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October 17, 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 Groundwater Leachate Management
Block I Flow Testing and Additional Sump Sampling Report
Lockheed Martin Corporation; Middle River Complex
2323 Eastern Boulevard, Middle River, Baltimore County, Maryland

Dear Mr. Carroll:

For your review, please find enclosed two hard copies with a CD of the above-referenced document. This report documents field activities related to the ongoing investigation of trichloroethene (TCE) periodically measured in some of the Building "A" basement sumps in Tax Block I at Lockheed Martin's Middle River Complex in Middle River, Maryland.

If possible, we respectfully request to receive MDE's document review comments or approval by November 30, 2018. I am available for your questions; my office phone is (301) 548-2209.

Sincerely,

Thomas D. Blackman
Project Lead, Environmental Remediation

cc: (via email without enclosure)
Gary Schold, MDE
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GROUNDWATER LEACHATE MANAGEMENT BLOCK I FLOW TESTING AND ADDITIONAL SUMP SAMPLING REPORT LOCKHEED MARTIN MIDDLE RIVER COMPLEX 2323 EASTERN BOULEVARD MIDDLE RIVER, MARYLAND

Prepared for:
Lockheed Martin Corporation

Prepared by:
Tetra Tech, Inc.

October 2018

Revision: 0

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ACRONYMS AND ABBREVIATIONS

ESH	environment, safety and health
GC	gas chromatograph
HASP	health and safety plan
HVAC	heating, ventilation, and air conditioning
IDW	investigation-derived waste
LMCPI	LMC Properties, Inc.
Lockheed Martin	Lockheed Martin Corporation
µg/L	microgram(s) per liter
mL	milliliter
MRAS	MRA Systems, Inc.
MRC	Middle River Complex
MS	mass spectrometer
PID	photoionization detector
PPE	personal protective equipment
PVC	polyvinyl chloride
QA	quality assurance
QC	quality control
S&S	S&S Technologies, Inc.
SSDS	sub-slab depressurization system
Tetra Tech	Tetra Tech, Inc.
TCE	trichloroethene
USEPA	United States Environmental Protection Agency
VOC(s)	volatile organic compounds

SECTION 1
INTRODUCTION

This report summarizes field activities related to the ongoing investigation of trichloroethene (TCE) present in the Building A basement sumps in Block I at the Middle River Complex (MRC) in Middle River, Maryland (Figure 1-1). The activities documented in this report include:

- a sump inspection documenting the condition of the pumps
- flow testing conducted in two sumps in the southern portion of Building A basement, to determine the volume of water being discharged from each individual sump back to Lift Station #5
- sampling of water in Building A basement sumps in which trichloroethene has previously been detected and sampling of water from a sump (not previously sampled) in the utility corridor between Building A basement and the Drop Hammer Building
- collecting a water sample from a sump in the northern part of the basement (to be used as a background sample)
- reassessing the existing trade study with data obtained from this study, and determining a constructible, cost-effective solution that effectively controls water and vapor accumulation in the sumps

Not all work specified in the work plan - *Groundwater Leachate Management Block I Flow Testing and Additional Sump Sampling Work Plan* (Tetra Tech), 2018b) could be performed because of conditions encountered during the program. Variations from the work plan are described in Section 3.2.4 (Summary of Variations from Work Plan).

A trade study (*Trade Study: Building A Basement Sumps* [Tetra Tech, 2017e]) was conducted to evaluate remedial alternatives to address water accumulation in Building A basement sumps; elevated trichloroethene concentrations have been detected in sump water and in indoor air above the sumps. These sumps were in the southern portion of the basement, adjacent to the former plating shop, where elevated trichloroethene concentrations have historically been detected (Figure 1-2) in sub-slab vapor samples. Three alternatives were considered to address the primary

sumps of concern (HRS5, HRS6, HRS7, SP1/SP1A) at the time the study was conducted: (1) permanently abandoning the sumps, (2) rerouting water into collection tanks for off-site disposal, along with vapor extraction, and (3) rerouting water through carbon treatment and then discharging it to Lift Station #5 for release to the sanitary sewer system, along with vapor extraction. In addition to the five primary sumps listed above, three other sumps (HRS3, HRS4, and the utility corridor sump) were considered when implementing certain alternatives; these sumps converge in the same drainage line as the other pumps, so drainage water from them would also be treated by passing through carbon or rerouted into a collection tank.

Trichloroethene in sump water contributes to two potential exposure pathways: (1) volatilization into indoor air of the Building A basement and the main floor of Building A (the latter through ductwork connecting the sumps to floor air vents on the main floor); and (2) release to the sanitary sewer via piping connecting the sumps to Lift Station #5 in Building A basement. Volatilization of trichloroethene to the main floor of Building A was eliminated by permanently covering all floor vents connected to the basement sump ductwork in October 2017 (Tetra Tech, 2018a). Volatilization from sump water to basement indoor air could be mitigated by connecting one or more sumps to the existing sub-slab depressurization system (SSDS). Assuming mitigation of the second exposure pathway is pursued (as historically, only low concentrations of trichloroethene have been detected in Lift Station #5), it could be accomplished by removing water from sumps with the highest levels of trichloroethene, and either (1) filling a storage tank and removing the water offsite, or (2) treating the water onsite via carbon filtration. Another alternative is abandoning certain sumps if they are deemed not essential to site operations.

Field work documented in this report includes a site inspection of all sumps and associated pumps, flow testing for two sumps (SP1/SP1A and the utility corridor), and sampling of sump water. Flow testing was conducted to determine sump water recharge, and to determine the volume of water discharged to Lift Station #5. Water samples collected from seven sumps (HRS3, HRS4, HRS6, HRS7, Lift Station #5 [LS5], SP1/SP1A, and the utility corridor sump) were analyzed for volatile organic compounds (VOCs) to determine the distribution of trichloroethene concentrations in sumps in the southern portion of the Building A basement. A water sample was also collected from HRS1, a sump in the northern end of the basement, to be used as a background sample. Given the

proximity of the sampled sumps to the former plating shop on the main floor of Building A, water samples were also analyzed for hexavalent chromium.

The information obtained from this investigation is provided to help develop the options for a mitigation strategy for controlling water accumulation in Building A basement sumps. This report is organized into the following sections: (1) Introduction, (2) Site Description and Background, (3) Investigation Approach and Methodology, (4) Results, (5) Summary and Conclusions, and (6) References. Tables and figures are at the end of the report body following Section 6.

SECTION 2
SITE DESCRIPTION AND BACKGROUND

This section presents a brief description of the infrastructure in Building A basement, along with a summary of previous investigations.

2.1 HISTORICAL HEATING AND SUMP DESCRIPTION

Historical records were researched to document subsurface infrastructure beneath the Building A main floor, beneath the Building A basement floor, and behind the eastern wall of Building A basement. Of particular interest, the infrastructure (i.e., air handlers, air ducts, air vents, and sumps) associated with the historical heating units that might be contributing to vapor migration into basement indoor air. Historical documents relating to Building A and its basement were reviewed to identify building infrastructure, elevations, utilities, and connections to nearby buildings. Historical as-built drawings indicated that the air-duct network running under the main floor of Building A connects to the large sumps beneath the Building A basement floor; these ducts were part of the historical Building A heating system (Tetra Tech, 2017b).

Several existing and former heater rooms are in the Building A basement, although none are currently used. The basement originally had 12 heater rooms, but these heaters and some of the room walls were removed when an alternative heating system was added to the main floor. Building A is 600 feet long, so each former heater room supplied air to approximately two structural-column widths (an approximately 50-foot span) of Building A. Each heater room included a large air handler that forced hot air through an underground tunnel network beneath the main floor of Building A. Although these air handlers are no longer in operation, some remain and might still connect to ducts, tunnels, and pipes that carry air to other parts of the building. For this reason, Tetra Tech performed a survey of floor vents on the main floor of Building A in July 2017. Trichloroethene (TCE) was detected in and above some vents with a hand-held field instrument (FROG 4000™ portable gas chromatograph/photoionization detector [GC/PID]), so the floor vents were permanently covered to eliminate this exposure pathway in October 2017 (Tetra Tech,

2017c). Figure 1-2 ("Building A Basement and Utility Infrastructure Plan") shows historical infrastructure connections in Building A, including the heater rooms, air-duct network, sumps, and Lift Station #5. Building columns are also shown on this figure for location references.

Currently, five heater rooms are intact and surrounded by walls, and contain active sumps, including:

- Heater Room A-1 (sump HRS1) between columns D4 and D5
- Heater Room A-3 (sump HRS2) between columns D8 and D9
- Heater Room A-5 (sump HRS3) between columns D16 and D17
- Heater Room A-6 (sump HRS4) between columns D19 and D20
- Heater Room A-11 (sump HRS6) between columns D29 and D30.

Each heater room contains a large, non-operating air handler with a sump underneath; the sumps were apparently intended to control water infiltration into the basement and prevent fouling of the previously operating air handlers (Figure 1-2). The air handlers are not currently operating, and there are no plans to operate them in the future.

Two former heater rooms and sumps no longer have the infrastructure in place (the walls and air handler have been removed); however, the rectangular sump associated with each remains in the basement floor:

- Heater Room A-9 (sump HRS5) between columns D26 and D27
- Heater Room A-12 (sump HRS7) south of column D31

The seven remaining heater-room sumps are connected to duct networks associated with the previous air-handler operation; this ductwork intersects the sumps with piping that extends up to the main floor of Building A. The ducts then connect to vents adjacent to columns. These ducts were probably associated with the air-return system for the former heating system.

Ancillary information obtained from site operations-personnel during previous construction projects indicates that a large "chamber" (approximately four feet wide by four feet long, and approximately 10 feet high) is connected to each sump behind the eastern wall of the basement

(e.g., under the main floor of Building A, which is slab-on-grade construction). This chamber is behind the basement sidewall and connects to a four-foot by four-foot air duct that runs easterly under the main floor of Building A. From this main duct, lateral ducts run in a north/south direction along the columns. Floor air vents associated with these air ducts (that were permanently covered with a vapor barrier and steel plates bolted to the floor in October 2017 [Tetra Tech, 2018a]) are at the base of many columns. These vents previously conducted heat to the main floor of Building A.

Some of the historical air-duct network has been filled with concrete, when a new foundation was poured and other construction work occurred in the past (e.g., the southern portion of Building A during recent installation of a freezer unit by MRA Systems, Inc. ["MRAS"]). Others have been filled with wood and other debris. No documentation was found specifically verifying which areas have been filled with concrete or other materials. Most importantly, no assessment of the integrity or effectiveness of these plugs has been made.

In addition, two cylindrical sumps (SP1/SP1A), just north of column D24 and not associated with the heater rooms, were reportedly used historically to control water infiltration into an adjacent pit housing a large piece of equipment; these sumps were later used to prevent groundwater infiltration into the basement. These sumps do not appear on the 1945 historical drawing (Figure 1-2), indicating that they were installed later. These sumps (SP1/SP1A) are inter-connected underground, and any water that accumulates within them is controlled by a pump in sump SP1. Another sump is in the utility corridor that connects Building A basement to the Drop Hammer Building. Based on the above ground piping network observed in the basement, these sumps appear to converge with the discharge line that runs into Lift Station #5.

Three other sumps (HRS1, HRS2, and the Boiler Room sump) north of Lift Station #5 have pipes that run underground and reportedly (via information obtained from on-site facilities personnel) converge before discharging into Lift Station #5. The connection was not observed during visual inspection of the sump; however, discussions with EMCOR (the on-site maintenance contractor) personnel indicate that the pipes converge and discharge below grade into the side of the sump, which is below the typical water level. Three separate lines discharge into Lift Station #5 from the eight sumps (HRS7, HRS6, HRS5, SP1, SP1A, HRS4, HRS3, and the utility corridor sump) south

of the lift station. Sumps HRS7, HRS6, HRS5, SP1, SP1A, and the utility corridor sump are all connected and converge into one pipe that discharges underground into the side of the Lift Station #5 sump, whereas the two sumps closest to Lift Station #5 (HRS3 and HRS4) discharge separately into Lift Station #5 with their own pipe.

Visual inspection of the sumps suggests that water accumulating in each basement sump was pumped back to Lift Station #5 through a network of steel and polyvinyl chloride (PVC) piping connected to the sump pump at each location. Over a two-month period (from February 24, 2017 to April 21, 2017), water levels were monitored in sumps HRS3, HRS5, HRS6, and HRS7 in the central and southern portions of the basement while monitoring sump pump operation. Observations and monitoring at that time indicated that water levels varied among individual sumps but remained fairly consistent within each sump. They did not appear to be affected by significant precipitation events or other factors.

Note that during the two-month observation period, HRS4 was the only pump that consistently operated. This pump operated often, as it is connected to a water line associated with the seal-lubrication system of the fire-water line. At no time during the two-month observation period did the pumps in sumps HRS5, HRS6, or HRS7 operate. Visual observations confirmed that none of these pumps are currently functional.

As stated earlier, water levels between sumps varied. For example, HRS5 and HRS7 consistently contained only a few inches of water, while the water level in HRS6 was consistently high (within 10 inches of the basement floor). Sump HRS4 has a pipe connected to an adjacent fire-water line that discharges into the sump (blow-off water is routed to the sump through the pipe); this caused water to empty into the sump during line testing. Regardless, the water levels within each sump remained consistent or in a state of equilibrium.

2.2 VAPOR AND SUMP INVESTIGATION FINDINGS

In March and April 2017, a gas-chromatograph/mass-spectrometer (GC/MS) electron-capture device was used to continuously monitor TCE concentrations within various infrastructure (including sumps and storm-drain lines) areas and breathing zones in the southern portion of the Building A basement. In addition, water samples were collected from many of these features and

analyzed for volatile organic compounds (VOCs). These floor features are consistent with basement areas that have historically exhibited the highest TCE levels (air, water, and portable GC/mass-spectrometer [MS]/PID sampling), predominantly in the areas around column D24 (SP1/SP1A) and column D26 (HRS5). TCE was detected in eight of 15 floor features, ranging from 0.70*J* to 5,100 micrograms per liter (µg/L), with the highest concentration (5,100 µg/L) detected in heater-room (A-9) sump HRS5 (Figure 2-1) (Tetra Tech, 2017a).

Two other sampling locations also exhibited elevated TCE concentrations (sumps SP1A [440 µg/L] and SP1 [160 µg/L]). These two sumps are thought to be connected underground (based on information obtained through conducting site interviews with the onsite maintenance contractor [EMCOR]), and were originally installed to mitigate water from a nearby pit that housed a piece of equipment (pump/compressor).

A sample of water collected directly from the lift station (LS5) had a low concentration (2.6 µg/L) of TCE (Figure 2-1). The conditions of Lift Station #5 are dynamic; various pipes discharge into it, including pipes carrying heating, ventilation, and air conditioning (HVAC) condensate water. Lubrication water for the valve associated with the fire-line pump system also appears to discharge into Lift Station #5 through sump HRS4 (heater room A-6).

Similar to the results of the recent continuous-air-monitoring survey and historical vapor and water sampling, sumps HRS5, HRS7, SP1, and SP1A exhibited the highest TCE levels in both vapor and water. Sump-water samples from SP1/SP1A and HRS5 were analyzed previously in spring 2016. Although TCE concentrations at these sump locations range from 420 µg/L to 5,100 µg/L, the TCE concentration detected at Lift Station #5 remained comparatively low (2.6 µg/L).

SECTION 3
INVESTIGATION APPROACH AND METHODOLOGY

The technical approach used for flow testing and water sampling is described in this section, as is the field methodology used for these activities. The scope of work associated with the field investigation included:

- conducting a sump inspection documenting the condition of the pumps
- conducting flow testing in two sumps (SP1/SP1A and the utility corridor sump) in the southern portion of Building A basement to determine the volume of water that is being discharged from each sump to Lift Station #5
- collecting water samples from sumps in Building A basement in which elevated trichloroethene (TCE) concentrations have previously been detected (during water sampling, portable gas chromatograph/photoionization detector [GC/PID] surveys, and continuous air monitor surveys), and from one sump (not previously sampled) in the utility corridor between Building A basement and the Drop Hammer Building
- collecting a background water sample from a sump (HRS1) in the northern portion of the basement

Results from this investigation were used to update the existing trade study (Tetra Tech, 2017e) and to determine a constructible, cost-effective solution that controls water and vapor accumulation in Building A basement sumps.

3.1 MOBILIZATION/DEMOBILIZATION

On March 28, 2018, Tetra Tech mobilized the required subcontractor (S&S Technologies, Inc. [S&S]) and Tetra Tech field personnel and equipment to the site for flow meter installation. In addition, a Tetra Tech field geologist mobilized to the site on March 28, 2018 to collect water samples from the sumps. One subsequent mobilization occurred on April 3, 2018, when Tetra Tech mobilized a vacuum truck and associated equipment, the required subcontractor (Clean Harbors), and Tetra Tech field personnel to the site to remove water from two basement sumps. Subsequent periodic mobilizations occurred over a two-month monitoring period (from March 28 to May 29,

2018) to document water levels in these sumps and to collect flow meter readings. Mobilization included:

- coordinating with Lockheed Martin Corporation (Lockheed Martin) and Middle River Complex (MRC) personnel (MRA Systems, Inc. [MRAS] and EMCOR) for access to the facility and Building A basement
- identifying an equipment laydown area
- coordinating with EMCOR to temporarily shut off the sump pumps to allow the installation of the flow meters in the discharge piping
- implementing a site-specific health and safety plan (HASP)
- managing investigation-derived waste (IDW)
- mobilizing subcontractors, equipment, and materials to the site

Demobilization activities included the following:

- demobilizing subcontractors, equipment, and materials from the site
- managing IDW

Tetra Tech provided notification and coordinated access arrangements through Lockheed Martin Security, EMCOR (site maintenance), and MRA Systems, Inc. (MRAS) to gain access to Building A basement. MRC tenants were informed and updated about the field investigation at LMC Properties, Inc. (LMCPI) bi-weekly meetings. New security procedures have recently been implemented that restrict basement access to hard-badged personnel only. The Tetra Tech project manager and field staff were hard-badged and provided subcontractor escort and entry to the basement. The work for this investigation was not intrusive, and therefore did not require executing the standard digging authorization form and risk handling checklist through EMCOR.

3.2 FIELD METHODOLOGY

3.2.1 Sump Pump Inspection

Before flow testing and water sampling activities began, Tetra Tech conducted a site visit on January 23, 2018 to inspect and test each individual sump pump in the southern portion of the Building A basement to determine if they are operational and working properly. Pumps were

visually observed and tested manually by raising their floats. A list of the sump pumps inspected, along with their operating condition, is in the table below. Sump locations are shown on Figure 3-1.

Sump	Sump pump condition
HRS1 (Heater Room A-1) Note: This sump is located in the northern part of the basement and outside of the target area (background sample).	Not operational
HRS3 (Heater Room A-5)	Not operational
HRS4 (Heater Room A-6)	Historically operational, but currently not operating; connected to fire line lubrication system
HRS5 (Heater Room A-9)	Sump covered and connected to sub-slab depressurization system (SSDS); pump not operating, due to either low water or broken pump
HRS6 (Heater Room A-11)	Not operational
HRS7 (Heater Room A-12)	Not operational; no power to outlet
SP1/SP1A	Operational
Utility corridor sump	Operational

The pump inspection indicated that although heater room sumps HRS3, HRS4, HRS5, HRS6, and HRS7 are connected to Lift Station #5 via polyvinyl chloride (PVC) discharge piping, no sump water is being pumped to the lift station because their associated pumps are not operational. The sump pump for SP1/SP1A is operational and consistently pumps discharged water to Lift Station #5. The utility corridor sump pump is also operational, but its pump is set inside a five-gallon bucket within a small bermed area. A few inches of water were observed in the bermed area, but no water was inside the bucket where the pump is housed. The utility corridor pump will not operate unless the water level within the bucket rises to the top.

3.2.2 Flow Testing in Building A Basement Sumps

On March 28, 2018, S&S installed two in-line flow meters in the discharge piping of two sumps (SP1/SP1A and the utility corridor sump), under the oversight of Tetra Tech. Flow meter locations are shown on Figure 3-1. The flow meters were placed to determine the volume of water being discharged from each sump to Lift Station #5. Flow meters were installed into discharge pipes

with associated pipe, fittings, and valves, as close as possible to each individual source area (sump). The flow meter for SP1/SP1A was installed in the vertical PVC pipe coming out of the sump and within a few feet of its pump, and the flow meter in the utility corridor sump was installed in the steel pipe just outside the utility corridor in the basement, approximately 40 feet from its pump.

Installation of additional flow meters in sumps HRS3, HRS4, HRS5, HRS6, and HRS7 was planned per the work plan (Tetra Tech, 2018b), but these meters were not placed because the pumps in these sumps were non-operational. Two sumps (HRS3 and HRS6) had a measurable volume of water and were evaluated by initially removing all water within the sumps via vacuum truck, and then manually monitoring water recharge over time.

Flow testing (March 28 to May 29, 2018) and manual monitoring (April 3 to May 29, 2018) were conducted for approximately 60 days. Flow readings were collected periodically, commensurate with the rate of recharge.

3.2.3 Sampling of Building A Basement Sumps

On March 28, 2018 Tetra Tech collected six grab samples (Table 3-1) from the following sumps located in the Building A basement: HRS3 (Heater Room A-5), HRS4 (Heater Room A-6), HRS6 (Heater Room A-11), HRS7 (Heater Room A-12), SP1/SP1A, and the utility corridor sump. A grab sample was also collected from Lift Station #5 and from a background sump (HRS1 in Heater Room A-1) in the northern portion of Building A basement. Water sample locations are presented on Figure 3-1. The eight water samples were analyzed for volatile organic compounds (VOCs) using SW846 Method 8260C and hexavalent chromium using Method 218.6. Samples were sent to an off-site laboratory (TestAmerica, North Canton, Ohio [for VOCs] and ALS, Middletown, Pennsylvania [for hexavalent chromium]) for analysis.

Water samples were collected as grab samples by lowering an unpreserved, plastic, laboratory-cleaned bottle and/or disposable dipstick device into the sump and retrieving the available standing water. The water was immediately decanted from the collection bottle into 40 milliliter vials preserved with hydrochloric acid for VOC analysis. The water for hexavalent chromium was passed through an in-line 0.45-micron filter prior to being placed into its plastic

sample container, which was pre-preserved with a buffer solution to adjust water pH to between 9-9.5 (as required by Method 218.6). Precautions were taken to minimize aeration and agitation of the (VOC) samples while decanting (the sample was transferred slowly without causing generation of air bubbles). Water samples were immediately placed on ice in a cooler and prepared for shipment to the laboratory. Water sampling log sheets are in Appendix A.

3.2.4 Summary of Variations from Work Plan

Based on the site inspection of the sumps in Building A basement that was conducted on January 23, 2018 following the submittal of the *Groundwater Leachate Management Block I Flow Testing and Additional Sump Sampling Work Plan* (Tetra Tech, 2018b), variations to the field procedures related to the flow meter testing and manual monitoring were incurred. According to the work plan, Tetra Tech was to attempt to perform flow testing in the sumps located in the southern portion of Building A basement to determine the volume of water that is being discharged from each individual sump back to Lift Station #5. These sumps included: heater room A-5/HRS3; heater room A-6/HRS4; heater room A-9/HRS5; heater room A-11/HRS6; heater room A-12/HRS7; SP1/SP1A; and the utility corridor connecting Building A basement to the Drop Hammer Building.

If sump pumps were found to be operational, permanent flow meters with associated pipe, fittings, and valves were to be installed in the associated discharge pipes as close as possible to each individual source area (sump). If pumps were not operational, sumps were to be monitored by initially removing all water via vacuum truck and then monitoring how much water re-enters the sump over time.

Based on the site inspection, only the sump pumps in sump SP1/SP1A and the utility corridor sump were found operational. The sump pumps for the remaining sumps (HRS3, HRS4, HRS5, HRS6, and HRS7) were not operational. Furthermore, a measurable volume of water was present only in sumps HRS3 (3 inches of water) and HRS6 (33 inches of water). Sump HRS4 did not have a measurable volume of water, and sump HRS5 is currently sealed and connected to the sub-slab depressurization system (SSDS) for the purpose of treating vapor, so the water level could not be determined. However, historically the water level in HRS5 has been no more than a couple of inches.

Based on this information, flow meters were only installed in the discharge piping for sump SP1/SP1A and the utility corridor, and water removal and manual monitoring were only conducted in sumps HRS3 and HRS6. EMCOR had purchased a new sump pump for sump HRS6, and the work plan stated Tetra Tech would attempt to coordinate the installation of the new sump pump immediately following the evacuation of the water by vacuum truck. The new sump pump was not installed; therefore, Tetra Tech manually monitored the recovery of the water in the sump.

