.00	10.4	30.0
2-Chlorotoluene	Ave	0.3988	0.4127		2.07	2.00	3.5	30.0
4-Ethyltoluene	Ave	1.639	1.715		2.09	2.00	4.7	30.0
1,3,5-Trimethylbenzene	Ave	0.6617	0.8216		2.48	2.00	24.2	30.0
Alpha Methyl Styrene	Ave	0.5721	0.6477		2.26	2.00	13.2	30.0
Decane	Ave	0.8188	0.9279		2.27	2.00	13.3	30.0
tert-Butylbenzene	Ave	1.538	1.689		2.20	2.00	9.9	30.0
1,2,4-Trimethylbenzene	Ave	1.379	1.564		2.27	2.00	13.4	30.0
1,3-Dichlorobenzene	Ave	0.8870	0.9882		2.23	2.00	11.4	30.0
sec-Butylbenzene	Ave	1.978	2.232		2.26	2.00	12.8	30.0

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab Sample ID: CCVIS 140-18530/2 Calibration Date: 03/02/2018 10:33

Instrument ID: MR Calib Start Date: 01/30/2018 12:29

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 01/30/2018 19:38

Lab File ID: RCCVC02.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Benzyl chloride	Ave	1.037	1.269		2.45	2.00	22.3	30.0
1,4-Dichlorobenzene	Ave	0.8846	0.9914		2.24	2.00	12.1	30.0
4-Isopropyltoluene	Ave	1.739	2.050		2.36	2.00	17.9	30.0
1,2,3-Trimethylbenzene	Ave	1.566	1.271		1.62	2.00	-18.9	30.0
1,2-Dichlorobenzene	Ave	0.8615	0.9611		2.23	2.00	11.6	30.0
Butylbenzene	Ave	1.551	1.873		2.42	2.00	20.8	30.0
Undecane	Ave	0.8863	1.027		2.32	2.00	15.8	30.0
1,2-Dibromo-3-Chloropropane	Ave	0.5267	0.3972		1.51	2.00	-24.6	30.0
1,2,4,5-Tetramethylbenzene	Ave	0.8495	1.684		3.96	2.00	98.2*	30.0
Dodecane	Ave	0.8298	0.9406		2.27	2.00	13.4	30.0
1,2,4-Trichlorobenzene	Ave	0.6453	0.7537		2.34	2.00	16.8	30.0
Naphthalene	Ave	1.434	1.627		2.27	2.00	13.5	30.0
Hexachlorobutadiene	Ave	0.7058	0.7754		2.20	2.00	9.9	30.0
1,2,3-Trichlorobenzene	Ave	0.6529	0.6912		2.12	2.00	5.9	30.0
4-Bromofluorobenzene (Surr)	Ave	0.7584	0.7579		4.00	4.00	-0.0	30.0

FORM IV
AIR - GC/MS VOA METHOD BLANK SUMMARY

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab File ID: R500BC01.D Lab Sample ID: MB 140-18444/4

Matrix: Air Heated Purge:(Y/N) N

Instrument ID: MR Date Analyzed: 03/01/2018 13:19

GC Column: RTX-5 ID: 0.32(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 140-18444/1002	RCCVC01-LCS.d	03/01/2018 10:59
SV-168-A-24	140-10792-1	RC01P101.D	03/01/2018 14:05
SV-095-A-24	140-10792-2	RC01P102.D	03/01/2018 14:52
SV-075-A-24	140-10792-3	RC01P103.D	03/01/2018 15:39
SV-178-MB-2	140-10792-4	RC01P104.D	03/01/2018 16:26
SV-180-MB-2	140-10792-5	RC01P105.D	03/01/2018 17:13
SV-179-MB-2	140-10792-6	RC01P106.D	03/01/2018 18:00
SV-181-MB-2	140-10792-7	RC01P107.D	03/01/2018 18:46
SV-182-MB-2	140-10792-8	RC01P108.D	03/01/2018 19:33
SV-184-MB-2	140-10792-9	RC01P109.D	03/01/2018 20:20
SV-187-MB-2	140-10792-10	RC01P110.D	03/01/2018 21:08
SV-186-MB-2	140-10792-11	RC01P111.D	03/01/2018 21:55
SV-185-MB-2	140-10792-12	RC01P112D.D	03/01/2018 22:42

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Client Sample ID: Lab Sample ID: MB 140-18444/4

Matrix: Air Lab File ID: R500BC01.D

Analysis Method: TO 15 LL Date Collected:

Sample wt/vol: 500(mL) Date Analyzed: 03/01/2018 13:19

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 18444 Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	ND		0.080	0.023
56-23-5	Carbon tetrachloride	153.81	ND		0.080	0.015
75-45-6	Chlorodifluoromethane	86.47	ND		0.080	0.015
67-66-3	Chloroform	119.38	ND		0.080	0.015
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.080	0.024
75-71-8	Dichlorodifluoromethane	120.91	ND		0.080	0.027
75-34-3	1,1-Dichloroethane	98.96	ND		0.080	0.010
107-06-2	1,2-Dichloroethane	98.96	ND		0.080	0.019
75-35-4	1,1-Dichloroethene	96.94	ND		0.080	0.014
100-41-4	Ethylbenzene	106.17	ND		0.080	0.027
75-09-2	Methylene Chloride	84.93	ND		0.20	0.13
1634-04-4	Methyl tert-butyl ether	88.15	ND		0.40	0.068
91-20-3	Naphthalene	128.17	ND		0.040	0.040
127-18-4	Tetrachloroethene	165.83	ND		0.080	0.016
108-88-3	Toluene	92.14	ND		0.12	0.12
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.080	0.020
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.080	0.039
71-55-6	1,1,1-Trichloroethane	133.41	ND		0.080	0.012
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.080	0.021
79-01-6	Trichloroethene	131.39	ND		0.040	0.014
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.080	0.034
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		0.080	0.025
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.080	0.026
75-01-4	Vinyl chloride	62.50	ND		0.040	0.029
1330-20-7	Xylenes, Total	106.17	ND		0.16	0.024

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	102		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Client Sample ID: Lab Sample ID: MB 140-18444/4

Matrix: Air Lab File ID: R500BC01.D

Analysis Method: TO 15 LL Date Collected:

Sample wt/vol: 500(mL) Date Analyzed: 03/01/2018 13:19

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 18444 Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	ND		0.26	0.073
56-23-5	Carbon tetrachloride	153.81	ND		0.50	0.094
75-45-6	Chlorodifluoromethane	86.47	ND		0.28	0.053
67-66-3	Chloroform	119.38	ND		0.39	0.073
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.32	0.095
75-71-8	Dichlorodifluoromethane	120.91	ND		0.40	0.13
75-34-3	1,1-Dichloroethane	98.96	ND		0.32	0.040
107-06-2	1,2-Dichloroethane	98.96	ND		0.32	0.077
75-35-4	1,1-Dichloroethene	96.94	ND		0.32	0.056
100-41-4	Ethylbenzene	106.17	ND		0.35	0.12
75-09-2	Methylene Chloride	84.93	ND		0.69	0.45
1634-04-4	Methyl tert-butyl ether	88.15	ND		1.4	0.25
91-20-3	Naphthalene	128.17	ND		0.21	0.21
127-18-4	Tetrachloroethene	165.83	ND		0.54	0.11
108-88-3	Toluene	92.14	ND		0.45	0.45
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.32	0.079
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.59	0.29
71-55-6	1,1,1-Trichloroethane	133.41	ND		0.44	0.065
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.44	0.11
79-01-6	Trichloroethene	131.39	ND		0.21	0.075
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.39	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		0.39	0.12
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.39	0.13
75-01-4	Vinyl chloride	62.50	ND		0.10	0.074
1330-20-7	Xylenes, Total	106.17	ND		0.69	0.10

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	102		60-140

FORM III
AIR - GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Matrix: Air Level: Low Lab File ID: RCCVC01-LCS.d

Lab ID: LCS 140-18444/1002 Client ID:

COMPOUND	SPIKE ADDED (ppb v/v)	LCS CONCENTRATION (ppb v/v)	LCS % REC	QC LIMITS REC	#
Benzene	2.00	2.05	103	70-130	
Carbon tetrachloride	2.00	2.21	111	70-130	
Chlorodifluoromethane	2.00	2.05	103	60-140	
Chloroform	2.00	2.00	100	70-130	
cis-1,2-Dichloroethene	2.00	2.00	100	70-130	
Dichlorodifluoromethane	2.00	2.19	110	60-140	
1,1-Dichloroethane	2.00	1.95	97	70-130	
1,2-Dichloroethane	2.00	2.02	101	70-130	
1,1-Dichloroethene	2.00	2.00	100	70-130	
Ethylbenzene	2.00	2.04	102	70-130	
Methylene Chloride	2.00	1.89	95	70-130	
Methyl tert-butyl ether	2.00	2.03	101	60-140	
Naphthalene	2.00	2.35	118	60-140	
Tetrachloroethene	2.00	2.12	106	70-130	
Toluene	2.00	2.06	103	70-130	
trans-1,2-Dichloroethene	2.00	2.04	102	70-130	
1,2,4-Trichlorobenzene	2.00	2.42	121	60-140	
1,1,1-Trichloroethane	2.00	2.03	101	70-130	
1,1,2-Trichloroethane	2.00	2.04	102	70-130	
Trichloroethene	2.00	2.07	104	70-130	
1,2,3-Trimethylbenzene	2.00	1.63	82	70-130	
1,2,4-Trimethylbenzene	2.00	2.29	115	70-130	
1,3,5-Trimethylbenzene	2.00	2.54	127	70-130	
Vinyl chloride	2.00	1.99	99	70-130	
Xylenes, Total	6.00	6.19	103	70-130	

Column to be used to flag recovery and RPD values

FORM III TO 15 LL

FORM IV
AIR - GC/MS VOA METHOD BLANK SUMMARY

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab File ID: R500BC02.D Lab Sample ID: MB 140-18530/4

Matrix: Air Heated Purge:(Y/N) N

Instrument ID: MR Date Analyzed: 03/02/2018 13:15

GC Column: RTX-5 ID: 0.32(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 140-18530/1002	RCCVC02-LCS.d	03/02/2018 10:33
SV-181-MB-2 DL	140-10792-7 DL	RC02P116.D	03/03/2018 04:19
SV-182-MB-2 DL	140-10792-8 DL	RC02P201.D	03/03/2018 05:55

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 140-18530/4

Matrix: Air | Lab File ID: R500BC02.D

Analysis Method: TO 15 LL | Date Collected:

Sample wt/vol: 500(mL) | Date Analyzed: 03/02/2018 13:15

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18530 | Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	ND		0.080	0.023
56-23-5	Carbon tetrachloride	153.81	ND		0.080	0.015
75-45-6	Chlorodifluoromethane	86.47	ND		0.080	0.015
67-66-3	Chloroform	119.38	ND		0.080	0.015
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.080	0.024
75-71-8	Dichlorodifluoromethane	120.91	ND		0.080	0.027
75-34-3	1,1-Dichloroethane	98.96	ND		0.080	0.010
107-06-2	1,2-Dichloroethane	98.96	ND		0.080	0.019
75-35-4	1,1-Dichloroethene	96.94	ND		0.080	0.014
100-41-4	Ethylbenzene	106.17	ND		0.080	0.027
75-09-2	Methylene Chloride	84.93	ND		0.20	0.13
1634-04-4	Methyl tert-butyl ether	88.15	ND		0.40	0.068
91-20-3	Naphthalene	128.17	ND		0.040	0.040
127-18-4	Tetrachloroethene	165.83	ND		0.080	0.016
108-88-3	Toluene	92.14	ND		0.12	0.12
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.080	0.020
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.080	0.039
71-55-6	1,1,1-Trichloroethane	133.41	ND		0.080	0.012
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.080	0.021
79-01-6	Trichloroethene	131.39	ND		0.040	0.014
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.080	0.034
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		0.080	0.025
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.080	0.026
75-01-4	Vinyl chloride	62.50	ND		0.040	0.029
1330-20-7	Xylenes, Total	106.17	ND		0.16	0.024

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	103		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 140-18530/4

Matrix: Air | Lab File ID: R500BC02.D

Analysis Method: TO 15 LL | Date Collected:

Sample wt/vol: 500(mL) | Date Analyzed: 03/02/2018 13:15

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18530 | Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	ND		0.26	0.073
56-23-5	Carbon tetrachloride	153.81	ND		0.50	0.094
75-45-6	Chlorodifluoromethane	86.47	ND		0.28	0.053
67-66-3	Chloroform	119.38	ND		0.39	0.073
156-59-2	cis-1,2-Dichloroethene	96.94	ND		0.32	0.095
75-71-8	Dichlorodifluoromethane	120.91	ND		0.40	0.13
75-34-3	1,1-Dichloroethane	98.96	ND		0.32	0.040
107-06-2	1,2-Dichloroethane	98.96	ND		0.32	0.077
75-35-4	1,1-Dichloroethene	96.94	ND		0.32	0.056
100-41-4	Ethylbenzene	106.17	ND		0.35	0.12
75-09-2	Methylene Chloride	84.93	ND		0.69	0.45
1634-04-4	Methyl tert-butyl ether	88.15	ND		1.4	0.25
91-20-3	Naphthalene	128.17	ND		0.21	0.21
127-18-4	Tetrachloroethene	165.83	ND		0.54	0.11
108-88-3	Toluene	92.14	ND		0.45	0.45
156-60-5	trans-1,2-Dichloroethene	96.94	ND		0.32	0.079
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		0.59	0.29
71-55-6	1,1,1-Trichloroethane	133.41	ND		0.44	0.065
79-00-5	1,1,2-Trichloroethane	133.41	ND		0.44	0.11
79-01-6	Trichloroethene	131.39	ND		0.21	0.075
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		0.39	0.17
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		0.39	0.12
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		0.39	0.13
75-01-4	Vinyl chloride	62.50	ND		0.10	0.074
1330-20-7	Xylenes, Total	106.17	ND		0.69	0.10

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	103		60-140

FORM III
AIR - GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Matrix: Air Level: Low Lab File ID: RCCVC02-LCS.d

Lab ID: LCS 140-18530/1002 Client ID:

COMPOUND	SPIKE ADDED (ppb v/v)	LCS CONCENTRATION (ppb v/v)	LCS % REC	QC LIMITS REC	#
Benzene	2.00	2.07	104	70-130	
Carbon tetrachloride	2.00	2.25	112	70-130	
Chlorodifluoromethane	2.00	2.11	105	60-140	
Chloroform	2.00	2.01	101	70-130	
cis-1,2-Dichloroethene	2.00	1.99	100	70-130	
Dichlorodifluoromethane	2.00	2.21	111	60-140	
1,1-Dichloroethane	2.00	1.96	98	70-130	
1,2-Dichloroethane	2.00	2.05	103	70-130	
1,1-Dichloroethene	2.00	1.98	99	70-130	
Ethylbenzene	2.00	1.99	100	70-130	
Methylene Chloride	2.00	1.88	94	70-130	
Methyl tert-butyl ether	2.00	2.01	100	60-140	
Naphthalene	2.00	2.27	113	60-140	
Tetrachloroethene	2.00	2.11	105	70-130	
Toluene	2.00	2.04	102	70-130	
trans-1,2-Dichloroethene	2.00	2.03	101	70-130	
1,2,4-Trichlorobenzene	2.00	2.34	117	60-140	
1,1,1-Trichloroethane	2.00	2.03	102	70-130	
1,1,2-Trichloroethane	2.00	2.04	102	70-130	
Trichloroethene	2.00	2.06	103	70-130	
1,2,3-Trimethylbenzene	2.00	1.62	81	70-130	
1,2,4-Trimethylbenzene	2.00	2.27	113	70-130	
1,3,5-Trimethylbenzene	2.00	2.48	124	70-130	
Vinyl chloride	2.00	2.14	107	70-130	
Xylenes, Total	6.00	6.07	101	70-130	

Column to be used to flag recovery and RPD values

FORM III TO 15 LL

FORM II
AIR - GC/MS VOA SURROGATE RECOVERY

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Matrix: Air Level: Low

GC Column (1): RTX-5 ID: 0.32(mm)

Client Sample ID	Lab Sample ID	BFB #
SV-168-A-24	140-10792-1	101
SV-095-A-24	140-10792-2	105
SV-075-A-24	140-10792-3	102
SV-178-MB-2	140-10792-4	107
SV-180-MB-2	140-10792-5	106
SV-179-MB-2	140-10792-6	107
SV-181-MB-2	140-10792-7	106
SV-181-MB-2 DL	140-10792-7 DL	100
SV-182-MB-2	140-10792-8	109
SV-182-MB-2 DL	140-10792-8 DL	100
SV-184-MB-2	140-10792-9	107
SV-187-MB-2	140-10792-10	107
SV-186-MB-2	140-10792-11	107
SV-185-MB-2	140-10792-12	107
	MB 140-18444/4	102
	MB 140-18530/4	103
	LCS 140-18444/1002	100
	LCS 140-18530/1002	100

	QC LIMITS
BFB = 4-Bromofluorobenzene (Surr)	60-140

Column to be used to flag recovery values

FORM II TO 15 LL

FORM VIII
AIR - GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Sample No.: ICIS 140-17762/9 Date Analyzed: 01/30/2018 17:15

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm)

Lab File ID (Standard): RA30IC07.D Heated Purge: (Y/N) N

Calibration ID: 1371

		CBM		DFBZ		CBZd5	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT		397524	7.71	2418900	9.85	2104378	14.86
UPPER LIMIT		556534	8.04	3386460	10.18	2946129	15.19
LOWER LIMIT		238514	7.38	1451340	9.52	1262627	14.53
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICV 140-17762/14		374886	7.72	2292324	9.85	1999070	14.86

CBM = Chlorobromomethane (IS)
DFBZ = 1,4-Difluorobenzene
CBZd5 = Chlorobenzene-d5 (IS)

Area Limit = 60%-140% of internal standard area
RT Limit = ± 0.33 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII TO 15 LL

FORM VIII
AIR - GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Sample No.: CCVIS 140-18444/2 Date Analyzed: 03/01/2018 10:59

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm)

Lab File ID (Standard): RCCVC01.D Heated Purge: (Y/N) N

Calibration ID: 1371

		CBM		DFBZ		CBZd5	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		357240	7.69	2145935	9.83	1828892	14.84
UPPER LIMIT		500136	8.02	3004309	10.16	2560449	15.17
LOWER LIMIT		214344	7.36	1287561	9.50	1097335	14.51
LAB SAMPLE ID	CLIENT SAMPLE ID						
LCS 140-18444/1002		357240	7.69	2145935	9.83	1828892	14.84
MB 140-18444/4		365117	7.68	2188191	9.82	1812042	14.84
140-10792-1	SV-168-A-24	345106	7.69	2072824	9.83	1815717	14.84
140-10792-2	SV-095-A-24	358253	7.69	2156103	9.83	1811309	14.84
140-10792-3	SV-075-A-24	364715	7.69	2187163	9.83	1741770	14.84
140-10792-4	SV-178-MB-2	359703	7.68	2147943	9.83	1788913	14.84
140-10792-5	SV-180-MB-2	349284	7.68	2085454	9.82	1747867	14.84
140-10792-6	SV-179-MB-2	360037	7.68	2153156	9.82	1826646	14.84
140-10792-7	SV-181-MB-2	356654	7.70	2146818	9.83	1797695	14.84
140-10792-8	SV-182-MB-2	350297	7.70	2103616	9.83	1739674	14.84
140-10792-9	SV-184-MB-2	355725	7.68	2158392	9.83	1815237	14.84
140-10792-10	SV-187-MB-2	351497	7.69	2130349	9.83	1777224	14.84
140-10792-11	SV-186-MB-2	354190	7.68	2130696	9.82	1791868	14.84
140-10792-12	SV-185-MB-2	351742	7.68	2112374	9.82	1738634	14.84

CBM = Chlorobromomethane (IS)
DFBZ = 1,4-Difluorobenzene
CBZd5 = Chlorobenzene-d5 (IS)

Area Limit = 60%-140% of internal standard area
RT Limit = ± 0.33 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII TO 15 LL

FORM VIII
AIR - GC/MS VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Sample No.: CCVIS 140-18530/2 Date Analyzed: 03/02/2018 10:33

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm)

Lab File ID (Standard): RCCVC02.D Heated Purge: (Y/N) N

Calibration ID: 1371

		CBM		DFBZ		CBZd5	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		340163	7.69	2030333	9.83	1735713	14.84
UPPER LIMIT		476228	8.02	2842466	10.16	2429998	15.17
LOWER LIMIT		204098	7.36	1218200	9.50	1041428	14.51
LAB SAMPLE ID	CLIENT SAMPLE ID						
LCS 140-18530/1002		340163	7.69	2030333	9.83	1735713	14.84
MB 140-18530/4		348815	7.67	2085504	9.82	1705566	14.84
140-10792-7 DL	SV-181-MB-2 DL	383017	7.68	2281330	9.82	2015702	14.84
140-10792-8 DL	SV-182-MB-2 DL	340935	7.68	2061800	9.82	1818436	14.84

CBM = Chlorobromomethane (IS)
DFBZ = 1,4-Difluorobenzene
CBZd5 = Chlorobenzene-d5 (IS)

Area Limit = 60%-140% of internal standard area
RT Limit = ± 0.33 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII TO 15 LL

LMC - MRC

SAMPLE CALCULATION

SAMPLE IDENTIFICATION	**SV-168-A-24**
COMPOUND	TRICHLOROETHENE
COMPOUND AREA	1865523
INTERNAL STANDARD AMOUNT (ppbv)	4
DILUTION FACTOR	1
INTERNAL STANDARD AREA	2072824
AVERAGE RRF	0.3611
SAMPLE VOLUME (mL)	20
FINAL VOLUME (mL)	500

MW= 131.39

GAS CONSTANT = 24.45

	on column		final result	
	9.9694	ppbv	249.24	ppbv
	53.57	µg/m³	1339.4	µg/m³

IS AREA	COMPOUN	IS AMOUNT PPB	COMPOUND AMOUNT	RRF
2324388	4489	4	0.0196	0.3941
2394140	8207	4	0.0392	0.3498
2404366	16817	4	0.0784	0.3569
2397193	32437	4	0.16	0.3383
2352829	80726	4	0.4	0.3431
2422753	216055	4	1	0.3567
2418900	481860	4	2	0.3984
2445825	990611	4	4	0.4050
2463428	1689959	4	8	0.3430
2495007	3246702	4	16	0.3253
			AVERAGE RRF	0.3611
			%RSD	7.74

CCV RRF 03/01/18 **10:59**

IS AREA	COMPOUN	IS AMOUNT (NG)	COMPOUND	RRF
2145935	401572	4	2	0.3743

%D 3.66

Surrogate %R 4-Bromofluorobenzene	SPIKE AMOUNT	Surrogate CONCENTRATION
101	4	4.04

LCS %R	SPIKE AMOUNT	LCS CONCENTRATION
103.5	2	2.07

TUNE % ABDUNDANCE	RAW ABUNDANCE m/z 95	RAW ABUNDANCE m/z	TUNE ON 03/01/18@10:28
18.96	1104896	209472	

LMC - MRC

SAMPLE CALCULATION

SAMPLE IDENTIFICATION	SV-168-A-24		
COMPOUND	TRICHLOROETHENE	MW=	131.39
		GAS CONSTANT =	24.45
COMPOUND AREA	1865523		
INTERNAL STANDARD AMOUNT (ppbv)	4		
DILUTION FACTOR	1		
INTERNAL STANDARD AREA	2072824		
AVERAGE RRF	0.3611		
SAMPLE VOLUME (mL)	20		
FINAL VOLUME (mL)	500		

	on column		final result	
	9.9694	ppbv	249.24	ppbv
	53.57	µg/m³	1339.4	µg/m³

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville | Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-168-A-24 | Lab Sample ID: 140-10792-1