3.3 INVESTIGATION-DERIVED WASTE

Investigation–derived waste (IDW), consisting of unpreserved plastic bottles, PVC and steel pipe fragments and personal protective equipment (PPE), were generated during the field program. All PPE IDW generated was placed in trash bags, double bagged and disposed of in a facility trash receptacle designated by Lockheed Martin personnel. No drummed waste was generated during flow testing or water sampling. A vacuum truck was used to remove the water from the two sumps before flow testing began. The water was characterized, classified as nonhazardous waste, and was disposed of under an existing waste profile, in accordance with applicable state and federal regulations and the *2017 MRC Investigation-Derived Waste Management Plan* (Tetra Tech, 2017d). Tetra Tech provided oversight of the water removal and transportation, including coordinating the signature of a Lockheed Martin representative. IDW documentation, including the signed waste profile and bill of lading, are presented in Appendix B.

3.4 SAMPLE NOMENCLATURE

Each water sample collected during the investigation was identified with a unique sample identification tag consisting of the sample type (i.e., WS for water sample), followed by the sump designation (i.e., HRS7 for heater room sump 7), followed by the building designation (i.e., A for Building A) and followed by the date of the sample. For example, a water sample collected from Heater Room sump 7 (HRS7) on March 28, 2018 was identified as "WS-HRS7-A-032818." Trip blanks were also collected and labeled using the sample date, for example a trip blank packaged with samples on March 28, 2018 was labeled TB-032818.

3.5 DOCUMENTATION

Sample documentation consisted of chain of custody reports and matrix-specific sampling log sheets. Information about the sump water sampling were recorded on field sheets, and included sample identification, depth of sample, date and time of sample, and the laboratory analysis. Field sheets completed for each March 2018 sump water sampling are in Appendix A. 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 as provided in the data validation report are in Appendix C.

3.6 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 water samples. These protocols demonstrate that the water samples were handled and transferred in a manner that would eliminate (or detect) possible tampering. Water sampling containers were released under signature from the laboratories and were accepted under signature by the sampler or individual responsible for maintaining custody until the sample containers were transferred to the sampling team.

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

3.7 LABORATORY ANALYSIS AND DATA VALIDATION

Tetra Tech collected eight water samples including one background sample from a sump located in the northern portion of Building A basement. In addition, one quality control sample (a trip blank only for VOCs) was collected for laboratory analysis. Tetra Tech used two laboratories accredited in the State of Maryland (TestAmerica, North Canton, Ohio and ALS, Middletown,

Pennsylvania) for the sample analyses. Water samples collected from the sumps were analyzed for the following parameters:

- VOCs by SW846 Method 8260C (TestAmerica)
- hexavalent chromium by USEPA Method 218.6 (ALS)

Samples for each analytical parameter were placed in a cooler containing ice immediately upon collection. One aqueous trip blank (TB-032818) was placed in the cooler used to store and ship the VOC samples before samples were collected; the trip blank accompanied the VOC samples throughout the day and was sent along with the samples to the laboratory. The trip blank was analyzed for VOCs by SW846 Method 8260C. No other quality assurance/quality control (QA/QC) samples were collected. Samples were analyzed on a standard turnaround of 21 calendar days.

Following receipt of the water analytical data, data were validated by an independent chemist in accordance with USEPA Region 3 protocols. Chemical data were supplied by the laboratories 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, are in Appendix C. 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, and appear on the chemical results tables in Section 4 and Appendix C:

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

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

UJ The analyte was not detected; however, the quantitation or detection limit may be inaccurate or imprecise.

SECTION 4
RESULTS

This section presents the results of the flow testing and water sampling activities in the Block I Building A basement at the Middle River Complex (MRC) located in Middle River, Maryland.

4.1 FLOW TESTING RESULTS

Flow was measured in four sumps by one of two methods: installation of in-line flow meters in the discharge piping (for sump SP1/SP1A and the utility corridor sump), and by manual measurements following water evacuation by vacuum truck (sumps HRS3 and HRS6). Flow testing (March 28 to May 29, 2018) and manual monitoring (April 3 to May 29, 2018) were conducted for approximately 60 days. Flow readings were collected periodically over the approximate 60-day duration, commensurate with the rate of recharge.

On March 28, 2018, S&S Technologies, Inc. (S&S), under the oversight of Tetra Tech, installed two in-line flow meters (McMaster-Carr model 9978K75) recording water flowing one-way from the discharge piping of sump SP1/SP1A and the utility corridor sump to Lift Station #5. The flow meters were read periodically over a two-month monitoring period. A summary of the flow meter readings for each sump is below:

SP1/SP1A sump- After nine days had elapsed, the flow meter registered slightly over 5,000 gallons, and after 48 days the meter indicated approximately 30,100 gallons had been pumped through discharge piping to Lift Station #5. Several significant rainstorms occurring during the second month of monitoring may have increased the volume of discharged water (22,840 gallons, as compared to 16,500 gallons during the first month). The total volume of water discharged from sump SP1/SP1A over the two-month monitoring period was 39,340 gallons.

Utility corridor sump- The flow meter in the utility corridor sump registered no flow after 48 days, although water was consistently observed on the floor of the utility corridor. This prompted the Tetra Tech field team to ask EMCOR to inspect the pump and verify it was operational. Inspection

of the pump revealed that the float on the pump was stuck, and it was repaired immediately. However, over the 12 days remaining in the two-month monitoring period, the meter registered only 2.1 gallons of flow. Further investigation of the sump indicated that its pump was housed inside a five-gallon bucket within a small bermed area; therefore, the pump would not operate unless the water level in the sump rose above the top of the bucket. This limits the amount of water discharged to Lift Station #5 from the utility corridor sump. Only a few inches of water were present in the bermed area at the bottom of the sump. Despite the presence of water often observed on the floor of the utility corridor, a significant volume of water does not appear to accumulate within this sump.

Non-operational sumps- Two non-operational sumps (HRS3 and HRS6) had a measurable volume of water within their sumps. They were evaluated by initially removing all water via vacuum truck, and then monitoring water recharge over time. On April 3, 2018, Clean Harbors used a vacuum truck to evacuate the standing water in sumps HRS3 and HRS6. Sump HRS3 contained approximately 2.5 inches of standing water (200 gallons), while sump HRS6 contained approximately 33 inches of standing water (1,700 gallons, with water within nine inches of the floor surface). Manual monitoring of water recharge was conducted over approximately 60 days, from April 3 to May 29, 2018.

Initial recharge rates in HRS3 were slow. After four hours, only a small amount of water (approximately 0.1 inches) had collected; however, recharge water may have been absorbed by the sediment in the bottom of the sump. After the two-month monitoring period, sump HRS3 was dry, with no measurable recharge of water.

Two hours after initial water removal, HRS6 had approximately two inches of water in the bottom of its sump. Two days later, the water level had risen to a depth of three inches. Subsequent water levels measured in HRS6 were 7.5 inches after 23 days, eight inches after 30 days, 11 inches after 42 days, and approximately 13 inches by the end of the two-month monitoring period.

These results indicate recharge in sumps HRS3 and HRS6 is relatively slow. After two months (and through multiple rainstorms), the water level in these sumps did not recharge to the levels

measured before initial water removal. This also indicates that significant precipitation does not affect the recharge rate into these two heater room sumps.

4.2 SUMP WATER SAMPLING RESULTS

Results of the sampling of seven sumps for VOC and hexavalent chromium analysis are shown on Figure 4-1. Validated data were used to generate a statistical summary table (Table 4-1) and a detection (only) table (Table 4-2) summarizing positive detections of chemical analytes in the water samples. Table 4-1 lists chemicals detected in the water samples and does not include analytes that were not detected in any sample. Table 4-2 shows the detected analyte concentrations screened against current Maryland Department of the Environment (MDE) groundwater standards (MDE, 2008). Full analytical results are presented in Appendix C.

Trichloroethene (TCE) was detected in six of eight sump water samples, at concentrations ranging from 2.3 to 160 micrograms per liter (µg/L), with the highest detection in sump SP1/SP1A. TCE concentrations in three sumps exceeded MDE groundwater standard (5 µg/L) including HRS7 (130 µg/L), SP1/SP1A (160 µg/L) and the utility corridor sumps (53 µg/L). 1,1-Dichloroethene (1,1-DCE) was detected in three of eight samples, at concentrations ranging from 3.8 to 48 µg/L, with the highest concentration also detected at SP1/SP1A. 1,1-DCE concentrations in two sumps (HRS7 and SP1/SP1A) exceeded the MDE groundwater standard (7 µg/L) at concentrations of 21 µg/L and 48 µg/L, respectively. No other VOCs exceeded their MDE groundwater standard. Other detected chlorinated VOCs of interest include: *cis*-1,2-dichloroethene (*cis*-1,2-DCE) in four of eight samples (ranging from 1*J* to 11 µg/L), and chloroform in three of eight samples (ranging from 067*J* to 15 µg/L), both with their highest detected concentrations at Lift Station #5 (WS-LS5-A). No VOCs were detected at the background sampling location (HRS1) or at HRS3 (Heater Room A-5).

Hexavalent chromium was detected in six of eight sump water samples, at concentrations ranging from 0.84 µg/L to 660 µg/L, with the highest detections at HRS4 (660 µg/L, above the MDE groundwater standard of 600 µg/L) and HRS6 (106 µg/L). The other four detections were between 0.84 and 19 µg/L, with 1.2 µg/L detected at the background sampling location (HRS1).

SECTION 5
SUMMARY AND CONCLUSIONS

This section includes a summary of results obtained from this investigation, and an update of mitigation alternatives previously assessed (in the trade study [Tetra Tech, 2017e]) to address trichloroethene-impacted water and vapor accumulating in affected sumps in the southern portion of the Building A basement.

5.1 FLOW TESTING AND SUMP WATER SAMPLING

5.1.1 Flow Testing

Flow testing results indicate that approximately 40,000 gallons of water flowed through sump SP1/SP1A to Lift Station #5 over a two-month period. The flow meter in the utility corridor sump registered only 2.1 gallons of water over a two-month period, indicating that despite the presence of water on the floor of the corridor, a significant volume of water does not appear to accumulate in the sump. Two non-operational sumps (HRS3 and HRS6) contained a measurable volume of water. The standing water in these sumps was removed by vacuum truck, and recharge in each was monitored manually over the two-month period. Results indicated that recharge in sumps HRS3 and HRS6 is relatively slow. After two months (and through multiple rainstorms), the water level in these sumps did not recharge to the levels measured before initial water removal. This also indicates that significant precipitation does not affect the recharge rate into these two heater room sumps. No overflow occurred in these sumps, even after significant rainfall.

5.1.2 Sump Water Sampling

Despite the elevated trichloroethene concentrations detected above its Maryland Department of the Environment (MDE) groundwater standard of 5 micrograms per liter (µg/L) in sumps HRS7 (130 µg/L), SP1/SP1A (160 µg/L), and the utility corridor sump (53 µg/L), the trichloroethene concentration (2.3 µg/L) detected in Lift Station #5 was significantly lower. This Lift Station #5 trichloroethene concentration is similar to the concentration (2.6 µg/L) detected last year

(March 2017). 1,1-Dichloroethene (1,1-DCE) in two sumps (HRS7 and SP1/SP1A) exceeded the Maryland Department of the Environment groundwater standard (7 µg/L), with concentrations of 21 µg/L and 48 µg/L (respectively). No other volatiles exceeded their groundwater standards.

Hexavalent chromium was detected in six of eight sump water samples, at concentrations ranging from 0.84 µg/L to 660 µg/L, with the highest detections at HRS4 (660 µg/L, above the Maryland Department of the Environment groundwater standard of 600 µg/L) and HRS6 (106 µg/L). The slight exceedance of hexavalent chromium detected in HRS4 could potentially be explained by the proximity to former plating operations on the main floor of Building A.

The sump inspection determined that the pump in sumps SP1/SP1A was the only one in the target area (southern portion of Building A basement) that pumps a significant volume of water back to Lift Station #5, and subsequently the sanitary sewer system. The trichloroethene concentrations detected at SP1/SP1A during the last three sampling events were: 120 µg/L/2,700 µg/L in May 2016; 160 µg/L/440 µg/L in March 2017; and 160 µg/L[1] in March 2018. These concentrations are all two to three orders of magnitude higher than the trichloroethene concentrations (2.3 µg/L and 2.6 µg/L) detected in samples collected from Lift Station #5. It is possible that volatilization into the indoor air; or, dilution could be occurring at the lift station due to other water that is discharged to it. Various pipes discharge into the lift station, including those carrying heating, ventilation, and air conditioning (HVAC) condensate water. Volatilization, or this additional water, could be responsible for the apparent low concentration of trichloroethene concentrations detected at lift Station #5 when compared to the concentrations detected at the sumps.

Sampling of water at Lift Station #5 indicated low levels of volatile organic compounds (VOCs), including trichloroethene (TCE). If measures to control trichloroethene-impacted water in the basement are deemed to be necessary, then carbon treatment before discharge to Lift Station #5 (and subsequently, to the sanitary sewer) could be an effective long-term remedy.

[1] Based on information received from onsite maintenance personnel, sumps SP1 and SP1A are connected underground. Despite collecting separate samples from SP1 and SP1A during the previous sampling events conducted in May 2016 and March 2017, during the March 2018 sampling event, a sample was only collected from sump SP1.

5.2 TRADE STUDY REASSESSMENT

The trade study identified and evaluated several alternatives to address trichloroethene-impacted water and vapor accumulating in affected sumps (HRS5, HRS6, HRS7, SP1, and SP1A) in the Building A basement. A comparison of candidate alternatives was evaluated in the trade study, based on their relative cost, treatability of trichloroethene-impacted water and vapor, constructability, permit issues, maintenance requirements, and environmental impact (Tetra Tech, 2017e). The alternatives considered included:

- ALTERNATIVE 1: permanent abandonment of the sump (remove pump and associated piping and fill with concrete)
- ALTERNATIVE 2: rerouting water into a collection tank for subsequent removal, along with vapor extraction
- ALTERNATIVE 3: rerouting of the water through carbon treatment units before discharge into the sanitary sewer, along with vapor extraction

The trade study (Tetra Tech, 2017e) presented the three alternatives considered (above), and sought to determine a constructible, cost-effective solution that would effectively control water and vapor accumulation in the sumps, based on their relative advantages and disadvantages, and the relative cost of each alternative. Although Alternative 1 had the lowest construction cost (as it requires no future operation and maintenance), it posed the highest risk for environmental impact and treatability. Alternative 1 would not treat the trichloroethene-impacted water and vapor that might be diverted away from a concrete-filled sump to other infrastructure features and might cause similar issues elsewhere. Alternatives 2 and 3 had lower initial construction costs, but both included future operation and maintenance costs, due to water disposal and carbon change-outs. Operation and maintenance costs for Alternative 2 would also be sensitive to water infiltration rates that were quantified via recent flow-meter testing.

The use of the sump pumps in the Building A basement have varied over time. Historically, the sumps controlled water that accumulated in the pits housing air-handling systems and other equipment. However, most of these pumps are currently inactive. Some sumps (e.g., SP1/SP1A), were designed to control water infiltrating from beneath the basement floor and may also be important flood-control measures for the basement, so potential sump abandonment would need

to consider possible infiltration and flooding. However, through discussion with the onsite maintenance contractor (EMCOR), additional water evacuation measures (e.g., trash pumps and large diameter hoses) would likely be needed during a catastrophic water release in the basement, rather than relying on the small sumps and non-operational sump pumps currently in place in the basement.

Elevated trichloroethene concentrations detected in some sumps (most notably HRS5) likely from historical releases in the adjacent plating shop suggest that Alternative 1 (abandonment) would be the preferential mitigation alternative, although that would eliminate this sump as a collection point for trichloroethene-impacted water and vapor. Abandoning all basement sumps may be inadvisable, as some are likely needed to mitigate groundwater infiltration into the basement. Vapors from HRS5 are currently being pulled and treated by the Building A sub-slab depressurization system.

Thus, the preferred alternative varies for each sump. For example, sumps exhibiting the highest trichloroethene concentrations could be abandoned, and the remaining sumps could be addressed through carbon treatment or by a collection tank, both with vapor extraction. The most significant concern for using Alternative 1 (sump abandonment) at any sump is whether it could release vapor elsewhere in the basement or elsewhere. Air vents running from the basement to the main floor of Building A were sealed and tested for integrity during the trade study investigation (Tetra Tech, 2017), thereby eliminating that vapor intrusion pathway to the main floor of Building A.

Both Alternative 2 (collection tank) and Alternative 3 (carbon treatment) were considered in the trade study report (Tetra Tech, 2017). Sump SP1/SP1A produced approximately 40,000 gallons over a two-month monitoring period; that volume of water would require several vacuum truck removals per month. Both alternatives had similar construction costs, and the future operation and maintenance costs for Alternatives 2 (collection tank) and 3 (carbon treatment) were also similar. However, water handling and disposal costs associated with Alternative 2 would not be cost-effective over time, due to the large volume of water generated per month.

Alternative 3 may have permitting requirements, as water would be discharged into the sanitary-sewer system or could require a National Pollutant Discharge Elimination System

(NPDES)-type permit (Baltimore County Wastewater Discharge Permit). Implementation of Alternative 3 would potentially necessitate re-evaluation of the existing discharge permit, and could affect existing on-site operations and tenants. However, the benefit of implementing carbon treatment under Alternative 3 is that it is potentially more cost-effective for high-volume water removal from sump SP1/SP1A. The carbon units used in Alternative 3 could more easily handle an increased volume of water as compared to Alternative 2 (collection tank); costs associated with Alternative 2 are directly proportional to the volume of water generated.

Flow-testing and sampling results obtained during this investigation lead us to recommend consideration of a combination of select sump abandonment (Alternative 1) with potential carbon treatment (Alternative 3) as the most viable and cost-effective methods for mitigating trichloroethene-impacted sump water in the Building A basement. A summary of sump recommendations is presented in Table 5-1. Further investigation of permit requirements is necessary to determine if this alternative is feasible under an existing permit or if existing permits might need to be modified.

Trichloroethene concentrations detected in Lift Station #5 during two recent sampling events (2.6 micrograms per liter [µg/L] in March 2017, and 2.3 µg/L in March 2018) are low. Although elevated trichloroethene concentrations (up to 2,700 µg/L) have been historically detected in the southern basement area adjacent to the former plating shop, and in water samples from sump SP1/SP1A and the utility corridor sump, either volatilization or other water being discharged into Lift Station #5 (i.e., water from the sumps in the northern portion of the basement, and water from heating, ventilation, and air conditioning system operation) likely dilutes out these higher concentrations, resulting in much lower trichloroethene concentrations (below the screening levels) at Lift Station #5.

SECTION 6
REFERENCES

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FIGURES

LEGEND

STRUCTURE

BASEMENT LEVEL

FIGURE 1-1

SITE LOCATION MAP
BUILDING A AND BUILDING A BASEMENT

Lockheed Martin Middle River Complex
Middle River, Maryland

DATE MODIFIED: 09/22/17

CREATED BY: JEE

0 75 150 Feet

N

TETRA TECH

Map Document: (P:\GIS\Middle_River\MapDocs\MXD\bldg_a_site_layout.mxd)
09/22/17 -- JEE

PGH P:\GIS\MIDDLE_RIVER\MAPDOCS\MXD\BLDG_A_BASEMENT_UTILITIES.MXD 12/15/17 JEE

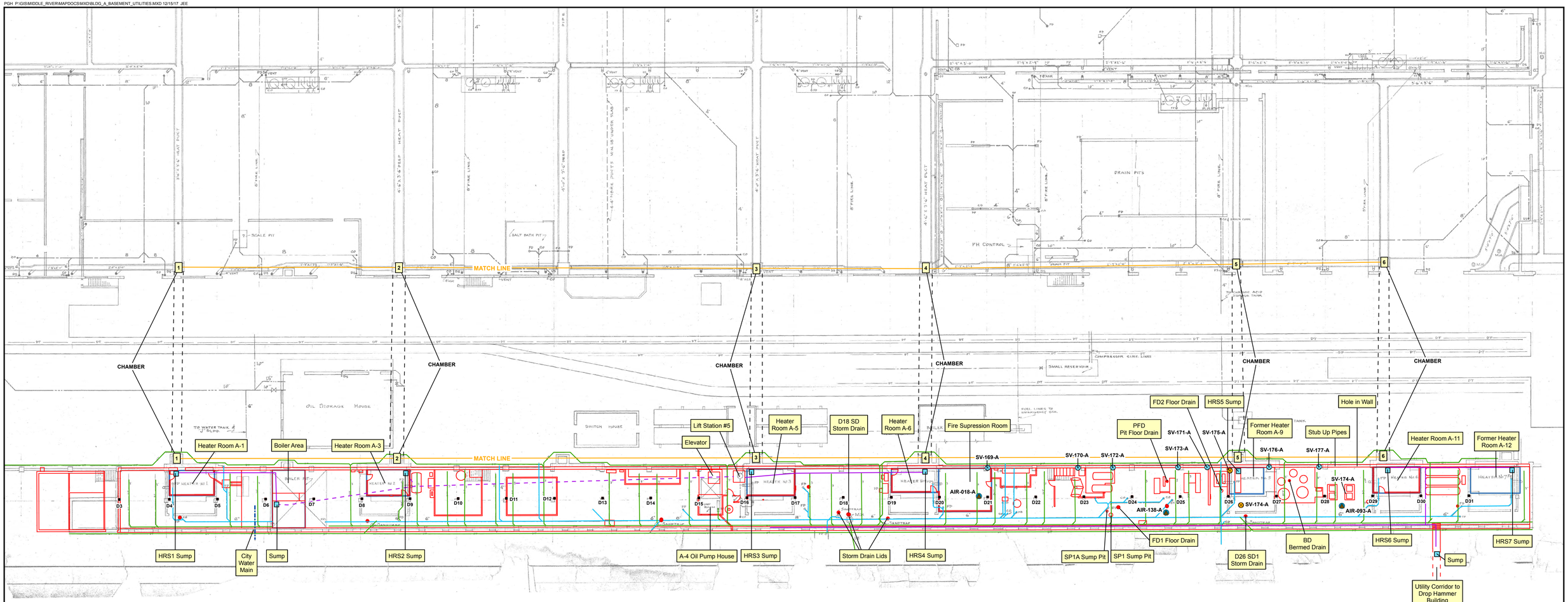


FIGURE 1-2

BUILDING A BASEMENT INFRASTRUCTURE AND UTILITY PLAN

LEGEND

- BASEMENT INTERIOR LAYOUT
- MATCH LINE
- VMPs THROUGH BUILDING A FLOOR
- VMPs THROUGH BUILDING A BASEMENT WALL
- EXISTING IAQ SAMPLE LOCATION
- SUMP
- SUMP PIT
- FLOOR DRAIN / LID
- BASEMENT COLUMN
- BUILDINGS A, B AND C GROUND FLOOR LAYOUT
- CITY WATER MAIN
- DRAIN TILE
- STORM SEWER
- SUMP DISCHARGE PIPING
- SUMP DISCHARGE PIPING, ESTIMATED (UNDERGROUND)
- HEATER ROOM FOOTPRINTS

Background drawing is an historic utilities drawing provided by Lockheed Martin Corporation.

Lockheed Martin Middle River Complex
Middle River, Maryland

0 12.5 25 Feet

N

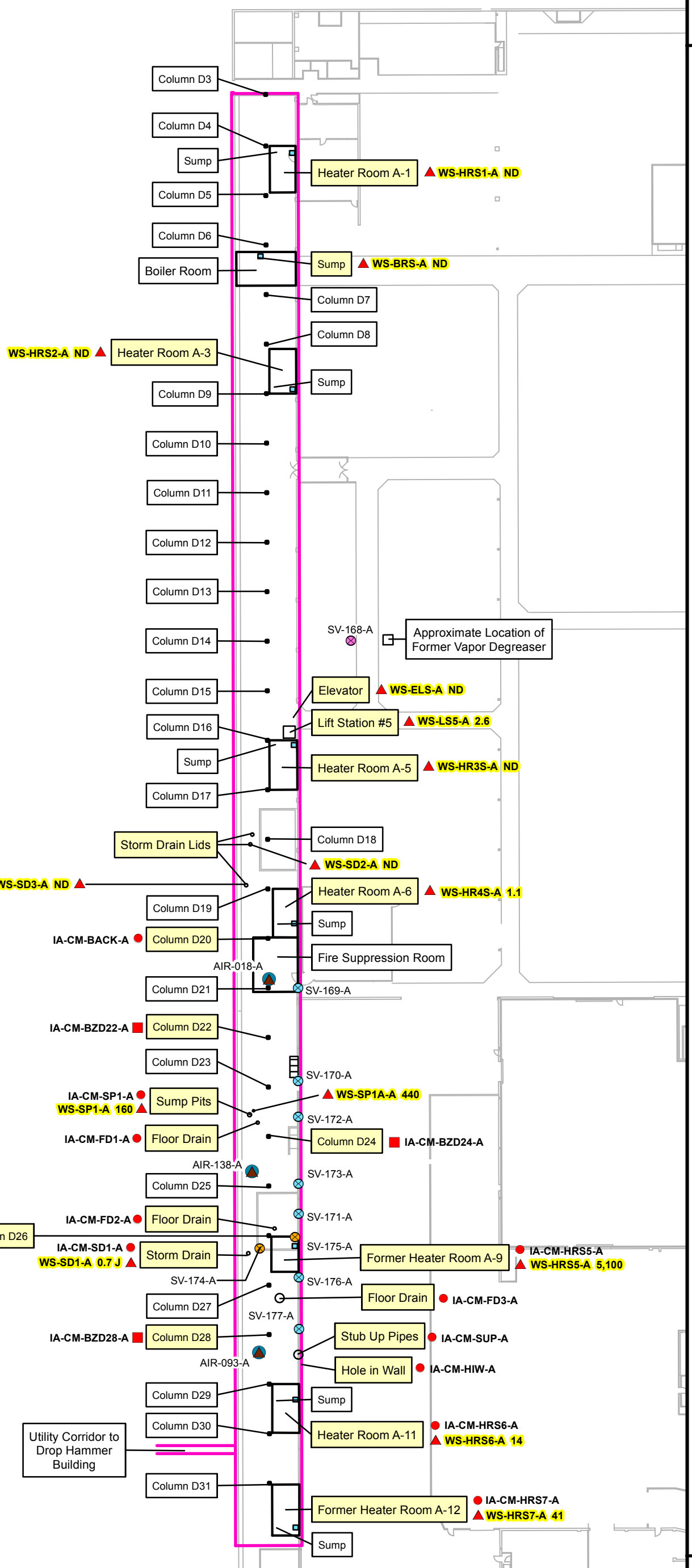
DATE MODIFIED: 12/15/17

CREATED BY: JEE

TETRA TECH

FIGURE 2-1

TCE CONCENTRATIONS IN WATER, 2017 BUILDING A BASEMENT



Legend

- Continous Air Monitoring Sample Location
- Water Sample Location
- Continuous Monitoring Breathing Zone Sample Location
- Building A Basement
- IAQ Basement
- VMPs through Building A Basement Floor
- VMPs on Building A Main Floor
- VMPs through Building A Basement Wall
- Basement Column
- Ground Floor Layout

ND - Not Detected

LOC Sample Location

BACK	Background
BRS	Boiler Room Sump
BZ	Breathing Zone
CM	Continuous Monitor
ELS	Elevator Shaft
FD	Floor Drain
HIW	Hole-In-Wall
HRS	Heater Room Sump
IA	Indoor Air
LS	Lift Station
SD	Storm Drain
SP	Sump
SUP	Stub-Up-Pipe
SV	Soil Vapor
WS	Water Sample

All results in micrograms per liter (ug/L).

N

0 27.5 55 Feet

Lockheed Martin Middle River Complex
Middle River, Maryland

DATE MODIFIED:	CREATED BY:
12/15/17	KM

TETRA TECH

TARGET STUDY AREA

Lift Station #5
HRS3 Sump
Heater Room A-5
Heater Room A-6
HRS4 Sump
HRS5 Sump
Former Heater Room A-9
HRS6 Sump
Heater Room A-11
Former Heater Room A-12

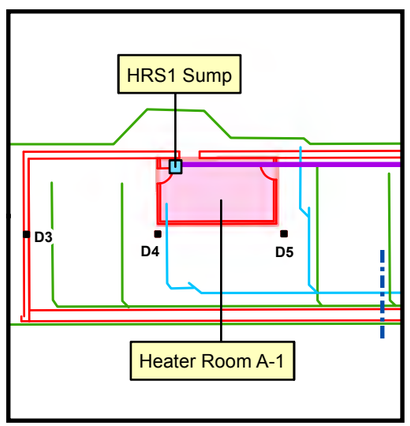
D15 D16 D17 D18 D19 D20 D21 D22 D23 D24 D25 D26 D27 D28 D29 D30 D31

Connects to Storm Drain Outside Building

SP1/SP1A Sump Pit
Flow Meter
Flow Meter
HRS7 Sump

Utility Corridor to Drop Hammer Building
Sump

LOCATED IN NORTH END OF BASEMENT



Notes:
1) Background sump water samples were collected from sump HRS1 in northern end of basement.
2) Flow meters were installed in discharge piping for sumps SP1 / SP1A and the utility corridor sump.

LEGEND

- BASEMENT INTERIOR LAYOUT
- SUMP
- STORM DRAIN LID
- BASEMENT COLUMN
- CITY WATER MAIN
- DRAIN TILE
- STORM SEWER
- SUMP DISCHARGE PIPING
- SUMP DISCHARGE PIPING, ESTIMATED (UNDERGROUND)
- HEATER ROOM FOOTPRINTS

FIGURE 3-1

SUMP WATER SAMPLING AND FLOW METER LOCATIONS BUILDING A BASEMENT

Lockheed Martin Middle River Complex
Middle River, Maryland

0 15 30 Feet

N

DATE MODIFIED: 07/17/18

CREATED BY: JEE

TETRA TECH

Map Document: (P:\GIS\Middle_River\MapDocs\MXD\bldg_a_basement_flow_meters_jun2018.mxd)
07/17/18 -- KM

TARGET STUDY AREA

WS-LS5-A-032818
VOLATILES (UG/L)
CHLOROFORM 15
TOLUENE 1.8
TRICHLOROETHENE 2.3
MISCELLANEOUS PARAMETERS (UG/L)
HEXAVALENT CHROMIUM 17.3

Heater Room A-5

Heater Room A-6

WS-HRS4-A-032818
VOLATILES (UG/L)
1,1-DICHLOROETHENE 3.8
CIS-1,2-DICHLOROETHENE 1.2
TRICHLOROETHENE 3.9
MISCELLANEOUS PARAMETERS (UG/L)
HEXAVALENT CHROMIUM 660

Former Heater Room A-9

HRS5 Sump

WS-HRS6-A-032818
VOLATILES (UG/L)
TRICHLOROETHENE 4.1
MISCELLANEOUS PARAMETERS (UG/L)
HEXAVALENT CHROMIUM 106

Heater Room A-11

Former Heater Room A-12

WS-HRS7-A-032818
VOLATILES (UG/L)

1,1,1-TRICHLOROETHANE	0.62	J
1,1-DICHLOROETHANE	2.3	
1,1-DICHLOROETHENE	21	
CHLOROFORM	0.93	J
CIS-1,2-DICHLOROETHENE	5.7	
TRANS-1,2-DICHLOROETHENE	0.32	J
TRICHLOROETHENE	130	

MISCELLANEOUS PARAMETERS (UG/L)
NO DETECTIONS

D15 D16 D17 D18 D19 D20 D21 D22 D23 D24 D25 D26 D27 D28 D29 D30 D31

WS-HRS3-A-032818
VOLATILES (UG/L)
NO DETECTIONS
MISCELLANEOUS PARAMETERS (UG/L)
HEXAVALENT CHROMIUM 19

Connects to Storm Drain Outside Building

WS-SP1/SP1A-A-032818
VOLATILES (UG/L)

1,1-DICHLOROETHANE	4.6	J
1,1-DICHLOROETHENE	48	
CIS-1,2-DICHLOROETHENE	11	
TRICHLOROETHENE	160	

MISCELLANEOUS PARAMETERS (UG/L)
NO DETECTIONS

WS-UTILITY-A-032818
VOLATILES (UG/L)

1,1-DICHLOROETHANE	0.55	J
CIS-1,2-DICHLOROETHENE	1	J
TRANS-1,2-DICHLOROETHENE	0.51	J
TRICHLOROETHENE	53	

MISCELLANEOUS PARAMETERS (UG/L)
HEXAVALENT CHROMIUM 0.84

Utility Corridor to Drop Hammer Building

WS-HRS1-A-032818
VOLATILES (UG/L)
NO DETECTIONS
MISCELLANEOUS PARAMETERS (UG/L)
HEXAVALENT CHROMIUM 1.2

D3 D4 D5

Heater Room A-1

LEGEND

- BASEMENT INTERIOR LAYOUT
- SUMP
- STORM DRAIN LID
- CITY WATER MAIN
- DRAIN TILE
- STORM SEWER
- SUMP DISCHARGE PIPING
- SUMP DISCHARGE PIPING, ESTIMATED (UNDERGROUND)
- HEATER ROOM FOOTPRINTS

J = ESTIMATED RESULT.
ALL RESULTS IN MICROGRAMS PER LITER (µg/L).

FIGURE 4-1

VOC AND HEXAVALENT CHROMIUM CONCENTRATIONS IN WATER, MARCH 2018 BUILDING A BASEMENT

Lockheed Martin Middle River Complex
Middle River, Maryland

0 15 30 Feet

N

DATE MODIFIED: 07/06/18

CREATED BY: JEE

TETRA TECH

Map Document: (P:\GIS\Middle_River\MapDocs\MXD\bldg_a_basement_voc_cr6_tags_jun2018.mxd)
07/06/18 -- JEE

TABLES

Table 3-1
Water Sampling Location Summary and Rationale, Building A Basement
Lockheed Martin Middle River Complex, Middle River, Maryland

Sample ID	Sample Location and Rationale
Sample Location	
WS-HRS1-A	Sump pit in Heater Room #1 in the northern portion of Building A basement to be used as a background sample upgradient from the target area of the basement.
WS-HRS3-A	Sump pit in Heater Room #3 to assess water conditions in sump where water infiltration in sump may be contributing to vapor intrusion of TCE in basement. TCE non-detect (ND) in 2017.
WS-HRS4-A	Sump pit in Heater Room #4 to assess water conditions in sump where water infiltration in sump may be contributing to vapor intrusion of TCE in basement. TCE detected at 1.1 µg/L in 2017.
WS-HRS6-A	Sump pit in Heater Room #6 to assess water conditions in sump where water infiltration in sump may be contributing to vapor intrusion of TCE in basement. TCE detected at 14 µg/L in 2017.
WS-HRS7-A	Sump pit in Heater Room #7 to assess water conditions in sump where water infiltration in sump may be contributing to vapor intrusion of TCE in basement. TCE detected at 41 µg/L in 2017.
WS-LS5-A	Lift Station #5 located just north of Column D16 against eastern wall of basement-convergence of groundwater that is pumped from all sumps in basement before being discharged into sanitary sewer where groundwater in sump may be contributing to vapor intrusion of TCE in basement. TCE detected at 2.6 µg/L TCE in 2017.
WS-SP1/SP1A-A	Sump pits just north of Column D24 (SP1 and SP1A-connected underground) to assess water conditions where water infiltration in sumps may be contributing to vapor intrusion of TCE in basement: TCE detected at 160 µg/L (SP1) and 440 µg/L (SP1A) in 2017.
WS-UC-A	Sump pit located in the utility corridor that connects Building A basement with the Drop Hammer Building. This sump had not been sampled previously.

µg/L - micrograms per liter
HRS - heater room sump
ND - nondetect
SP - sump pit
TCE - trichloroethene

Table 4-1
Statistical Summary of Analytes Detected in Sump Water Samples - March 2018
Building A Basement
Lockheed Martin Middle River Complex, Middle River, Maryland

Chemical	Frequency of Detection	Minimum Detected Concentratio	Maximum Detected Concentratio	Location of Maximum Detected	Sample of Maximum Detected Sample	Minimum Non-Detect Concentratio	Maximum Non-Detect Concentratio	Mean of Positive Detects	Mean of All Samples	Standard Deviation
Volatile organic compounds (µg/L)										
1,1,1-TRICHLOROETHANE	1/8	0.62 J	0.62 J	WS-HRS7	WS-HRS7-A-032818	0.23	1.2	0.62	0.248125	0.224911689
1,1-DICHLOROETHANE	3/8	0.55 J	4.6 J	WS-SP1/SP1A	WS-SP1/SP1A-A-032818	0.25	0.25	2.483333	1.009375	1.633572854
1,1-DICHLOROETHENE	3/8	3.8	48	WS-SP1/SP1A	WS-SP1/SP1A-A-032818	0.27	0.45	24.266666	9.195625	17.25062058
CHLOROFORM	3/8	0.67 J	15	WS-LS5-A	WS-LS5-A-032818	0.31	1.6	5.533333	2.265625	5.155150294
CIS-1,2-DICHLOROETHENE	4/8	1 J	11	WS-SP1/SP1A	WS-SP1/SP1A-A-032818	0.3	0.3	4.725	2.4375	3.936799824
TOLUENE	1/8	1.8	1.8	WS-LS5-A	WS-LS5-A-032818	0.23	1.2	1.8	0.395625	0.591616656
TRANS-1,2-DICHLOROETHENE	2/8	0.32 J	0.51 J	WS-UTILITY	WS-UTILITY-A-032818	0.29	1.5	0.415	0.288125	0.228659721
TRICHLOROETHENE	6/8	2.3	160	WS-SP1/SP1A	WS-SP1/SP1A-A-032818	0.33	0.33	58.883333	44.20375	65.15321759
Miscellaneous parameters (µg/L)										
HEXAVALENT CHROMIUM	6/8	0.84	660	WS-HRS4	WS-HRS4-A-032818	0.047	0.047	134.056666	100.548375	228.853862

All samples were collected on March 28, 2018.
J - positive result is estimated
µg/L - micrograms per liter

Associated Samples:
WS-HRS1-A-032818
WS-HRS3-A-032818
WS-HRS4-A-032818
WS-HRS6-A-032818
WS-HRS7-A-032818
WS-LS5-A-032818
WS-SP1/SP1A-A-032818
WS-UTILITY-A-032818

Table 4-2
Detected Analytes and Screening Level Exceedances, Sump Water Samples, March 2018
Lockheed Martin Middle River Complex. Middle River, Maryland

LOCATION SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard [1]	WS-HRS1 WS-HRS1-A- 20180328 SU	WS-HRS3 WS-HRS3- 20180328 SU	WS-HRS4 WS-HRS4- 20180328 SU	WS-HRS6 WS-HRS6- 20180328 SU	WS-HRS7 WS-HRS7- 20180328 SU	WS-LS5-A WS-LS5-A- 20180328 SU	WS- WS- 20180328 SU	WS-UTILITY WS-UTILITY-A- 20180328 SU
Volatile organic compounds (µg/L)									
1,1,1-TRICHLOROETHANE	**200**	--	--	--	--	0.62 J	--	--	--
1,1-DICHLOROETHANE	**90**	--	--	--	--	2.3	--	4.6 J	0.55 J
1,1-DICHLOROETHENE	**7**	--	--	3.8	--	21	--	48	--
CHLOROFORM	**80**	--	--	0.67 J	--	0.93 J	15	--	--
CIS-1,2-DICHLOROETHENE	**70**	--	--	1.2	--	5.7	--	11	1 J
TOLUENE	**1000**	--	--	--	--	--	1.8	--	--
TRANS-1,2-DICHLOROETHENE	**100**	--	--	--	--	0.32 J	--	--	0.51 J
TRICHLOROETHENE	**5**	--	--	3.9	4.1	130	2.3	160	53
Miscellaneous parameters (µg/L)									
HEXAVALENT CHROMIUM	**600**	1.2	19	660	106	--	17.3	--	0.84

Gray shaded results indicate the maximum contaminant level (a drinking water standard) is exceeded.

[1] Screening levels for all analytes except 1,4-dioxane are Maryland Department of the Environment (MDE) groundwater standards (MDE, 2008).

J - positive result is estimated

µg/L - micrograms per liter

Table 5-1
Sump Recommendation Summary
Building A Basement Sumps, Lockheed Martin, Middle River Complex

Alternative	Sumps in Target Area (Southern Area) of Building A Basement that have Exhibited Detections of TCE in Water (HRS5, HRS6, HRS7, SP1/SP1A and the utility corridor sump)
1: Permanently abandoning sumps[1,2]: Each sump would be filled with concrete following removal of sump pump and associated piping. Some sumps might also require installation of a plug or wall if not all of the surrounding structure is solid.	Sumps HRS5, HRS6 and HRS7 could be abandoned as water does not accumulate in the sumps and the sump pumps are currently not operational. Sump SP1/SP1A could not be abandoned as this sump is the main collection and discharge point back to Lift Station #5 for water accumulation under the basement floor. Notes: [1] Rerouting of fire-line connection would be required for sump HRS5 if abandoned. Piping is connected where water is discharged into sump during fire-line testing. [2] Abandonment of individual sumps would have to be approved by LMC Properties, Inc (LMCPI), EMCOR and MRA Systems, Inc. (MRAS). Select sumps may be needed to remain for future water mitigation in basement.
2: Rerouting water into collection tank and vapor extraction: Includes installation of collection tank(s) to temporarily store water in the basement before removing it off-site by vacuum truck.	This alternative is not applicable due to volume of water registered for sump SP1/SP1A during flow meter testing. Remaining sumps (HRS5, HRS6, HRS7, and utility corridor sump) do not produce a volume of water to warrant collection.
3: Rerouting water through carbon treatment and discharge to sanitary sewer and vapor extraction[3]: Includes installation of carbon units to treat water pumped from the sump(s) before being piped or discharged into Lift Station #5, and subsequently to the sanitary sewer system.	Based on the significant volume of water registered for sump SP1/SP1A during flow meter testing, carbon treatment would be the most viable, cost-effective treatment option. The additional sumps (HRS5, HRS6, HRS7, and utility corridor sump) do not produce a volume of water that would demand treatment. However, all of these sumps are connected to the same discharge line as SP1/SP1A, therefore, if carbon treatment is applied to the discharge line for SP1/SP1A it would by default also treat any potential water from the other sumps. Note: [3] Vapor extraction is currently being conducted at sump HRS5 and could be applied to sumps HRS6 and HRS7. Vapor extraction could not be applied to the utility corridor sump due to its design (open construction) or sump SP1/SP1A based on its location in the center of the basement walkway and the consistent high static water level.

APPENDICES

Appendix A— March 2018 Water Sample Log Sheets

Appendix B— Investigation-Derived Waste (IDW) Documentation

Appendix C— Data Validation Report and Chemical Data Table

APPENDIX A— MARCH 2018 WATER SAMPLE LOG SHEETS

Tetra Tech

SUMP WATER SAMPLE LOG SHEET

Project Site Name: Building A Basement Sump Sampling
Project No.: 112C08468

[] Stream
[] Spring
[] Pond
[] Lake
[X] Other: Sumps
[] QA Sample Type:

Sample ID No.: WS-HRS1-A-032818
Sample Location: Building A Basement MRC
Sampled By: J Mullis
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

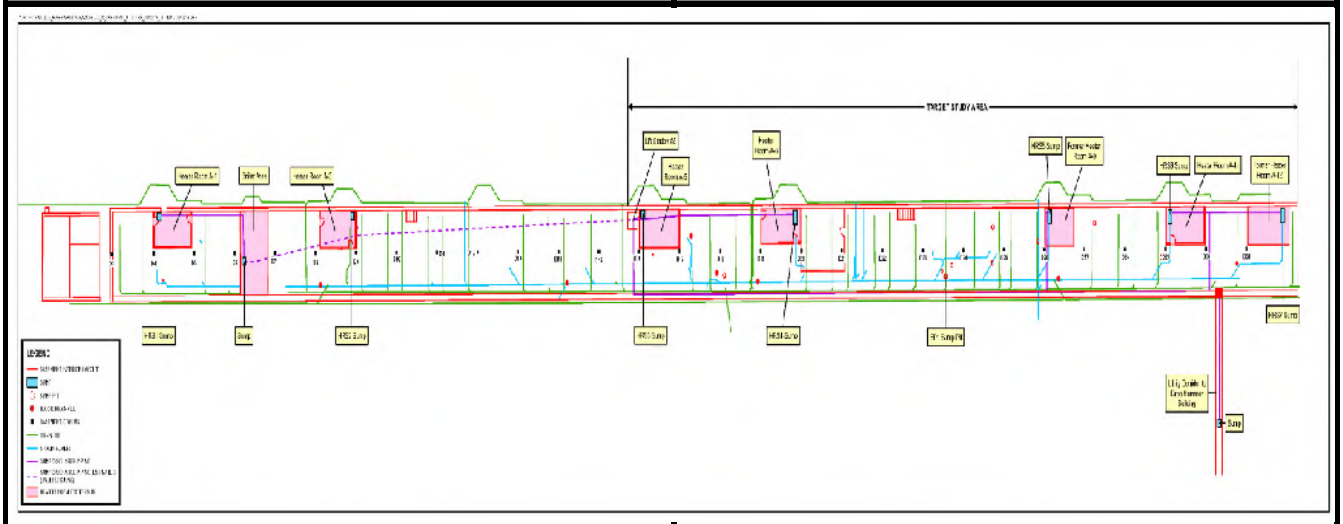
		Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date:	3/28/2018								
Time:	1105								
Depth:	2.5 ft								
Method:	grab								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 VOA vials	X
Hexavalent Chromium		250 mL poly	X

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech

SUMP WATER SAMPLE LOG SHEET

Project Site Name: Building A Basement Sump Sampling
Project No.: 112C08468

[] Stream
[] Spring
[] Pond
[] Lake
[X] Other: Sumps
[] QA Sample Type:

Sample ID No.: WS-HRS3-A-032818
Sample Location: Building A Basement MRC
Sampled By: J Mullis
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

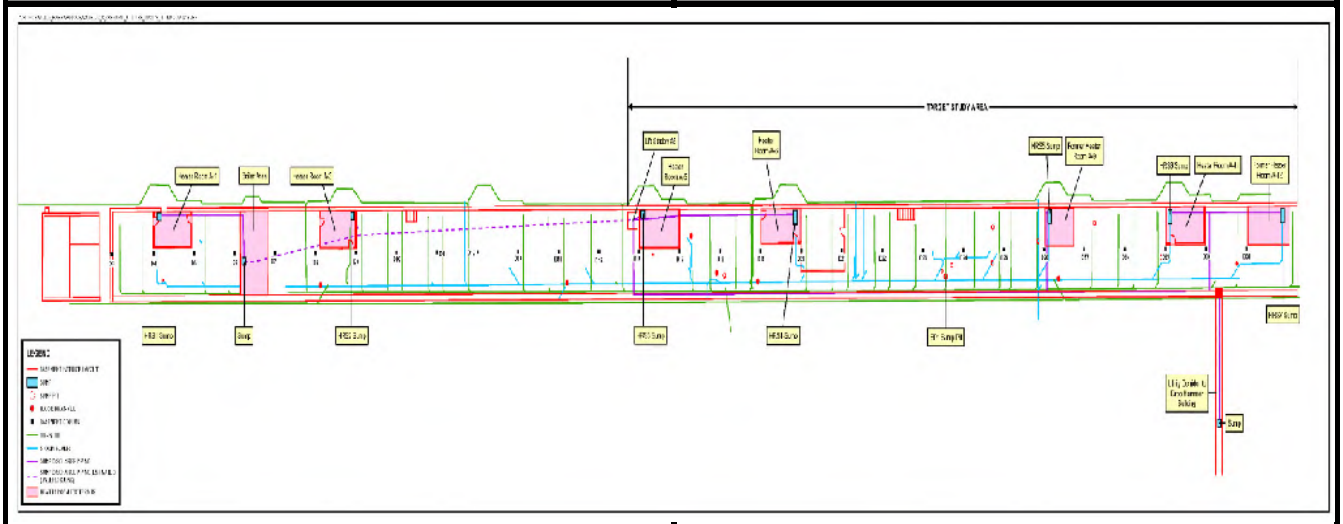
		Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date:	3/28/2018								
Time:	1043								
Depth:	2.5 ft								
Method:	grab								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 VOA vials	X
Hexavalent Chromium		250 mL poly	X

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech

SUMP WATER SAMPLE LOG SHEET

Project Site Name: Building A Basement Sump Sampling
Project No.: 112C08468

[] Stream
[] Spring
[] Pond
[] Lake
[X] Other: Sumps
[] QA Sample Type:

Sample ID No.: WS-HRS4-A-032818
Sample Location: Building A Basement MRC
Sampled By: J Mullis
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

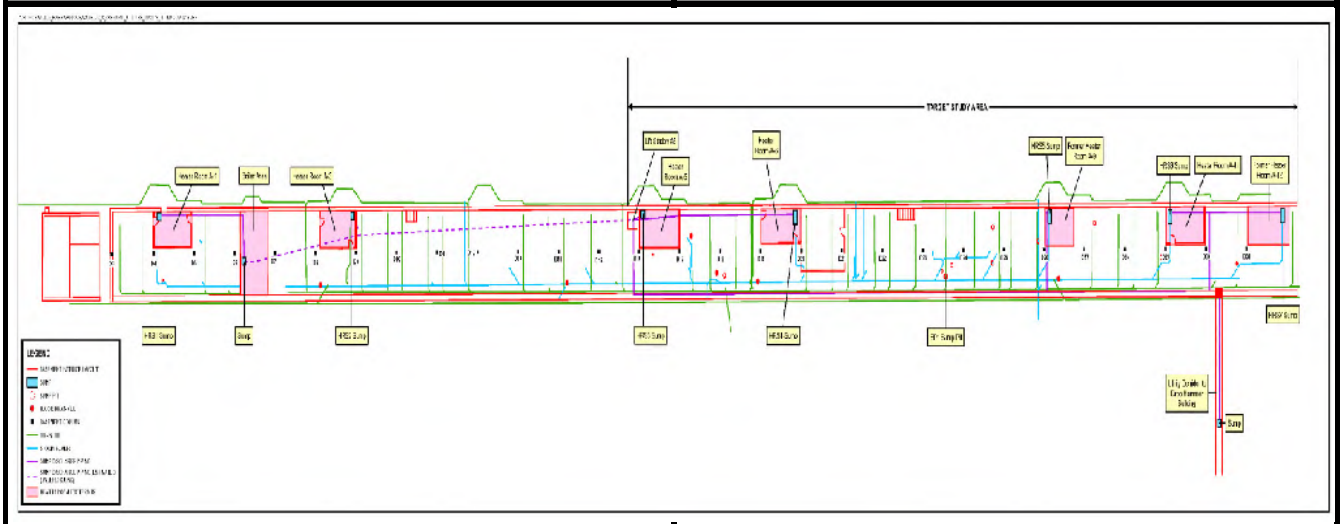
		Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date:	3/28/2018								
Time:	1040								
Depth:	2.5 ft								
Method:	grab								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 VOA vials	X
Hexavalent Chromium		250 mL poly	X