Matrix: Air | Lab File ID: RC01P101.D

Analysis Method: TO 15 LL | Date Collected: 02/21/2018 12:07

Sample wt/vol: 20(mL) | Date Analyzed: 03/01/2018 14:05

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: RTX-5 ID: 0.32(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 18444 | Units: ppb v/v

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	ND		2.0	0.58
56-23-5	Carbon tetrachloride	153.81	ND		2.0	0.38
75-45-6	Chlorodifluoromethane	86.47	0.42	J	2.0	0.38
67-66-3	Chloroform	119.38	0.74	J	2.0	0.38
156-59-2	cis-1,2-Dichloroethene	96.94	1.5	J	2.0	0.60
75-71-8	Dichlorodifluoromethane	120.91	0.71	J	2.0	0.68
75-34-3	1,1-Dichloroethane	98.96	0.88	J	2.0	0.25
107-06-2	1,2-Dichloroethane	98.96	ND		2.0	0.48
75-35-4	1,1-Dichloroethene	96.94	130		2.0	0.35
100-41-4	Ethylbenzene	106.17	ND		2.0	0.68
75-09-2	Methylene Chloride	84.93	3.9	J	5.0	3.3
1634-04-4	Methyl tert-butyl ether	88.15	ND		10	1.7
91-20-3	Naphthalene	128.17	ND		1.0	1.0
127-18-4	Tetrachloroethene	165.83	3.5		2.0	0.40
108-88-3	Toluene	92.14	ND		3.0	3.0
156-60-5	trans-1,2-Dichloroethene	96.94	ND		2.0	0.50
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		2.0	0.98
71-55-6	1,1,1-Trichloroethane	133.41	1.7	J	2.0	0.30
79-00-5	1,1,2-Trichloroethane	133.41	ND		2.0	0.53
79-01-6	Trichloroethene	131.39	250	✓	1.0	0.35
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		2.0	0.85
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		2.0	0.63
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		2.0	0.65
75-01-4	Vinyl chloride	62.50	ND		1.0	0.73
1330-20-7	Xylenes, Total	106.17	ND		4.0	0.60

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	101		60-140

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Client Sample ID: SV-168-A-24 Lab Sample ID: 140-10792-1

Matrix: Air Lab File ID: RC01P101.D

Analysis Method: TO 15 LL Date Collected: 02/21/2018 12:07

Sample wt/vol: 20(mL) Date Analyzed: 03/01/2018 14:05

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: RTX-5 ID: 0.32(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 18444 Units: ug/m3

CAS NO.	COMPOUND NAME	MOLECULAR WEIGHT	RESULT	Q	RL	MDL
71-43-2	Benzene	78.11	ND		6.4	1.8
56-23-5	Carbon tetrachloride	153.81	ND		13	2.4
75-45-6	Chlorodifluoromethane	86.47	1.5	J	7.1	1.3
67-66-3	Chloroform	119.38	3.6	J	9.8	1.8
156-59-2	cis-1,2-Dichloroethene	96.94	6.1	J	7.9	2.4
75-71-8	Dichlorodifluoromethane	120.91	3.5	J	9.9	3.3
75-34-3	1,1-Dichloroethane	98.96	3.6	J	8.1	1.0
107-06-2	1,2-Dichloroethane	98.96	ND		8.1	1.9
75-35-4	1,1-Dichloroethene	96.94	500		7.9	1.4
100-41-4	Ethylbenzene	106.17	ND		8.7	2.9
75-09-2	Methylene Chloride	84.93	14	J	17	11
1634-04-4	Methyl tert-butyl ether	88.15	ND		36	6.1
91-20-3	Naphthalene	128.17	ND		5.2	5.2
127-18-4	Tetrachloroethene	165.83	23		14	2.7
108-88-3	Toluene	92.14	ND		11	11
156-60-5	trans-1,2-Dichloroethene	96.94	ND		7.9	2.0
120-82-1	1,2,4-Trichlorobenzene	181.45	ND		15	7.2
71-55-6	1,1,1-Trichloroethane	133.41	9.3	J	11	1.6
79-00-5	1,1,2-Trichloroethane	133.41	ND		11	2.9
79-01-6	Trichloroethene	131.39	1300	✓	5.4	1.9
526-73-8	1,2,3-Trimethylbenzene	120.19	ND		9.8	4.2
95-63-6	1,2,4-Trimethylbenzene	120.20	ND		9.8	3.1
108-67-8	1,3,5-Trimethylbenzene	120.20	ND		9.8	3.2
75-01-4	Vinyl chloride	62.50	ND		2.6	1.9
1330-20-7	Xylenes, Total	106.17	ND		17	2.6

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	101		60-140

TestAmerica Knoxville
Target Compound Quantitation Report

Data File: \\ChromNA\Knoxville\ChromData\MR\20180226-7505.b\RC01P101.D
Lims ID: 140-10792-A-1
Client ID: SV-168-A-24
Sample Type: Client
Inject. Date: 01-Mar-2018 14:05:30 ALS Bottle#: 1 Worklist Smp#: 5
Purge Vol: 500.000 mL Dil. Factor: 1.0000
Sample Info: 140-0007505-005
Misc. Info.: 140-10792-a-1
Operator ID: Instrument ID: MR

Method: \\ChromNA\Knoxville\ChromData\MR\20180226-7505.b\MR_TO15.m
Limit Group: MSA TO14A_15 Routine ICAL
Last Update: 01-Mar-2018 14:41:54 Calib Date: 30-Jan-2018 19:38:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC10.D

Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
Process Host: XAWRK007

First Level Reviewer: tajh Date: 01-Mar-2018 14:41:54

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	7.686	7.686	0.000	79	345106	4.00	
* 2 1,4-Difluorobenzene	114	9.827	9.827	0.000	94	2072824	4.00	
* 3 Chlorobenzene-d5 (IS)	117	14.842	14.842	0.000	88	1815717	4.00	
$ 4 4-Bromofluorobenzene (Surr	95	16.557	16.557	0.000	89	1389662	4.04	
6 Chlorodifluoromethane	67	3.453	3.459	-0.006	43	703	0.0167	
8 Dichlorodifluoromethane	85	3.502	3.507	-0.005	99	9210	0.0284	
27 1,1-Dichloroethene	96	5.190	5.201	-0.010	97	663729	5.08	
31 Methylene Chloride	84	5.481	5.470	0.011	87	21262	0.1576	
37 1,1-Dichloroethane	63	6.522	6.522	0.000	99	8917	0.0353	
41 cis-1,2-Dichloroethene	96	7.401	7.401	0.000	94	8759	0.0616	
43 Chloroform	83	7.713	7.724	-0.011	90	9508	0.0298	
45 1,1,1-Trichloroethane	97	8.679	8.679	0.000	96	22977	0.0685	
56 Trichloroethene	130	10.582	10.588	-0.005	98	1865523	9.97	
65 Toluene	91	12.777	12.777	0.000	93	35217	0.0704	
73 Tetrachloroethene	129	13.990	13.990	0.000	96	25823	0.1385	

Reagents:

40MXISSURP_00003 Amount Added: 40.00 Units: mL Run Reagent

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1 Analy Batch No.: 17762

SDG No.:

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/30/2018 12:29 Calibration End Date: 01/30/2018 19:38 Calibration ID: 1371

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10		B	M1	M2								
cis-1,2-Dichloroethene	1.9071 1.6125	1.8156 1.6678	1.6641 1.5780	1.6147 1.5302	1.6025 1.4817	Ave		1.6474				7.8		30.0			
Ethyl acetate	+++++ 2.7290	+++++ 2.8405	2.1840 2.6632	2.2813 2.5958	2.5408 2.4854	Ave		2.5400				8.7		30.0			
Chloroform	4.2863 3.7052	3.8694 3.7903	3.7705 3.5491	3.6794 3.4047	3.6984 3.2578	Ave		3.7011				7.5		30.0			
Tetrahydrofuran	+++++ 1.3407	+++++ 1.3730	1.3680 1.2688	1.3174 1.2195	1.3030 1.1665	Ave		1.2946				5.6		30.0			
1,1,1-Trichloroethane	4.1703 3.9689	4.0153 4.0994	3.8140 3.8790	3.6871 3.7835	3.8389 3.6271	Ave		3.8883				4.5		30.0			
1,2-Dichloroethane	0.4598 0.4390	0.4262 0.4435	0.4288 0.4170	0.3913 0.4087	0.4251 0.3915	Ave		0.4231				5.2		30.0			
Benzene	0.8742 0.7844	0.8183 0.7925	0.7957 0.7383	0.7735 0.6873	0.7655 0.6121	Ave		0.7642				9.5		30.0			
1-Butanol	+++++ 0.0491	+++++ 0.0535	+++++ 0.0554	+++++ 0.0549	0.0399 0.0507	Ave		0.0506				11.4		30.0			
Cyclohexane	+++++ 0.1282	0.1302 0.1319	0.1361 0.1198	0.1248 0.1109	0.1254 0.0971	Ave		0.1227				9.8		30.0			
Carbon tetrachloride	0.6377 0.6481	0.5867 0.6494	0.5971 0.6370	0.5827 0.6239	0.6061 0.5914	Ave		0.6160				4.2		30.0			
2,2,4-Trimethylpentane	+++++ 1.1700	+++++ 1.1823	1.1763 1.1037	1.1213 1.0350	1.1405 0.9359	Ave		1.1081				7.6		30.0			
1,2-Dichloropropane	0.2892 0.2749	0.2827 0.2781	0.2783 0.2608	0.2653 0.2439	0.2652 0.2201	Ave		0.2659				7.7		30.0			
Heptane	+++++ 0.2794	0.2806 0.2826	0.2727 0.2668	0.2557 0.2502	0.2719 0.2244	Ave		0.2649				7.1		30.0			
Trichloroethene	0.3941 0.3561	0.3498 0.3989	0.3569 0.4050	0.3383 0.3430	0.3431 0.3253	Ave		0.3611				7.8		30.0			
Dibromomethane	+++++ 0.3180	+++++ 0.3337	0.3335 0.3154	0.3130 0.3075	0.3081 0.2866	Ave		0.3145				4.8		30.0			
Bromodichloromethane	0.5552 0.5927	0.5165 0.6275	0.5155 0.6065	0.5215 0.5926	0.5443 0.5621	Ave		0.5634				7.1		30.0			
1,4-Dioxane	+++++ 0.1244	0.1026 0.1255	0.1107 0.1188	0.1100 0.1111	0.1114 0.0998	Ave		0.1127				7.8		30.0			
Methyl methacrylate	+++++ 0.2534	+++++ 0.2814	+++++ 0.2766	0.1921 0.2732	0.2185 0.2613	Ave		0.2509				13.3		30.0			
4-Methyl-2-pentanone (MIBK)	+++++ 0.4476	+++++ 0.4761	0.4073 0.4607	0.3703 0.4462	0.4067 0.4120	Ave		0.4284				8.2		30.0			
cis-1,3-Dichloropropene	0.4432 0.4616	0.4182 0.4890	0.4016 0.4666	0.4077 0.4542	0.4258 0.4244	Ave		0.4392				6.4		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
AIR - GC/MS VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1 Analy Batch No.: 17762

SDG No.:

Instrument ID: MR GC Column: RTX-5 ID: 0.32(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/30/2018 12:29 Calibration End Date: 01/30/2018 19:38 Calibration ID: 1371

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4 LVL 9	LVL 5 LVL 10		B	M1	M2								
cis-1,2-Dichloroethene	1.9071 1.6125	1.8156 1.6678	1.6641 1.5780	1.6147 1.5302	1.6025 1.4817	Ave		1.6474				7.8		30.0			
Ethyl acetate	+++++ 2.7290	+++++ 2.8405	2.1840 2.6632	2.2813 2.5958	2.5408 2.4854	Ave		2.5400				8.7		30.0			
Chloroform	4.2863 3.7052	3.8694 3.7903	3.7705 3.5491	3.6794 3.4047	3.6984 3.2578	Ave		3.7011				7.5		30.0			
Tetrahydrofuran	+++++ 1.3407	+++++ 1.3730	1.3680 1.2688	1.3174 1.2195	1.3030 1.1665	Ave		1.2946				5.6		30.0			
1,1,1-Trichloroethane	4.1703 3.9689	4.0153 4.0994	3.8140 3.8790	3.6871 3.7835	3.8389 3.6271	Ave		3.8883				4.5		30.0			
1,2-Dichloroethane	0.4598 0.4390	0.4262 0.4435	0.4288 0.4170	0.3913 0.4087	0.4251 0.3915	Ave		0.4231				5.2		30.0			
Benzene	0.8742 0.7844	0.8183 0.7925	0.7957 0.7383	0.7735 0.6873	0.7655 0.6121	Ave		0.7642				9.5		30.0			
1-Butanol	+++++ 0.0491	+++++ 0.0535	+++++ 0.0554	+++++ 0.0549	0.0399 0.0507	Ave		0.0506				11.4		30.0			
Cyclohexane	+++++ 0.1282	0.1302 0.1319	0.1361 0.1198	0.1248 0.1109	0.1254 0.0971	Ave		0.1227				9.8		30.0			
Carbon tetrachloride	0.6377 0.6481	0.5867 0.6494	0.5971 0.6370	0.5827 0.6239	0.6061 0.5914	Ave		0.6160				4.2		30.0			
2,2,4-Trimethylpentane	+++++ 1.1700	+++++ 1.1823	1.1763 1.1037	1.1213 1.0350	1.1405 0.9359	Ave		1.1081				7.6		30.0			
1,2-Dichloropropane	0.2892 0.2749	0.2827 0.2781	0.2783 0.2608	0.2653 0.2439	0.2652 0.2201	Ave		0.2659				7.7		30.0			
Heptane	+++++ 0.2794	0.2806 0.2826	0.2727 0.2668	0.2557 0.2502	0.2719 0.2244	Ave		0.2649				7.1		30.0			
Trichloroethene	0.3941 0.3561	0.3498 0.3989	0.3569 0.4050	0.3383 0.3430	0.3431 0.3253	Ave		0.3611				7.8		30.0			
Dibromomethane	+++++ 0.3180	+++++ 0.3337	0.3335 0.3154	0.3130 0.3075	0.3081 0.2866	Ave		0.3145				4.8		30.0			
Bromodichloromethane	0.5552 0.5927	0.5165 0.6275	0.5155 0.6065	0.5215 0.5926	0.5443 0.5621	Ave		0.5634				7.1		30.0			
1,4-Dioxane	+++++ 0.1244	0.1026 0.1255	0.1107 0.1188	0.1100 0.1111	0.1114 0.0998	Ave		0.1127				7.8		30.0			
Methyl methacrylate	+++++ 0.2534	+++++ 0.2814	+++++ 0.2766	0.1921 0.2732	0.2185 0.2613	Ave		0.2509				13.3		30.0			
4-Methyl-2-pentanone (MIBK)	+++++ 0.4476	+++++ 0.4761	0.4073 0.4607	0.3703 0.4462	0.4067 0.4120	Ave		0.4284				8.2		30.0			
cis-1,3-Dichloropropene	0.4432 0.4616	0.4182 0.4890	0.4016 0.4666	0.4077 0.4542	0.4258 0.4244	Ave		0.4392				6.4		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

TestAmerica Knoxville
Target Compound Quantitation Report

Data File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC01.D
Lims ID: IC L1
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 30-Jan-2018 12:29:30 ALS Bottle#: 9 Worklist Smp#: 3
Purge Vol: 500.000 mL Dil. Factor: 1.0000
Sample Info: 140-0007236-003
Misc. Info.: 134528
Operator ID: Instrument ID: MR
Sublist: chrom-MR_TO15*sub13

Method: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\MR_TO15.m
Limit Group: MSA TO14A_15 Routine ICAL
Last Update: 05-Feb-2018 13:02:45 Calib Date: 30-Jan-2018 19:38:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC10.D

Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
Process Host: XAWRK015

First Level Reviewer: tajh Date: 30-Jan-2018 13:35:00

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	7.692	7.710	-0.018	86	376476	4.00	4.00	
* 2 1,4-Difluorobenzene	114	9.844	9.852	-0.008	95	2324388	4.00	4.00	
* 3 Chlorobenzene-d5 (IS)	117	14.858	14.859	-0.001	89	2041864	4.00	4.00	
$ 4 4-Bromofluorobenzene (Surr	95	16.568	16.570	-0.002	86	1562115	4.00	4.04	
6 Chlorodifluoromethane	67	3.475	3.471	0.004	97	1114	0.0196	0.0243	
7 Propene	41	3.481	3.477	0.004	85	2863	0.0196	0.0318	
8 Dichlorodifluoromethane	85	3.518	3.519	-0.001	100	9712	0.0196	0.0275	
9 Chloromethane	52	3.648	3.653	-0.005	98	1546	0.0196	0.0480	
10 1,2-Dichloro-1,1,2,2-tetra	135	3.669	3.675	-0.006	90	5510	0.0196	0.0230	
12 Vinyl chloride	62	3.793	3.789	0.004	41	2301	0.0196	0.0233	
14 Butadiene	54	3.863	3.863	0.000	68	1660	0.0196	0.0261	
15 Bromomethane	94	4.095	4.098	-0.003	95	2402	0.0196	0.0263	
16 Chloroethane	64	4.203	4.208	-0.005	76	1269	0.0196	0.0284	
17 Ethanol	31	4.306	4.313	-0.007	90	4299	0.0980	0.1523	
18 Vinyl bromide	106	4.440	4.441	-0.001	97	2560	0.0196	0.0286	
19 2-Methylbutane	43	4.494	4.498	-0.004	85	1726	0.0196	0.0232	
20 Acrolein	56	4.651	4.656	-0.005	32	2244	0.0196	0.1079	
21 Trichlorofluoromethane	101	4.651	4.659	-0.008	98	7040	0.0196	0.0210	
22 Acetonitrile	40	4.829	4.719	0.110	49	52	0.0196	0.002032	
23 Acetone	58	4.748	4.748	0.000	99	8407	0.0588	0.2136	
24 Isopropyl alcohol	45	4.839	4.843	-0.004	84	11498	0.0588	0.0760	
25 Pentane	72	4.845	4.847	-0.002	79	779	0.0196	0.0297	
26 Ethyl ether	31	4.985	4.975	0.010	84	2420	0.0196	0.0255	
27 1,1-Dichloroethene	96	5.211	5.218	-0.007	95	3363	0.0196	0.0236	
28 Acrylonitrile	53	5.282	5.288	-0.006	88	3069	0.0196	0.0341	
29 2-Methyl-2-propanol	59	5.330	5.325	0.005	94	6634	0.0196	0.0234	
30 1,1,2-Trichloro-1,2,2-trif	101	5.379	5.390	-0.011	94	6795	0.0196	0.0223	
31 Methylene Chloride	84	5.481	5.492	-0.011	90	18478	0.0196	0.1255	
32 3-Chloro-1-propene	39	5.503	5.514	-0.011	93	3037	0.0196	0.0257	
33 Carbon disulfide	76	5.616	5.625	-0.009	99	9012	0.0196	0.0229	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
34 trans-1,2-Dichloroethene	96	6.177	6.192	-0.015	97	3586	0.0196	0.0248	
36 Methyl tert-butyl ether	73	6.333	6.323	0.010	94	10267	0.0196	0.0230	
37 1,1-Dichloroethane	63	6.527	6.545	-0.018	99	6005	0.0196	0.0218	
38 Vinyl acetate	43	6.667	6.662	0.005	100	4484	0.0196	0.0168	
39 2-Butanone (MEK)	72	7.056	7.036	0.020	87	850	0.0196	0.0124	
40 Hexane	56	7.110	7.119	-0.009	83	2733	0.0196	0.0248	
41 cis-1,2-Dichloroethene	96	7.412	7.426	-0.014	94	3518	0.0196	0.0227	
42 Ethyl acetate	43	7.643	7.622	0.021	98	3285	0.0196	0.0137	
43 Chloroform	83	7.719	7.743	-0.024	89	7907	0.0196	0.0227	
44 Tetrahydrofuran	42	8.134	8.108	0.026	87	3253	0.0196	0.0267	
45 1,1,1-Trichloroethane	97	8.695	8.701	-0.006	94	7693	0.0196	0.0210	
46 1,2-Dichloroethane	62	8.754	8.771	-0.017	95	5237	0.0196	0.0213	
47 Benzene	78	9.267	9.274	-0.007	98	9957	0.0196	0.0224	
49 Cyclohexane	69	9.283	9.298	-0.015	94	1690	0.0196	0.0237	
50 Carbon tetrachloride	117	9.304	9.312	-0.008	96	7263	0.0196	0.0203	
53 Isooctane	57	10.140	10.145	-0.005	97	16099	0.0196	0.0250	
54 1,2-Dichloropropane	63	10.539	10.540	-0.001	75	3294	0.0196	0.0213	
55 n-Heptane	71	10.555	10.561	-0.006	78	3571	0.0196	0.0232	
56 Trichloroethene	130	10.593	10.605	-0.012	91	4489	0.0196	0.0214	
57 Dibromomethane	93	10.642	10.648	-0.006	92	5327	0.0196	0.0292	
58 Dichlorobromomethane	83	10.814	10.825	-0.011	96	6323	0.0196	0.0193	
59 1,4-Dioxane	88	10.868	10.851	0.017	37	938	0.0196	0.0143	
60 Methyl methacrylate	41	11.014	10.990	0.024	92	568	0.0196	0.003895	
62 4-Methyl-2-pentanone (MIBK	43	11.903	11.878	0.025	58	3279	0.0196	0.0132	
63 cis-1,3-Dichloropropene	75	11.914	11.915	-0.001	95	5048	0.0196	0.0198	
64 trans-1,3-Dichloropropene	75	12.658	12.660	-0.002	95	5113	0.0196	0.0207	
65 Toluene	91	12.793	12.795	-0.002	94	12831	0.0196	0.0228	
66 1,1,2-Trichloroethane	83	12.847	12.853	-0.006	90	3291	0.0196	0.0212	
69 2-Hexanone	58	13.349	13.313	0.036	1	171	0.0196	0.001275	
70 Chlorodibromomethane	129	13.575	13.580	-0.005	97	5481	0.0196	0.0185	
71 n-Octane	85	13.618	13.618	0.000	84	3715	0.0196	0.0205	
72 Ethylene Dibromide	107	13.872	13.876	-0.004	95	5780	0.0196	0.0209	
73 Tetrachloroethene	129	14.001	14.005	-0.004	94	4512	0.0196	0.0215	
74 Chlorobenzene	112	14.907	14.910	-0.003	91	10116	0.0196	0.0228	
76 Ethylbenzene	91	15.236	15.237	-0.001	98	16601	0.0196	0.0226	
77 m-Xylene & p-Xylene	91	15.408	15.413	-0.005	99	25259	0.0392	0.0443	
79 Bromoform	173	15.807	15.812	-0.005	92	4569	0.0196	0.0179	
80 Styrene	104	15.883	15.884	-0.001	96	6414	0.0196	0.0176	
81 n-Nonane	57	15.926	15.926	0.000	80	6234	0.0196	0.0203	
82 o-Xylene	91	15.948	15.948	0.000	98	13809	0.0196	0.0229	
83 1,1,2,2-Tetrachloroethane	83	16.271	16.269	0.002	96	7575	0.0196	0.0210	
84 1,2,3-Trichloropropane	110	16.422	16.424	-0.002	97	2822	0.0196	0.0216	
85 Isopropylbenzene	105	16.562	16.566	-0.004	46	19387	0.0196	0.0241	
86 N-Propylbenzene	120	17.139	17.144	-0.005	97	4395	0.0196	0.0200	
87 2-Chlorotoluene	126	17.166	17.164	0.002	94	4309	0.0196	0.0212	
88 4-Ethyltoluene	105	17.312	17.312	0.000	99	16730	0.0196	0.0200	
89 1,3,5-Trimethylbenzene	120	17.404	17.400	0.004	92	6890	0.0196	0.0204	
90 Alpha Methyl Styrene	118	17.657	17.652	0.005	84	3968	0.0196	0.0136	
91 n-Decane	57	17.797	17.793	0.004	94	7786	0.0196	0.0186	
92 tert-Butylbenzene	119	17.867	17.868	-0.001	90	16756	0.0196	0.0213	
93 1,2,4-Trimethylbenzene	105	17.884	17.884	0.000	95	14068	0.0196	0.0200	
94 1,3-Dichlorobenzene	146	18.153	18.153	0.000	97	9387	0.0196	0.0207	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
95 sec-Butylbenzene	105	18.169	18.170	-0.001	98	21397	0.0196	0.0212	
96 Benzyl chloride	91	18.239	18.237	0.002	97	9181	0.0196	0.0173	
97 1,4-Dichlorobenzene	146	18.250	18.251	-0.001	91	9393	0.0196	0.0208	
98 4-Isopropyltoluene	119	18.358	18.358	0.000	96	17294	0.0196	0.0195	
99 1,2,3-Trimethylbenzene	105	18.390	18.393	-0.003	98	15864	0.0196	0.0198	
101 1,2-Dichlorobenzene	146	18.638	18.638	0.000	91	8947	0.0196	0.0203	
104 n-Butylbenzene	91	18.833	18.832	0.001	98	14299	0.0196	0.0181	
105 Undecane	57	19.232	19.228	0.004	92	7896	0.0196	0.0175	
106 1,2-Dibromo-3-Chloropropan	157	19.286	19.284	0.002	86	3926	0.0196	0.0146	
108 1,2,4,5-Tetramethylbenzene	119	19.641	19.641	0.000	96	7868	0.0196	0.0181	
111 Dodecane	57	20.337	20.340	-0.003	96	3630	0.0196	0.008570	
112 1,2,4-Trichlorobenzene	180	20.445	20.445	0.000	93	4733	0.0196	0.0144	
113 Naphthalene	128	20.574	20.574	0.000	98	10453	0.0196	0.0143	
115 Hexachlorobutadiene	225	20.822	20.827	-0.005	93	7050	0.0196	0.0196	
116 1,2,3-Trichlorobenzene	180	20.866	20.864	0.002	93	4640	0.0196	0.0139	
S 119 Xylenes, Total	100				0		0.0588	0.0672	
S 120 1,2-Dichloroethene, Total	1				0		0.0392	0.0475	