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech

SUMP WATER SAMPLE LOG SHEET

Project Site Name: Building A Basement Sump Sampling
Project No.: 112C08468

[] Stream
[] Spring
[] Pond
[] Lake
[X] Other: Sumps
[] QA Sample Type:

Sample ID No.: WS-HRS6-A-032818
Sample Location: Building A Basement MRC
Sampled By: J Mullis
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

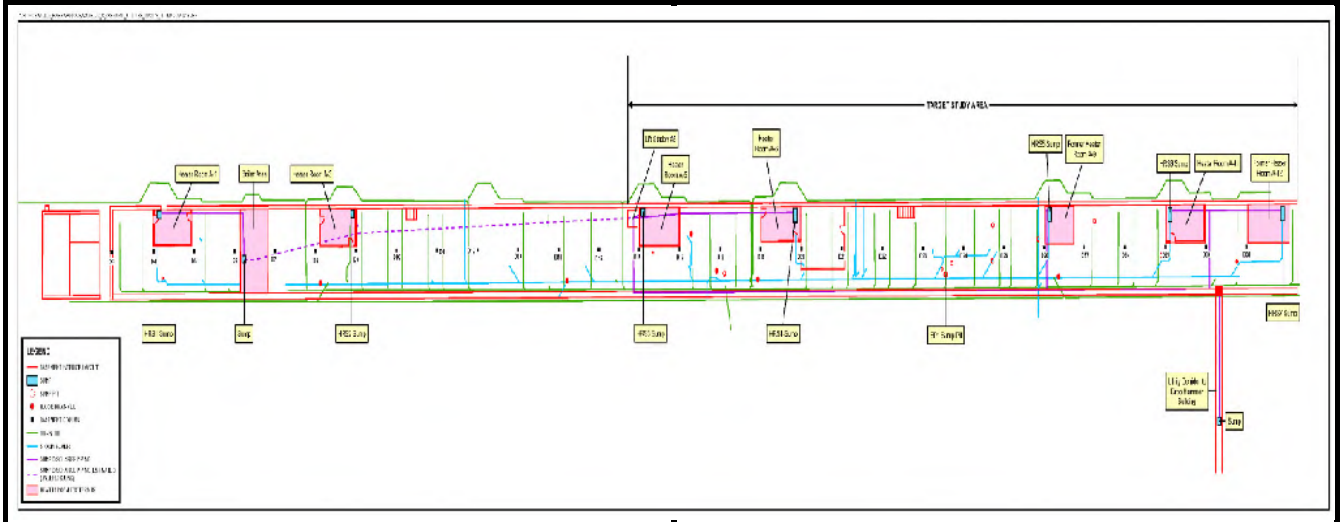
		Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date:	3/28/2018								
Time:	1010								
Depth:	2.5 ft								
Method:	grab								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 VOA vials	X
Hexavalent Chromium		250 mL poly	X

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech

SUMP WATER SAMPLE LOG SHEET

Project Site Name: Building A Basement Sump Sampling
Project No.: 112C08468

[] Stream
[] Spring
[] Pond
[] Lake
[X] Other: Sumps
[] QA Sample Type:

Sample ID No.: WS-HRS7-A-032818
Sample Location: Building A Basement MRC
Sampled By: J Mullis
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

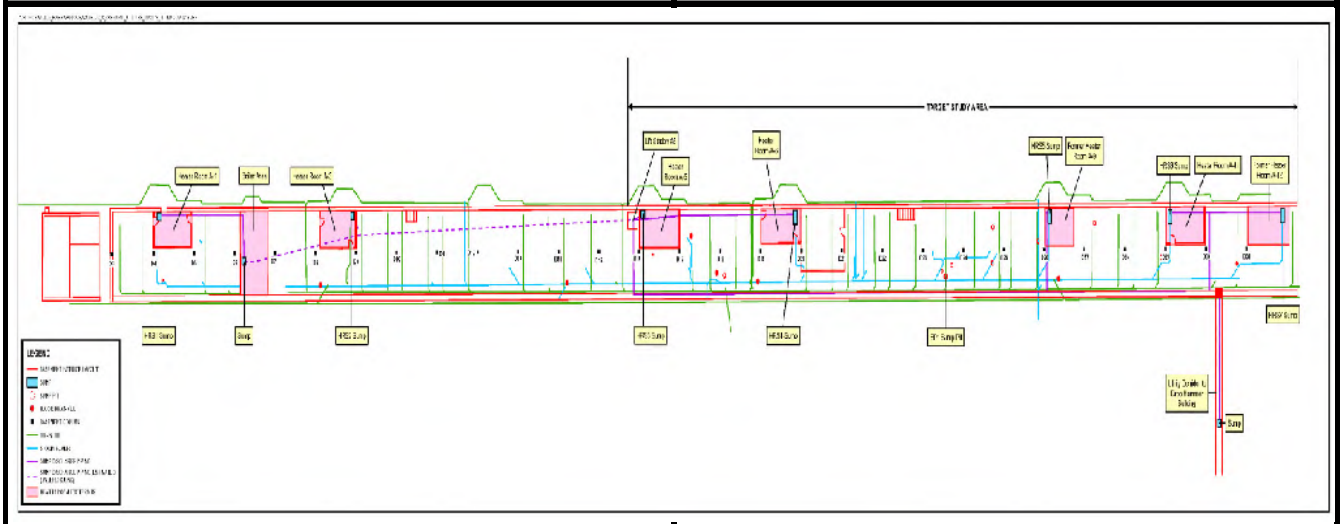
		Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date:	3/28/2018								
Time:	948								
Depth:	2.5 ft								
Method:	grab								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 VOA vials	X
Hexavalent Chromium		250 mL poly	X

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech

SUMP WATER SAMPLE LOG SHEET

Project Site Name: Building A Basement Sump Sampling
Project No.: 112C08468

[] Stream
[] Spring
[] Pond
[] Lake
[X] Other: Sumps
[] QA Sample Type:

Sample ID No.: WS-LS5-A-032818
Sample Location: Building A Basement MRC
Sampled By: J Mullis
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

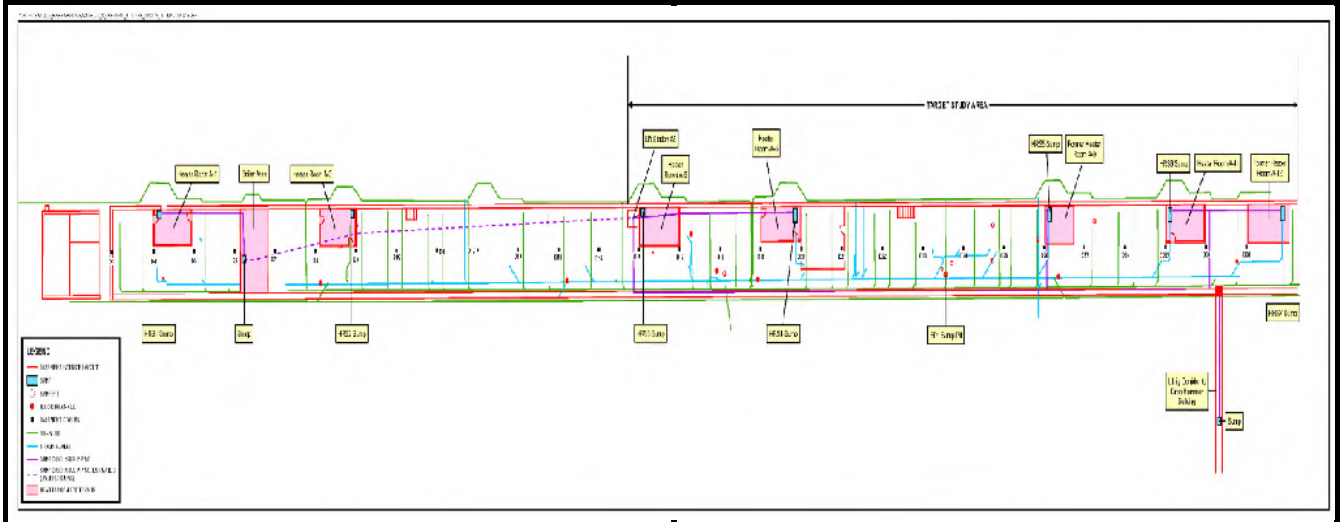
		Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date:	3/28/2018								
Time:	1055								
Depth:	2.5 ft								
Method:	grab								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 VOA vials	X
Hexavalent Chromium		250 mL poly	X

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech

SUMP WATER SAMPLE LOG SHEET

Project Site Name: Building A Basement Sump Sampling
Project No.: 112C08468

[] Stream
[] Spring
[] Pond
[] Lake
[X] Other: Sumps
[] QA Sample Type:

Sample ID No.: WS-SP1/SP1A-A-032818
Sample Location: Building A Basement MRC
Sampled By: J Mullis
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

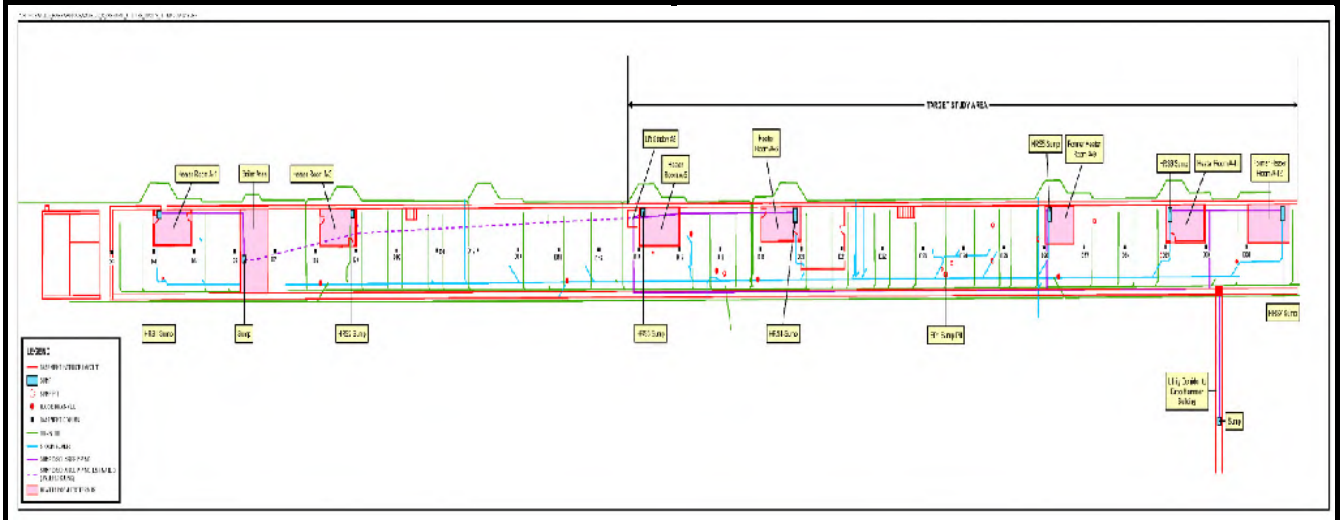
		Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date:	3/28/2018								
Time:	1105								
Depth:	3.5 ft								
Method:	grab								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 VOA vials	X
Hexavalent Chromium		250 mL poly	X

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech

SUMP WATER SAMPLE LOG SHEET

Project Site Name: Building A Basement Sump Sampling
Project No.: 112C08468

[] Stream
[] Spring
[] Pond
[] Lake
[X] Other: Sumps
[] QA Sample Type:

Sample ID No.: WS-UTILITY-A-032818
Sample Location: Building A Basement MRC
Sampled By: J Mullis
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

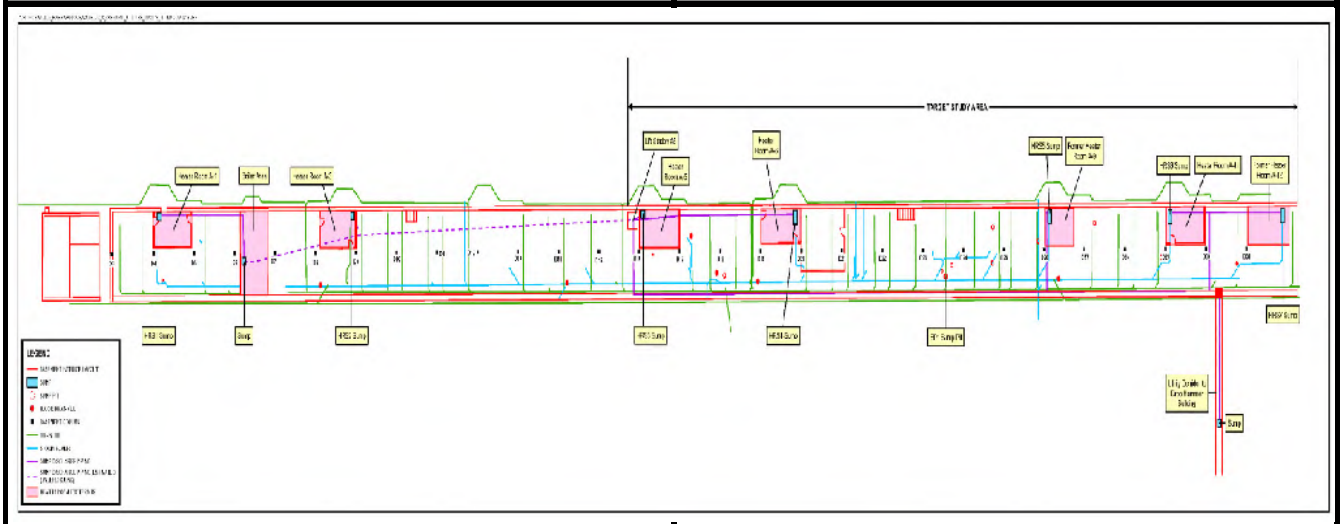
		Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date:	3/28/2018								
Time:	1105								
Depth:	6 inches								
Method:	grab								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 VOA vials	X
Hexavalent Chromium		250 mL poly	X

OBSERVATIONS / NOTES:

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

APPENDIX B— INVESTIGATION-DERIVED WASTE (IDW) DOCUMENTATION

Site Address: 195 Chesapeake Park Plaza Rd
Baltimore,MD 21220

SC PPW 10/10/2017

WORK ORDER NO. T1801229172-001

DOCUMENT NO. 006009 **STRAIGHT BILL OF LADING**

TRANSPORTER 1 Clean Harbors Environmental Services, Inc. **VEHICLE ID #** 55292

EPA ID # MAD039322250 **TRANS. 1 PHONE** (781) 792-5000

TRANSPORTER 2 _____ **VEHICLE ID #** _____

EPA ID # _____ **TRANS. 2 PHONE** _____

DESIGNATED FACILITY Clean Harbors of Baltimore Inc	**SHIPPER** Middle River Complex
FACILITY EPA ID # MDD980555189	**SHIPPER EPA ID #** MDR000524413
ADDRESS 1510 Russell Street	**ADDRESS** 195 Chesapeake Park Plaza Rd
CITY Baltimore **STATE** MD **ZIP** 21230	**CITY** Middle River **STATE** MD **ZIP** 21220

CONTAINERS NO. & SIZE	TYPE	HM	DESCRIPTION OF MATERIALS	TOTAL QUANTITY	UNIT WT/VOL
001x2900	TT		A. NON D.O.T. REGULATED, (WATER)	1989	G
			B.		
			C.		
			D.		
			E.		
			F.		
			G.		
			H.		

EMERGENCY PHONE #: (888) 102-2710 GENERATOR: Middle River Complex

SPECIAL HANDLING INSTRUCTIONS
A.CH1596527B

SHIPPERS CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

SHIPPER	**PRINT** Christopher Keller	**SIGN**	**DATE** 04-03-18
TRANSPORTER 1	**PRINT** Patrick Spears	**SIGN**	**DATE** 04-03-18
TRANSPORTER 2	**PRINT**	**SIGN**	**DATE**
RECEIVED BY	**PRINT**	**SIGN**	**DATE**

4

CHI 107

WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. CH1596527B

A. GENERAL INFORMATION

GENERATOR EPA ID #/REGISTRATION # *MDR000524413* GENERATOR NAME: *Middle River Complex*

GENERATOR CODE (Assigned by Clean Harbors) *MI5240* CITY *Baltimore* STATE/PROVINCE *MD* ZIP/POSTAL CODE *21220*

ADDRESS *195 Chesapeake Park Plaza Rd* PHONE: (301) 528-3021

CUSTOMER CODE (Assigned by Clean Harbors) *TE0740* CUSTOMER NAME: *Tetra Tech Inc*

ADDRESS *20251 Century Boulevard Suite 200* CITY *Germantown* STATE/PROVINCE *MD* ZIP/POSTAL CODE *20874*

B. WASTE DESCRIPTION

WASTE DESCRIPTION: *Non-Haz Water*

PROCESS GENERATING WASTE: **Water Removal from Sumps**

IS THIS WASTE CONTAINED IN SMALL PACKAGING CONTAINED WITHIN A LARGER SHIPPING CONTAINER ? **No**

C. PHYSICAL PROPERTIES (at 25C or 77F)

PHYSICAL STATE
- SOLID WITHOUT FREE LIQUID
- POWDER
- MONOLITHIC SOLID
- [x] LIQUID WITH NO SOLIDS
- LIQUID/SOLID MIXTURE

% FREE LIQUID *80.00 - 100.00*
% SETTLED SOLID *1.00 - 20.00*
% TOTAL SUSPENDED SOLID *1.00 - 20.00*
- SLUDGE
- GAS/AEROSOL

NUMBER OF PHASES/LAYERS
- [x] 1 2 3

% BY VOLUME (Approx)
TOP *0.00*
MIDDLE *0.00*
BOTTOM *0.00*

VISCOSITY (If liquid present)
- [x] 1 - 100 (e.g. Water)
- 101 - 500 (e.g. Motor Oil)
- 501 - 10,000 (e.g. Molasses)
- > 10,000

COLOR: *Clear/Brown*

ODOR
- [x] NONE
- MILD
- STRONG

Describe:

BOILING POINT °F (°C)
- <= 95 (<=35)
- 95 - 100 (35-38)
- 101 - 129 (38-54)
- [x] >= 130 (>54)

MELTING POINT °F (°C)
- < 140 (<60)
- 140-200 (60-93)
- [x] > 200 (>93)

TOTAL ORGANIC CARBON
- [x] <= 1%
- 1-9%
- >= 10%

FLASH POINT °F (°C)
- < 73 (<23)
- 73 - 100 (23-38)
- 101 -140 (38-60)
- 141 -200 (60-93)
- [x] > 200 (>93)

pH
- <= 2
- 2.1 - 6.9
- [x] 7 (Neutral)
- 7.1 - 12.4
- >= 12.5

SPECIFIC GRAVITY
- < 0.8 (e.g. Gasoline)
- 0.8-1.0 (e.g. Ethanol)
- [x] 1.0 (e.g. Water)
- 1.0-1.2 (e.g. Antifreeze)
- > 1.2 (e.g. Methylene Chloride)

ASH
- < 0.1
- 0.1 - 1.0
- 1.1 - 5.0
- 5.1 - 20.0
- > 20
- [x] Unknown

BTU/LB (MJ/kg)
- [x] < 2,000 (<4.6)
- 2,000-5,000 (4.6-11.6)
- 5,000-10,000 (11.6-23.2)
- > 10,000 (>23.2)

Actual:

D. COMPOSITION (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	--	MAX	UOM
SEDIMENT (DIRT)	0.0000000	--	20.0000000	%
TRICHLOROETHENE	0.0000000	--	14.0000000	PPB
WATER	80.0000000	--	100.0000000	%

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX , METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")? YES NO

If yes, describe, including dimensions:

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM? YES [x] NO

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING; ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL? YES [x] NO

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material. YES NO

Chemical disinfection or some other form of sterilization has been applied to the waste. YES NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS. YES NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED. YES NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. *G19* SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. *W113*

E. CONSTITUENTS

Are these values based on testing or knowledge? Knowledge ☑ Testing

If constituent concentrations are based on analytical testing, analysis must be provided. Please attach document(s) using the link on the Submit tab.

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE
D004	ARSENIC	5.0				☑
D005	BARIUM	100.0				☑
D006	CADMIUM	1.0				☑
D007	CHROMIUM	5.0				☑
D008	LEAD	5.0				☑
D009	MERCURY	0.2				☑
D010	SELENIUM	1.0				☑
D011	SILVER	5.0				☑
	VOLATILE COMPOUNDS					
D018	BENZENE	0.5				
D019	CARBON TETRACHLORIDE	0.5				
D021	CHLOROBENZENE	100.0				
D022	CHLOROFORM	6.0				
D028	1,2-DICHLOROETHANE	0.5				
D029	1,1-DICHLOROETHYLENE	0.7				
D035	METHYL ETHYL KETONE	200.0				
D039	TETRACHLOROETHYLENE	0.7				
D040	TRICHLOROETHYLENE	0.5				
D043	VINYL CHLORIDE	0.2				
	SEMI-VOLATILE COMPOUNDS					
D023	o-CRESOL	200.0				
D024	m-CRESOL	200.0				
D025	p-CRESOL	200.0				
D026	CRESOL (TOTAL)	200.0				
D027	1,4-DICHLOROBENZENE	7.5				
D030	2,4-DINITROTOLUENE	0.13				
D032	HEXACHLOROBENZENE	0.13				
D033	HEXACHLOROBUTADIENE	0.5				
D034	HEXACHLOROETHANE	3.0				
D036	NITROBENZENE	2.0				
D037	PENTACHLOROPHENOL	100.0				
D038	PYRIDINE	5.0				
D041	2,4,5-TRICHLOROPHENOL	400.0				
D042	2,4,6-TRICHLOROPHENOL	2.0				
	PESTICIDES AND HERBICIDES					
D012	ENDRIN	0.02				
D013	LINDANE	0.4				
D014	METHOXYCHLOR	10.0				
D015	TOXAPHENE	0.5				
D016	2,4-D	10.0				
D017	2,4,5-TP (SILVEX)	1.0				
D020	CHLORDANE	0.03				
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008				

OTHER CONSTITUENTS	MAX	UOM	NOT APPLICABLE
BROMINE			☑
CHLORINE			☑
FLUORINE			☑
IODINE			☑
SULFUR			☑
POTASSIUM			☑
SODIUM			☑
AMMONIA			☑
CYANIDE AMENABLE			☑
CYANIDE REACTIVE			☑
CYANIDE TOTAL			☑
SULFIDE REACTIVE			☑

HOCs

- NONE
- ☑ < 1000 PPM
- >= 1000 PPM

PCBs

- ☑ NONE
- < 50 PPM
- >=50 PPM

IF PCBS ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?

YES ☑ NO

ADDITIONAL HAZARDS

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES ☑ NO (If yes, explain)

CHOOSE ALL THAT APPLY

DEA REGULATED SUBSTANCES	EXPLOSIVE	FUMING	OSHA REGULATED CARCINOGENS
POLYMERIZABLE	RADIOACTIVE	REACTIVE MATERIAL	☑ NONE OF THE ABOVE

F. REGULATORY STATUS

YES ☑ NO USEPA HAZARDOUS WASTE?

YES ☑ NO DO ANY STATE WASTE CODES APPLY?

Texas Waste Code

YES ☑ NO DO ANY CANADIAN PROVINCIAL WASTE CODES APPLY?

YES ☑ NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?

LDR CATEGORY: *Not subject to LDR*
VARIANCE INFO:

YES ☑ NO IS THIS A UNIVERSAL WASTE?

YES ☑ NO IS THE GENERATOR OF THE WASTE CLASSIFIED AS VERY SMALL QUANTITY GENERATOR (VSQG) OR A STATE EQUIVALENT DESIGNATION?

YES NO IS THIS MATERIAL GOING TO BE MANAGED AS A RCRA EXEMPT COMMERCIAL PRODUCT, WHICH IS FUEL (40 CFR 261.2 (C)(2)(II))?

YES ☑ NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES NO IS THIS WASTE STREAM SUBJECT TO THE INORGANIC METAL BEARING WASTE PROHIBITION FOUND AT 40 CFR 268.3(C)?

YES ☑ NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?

YES NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?

YES ☑ NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE > 77 KPA (11.2 PSIA)?

YES ☑ NO IS THIS CERCLA REGULATED (SUPERFUND) WASTE ?

YES ☑ NO IS THE WASTE SUBJECT TO ONE OF THE FOLLOWING NESHAP RULES?