Reagents:

40L1-3DNP_00001	Amount Added: 50.00	Units: mL	
40MXISSURP_00003	Amount Added: 40.00	Units: mL	Run Reagent

TestAmerica Knoxville
Target Compound Quantitation Report

Data File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC02.D
Lims ID: IC L2
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 30-Jan-2018 13:16:30 ALS Bottle#: 9 Worklist Smp#: 4
Purge Vol: 500.000 mL Dil. Factor: 1.0000
Sample Info: 140-0007236-004
Misc. Info.: 134528
Operator ID: Instrument ID: MR
Sublist: chrom-MR_TO15*sub13

Method: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\MR_TO15.m
Limit Group: MSA TO14A_15 Routine ICAL
Last Update: 05-Feb-2018 13:02:50 Calib Date: 30-Jan-2018 19:38:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC10.D

Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
Process Host: XAWRK015

First Level Reviewer: barlozhetskayaa Date: 30-Jan-2018 13:52:41

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	7.703	7.710	-0.007	86	383916	4.00	4.00	
* 2 1,4-Difluorobenzene	114	9.849	9.852	-0.003	95	2394140	4.00	4.00	
* 3 Chlorobenzene-d5 (IS)	117	14.858	14.859	-0.001	89	2080924	4.00	4.00	
$ 4 4-Bromofluorobenzene (Surr	95	16.568	16.570	-0.002	86	1618846	4.00	4.10	
6 Chlorodifluoromethane	67	3.486	3.471	0.015	96	2123	0.0392	0.0453	
7 Propene	41	3.486	3.477	0.009	90	5102	0.0392	0.0556	
8 Dichlorodifluoromethane	85	3.529	3.519	0.010	100	17336	0.0392	0.0481	
9 Chloromethane	52	3.664	3.653	0.011	99	2252	0.0392	0.0686	
10 1,2-Dichloro-1,1,2,2-tetra	135	3.685	3.675	0.010	93	10542	0.0392	0.0432	
12 Vinyl chloride	62	3.799	3.789	0.010	96	4884	0.0392	0.0485	
13 Butane	43	3.869	3.863	0.006	81	5263	0.0392	0.0488	
14 Butadiene	54	3.874	3.863	0.011	68	2949	0.0392	0.0454	
15 Bromomethane	94	4.106	4.098	0.008	95	4220	0.0392	0.0453	
16 Chloroethane	64	4.208	4.208	0.000	96	2193	0.0392	0.0481	
17 Ethanol	31	4.305	4.313	-0.008	90	7445	0.1960	0.2587	
18 Vinyl bromide	106	4.440	4.441	-0.001	97	4302	0.0392	0.0471	
19 2-Methylbutane	43	4.505	4.498	0.007	78	3188	0.0392	0.0419	
20 Acrolein	56	4.667	4.656	0.011	30	3603	0.0392	0.1700	
21 Trichlorofluoromethane	101	4.667	4.659	0.008	99	14659	0.0392	0.0428	
22 Acetonitrile	40	4.694	4.716	-0.022	84	1047	0.0392	0.0401	
23 Acetone	58	4.753	4.748	0.005	99	16017	0.1176	0.3990	
24 Isopropyl alcohol	45	4.845	4.843	0.002	80	23064	0.1176	0.1495	
25 Pentane	72	4.850	4.847	0.003	75	1224	0.0392	0.0457	
26 Ethyl ether	31	4.985	4.975	0.010	81	4487	0.0392	0.0463	
27 1,1-Dichloroethene	96	5.217	5.218	-0.001	94	6378	0.0392	0.0439	
28 Acrylonitrile	53	5.287	5.288	-0.001	91	3947	0.0392	0.0430	
29 2-Methyl-2-propanol	59	5.330	5.325	0.005	93	13003	0.0392	0.0449	
30 1,1,2-Trichloro-1,2,2-trif	101	5.389	5.390	-0.001	95	12506	0.0392	0.0402	
31 Methylene Chloride	84	5.492	5.492	0.000	92	21070	0.0392	0.1403	
32 3-Chloro-1-propene	39	5.513	5.514	-0.001	97	5502	0.0392	0.0456	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
33 Carbon disulfide	76	5.627	5.625	0.002	98	17092	0.0392	0.0425	
34 trans-1,2-Dichloroethene	96	6.187	6.192	-0.005	96	6219	0.0392	0.0422	
36 Methyl tert-butyl ether	73	6.338	6.323	0.015	95	18729	0.0392	0.0412	
37 1,1-Dichloroethane	63	6.538	6.545	-0.007	99	12191	0.0392	0.0434	
38 Vinyl acetate	43	6.667	6.662	0.005	99	8219	0.0392	0.0303	
39 2-Butanone (MEK)	72	7.050	7.036	0.014	97	3926	0.0392	0.0564	
40 Hexane	56	7.120	7.119	0.001	83	5186	0.0392	0.0461	
41 cis-1,2-Dichloroethene	96	7.422	7.426	-0.004	94	6831	0.0392	0.0432	
42 Ethyl acetate	43	7.638	7.622	0.016	97	8705	0.0392	0.0357	
43 Chloroform	83	7.740	7.743	-0.003	92	14558	0.0392	0.0410	
44 Tetrahydrofuran	42	8.129	8.108	0.021	87	6016	0.0392	0.0484	
45 1,1,1-Trichloroethane	97	8.695	8.701	-0.006	95	15107	0.0392	0.0405	
46 1,2-Dichloroethane	62	8.765	8.771	-0.006	97	9999	0.0392	0.0395	
47 Benzene	78	9.266	9.274	-0.008	96	19199	0.0392	0.0420	
49 Cyclohexane	69	9.299	9.298	0.001	93	3056	0.0392	0.0416	
50 Carbon tetrachloride	117	9.310	9.312	-0.002	92	13765	0.0392	0.0373	
53 Isooctane	57	10.145	10.145	0.000	97	29173	0.0392	0.0440	
54 1,2-Dichloropropane	63	10.539	10.540	-0.001	88	6633	0.0392	0.0417	
55 n-Heptane	71	10.561	10.561	0.000	83	6584	0.0392	0.0415	
56 Trichloroethene	130	10.604	10.605	-0.001	93	8207	0.0392	0.0380	
57 Dibromomethane	93	10.641	10.648	-0.007	93	8735	0.0392	0.0464	
58 Dichlorobromomethane	83	10.819	10.825	-0.006	98	12118	0.0392	0.0359	
59 1,4-Dioxane	88	10.868	10.851	0.017	71	2408	0.0392	0.0357	
60 Methyl methacrylate	41	10.997	10.990	0.007	93	3421	0.0392	0.0228	
62 4-Methyl-2-pentanone (MIBK	43	11.898	11.878	0.020	96	8155	0.0392	0.0318	
63 cis-1,3-Dichloropropene	75	11.914	11.915	-0.001	96	9812	0.0392	0.0373	
64 trans-1,3-Dichloropropene	75	12.658	12.660	-0.002	94	9248	0.0392	0.0367	
65 Toluene	91	12.798	12.795	0.003	95	23313	0.0392	0.0407	
66 1,1,2-Trichloroethane	83	12.852	12.853	-0.001	98	6507	0.0392	0.0412	
69 2-Hexanone	58	13.338	13.313	0.025	95	2418	0.0392	0.0177	
70 Chlorodibromomethane	129	13.575	13.580	-0.005	97	9403	0.0392	0.0311	
71 n-Octane	85	13.618	13.618	0.000	83	7181	0.0392	0.0389	
72 Ethylene Dibromide	107	13.877	13.876	0.001	99	9915	0.0392	0.0352	
73 Tetrachloroethene	129	14.006	14.005	0.001	94	8773	0.0392	0.0411	
74 Chlorobenzene	112	14.907	14.910	-0.003	94	18500	0.0392	0.0410	
76 Ethylbenzene	91	15.241	15.237	0.004	99	30045	0.0392	0.0401	
77 m-Xylene & p-Xylene	91	15.414	15.413	0.001	99	46840	0.0784	0.0805	
79 Bromoform	173	15.813	15.812	0.001	94	7987	0.0392	0.0307	
80 Styrene	104	15.883	15.884	-0.001	97	11145	0.0392	0.0300	
81 n-Nonane	57	15.926	15.926	0.000	84	12938	0.0392	0.0413	
82 o-Xylene	91	15.948	15.948	0.000	98	25131	0.0392	0.0409	
83 1,1,2,2-Tetrachloroethane	83	16.271	16.269	0.002	96	13804	0.0392	0.0376	
84 1,2,3-Trichloropropane	110	16.427	16.424	0.003	97	5319	0.0392	0.0400	
85 Isopropylbenzene	105	16.568	16.566	0.002	61	35946	0.0392	0.0438	
86 N-Propylbenzene	120	17.145	17.144	0.001	97	8404	0.0392	0.0375	
87 2-Chlorotoluene	126	17.166	17.164	0.002	95	8403	0.0392	0.0405	
88 4-Ethyltoluene	105	17.312	17.312	0.000	99	32398	0.0392	0.0380	
89 1,3,5-Trimethylbenzene	120	17.398	17.400	-0.002	92	13130	0.0392	0.0381	
90 Alpha Methyl Styrene	118	17.652	17.652	0.000	80	7239	0.0392	0.0243	
91 n-Decane	57	17.792	17.793	-0.001	93	15452	0.0392	0.0363	
92 tert-Butylbenzene	119	17.873	17.868	0.005	90	31873	0.0392	0.0398	
93 1,2,4-Trimethylbenzene	105	17.883	17.884	-0.001	96	27236	0.0392	0.0380	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
94 1,3-Dichlorobenzene	146	18.153	18.153	0.000	96	17259	0.0392	0.0374	
95 sec-Butylbenzene	105	18.169	18.170	-0.001	99	40006	0.0392	0.0389	
96 Benzyl chloride	91	18.239	18.237	0.002	98	17686	0.0392	0.0328	
97 1,4-Dichlorobenzene	146	18.250	18.251	-0.001	91	17625	0.0392	0.0383	
98 4-Isopropyltoluene	119	18.358	18.358	0.000	96	32338	0.0392	0.0357	
99 1,2,3-Trimethylbenzene	105	18.396	18.393	0.003	98	32040	0.0392	0.0393	
101 1,2-Dichlorobenzene	146	18.638	18.638	0.000	90	16621	0.0392	0.0371	
104 n-Butylbenzene	91	18.832	18.832	0.000	97	27670	0.0392	0.0343	
105 Undecane	57	19.232	19.228	0.004	93	15070	0.0392	0.0327	
106 1,2-Dibromo-3-Chloropropan	157	19.285	19.284	0.001	88	7054	0.0392	0.0257	
108 1,2,4,5-Tetramethylbenzene	119	19.641	19.641	0.000	95	14005	0.0392	0.0317	
111 Dodecane	57	20.342	20.340	0.002	97	8120	0.0392	0.0188	
112 1,2,4-Trichlorobenzene	180	20.445	20.445	0.000	91	8463	0.0392	0.0252	
113 Naphthalene	128	20.574	20.574	0.000	98	18850	0.0392	0.0253	
115 Hexachlorobutadiene	225	20.828	20.827	0.001	93	12634	0.0392	0.0344	
116 1,2,3-Trichlorobenzene	180	20.865	20.864	0.001	92	8967	0.0392	0.0264	
S 119 Xylenes, Total	100				0		0.1176	0.1215	
S 120 1,2-Dichloroethene, Total	1				0		0.0784	0.0854	

Reagents:

40L1-3DNP_00001	Amount Added: 100.00	Units: mL	
40MXISSURP_00003	Amount Added: 40.00	Units: mL	Run Reagent

TestAmerica Knoxville
Target Compound Quantitation Report

Data File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC03.D
Lims ID: IC L3
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 30-Jan-2018 14:04:30 ALS Bottle#: 9 Worklist Smp#: 5
Purge Vol: 500.000 mL Dil. Factor: 1.0000
Sample Info: 140-0007236-005
Misc. Info.: 134528
Operator ID: Instrument ID: MR
Sublist: chrom-MR_TO15*sub13

Method: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\MR_TO15.m
Limit Group: MSA TO14A_15 Routine ICAL
Last Update: 05-Feb-2018 13:02:54 Calib Date: 30-Jan-2018 19:38:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC10.D

Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
Process Host: XAWRK015

First Level Reviewer: tajh Date: 30-Jan-2018 15:38:38

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	7.697	7.710	-0.013	85	391790	4.00	4.00	
* 2 1,4-Difluorobenzene	114	9.844	9.852	-0.008	95	2404366	4.00	4.00	
* 3 Chlorobenzene-d5 (IS)	117	14.858	14.859	-0.001	89	2084615	4.00	4.00	
$ 4 4-Bromofluorobenzene (Surr	95	16.568	16.570	-0.002	86	1644837	4.00	4.16	
6 Chlorodifluoromethane	67	3.470	3.471	-0.001	95	4119	0.0784	0.0862	
7 Propene	41	3.470	3.477	-0.007	62	9912	0.0784	0.1059	
8 Dichlorodifluoromethane	85	3.513	3.519	-0.006	100	30290	0.0784	0.0823	
9 Chloromethane	52	3.642	3.653	-0.011	99	3537	0.0784	0.1056	
10 1,2-Dichloro-1,1,2,2-tetra	135	3.669	3.675	-0.006	93	20579	0.0784	0.0826	
12 Vinyl chloride	62	3.783	3.789	-0.006	99	7942	0.0784	0.0773	
13 Butane	43	3.858	3.863	-0.005	78	9031	0.0784	0.0820	
14 Butadiene	54	3.853	3.863	-0.010	79	5828	0.0784	0.0880	
15 Bromomethane	94	4.090	4.098	-0.008	97	8417	0.0784	0.0885	
16 Chloroethane	64	4.198	4.208	-0.010	96	4147	0.0784	0.0891	
17 Ethanol	31	4.300	4.313	-0.013	90	14354	0.3920	0.4887	
18 Vinyl bromide	106	4.430	4.441	-0.011	98	7850	0.0784	0.0842	
19 2-Methylbutane	43	4.489	4.498	-0.009	81	6778	0.0784	0.0874	
20 Acrolein	56	4.645	4.656	-0.011	31	5394	0.0784	0.2493	
21 Trichlorofluoromethane	101	4.651	4.659	-0.008	98	28702	0.0784	0.0821	
22 Acetonitrile	40	4.688	4.713	-0.025	97	1986	0.0784	0.0746	
23 Acetone	58	4.742	4.748	-0.006	99	28281	0.2352	0.6904	
24 Isopropyl alcohol	45	4.834	4.843	-0.009	92	44345	0.2352	0.2816	
25 Pentane	72	4.834	4.847	-0.013	82	2351	0.0784	0.0861	
26 Ethyl ether	31	4.974	4.975	-0.001	84	8803	0.0784	0.0890	
27 1,1-Dichloroethene	96	5.206	5.218	-0.012	96	11837	0.0784	0.0798	
28 Acrylonitrile	53	5.276	5.288	-0.012	94	7448	0.0784	0.0795	
29 2-Methyl-2-propanol	59	5.325	5.325	0.000	93	25307	0.0784	0.0857	
30 1,1,2-Trichloro-1,2,2-trif	101	5.384	5.390	-0.006	95	25548	0.0784	0.0805	
31 Methylene Chloride	84	5.476	5.492	-0.016	93	26512	0.0784	0.1730	
32 3-Chloro-1-propene	39	5.503	5.514	-0.011	96	10380	0.0784	0.0843	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
33 Carbon disulfide	76	5.611	5.625	-0.014	98	32885	0.0784	0.0801	
34 trans-1,2-Dichloroethene	96	6.182	6.192	-0.010	96	11930	0.0784	0.0793	
36 Methyl tert-butyl ether	73	6.322	6.323	-0.001	95	36615	0.0784	0.0789	
37 1,1-Dichloroethane	63	6.533	6.545	-0.012	99	23365	0.0784	0.0815	
38 Vinyl acetate	43	6.657	6.662	-0.005	99	18984	0.0784	0.0685	
39 2-Butanone (MEK)	72	7.034	7.036	-0.002	97	9098	0.0784	0.1280	
40 Hexane	56	7.110	7.119	-0.009	83	9498	0.0784	0.0827	
41 cis-1,2-Dichloroethene	96	7.417	7.426	-0.009	96	12779	0.0784	0.0792	
42 Ethyl acetate	43	7.627	7.622	0.005	99	16771	0.0784	0.0674	
43 Chloroform	83	7.730	7.743	-0.013	94	28954	0.0784	0.0799	
44 Tetrahydrofuran	42	8.118	8.108	0.010	86	10505	0.0784	0.0828	
45 1,1,1-Trichloroethane	97	8.690	8.701	-0.011	95	29288	0.0784	0.0769	
46 1,2-Dichloroethane	62	8.765	8.771	-0.006	99	20209	0.0784	0.0795	
47 Benzene	78	9.267	9.274	-0.007	98	37499	0.0784	0.0816	
48 n-Butanol	31	9.358	9.296	0.062	2	490	0.0784	0.0161	
49 Cyclohexane	69	9.288	9.298	-0.010	97	6414	0.0784	0.0870	
50 Carbon tetrachloride	117	9.299	9.312	-0.013	98	28139	0.0784	0.0760	
53 Isooctane	57	10.146	10.145	0.001	98	55433	0.0784	0.0832	
54 1,2-Dichloropropane	63	10.534	10.540	-0.006	87	13116	0.0784	0.0821	
55 n-Heptane	71	10.555	10.561	-0.006	83	12852	0.0784	0.0807	
56 Trichloroethene	130	10.598	10.605	-0.007	92	16817	0.0784	0.0775	
57 Dibromomethane	93	10.642	10.648	-0.006	96	15715	0.0784	0.0831	
58 Dichlorobromomethane	83	10.820	10.825	-0.005	99	24293	0.0784	0.0717	
59 1,4-Dioxane	88	10.868	10.851	0.017	68	5216	0.0784	0.0770	
60 Methyl methacrylate	41	10.998	10.990	0.008	95	9269	0.0784	0.0615	
62 4-Methyl-2-pentanone (MIBK	43	11.882	11.878	0.004	92	19192	0.0784	0.0745	
63 cis-1,3-Dichloropropene	75	11.909	11.915	-0.006	96	18927	0.0784	0.0717	
64 trans-1,3-Dichloropropene	75	12.658	12.660	-0.002	96	18004	0.0784	0.0712	
65 Toluene	91	12.793	12.795	-0.002	92	44415	0.0784	0.0774	
66 1,1,2-Trichloroethane	83	12.853	12.853	-0.001	98	12134	0.0784	0.0767	
69 2-Hexanone	58	13.322	13.313	0.009	97	8080	0.0784	0.0590	
70 Chlorodibromomethane	129	13.580	13.580	0.000	97	20613	0.0784	0.0681	
71 n-Octane	85	13.618	13.618	0.000	83	14847	0.0784	0.0804	
72 Ethylene Dibromide	107	13.872	13.876	-0.004	96	20544	0.0784	0.0728	
73 Tetrachloroethene	129	14.001	14.005	-0.004	95	16736	0.0784	0.0782	
74 Chlorobenzene	112	14.907	14.910	-0.003	93	35874	0.0784	0.0793	
76 Ethylbenzene	91	15.236	15.237	-0.001	99	60028	0.0784	0.0799	
77 m-Xylene & p-Xylene	91	15.414	15.413	0.001	100	95548	0.1568	0.1640	
79 Bromoform	173	15.808	15.812	-0.004	93	15850	0.0784	0.0609	
80 Styrene	104	15.883	15.884	-0.001	99	23411	0.0784	0.0630	
81 n-Nonane	57	15.926	15.926	0.000	83	25340	0.0784	0.0807	
82 o-Xylene	91	15.948	15.948	0.000	97	50674	0.0784	0.0824	
83 1,1,2,2-Tetrachloroethane	83	16.266	16.269	-0.003	97	28370	0.0784	0.0771	
84 1,2,3-Trichloropropane	110	16.422	16.424	-0.002	98	10568	0.0784	0.0793	
85 Isopropylbenzene	105	16.562	16.566	-0.004	89	69379	0.0784	0.0843	
86 N-Propylbenzene	120	17.145	17.144	0.001	99	17429	0.0784	0.0776	
87 2-Chlorotoluene	126	17.161	17.164	-0.003	97	16753	0.0784	0.0806	
88 4-Ethyltoluene	105	17.312	17.312	0.000	99	65633	0.0784	0.0768	
89 1,3,5-Trimethylbenzene	120	17.398	17.400	-0.002	91	26109	0.0784	0.0757	
90 Alpha Methyl Styrene	118	17.652	17.652	0.000	86	15742	0.0784	0.0528	
91 n-Decane	57	17.792	17.793	-0.001	93	32834	0.0784	0.0769	
92 tert-Butylbenzene	119	17.867	17.868	-0.001	95	64192	0.0784	0.0801	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
93 1,2,4-Trimethylbenzene	105	17.884	17.884	0.000	96	57678	0.0784	0.0802	
94 1,3-Dichlorobenzene	146	18.153	18.153	0.000	98	36114	0.0784	0.0781	
95 sec-Butylbenzene	105	18.169	18.170	-0.001	98	81660	0.0784	0.0792	
96 Benzyl chloride	91	18.239	18.237	0.002	98	35545	0.0784	0.0657	
97 1,4-Dichlorobenzene	146	18.250	18.251	-0.001	92	35715	0.0784	0.0775	
98 4-Isopropyltoluene	119	18.358	18.358	0.000	96	72796	0.0784	0.0803	
99 1,2,3-Trimethylbenzene	105	18.390	18.393	-0.003	98	64016	0.0784	0.0784	
101 1,2-Dichlorobenzene	146	18.639	18.638	0.001	93	35357	0.0784	0.0787	
104 n-Butylbenzene	91	18.833	18.832	0.001	98	59321	0.0784	0.0734	
105 Undecane	57	19.226	19.228	-0.002	93	32417	0.0784	0.0702	
106 1,2-Dibromo-3-Chloropropan	157	19.286	19.284	0.002	89	15056	0.0784	0.0548	
108 1,2,4,5-Tetramethylbenzene	119	19.642	19.641	0.001	96	29468	0.0784	0.0666	
111 Dodecane	57	20.343	20.340	0.002	98	23965	0.0784	0.0554	
112 1,2,4-Trichlorobenzene	180	20.445	20.445	0.000	94	19766	0.0784	0.0588	
113 Naphthalene	128	20.574	20.574	0.000	99	46167	0.0784	0.0618	
115 Hexachlorobutadiene	225	20.828	20.827	0.001	95	26912	0.0784	0.0732	
116 1,2,3-Trichlorobenzene	180	20.860	20.864	-0.004	93	20286	0.0784	0.0596	
117 2-Methylnaphthalene	142	21.680	21.680	0.000	98	3036	0.1803	0.0165	
118 1-Methylnaphthalene	142	21.825	21.823	0.002	99	5988	0.1803	0.0328	
S 119 Xylenes, Total	100				0		0.2352	0.2464	
S 120 1,2-Dichloroethene, Total	1				0		0.1568	0.1585	

Reagents:

40L1-3DNP_00001	Amount Added: 200.00	Units: mL	
40MXISSURP_00003	Amount Added: 40.00	Units: mL	Run Reagent

TestAmerica Knoxville
Target Compound Quantitation Report

Data File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC04.D
Lims ID: IC L4
Client ID:
Sample Type: IC Calib Level: 4
Inject. Date: 30-Jan-2018 14:50:30 ALS Bottle#: 10 Worklist Smp#: 6
Purge Vol: 500.000 mL Dil. Factor: 1.0000
Sample Info: 140-0007236-006
Misc. Info.: 134526
Operator ID: Instrument ID: MR
Sublist: chrom-MR_TO15*sub13

Method: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\MR_TO15.m
Limit Group: MSA TO14A_15 Routine ICAL
Last Update: 05-Feb-2018 13:03:00 Calib Date: 30-Jan-2018 19:38:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC10.D

Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
Process Host: XAWRK015

First Level Reviewer: tajh Date: 30-Jan-2018 15:38:15

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	7.708	7.710	-0.002	85	388675	4.00	4.00	
* 2 1,4-Difluorobenzene	114	9.854	9.852	0.002	95	2397193	4.00	4.00	
* 3 Chlorobenzene-d5 (IS)	117	14.858	14.859	-0.001	89	2097206	4.00	4.00	
$ 4 4-Bromofluorobenzene (Surr	95	16.568	16.570	-0.002	89	1641285	4.00	4.13	
6 Chlorodifluoromethane	67	3.481	3.471	0.010	96	7784	0.1600	0.1642	
7 Propene	41	3.486	3.477	0.009	97	16712	0.1600	0.1800	
8 Dichlorodifluoromethane	85	3.529	3.519	0.010	100	68839	0.1600	0.1886	
9 Chloromethane	52	3.659	3.653	0.006	99	6766	0.1600	0.2036	
10 1,2-Dichloro-1,1,2,2-tetra	135	3.680	3.675	0.005	93	38610	0.1600	0.1562	
12 Vinyl chloride	62	3.799	3.789	0.010	99	16500	0.1600	0.1619	
13 Butane	43	3.869	3.863	0.006	79	18455	0.1600	0.1690	
14 Butadiene	54	3.869	3.863	0.006	71	11132	0.1600	0.1693	
15 Bromomethane	94	4.101	4.098	0.003	98	15024	0.1600	0.1593	
16 Chloroethane	64	4.214	4.208	0.006	98	7784	0.1600	0.1685	
17 Ethanol	31	4.306	4.313	-0.007	91	24919	0.8000	0.8552	
18 Vinyl bromide	106	4.440	4.441	-0.001	97	15440	0.1600	0.1670	
19 2-Methylbutane	43	4.500	4.498	0.002	81	12656	0.1600	0.1644	
20 Acrolein	56	4.661	4.656	0.005	29	3830	0.1600	0.1784	
21 Trichlorofluoromethane	101	4.661	4.659	0.002	100	57868	0.1600	0.1669	
22 Acetonitrile	40	4.699	4.713	-0.014	98	3781	0.1600	0.1431	
23 Acetone	58	4.753	4.748	0.005	99	28378	0.4800	0.6983	
24 Isopropyl alcohol	45	4.834	4.843	-0.009	96	82100	0.4800	0.5256	
25 Pentane	72	4.850	4.847	0.003	98	4428	0.1600	0.1634	
26 Ethyl ether	31	4.985	4.975	0.010	81	16886	0.1600	0.1721	
27 1,1-Dichloroethene	96	5.217	5.218	-0.001	95	22742	0.1600	0.1545	
28 Acrylonitrile	53	5.287	5.288	-0.001	91	15000	0.1600	0.1614	
29 2-Methyl-2-propanol	59	5.325	5.325	0.000	93	47907	0.1600	0.1636	
30 1,1,2-Trichloro-1,2,2-trif	101	5.395	5.390	0.005	95	49793	0.1600	0.1582	
31 Methylene Chloride	84	5.492	5.492	0.000	92	37255	0.1600	0.2451	
32 3-Chloro-1-propene	39	5.513	5.514	-0.001	95	20149	0.1600	0.1650	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
33 Carbon disulfide	76	5.627	5.625	0.002	98	65612	0.1600	0.1612	
34 trans-1,2-Dichloroethene	96	6.188	6.192	-0.004	97	24021	0.1600	0.1609	
36 Methyl tert-butyl ether	73	6.328	6.323	0.005	95	72140	0.1600	0.1567	
37 1,1-Dichloroethane	63	6.543	6.545	-0.002	100	45273	0.1600	0.1592	
38 Vinyl acetate	43	6.662	6.662	0.000	99	38225	0.1600	0.1391	
39 2-Butanone (MEK)	72	7.040	7.036	0.004	97	11032	0.1600	0.1565	
40 Hexane	56	7.126	7.119	0.007	85	18222	0.1600	0.1599	
41 cis-1,2-Dichloroethene	96	7.422	7.426	-0.004	96	25103	0.1600	0.1568	
42 Ethyl acetate	43	7.627	7.622	0.005	99	35467	0.1600	0.1437	
43 Chloroform	83	7.746	7.743	0.003	88	57203	0.1600	0.1591	
44 Tetrahydrofuran	42	8.118	8.108	0.010	87	20481	0.1600	0.1628	
45 1,1,1-Trichloroethane	97	8.700	8.701	-0.001	96	57324	0.1600	0.1517	
46 1,2-Dichloroethane	62	8.770	8.771	-0.001	99	37522	0.1600	0.1480	
47 Benzene	78	9.272	9.274	-0.002	97	74171	0.1600	0.1620	
48 n-Butanol	31	9.337	9.296	0.041	56	2654	0.1600	0.0876	
49 Cyclohexane	69	9.304	9.298	0.006	95	11967	0.1600	0.1627	
50 Carbon tetrachloride	117	9.315	9.312	0.003	98	55870	0.1600	0.1513	
53 Isooctane	57	10.146	10.145	0.001	98	107521	0.1600	0.1619	
54 1,2-Dichloropropane	63	10.539	10.540	-0.001	87	25436	0.1600	0.1596	
55 n-Heptane	71	10.566	10.561	0.005	85	24522	0.1600	0.1545	
56 Trichloroethene	130	10.604	10.605	-0.001	95	32437	0.1600	0.1499	
57 Dibromomethane	93	10.647	10.648	-0.001	95	30017	0.1600	0.1593	
58 Dichlorobromomethane	83	10.825	10.825	0.000	99	50003	0.1600	0.1481	
59 1,4-Dioxane	88	10.852	10.851	0.001	86	10547	0.1600	0.1562	
60 Methyl methacrylate	41	10.992	10.990	0.002	97	18423	0.1600	0.1225	
62 4-Methyl-2-pentanone (MIBK	43	11.882	11.878	0.004	93	35511	0.1600	0.1383	
63 cis-1,3-Dichloropropene	75	11.914	11.915	-0.001	96	39090	0.1600	0.1485	
64 trans-1,3-Dichloropropene	75	12.664	12.660	0.004	96	37170	0.1600	0.1462	
65 Toluene	91	12.793	12.795	-0.002	94	88464	0.1600	0.1532	
66 1,1,2-Trichloroethane	83	12.853	12.853	-0.001	98	24240	0.1600	0.1523	
69 2-Hexanone	58	13.322	13.313	0.009	98	15426	0.1600	0.1120	
70 Chlorodibromomethane	129	13.580	13.580	0.000	98	40122	0.1600	0.1318	
71 n-Octane	85	13.618	13.618	0.000	85	28115	0.1600	0.1513	
72 Ethylene Dibromide	107	13.877	13.876	0.001	97	42246	0.1600	0.1487	
73 Tetrachloroethene	129	14.006	14.005	0.001	94	32954	0.1600	0.1531	
74 Chlorobenzene	112	14.912	14.910	0.002	93	69433	0.1600	0.1526	
76 Ethylbenzene	91	15.236	15.237	-0.001	99	115987	0.1600	0.1534	
77 m-Xylene & p-Xylene	91	15.414	15.413	0.001	100	183320	0.3200	0.3127	
79 Bromoform	173	15.813	15.812	0.001	94	31906	0.1600	0.1219	
80 Styrene	104	15.888	15.884	0.004	98	46940	0.1600	0.1255	
81 n-Nonane	57	15.926	15.926	0.000	86	49466	0.1600	0.1566	
82 o-Xylene	91	15.948	15.948	0.000	97	97828	0.1600	0.1581	
83 1,1,2,2-Tetrachloroethane	83	16.271	16.269	0.002	97	58220	0.1600	0.1572	
84 1,2,3-Trichloropropane	110	16.428	16.424	0.004	98	20539	0.1600	0.1532	
85 Isopropylbenzene	105	16.568	16.566	0.002	90	131986	0.1600	0.1594	
86 N-Propylbenzene	120	17.145	17.144	0.001	98	33714	0.1600	0.1491	
87 2-Chlorotoluene	126	17.166	17.164	0.002	93	32718	0.1600	0.1565	
88 4-Ethyltoluene	105	17.312	17.312	0.000	99	130522	0.1600	0.1519	
89 1,3,5-Trimethylbenzene	120	17.398	17.400	-0.002	91	52246	0.1600	0.1506	
90 Alpha Methyl Styrene	118	17.652	17.652	0.000	87	32438	0.1600	0.1081	
91 n-Decane	57	17.792	17.793	-0.001	93	65857	0.1600	0.1534	
92 tert-Butylbenzene	119	17.867	17.868	-0.001	91	127195	0.1600	0.1578	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
93 1,2,4-Trimethylbenzene	105	17.884	17.884	0.000	96	113107	0.1600	0.1564	
94 1,3-Dichlorobenzene	146	18.153	18.153	0.000	98	70364	0.1600	0.1513	
95 sec-Butylbenzene	105	18.169	18.170	-0.001	98	162720	0.1600	0.1569	
96 Benzyl chloride	91	18.234	18.237	-0.003	97	70710	0.1600	0.1300	
97 1,4-Dichlorobenzene	146	18.250	18.251	-0.001	92	70131	0.1600	0.1512	
98 4-Isopropyltoluene	119	18.358	18.358	0.000	97	137773	0.1600	0.1511	
99 1,2,3-Trimethylbenzene	105	18.396	18.393	0.003	97	124983	0.1600	0.1522	
101 1,2-Dichlorobenzene	146	18.639	18.638	0.001	93	67149	0.1600	0.1487	
104 n-Butylbenzene	91	18.833	18.832	0.001	97	118568	0.1600	0.1458	
105 Undecane	57	19.232	19.228	0.004	92	67912	0.1600	0.1461	
106 1,2-Dibromo-3-Chloropropan	157	19.286	19.284	0.002	90	31369	0.1600	0.1136	
108 1,2,4,5-Tetramethylbenzene	119	19.642	19.641	0.001	96	58187	0.1600	0.1306	
111 Dodecane	57	20.343	20.340	0.002	98	51872	0.1600	0.1192	
112 1,2,4-Trichlorobenzene	180	20.445	20.445	0.000	94	38197	0.1600	0.1129	
113 Naphthalene	128	20.574	20.574	0.000	99	94589	0.1600	0.1258	
115 Hexachlorobutadiene	225	20.828	20.827	0.001	94	50435	0.1600	0.1363	
116 1,2,3-Trichlorobenzene	180	20.866	20.864	0.002	95	40272	0.1600	0.1177	
117 2-Methylnaphthalene	142	21.680	21.680	0.000	99	25770	0.3680	0.1393	
118 1-Methylnaphthalene	142	21.825	21.823	0.002	99	44657	0.3680	0.2430	
S 119 Xylenes, Total	100				0		0.4800	0.4708	
S 120 1,2-Dichloroethene, Total	1				0		0.3200	0.3177	

Reagents:

40L5DNP_00016	Amount Added: 80.00	Units: mL	
40MXISSURP_00003	Amount Added: 40.00	Units: mL	Run Reagent

TestAmerica Knoxville
Target Compound Quantitation Report

Data File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC05.D
Lims ID: IC L5
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 30-Jan-2018 15:39:30 ALS Bottle#: 10 Worklist Smp#: 7
Purge Vol: 500.000 mL Dil. Factor: 1.0000
Sample Info: 140-0007236-007
Misc. Info.: 134526
Operator ID: Instrument ID: MR
Sublist: chrom-MR_TO15*sub13

Method: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\MR_TO15.m
Limit Group: MSA TO14A_15 Routine ICAL
Last Update: 05-Feb-2018 13:03:09 Calib Date: 30-Jan-2018 19:38:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC10.D

Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
Process Host: XAWRK015

First Level Reviewer: barlozhetskayaa Date: 30-Jan-2018 17:18:19

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	7.708	7.710	-0.002	85	383206	4.00	4.00	
* 2 1,4-Difluorobenzene	114	9.849	9.852	-0.003	95	2352829	4.00	4.00	
* 3 Chlorobenzene-d5 (IS)	117	14.858	14.859	-0.001	89	2056588	4.00	4.00	
$ 4 4-Bromofluorobenzene (Surr	95	16.573	16.570	0.003	88	1633174	4.00	4.19	
6 Chlorodifluoromethane	67	3.475	3.471	0.004	96	19042	0.4000	0.4073	
7 Propene	41	3.481	3.477	0.004	98	39604	0.4000	0.4326	
8 Dichlorodifluoromethane	85	3.524	3.519	0.005	100	147314	0.4000	0.4094	
9 Chloromethane	52	3.653	3.653	0.000	99	14731	0.4000	0.4495	
10 1,2-Dichloro-1,1,2,2-tetra	135	3.675	3.675	0.000	97	96019	0.4000	0.3939	
12 Vinyl chloride	62	3.788	3.789	-0.001	99	38877	0.4000	0.3869	
13 Butane	43	3.863	3.863	0.000	90	43962	0.4000	0.4083	
14 Butadiene	54	3.863	3.863	0.000	95	25683	0.4000	0.3963	
15 Bromomethane	94	4.095	4.098	-0.003	98	37574	0.4000	0.4041	
16 Chloroethane	64	4.209	4.208	0.000	97	18456	0.4000	0.4053	
17 Ethanol	31	4.306	4.313	-0.007	91	59239	2.00	2.06	
18 Vinyl bromide	106	4.440	4.441	-0.001	97	36894	0.4000	0.4048	
19 2-Methylbutane	43	4.494	4.498	-0.004	83	30876	0.4000	0.4069	
20 Acrolein	56	4.651	4.656	-0.005	29	10635	0.4000	0.5026	
21 Trichlorofluoromethane	101	4.656	4.659	-0.003	99	138405	0.4000	0.4050	
22 Acetonitrile	40	4.694	4.713	-0.019	98	11541	0.4000	0.4432	
23 Acetone	58	4.748	4.748	0.000	100	66025	1.20	1.65	
24 Isopropyl alcohol	45	4.834	4.843	-0.009	97	196181	1.20	1.27	
25 Pentane	72	4.845	4.847	-0.002	98	10720	0.4000	0.4012	
26 Ethyl ether	31	4.974	4.975	-0.001	81	40771	0.4000	0.4215	
27 1,1-Dichloroethene	96	5.217	5.218	-0.001	95	56370	0.4000	0.3885	
28 Acrylonitrile	53	5.287	5.288	-0.001	93	35688	0.4000	0.3895	
29 2-Methyl-2-propanol	59	5.319	5.325	-0.006	93	117307	0.4000	0.4062	
30 1,1,2-Trichloro-1,2,2-trif	101	5.389	5.390	-0.001	95	126008	0.4000	0.4061	
31 Methylene Chloride	84	5.486	5.492	-0.006	92	67350	0.4000	0.4494	
32 3-Chloro-1-propene	39	5.513	5.514	-0.001	98	47897	0.4000	0.3977	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
33 Carbon disulfide	76	5.621	5.625	-0.004	98	160500	0.4000	0.3999	
34 trans-1,2-Dichloroethene	96	6.188	6.192	-0.004	96	57527	0.4000	0.3908	
36 Methyl tert-butyl ether	73	6.322	6.323	-0.001	95	182444	0.4000	0.4019	
37 1,1-Dichloroethane	63	6.543	6.545	-0.002	100	112441	0.4000	0.4010	
38 Vinyl acetate	43	6.657	6.662	-0.005	99	104997	0.4000	0.3874	
39 2-Butanone (MEK)	72	7.034	7.036	-0.002	98	29985	0.4000	0.4314	
40 Hexane	56	7.120	7.119	0.001	85	45099	0.4000	0.4013	
41 cis-1,2-Dichloroethene	96	7.422	7.426	-0.004	96	61408	0.4000	0.3891	
42 Ethyl acetate	43	7.622	7.622	0.000	99	97364	0.4000	0.4001	
43 Chloroform	83	7.741	7.743	-0.003	96	141724	0.4000	0.3997	
44 Tetrahydrofuran	42	8.107	8.108	-0.001	85	49933	0.4000	0.4026	
45 1,1,1-Trichloroethane	97	8.700	8.701	-0.001	95	147109	0.4000	0.3949	
46 1,2-Dichloroethane	62	8.776	8.771	0.005	98	100014	0.4000	0.4019	
47 Benzene	78	9.272	9.274	-0.002	98	180099	0.4000	0.4007	
48 n-Butanol	31	9.299	9.296	0.003	61	9384	0.4000	0.3154	
49 Cyclohexane	69	9.299	9.298	0.001	95	29509	0.4000	0.4088	
50 Carbon tetrachloride	117	9.310	9.312	-0.002	99	142596	0.4000	0.3935	
53 Isooctane	57	10.146	10.145	0.001	98	268337	0.4000	0.4117	
54 1,2-Dichloropropane	63	10.539	10.540	-0.001	85	62400	0.4000	0.3990	
55 n-Heptane	71	10.561	10.561	0.000	83	63962	0.4000	0.4105	
56 Trichloroethene	130	10.604	10.605	-0.001	93	80726	0.4000	0.3801	
57 Dibromomethane	93	10.647	10.648	-0.001	95	72482	0.4000	0.3918	
58 Dichlorobromomethane	83	10.825	10.825	0.000	99	128060	0.4000	0.3864	
59 1,4-Dioxane	88	10.852	10.851	0.001	85	26213	0.4000	0.3955	
60 Methyl methacrylate	41	10.987	10.990	-0.003	97	51419	0.4000	0.3484	
62 4-Methyl-2-pentanone (MIBK	43	11.876	11.878	-0.002	93	95687	0.4000	0.3798	
63 cis-1,3-Dichloropropene	75	11.914	11.915	-0.001	92	100184	0.4000	0.3878	
64 trans-1,3-Dichloropropene	75	12.658	12.660	-0.002	96	93053	0.4000	0.3732	
65 Toluene	91	12.793	12.795	-0.002	93	222095	0.4000	0.3921	
66 1,1,2-Trichloroethane	83	12.852	12.853	-0.001	99	62032	0.4000	0.3975	
69 2-Hexanone	58	13.305	13.313	-0.008	97	49161	0.4000	0.3639	
70 Chlorodibromomethane	129	13.580	13.580	0.000	98	107735	0.4000	0.3610	
71 n-Octane	85	13.618	13.618	0.000	85	73235	0.4000	0.4019	
72 Ethylene Dibromide	107	13.877	13.876	0.001	98	107221	0.4000	0.3849	
73 Tetrachloroethene	129	14.006	14.005	0.001	95	82386	0.4000	0.3902	
74 Chlorobenzene	112	14.912	14.910	0.002	93	174562	0.4000	0.3912	
76 Ethylbenzene	91	15.236	15.237	-0.001	99	293553	0.4000	0.3960	
77 m-Xylene & p-Xylene	91	15.414	15.413	0.001	100	464738	0.8000	0.8085	
79 Bromoform	173	15.813	15.812	0.001	95	87253	0.4000	0.3399	
80 Styrene	104	15.883	15.884	-0.001	98	131824	0.4000	0.3595	
81 n-Nonane	57	15.926	15.926	0.000	84	130349	0.4000	0.4209	
82 o-Xylene	91	15.948	15.948	0.000	98	244961	0.4000	0.4036	
83 1,1,2,2-Tetrachloroethane	83	16.271	16.269	0.002	98	152141	0.4000	0.4188	
84 1,2,3-Trichloropropane	110	16.422	16.424	-0.002	98	52066	0.4000	0.3960	
85 Isopropylbenzene	105	16.568	16.566	0.002	97	333169	0.4000	0.4104	
86 N-Propylbenzene	120	17.145	17.144	0.001	99	89517	0.4000	0.4037	
87 2-Chlorotoluene	126	17.161	17.164	-0.003	93	83842	0.4000	0.4089	
88 4-Ethyltoluene	105	17.312	17.312	0.000	99	343391	0.4000	0.4076	
89 1,3,5-Trimethylbenzene	120	17.398	17.400	-0.002	92	135393	0.4000	0.3980	
90 Alpha Methyl Styrene	118	17.652	17.652	0.000	86	95659	0.4000	0.3252	
91 n-Decane	57	17.792	17.793	-0.001	93	175546	0.4000	0.4170	
92 tert-Butylbenzene	119	17.867	17.868	-0.001	91	320875	0.4000	0.4059	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
93 1,2,4-Trimethylbenzene	105	17.884	17.884	0.000	96	296062	0.4000	0.4175	
94 1,3-Dichlorobenzene	146	18.153	18.153	0.000	98	183533	0.4000	0.4024	
95 sec-Butylbenzene	105	18.169	18.170	-0.001	98	422045	0.4000	0.4149	
96 Benzyl chloride	91	18.239	18.237	0.002	97	210797	0.4000	0.3952	
97 1,4-Dichlorobenzene	146	18.250	18.251	-0.001	92	181180	0.4000	0.3983	
98 4-Isopropyltoluene	119	18.358	18.358	0.000	96	359958	0.4000	0.4026	
99 1,2,3-Trimethylbenzene	105	18.390	18.393	-0.003	98	332416	0.4000	0.4128	
101 1,2-Dichlorobenzene	146	18.638	18.638	0.000	93	178966	0.4000	0.4040	
104 n-Butylbenzene	91	18.833	18.832	0.001	98	322145	0.4000	0.4040	
105 Undecane	57	19.226	19.228	-0.002	93	181085	0.4000	0.3974	
106 1,2-Dibromo-3-Chloropropan	157	19.286	19.284	0.002	94	90207	0.4000	0.3331	
108 1,2,4,5-Tetramethylbenzene	119	19.641	19.641	0.000	96	152347	0.4000	0.3488	
111 Dodecane	57	20.337	20.340	-0.003	98	137913	0.4000	0.3233	
112 1,2,4-Trichlorobenzene	180	20.445	20.445	0.000	93	103182	0.4000	0.3110	
113 Naphthalene	128	20.574	20.574	0.000	99	262605	0.4000	0.3562	
115 Hexachlorobutadiene	225	20.828	20.827	0.001	95	125133	0.4000	0.3448	
116 1,2,3-Trichlorobenzene	180	20.866	20.864	0.002	94	101572	0.4000	0.3026	
117 2-Methylnaphthalene	142	21.680	21.680	0.000	100	63395	0.9200	0.3496	
118 1-Methylnaphthalene	142	21.825	21.823	0.002	100	79264	0.9200	0.4398	
S 119 Xylenes, Total	100				0		1.20	1.21	
S 120 1,2-Dichloroethene, Total	1				0		0.8000	0.7799	