Hazardous Organic NESHAP (HON) rule (subpart G) Pharmaceuticals production (subpart GGG)

YES NO IF THIS IS A US EPA HAZARDOUS WASTE, DOES THIS WASTE STREAM CONTAIN BENZENE?

YES NO Does the waste stream come from a facility with one of the SIC codes listed under benzene NESHAP or is this waste regulated under the benzene NESHAP rules because the original source of the waste is from a chemical manufacturing, coke by-product recovery, or petroleum refinery process?

YES NO Is the generating source of this waste stream a facility with Total Annual Benzene (TAB) >10 Mg/year?

What is the TAB quantity for your facility? Megagram/year (1 Mg = 2,200 lbs)

The basis for this determination is: Knowledge of the Waste Or Test Data Knowledge Testing

Describe the knowledge :

G. DOT/TDG INFORMATION

DOT/TDG PROPER SHIPPING NAME:

NON D.O.T. REGULATED, (WATER)

H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY ONE TIME WEEKLY MONTHLY QUARTERLY ☑ YEARLY OTHER

CONTAINERIZED

0-0 CONTAINERS/SHIPMENT

STORAGE CAPACITY:
CONTAINER TYPE:

PORTABLE TOTE TANK BOX/CARTON/CASE
CUBIC YARD BOX DRUM
OTHER:
DRUM SIZE:

☑ **BULK LIQUID**

GALLONS/SHIPMENT: *500.00 Min -2500.00 Max* GAL.

BULK SOLID

SHIPMENT UOM: TON YARD

TONS/YARDS/SHIPMENT: *0 Min - 0 Max*

I. SPECIAL REQUEST

COMMENTS OR REQUESTS:

GENERATOR'S CERTIFICATION

I certify that I am authorized to execute this document as an authorized agent. I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge.I also certify that any samples submitted are representative of the actual waste.If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE	NAME (PRINT)	TITLE	DATE
	Christopher Keller	ES/H Engineer	2/5/18

APPENDIX C— DATA VALIDATION REPORT AND CHEMICAL DATA TABLE

TETRA TECH

INTERNAL CORRESPONDENCE

TO: **M. MARTIN** **DATE:** **JUNE 06, 2018**

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

SUBJECT: **ORGANIC DATA VALIDATION – VOC**
MRC–BUILDING A – FULL REVIEW
SAMPLE DELIVERY GROUP (SDG) 240-93410-1

SAMPLES: 9 / Water / VOC

TB-032818	WS-HRS1-A-032818	WS-HRS3-A-032818
WS-HRS4-A-032818	WS-HRS6-A-032818	WS-HRS7-A-032818
WS-LS5-A-032818	WS-SP1/SP1A-A-032818	WS-UTILITY-A-032818

OVERVIEW

The sample set for MRC-Building A, SDG 240-93410-1, consists of eight (8) aqueous environmental samples and one (1) trip blank. Samples were analyzed for volatile organic compounds (VOC) and tentatively identified compounds (TICs). No field duplicate pairs are included in this SDG.

The samples were collected by Tetra Tech on March 28, 2018 and analyzed by TestAmerica. Analyses were conducted in accordance with SW-846 Method 8260C 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/trip blank results, surrogate spike recoveries, laboratory control sample results, matrix spike/matrix spike duplicate results, internal standard recoveries, analyte quantitation, and detection limits. Areas of concern with respect to data quality are listed below.

MAJOR PROBLEMS

- None.

MINOR PROBLEMS

- The CCV performed on 04/09/2018 at 09:33 on instrument A3UX9 had a percent difference (%D) for 1,2-dichloroethane that exceeded the 20% quality control limit. Samples WS-HRS7-A-032818, WS-HRS6-A-032818, WS-UTILITY-A-032818, WS-HRS4-A-032818, WS-HRS3-A-032818, WS-LS5-A-032818, WS-HRS1-A-032818, WS-SP1/SP1A-A-032818, and TB-032818 were affected. Non-detected results for 1,2-dichloroethane were qualified as estimated (UJ) in the affected samples.

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

- A TIC search was performed for the compound chlorodifluoromethane. Non-detected results were qualified as estimated (UJ) because the compound was not calibrated and the detection limit is an estimated value.

- Several TICs were detected in the samples from this SDG. The GC/MS instrument was not calibrated for these TICs; therefore, the detected compounds were qualified as estimated (NJ) and assumed to be presumptively present.

NOTES

Non-detected results were reported to the MDL.

Trichloroethene in sample WS-HRS7-A-032818 was analyzed at a dilution factor of 5.

Sample WS-SP1/SP1A-A-032818 was analyzed at a dilution factor of 5.

Sample WS-UTILITY-A-032818 was analyzed at a dilution factor of 1.67.

The continuing calibration performed on 04/10/18 at 16:38 on instrument A3UX16 had a %D for dichlorodifluoromethane that was greater than the 20% quality control limit. Samples WS-HRS7-A-032818 and WS-HRS6-A-0032818 were associated with this calibration. No action was necessary because results for dichlorodifluoromethane were not reported from this analysis for the associated samples.

The following analyte was detected in the laboratory method blanks at the following maximum concentration:

Analyte	Maximum Concentration	< or > RL
Methylene chloride	0.873 ug/L(1)	< RL

1 – Maximum concentration detected in method blank associated with preparation batch 240-321981 affecting samples WS-HRS7-A-032818 and WS-HRS6-A-032818.

No action was necessary because methylene chloride was non-detected in the affected samples.

The matrix spike (MS)/matrix spike duplicate (MSD) analysis performed on sample 240-93414-C-5 (laboratory identifier) had a relative percent difference (RPD) result for vinyl chloride that was greater than the laboratory quality control limit. No action was necessary because this MS/MSD analysis was not performed on a sample from this SDG.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Non-detected results for one VOC analyte were qualified due to calibration noncompliance.

Other Factors Affecting Data Quality: Non-detected results for the TIC chlorodifluoromethane were qualified as estimated (UJ) because the GC/MS was not calibrated for this compound. Detected results below the RL but above the MDL 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). The text of this report has been formulated to address only those problem areas affecting data quality.

Leigh A. Ciofani

Tetra Tech
Leigh A. Ciofani
Environmental Scientist/Data Validator

Tetra Tech
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: 08468	NSAMPLE	TB-032818			WS-HRS1-A-032818			WS-HRS3-A-032818			WS-HRS4-A-032818		
SDG: 240-93410-1	LAB_ID	240-93410-9			240-93410-7			240-93410-5			240-93410-4		
FRACTION: OV	SAMP_DATE	3/28/2018			3/28/2018			3/28/2018			3/28/2018		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.23	U		0.23	U		0.23	U		0.23	U	
1,1,2-TRICHLOROETHANE		0.34	U		0.34	U		0.34	U		0.34	U	
1,1-DICHLOROETHANE		0.25	U		0.25	U		0.25	U		0.25	U	
1,1-DICHLOROETHENE		0.27	U		0.27	U		0.27	U		3.8		
1,2,3-TRIMETHYLBENZENE		0.22	U		0.22	U		0.22	U		0.22	U	
1,2,4-TRICHLOROBENZENE		0.27	U		0.27	U		0.27	U		0.27	U	
1,2,4-TRIMETHYLBENZENE		0.24	U		0.24	U		0.24	U		0.24	U	
1,2-DICHLOROETHANE		0.3	UJ	C	0.3	UJ	C	0.3	UJ	C	0.3	UJ	C
1,3,5-TRIMETHYLBENZENE		0.24	U		0.24	U		0.24	U		0.24	U	
BENZENE		0.28	U		0.28	U		0.28	U		0.28	U	
CARBON TETRACHLORIDE		0.35	U		0.35	U		0.35	U		0.35	U	
CHLORODIFLUOROMETHANE		1	UJ	Q	1	UJ	Q	1	UJ	Q	1	UJ	Q
CHLOROFORM		0.31	U		0.31	U		0.31	U		0.67	J	P
CIS-1,2-DICHLOROETHENE		0.3	U		0.3	U		0.3	U		1.2		
DICHLORODIFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
ETHYLBENZENE		0.26	U		0.26	U		0.26	U		0.26	U	
METHYL TERT-BUTYL ETHER		0.27	U		0.27	U		0.27	U		0.27	U	
METHYLENE CHLORIDE		0.53	U		0.53	U		0.53	U		0.53	U	
NAPHTHALENE		0.25	U		0.25	U		0.25	U		0.25	U	
TETRACHLOROETHENE		0.3	U		0.3	U		0.3	U		0.3	U	
TOLUENE		0.23	U		0.23	U		0.23	U		0.23	U	
TOTAL XYLENES		0.24	U		0.24	U		0.24	U		0.24	U	
TRANS-1,2-DICHLOROETHENE		0.29	U		0.29	U		0.29	U		0.29	U	
TRICHLOROETHENE		0.33	U		0.33	U		0.33	U		3.9		
VINYL CHLORIDE		0.45	U		0.45	U		0.45	U		0.45	U	

PROJ_NO: 08468	NSAMPLE	WS-HRS6-A-032818			WS-HRS7-A-032818			WS-LS5-A-032818			WS-SP1/SP1A-A-032818		
SDG: 240-93410-1	LAB_ID	240-93410-2			240-93410-1			240-93410-6			240-93410-8		
FRACTION: OV	SAMP_DATE	3/28/2018			3/28/2018			3/28/2018			3/28/2018		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.23	U		0.62	J	P	0.23	U		1.2	U	
1,1,2-TRICHLOROETHANE		0.34	U		0.34	U		0.34	U		1.7	U	
1,1-DICHLOROETHANE		0.25	U		2.3			0.25	U		4.6	J	P
1,1-DICHLOROETHENE		0.27	U		21			0.27	U		48		
1,2,3-TRIMETHYLBENZENE		0.22	U		0.22	U		0.22	U		1.1	U	
1,2,4-TRICHLOROBENZENE		0.27	U		0.27	U		0.27	U		1.4	U	
1,2,4-TRIMETHYLBENZENE		0.24	U		0.24	U		0.24	U		1.2	U	
1,2-DICHLOROETHANE		0.3	UJ	C	0.3	UJ	C	0.3	UJ	C	1.5	UJ	C
1,3,5-TRIMETHYLBENZENE		0.24	U		0.24	U		0.24	U		1.2	U	
BENZENE		0.28	U		0.28	U		0.28	U		1.4	U	
CARBON TETRACHLORIDE		0.35	U		0.35	U		0.35	U		1.8	U	
CHLORODIFLUOROMETHANE		1	UJ	Q	1	UJ	Q	1	UJ	Q	5	UJ	Q
CHLOROFORM		0.31	U		0.93	J	P	15			1.6	U	
CIS-1,2-DICHLOROETHENE		0.3	U		5.7			0.3	U		11		
DICHLORODIFLUOROMETHANE		0.5	U		0.5	U		0.5	U		2.5	U	
ETHYLBENZENE		0.26	U		0.26	U		0.26	U		1.3	U	
METHYL TERT-BUTYL ETHER		0.27	U		0.27	U		0.27	U		1.4	U	
METHYLENE CHLORIDE		0.53	U		0.53	U		0.53	U		2.7	U	
NAPHTHALENE		0.25	U		0.25	U		0.25	U		1.3	U	
TETRACHLOROETHENE		0.3	U		0.3	U		0.3	U		1.5	U	
TOLUENE		0.23	U		0.23	U		1.8			1.2	U	
TOTAL XYLENES		0.24	U		0.24	U		0.24	U		1.2	U	
TRANS-1,2-DICHLOROETHENE		0.29	U		0.32	J	P	0.29	U		1.5	U	
TRICHLOROETHENE		4.1			130			2.3			160		
VINYL CHLORIDE		0.45	U		0.45	U		0.45	U		2.3	U	

PROJ_NO: 08468	NSAMPLE	WS-UTILITY-A-032818		
SDG: 240-93410-1	LAB_ID	240-93410-3		
FRACTION: OV	SAMP_DATE	3/28/2018		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.38	U	
1,1,2-TRICHLOROETHANE		0.57	U	
1,1-DICHLOROETHANE		0.55	J	P
1,1-DICHLOROETHENE		0.45	U	
1,2,3-TRIMETHYLBENZENE		0.37	U	
1,2,4-TRICHLOROBENZENE		0.45	U	
1,2,4-TRIMETHYLBENZENE		0.4	U	
1,2-DICHLOROETHANE		0.5	UJ	C
1,3,5-TRIMETHYLBENZENE		0.4	U	
BENZENE		0.47	U	
CARBON TETRACHLORIDE		0.58	U	
CHLORODIFLUOROMETHANE		1.7	UJ	Q
CHLOROFORM		0.52	U	
CIS-1,2-DICHLOROETHENE		1	J	P
DICHLORODIFLUOROMETHANE		0.84	U	
ETHYLBENZENE		0.43	U	
METHYL TERT-BUTYL ETHER		0.45	U	
METHYLENE CHLORIDE		0.89	U	
NAPHTHALENE		0.42	U	
TETRACHLOROETHENE		0.5	U	
TOLUENE		0.38	U	
TOTAL XYLENES		0.4	U	
TRANS-1,2-DICHLOROETHENE		0.51	J	P
TRICHLOROETHENE		53		
VINYL CHLORIDE		0.75	U	

PROJ_NO: 08468	NSAMPLE	WS-LS5-A-032818		
SDG: 240-93410-1	LAB_ID	240-93410-6		
FRACTION: TICOV	SAMP_DATE	3/28/2018		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
DECANE, 5-PROPYL-		41	NJ	Z1
DODECANE		89	NJ	Z1
DODECANE, 2-METHYL-		51	NJ	Z1
DODECANE, 3-METHYL-		72	NJ	Z1
DODECANE, 4-METHYL-		42	NJ	Z1
DODECANE, 5-METHYL-		59	NJ	Z1
TETRADECANE		40	NJ	Z1
TRIDECANE		140	NJ	Z1
UNDECANE, 2,6-DIMETHYL-		47	NJ	Z1
UNKNOWN		39	NJ	Z1

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: TB-032818 | Lab Sample ID: 240-93410-9

Matrix: Water | Lab File ID: UX970811.D

Analysis Method: 8260C | Date Collected: 03/28/2018 00:00

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 16:55

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	0.23	U	1.0	0.23
79-00-5	1,1,2-Trichloroethane	0.34	U	1.0	0.34
75-34-3	1,1-Dichloroethane	0.25	U	1.0	0.25
75-35-4	1,1-Dichloroethene	0.27	U	1.0	0.27
526-73-8	1,2,3-Trimethylbenzene	0.22	U	5.0	0.22
120-82-1	1,2,4-Trichlorobenzene	0.27	U	1.0	0.27
95-63-6	1,2,4-Trimethylbenzene	0.24	U	1.0	0.24
107-06-2	1,2-Dichloroethane	0.30	U	1.0	0.30
108-67-8	1,3,5-Trimethylbenzene	0.24	U	1.0	0.24
71-43-2	Benzene	0.28	U	1.0	0.28
56-23-5	Carbon tetrachloride	0.35	U	1.0	0.35
67-66-3	Chloroform	0.31	U	1.0	0.31
156-59-2	cis-1,2-Dichloroethene	0.30	U	1.0	0.30
75-71-8	Dichlorodifluoromethane	0.50	U	1.0	0.50
100-41-4	Ethylbenzene	0.26	U	1.0	0.26
1634-04-4	Methyl tert-butyl ether	0.27	U	1.0	0.27
75-09-2	Methylene Chloride	0.53	U	1.0	0.53
91-20-3	Naphthalene	0.25	U	1.0	0.25
127-18-4	Tetrachloroethene	0.30	U	1.0	0.30
108-88-3	Toluene	0.23	U	1.0	0.23
156-60-5	trans-1,2-Dichloroethene	0.29	U	1.0	0.29
79-01-6	Trichloroethene	0.33	U	1.0	0.33
75-01-4	Vinyl chloride	0.45	U	1.0	0.45
1330-20-7	Xylenes, Total	0.24	U	2.0	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	101		73-120
1868-53-7	Dibromofluoromethane (Surr)	99		69-124
460-00-4	4-Bromofluorobenzene (Surr)	100		69-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	112		61-138

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: TB-032818 | Lab Sample ID: 240-93410-9

Matrix: Water | Lab File ID: UX970811.D

Analysis Method: 8260C | Date Collected: 03/28/2018 00:00

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 16:55

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

Number TICs Found: 0 | TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TARGETED TENATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: TB-032818 | Lab Sample ID: 240-93410-9

Matrix: Water | Lab File ID: UX970811.D

Analysis Method: 8260C | Date Collected: 03/28/2018 00:00

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 16:55

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
75-45-6	Chlorodifluoromethane TIC		1.0	U	

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS1-A-032818 | Lab Sample ID: 240-93410-7

Matrix: Water | Lab File ID: UX970809.D

Analysis Method: 8260C | Date Collected: 03/28/2018 11:05

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 16:09

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	0.23	U	1.0	0.23
79-00-5	1,1,2-Trichloroethane	0.34	U	1.0	0.34
75-34-3	1,1-Dichloroethane	0.25	U	1.0	0.25
75-35-4	1,1-Dichloroethene	0.27	U	1.0	0.27
526-73-8	1,2,3-Trimethylbenzene	0.22	U	5.0	0.22
120-82-1	1,2,4-Trichlorobenzene	0.27	U	1.0	0.27
95-63-6	1,2,4-Trimethylbenzene	0.24	U	1.0	0.24
107-06-2	1,2-Dichloroethane	0.30	U	1.0	0.30
108-67-8	1,3,5-Trimethylbenzene	0.24	U	1.0	0.24
71-43-2	Benzene	0.28	U	1.0	0.28
56-23-5	Carbon tetrachloride	0.35	U	1.0	0.35
67-66-3	Chloroform	0.31	U	1.0	0.31
156-59-2	cis-1,2-Dichloroethene	0.30	U	1.0	0.30
75-71-8	Dichlorodifluoromethane	0.50	U	1.0	0.50
100-41-4	Ethylbenzene	0.26	U	1.0	0.26
1634-04-4	Methyl tert-butyl ether	0.27	U	1.0	0.27
75-09-2	Methylene Chloride	0.53	U	1.0	0.53
91-20-3	Naphthalene	0.25	U	1.0	0.25
127-18-4	Tetrachloroethene	0.30	U	1.0	0.30
108-88-3	Toluene	0.23	U	1.0	0.23
156-60-5	trans-1,2-Dichloroethene	0.29	U	1.0	0.29
79-01-6	Trichloroethene	0.33	U	1.0	0.33
75-01-4	Vinyl chloride	0.45	U	1.0	0.45
1330-20-7	Xylenes, Total	0.24	U	2.0	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	106		73-120
1868-53-7	Dibromofluoromethane (Surr)	99		69-124
460-00-4	4-Bromofluorobenzene (Surr)	106		69-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	114		61-138

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS1-A-032818 | Lab Sample ID: 240-93410-7

Matrix: Water | Lab File ID: UX970809.D

Analysis Method: 8260C | Date Collected: 03/28/2018 11:05

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 16:09

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

Number TICs Found: 0 | TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TARGETED TENATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS1-A-032818 Lab Sample ID: 240-93410-7

Matrix: Water Lab File ID: UX970809.D

Analysis Method: 8260C Date Collected: 03/28/2018 11:05

Sample wt/vol: 5(mL) Date Analyzed: 04/09/2018 16:09

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 321696 Units: ug/L

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
75-45-6	Chlorodifluoromethane TIC		1.0	U	

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS3-A-032818 | Lab Sample ID: 240-93410-5

Matrix: Water | Lab File ID: UX970807.D

Analysis Method: 8260C | Date Collected: 03/28/2018 10:43

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 15:23

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	0.23	U	1.0	0.23
79-00-5	1,1,2-Trichloroethane	0.34	U	1.0	0.34
75-34-3	1,1-Dichloroethane	0.25	U	1.0	0.25
75-35-4	1,1-Dichloroethene	0.27	U	1.0	0.27
526-73-8	1,2,3-Trimethylbenzene	0.22	U	5.0	0.22
120-82-1	1,2,4-Trichlorobenzene	0.27	U	1.0	0.27
95-63-6	1,2,4-Trimethylbenzene	0.24	U	1.0	0.24
107-06-2	1,2-Dichloroethane	0.30	U	1.0	0.30
108-67-8	1,3,5-Trimethylbenzene	0.24	U	1.0	0.24
71-43-2	Benzene	0.28	U	1.0	0.28
56-23-5	Carbon tetrachloride	0.35	U	1.0	0.35
67-66-3	Chloroform	0.31	U	1.0	0.31
156-59-2	cis-1,2-Dichloroethene	0.30	U	1.0	0.30
75-71-8	Dichlorodifluoromethane	0.50	U	1.0	0.50
100-41-4	Ethylbenzene	0.26	U	1.0	0.26
1634-04-4	Methyl tert-butyl ether	0.27	U	1.0	0.27
75-09-2	Methylene Chloride	0.53	U	1.0	0.53
91-20-3	Naphthalene	0.25	U	1.0	0.25
127-18-4	Tetrachloroethene	0.30	U	1.0	0.30
108-88-3	Toluene	0.23	U	1.0	0.23
156-60-5	trans-1,2-Dichloroethene	0.29	U	1.0	0.29
79-01-6	Trichloroethene	0.33	U	1.0	0.33
75-01-4	Vinyl chloride	0.45	U	1.0	0.45
1330-20-7	Xylenes, Total	0.24	U	2.0	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	106		73-120
1868-53-7	Dibromofluoromethane (Surr)	97		69-124
460-00-4	4-Bromofluorobenzene (Surr)	103		69-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	112		61-138

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS3-A-032818 | Lab Sample ID: 240-93410-5

Matrix: Water | Lab File ID: UX970807.D

Analysis Method: 8260C | Date Collected: 03/28/2018 10:43

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 15:23

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

Number TICs Found: 0 | TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TARGETED TENATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS3-A-032818 | Lab Sample ID: 240-93410-5

Matrix: Water | Lab File ID: UX970807.D

Analysis Method: 8260C | Date Collected: 03/28/2018 10:43

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 15:23

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
75-45-6	Chlorodifluoromethane TIC		1.0	U	

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS4-A-032818 | Lab Sample ID: 240-93410-4

Matrix: Water | Lab File ID: UX970806.D

Analysis Method: 8260C | Date Collected: 03/28/2018 10:40

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 15:00

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	0.23	U	1.0	0.23
79-00-5	1,1,2-Trichloroethane	0.34	U	1.0	0.34
75-34-3	1,1-Dichloroethane	0.25	U	1.0	0.25
75-35-4	1,1-Dichloroethene	3.8		1.0	0.27
526-73-8	1,2,3-Trimethylbenzene	0.22	U	5.0	0.22
120-82-1	1,2,4-Trichlorobenzene	0.27	U	1.0	0.27
95-63-6	1,2,4-Trimethylbenzene	0.24	U	1.0	0.24
107-06-2	1,2-Dichloroethane	0.30	U	1.0	0.30
108-67-8	1,3,5-Trimethylbenzene	0.24	U	1.0	0.24
71-43-2	Benzene	0.28	U	1.0	0.28
56-23-5	Carbon tetrachloride	0.35	U	1.0	0.35
67-66-3	Chloroform	0.67	J	1.0	0.31
156-59-2	cis-1,2-Dichloroethene	1.2		1.0	0.30
75-71-8	Dichlorodifluoromethane	0.50	U	1.0	0.50
100-41-4	Ethylbenzene	0.26	U	1.0	0.26
1634-04-4	Methyl tert-butyl ether	0.27	U	1.0	0.27
75-09-2	Methylene Chloride	0.53	U	1.0	0.53
91-20-3	Naphthalene	0.25	U	1.0	0.25
127-18-4	Tetrachloroethene	0.30	U	1.0	0.30
108-88-3	Toluene	0.23	U	1.0	0.23
156-60-5	trans-1,2-Dichloroethene	0.29	U	1.0	0.29
79-01-6	Trichloroethene	3.9		1.0	0.33
75-01-4	Vinyl chloride	0.45	U	1.0	0.45
1330-20-7	Xylenes, Total	0.24	U	2.0	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	102		73-120
1868-53-7	Dibromofluoromethane (Surr)	99		69-124
460-00-4	4-Bromofluorobenzene (Surr)	103		69-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	114		61-138

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS4-A-032818 | Lab Sample ID: 240-93410-4

Matrix: Water | Lab File ID: UX970806.D

Analysis Method: 8260C | Date Collected: 03/28/2018 10:40

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 15:00

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

Number TICs Found: 0 | TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TARGETED TENATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS4-A-032818 | Lab Sample ID: 240-93410-4

Matrix: Water | Lab File ID: UX970806.D

Analysis Method: 8260C | Date Collected: 03/28/2018 10:40

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 15:00

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
75-45-6	Chlorodifluoromethane TIC		1.0	U	

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS6-A-032818 | Lab Sample ID: 240-93410-2

Matrix: Water | Lab File ID: UX970804.D

Analysis Method: 8260C | Date Collected: 03/28/2018 10:10

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 14:14

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	0.23	U	1.0	0.23
79-00-5	1,1,2-Trichloroethane	0.34	U	1.0	0.34
75-34-3	1,1-Dichloroethane	0.25	U	1.0	0.25
75-35-4	1,1-Dichloroethene	0.27	U	1.0	0.27
526-73-8	1,2,3-Trimethylbenzene	0.22	U	5.0	0.22
120-82-1	1,2,4-Trichlorobenzene	0.27	U	1.0	0.27
95-63-6	1,2,4-Trimethylbenzene	0.24	U	1.0	0.24
107-06-2	1,2-Dichloroethane	0.30	U	1.0	0.30
108-67-8	1,3,5-Trimethylbenzene	0.24	U	1.0	0.24
71-43-2	Benzene	0.28	U	1.0	0.28
56-23-5	Carbon tetrachloride	0.35	U	1.0	0.35
67-66-3	Chloroform	0.31	U	1.0	0.31
156-59-2	cis-1,2-Dichloroethene	0.30	U	1.0	0.30
75-71-8	Dichlorodifluoromethane	0.50	U	1.0	0.50
100-41-4	Ethylbenzene	0.26	U	1.0	0.26
1634-04-4	Methyl tert-butyl ether	0.27	U	1.0	0.27
75-09-2	Methylene Chloride	0.53	U	1.0	0.53
91-20-3	Naphthalene	0.25	U	1.0	0.25
127-18-4	Tetrachloroethene	0.30	U	1.0	0.30
108-88-3	Toluene	0.23	U	1.0	0.23
156-60-5	trans-1,2-Dichloroethene	0.29	U	1.0	0.29
75-01-4	Vinyl chloride	0.45	U	1.0	0.45
1330-20-7	Xylenes, Total	0.24	U	2.0	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	104		73-120
1868-53-7	Dibromofluoromethane (Surr)	99		69-124
460-00-4	4-Bromofluorobenzene (Surr)	101		69-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	111		61-138

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS6-A-032818 | Lab Sample ID: 240-93410-2

Matrix: Water | Lab File ID: UX970804.D

Analysis Method: 8260C | Date Collected: 03/28/2018 10:10

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 14:14

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

Number TICs Found: 0 | TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TARGETED TENATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS6-A-032818 | Lab Sample ID: 240-93410-2

Matrix: Water | Lab File ID: UX970804.D

Analysis Method: 8260C | Date Collected: 03/28/2018 10:10

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 14:14

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
75-45-6	Chlorodifluoromethane TIC		1.0	U	

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS6-A-032818 | Lab Sample ID: 240-93410-2

Matrix: Water | Lab File ID: UXM10449.D

Analysis Method: 8260C | Date Collected: 03/28/2018 10:10

Sample wt/vol: 5(mL) | Date Analyzed: 04/10/2018 20:07

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321981 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	4.1		1.0	0.33

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	97		73-120
1868-53-7	Dibromofluoromethane (Surr)	94		69-124
460-00-4	4-Bromofluorobenzene (Surr)	95		69-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	102		61-138

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS6-A-032818 | Lab Sample ID: 240-93410-2

Matrix: Water | Lab File ID: UXM10449.D

Analysis Method: 8260C | Date Collected: 03/28/2018 10:10

Sample wt/vol: 5(mL) | Date Analyzed: 04/10/2018 20:07

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321981 | Units: ug/L

Number TICs Found: 0 | TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS7-A-032818 | Lab Sample ID: 240-93410-1

Matrix: Water | Lab File ID: UX970803.D

Analysis Method: 8260C | Date Collected: 03/28/2018 09:48

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 13:51

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	0.62	J	1.0	0.23
79-00-5	1,1,2-Trichloroethane	0.34	U	1.0	0.34
75-34-3	1,1-Dichloroethane	2.3		1.0	0.25
75-35-4	1,1-Dichloroethene	21		1.0	0.27
526-73-8	1,2,3-Trimethylbenzene	0.22	U	5.0	0.22
120-82-1	1,2,4-Trichlorobenzene	0.27	U	1.0	0.27
95-63-6	1,2,4-Trimethylbenzene	0.24	U	1.0	0.24
107-06-2	1,2-Dichloroethane	0.30	U	1.0	0.30
108-67-8	1,3,5-Trimethylbenzene	0.24	U	1.0	0.24
71-43-2	Benzene	0.28	U	1.0	0.28
56-23-5	Carbon tetrachloride	0.35	U	1.0	0.35
67-66-3	Chloroform	0.93	J	1.0	0.31
156-59-2	cis-1,2-Dichloroethene	5.7		1.0	0.30
75-71-8	Dichlorodifluoromethane	0.50	U	1.0	0.50
100-41-4	Ethylbenzene	0.26	U	1.0	0.26
1634-04-4	Methyl tert-butyl ether	0.27	U	1.0	0.27
75-09-2	Methylene Chloride	0.53	U	1.0	0.53
91-20-3	Naphthalene	0.25	U	1.0	0.25
127-18-4	Tetrachloroethene	0.30	U	1.0	0.30
108-88-3	Toluene	0.23	U	1.0	0.23
156-60-5	trans-1,2-Dichloroethene	0.32	J	1.0	0.29
75-01-4	Vinyl chloride	0.45	U	1.0	0.45
1330-20-7	Xylenes, Total	0.24	U	2.0	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	104		73-120
1868-53-7	Dibromofluoromethane (Surr)	100		69-124
460-00-4	4-Bromofluorobenzene (Surr)	105		69-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	113		61-138

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS7-A-032818 | Lab Sample ID: 240-93410-1

Matrix: Water | Lab File ID: UX970803.D

Analysis Method: 8260C | Date Collected: 03/28/2018 09:48

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 13:51

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

Number TICs Found: 0 | TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TARGETED TENATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS7-A-032818 | Lab Sample ID: 240-93410-1

Matrix: Water | Lab File ID: UX970803.D

Analysis Method: 8260C | Date Collected: 03/28/2018 09:48

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 13:51

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
75-45-6	Chlorodifluoromethane TIC		1.0	U	

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS7-A-032818 | Lab Sample ID: 240-93410-1

Matrix: Water | Lab File ID: UXM10448.D

Analysis Method: 8260C | Date Collected: 03/28/2018 09:48

Sample wt/vol: 5(mL) | Date Analyzed: 04/10/2018 19:43

Soil Aliquot Vol: | Dilution Factor: 5

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321981 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	130		5.0	1.7

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	97		73-120
1868-53-7	Dibromofluoromethane (Surr)	97		69-124
460-00-4	4-Bromofluorobenzene (Surr)	96		69-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	102		61-138

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS7-A-032818 | Lab Sample ID: 240-93410-1

Matrix: Water | Lab File ID: UXM10448.D

Analysis Method: 8260C | Date Collected: 03/28/2018 09:48

Sample wt/vol: 5(mL) | Date Analyzed: 04/10/2018 19:43

Soil Aliquot Vol: | Dilution Factor: 5

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321981 | Units: ug/L

Number TICs Found: 0 | TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-LS5-A-032818 | Lab Sample ID: 240-93410-6

Matrix: Water | Lab File ID: UX970808.D

Analysis Method: 8260C | Date Collected: 03/28/2018 10:55

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 15:45

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	0.23	U	1.0	0.23
79-00-5	1,1,2-Trichloroethane	0.34	U	1.0	0.34
75-34-3	1,1-Dichloroethane	0.25	U	1.0	0.25
75-35-4	1,1-Dichloroethene	0.27	U	1.0	0.27
526-73-8	1,2,3-Trimethylbenzene	0.22	U	5.0	0.22
120-82-1	1,2,4-Trichlorobenzene	0.27	U	1.0	0.27
95-63-6	1,2,4-Trimethylbenzene	0.24	U	1.0	0.24
107-06-2	1,2-Dichloroethane	0.30	U	1.0	0.30
108-67-8	1,3,5-Trimethylbenzene	0.24	U	1.0	0.24
71-43-2	Benzene	0.28	U	1.0	0.28
56-23-5	Carbon tetrachloride	0.35	U	1.0	0.35
67-66-3	Chloroform	15		1.0	0.31
156-59-2	cis-1,2-Dichloroethene	0.30	U	1.0	0.30
75-71-8	Dichlorodifluoromethane	0.50	U	1.0	0.50
100-41-4	Ethylbenzene	0.26	U	1.0	0.26
1634-04-4	Methyl tert-butyl ether	0.27	U	1.0	0.27
75-09-2	Methylene Chloride	0.53	U	1.0	0.53
91-20-3	Naphthalene	0.25	U	1.0	0.25
127-18-4	Tetrachloroethene	0.30	U	1.0	0.30
108-88-3	Toluene	1.8		1.0	0.23
156-60-5	trans-1,2-Dichloroethene	0.29	U	1.0	0.29
79-01-6	Trichloroethene	2.3		1.0	0.33
75-01-4	Vinyl chloride	0.45	U	1.0	0.45
1330-20-7	Xylenes, Total	0.24	U	2.0	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	113		73-120
1868-53-7	Dibromofluoromethane (Surr)	109		69-124
460-00-4	4-Bromofluorobenzene (Surr)	114		69-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	121		61-138

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-LS5-A-032818 | Lab Sample ID: 240-93410-6

Matrix: Water | Lab File ID: UX970808.D

Analysis Method: 8260C | Date Collected: 03/28/2018 10:55

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 15:45

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

Number TICs Found: 10 | TIC Result Total: 620

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
112-40-3	Dodecane	12.18	89	T J N	96%
17301-23-4	Undecane, 2,6-dimethyl-	12.34	47	T J N	97%
	Unknown	12.42	39	T J	
17453-93-9	Dodecane, 5-methyl-	12.75	59	T J N	83%
6117-97-1	Dodecane, 4-methyl-	12.80	42	T J N	87%
1560-97-0	Dodecane, 2-methyl-	12.85	51	T J N	76%
17312-57-1	Dodecane, 3-methyl-	12.94	72	T J N	91%
629-50-5	Tridecane	13.24	140	T J N	98%
17312-62-8	Decane, 5-propyl-	13.37	41	T J N	68%
629-59-4	Tetradecane	14.47	40	T J N	98%

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TARGETED TENATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-LS5-A-032818 | Lab Sample ID: 240-93410-6

Matrix: Water | Lab File ID: UX970808.D

Analysis Method: 8260C | Date Collected: 03/28/2018 10:55

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 15:45

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
75-45-6	Chlorodifluoromethane TIC		1.0	U	

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-SP1/SP1A-A-032818 | Lab Sample ID: 240-93410-8

Matrix: Water | Lab File ID: UX970810.D

Analysis Method: 8260C | Date Collected: 03/28/2018 11:10

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 16:32

Soil Aliquot Vol: | Dilution Factor: 5

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	1.2	U	5.0	1.2
79-00-5	1,1,2-Trichloroethane	1.7	U	5.0	1.7
75-34-3	1,1-Dichloroethane	4.6	J	5.0	1.3
75-35-4	1,1-Dichloroethene	48		5.0	1.4
526-73-8	1,2,3-Trimethylbenzene	1.1	U	25	1.1
120-82-1	1,2,4-Trichlorobenzene	1.4	U	5.0	1.4
95-63-6	1,2,4-Trimethylbenzene	1.2	U	5.0	1.2
107-06-2	1,2-Dichloroethane	1.5	U	5.0	1.5
108-67-8	1,3,5-Trimethylbenzene	1.2	U	5.0	1.2
71-43-2	Benzene	1.4	U	5.0	1.4
56-23-5	Carbon tetrachloride	1.8	U	5.0	1.8
67-66-3	Chloroform	1.6	U	5.0	1.6
156-59-2	cis-1,2-Dichloroethene	11		5.0	1.5
75-71-8	Dichlorodifluoromethane	2.5	U	5.0	2.5
100-41-4	Ethylbenzene	1.3	U	5.0	1.3
1634-04-4	Methyl tert-butyl ether	1.4	U	5.0	1.4
75-09-2	Methylene Chloride	2.7	U	5.0	2.7
91-20-3	Naphthalene	1.3	U	5.0	1.3
127-18-4	Tetrachloroethene	1.5	U	5.0	1.5
108-88-3	Toluene	1.2	U	5.0	1.2
156-60-5	trans-1,2-Dichloroethene	1.5	U	5.0	1.5
79-01-6	Trichloroethene	160		5.0	1.7
75-01-4	Vinyl chloride	2.3	U	5.0	2.3
1330-20-7	Xylenes, Total	1.2	U	10	1.2

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	104		73-120
1868-53-7	Dibromofluoromethane (Surr)	99		69-124
460-00-4	4-Bromofluorobenzene (Surr)	103		69-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	113		61-138

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-SP1/SP1A-A-032818 Lab Sample ID: 240-93410-8

Matrix: Water Lab File ID: UX970810.D

Analysis Method: 8260C Date Collected: 03/28/2018 11:10

Sample wt/vol: 5(mL) Date Analyzed: 04/09/2018 16:32

Soil Aliquot Vol: Dilution Factor: 5

Soil Extract Vol.: GC Column: DB-624 ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 321696 Units: ug/L

Number TICs Found: 0 TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I-TIC 8260C

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TARGETED TENATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-SP1/SP1A-A-032818 | Lab Sample ID: 240-93410-8

Matrix: Water | Lab File ID: UX970810.D

Analysis Method: 8260C | Date Collected: 03/28/2018 11:10

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 16:32

Soil Aliquot Vol: | Dilution Factor: 5

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
75-45-6	Chlorodifluoromethane TIC		5.0	U	

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-UTILITY-A-032818 | Lab Sample ID: 240-93410-3

Matrix: Water | Lab File ID: UX970805.D

Analysis Method: 8260C | Date Collected: 03/28/2018 10:13

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 14:37

Soil Aliquot Vol: | Dilution Factor: 1.67

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	0.38	U	1.7	0.38
79-00-5	1,1,2-Trichloroethane	0.57	U	1.7	0.57
75-34-3	1,1-Dichloroethane	0.55	J	1.7	0.42
75-35-4	1,1-Dichloroethene	0.45	U	1.7	0.45
526-73-8	1,2,3-Trimethylbenzene	0.37	U	8.4	0.37
120-82-1	1,2,4-Trichlorobenzene	0.45	U	1.7	0.45
95-63-6	1,2,4-Trimethylbenzene	0.40	U	1.7	0.40
107-06-2	1,2-Dichloroethane	0.50	U	1.7	0.50
108-67-8	1,3,5-Trimethylbenzene	0.40	U	1.7	0.40
71-43-2	Benzene	0.47	U	1.7	0.47
56-23-5	Carbon tetrachloride	0.58	U	1.7	0.58
67-66-3	Chloroform	0.52	U	1.7	0.52
156-59-2	cis-1,2-Dichloroethene	1.0	J	1.7	0.50
75-71-8	Dichlorodifluoromethane	0.84	U	1.7	0.84
100-41-4	Ethylbenzene	0.43	U	1.7	0.43
1634-04-4	Methyl tert-butyl ether	0.45	U	1.7	0.45
75-09-2	Methylene Chloride	0.89	U	1.7	0.89
91-20-3	Naphthalene	0.42	U	1.7	0.42
127-18-4	Tetrachloroethene	0.50	U	1.7	0.50
108-88-3	Toluene	0.38	U	1.7	0.38
156-60-5	trans-1,2-Dichloroethene	0.51	J	1.7	0.48
79-01-6	Trichloroethene	53		1.7	0.55
75-01-4	Vinyl chloride	0.75	U	1.7	0.75
1330-20-7	Xylenes, Total	0.40	U	3.3	0.40

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	102		73-120
1868-53-7	Dibromofluoromethane (Surr)	97		69-124
460-00-4	4-Bromofluorobenzene (Surr)	100		69-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	109		61-138

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-UTILITY-A-032818 | Lab Sample ID: 240-93410-3

Matrix: Water | Lab File ID: UX970805.D

Analysis Method: 8260C | Date Collected: 03/28/2018 10:13

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 14:37

Soil Aliquot Vol: | Dilution Factor: 1.67

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

Number TICs Found: 0 | TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TARGETED TENATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-UTILITY-A-032818 Lab Sample ID: 240-93410-3

Matrix: Water Lab File ID: UX970805.D

Analysis Method: 8260C Date Collected: 03/28/2018 10:13

Sample wt/vol: 5(mL) Date Analyzed: 04/09/2018 14:37

Soil Aliquot Vol: Dilution Factor: 1.67

Soil Extract Vol.: GC Column: DB-624 ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 321696 Units: ug/L

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
75-45-6	Chlorodifluoromethane TIC		1.7	U	

APPENDIX C

SUPPORT DOCUMENTATION

CASE NARRATIVE

Client: Tetra Tech, Inc.

Project: MRC A Basement Sump Sampling

Report Number: 240-93410-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 3/29/2018 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.3º C.

VOLATILE ORGANIC COMPOUNDS (GCMS)

Samples WS-HRS7-A-032818 (240-93410-1), WS-HRS6-A-032818 (240-93410-2), WS-UTILITY-A-032818 (240-93410-3), WS-HRS4-A-032818 (240-93410-4), WS-HRS3-A-032818 (240-93410-5), WS-LS5-A-032818 (240-93410-6), WS-HRS1-A-032818 (240-93410-7), WS-SP1/SP1A-A-032818 (240-93410-8) and TB-032818 (240-93410-9) were analyzed for volatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8260C. The samples were analyzed on 04/09/2018 and 04/10/2018.

Methylene Chloride was detected in method blank MB 240-321981/8 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Samples WS-HRS7-A-032818 (240-93410-1)[5X], WS-UTILITY-A-032818 (240-93410-3)[1.67X] and WS-SP1/SP1A-A-032818 (240-93410-8)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The continuing calibration verification (CCV) analyzed in batch 240-321696 was outside the method criteria for the following analyte: 1,2,-Dichloroethane. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated. WS-HRS7-A-032818 (240-93410-1), WS-HRS6-A-032818 (240-93410-2), WS-UTILITY-A-032818 (240-93410-3), WS-HRS4-A-032818 (240-93410-4), WS-HRS3-A-032818 (240-93410-5), WS-LS5-A-032818 (240-93410-6), WS-HRS1-A-032818 (240-93410-7), WS-SP1/SP1A-A-032818 (240-93410-8), TB-032818 (240-93410-9) and (CCVIS 240-321696/4)

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

Qualifiers

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.
U	Indicates the analyte was analyzed for but not detected.

GC/MS VOA TICs

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Indicates an Estimated Value for TICs
N	This flag indicates the presumptive evidence of a compound.
T	Result is a tentatively identified compound (TIC) and an estimated value.

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: MRC A Basement Sump Sampling

TestAmerica Job ID: 240-93410-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: MRC A Basement Sump Sampling

TestAmerica Job ID: 240-93410-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-93410-1	WS-HRS7-A-032818	Water	03/28/18 09:48	03/29/18 09:30
240-93410-2	WS-HRS6-A-032818	Water	03/28/18 10:10	03/29/18 09:30
240-93410-3	WS-UTILITY-A-032818	Water	03/28/18 10:13	03/29/18 09:30
240-93410-4	WS-HRS4-A-032818	Water	03/28/18 10:40	03/29/18 09:30
240-93410-5	WS-HRS3-A-032818	Water	03/28/18 10:43	03/29/18 09:30
240-93410-6	WS-LS5-A-032818	Water	03/28/18 10:55	03/29/18 09:30
240-93410-7	WS-HRS1-A-032818	Water	03/28/18 11:05	03/29/18 09:30
240-93410-8	WS-SP1/SP1A-A-032818	Water	03/28/18 11:10	03/29/18 09:30
240-93410-9	TB-032818	Water	03/28/18 00:00	03/29/18 09:30

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

4.2/C4.3

Chain of Custody Record

TestAmerica

ERONT TAT

Client Information	Sampler: Josh Mills	Lab PM: McFadden, John	Carrier Tracking No(s):	COC No: 240-50211-21628.1
Client Contact: Tony Apanavage	Phone: 410-279-2700	E-Mail: john.mcfadden@testamericainc.com		Page: Page 1 of 1
Company: Tetra Tech, Inc.				Job #:
Address: 20251 Century Blvd Suite 200	Due Date Requested:			
City: Germantown	TAT Requested (days): STANDARD			
State, Zip: MD, 20874				
Phone:	PO #: 1119970			
Email: Tony.Apanavage@tetratech.com	WO #: 112IC07776			
Project Name: Building A Basement	Project #: 24015639			
Site: MW A Basement Sump Sampling	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCl, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C - (MOD) Project List VOCs	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A		
WS-HR57-A-032818	3/28/18	0948	G	Water			X		
WS-HR56-A-032818	3/28/18	1010					X		
WS-UTILITY-A-032818	3/28/18	1013					X		
WS-HR54-A-032818	3/28/18	1040					X		
WS-HR53-A-032818	3/28/18	1043					X		
WS-LS5-A-032818	3/28/18	1055					X		
WS-HR51-A-032818	3/28/18	1105					X		
WS-SP1/SP1A-A-032818	3/28/18	1110					X		
TB-032818	3/28/18	0000					X		

240-93410 Chain of Custody

Possible Hazard Identification
[X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown [ ] Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
[ ] Return To Client [X] Disposal By Lab [ ] Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by:	Date/Time: 3/28/18 1445	Company: TETRA TECH	Received by:	Date/Time: 3/28/18 14:45	Company
Relinquished by:	Date/Time: 3/28/18	Company	Received by:	Date/Time: 3-29-18 930	Company: TAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016

TestAmerica Canton Sample Receipt Form/Narrative **Login # : 93410**
Canton Facility

Client TETRA TECH Site Name —

Cooler unpacked by: BDP

Cooler Received on 3-29-18 Opened on 3-29-18

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # TA Foam Box Client Cooler Box Other

Packing material used: (Bubble Wrap) Foam (Plastic Bag) None Other

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN# IR-8 (CF **+0.1** °C) Observed Cooler Temp. 4.2 °C Corrected Cooler Temp. 4.3 °C

IR GUN #36 (CF **+0.3**°C) Observed Cooler Temp. ____ °C Corrected Cooler Temp. ____ °C

~~IR GUN # 627 (CF **-1.3**°C) Observed Cooler Temp. ____ °C Corrected Cooler Temp. ____ °C~~

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes) No	
-Were the seals on the outside of the cooler(s) signed & dated?	(Yes) No	NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes (No)	
-Were tamper/custody seals intact and uncompromised?	(Yes) No	NA
3. Shippers' packing slip attached to the cooler(s)?	(Yes) No	
4. Did custody papers accompany the sample(s)?	(Yes) No	
5. Were the custody papers relinquished & signed in the appropriate place?	(Yes) No	
6. Was/were the person(s) who collected the samples clearly identified on the COC?	(Yes) No	
7. Did all bottles arrive in good condition (Unbroken)?	(Yes) No	
8. Could all bottle labels be reconciled with the COC?	(Yes) No	
9. Were correct bottle(s) used for the test(s) indicated?	(Yes) No	
10. Sufficient quantity received to perform indicated analyses?	(Yes) No	
11. Are these work share samples?	Yes (No)	
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt?	Yes No (NA)	pH Strip Lot# **HC732776**
13. Were VOAs on the COC?	(Yes) No	
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes (No) NA	
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # COVERED	(Yes) No	
16. Was a LL Hg or Me Hg trip blank present? ____	Yes (No)	

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM ____ Date ____ by ____ via Verbal Voice Mail Other

Concerning ____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: BDP

18. SAMPLE CONDITION

Sample(s) ____ were received after the recommended holding time had expired.

Sample(s) ____ were received in a broken container.

Sample(s) ____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) ____ were further preserved in the laboratory.