Reagents:

40L5DNP_00016	Amount Added: 200.00	Units: mL	
40MXISSURP_00003	Amount Added: 40.00	Units: mL	Run Reagent

TestAmerica Knoxville
Target Compound Quantitation Report

Data File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC06.D
Lims ID: IC L6
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 30-Jan-2018 16:27:30 ALS Bottle#: 11 Worklist Smp#: 8
Purge Vol: 500.000 mL Dil. Factor: 1.0000
Sample Info: 140-0007236-008
Misc. Info.: 134525
Operator ID: Instrument ID: MR
Sublist: chrom-MR_TO15*sub13

Method: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\MR_TO15.m
Limit Group: MSA TO14A_15 Routine ICAL
Last Update: 05-Feb-2018 13:03:16 Calib Date: 30-Jan-2018 19:38:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC10.D

Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
Process Host: XAWRK015

First Level Reviewer: barlozhetskayaa Date: 30-Jan-2018 17:22:47

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	7.714	7.710	0.004	84	399358	4.00	4.00	
* 2 1,4-Difluorobenzene	114	9.854	9.852	0.002	95	2422753	4.00	4.00	
* 3 Chlorobenzene-d5 (IS)	117	14.858	14.859	-0.001	89	2095606	4.00	4.00	
$ 4 4-Bromofluorobenzene (Surr	95	16.573	16.570	0.003	89	1634670	4.00	4.11	
6 Chlorodifluoromethane	67	3.470	3.471	-0.001	96	49960	1.00	1.03	
7 Propene	41	3.475	3.477	-0.002	97	101480	1.00	1.06	
8 Dichlorodifluoromethane	85	3.518	3.519	-0.001	100	385761	1.00	1.03	
9 Chloromethane	52	3.653	3.653	0.000	100	33564	1.00	0.9828	
10 1,2-Dichloro-1,1,2,2-tetra	135	3.675	3.675	0.000	93	252275	1.00	0.99	
12 Vinyl chloride	62	3.788	3.789	-0.001	99	100495	1.00	0.9596	
13 Butane	43	3.863	3.863	0.000	89	117697	1.00	1.05	
14 Butadiene	54	3.863	3.863	0.000	93	67588	1.00	1.00	
15 Bromomethane	94	4.095	4.098	-0.003	98	97562	1.00	1.01	
16 Chloroethane	64	4.208	4.208	0.000	98	47978	1.00	1.01	
17 Ethanol	31	4.311	4.313	-0.002	91	156896	5.01	5.24	
18 Vinyl bromide	106	4.440	4.441	-0.001	97	97338	1.00	1.02	
19 2-Methylbutane	43	4.500	4.498	0.002	81	79273	1.00	1.00	
20 Acrolein	56	4.651	4.656	-0.005	95	21312	1.00	0.9664	
21 Trichlorofluoromethane	101	4.661	4.659	0.002	99	362096	1.00	1.02	
22 Acetonitrile	40	4.699	4.713	-0.014	97	27104	1.00	1.00	
23 Acetone	58	4.742	4.748	-0.006	99	133362	3.01	3.19	
24 Isopropyl alcohol	45	4.839	4.843	-0.004	97	528496	3.01	3.29	
25 Pentane	72	4.845	4.847	-0.002	97	28211	1.00	1.01	
26 Ethyl ether	31	4.969	4.975	-0.006	79	105952	1.00	1.05	
27 1,1-Dichloroethene	96	5.217	5.218	-0.001	95	147316	1.00	0.9743	
28 Acrylonitrile	53	5.287	5.288	-0.001	94	97550	1.00	1.02	
29 2-Methyl-2-propanol	59	5.319	5.325	-0.006	93	309191	1.00	1.03	
30 1,1,2-Trichloro-1,2,2-trif	101	5.389	5.390	-0.001	95	330843	1.00	1.02	
31 Methylene Chloride	84	5.492	5.492	0.000	92	152260	1.00	0.9750	
32 3-Chloro-1-propene	39	5.513	5.514	-0.001	97	129123	1.00	1.03	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
33 Carbon disulfide	76	5.621	5.625	-0.004	98	430092	1.00	1.03	
34 trans-1,2-Dichloroethene	96	6.193	6.192	0.001	97	156625	1.00	1.02	
36 Methyl tert-butyl ether	73	6.317	6.323	-0.006	95	488775	1.00	1.03	
37 1,1-Dichloroethane	63	6.549	6.545	0.004	100	295826	1.00	1.01	
38 Vinyl acetate	43	6.657	6.662	-0.005	99	304213	1.00	1.08	
39 2-Butanone (MEK)	72	7.029	7.036	-0.007	98	72547	1.00	1.00	
40 Hexane	56	7.120	7.119	0.001	85	120502	1.00	1.03	
41 cis-1,2-Dichloroethene	96	7.428	7.426	0.002	96	161247	1.00	0.9804	
42 Ethyl acetate	43	7.611	7.622	-0.011	99	272902	1.00	1.08	
43 Chloroform	83	7.746	7.743	0.003	96	370515	1.00	1.00	
44 Tetrahydrofuran	42	8.096	8.108	-0.012	87	134069	1.00	1.04	
45 1,1,1-Trichloroethane	97	8.706	8.701	0.005	95	396883	1.00	1.02	
46 1,2-Dichloroethane	62	8.770	8.771	-0.001	98	266293	1.00	1.04	
47 Benzene	78	9.277	9.274	0.003	97	475845	1.00	1.03	
48 n-Butanol	31	9.283	9.296	-0.013	62	29797	1.00	0.9727	
49 Cyclohexane	69	9.299	9.298	0.001	96	77754	1.00	1.05	
50 Carbon tetrachloride	117	9.315	9.312	0.003	97	393178	1.00	1.05	
53 Isooctane	57	10.145	10.145	0.000	98	709763	1.00	1.06	
54 1,2-Dichloropropane	63	10.539	10.540	-0.001	90	166795	1.00	1.04	
55 n-Heptane	71	10.561	10.561	0.000	83	169496	1.00	1.06	
56 Trichloroethene	130	10.604	10.605	-0.001	94	216055	1.00	0.9880	
57 Dibromomethane	93	10.647	10.648	-0.001	95	192925	1.00	1.01	
58 Dichlorobromomethane	83	10.825	10.825	0.000	98	359583	1.00	1.05	
59 1,4-Dioxane	88	10.841	10.851	-0.010	83	75444	1.00	1.11	
60 Methyl methacrylate	41	10.981	10.990	-0.009	97	153737	1.00	1.01	
62 4-Methyl-2-pentanone (MIBK	43	11.871	11.878	-0.007	94	271515	1.00	1.05	
63 cis-1,3-Dichloropropene	75	11.914	11.915	-0.001	92	280020	1.00	1.05	
64 trans-1,3-Dichloropropene	75	12.658	12.660	-0.002	96	264281	1.00	1.04	
65 Toluene	91	12.793	12.795	-0.002	94	594266	1.00	1.03	
66 1,1,2-Trichloroethane	83	12.852	12.853	-0.001	99	165862	1.00	1.04	
69 2-Hexanone	58	13.300	13.313	-0.013	98	149844	1.00	1.09	
70 Chlorodibromomethane	129	13.580	13.580	0.000	97	326299	1.00	1.07	
71 n-Octane	85	13.618	13.618	0.000	85	197364	1.00	1.06	
72 Ethylene Dibromide	107	13.877	13.876	0.001	98	299269	1.00	1.05	
73 Tetrachloroethene	129	14.006	14.005	0.001	95	221546	1.00	1.03	
74 Chlorobenzene	112	14.912	14.910	0.002	92	462209	1.00	1.02	
76 Ethylbenzene	91	15.236	15.237	-0.001	99	784804	1.00	1.04	
77 m-Xylene & p-Xylene	91	15.414	15.413	0.001	100	1258868	2.00	2.15	
79 Bromoform	173	15.813	15.812	0.001	95	280201	1.00	1.07	
80 Styrene	104	15.883	15.884	-0.001	99	404492	1.00	1.08	
81 n-Nonane	57	15.926	15.926	0.000	83	354142	1.00	1.12	
82 o-Xylene	91	15.948	15.948	0.000	98	651529	1.00	1.05	
83 1,1,2,2-Tetrachloroethane	83	16.266	16.269	-0.003	99	419698	1.00	1.13	
84 1,2,3-Trichloropropane	110	16.422	16.424	-0.002	98	140977	1.00	1.05	
85 Isopropylbenzene	105	16.568	16.566	0.002	98	884009	1.00	1.07	
86 N-Propylbenzene	120	17.145	17.144	0.001	99	251895	1.00	1.11	
87 2-Chlorotoluene	126	17.161	17.164	-0.003	93	226074	1.00	1.08	
88 4-Ethyltoluene	105	17.312	17.312	0.000	99	974862	1.00	1.14	
89 1,3,5-Trimethylbenzene	120	17.398	17.400	-0.002	92	386617	1.00	1.12	
90 Alpha Methyl Styrene	118	17.652	17.652	0.000	87	312791	1.00	1.04	
91 n-Decane	57	17.792	17.793	-0.001	93	504552	1.00	1.18	
92 tert-Butylbenzene	119	17.867	17.868	-0.001	90	894018	1.00	1.11	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
93 1,2,4-Trimethylbenzene	105	17.884	17.884	0.000	96	838081	1.00	1.16	
94 1,3-Dichlorobenzene	146	18.153	18.153	0.000	99	516305	1.00	1.11	
95 sec-Butylbenzene	105	18.169	18.170	-0.001	98	1180727	1.00	1.14	
96 Benzyl chloride	91	18.234	18.237	-0.003	98	644403	1.00	1.19	
97 1,4-Dichlorobenzene	146	18.250	18.251	-0.001	93	518691	1.00	1.12	
98 4-Isopropyltoluene	119	18.358	18.358	0.000	96	1047342	1.00	1.15	
99 1,2,3-Trimethylbenzene	105	18.390	18.393	-0.003	97	941539	1.00	1.15	
101 1,2-Dichlorobenzene	146	18.638	18.638	0.000	93	504861	1.00	1.12	
104 n-Butylbenzene	91	18.833	18.832	0.001	98	967842	1.00	1.19	
105 Undecane	57	19.226	19.228	-0.002	93	562815	1.00	1.21	
106 1,2-Dibromo-3-Chloropropan	157	19.286	19.284	0.002	97	313235	1.00	1.14	
108 1,2,4,5-Tetramethylbenzene	119	19.641	19.641	0.000	96	482300	1.00	1.08	
111 Dodecane	57	20.342	20.340	0.002	99	520941	1.00	1.20	
112 1,2,4-Trichlorobenzene	180	20.445	20.445	0.000	94	375125	1.00	1.11	
113 Naphthalene	128	20.574	20.574	0.000	99	876926	1.00	1.17	
115 Hexachlorobutadiene	225	20.828	20.827	0.001	95	406766	1.00	1.10	
116 1,2,3-Trichlorobenzene	180	20.866	20.864	0.002	94	354574	1.00	1.04	
117 2-Methylnaphthalene	142	21.680	21.680	0.000	99	300143	2.30	1.62	
118 1-Methylnaphthalene	142	21.820	21.823	-0.003	99	327721	2.30	1.78	
S 119 Xylenes, Total	100				0		3.00	3.20	
S 120 1,2-Dichloroethene, Total	1				0		2.00	2.00	

Reagents:

40L6DNP_00017	Amount Added: 200.00	Units: mL	
40MXISSURP_00003	Amount Added: 40.00	Units: mL	Run Reagent

TestAmerica Knoxville
Target Compound Quantitation Report

Data File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC07.D
Lims ID: ICIS L7
Client ID:
Sample Type: ICIS Calib Level: 7
Inject. Date: 30-Jan-2018 17:15:30 ALS Bottle#: 12 Worklist Smp#: 9
Purge Vol: 500.000 mL Dil. Factor: 1.0000
Sample Info: 140-0007236-009
Misc. Info.: 134523
Operator ID: Instrument ID: MR
Sublist: chrom-MR_TO15*sub13

Method: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\MR_TO15.m
Limit Group: MSA TO14A_15 Routine ICAL
Last Update: 05-Feb-2018 13:03:23 Calib Date: 30-Jan-2018 19:38:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC10.D

Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
Process Host: XAWRK015

First Level Reviewer: barlozhetskayaa Date: 30-Jan-2018 18:02:14

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	7.714	7.710	0.004	85	397524	4.00	4.00	
* 2 1,4-Difluorobenzene	114	9.849	9.852	-0.003	95	2418900	4.00	4.00	
* 3 Chlorobenzene-d5 (IS)	117	14.859	14.859	-0.001	88	2104378	4.00	4.00	
$ 4 4-Bromofluorobenzene (Surr	95	16.568	16.570	-0.002	90	1611533	4.00	4.04	
6 Chlorodifluoromethane	67	3.464	3.471	-0.007	96	99602	2.00	2.05	
7 Propene	41	3.475	3.477	-0.002	97	201013	2.00	2.12	
8 Dichlorodifluoromethane	85	3.513	3.519	-0.006	100	768499	2.00	2.06	
9 Chloromethane	52	3.648	3.653	-0.005	99	69549	2.00	2.05	
10 1,2-Dichloro-1,1,2,2-tetra	135	3.669	3.675	-0.006	93	513872	2.00	2.03	
12 Vinyl chloride	62	3.783	3.789	-0.006	99	201144	2.00	1.93	
13 Butane	43	3.858	3.863	-0.005	89	229678	2.00	2.06	
14 Butadiene	54	3.858	3.863	-0.005	94	136978	2.00	2.04	
15 Bromomethane	94	4.095	4.098	-0.003	97	194501	2.00	2.02	
16 Chloroethane	64	4.203	4.208	-0.005	99	92980	2.00	1.97	
17 Ethanol	31	4.311	4.313	-0.002	91	309152	9.99	10.4	
18 Vinyl bromide	106	4.435	4.441	-0.006	97	190610	2.00	2.02	
19 2-Methylbutane	43	4.494	4.498	-0.004	82	156213	2.00	1.98	
20 Acrolein	56	4.651	4.656	-0.005	93	40157	2.00	1.83	
21 Trichlorofluoromethane	101	4.656	4.659	-0.003	99	708040	2.00	2.00	
22 Acetonitrile	40	4.699	4.713	-0.014	98	55420	2.00	2.05	
23 Acetone	58	4.742	4.748	-0.006	99	255969	5.99	6.16	
24 Isopropyl alcohol	45	4.839	4.843	-0.004	94	1027986	5.99	6.43	
25 Pentane	72	4.845	4.847	-0.002	96	56821	2.00	2.05	
26 Ethyl ether	31	4.964	4.975	-0.011	78	210233	2.00	2.10	
27 1,1-Dichloroethene	96	5.217	5.218	-0.001	96	302733	2.00	2.01	
28 Acrylonitrile	53	5.287	5.288	-0.001	93	201452	2.00	2.12	
29 2-Methyl-2-propanol	59	5.319	5.325	-0.006	93	628551	2.00	2.10	
30 1,1,2-Trichloro-1,2,2-trif	101	5.390	5.390	0.000	96	667885	2.00	2.08	
31 Methylene Chloride	84	5.492	5.492	0.000	90	294696	2.00	1.90	
32 3-Chloro-1-propene	39	5.514	5.514	0.000	97	251667	2.00	2.01	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
33 Carbon disulfide	76	5.621	5.625	-0.004	98	863361	2.00	2.07	
34 trans-1,2-Dichloroethene	96	6.193	6.192	0.001	97	318661	2.00	2.09	
36 Methyl tert-butyl ether	73	6.312	6.323	-0.011	95	993401	2.00	2.11	
37 1,1-Dichloroethane	63	6.543	6.545	-0.002	100	594968	2.00	2.05	
38 Vinyl acetate	43	6.657	6.662	-0.005	99	605079	2.00	2.15	
39 2-Butanone (MEK)	72	7.023	7.036	-0.013	97	157076	2.00	2.18	
40 Hexane	56	7.115	7.119	-0.004	85	241914	2.00	2.08	
41 cis-1,2-Dichloroethene	96	7.422	7.426	-0.004	95	331061	2.00	2.02	
42 Ethyl acetate	43	7.606	7.622	-0.016	99	563824	2.00	2.23	
43 Chloroform	83	7.746	7.743	0.003	97	752364	2.00	2.05	
44 Tetrahydrofuran	42	8.091	8.108	-0.017	85	272546	2.00	2.12	
45 1,1,1-Trichloroethane	97	8.700	8.701	-0.001	96	813727	2.00	2.11	
46 1,2-Dichloroethane	62	8.771	8.771	0.000	99	535650	2.00	2.09	
47 Benzene	78	9.272	9.274	-0.002	97	957247	2.00	2.07	
48 n-Butanol	31	9.272	9.296	-0.024	60	64569	2.00	2.11	
49 Cyclohexane	69	9.299	9.298	0.001	96	159306	2.00	2.15	
50 Carbon tetrachloride	117	9.310	9.312	-0.002	98	784365	2.00	2.11	
53 Isooctane	57	10.140	10.145	-0.005	97	1428084	2.00	2.13	
54 1,2-Dichloropropane	63	10.539	10.540	-0.001	86	335945	2.00	2.09	
55 n-Heptane	71	10.561	10.561	0.000	83	341354	2.00	2.13	
56 Trichloroethene	130	10.604	10.605	-0.001	94	481860	2.00	2.21	
57 Dibromomethane	93	10.647	10.648	-0.001	95	403081	2.00	2.12	
58 Dichlorobromomethane	83	10.825	10.825	0.000	98	757973	2.00	2.22	
59 1,4-Dioxane	88	10.836	10.851	-0.015	83	151582	2.00	2.22	
60 Methyl methacrylate	41	10.981	10.990	-0.009	97	339847	2.00	2.24	
62 4-Methyl-2-pentanone (MIBK	43	11.866	11.878	-0.012	93	575108	2.00	2.22	
63 cis-1,3-Dichloropropene	75	11.914	11.915	-0.001	92	590578	2.00	2.22	
64 trans-1,3-Dichloropropene	75	12.658	12.660	-0.002	96	552390	2.00	2.16	
65 Toluene	91	12.793	12.795	-0.002	93	1214847	2.00	2.10	
66 1,1,2-Trichloroethane	83	12.853	12.853	0.000	99	338126	2.00	2.12	
69 2-Hexanone	58	13.300	13.313	-0.013	98	322256	2.00	2.33	
70 Chlorodibromomethane	129	13.581	13.580	0.001	98	710033	2.00	2.33	
71 n-Octane	85	13.613	13.618	-0.005	85	401741	2.00	2.15	
72 Ethylene Dibromide	107	13.872	13.876	-0.004	99	623528	2.00	2.19	
73 Tetrachloroethene	129	14.001	14.005	-0.004	95	451735	2.00	2.09	
74 Chlorobenzene	112	14.907	14.910	-0.003	93	943722	2.00	2.07	
76 Ethylbenzene	91	15.236	15.237	-0.001	99	1604021	2.00	2.11	
77 m-Xylene & p-Xylene	91	15.409	15.413	-0.004	100	2526057	3.99	4.29	
79 Bromoform	173	15.813	15.812	0.001	96	617419	2.00	2.35	
80 Styrene	104	15.883	15.884	-0.001	99	877726	2.00	2.34	
81 n-Nonane	57	15.926	15.926	0.000	83	698726	2.00	2.20	
82 o-Xylene	91	15.942	15.948	-0.006	98	1293453	2.00	2.08	
83 1,1,2,2-Tetrachloroethane	83	16.266	16.269	-0.003	99	774984	2.00	2.09	
84 1,2,3-Trichloropropane	110	16.422	16.424	-0.002	98	283509	2.00	2.11	
85 Isopropylbenzene	105	16.562	16.566	-0.004	97	1751008	2.00	2.11	
86 N-Propylbenzene	120	17.139	17.144	-0.005	99	510087	2.00	2.25	
87 2-Chlorotoluene	126	17.161	17.164	-0.003	94	444172	2.00	2.12	
88 4-Ethyltoluene	105	17.312	17.312	0.000	99	1942649	2.00	2.25	
89 1,3,5-Trimethylbenzene	120	17.398	17.400	-0.002	92	775132	2.00	2.23	
90 Alpha Methyl Styrene	118	17.652	17.652	0.000	87	715672	2.00	2.38	
91 n-Decane	57	17.792	17.793	-0.001	93	1016420	2.00	2.36	
92 tert-Butylbenzene	119	17.867	17.868	-0.001	91	1772333	2.00	2.19	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
93 1,2,4-Trimethylbenzene	105	17.884	17.884	0.000	96	1649904	2.00	2.27	
94 1,3-Dichlorobenzene	146	18.153	18.153	0.000	99	1044130	2.00	2.24	
95 sec-Butylbenzene	105	18.169	18.170	-0.001	98	2346383	2.00	2.25	
96 Benzyl chloride	91	18.234	18.237	-0.003	98	1420806	2.00	2.60	
97 1,4-Dichlorobenzene	146	18.250	18.251	-0.001	93	1046250	2.00	2.25	
98 4-Isopropyltoluene	119	18.358	18.358	0.000	97	2122805	2.00	2.32	
99 1,2,3-Trimethylbenzene	105	18.391	18.393	-0.003	98	1870714	2.00	2.27	
101 1,2-Dichlorobenzene	146	18.639	18.638	0.001	94	1016927	2.00	2.24	
104 n-Butylbenzene	91	18.827	18.832	-0.005	99	1985514	2.00	2.43	
105 Undecane	57	19.226	19.228	-0.002	92	1166396	2.00	2.50	
106 1,2-Dibromo-3-Chloropropan	157	19.280	19.284	-0.004	97	698408	2.00	2.52	
108 1,2,4,5-Tetramethylbenzene	119	19.642	19.641	0.001	96	1035933	2.00	2.32	
111 Dodecane	57	20.337	20.340	-0.003	98	1185570	2.00	2.72	
112 1,2,4-Trichlorobenzene	180	20.445	20.445	0.000	94	867227	2.00	2.55	
113 Naphthalene	128	20.569	20.574	-0.005	99	2004705	2.00	2.66	
115 Hexachlorobutadiene	225	20.828	20.827	0.001	96	875521	2.00	2.36	
116 1,2,3-Trichlorobenzene	180	20.860	20.864	-0.004	94	835689	2.00	2.43	
117 2-Methylnaphthalene	142	21.680	21.680	0.000	100	1121735	4.59	6.04	
118 1-Methylnaphthalene	142	21.820	21.823	-0.003	99	1213833	4.59	6.58	
S 119 Xylenes, Total	100				0		5.99	6.38	
S 120 1,2-Dichloroethene, Total	1				0		3.99	4.11	

Reagents:

40L7DNP_00016	Amount Added: 200.00	Units: mL	
40MXISSURP_00003	Amount Added: 40.00	Units: mL	Run Reagent

TestAmerica Knoxville
Target Compound Quantitation Report

Data File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC08.D
Lims ID: IC L8
Client ID:
Sample Type: IC Calib Level: 8
Inject. Date: 30-Jan-2018 18:03:30 ALS Bottle#: 13 Worklist Smp#: 10
Purge Vol: 500.000 mL Dil. Factor: 1.0000
Sample Info: 140-0007236-010
Misc. Info.: 134524
Operator ID: Instrument ID: MR
Sublist: chrom-MR_TO15*sub13

Method: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\MR_TO15.m
Limit Group: MSA TO14A_15 Routine ICAL
Last Update: 05-Feb-2018 13:03:29 Calib Date: 30-Jan-2018 19:38:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC10.D

Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
Process Host: XAWRK015

First Level Reviewer: barlozhetskayaa Date: 30-Jan-2018 18:45:29

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	7.713	7.710	0.003	83	403296	4.00	4.00	
* 2 1,4-Difluorobenzene	114	9.854	9.852	0.002	95	2445825	4.00	4.00	
* 3 Chlorobenzene-d5 (IS)	117	14.858	14.859	-0.001	88	2122398	4.00	4.00	
$ 4 4-Bromofluorobenzene (Surr	95	16.573	16.570	0.003	90	1560168	4.00	3.88	
6 Chlorodifluoromethane	67	3.470	3.471	-0.001	95	192008	4.00	3.90	
7 Propene	41	3.475	3.477	-0.002	97	373101	4.00	3.87	
8 Dichlorodifluoromethane	85	3.518	3.519	-0.001	100	1380786	4.00	3.65	
9 Chloromethane	52	3.653	3.653	0.000	99	127494	4.00	3.70	
10 1,2-Dichloro-1,1,2,2-tetra	135	3.675	3.675	0.000	92	975595	4.00	3.80	
12 Vinyl chloride	62	3.788	3.789	-0.001	99	392525	4.00	3.71	
13 Butane	43	3.863	3.863	0.000	90	443357	4.00	3.91	
14 Butadiene	54	3.863	3.863	0.000	95	265156	4.00	3.89	
15 Bromomethane	94	4.101	4.098	0.003	98	381835	4.00	3.90	
16 Chloroethane	64	4.208	4.208	0.000	99	183236	4.00	3.82	
17 Ethanol	31	4.322	4.313	0.009	90	599728	20.0	19.8	
18 Vinyl bromide	106	4.446	4.441	0.005	97	373599	4.00	3.89	
19 2-Methylbutane	43	4.500	4.498	0.002	82	305420	4.00	3.82	
20 Acrolein	56	4.656	4.656	0.000	95	69130	4.00	3.10	
21 Trichlorofluoromethane	101	4.661	4.659	0.002	100	1366159	4.00	3.80	
22 Acetonitrile	40	4.705	4.713	-0.008	97	108488	4.00	3.96	
23 Acetone	58	4.748	4.748	0.000	99	451316	12.0	10.7	
24 Isopropyl alcohol	45	4.845	4.843	0.002	94	1940134	12.0	12.0	
25 Pentane	72	4.850	4.847	0.003	97	109148	4.00	3.88	
26 Ethyl ether	31	4.969	4.975	-0.006	76	385484	4.00	3.79	
27 1,1-Dichloroethene	96	5.222	5.218	0.004	96	580273	4.00	3.80	
28 Acrylonitrile	53	5.292	5.288	0.004	93	380336	4.00	3.94	
29 2-Methyl-2-propanol	59	5.319	5.325	-0.006	93	1185900	4.00	3.90	
30 1,1,2-Trichloro-1,2,2-trif	101	5.395	5.390	0.005	97	1265800	4.00	3.88	
31 Methylene Chloride	84	5.497	5.492	0.005	90	539025	4.00	3.42	
32 3-Chloro-1-propene	39	5.519	5.514	0.005	96	453252	4.00	3.58	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
33 Carbon disulfide	76	5.632	5.625	0.007	98	1649806	4.00	3.91	
34 trans-1,2-Dichloroethene	96	6.198	6.192	0.006	98	609026	4.00	3.93	
36 Methyl tert-butyl ether	73	6.317	6.323	-0.006	94	1909019	4.00	4.00	
37 1,1-Dichloroethane	63	6.554	6.545	0.009	100	1118272	4.00	3.79	
38 Vinyl acetate	43	6.662	6.662	0.000	99	1147099	4.00	4.02	
39 2-Butanone (MEK)	72	7.029	7.036	-0.007	97	284611	4.00	3.89	
40 Hexane	56	7.120	7.119	0.001	85	451862	4.00	3.82	
41 cis-1,2-Dichloroethene	96	7.433	7.426	0.007	95	636383	4.00	3.83	
42 Ethyl acetate	43	7.611	7.622	-0.011	99	1074075	4.00	4.19	
43 Chloroform	83	7.751	7.743	0.008	97	1431329	4.00	3.84	
44 Tetrahydrofuran	42	8.096	8.108	-0.012	85	511682	4.00	3.92	
45 1,1,1-Trichloroethane	97	8.706	8.701	0.005	95	1564396	4.00	3.99	
46 1,2-Dichloroethane	62	8.776	8.771	0.005	99	1019982	4.00	3.94	
47 Benzene	78	9.277	9.274	0.003	97	1805776	4.00	3.86	
48 n-Butanol	31	9.272	9.296	-0.024	61	135506	4.00	4.38	
49 Cyclohexane	69	9.304	9.298	0.006	95	293021	4.00	3.91	
50 Carbon tetrachloride	117	9.315	9.312	0.003	97	1557932	4.00	4.14	
53 Isooctane	57	10.145	10.145	0.000	97	2699507	4.00	3.98	
54 1,2-Dichloropropane	63	10.539	10.540	-0.001	87	637774	4.00	3.92	
55 n-Heptane	71	10.561	10.561	0.000	81	652666	4.00	4.03	
56 Trichloroethene	130	10.609	10.605	0.004	95	990611	4.00	4.49	
57 Dibromomethane	93	10.652	10.648	0.004	95	771427	4.00	4.01	
58 Dichlorobromomethane	83	10.830	10.825	0.005	98	1483398	4.00	4.31	
59 1,4-Dioxane	88	10.836	10.851	-0.015	82	290497	4.00	4.22	
60 Methyl methacrylate	41	10.981	10.990	-0.009	97	676432	4.00	4.41	
62 4-Methyl-2-pentanone (MIBK	43	11.866	11.878	-0.012	93	1126777	4.00	4.30	
63 cis-1,3-Dichloropropene	75	11.914	11.915	-0.001	92	1141143	4.00	4.25	
64 trans-1,3-Dichloropropene	75	12.658	12.660	-0.002	96	1089547	4.00	4.23	
65 Toluene	91	12.798	12.795	0.003	93	2321715	4.00	3.97	
66 1,1,2-Trichloroethane	83	12.852	12.853	-0.001	99	646119	4.00	4.01	
69 2-Hexanone	58	13.300	13.313	-0.013	98	664344	4.00	4.76	
70 Chlorodibromomethane	129	13.580	13.580	0.000	98	1429129	4.00	4.64	
71 n-Octane	85	13.618	13.618	0.000	84	761888	4.00	4.05	
72 Ethylene Dibromide	107	13.877	13.876	0.001	98	1225652	4.00	4.26	
73 Tetrachloroethene	129	14.006	14.005	0.001	96	873561	4.00	4.01	
74 Chlorobenzene	112	14.912	14.910	0.002	93	1821596	4.00	3.96	
76 Ethylbenzene	91	15.236	15.237	-0.001	99	3061101	4.00	4.00	
77 m-Xylene & p-Xylene	91	15.414	15.413	0.001	99	4717005	8.00	7.95	
79 Bromoform	173	15.813	15.812	0.001	96	1265260	4.00	4.78	
80 Styrene	104	15.883	15.884	-0.001	98	1722436	4.00	4.55	
81 n-Nonane	57	15.926	15.926	0.000	82	1266112	4.00	3.96	
82 o-Xylene	91	15.948	15.948	0.000	98	2421285	4.00	3.87	
83 1,1,2,2-Tetrachloroethane	83	16.266	16.269	-0.003	99	1361818	4.00	3.63	
84 1,2,3-Trichloropropane	110	16.422	16.424	-0.002	98	537694	4.00	3.96	
85 Isopropylbenzene	105	16.568	16.566	0.002	97	3271189	4.00	3.90	
86 N-Propylbenzene	120	17.145	17.144	0.001	99	953864	4.00	4.17	
87 2-Chlorotoluene	126	17.161	17.164	-0.003	93	837183	4.00	3.96	
88 4-Ethyltoluene	105	17.312	17.312	0.000	99	3621190	4.00	4.16	
89 1,3,5-Trimethylbenzene	120	17.398	17.400	-0.002	92	1454797	4.00	4.14	
90 Alpha Methyl Styrene	118	17.652	17.652	0.000	87	1426907	4.00	4.70	
91 n-Decane	57	17.792	17.793	-0.001	94	1860379	4.00	4.28	
92 tert-Butylbenzene	119	17.867	17.868	-0.001	91	3259179	4.00	3.99	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
93 1,2,4-Trimethylbenzene	105	17.883	17.884	-0.001	96	2988133	4.00	4.08	
94 1,3-Dichlorobenzene	146	18.153	18.153	0.000	99	1945670	4.00	4.13	
95 sec-Butylbenzene	105	18.169	18.170	-0.001	98	4304932	4.00	4.10	
96 Benzyl chloride	91	18.234	18.237	-0.003	98	2678333	4.00	4.87	
97 1,4-Dichlorobenzene	146	18.250	18.251	-0.001	92	1937249	4.00	4.13	
98 4-Isopropyltoluene	119	18.358	18.358	0.000	96	3937880	4.00	4.27	
99 1,2,3-Trimethylbenzene	105	18.396	18.393	0.003	97	3399572	4.00	4.09	
101 1,2-Dichlorobenzene	146	18.638	18.638	0.000	94	1905685	4.00	4.17	
104 n-Butylbenzene	91	18.833	18.832	0.001	99	3720801	4.00	4.52	
105 Undecane	57	19.226	19.228	-0.002	92	2179717	4.00	4.64	
106 1,2-Dibromo-3-Chloropropan	157	19.280	19.284	-0.004	98	1308310	4.00	4.68	
108 1,2,4,5-Tetramethylbenzene	119	19.641	19.641	0.000	96	2053724	4.00	4.56	
111 Dodecane	57	20.337	20.340	-0.003	98	2170914	4.00	4.93	
112 1,2,4-Trichlorobenzene	180	20.445	20.445	0.000	94	1765909	4.00	5.16	
113 Naphthalene	128	20.574	20.574	0.000	99	4017474	4.00	5.28	
115 Hexachlorobutadiene	225	20.828	20.827	0.001	96	1713702	4.00	4.58	
116 1,2,3-Trichlorobenzene	180	20.865	20.864	0.001	94	1650977	4.00	4.77	
117 2-Methylnaphthalene	142	21.680	21.680	0.000	99	2230513	9.20	11.9	
118 1-Methylnaphthalene	142	21.820	21.823	-0.003	99	2273024	9.20	12.2	
S 119 Xylenes, Total	100				0		12.0	11.8	
S 120 1,2-Dichloroethene, Total	1				0		8.00	7.76	

Reagents:

40L8DNP_00016	Amount Added: 200.00	Units: mL	
40MXISSURP_00003	Amount Added: 40.00	Units: mL	Run Reagent

TestAmerica Knoxville
Target Compound Quantitation Report

Data File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC09.D
Lims ID: IC L9
Client ID:
Sample Type: IC Calib Level: 9
Inject. Date: 30-Jan-2018 18:50:30 ALS Bottle#: 14 Worklist Smp#: 11
Purge Vol: 500.000 mL Dil. Factor: 1.0000
Sample Info: 140-0007236-011
Misc. Info.: 134508
Operator ID: Instrument ID: MR
Sublist: chrom-MR_TO15*sub13

Method: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\MR_TO15.m
Limit Group: MSA TO14A_15 Routine ICAL
Last Update: 05-Feb-2018 13:03:33 Calib Date: 30-Jan-2018 19:38:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC10.D

Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
Process Host: XAWRK015

First Level Reviewer: barlozhetskayaa Date: 30-Jan-2018 19:34:59

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	7.724	7.710	0.014	81	409398	4.00	4.00	
* 2 1,4-Difluorobenzene	114	9.860	9.852	0.008	95	2463428	4.00	4.00	
* 3 Chlorobenzene-d5 (IS)	117	14.864	14.859	0.005	88	2133724	4.00	4.00	
$ 4 4-Bromofluorobenzene (Surr	95	16.573	16.570	0.003	88	1531137	4.00	3.78	
6 Chlorodifluoromethane	67	3.470	3.471	-0.001	95	373011	8.00	7.47	
7 Propene	41	3.475	3.477	-0.002	97	698857	8.00	7.14	
8 Dichlorodifluoromethane	85	3.518	3.519	-0.001	100	2777340	8.00	7.23	
9 Chloromethane	52	3.658	3.653	0.005	99	239224	8.00	6.83	
10 1,2-Dichloro-1,1,2,2-tetra	135	3.680	3.675	0.005	92	1877362	8.00	7.21	
12 Vinyl chloride	62	3.793	3.789	0.004	99	789520	8.00	7.35	
13 Butane	43	3.869	3.863	0.006	90	873129	8.00	7.59	
14 Butadiene	54	3.869	3.863	0.006	93	526420	8.00	7.60	
15 Bromomethane	94	4.106	4.098	0.008	98	764670	8.00	7.70	
16 Chloroethane	64	4.219	4.208	0.011	98	369095	8.00	7.59	
17 Ethanol	31	4.327	4.313	0.014	91	1162228	40.0	37.9	
18 Vinyl bromide	106	4.451	4.441	0.010	97	739337	8.00	7.59	
19 2-Methylbutane	43	4.505	4.498	0.007	82	602150	8.00	7.43	
20 Acrolein	56	4.661	4.656	0.005	96	193944	8.00	8.58	
21 Trichlorofluoromethane	101	4.667	4.659	0.008	99	2671794	8.00	7.32	
22 Acetonitrile	40	4.710	4.713	-0.003	97	212047	8.00	7.62	
23 Acetone	58	4.753	4.748	0.005	99	874182	24.0	20.4	
24 Isopropyl alcohol	45	4.856	4.843	0.013	81	3554966	24.0	21.6	
25 Pentane	72	4.856	4.847	0.009	75	205846	8.00	7.21	
26 Ethyl ether	31	4.974	4.975	-0.001	76	726094	8.00	7.03	
27 1,1-Dichloroethene	96	5.233	5.218	0.015	97	1133673	8.00	7.31	
28 Acrylonitrile	53	5.298	5.288	0.010	94	735807	8.00	7.52	
29 2-Methyl-2-propanol	59	5.330	5.325	0.005	93	2316983	8.00	7.51	
30 1,1,2-Trichloro-1,2,2-trif	101	5.400	5.390	0.010	97	2438487	8.00	7.36	
31 Methylene Chloride	84	5.508	5.492	0.016	89	1033868	8.00	6.46	
32 3-Chloro-1-propene	39	5.524	5.514	0.010	95	964101	8.00	7.49	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
33 Carbon disulfide	76	5.637	5.625	0.012	98	3227149	8.00	7.53	
34 trans-1,2-Dichloroethene	96	6.209	6.192	0.017	98	1206934	8.00	7.67	
36 Methyl tert-butyl ether	73	6.322	6.323	-0.001	94	3723922	8.00	7.68	
37 1,1-Dichloroethane	63	6.560	6.545	0.015	100	2160451	8.00	7.21	
38 Vinyl acetate	43	6.667	6.662	0.005	99	2517397	8.00	8.69	
39 2-Butanone (MEK)	72	7.029	7.036	-0.007	97	573697	8.00	7.73	
40 Hexane	56	7.126	7.119	0.007	84	869891	8.00	7.25	
41 cis-1,2-Dichloroethene	96	7.439	7.426	0.013	95	1252882	8.00	7.43	
42 Ethyl acetate	43	7.616	7.622	-0.006	99	2125431	8.00	8.18	
43 Chloroform	83	7.757	7.743	0.014	96	2787766	8.00	7.36	
44 Tetrahydrofuran	42	8.096	8.108	-0.012	84	998545	8.00	7.54	
45 1,1,1-Trichloroethane	97	8.711	8.701	0.010	95	3097922	8.00	7.78	
46 1,2-Dichloroethane	62	8.781	8.771	0.010	99	2013816	8.00	7.73	
47 Benzene	78	9.283	9.274	0.009	97	3386082	8.00	7.19	
48 n-Butanol	31	9.272	9.296	-0.024	56	270253	8.00	8.68	
49 Cyclohexane	69	9.304	9.298	0.006	94	546616	8.00	7.23	
50 Carbon tetrachloride	117	9.320	9.312	0.008	97	3073958	8.00	8.10	
53 Isooctane	57	10.151	10.145	0.006	97	5099511	8.00	7.47	
54 1,2-Dichloropropane	63	10.545	10.540	0.005	86	1201630	8.00	7.34	
55 n-Heptane	71	10.566	10.561	0.005	81	1232469	8.00	7.55	
56 Trichloroethene	130	10.615	10.605	0.010	94	1689959	8.00	7.60	
57 Dibromomethane	93	10.658	10.648	0.010	94	1514919	8.00	7.82	
58 Dichlorobromomethane	83	10.836	10.825	0.011	99	2919706	8.00	8.41	
59 1,4-Dioxane	88	10.841	10.851	-0.010	81	547334	8.00	7.89	
60 Methyl methacrylate	41	10.987	10.990	-0.003	96	1346179	8.00	8.71	
62 4-Methyl-2-pentanone (MIBK	43	11.866	11.878	-0.012	93	2198186	8.00	8.33	
63 cis-1,3-Dichloropropene	75	11.920	11.915	0.005	92	2237825	8.00	8.27	
64 trans-1,3-Dichloropropene	75	12.664	12.660	0.004	96	2203158	8.00	8.52	
65 Toluene	91	12.799	12.795	0.004	94	4431626	8.00	7.54	
66 1,1,2-Trichloroethane	83	12.858	12.853	0.005	98	1239731	8.00	7.66	
69 2-Hexanone	58	13.300	13.313	-0.013	98	1277875	8.00	9.12	
70 Chlorodibromomethane	129	13.586	13.580	0.006	97	2886064	8.00	9.32	
71 n-Octane	85	13.618	13.618	0.000	83	1455739	8.00	7.70	
72 Ethylene Dibromide	107	13.877	13.876	0.001	98	2401387	8.00	8.31	
73 Tetrachloroethene	129	14.006	14.005	0.001	96	1680400	8.00	7.67	
74 Chlorobenzene	112	14.912	14.910	0.002	93	3488920	8.00	7.54	
76 Ethylbenzene	91	15.241	15.237	0.004	99	5752584	8.00	7.48	
77 m-Xylene & p-Xylene	91	15.414	15.413	0.001	99	8622122	16.0	14.5	
79 Bromoform	173	15.813	15.812	0.001	96	2664358	8.00	10.0	
80 Styrene	104	15.883	15.884	-0.001	98	3357063	8.00	8.83	
81 n-Nonane	57	15.926	15.926	0.000	83	2276291	8.00	7.08	
82 o-Xylene	91	15.948	15.948	0.000	98	4507688	8.00	7.16	
83 1,1,2,2-Tetrachloroethane	83	16.271	16.269	0.002	99	2991028	8.00	7.94	
84 1,2,3-Trichloropropane	110	16.428	16.424	0.004	98	1028585	8.00	7.54	
85 Isopropylbenzene	105	16.568	16.566	0.002	98	6052009	8.00	7.19	
86 N-Propylbenzene	120	17.145	17.144	0.001	98	1764153	8.00	7.67	
87 2-Chlorotoluene	126	17.166	17.164	0.002	95	1556290	8.00	7.32	
88 4-Ethyltoluene	105	17.312	17.312	0.000	98	6577901	8.00	7.52	
89 1,3,5-Trimethylbenzene	120	17.404	17.400	0.004	92	2700808	8.00	7.65	
90 Alpha Methyl Styrene	118	17.652	17.652	0.000	87	2696582	8.00	8.84	
91 n-Decane	57	17.797	17.793	0.004	94	3283161	8.00	7.52	
92 tert-Butylbenzene	119	17.867	17.868	-0.001	91	5901403	8.00	7.19	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
93 1,2,4-Trimethylbenzene	105	17.884	17.884	0.000	96	5281375	8.00	7.18	
94 1,3-Dichlorobenzene	146	18.153	18.153	0.000	99	3580637	8.00	7.57	
95 sec-Butylbenzene	105	18.175	18.170	0.005	97	7478024	8.00	7.09	
96 Benzyl chloride	91	18.239	18.237	0.002	98	4696324	8.00	8.49	
97 1,4-Dichlorobenzene	146	18.250	18.251	-0.001	95	3530827	8.00	7.48	
98 4-Isopropyltoluene	119	18.358	18.358	0.000	96	7094422	8.00	7.65	
99 1,2,3-Trimethylbenzene	105	18.396	18.393	0.003	98	6090386	8.00	7.29	
101 1,2-Dichlorobenzene	146	18.638	18.638	0.000	94	3481297	8.00	7.58	
104 n-Butylbenzene	91	18.833	18.832	0.001	98	6600625	8.00	7.98	
105 Undecane	57	19.226	19.228	-0.002	91	3897040	8.00	8.24	
106 1,2-Dibromo-3-Chloropropan	157	19.286	19.284	0.002	98	2624159	8.00	9.34	
108 1,2,4,5-Tetramethylbenzene	119	19.641	19.641	0.000	97	3986557	8.00	8.80	
111 Dodecane	57	20.342	20.340	0.002	97	3963852	8.00	8.96	
112 1,2,4-Trichlorobenzene	180	20.445	20.445	0.000	94	3591958	8.00	10.4	
113 Naphthalene	128	20.574	20.574	0.000	98	7879181	8.00	10.3	
115 Hexachlorobutadiene	225	20.828	20.827	0.001	96	3312283	8.00	8.80	
116 1,2,3-Trichlorobenzene	180	20.866	20.864	0.002	95	3409456	8.00	9.79	
117 2-Methylnaphthalene	142	21.680	21.680	0.000	99	4666996	18.4	24.8	
118 1-Methylnaphthalene	142	21.825	21.823	0.002	99	4705374	18.4	25.2	
S 119 Xylenes, Total	100				0		24.0	21.6	
S 120 1,2-Dichloroethene, Total	1				0		16.0	15.1	

Reagents:

40L9DNP_00019	Amount Added: 200.00	Units: mL	
40MXISSURP_00003	Amount Added: 40.00	Units: mL	Run Reagent

TestAmerica Knoxville
Target Compound Quantitation Report

Data File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC10.D
Lims ID: IC L10
Client ID:
Sample Type: IC Calib Level: 10
Inject. Date: 30-Jan-2018 19:38:30 ALS Bottle#: 15 Worklist Smp#: 12
Purge Vol: 500.000 mL Dil. Factor: 1.0000
Sample Info: 140-0007236-012
Misc. Info.: 134507
Operator ID: Instrument ID: MR
Sublist: chrom-MR_TO15*sub13