Time preserved: ____ Preservative(s) added/Lot number(s): ____

WI-NC-099

Method 8260C

Volatile Organic Compounds (GC/MS) by Method 8260C

FORM II
GC/MS VOA SURROGATE RECOVERY

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): DB-624 ID: 0.18(mm)

Client Sample ID	Lab Sample ID	DBFM #	DCA #	TOL #	BFB #
WS-HRS7-A-032818	240-93410-1	97	102	97	96
WS-HRS7-A-032818	240-93410-1	100	113	104	105
WS-HRS6-A-032818	240-93410-2	94	102	97	95
WS-HRS6-A-032818	240-93410-2	99	111	104	101
WS-UTILITY-A-032818	240-93410-3	97	109	102	100
WS-HRS4-A-032818	240-93410-4	99	114	102	103
WS-HRS3-A-032818	240-93410-5	97	112	106	103
WS-LS5-A-032818	240-93410-6	109	121	113	114
WS-HRS1-A-032818	240-93410-7	99	114	106	106
WS-SP1/SP1A-A-032818	240-93410-8	99	113	104	103
TB-032818	240-93410-9	99	112	101	100
	MB 240-321696/9	102	114	103	101
	MB 240-321981/8	96	101	99	94
	LCS 240-321696/7	101	109	104	105
	LCS 240-321981/4	99	96	92	97
WS-SP1/SP1A-A-032818 MS	240-93410-8 MS	102	116	105	107
	240-93414-C-5 MS	99	99	93	104
WS-SP1/SP1A-A-032818 MSD	240-93410-8 MSD	104	115	104	105
	240-93414-C-5 MSD	96	93	92	94

	QC LIMITS
DBFM = Dibromofluoromethane (Surr)	69-124
DCA = 1,2-Dichloroethane-d4 (Surr)	61-138
TOL = Toluene-d8 (Surr)	73-120
BFB = 4-Bromofluorobenzene (Surr)	69-120

Column to be used to flag recovery values

FORM II 8260C

FORM III
GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Matrix: Water Level: Low Lab File ID: UX970795.D

Lab ID: LCS 240-321696/7 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
1,1,1-Trichloroethane	20.0	23.2	116	64-147	
1,1,2-Trichloroethane	20.0	21.4	107	76-121	
1,1-Dichloroethane	20.0	22.3	112	74-120	
1,1-Dichloroethene	20.0	22.5	113	65-127	
1,2,4-Trichlorobenzene	20.0	17.2	86	34-141	
1,2,4-Trimethylbenzene	20.0	21.5	108	80-120	
1,2-Dichloroethane	20.0	23.5	118	68-133	
1,3,5-Trimethylbenzene	20.0	22.0	110	79-120	
Benzene	20.0	21.5	108	79-120	
Carbon tetrachloride	20.0	23.4	117	55-171	
Chloroform	20.0	22.5	113	80-120	
cis-1,2-Dichloroethene	20.0	20.9	105	77-120	
Dichlorodifluoromethane	20.0	17.0	85	42-141	
Ethylbenzene	20.0	19.8	99	80-120	
Methyl tert-butyl ether	20.0	22.1	111	73-120	
Methylene Chloride	20.0	20.2	101	64-140	
m-Xylene & p-Xylene	20.0	20.1	100	80-120	
Naphthalene	20.0	18.6	93	31-127	
o-Xylene	20.0	19.6	98	80-120	
Tetrachloroethene	20.0	18.6	93	80-122	
Toluene	20.0	20.5	103	78-120	
trans-1,2-Dichloroethene	20.0	22.8	114	74-124	
Trichloroethene	20.0	20.7	104	76-124	
Vinyl chloride	20.0	20.8	104	65-124	
Xylenes, Total	40.0	39.7	99	80-120	

Column to be used to flag recovery and RPD values

FORM III 8260C

FORM III
GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Matrix: Water Level: Low Lab File ID: UXM10441.D

Lab ID: LCS 240-321981/4 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
1,1,1-Trichloroethane	20.0	22.7	114	64-147	
1,1,2-Trichloroethane	20.0	20.3	102	76-121	
1,1-Dichloroethane	20.0	21.7	109	74-120	
1,1-Dichloroethene	20.0	22.7	114	65-127	
1,2,4-Trichlorobenzene	20.0	21.1	106	34-141	
1,2,4-Trimethylbenzene	20.0	19.7	98	80-120	
1,2-Dichloroethane	20.0	21.7	108	68-133	
1,3,5-Trimethylbenzene	20.0	19.5	97	79-120	
Benzene	20.0	21.6	108	79-120	
Carbon tetrachloride	20.0	22.7	113	55-171	
Chloroform	20.0	22.1	111	80-120	
cis-1,2-Dichloroethene	20.0	21.9	110	77-120	
Dichlorodifluoromethane	20.0	23.9	119	42-141	
Ethylbenzene	20.0	20.4	102	80-120	
Methyl tert-butyl ether	20.0	20.7	103	73-120	
Methylene Chloride	20.0	20.7	104	64-140	
m-Xylene & p-Xylene	20.0	20.5	102	80-120	
Naphthalene	20.0	19.8	99	31-127	
o-Xylene	20.0	20.9	104	80-120	
Tetrachloroethene	20.0	20.0	100	80-122	
Toluene	20.0	20.0	100	78-120	
trans-1,2-Dichloroethene	20.0	22.2	111	74-124	
Trichloroethene	20.0	21.5	107	76-124	
Vinyl chloride	20.0	21.1	106	65-124	
Xylenes, Total	40.0	41.4	104	80-120	

Column to be used to flag recovery and RPD values

FORM III 8260C

FORM III
GC/MS VOA MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Matrix: Water Level: Low Lab File ID: UX970812.D

Lab ID: 240-93410-8 MS Client ID: WS-SP1/SP1A-A-032818 MS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	QC LIMITS REC	#
1,1,1-Trichloroethane	100	1.2 U	109	109	57-156	
1,1,2-Trichloroethane	100	1.7 U	98.6	99	68-127	
1,1-Dichloroethane	100	4.6 J	110	105	69-122	
1,1-Dichloroethene	100	48	166	118	62-127	
1,2,4-Trichlorobenzene	100	1.4 U	81.5	81	26-138	
1,2,4-Trimethylbenzene	100	1.2 U	103	103	64-120	
1,2-Dichloroethane	100	1.5 U	119	119	64-138	
1,3,5-Trimethylbenzene	100	1.2 U	107	107	67-120	
Benzene	100	1.4 U	103	103	69-127	
Carbon tetrachloride	100	1.8 U	105	105	53-175	
Chloroform	100	1.6 U	109	109	74-125	
cis-1,2-Dichloroethene	100	11	112	100	69-127	
Dichlorodifluoromethane	100	2.5 U	89.6	90	45-130	
Ethylbenzene	100	1.3 U	93.5	93	72-121	
Methyl tert-butyl ether	100	1.4 U	104	104	67-125	
Methylene Chloride	100	2.7 U	99.4	99	52-137	
m-Xylene & p-Xylene	100	1.2 U	96.1	96	70-121	
Naphthalene	100	1.3 U	88.2	88	28-150	
o-Xylene	100	1.4 U	95.1	95	71-125	
Tetrachloroethene	100	1.5 U	88.2	88	69-126	
Toluene	100	1.2 U	99.5	100	69-125	
trans-1,2-Dichloroethene	100	1.5 U	116	116	66-131	
Trichloroethene	100	160	251	93	68-129	
Vinyl chloride	100	2.3 U	102	102	55-123	
Xylenes, Total	200	1.2 U	191	96	71-122	

Column to be used to flag recovery and RPD values

FORM III 8260C

FORM III
GC/MS VOA MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Matrix: Water Level: Low Lab File ID: UXM10457.D

Lab ID: 240-93414-C-5 MS Client ID:

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	QC LIMITS REC	#
1,1,1-Trichloroethane	200000	2300 U	224000	112	57-156	
1,1-Dichloroethane	200000	2500 U	217000	109	69-122	
1,1-Dichloroethene	200000	2700 U	213000	107	62-127	
Benzene	200000	2800 U	212000	106	69-127	
cis-1,2-Dichloroethene	200000	230000	433000	102	69-127	
Ethylbenzene	200000	2600 U	199000	100	72-121	
m-Xylene & p-Xylene	200000	2400 U	202000	101	70-121	
Naphthalene	200000	2500 U	176000	88	28-150	
o-Xylene	200000	2800 U	206000	103	71-125	
Tetrachloroethene	200000	3000 U	179000	90	69-126	
Toluene	200000	2300 U	196000	98	69-125	
trans-1,2-Dichloroethene	200000	2900 U	221000	110	66-131	
Trichloroethene	200000	3300 U	203000	102	68-129	
Vinyl chloride	200000	14000	229000	107	55-123	
Xylenes, Total	400000	2400 U	408000	102	71-122	

Column to be used to flag recovery and RPD values

FORM III 8260C

FORM III
GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Matrix: Water Level: Low Lab File ID: UX970813.D

Lab ID: 240-93410-8 MSD Client ID: WS-SP1/SP1A-A-032818 MSD

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
1,1,1-Trichloroethane	100	110	110	1	13	57-156	
1,1,2-Trichloroethane	100	103	103	5	11	68-127	
1,1-Dichloroethane	100	113	108	3	11	69-122	
1,1-Dichloroethene	100	164	116	1	14	62-127	
1,2,4-Trichlorobenzene	100	80.7	81	1	35	26-138	
1,2,4-Trimethylbenzene	100	100	100	3	22	64-120	
1,2-Dichloroethane	100	123	123	3	11	64-138	
1,3,5-Trimethylbenzene	100	103	103	3	25	67-120	
Benzene	100	107	107	4	10	69-127	
Carbon tetrachloride	100	108	108	3	17	53-175	
Chloroform	100	111	111	2	11	74-125	
cis-1,2-Dichloroethene	100	114	102	2	11	69-127	
Dichlorodifluoromethane	100	88.1	88	2	34	45-130	
Ethylbenzene	100	98.1	98	5	15	72-121	
Methyl tert-butyl ether	100	111	111	7	12	67-125	
Methylene Chloride	100	102	102	2	12	52-137	
m-Xylene & p-Xylene	100	97.6	98	2	15	70-121	
Naphthalene	100	92.4	92	5	35	28-150	
o-Xylene	100	96.2	96	1	15	71-125	
Tetrachloroethene	100	90.1	90	2	18	69-126	
Toluene	100	101	101	2	14	69-125	
trans-1,2-Dichloroethene	100	115	115	1	11	66-131	
Trichloroethene	100	252	93	0	12	68-129	
Vinyl chloride	100	102	102	0	12	55-123	
Xylenes, Total	200	194	97	1	14	71-122	

Column to be used to flag recovery and RPD values

FORM III 8260C

FORM III
GC/MS VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Matrix: Water Level: Low Lab File ID: UXM10458.D

Lab ID: 240-93414-C-5 MSD Client ID:

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
1,1,1-Trichloroethane	200000	212000	106	5	13	57-156	
1,1-Dichloroethane	200000	197000	98	10	11	69-122	
1,1-Dichloroethene	200000	213000	107	0	14	62-127	
Benzene	200000	199000	99	7	10	69-127	
cis-1,2-Dichloroethene	200000	398000	84	8	11	69-127	
Ethylbenzene	200000	187000	93	7	15	72-121	
m-Xylene & p-Xylene	200000	190000	95	6	15	70-121	
Naphthalene	200000	161000	80	9	35	28-150	
o-Xylene	200000	188000	94	9	15	71-125	
Tetrachloroethene	200000	188000	94	5	18	69-126	
Toluene	200000	188000	94	4	14	69-125	
trans-1,2-Dichloroethene	200000	206000	103	7	11	66-131	
Trichloroethene	200000	195000	98	4	12	68-129	
Vinyl chloride	200000	197000	92	15	12	55-123	F2
Xylenes, Total	400000	378000	95	8	14	71-122	

Column to be used to flag recovery and RPD values

FORM III 8260C

FORM IV
GC/MS VOA METHOD BLANK SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab File ID: UX970797.D Lab Sample ID: MB 240-321696/9

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

Instrument ID: A3UX9 Date Analyzed: 04/09/2018 11:29

GC Column: DB-624 ID: 0.18(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 240-321696/7	UX970795.D	04/09/2018 10:43
WS-HRS7-A-032818	240-93410-1	UX970803.D	04/09/2018 13:51
WS-HRS6-A-032818	240-93410-2	UX970804.D	04/09/2018 14:14
WS-UTILITY-A-032818	240-93410-3	UX970805.D	04/09/2018 14:37
WS-HRS4-A-032818	240-93410-4	UX970806.D	04/09/2018 15:00
WS-HRS3-A-032818	240-93410-5	UX970807.D	04/09/2018 15:23
WS-LS5-A-032818	240-93410-6	UX970808.D	04/09/2018 15:45
WS-HRS1-A-032818	240-93410-7	UX970809.D	04/09/2018 16:09
WS-SP1/SP1A-A-032818	240-93410-8	UX970810.D	04/09/2018 16:32
TB-032818	240-93410-9	UX970811.D	04/09/2018 16:55
WS-SP1/SP1A-A-032818 MS	240-93410-8 MS	UX970812.D	04/09/2018 17:18
WS-SP1/SP1A-A-032818 MSD	240-93410-8 MSD	UX970813.D	04/09/2018 17:41

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 240-321696/9

Matrix: Water | Lab File ID: UX970797.D

Analysis Method: 8260C | Date Collected:

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 11:29

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	0.23	U	1.0	0.23
79-00-5	1,1,2-Trichloroethane	0.34	U	1.0	0.34
75-34-3	1,1-Dichloroethane	0.25	U	1.0	0.25
75-35-4	1,1-Dichloroethene	0.27	U	1.0	0.27
526-73-8	1,2,3-Trimethylbenzene	0.22	U	5.0	0.22
120-82-1	1,2,4-Trichlorobenzene	0.27	U	1.0	0.27
95-63-6	1,2,4-Trimethylbenzene	0.24	U	1.0	0.24
107-06-2	1,2-Dichloroethane	0.30	U	1.0	0.30
108-67-8	1,3,5-Trimethylbenzene	0.24	U	1.0	0.24
71-43-2	Benzene	0.28	U	1.0	0.28
56-23-5	Carbon tetrachloride	0.35	U	1.0	0.35
67-66-3	Chloroform	0.31	U	1.0	0.31
156-59-2	cis-1,2-Dichloroethene	0.30	U	1.0	0.30
75-71-8	Dichlorodifluoromethane	0.50	U	1.0	0.50
100-41-4	Ethylbenzene	0.26	U	1.0	0.26
1634-04-4	Methyl tert-butyl ether	0.27	U	1.0	0.27
75-09-2	Methylene Chloride	0.53	U	1.0	0.53
91-20-3	Naphthalene	0.25	U	1.0	0.25
127-18-4	Tetrachloroethene	0.30	U	1.0	0.30
108-88-3	Toluene	0.23	U	1.0	0.23
156-60-5	trans-1,2-Dichloroethene	0.29	U	1.0	0.29
79-01-6	Trichloroethene	0.33	U	1.0	0.33
75-01-4	Vinyl chloride	0.45	U	1.0	0.45
1330-20-7	Xylenes, Total	0.24	U	2.0	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	103		73-120
1868-53-7	Dibromofluoromethane (Surr)	102		69-124
460-00-4	4-Bromofluorobenzene (Surr)	101		69-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	114		61-138

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Client Sample ID: Lab Sample ID: MB 240-321696/9

Matrix: Water Lab File ID: UX970797.D

Analysis Method: 8260C Date Collected:

Sample wt/vol: 5(mL) Date Analyzed: 04/09/2018 11:29

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 321696 Units: ug/L

Number TICs Found: 0 TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TARGETED TENATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 240-321696/9

Matrix: Water | Lab File ID: UX970797.D

Analysis Method: 8260C | Date Collected:

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 11:29

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
75-45-6	Chlorodifluoromethane TIC		1.0	U	

FORM IV
GC/MS VOA METHOD BLANK SUMMARY

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab File ID: UXM10444.D Lab Sample ID: MB 240-321981/8

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

Instrument ID: A3UX16 Date Analyzed: 04/10/2018 18:11

GC Column: DB-624 ID: 0.18(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 240-321981/4	UXM10441.D	04/10/2018 17:01
WS-HRS7-A-032818	240-93410-1	UXM10448.D	04/10/2018 19:43
WS-HRS6-A-032818	240-93410-2	UXM10449.D	04/10/2018 20:07
	240-93414-C-5 MS	UXM10457.D	04/10/2018 23:12
	240-93414-C-5 MSD	UXM10458.D	04/10/2018 23:36

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 240-321981/8

Matrix: Water | Lab File ID: UXM10444.D

Analysis Method: 8260C | Date Collected:

Sample wt/vol: 5(mL) | Date Analyzed: 04/10/2018 18:11

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321981 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	0.23	U	1.0	0.23
79-00-5	1,1,2-Trichloroethane	0.34	U	1.0	0.34
75-34-3	1,1-Dichloroethane	0.25	U	1.0	0.25
75-35-4	1,1-Dichloroethene	0.27	U	1.0	0.27
526-73-8	1,2,3-Trimethylbenzene	0.22	U	5.0	0.22
120-82-1	1,2,4-Trichlorobenzene	0.27	U	1.0	0.27
95-63-6	1,2,4-Trimethylbenzene	0.24	U	1.0	0.24
107-06-2	1,2-Dichloroethane	0.30	U	1.0	0.30
108-67-8	1,3,5-Trimethylbenzene	0.24	U	1.0	0.24
71-43-2	Benzene	0.28	U	1.0	0.28
56-23-5	Carbon tetrachloride	0.35	U	1.0	0.35
67-66-3	Chloroform	0.31	U	1.0	0.31
156-59-2	cis-1,2-Dichloroethene	0.30	U	1.0	0.30
75-71-8	Dichlorodifluoromethane	0.50	U	1.0	0.50
100-41-4	Ethylbenzene	0.26	U	1.0	0.26
1634-04-4	Methyl tert-butyl ether	0.27	U	1.0	0.27
75-09-2	Methylene Chloride	0.873	J	1.0	0.53
91-20-3	Naphthalene	0.25	U	1.0	0.25
127-18-4	Tetrachloroethene	0.30	U	1.0	0.30
108-88-3	Toluene	0.23	U	1.0	0.23
156-60-5	trans-1,2-Dichloroethene	0.29	U	1.0	0.29
79-01-6	Trichloroethene	0.33	U	1.0	0.33
75-01-4	Vinyl chloride	0.45	U	1.0	0.45
1330-20-7	Xylenes, Total	0.24	U	2.0	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	99		73-120
1868-53-7	Dibromofluoromethane (Surr)	96		69-124
460-00-4	4-Bromofluorobenzene (Surr)	94		69-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		61-138

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Client Sample ID: Lab Sample ID: MB 240-321981/8

Matrix: Water Lab File ID: UXM10444.D

Analysis Method: 8260C Date Collected:

Sample wt/vol: 5(mL) Date Analyzed: 04/10/2018 18:11

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 321981 Units: ug/L

Number TICs Found: 0 TIC Result Total: 0

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
	Tentatively Identified Compound		None		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET
TARGETED TENATIVELY IDENTIFIED COMPOUNDS

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Client Sample ID: Lab Sample ID: MB 240-321981/8

Matrix: Water Lab File ID: UXM10444.D

Analysis Method: 8260C Date Collected:

Sample wt/vol: 5(mL) Date Analyzed: 04/10/2018 18:11

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: DB-624 ID: 0.18(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 321981 Units: ug/L

CAS NO.	COMPOUND NAME	RT	RESULT	Q	MATCH QUALITY
75-45-6	Chlorodifluoromethane TIC		1.0	U	

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab File ID: BFB5551.D BFB Injection Date: 02/15/2018

Instrument ID: A3UX16 BFB Injection Time: 15:15

Analysis Batch No.: 314985

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	17.1	
75	30.0 - 60.0 % of mass 95	48.0	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.7	
173	Less than 2.0 % of mass 174	0.0	(0.0) 1
174	50.0 - 120.00 % of mass 95	82.2	
175	5.0 - 9.0 % of mass 174	5.4	(6.5) 1
176	95.0 - 101.0 % of mass 174	78.5	(95.6) 1
177	5.0 - 9.0 % of mass 176	4.7	(6.0) 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
	STDA9 240-314985/20	UXM9373.D	02/15/2018	20:05
	STDA9 240-314985/21	UXM9374.D	02/15/2018	20:28
	STDA9 240-314985/22	UXM9375.D	02/15/2018	20:50
	STDA9 240-314985/23	UXM9376.D	02/15/2018	21:14
	STDA9 240-314985/24	UXM9377.D	02/15/2018	21:37
	STDA9 240-314985/25	UXM9378.D	02/15/2018	22:00

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 314985

SDG No.:

Instrument ID: A3UX16 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/15/2018 20:05 Calibration End Date: 02/15/2018 22:00 Calibration ID: 43408

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STDA9 240-314985/25	UXM9378.D
Level 2	STDA9 240-314985/24	UXM9377.D
Level 3	STDA9 240-314985/23	UXM9376.D
Level 4	STDA9 240-314985/22	UXM9375.D
Level 5	STDA9 240-314985/21	UXM9374.D
Level 6	STDA9 240-314985/20	UXM9373.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 3	LVL 4	LVL 5		B	M1	M2								
Acetonitrile	0.0235 0.0280	0.0230	0.0290	0.0307	0.0276	Ave		0.0270				11.3		20.0			
Isopropyl ether	0.2490 0.2488	0.2697	0.2858	0.2818	0.2670	Ave		0.2670				5.9		20.0			
2-Chloro-1,3-butadiene	0.3962 0.3961	0.3625	0.4370	0.4218	0.3997	Ave		0.4022				6.3		20.0			
Tert-butyl ethyl ether	0.7473 0.7799	0.8671	0.8907	0.8723	0.8431	Ave		0.8334				6.8		20.0			
Ethyl acetate	0.2877 0.2158	0.3024	0.2428	0.2085	0.2212	Ave		0.2464				16.1		20.0			
Propionitrile	0.0297 0.0354	0.0376	0.0381	0.0356	0.0354	Ave		0.0353				8.4		20.0			
Methacrylonitrile	0.1693 0.1569	0.1753	0.1661	0.1541	0.1562	Ave		0.1630				5.2		20.0			
Tert-amyl methyl ether	0.8017 0.8542	0.9190	0.9270	0.9113	0.8948	Ave		0.8847				5.4		20.0			
n-Butanol	0.0059 0.0058	0.0084	0.0063	0.0059	0.0060	Ave		0.0064				15.6		20.0			
Ethyl acrylate	0.3546 0.2952	0.3305	0.3163	0.2795	0.2963	Ave		0.3121				8.8		20.0			
Methyl methacrylate	0.2342 0.2075	0.2341	0.2294	0.2090	0.2139	Ave		0.2214				5.7		20.0			
2-Nitropropane	0.0661 0.0737	0.0665	0.0705	0.0692	0.0730	Ave		0.0698				4.6		20.0			
n-Butyl acetate	0.3751 0.3305	0.3955	0.3744	0.3242	0.3378	Ave		0.3563				8.2		20.0			
1-Chlorohexane	0.4303 0.3465	0.3751	0.3856	0.3655	0.3547	Ave		0.3763				8.0		20.0			
Cyclohexanone	0.0152 0.0169	0.0184	0.0182	0.0176	0.0171	Ave		0.0172				6.6		20.0			

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

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 314985

SDG No.:

Instrument ID: A3UX16 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/15/2018 20:05 Calibration End Date: 02/15/2018 22:00 Calibration ID: 43408

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 3	LVL 4	LVL 5		B	M1	M2								
Pentachloroethane	0.1472 0.2017	0.1672	0.1970	0.2082	0.2098	Ave		0.1885				13.5		20.0			
1,2,3-Trimethylbenzene	2.1824 2.4710	2.5507	2.6338	2.6305	2.6145	Ave		2.5138				6.9		20.0			
Benzyl chloride	0.2393 0.3517	0.2653	0.2744	0.3016	0.3414	Ave		0.2956				15.0		20.0			
1,3,5-Trichlorobenzene	0.8628 0.6793	0.9651	0.7902	0.8026	0.7667	Ave		0.8111				11.9		20.0			
2-Methylnaphthalene	+++++ 0.9996	1.9102	1.1985	1.1174	1.0898	Lin1	1.9567	1.0299				7.8			0.9980		0.9900

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

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 314985

SDG No.:

Instrument ID: A3UX16 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/15/2018 20:05 Calibration End Date: 02/15/2018 22:00 Calibration ID: 43408

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STDA9 240-314985/25	UXM9378.D
Level 2	STDA9 240-314985/24	UXM9377.D
Level 3	STDA9 240-314985/23	UXM9376.D
Level 4	STDA9 240-314985/22	UXM9375.D
Level 5	STDA9 240-314985/21	UXM9374.D
Level 6	STDA9 240-314985/20	UXM9373.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Acetonitrile	FB	Ave	6213 987585	12007	157163	332105	641325	5.00 600	10.0	100	200	400
Isopropyl ether	FB	Ave	6569 878288	14085	155124	305304	620252	0.500 60.0	1.00	10.0	20.0	40.0
2-Chloro-1,3-butadiene	FB	Ave	10455 1398367	18935	237193	457027	928687	0.500 60.0	1.00	10.0	20.0	40.0
Tert-butyl ethyl ether	FB	Ave	19718 2753224	45290	483470	945038	1958764	0.500 60.0	1.00	10.0	20.0	40.0
Ethyl acetate	FB	Ave	15181 1523318	31594	263606	451763	1027707	1.00 120	2.00	20.0	40.0	80.0
Propionitrile	FB	Ave	7848 1249647	19615	206928	385369	822145	5.00 600	10.0	100	200	400
Methacrylonitrile	FB	Ave	44674 5538027	91560	901452	1669718	3629613	5.00 600	10.0	100	200	400
Tert-amyl methyl ether	FB	Ave	21154 3015180	48002	503224	987349	2078894	0.500 60.0	1.00	10.0	20.0	40.0
n-Butanol	FB	Ave	3888 508306	10947	85042	161110	350965	12.5 1500	25.0	250	500	1000
Ethyl acrylate	FB	Ave	9357 1042174	17264	171722	302876	688419	0.500 60.0	1.00	10.0	20.0	40.0
Methyl methacrylate	FB	Ave	12360 1465137	24451	249086	452946	993792	1.00 120	2.00	20.0	40.0	80.0
2-Nitropropane	FB	Ave	3488 520366	6949	76533	149894	339124	1.00 120	2.00	20.0	40.0	80.0
n-Butyl acetate	FB	Ave	9898 1166616	20656	203253	351279	784820	0.500 60.0	1.00	10.0	20.0	40.0
1-Chlorohexane	CBNZ d5	Ave	9531 973337	16285	170819	324383	672823	0.500 60.0	1.00	10.0	20.0	40.0
Cyclohexanone	DCBd 4	Ave	1721 246780	4172	42328	83322	168868	5.00 600	10.0	100	200	400
Pentachloroethane	CBNZ d5	Ave	6521 1133457	14520	174582	369464	796136	1.00 120	2.00	20.0	40.0	80.0