Method: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\MR_TO15.m
Limit Group: MSA TO14A_15 Routine ICAL
Last Update: 05-Feb-2018 13:03:37 Calib Date: 30-Jan-2018 19:38:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC10.D

Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
Process Host: XAWRK015

First Level Reviewer: barlozhetskayaa Date: 31-Jan-2018 16:10:49

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	7.724	7.710	0.014	91	412046	4.00	4.00	
* 2 1,4-Difluorobenzene	114	9.860	9.852	0.008	94	2495007	4.00	4.00	
* 3 Chlorobenzene-d5 (IS)	117	14.864	14.859	0.005	87	2168094	4.00	4.00	
$ 4 4-Bromofluorobenzene (Surr	95	16.573	16.570	0.003	93	1466410	4.00	3.57	
6 Chlorodifluoromethane	67	3.453	3.471	-0.018	97	719553	16.0	14.3	
7 Propene	41	3.464	3.477	-0.013	96	1277376	16.0	13.0	
8 Dichlorodifluoromethane	85	3.507	3.519	-0.012	100	5412793	16.0	14.0	
9 Chloromethane	52	3.648	3.653	-0.005	99	462204	16.0	13.1	
10 1,2-Dichloro-1,1,2,2-tetra	135	3.669	3.675	-0.006	91	3561275	16.0	13.6	
12 Vinyl chloride	62	3.782	3.789	-0.007	99	1447608	16.0	13.4	
13 Butane	43	3.858	3.863	-0.005	78	1618667	16.0	14.0	
14 Butadiene	54	3.858	3.863	-0.005	79	990068	16.0	14.2	
15 Bromomethane	94	4.095	4.098	-0.003	98	1458793	16.0	14.6	
16 Chloroethane	64	4.214	4.208	0.006	99	704038	16.0	14.4	
17 Ethanol	31	4.332	4.313	0.019	91	2165410	80.0	70.1	
18 Vinyl bromide	106	4.446	4.441	0.005	97	1433559	16.0	14.6	
19 2-Methylbutane	43	4.500	4.498	0.002	81	1164068	16.0	14.3	
20 Acrolein	56	4.661	4.656	0.005	96	327310	16.0	14.4	
21 Trichlorofluoromethane	101	4.661	4.659	0.002	99	5028632	16.0	13.7	
22 Acetonitrile	40	4.710	4.713	-0.003	96	414724	16.0	14.8	
23 Acetone	58	4.753	4.748	0.005	99	1641135	48.0	38.1	
24 Isopropyl alcohol	45	4.861	4.843	0.018	93	6176210	48.0	37.3	
25 Pentane	72	4.850	4.847	0.003	96	368799	16.0	12.8	
26 Ethyl ether	31	4.974	4.975	-0.001	75	1351034	16.0	13.0	
27 1,1-Dichloroethene	96	5.228	5.218	0.010	97	2191529	16.0	14.0	
28 Acrylonitrile	53	5.298	5.288	0.010	93	1416916	16.0	14.4	
29 2-Methyl-2-propanol	59	5.335	5.325	0.010	92	4364855	16.0	14.1	
30 1,1,2-Trichloro-1,2,2-trif	101	5.395	5.390	0.005	96	4568598	16.0	13.7	
31 Methylene Chloride	84	5.503	5.492	0.011	89	1959635	16.0	12.2	
32 3-Chloro-1-propene	39	5.524	5.514	0.010	95	1802055	16.0	13.9	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
33 Carbon disulfide	76	5.632	5.625	0.007	98	6249903	16.0	14.5	
34 trans-1,2-Dichloroethene	96	6.209	6.192	0.017	99	2342499	16.0	14.8	
36 Methyl tert-butyl ether	73	6.317	6.323	-0.006	94	7130125	16.0	14.6	
37 1,1-Dichloroethane	63	6.560	6.545	0.015	100	4150884	16.0	13.8	
38 Vinyl acetate	43	6.667	6.662	0.005	99	4862704	16.0	16.7	
39 2-Butanone (MEK)	72	7.034	7.036	-0.002	97	1092853	16.0	14.6	
40 Hexane	56	7.126	7.119	0.007	84	1626366	16.0	13.5	
41 cis-1,2-Dichloroethene	96	7.438	7.426	0.012	94	2442184	16.0	14.4	
42 Ethyl acetate	43	7.616	7.622	-0.006	99	4096409	16.0	15.7	
43 Chloroform	83	7.757	7.743	0.014	97	5369459	16.0	14.1	
44 Tetrahydrofuran	42	8.096	8.108	-0.012	83	1922640	16.0	14.4	
45 1,1,1-Trichloroethane	97	8.711	8.701	0.010	96	5978105	16.0	14.9	
46 1,2-Dichloroethane	62	8.781	8.771	0.010	99	3907140	16.0	14.8	
47 Benzene	78	9.283	9.274	0.009	97	6108554	16.0	12.8	
48 n-Butanol	31	9.272	9.296	-0.024	65	506348	16.0	16.1	
49 Cyclohexane	69	9.304	9.298	0.006	92	968821	16.0	12.7	
50 Carbon tetrachloride	117	9.320	9.312	0.008	98	5902097	16.0	15.4	
53 Isooctane	57	10.151	10.145	0.006	97	9340512	16.0	13.5	
54 1,2-Dichloropropane	63	10.544	10.540	0.004	85	2196910	16.0	13.2	
55 n-Heptane	71	10.566	10.561	0.005	79	2239236	16.0	13.6	
56 Trichloroethene	130	10.615	10.605	0.010	96	3246702	16.0	14.4	
57 Dibromomethane	93	10.658	10.648	0.010	94	2859943	16.0	14.6	
58 Dichlorobromomethane	83	10.836	10.825	0.011	99	5610234	16.0	16.0	
59 1,4-Dioxane	88	10.846	10.851	-0.005	81	995848	16.0	14.2	
60 Methyl methacrylate	41	10.987	10.990	-0.003	96	2607373	16.0	16.7	
62 4-Methyl-2-pentanone (MIBK	43	11.871	11.878	-0.007	92	4112261	16.0	15.4	
63 cis-1,3-Dichloropropene	75	11.920	11.915	0.005	92	4235998	16.0	15.5	
64 trans-1,3-Dichloropropene	75	12.664	12.660	0.004	97	4251750	16.0	16.2	
65 Toluene	91	12.798	12.795	0.003	94	8226314	16.0	13.8	
66 1,1,2-Trichloroethane	83	12.858	12.853	0.005	98	2316335	16.0	14.1	
69 2-Hexanone	58	13.300	13.313	-0.013	98	2400790	16.0	16.9	
70 Chlorodibromomethane	129	13.586	13.580	0.006	97	5563126	16.0	17.7	
71 n-Octane	85	13.624	13.618	0.006	81	2665696	16.0	13.9	
72 Ethylene Dibromide	107	13.882	13.876	0.006	98	4533785	16.0	15.4	
73 Tetrachloroethene	129	14.012	14.005	0.007	96	3162320	16.0	14.2	
74 Chlorobenzene	112	14.912	14.910	0.002	92	6524458	16.0	13.9	
76 Ethylbenzene	91	15.241	15.237	0.004	98	10356375	16.0	13.3	
77 m-Xylene & p-Xylene	91	15.419	15.413	0.006	97	14832360	32.0	24.5	
79 Bromoform	173	15.813	15.812	0.001	96	5289308	16.0	19.5	
80 Styrene	104	15.888	15.884	0.004	98	6305273	16.0	16.3	
81 n-Nonane	57	15.926	15.926	0.000	81	3925374	16.0	12.0	
82 o-Xylene	91	15.953	15.948	0.005	98	8018750	16.0	12.5	
83 1,1,2,2-Tetrachloroethane	83	16.271	16.269	0.002	98	5403129	16.0	14.1	
84 1,2,3-Trichloropropane	110	16.428	16.424	0.004	97	1952171	16.0	14.1	
85 Isopropylbenzene	105	16.568	16.566	0.002	98	10798333	16.0	12.6	
86 N-Propylbenzene	120	17.145	17.144	0.001	98	3199258	16.0	13.7	
87 2-Chlorotoluene	126	17.166	17.164	0.002	95	2818704	16.0	13.0	
88 4-Ethyltoluene	105	17.312	17.312	0.000	97	11626420	16.0	13.1	
89 1,3,5-Trimethylbenzene	120	17.404	17.400	0.004	93	4953675	16.0	13.8	
90 Alpha Methyl Styrene	118	17.652	17.652	0.000	89	4958200	16.0	16.0	
91 n-Decane	57	17.797	17.793	0.004	95	5508017	16.0	12.4	
92 tert-Butylbenzene	119	17.873	17.868	0.005	89	10252438	16.0	12.3	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
93 1,2,4-Trimethylbenzene	105	17.889	17.884	0.005	96	9006683	16.0	12.0	
94 1,3-Dichlorobenzene	146	18.153	18.153	0.000	98	6390995	16.0	13.3	
95 sec-Butylbenzene	105	18.175	18.170	0.005	98	12393102	16.0	11.6	
96 Benzyl chloride	91	18.239	18.237	0.002	98	7883232	16.0	14.0	
97 1,4-Dichlorobenzene	146	18.256	18.251	0.005	93	6311344	16.0	13.2	
98 4-Isopropyltoluene	119	18.358	18.358	0.000	95	11859110	16.0	12.6	
99 1,2,3-Trimethylbenzene	105	18.396	18.393	0.003	97	10662003	16.0	12.6	
101 1,2-Dichlorobenzene	146	18.638	18.638	0.000	93	6299641	16.0	13.5	
104 n-Butylbenzene	91	18.833	18.832	0.001	98	10895604	16.0	13.0	
105 Undecane	57	19.232	19.228	0.004	88	6317836	16.0	13.2	
106 1,2-Dibromo-3-Chloropropan	157	19.285	19.284	0.001	98	4681454	16.0	16.4	
108 1,2,4,5-Tetramethylbenzene	119	19.641	19.641	0.000	97	7226247	16.0	15.7	
111 Dodecane	57	20.342	20.340	0.002	94	5984092	16.0	13.3	
112 1,2,4-Trichlorobenzene	180	20.445	20.445	0.000	94	6399037	16.0	18.3	
113 Naphthalene	128	20.574	20.574	0.000	97	13166564	16.0	16.9	
115 Hexachlorobutadiene	225	20.828	20.827	0.001	96	5838950	16.0	15.3	
116 1,2,3-Trichlorobenzene	180	20.865	20.864	0.001	94	6110654	16.0	17.3	
117 2-Methylnaphthalene	142	21.680	21.680	0.000	99	6724954	36.8	35.2	
118 1-Methylnaphthalene	142	21.825	21.823	0.002	98	6700143	36.8	35.3	
S 119 Xylenes, Total	100				0		48.0	37.0	
S 120 1,2-Dichloroethene, Total	1				0		32.0	29.2	

Reagents:

40L10DNP_00001	Amount Added: 200.00	Units: mL	
40MXISSURP_00003	Amount Added: 40.00	Units: mL	Run Reagent

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab Sample ID: CCVIS 140-18444/2 Calibration Date: 03/01/2018 10:59

Instrument ID: MR Calib Start Date: 01/30/2018 12:29

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 01/30/2018 19:38

Lab File ID: RCCVC01.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Chlorodifluoromethane	Ave	0.4879	0.5009		2.05	2.00	2.7	30.0
Propene	Ave	0.9557	0.8743		1.83	2.00	-8.5	30.0
Dichlorodifluoromethane	Ave	3.756	4.118		2.19	2.00	9.7	30.0
Chloromethane	Ave	0.3421	0.3671		2.15	2.00	7.3	30.0
1,2-Dichloro-1,1,2,2-tetrafluoroethane	Ave	2.544	2.855		2.24	2.00	12.2	30.0
Vinyl chloride	Ave	1.049	1.044		1.99	2.00	-0.5	30.0
1,3-Butadiene	Ave	0.6765	0.6916		2.04	2.00	2.2	30.0
Butane	Ave	1.124	1.166		2.08	2.00	3.8	30.0
Bromomethane	Ave	0.9705	1.039		2.14	2.00	7.0	30.0
Chloroethane	Ave	0.4754	0.4875		2.05	2.00	2.5	30.0
Ethanol	Ave	0.2999	0.1883		6.28	10.0	-37.2*	30.0
Vinyl bromide	Ave	0.9514	1.067		2.24	2.00	12.2	30.0
2-Methylbutane	Ave	0.7921	0.7807		1.97	2.00	-1.4	30.0
Acrolein	Ave	0.2209	0.2973		2.69	2.00	34.6*	30.0
Trichlorofluoromethane	Ave	3.567	3.773		2.12	2.00	5.8	30.0
Acetonitrile	Ave	0.2718	0.2523		1.86	2.00	-7.2	30.0
Acetone	Ave	0.4182	0.4309		2.06	2.00	3.0	30.0
Isopropyl alcohol	Ave	1.608	2.046		2.55	2.00	27.3	30.0
Pentane	Ave	0.2789	0.3188		2.29	2.00	14.3	30.0
Ethyl ether	Ave	1.010	0.9905		1.96	2.00	-1.9	30.0
1,1-Dichloroethene	Ave	1.514	1.517		2.00	2.00	0.2	30.0
Acrylonitrile	Ave	0.9563	0.9440		1.97	2.00	-1.3	30.0
tert-Butyl alcohol	Ave	3.014	2.781		1.84	2.00	-7.8	30.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	3.239	3.419		2.11	2.00	5.6	30.0
Methylene Chloride	Ave	1.564	1.481		1.89	2.00	-5.3	30.0
3-Chloropropene	Ave	1.257	1.217		1.94	2.00	-3.2	30.0
Carbon disulfide	Ave	4.190	4.242		2.03	2.00	1.3	30.0
trans-1,2-Dichloroethene	Ave	1.537	1.565		2.04	2.00	1.8	30.0
Methyl tert-butyl ether	Ave	4.739	4.802		2.03	2.00	1.3	30.0
1,1-Dichloroethane	Ave	2.927	2.849		1.95	2.00	-2.7	30.0
Vinyl acetate	Ave	2.829	2.956		2.09	2.00	4.5	30.0
2-Butanone (MEK)	Ave	0.7255	0.6686		1.84	2.00	-7.8	30.0
Hexane	Ave	1.173	1.117		1.91	2.00	-4.7	30.0
cis-1,2-Dichloroethene	Ave	1.647	1.650		2.00	2.00	0.1	30.0
Ethyl acetate	Ave	2.540	2.371		1.87	2.00	-6.7	30.0
Chloroform	Ave	3.701	3.703		2.00	2.00	0.0	30.0
Tetrahydrofuran	Ave	1.295	1.178		1.82	2.00	-9.0	30.0
1,1,1-Trichloroethane	Ave	3.888	3.945		2.03	2.00	1.5	30.0
1,2-Dichloroethane	Ave	0.4231	0.4265		2.02	2.00	0.8	30.0
1-Butanol	Ave	0.0506	0.0405		1.60	2.00	-20.0	30.0

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab Sample ID: CCVIS 140-18444/2 Calibration Date: 03/01/2018 10:59

Instrument ID: MR Calib Start Date: 01/30/2018 12:29

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 01/30/2018 19:38

Lab File ID: RCCVC01.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Benzene	Ave	0.7642	0.7838		2.05	2.00	2.6	30.0
Cyclohexane	Ave	0.1227	0.1242		2.02	2.00	1.2	30.0
Carbon tetrachloride	Ave	0.6160	0.6819		2.21	2.00	10.7	30.0
2,2,4-Trimethylpentane	Ave	1.108	1.100		1.99	2.00	-0.7	30.0
1,2-Dichloropropane	Ave	0.2659	0.2588		1.95	2.00	-2.6	30.0
Heptane	Ave	0.2649	0.2669		2.01	2.00	0.7	30.0
Trichloroethene	Ave	0.3611	0.3743		2.07	2.00	3.7	30.0
Dibromomethane	Ave	0.3145	0.3234		2.06	2.00	2.9	30.0
Bromodichloromethane	Ave	0.5634	0.6060		2.15	2.00	7.6	30.0
1,4-Dioxane	Ave	0.1127	0.1048		1.86	2.00	-7.0	30.0
Methyl methacrylate	Ave	0.2509	0.2375		1.89	2.00	-5.3	30.0
4-Methyl-2-pentanone (MIBK)	Ave	0.4284	0.3996		1.87	2.00	-6.7	30.0
cis-1,3-Dichloropropene	Ave	0.4392	0.4611		2.10	2.00	5.0	30.0
trans-1,3-Dichloropropene	Ave	0.4850	0.5083		2.10	2.00	4.8	30.0
Toluene	Ave	1.102	1.132		2.06	2.00	2.8	30.0
1,1,2-Trichloroethane	Ave	0.3035	0.3096		2.04	2.00	2.0	30.0
2-Hexanone	Ave	0.2628	0.2691		2.05	2.00	2.4	30.0
Dibromochloromethane	Ave	0.5804	0.6800		2.34	2.00	17.1	30.0
Octane	Ave	0.3544	0.3726		2.10	2.00	5.1	30.0
1,2-Dibromoethane (EDB)	Ave	0.5418	0.5790		2.14	2.00	6.9	30.0
Tetrachloroethene	Ave	0.4106	0.4362		2.12	2.00	6.2	30.0
Chlorobenzene	Ave	0.8680	0.9022		2.08	2.00	3.9	30.0
Ethylbenzene	Ave	1.442	1.468		2.04	2.00	1.8	30.0
m-Xylene & p-Xylene	Ave	1.118	1.173		4.20	4.00	4.9	30.0
Bromoform	Ave	0.4993	0.5881		2.36	2.00	17.8	30.0
Styrene	Ave	0.7131	0.7930		2.22	2.00	11.2	30.0
Nonane	Ave	0.6024	0.6125		2.03	2.00	1.7	30.0
o-Xylene	Ave	1.180	1.173		1.99	2.00	-0.6	30.0
1,1,2,2-Tetrachloroethane	Ave	0.7065	0.7456		2.11	2.00	5.5	30.0
1,2,3-Trichloropropane	Ave	0.2557	0.2604		2.04	2.00	1.8	30.0
Isopropylbenzene	Ave	1.579	1.657		2.10	2.00	4.9	30.0
Propylbenzene	Ave	0.4312	0.4863		2.26	2.00	12.8	30.0
2-Chlorotoluene	Ave	0.3988	0.4328		2.17	2.00	8.5	30.0
4-Ethyltoluene	Ave	1.639	1.751		2.14	2.00	6.9	30.0
1,3,5-Trimethylbenzene	Ave	0.6617	0.8408		2.54	2.00	27.1	30.0
Alpha Methyl Styrene	Ave	0.5721	0.6578		2.30	2.00	15.0	30.0
Decane	Ave	0.8188	0.9208		2.25	2.00	12.5	30.0
tert-Butylbenzene	Ave	1.538	1.712		2.23	2.00	11.3	30.0
1,2,4-Trimethylbenzene	Ave	1.379	1.582		2.29	2.00	14.7	30.0
1,3-Dichlorobenzene	Ave	0.8870	1.008		2.27	2.00	13.7	30.0
sec-Butylbenzene	Ave	1.978	2.240		2.26	2.00	13.2	30.0

FORM VII
AIR - GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab Sample ID: CCVIS 140-18444/2 Calibration Date: 03/01/2018 10:59

Instrument ID: MR Calib Start Date: 01/30/2018 12:29

GC Column: RTX-5 ID: 0.32(mm) Calib End Date: 01/30/2018 19:38

Lab File ID: RCCVC01.D Conc. Units: ppb v/v Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Benzyl chloride	Ave	1.037	1.286		2.48	2.00	24.0	30.0
1,4-Dichlorobenzene	Ave	0.8846	1.004		2.27	2.00	13.5	30.0
4-Isopropyltoluene	Ave	1.739	1.995		2.29	2.00	14.7	30.0
1,2,3-Trimethylbenzene	Ave	1.566	1.279		1.63	2.00	-18.4	30.0
1,2-Dichlorobenzene	Ave	0.8615	0.9645		2.24	2.00	12.0	30.0
Butylbenzene	Ave	1.551	1.872		2.41	2.00	20.7	30.0
Undecane	Ave	0.8863	1.017		2.29	2.00	14.7	30.0
1,2-Dibromo-3-Chloropropane	Ave	0.5267	0.4090		1.55	2.00	-22.4	30.0
1,2,4,5-Tetramethylbenzene	Ave	0.8495	1.702		4.01	2.00	100.3*	30.0
Dodecane	Ave	0.8298	0.9474		2.28	2.00	14.2	30.0
1,2,4-Trichlorobenzene	Ave	0.6453	0.7817		2.42	2.00	21.1	30.0
Naphthalene	Ave	1.434	1.686		2.35	2.00	17.5	30.0
Hexachlorobutadiene	Ave	0.7058	0.7822		2.22	2.00	10.8	30.0
1,2,3-Trichlorobenzene	Ave	0.6529	0.7099		2.17	2.00	8.7	30.0
4-Bromofluorobenzene (Surr)	Ave	0.7584	0.7565		3.99	4.00	-0.2	30.0

TestAmerica Knoxville
Target Compound Quantitation Report

Data File: \\ChromNA\Knoxville\ChromData\MR\20180226-7505.b\RCCVC01.D
Lims ID: CCVIS
Client ID:
Sample Type: CCVIS
Inject. Date: 01-Mar-2018 10:59:30 ALS Bottle#: 15 Worklist Smp#: 2
Purge Vol: 500.000 mL Dil. Factor: 1.0000
Sample Info: 140-0007505-002
Misc. Info.: 140760
Operator ID: Instrument ID: MR
Sublist: chrom-MR_TO15*sub17

Method: \\ChromNA\Knoxville\ChromData\MR\20180226-7505.b\MR_TO15.m
Limit Group: MSA TO14A_15 Routine ICAL
Last Update: 01-Mar-2018 14:42:04 Calib Date: 30-Jan-2018 19:38:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC10.D

Column 1 : RTX-5 (0.32 mm) Det: MS SCAN
Process Host: XAWRK007

First Level Reviewer: tajh Date: 01-Mar-2018 14:13:59

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	128	7.686	7.686	0.000	78	357240	4.00	4.00	
* 2 1,4-Difluorobenzene	114	9.827	9.827	0.000	94	2145935	4.00	4.00	
* 3 Chlorobenzene-d5 (IS)	117	14.842	14.842	0.000	87	1828892	4.00	4.00	
$ 4 4-Bromofluorobenzene (Surr	95	16.557	16.557	0.000	91	1383617	4.00	3.99	
6 Chlorodifluoromethane	67	3.459	3.459	0.000	95	89478	2.00	2.05	
7 Propene	41	3.464	3.464	0.000	97	156159	2.00	1.83	
8 Dichlorodifluoromethane	85	3.507	3.507	0.000	100	735612	2.00	2.19	
9 Chloromethane	52	3.642	3.642	0.000	99	65567	2.00	2.15	
10 1,2-Dichloro-1,1,2,2-tetra	135	3.664	3.664	0.000	93	509955	2.00	2.24	
11 Acetaldehyde	44	3.766	3.766	0.000	99	231116	NC	NC	
12 Vinyl chloride	62	3.777	3.777	0.000	99	186400	2.00	1.99	
13 Butane	43	3.847	3.847	0.000	88	208343	2.00	2.08	
14 Butadiene	54	3.847	3.847	0.000	94	123541	2.00	2.04	
15 Bromomethane	94	4.079	4.079	0.000	98	185561	2.00	2.14	
16 Chloroethane	64	4.192	4.192	0.000	97	87069	2.00	2.05	
17 Ethanol	31	4.289	4.289	0.000	89	168178	10.0	6.28	
18 Vinyl bromide	106	4.424	4.424	0.000	98	190665	2.00	2.24	
19 2-Methylbutane	43	4.478	4.478	0.000	80	139452	2.00	1.97	
20 Acrolein	56	4.634	4.634	0.000	93	53095	2.00	2.69	
21 Trichlorofluoromethane	101	4.645	4.645	0.000	99	673895	2.00	2.12	
22 Acetonitrile	40	4.677	4.677	0.000	98	45064	2.00	1.86	
23 Acetone	58	4.726	4.726	0.000	99	76975	2.00	2.06	
24 Isopropyl alcohol	45	4.818	4.818	0.000	94	365452	2.00	2.55	
25 Pentane	72	4.823	4.823	0.000	99	56951	2.00	2.29	
26 Ethyl ether	31	4.947	4.947	0.000	76	176928	2.00	1.96	
27 1,1-Dichloroethene	96	5.200	5.200	0.000	96	271006	2.00	2.00	
28 Acrylonitrile	53	5.260	5.260	0.000	93	168625	2.00	1.97	
29 2-Methyl-2-propanol	59	5.292	5.292	0.000	93	496697	2.00	1.84	
30 1,1,2-Trichloro-1,2,2-trif	101	5.368	5.368	0.000	97	610661	2.00	2.11	
31 Methylene Chloride	84	5.470	5.470	0.000	88	264585	2.00	1.89	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
32 3-Chloro-1-propene	39	5.492	5.492	0.000	95	217466	2.00	1.94	
33 Carbon disulfide	76	5.605	5.605	0.000	98	757764	2.00	2.03	
34 trans-1,2-Dichloroethene	96	6.171	6.171	0.000	98	279460	2.00	2.04	
35 2-Methylpentane	43	6.220	6.220	0.000	89	427774	NC	NC	
36 Methyl tert-butyl ether	73	6.290	6.290	0.000	94	857704	2.00	2.03	
37 1,1-Dichloroethane	63	6.522	6.522	0.000	100	508804	2.00	1.95	
38 Vinyl acetate	43	6.629	6.629	0.000	99	528005	2.00	2.09	
39 2-Butanone (MEK)	72	7.002	7.002	0.000	97	119425	2.00	1.84	
40 Hexane	56	7.093	7.093	0.000	85	199600	2.00	1.91	
41 cis-1,2-Dichloroethene	96	7.401	7.401	0.000	95	294675	2.00	2.00	
42 Ethyl acetate	43	7.584	7.584	0.000	99	423466	2.00	1.87	
43 Chloroform	83	7.724	7.724	0.000	95	661391	2.00	2.00	
44 Tetrahydrofuran	42	8.064	8.064	0.000	83	210334	2.00	1.82	
45 1,1,1-Trichloroethane	97	8.679	8.679	0.000	95	704704	2.00	2.03	
46 1,2-Dichloroethane	62	8.749	8.749	0.000	99	457568	2.00	2.02	
48 n-Butanol	31	9.250	9.250	0.000	59	43418	2.00	1.60	
47 Benzene	78	9.250	9.250	0.000	96	841023	2.00	2.05	
49 Cyclohexane	69	9.277	9.277	0.000	95	133256	2.00	2.02	
50 Carbon tetrachloride	117	9.288	9.288	0.000	97	731675	2.00	2.21	
51 2,3-Dimethylpentane	71	9.439	9.439	0.000	87	183331	NC	NC	
52 Thiophene	84	9.509	9.509	0.000	93	473721	NC	NC	
53 Isooctane	57	10.124	10.124	0.000	97	1180600	2.00	1.99	
54 1,2-Dichloropropane	63	10.517	10.517	0.000	89	277722	2.00	1.95	
55 n-Heptane	71	10.539	10.539	0.000	82	286355	2.00	2.01	
56 Trichloroethene	130	10.587	10.587	0.000	94	401572	2.00	2.07	
57 Dibromomethane	93	10.625	10.625	0.000	96	347039	2.00	2.06	
58 Dichlorobromomethane	83	10.803	10.803	0.000	99	650248	2.00	2.15	
59 1,4-Dioxane	88	10.814	10.814	0.000	82	112453	2.00	1.86	
60 Methyl methacrylate	41	10.960	10.960	0.000	95	254850	2.00	1.89	
61 Methylcyclohexane	83	11.429	11.429	0.000	94	618550	NC	NC	
62 4-Methyl-2-pentanone (MIBK	43	11.844	11.844	0.000	93	428788	2.00	1.87	
63 cis-1,3-Dichloropropene	75	11.892	11.892	0.000	92	494786	2.00	2.10	
64 trans-1,3-Dichloropropene	75	12.637	12.637	0.000	96	464794	2.00	2.10	
65 Toluene	91	12.777	12.777	0.000	94	1035135	2.00	2.06	
66 1,1,2-Trichloroethane	83	12.836	12.836	0.000	98	283063	2.00	2.04	
68 3-Methylthiophene	97	13.138	13.138	0.000	0	814962	NC	NC	
69 2-Hexanone	58	13.284	13.284	0.000	98	246074	2.00	2.05	
70 Chlorodibromomethane	129	13.564	13.564	0.000	97	621774	2.00	2.34	
71 n-Octane	85	13.602	13.602	0.000	83	340735	2.00	2.10	
72 Ethylene Dibromide	107	13.855	13.855	0.000	99	529490	2.00	2.14	
73 Tetrachloroethene	129	13.990	13.990	0.000	97	398905	2.00	2.12	
74 Chlorobenzene	112	14.891	14.891	0.000	94	825035	2.00	2.08	
75 2,3-Dimethylheptane	43	15.015	15.015	0.000	83	602850	NC	NC	
76 Ethylbenzene	91	15.220	15.220	0.000	98	1342568	2.00	2.04	
78 2-Ethylthiophene	97	15.322	15.322	0.000	0	1008484	NC	NC	
77 m-Xylene & p-Xylene	91	15.397	15.397	0.000	99	2145615	4.00	4.20	
79 Bromoform	173	15.797	15.797	0.000	96	537774	2.00	2.36	
80 Styrene	104	15.867	15.867	0.000	98	725157	2.00	2.22	
81 n-Nonane	57	15.915	15.915	0.000	85	560077	2.00	2.03	
82 o-Xylene	91	15.931	15.931	0.000	98	1072649	2.00	1.99	
83 1,1,2,2-Tetrachloroethane	83	16.255	16.255	0.000	99	681793	2.00	2.11	
84 1,2,3-Trichloropropane	110	16.411	16.411	0.000	98	238073	2.00	2.04	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ppb v/v	OnCol Amt ppb v/v	Flags
85 Isopropylbenzene	105	16.551	16.551	0.000	97	1515139	2.00	2.10	
86 N-Propylbenzene	120	17.128	17.128	0.000	99	444659	2.00	2.26	
87 2-Chlorotoluene	126	17.150	17.150	0.000	94	395795	2.00	2.17	
88 4-Ethyltoluene	105	17.296	17.296	0.000	99	1601235	2.00	2.14	
89 1,3,5-Trimethylbenzene	120	17.387	17.387	0.000	92	768900	2.00	2.54	
90 Alpha Methyl Styrene	118	17.641	17.641	0.000	87	601546	2.00	2.30	
91 n-Decane	57	17.781	17.781	0.000	93	842042	2.00	2.25	
92 tert-Butylbenzene	119	17.856	17.856	0.000	94	1565322	2.00	2.23	
93 1,2,4-Trimethylbenzene	105	17.873	17.873	0.000	96	1446209	2.00	2.29	
94 1,3-Dichlorobenzene	146	18.137	18.137	0.000	99	922080	2.00	2.27	
95 sec-Butylbenzene	105	18.158	18.158	0.000	98	2047935	2.00	2.26	
96 Benzyl chloride	91	18.223	18.223	0.000	98	1176315	2.00	2.48	
97 1,4-Dichlorobenzene	146	18.239	18.239	0.000	94	918408	2.00	2.27	
98 4-Isopropyltoluene	119	18.347	18.347	0.000	97	1823960	2.00	2.29	
99 1,2,3-Trimethylbenzene	105	18.379	18.379	0.000	99	1169265	2.00	1.63	
100 Butylcyclohexane	83	18.477	18.477	0.000	95	1055006	NC	NC	
101 1,2-Dichlorobenzene	146	18.628	18.628	0.000	93	882017	2.00	2.24	
102 2,3-Dihydroindene	117	18.638	18.638	0.000	94	1247217	NC	NC	
103 Indene	116	18.773	18.773	0.000	91	892464	NC	NC	
104 n-Butylbenzene	91	18.822	18.822	0.000	98	1712135	2.00	2.41	
105 Undecane	57	19.221	19.221	0.000	84	929990	2.00	2.29	
106 1,2-Dibromo-3-Chloropropan	157	19.275	19.275	0.000	97	373979	2.00	1.55	
107 1,2-Dimethyl-4-Ethylbenzen	119	19.345	19.345	0.000	0	2336	NC	NC	
108 1,2,4,5-Tetramethylbenzene	119	19.630	19.630	0.000	96	1555990	2.00	4.01	
109 1,2,3,5-Tetramethylbenzene	119	19.690	19.690	0.000	95	955125	NC	NC	
110 1,2,3,4-Tetramethylbenzene	119	20.094	20.094	0.000	96	1252752	NC	NC	
111 Dodecane	57	20.331	20.331	0.000	98	866335	2.00	2.28	
112 1,2,4-Trichlorobenzene	180	20.434	20.434	0.000	94	714848	2.00	2.42	
113 Naphthalene	128	20.563	20.563	0.000	99	1541400	2.00	2.35	
114 Benzo(b)thiophene	134	20.660	20.660	0.000	0	780310	NC	NC	
115 Hexachlorobutadiene	225	20.817	20.817	0.000	96	715317	2.00	2.22	
116 1,2,3-Trichlorobenzene	180	20.855	20.855	0.000	95	649125	2.00	2.17	
S 119 Xylenes, Total	100				0		6.00	6.18	
S 120 1,2-Dichloroethene, Total	1				0		4.00	4.04	

QC Flag Legend

Processing Flags

NC - Not Calibrated

Reagents:

40CV10CNtst_00001	Amount Added: 100.00	Units: mL	
40MXISSURP_00003	Amount Added: 40.00	Units: mL	Run Reagent

FORM II
AIR - GC/MS VOA SURROGATE RECOVERY

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Matrix: Air Level: Low

GC Column (1): RTX-5 ID: 0.32(mm)

Client Sample ID	Lab Sample ID	BFB #
SV-168-A-24	140-10792-1	101
SV-095-A-24	140-10792-2	105
SV-075-A-24	140-10792-3	102
SV-178-MB-2	140-10792-4	107
SV-180-MB-2	140-10792-5	106
SV-179-MB-2	140-10792-6	107
SV-181-MB-2	140-10792-7	106
SV-181-MB-2 DL	140-10792-7 DL	100
SV-182-MB-2	140-10792-8	109
SV-182-MB-2 DL	140-10792-8 DL	100
SV-184-MB-2	140-10792-9	107
SV-187-MB-2	140-10792-10	107
SV-186-MB-2	140-10792-11	107
SV-185-MB-2	140-10792-12	107
	MB 140-18444/4	102
	MB 140-18530/4	103
	LCS 140-18444/1002	100
	LCS 140-18530/1002	100

	QC LIMITS
BFB = 4-Bromofluorobenzene (Surr)	60-140

Column to be used to flag recovery values

FORM II TO 15 LL

FORM III
AIR - GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Matrix: Air Level: Low Lab File ID: RCCVC01-LCS.d

Lab ID: LCS 140-18444/1002 Client ID:

COMPOUND	SPIKE ADDED (ppb v/v)	LCS CONCENTRATION (ppb v/v)	LCS % REC	QC LIMITS REC	#
Benzene	2.00	2.05	103	70-130	
Carbon tetrachloride	2.00	2.21	111	70-130	
Chlorodifluoromethane	2.00	2.05	103	60-140	
Chloroform	2.00	2.00	100	70-130	
cis-1,2-Dichloroethene	2.00	2.00	100	70-130	
Dichlorodifluoromethane	2.00	2.19	110	60-140	
1,1-Dichloroethane	2.00	1.95	97	70-130	
1,2-Dichloroethane	2.00	2.02	101	70-130	
1,1-Dichloroethene	2.00	2.00	100	70-130	
Ethylbenzene	2.00	2.04	102	70-130	
Methylene Chloride	2.00	1.89	95	70-130	
Methyl tert-butyl ether	2.00	2.03	101	60-140	
Naphthalene	2.00	2.35	118	60-140	
Tetrachloroethene	2.00	2.12	106	70-130	
Toluene	2.00	2.06	103	70-130	
trans-1,2-Dichloroethene	2.00	2.04	102	70-130	
1,2,4-Trichlorobenzene	2.00	2.42	121	60-140	
1,1,1-Trichloroethane	2.00	2.03	101	70-130	
1,1,2-Trichloroethane	2.00	2.04	102	70-130	
Trichloroethene	2.00	2.07	104	70-130	
1,2,3-Trimethylbenzene	2.00	1.63	82	70-130	
1,2,4-Trimethylbenzene	2.00	2.29	115	70-130	
1,3,5-Trimethylbenzene	2.00	2.54	127	70-130	
Vinyl chloride	2.00	1.99	99	70-130	
Xylenes, Total	6.00	6.19	103	70-130	

Column to be used to flag recovery and RPD values

FORM III TO 15 LL

FORM V
AIR - GC/MS VOA INSTRUMENT PERFORMANCE CHECK

Lab Name: TestAmerica Knoxville Job No.: 140-10792-1

SDG No.:

Lab File ID: RBFBC01.D BFB Injection Date: 03/01/2018

Instrument ID: MR BFB Injection Time: 10:28

Analysis Batch No.: 18444

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	19.0	
75	30.0 - 60.0 % of mass 95	54.9	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.9	
173	Less than 2.0 % of mass 174	0.2	(0.2) 1
174	50.0 - 120.00 % of mass 95	78.6	
175	5.0 - 9.0 % of mass 174	5.6	(7.2) 1
176	95.0 - 101.0 % of mass 174	76.5	(97.2) 1
177	5.0 - 9.0 % of mass 176	5.1	(6.6) 2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 140-18444/2	RCCVC01.D	03/01/2018	10:59
	LCS 140-18444/1002	RCCVC01-LCS.d	03/01/2018	10:59
	MB 140-18444/4	R500BC01.D	03/01/2018	13:19
SV-168-A-24	140-10792-1	RC01P101.D	03/01/2018	14:05
SV-095-A-24	140-10792-2	RC01P102.D	03/01/2018	14:52
SV-075-A-24	140-10792-3	RC01P103.D	03/01/2018	15:39
SV-178-MB-2	140-10792-4	RC01P104.D	03/01/2018	16:26
SV-180-MB-2	140-10792-5	RC01P105.D	03/01/2018	17:13
SV-179-MB-2	140-10792-6	RC01P106.D	03/01/2018	18:00
SV-181-MB-2	140-10792-7	RC01P107.D	03/01/2018	18:46
SV-182-MB-2	140-10792-8	RC01P108.D	03/01/2018	19:33
SV-184-MB-2	140-10792-9	RC01P109.D	03/01/2018	20:20
SV-187-MB-2	140-10792-10	RC01P110.D	03/01/2018	21:08
SV-186-MB-2	140-10792-11	RC01P111.D	03/01/2018	21:55
SV-185-MB-2	140-10792-12	RC01P112D.D	03/01/2018	22:42

Data File: \\ChromNA\Knoxville\ChromData\MR\20180226-7505.b\RBFBC01.D\MR_TO15.rslt\spectra.d
Injection Date: 01-Mar-2018 10:28:30
Spectrum: Tune Spec :Average 256-258(4.32-4.33) Bgrd 240(4.27)
Base Peak: 95.00
Minimum % Base Peak: 0
Number of Points: 157

m/z	Y	m/z	Y	m/z	Y	m/z	Y
29.00	335	69.00	122280	116.00	3914	156.00	228
30.00	88	70.00	9398	117.00	6218	157.00	2251
31.00	20528	71.00	268	118.00	4263	158.00	182
32.00	997	72.00	5716	119.00	5769	159.00	1204
33.00	5249	73.00	48992	120.00	370	160.00	182
34.00	22	74.00	202880	121.00	86	161.00	1318
35.00	50	75.00	606080	122.00	114	163.00	39
36.00	7574	76.00	50272	123.00	355	166.00	61
37.00	41816	77.00	5669	124.00	735	167.00	87
38.00	37312	78.00	2036	125.00	332	168.00	48
39.00	15378	79.00	31712	126.00	591	169.00	34
40.00	570	80.00	10903	127.00	269	171.00	168
41.00	211	81.00	32312	128.00	4017	172.00	2007
42.00	44	82.00	8255	129.00	2241	173.00	2031
43.00	461	83.00	712	130.00	3918	174.00	868672
44.00	5239	84.00	133	131.00	1714	175.00	62344
45.00	7791	86.00	871	132.00	240	176.00	844736
46.00	849	87.00	30192	133.00	2	177.00	55888
47.00	6468	88.00	28808	134.00	216	178.00	1603
48.00	6373	90.00	60	135.00	1879	181.00	55
49.00	42128	91.00	3627	136.00	348	182.00	43
50.00	209472	92.00	33600	137.00	1862	191.00	88
51.00	62192	93.00	50392	138.00	79	193.00	3
52.00	2776	94.00	131072	139.00	408	198.00	42
53.00	410	95.00	1104896	140.00	918	201.00	75
54.00	198	96.00	76392	141.00	11447	203.00	42
55.00	2747	97.00	2330	142.00	1335	204.00	39
56.00	15643	103.00	442	143.00	12564	207.00	64
57.00	29920	104.00	4618	144.00	714	210.00	64
58.00	1258	105.00	1594	145.00	1095	217.00	80
59.00	97	106.00	4646	146.00	1376	218.00	95
60.00	9640	107.00	1051	147.00	510	219.00	106
61.00	52776	108.00	249	148.00	2786	235.00	49

Report Date: 01-Mar-2018 14:42:02 Chrom Revision: 2.2 08-Feb-2018 13:38:42
Data File: \\ChromNA\Knoxville\ChromData\MR\20180226-7505.b\RBFBC01.D\MR_TO15.rslt\spectra.d
Injection Date: 01-Mar-2018 10:28:30
Spectrum: Tune Spec :Average 256-258(4.32-4.33) Bgrd 240(4.27)
Base Peak: 95.00
Minimum % Base Peak: 0
Number of Points: 157

m/z	Y	m/z	Y	m/z	Y	m/z	Y
62.00	51912	109.00	205	149.00	708	250.00	136
63.00	41856	110.00	758	150.00	1133	251.00	34
64.00	4199	111.00	902	151.00	166	253.00	66
65.00	1912	112.00	902	152.00	529	254.00	43
66.00	454	113.00	880	153.00	674		
67.00	2882	114.00	52	154.00	575		
68.00	120576	115.00	1105	155.00	2964		

TestAmerica Knoxville
Recovery Report

Data File:	\\ChromNA\Knoxville\ChromData\MR\20180226-7505.b\RC01P101.D				
Lims ID:	140-10792-A-1				
Client ID:	SV-168-A-24				
Sample Type:	Client				
Inject. Date:	01-Mar-2018 14:05:30	ALS Bottle#:	1	Worklist Smp#:	5
Purge Vol:	500.000 mL	Dil. Factor:	1.0000		
Sample Info:	140-0007505-005				
Misc. Info.:	140-10792-a-1				
Operator ID:		Instrument ID:	MR		
Method:	\\ChromNA\Knoxville\ChromData\MR\20180226-7505.b\MR_TO15.m				
Limit Group:	MSA TO14A_15 Routine ICAL				
Last Update:	01-Mar-2018 14:41:54	Calib Date:	30-Jan-2018 19:38:30		
Integrator:	RTE	ID Type:	Deconvolution ID		
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Knoxville\ChromData\MR\20180129-7236.b\RA30IC10.D				
Column 1 :	RTX-5 (0.32 mm)		Det: MS SCAN		
Process Host:	XAWRK007				

First Level Reviewer: tajh Date: 01-Mar-2018 14:41:54

Compound	Amount Added	Amount Recovered	% Rec.
$ 4 4-Bromofluorobenzene (Surr)	4.00	4.04	100.92

Appendix C-1
Sub-Slab Soil Vapor Sample Results-
February 2018, Block I Maintenance Building
Lockheed Martin Middle River Complex. Middle River, Maryland

LOCATION	SV-178	SV-179	SV-180	SV-181	SV-182	SV-184	SV-185	SV-186	SV-187
SAMPLE ID	SV-178-MB-2	SV-179-MB-2	SV-180-MB-2	SV-181-MB-2	SV-182-MB-2	SV-184-MB-2	SV-185-MB-2	SV-186-MB-2	SV-187-MB-2
SAMPLE DATE	20180221	20180221	20180221	20180221	20180221	20180221	20180221	20180221	20180221
Volatile organic compounds (µg/m³)									
1,1,1-TRICHLOROETHANE	1 J	0.33 U	0.46 J	28	59	0.4 J	5.8	0.33 U	1.3 J
1,1,2-TRICHLOROETHANE	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U
1,1-DICHLOROETHANE	0.33 J	44	0.2 U	610	1500	0.75 J	48	1.6 J	1.4 J
1,1-DICHLOROETHENE	0.28 U	1.8	0.28 U	53	49	0.28 U	7.2	0.28 U	0.28 U
1,2,3-TRIMETHYLBENZENE	0.84 U	0.84 U	0.84 U	0.84 U	0.84 U	0.84 U	0.84 U	0.84 U	0.84 U
1,2,4-TRICHLOROBENZENE	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
1,2,4-TRIMETHYLBENZENE	2.1	1.6 J	1.7 J	1.8 J	1.8 J	1.7 J	1.7 J	1.7 J	2
1,2-DICHLOROETHANE	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
1,3,5-TRIMETHYLBENZENE	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U
BENZENE	0.37 J	0.37 U	0.51 J	0.53 J	0.81 J	0.37 U	0.79 J	0.9 J	0.64 J
CARBON TETRACHLORIDE	0.56 J	0.47 U	0.51 J	0.47 U	0.47 U	0.47 U	0.52 J	0.5 J	3.6
CHLORODIFLUOROMETHANE	1.3 J	1.1 J	1.2 J	1.2 J	1 J	1.1 J	1.1 J	1 J	1 J
CHLOROFORM	0.37 U	0.37 U	0.37 U	0.37 U	0.58 J	0.37 U	0.55 J	0.37 U	0.37 U
CIS-1,2-DICHLOROETHENE	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U
DICHLORODIFLUOROMETHANE	2.1	2	1.7 J	2.1	1.8 J	2	1.9 J	1.9 J	1.9 J
ETHYLBENZENE	0.93 J	0.84 J	1.3 J	0.89 J	1.1 J	0.77 J	1.1 J	1.4 J	0.94 J
METHYL TERT-BUTYL ETHER	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
METHYLENE CHLORIDE	2.3 J	2.3 J	2.4 J	3.7	2.8 J	2.3 J	8	6.2	2.5 J
NAPHTHALENE	1.3	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
TETRACHLOROETHENE	0.54 U	0.54 U	0.54 U	0.54 U	17	0.54 U	39	13	0.7 J
TOLUENE	3.5	3	4.4	3.5	4.2	3	6.2	6.5	4.7
TOTAL XYLENES	5.3	4.8	7.2	5.3	6.4	4.6	6.4	7.2	6.2
TRANS-1,2-DICHLOROETHENE	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
TRICHLOROETHENE	0.38 U	0.38 U	0.38 U	0.38 U	1.5	0.38 U	2	0.38 U	0.38 U
VINYL CHLORIDE	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U

Notes: All sample concentrations are in micrograms per cubic meter (µg/m³)
J = estimated value
U = nondetect