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 314985

SDG No.:

Instrument ID: A3UX16 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/15/2018 20:05 Calibration End Date: 02/15/2018 22:00 Calibration ID: 43408

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
1,2,3-Trimethylbenzene	DCBd 4	Ave	24637 3609414	57792	613091	1246127	2580368	0.500 60.0	1.00	10.0	20.0	40.0
Benzyl chloride	DCBd 4	Ave	2702 513799	6012	63881	142856	336901	0.500 60.0	1.00	10.0	20.0	40.0
1,3,5-Trichlorobenzene	DCBd 4	Ave	9740 992193	21866	183938	380185	756704	0.500 60.0	1.00	10.0	20.0	40.0
2-Methylnaphthalene	DCBd 4	Lin1	+++++ 2920401	86560	557984	1058662	2151104	+++++ 120	2.00	20.0	40.0	80.0

Curve Type Legend:

Ave = Average ISTD
Lin1 = Linear 1/conc ISTD

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 314985

SDG No.:

Instrument ID: A3UX16 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 02/15/2018 20:05 Calibration End Date: 02/15/2018 22:00 Calibration ID: 43408

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STDA9 240-314985/25	UXM9378.D
Level 2	STDA9 240-314985/24	UXM9377.D
Level 3	STDA9 240-314985/23	UXM9376.D
Level 4	STDA9 240-314985/22	UXM9375.D
Level 5	STDA9 240-314985/21	UXM9374.D
Level 6	STDA9 240-314985/20	UXM9373.D

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
2-Methylnaphthalene	+++++	-9.5						50				

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab File ID: BFB5597.D BFB Injection Date: 04/02/2018

Instrument ID: A3UX16 BFB Injection Time: 17:17

Analysis Batch No.: 320974

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	15.4	
75	30.0 - 60.0 % of mass 95	47.4	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.2	
173	Less than 2.0 % of mass 174	1.0	(1.1) 1
174	50.0 - 120.00 % of mass 95	85.6	
175	5.0 - 9.0 % of mass 174	6.5	(7.6) 1
176	95.0 - 101.0 % of mass 174	82.4	(96.2) 1
177	5.0 - 9.0 % of mass 176	4.8	(5.8) 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
	STD8260 240-320974/9	UXM10301.D	04/02/2018	18:31
	STD8260 240-320974/10	UXM10302.D	04/02/2018	18:54
	STD8260 240-320974/11	UXM10303.D	04/02/2018	19:17
	ICIS 240-320974/12	UXM10304.D	04/02/2018	19:39
	STD8260 240-320974/13	UXM10305.D	04/02/2018	20:03
	STD8260 240-320974/14	UXM10306.D	04/02/2018	20:26
	STD8260 240-320974/15	UXM10307.D	04/02/2018	20:49
	STD8260 240-320974/16	UXM10308.D	04/02/2018	21:12
	ICV 240-320974/17	UXM10309.D	04/02/2018	21:35

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320974

SDG No.:

Instrument ID: A3UX16 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/02/2018 18:31 Calibration End Date: 04/02/2018 21:12 Calibration ID: 44467

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-320974/16	UXM10308.D
Level 2	STD8260 240-320974/15	UXM10307.D
Level 3	STD8260 240-320974/14	UXM10306.D
Level 4	STD8260 240-320974/13	UXM10305.D
Level 5	ICIS 240-320974/12	UXM10304.D
Level 6	STD8260 240-320974/11	UXM10303.D
Level 7	STD8260 240-320974/10	UXM10302.D
Level 8	STD8260 240-320974/9	UXM10301.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 5		B	M1	M2								
Dichlorodifluoromethane	0.2148 0.2902	0.2318 0.3264	0.2956 0.2403	0.2857	0.2451	Ave		0.2662			0.1000	14.5		20.0			
Chloromethane	0.2150 0.2599	0.2352 0.2587	0.2626 0.2147	0.2748	0.2561	Ave		0.2471			0.1000	9.2		20.0			
Vinyl chloride	0.2187 0.2880	0.2502 0.2862	0.2901 0.2290	0.2814	0.2711	Ave		0.2643			0.1000	10.7		20.0			
Butadiene	0.2291 0.2417	0.2316 0.2530	0.2706 0.1963	0.2442	0.2179	Ave		0.2356				9.6		20.0			
Bromomethane	0.2314 0.2429	0.2364 0.2390	0.2368 0.2292	0.2231	0.2358	Ave		0.2343			0.0500	2.6		20.0			
Chloroethane	0.1547 0.1919	0.1952 0.1888	0.1879 0.1750	0.1842	0.1885	Ave		0.1833			0.0500	7.1		20.0			
Dichlorofluoromethane	0.4552 0.4440	0.4015 0.4272	0.4094 0.4003	0.4040	0.4474	Ave		0.4236				5.4		20.0			
Trichlorofluoromethane	0.3784 0.4441	0.3209 0.4724	0.4688 0.3911	0.3994	0.3907	Ave		0.4082			0.1000	12.5		20.0			
Ethyl ether	0.1628 0.2135	0.2072 0.2088	0.2144 0.1911	0.2138	0.2062	Ave		0.2022				8.7		20.0			
Acrolein	0.0309 0.0388	0.0369 0.0393	0.0397 0.0379	0.0389	0.0368	Ave		0.0374				7.5		20.0			
1,1-Dichloroethene	0.2010 0.2665	0.2359 0.2755	0.2574 0.2512	0.2408	0.2606	Ave		0.2486			0.1000	9.3		20.0			
1,1,2-Trichloro-1,2,2-trifluoroethane	0.1681 0.2040	0.1058 0.2295	0.1977 +++++	0.1557	0.2007	Qua	0.0041	0.1513	0.0019252		0.0500	21.4			0.9990		0.9900
Acetone	+++++ 0.0652	0.1971 0.0630	0.1162 0.0642	0.0844	0.0643	Lin1	0.2803	0.0609			0.0100	8.1			0.9970		0.9900
Iodomethane	0.3892 0.5098	0.4501 0.5009	0.4139 0.4505	0.4745	0.4665	Ave		0.4569				8.9		20.0			

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

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320974

SDG No.:

Instrument ID: A3UX16 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/02/2018 18:31 Calibration End Date: 04/02/2018 21:12 Calibration ID: 44467

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 5		B	M1	M2								
Carbon disulfide	0.5436 0.7459	0.6246 0.7664	0.5864 0.7516	0.6441	0.7308	Ave		0.6742			0.1000	12.7		20.0			
3-Chloro-1-propene	0.3047 0.3404	0.3241 0.3334	0.3003 0.3227	0.3202	0.3233	Ave		0.3211				4.2		20.0			
Methyl acetate	0.1774 0.1619	0.1755 0.1621	0.1856 0.1658	0.1831	0.1538	Ave		0.1707			0.1000	6.7		20.0			
Methylene Chloride	+++++ 0.2881	0.3109 0.2832	0.2636 0.2637	0.2745	0.2905	Ave		0.2821			0.1000	5.9		20.0			
2-Methyl-2-propanol	0.0129 0.0196	0.0232 0.0203	0.0185 0.0209	0.0225	0.0185	Ave		0.0196				16.3		20.0			
Acrylonitrile	0.0875 0.0864	0.0952 0.0863	0.0900 0.0885	0.0938	0.0825	Ave		0.0888				4.7		20.0			
trans-1,2-Dichloroethene	0.2756 0.3085	0.2695 0.3056	0.2645 0.2997	0.2956	0.3036	Ave		0.2903			0.1000	6.1		20.0			
Methyl tert-butyl ether	0.7654 0.8429	0.8564 0.8387	0.8103 0.8360	0.9014	0.8212	Ave		0.8340			0.1000	4.7		20.0			
Hexane	0.2766 0.2096	0.2067 0.2302	0.2756 0.2582	0.1774	0.2171	Ave		0.2314				15.4		20.0			
1,1-Dichloroethane	0.3878 0.4507	0.4517 0.4445	0.4055 0.4306	0.4561	0.4483	Ave		0.4344			0.2000	5.7		20.0			
Vinyl acetate	0.3135 0.4166	0.4245 0.4220	0.3856 0.4231	0.4263	0.4113	Ave		0.4029				9.5		20.0			
cis-1,2-Dichloroethene	0.2907 0.3527	0.3200 0.3441	0.2955 0.3351	0.3570	0.3552	Ave		0.3313			0.1000	8.0		20.0			
2-Butanone (MEK)	+++++ 0.0311	0.0380 0.0309	0.0375 0.0327	0.0357	0.0290	Ave		0.0335			0.0100	10.5		20.0			
2,2-Dichloropropane	+++++ 0.0955	0.0704 0.0896	0.0665 0.0818	0.0775	0.0920	Ave		0.0819				13.5		20.0			
Chlorobromomethane	0.1128 0.1762	0.1626 0.1708	0.1355 0.1651	0.1726	0.1723	Ave		0.1585				14.2		20.0			
Tetrahydrofuran	+++++ 0.0583	0.0682 0.0594	0.0754 0.0626	0.0720	0.0551	Ave		0.0644				11.7		20.0			
Chloroform	0.4712 0.5108	0.5049 0.5029	0.4626 0.4826	0.5200	0.5115	Ave		0.4958			0.2000	4.2		20.0			
1,1,1-Trichloroethane	0.3996 0.4637	0.3661 0.4596	0.4022 0.4531	0.4391	0.4577	Ave		0.4301			0.1000	8.4		20.0			
Cyclohexane	0.2988 0.3098	0.2825 0.3367	0.3716 0.3566	0.2765	0.3376	Ave		0.3212			0.1000	10.8		20.0			
1,1-Dichloropropene	0.3726 0.3772	0.3232 0.3803	0.3745 0.3771	0.3760	0.3800	Ave		0.3701				5.2		20.0			

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

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320974

SDG No.:

Instrument ID: A3UX16 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/02/2018 18:31 Calibration End Date: 04/02/2018 21:12 Calibration ID: 44467

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 5		B	M1	M2								
Carbon tetrachloride	0.3028 0.3853	0.2751 0.4030	0.3157 0.4027	0.3559	0.3871	Ave		0.3535			0.1000	14.0		20.0			
Isobutyl alcohol	+++++ 0.0061	0.0060 0.0062	0.0058 0.0066	0.0078	0.0057	Ave		0.0063				11.6		20.0			
Benzene	1.1769 1.1828	1.1362 1.1646	1.1005 1.1427	1.2138	1.1815	Ave		1.1624			0.5000	3.0		20.0			
1,2-Dichloroethane	0.3699 0.3965	0.4038 0.3943	0.3846 0.3826	0.4207	0.3991	Ave		0.3939			0.1000	3.9		20.0			
n-Heptane	+++++ 0.1136	0.6865 0.1175	0.4095 0.1257	0.1428	0.1227	Ave		0.2455				90.4	*	20.0			
Trichloroethene	0.3680 0.3583	0.3389 0.3592	0.3141 0.3414	0.3574	0.3566	Ave		0.3492			0.1500	4.9		20.0			
Methylcyclohexane	0.4110 0.3174	0.2533 0.3403	0.3471 0.3683	0.2788	0.3332	Ave		0.3312			0.1000	14.9		20.0			
1,2-Dichloropropane	0.2371 0.2528	0.2551 0.2471	0.2459 0.2399	0.2593	0.2505	Ave		0.2485			0.1000	3.0		20.0			
Dibromomethane	0.1817 0.1891	0.1864 0.1841	0.1718 0.1808	0.1861	0.1854	Ave		0.1832				2.9		20.0			
1,4-Dioxane	+++++ 0.0031	0.0025 0.0033	0.0023 0.0034	0.0029	0.0030	Ave		0.0029				13.7		20.0			
Dichlorobromomethane	0.2930 0.3884	0.3271 0.3864	0.3223 0.3818	0.3727	0.3822	Ave		0.3567			0.1500	10.3		20.0			
2-Chloroethyl vinyl ether	0.1396 0.1632	0.1497 0.1645	0.1647 0.1659	0.1768	0.1592	Ave		0.1605				7.0		20.0			
cis-1,3-Dichloropropene	0.3576 0.4512	0.3725 0.4505	0.3468 0.4430	0.4364	0.4413	Ave		0.4124			0.1500	10.9		20.0			
4-Methyl-2-pentanone (MIBK)	0.1793 0.2019	0.2264 0.2017	0.2453 0.2107	0.2443	0.1923	Ave		0.2127			0.0500	11.3		20.0			
Toluene	1.2436 1.4098	1.3815 1.3665	1.3656 1.3480	1.4620	1.3807	Ave		1.3697			0.4000	4.5		20.0			
trans-1,3-Dichloropropene	0.3530 0.4416	0.3566 0.4320	0.3507 0.4348	0.4441	0.4181	Ave		0.4039			0.1000	10.5		20.0			
Ethyl methacrylate	0.2513 0.3711	0.3778 0.3631	0.3823 0.3653	0.4055	0.3558	Ave		0.3590				12.8		20.0			
1,1,2-Trichloroethane	0.2265 0.2844	0.2897 0.2769	0.2760 0.2682	0.2953	0.2740	Ave		0.2739			0.1000	7.7		20.0			
Tetrachloroethene	0.2336 0.2654	0.2479 0.2707	0.2603 0.2626	0.2714	0.2675	Ave		0.2599			0.1500	5.0		20.0			
1,3-Dichloropropane	0.4811 0.4687	0.4827 0.4591	0.4895 0.4466	0.5124	0.4617	Ave		0.4752				4.3		20.0			

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

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320974

SDG No.:

Instrument ID: A3UX16 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/02/2018 18:31 Calibration End Date: 04/02/2018 21:12 Calibration ID: 44467

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 5		B	M1	M2								
2-Hexanone	0.1301 0.1438	0.1564 0.1420	0.1848 0.1506	0.1763	0.1319	Ave		0.1520			0.0500	13.0		20.0			
Chlorodibromomethane	0.2126 0.3214	0.2500 0.3185	0.2284 0.3229	0.3056	0.3038	Ave		0.2829				16.0		20.0			
Ethylene Dibromide	0.2336 0.3038	0.2922 0.2979	0.2882 0.2968	0.3249	0.2899	Ave		0.2909				8.9		20.0			
Chlorobenzene	0.9326 0.9677	0.9187 0.9366	0.8791 0.9106	0.9919	0.9397	Ave		0.9346			0.3000	3.7		20.0			
1,1,1,2-Tetrachloroethane	0.2336 0.3411	0.2671 0.3349	0.2649 0.3283	0.3343	0.3295	Ave		0.3042				13.8		20.0			
Ethylbenzene	0.4466 0.5069	0.4666 0.4897	0.4480 0.4856	0.5216	0.4875	Ave		0.4816				5.5		20.0			
m-Xylene & p-Xylene	0.5347 0.6154	0.5450 0.6089	0.5641 0.5972	0.6456	0.6086	Ave		0.5899				6.5		20.0			
o-Xylene	0.5662 0.6200	0.5490 0.6035	0.5392 0.5930	0.6371	0.6020	Ave		0.5887				5.8		20.0			
Styrene	0.8897 1.0950	0.9118 1.0728	0.8985 1.0435	1.0963	1.0589	Ave		1.0083			0.3000	9.1		20.0			
Bromoform	+++++ 0.2020	0.1300 0.2027	0.1335 0.2118	0.1832	0.1816	Ave		0.1778			0.1000	18.7		20.0			
Isopropylbenzene	1.2984 1.3978	1.2474 1.3924	1.2779 1.3619	1.4157	1.3782	Ave		1.3462			0.1000	4.7		20.0			
1,1,2,2-Tetrachloroethane	0.5001 0.5594	0.6378 0.5586	0.7113 0.5582	0.6714	0.5455	Ave		0.5928			0.3000	12.2		20.0			
Bromobenzene	0.6978 0.6914	0.6716 0.6958	0.7485 0.6694	0.7727	0.6997	Ave		0.7059				5.1		20.0			
1,2,3-Trichloropropane	0.1709 0.2064	0.2515 0.2096	0.2940 0.2090	0.2702	0.2030	Ave		0.2268				18.0		20.0			
trans-1,4-Dichloro-2-butene	+++++ 0.1398	0.1024 0.1503	0.1435 0.1598	0.1478	0.1317	Ave		0.1393				13.3		20.0			
N-Propylbenzene	0.6022 0.6451	0.6697 0.6567	0.6952 0.6330	0.7004	0.6461	Ave		0.6561				4.9		20.0			
2-Chlorotoluene	0.5629 0.6113	0.5985 0.6064	0.6388 0.5986	0.6795	0.6091	Ave		0.6132				5.5		20.0			
1,3,5-Trimethylbenzene	1.8735 1.8508	1.9122 1.9107	1.8956 1.8274	2.0313	1.8888	Ave		1.8988				3.2		20.0			
4-Chlorotoluene	0.5967 0.6676	0.6813 0.6618	0.7507 0.6466	0.7232	0.6761	Ave		0.6755				6.9		20.0			
tert-Butylbenzene	1.6244 1.7812	1.5800 1.8049	1.8679 1.7294	1.8928	1.7781	Ave		1.7573				6.2		20.0			

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

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320974

SDG No.:

Instrument ID: A3UX16 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/02/2018 18:31 Calibration End Date: 04/02/2018 21:12 Calibration ID: 44467

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 5		B	M1	M2								
1,2,4-Trimethylbenzene	1.9357 2.0182	2.0641 2.0264	2.0219 1.9460	2.1632	2.0159	Ave		2.0239				3.5		20.0			
sec-Butylbenzene	2.0629 1.9806	2.0352 1.9998	2.0385 1.9182	2.0375	1.9794	Ave		2.0065				2.3		20.0			
1,3-Dichlorobenzene	1.2265 1.2606	1.2913 1.2500	1.2172 1.2025	1.3352	1.2460	Ave		1.2537			0.6000	3.4		20.0			
4-Isopropyltoluene	1.7970 1.8349	1.8623 1.8682	1.7423 1.7785	1.8279	1.8546	Ave		1.8207				2.4		20.0			
1,4-Dichlorobenzene	1.3608 1.2949	1.4641 1.2891	1.2967 1.2432	1.3708	1.2800	Ave		1.3249			0.5000	5.3		20.0			
n-Butylbenzene	1.6124 1.4025	1.5590 1.4190	1.3173 1.3335	1.3438	1.4110	Ave		1.4248				7.5		20.0			
1,2-Dichlorobenzene	1.2913 1.2134	1.2565 1.2203	1.0973 1.1708	1.2464	1.2144	Ave		1.2138			0.4000	4.9		20.0			
1,2-Dibromo-3-Chloropropane	+++++ 0.1235	0.0768 0.1282	0.1157 0.1314	0.1322	0.1159	Ave		0.1177			0.0500	16.3		20.0			
1,2,4-Trichlorobenzene	0.6418 0.6410	0.7034 0.6361	0.3844 0.5802	0.4695	0.6365	Ave		0.5866			0.2000	18.1		20.0			
Hexachlorobutadiene	0.3390 0.2344	0.3661 0.2310	0.1678 0.1921	0.1684	0.2396	Ave		0.2423				30.6	*	20.0			
Naphthalene	1.8653 1.9539	1.9663 1.9606	1.6141 1.9547	1.6828	1.8967	Ave		1.8618				7.4		20.0			
1,2,3-Trichlorobenzene	0.6082 0.5900	0.6511 0.5855	0.3903 0.5409	0.4060	0.5930	Ave		0.5456				17.6		20.0			
Dibromofluoromethane (Surr)	0.2443 0.2981	0.2528 0.2887	0.2331 0.2736	0.2841	0.2879	Ave		0.2703				8.8		20.0			
1,2-Dichloroethane-d4 (Surr)	0.3552 0.3383	0.3714 0.3272	0.2901 0.3178	0.3432	0.3353	Ave		0.3348				7.3		20.0			
Toluene-d8 (Surr)	1.1917 1.2339	1.1651 1.1994	1.0768 1.1378	1.2371	1.1558	Ave		1.1747				4.5		20.0			
4-Bromofluorobenzene (Surr)	0.4170 0.4464	0.4281 0.4337	0.3697 0.4164	0.4523	0.4333	Ave		0.4246				6.0		20.0			

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

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320974

SDG No.:

Instrument ID: A3UX16 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/02/2018 18:31 Calibration End Date: 04/02/2018 21:12 Calibration ID: 44467

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-320974/16	UXM10308.D
Level 2	STD8260 240-320974/15	UXM10307.D
Level 3	STD8260 240-320974/14	UXM10306.D
Level 4	STD8260 240-320974/13	UXM10305.D
Level 5	ICIS 240-320974/12	UXM10304.D
Level 6	STD8260 240-320974/11	UXM10303.D
Level 7	STD8260 240-320974/10	UXM10302.D
Level 8	STD8260 240-320974/9	UXM10301.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
Dichlorodifluoromethane	FB	Ave	5367 544202	11777 830751	41244 921870	170668	299623	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Chloromethane	FB	Ave	5370 487486	11949 658599	36636 823883	164184	313031	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Vinyl chloride	FB	Ave	5464 540085	12710 728558	40477 878665	168109	331316	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Butadiene	FB	Ave	5724 453241	11764 644093	37747 753051	145913	266345	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Bromomethane	FB	Ave	5780 455653	12007 608333	33039 879168	133309	288267	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Chloroethane	FB	Ave	3865 359835	9915 480521	26209 671480	110064	230441	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Dichlorofluoromethane	FB	Ave	11371 832741	20395 1087267	57116 1535772	241364	546808	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Trichlorofluoromethane	FB	Ave	9453 832927	16303 1202430	65399 1500326	238600	477552	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Ethyl ether	FB	Ave	4068 400525	10524 531448	29918 733192	127758	252053	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Acrolein	FB	Ave	3862 363557	9360 499686	27660 726073	116333	224848	2.50 150	5.00 200	12.5 300	50.0	100
1,1-Dichloroethene	FB	Ave	5020 499817	11981 701156	35907 963811	143850	318519	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	FB	Qua	4200 382627	5373 584281	27581 +++++	93035	245343	0.500 30.0	1.00 40.0	2.50 +++++	10.0	20.0
Acetone	FB	Lin1	+++++ 244468	20020 320911	32426 492410	100866	157093	+++++ 60.0	2.00 80.0	5.00 120	20.0	40.0
Iodomethane	FB	Ave	9722 956196	22865 1275028	57746 1728468	283509	570258	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Carbon disulfide	FB	Ave	13581 1398953	31727 1950849	81813 2883335	384820	893300	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320974

SDG No.:

Instrument ID: A3UX16 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/02/2018 18:31 Calibration End Date: 04/02/2018 21:12 Calibration ID: 44467

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
3-Chloro-1-propene	FB	Ave	7613 638536	16466 848582	41890 1237861	191270	395143	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Methyl acetate	FB	Ave	8862 607475	17835 825381	51778 1271946	218833	376085	1.00 60.0	2.00 80.0	5.00 120	20.0	40.0
Methylene Chloride	FB	Ave	+++++ 540406	15792 720794	36780 1011682	164017	355039	+++++ 30.0	1.00 40.0	2.50 60.0	10.0	20.0
2-Methyl-2-propanol	FB	Ave	3222 368191	11788 515762	25742 803123	134587	226068	5.00 300	10.0 400	25.0 600	100	200
Acrylonitrile	FB	Ave	21854 1620683	48382 2196739	125581 3396576	560598	1008267	5.00 300	10.0 400	25.0 600	100	200
trans-1,2-Dichloroethene	FB	Ave	6884 578533	13689 777742	36896 1149784	176627	371113	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Methyl tert-butyl ether	FB	Ave	19120 1580844	43502 2134775	113046 3207297	538509	1003777	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Hexane	FB	Ave	6909 393169	10499 585916	38448 990460	106002	265327	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,1-Dichloroethane	FB	Ave	9687 845395	22944 1131313	56574 1651893	272478	547919	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Vinyl acetate	FB	Ave	7831 781284	21566 1074123	53801 1623217	254686	502726	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
cis-1,2-Dichloroethene	FB	Ave	7261 661447	16255 875863	41232 1285502	213294	434214	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
2-Butanone (MEK)	FB	Ave	+++++ 116516	3858 157250	10464 250690	42628	70886	+++++ 60.0	2.00 80.0	5.00 120	20.0	40.0
2,2-Dichloropropane	FB	Ave	+++++ 179033	3575 227993	9279 313699	46275	112491	+++++ 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Chlorobromomethane	FB	Ave	2819 330421	8258 434666	18911 633482	103124	210640	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Tetrahydrofuran	FB	Ave	+++++ 218857	6924 302529	21026 480245	86025	134661	+++++ 60.0	2.00 80.0	5.00 120	20.0	40.0
Chloroform	FB	Ave	11770 958112	25650 1280035	64541 1851372	310642	625207	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,1,1-Trichloroethane	FB	Ave	9982 869685	18595 1169791	56115 1738240	262328	559398	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Cyclohexane	FB	Ave	7464 580990	14348 856916	51844 1367981	165174	412671	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,1-Dichloropropene	FB	Ave	9309 707491	16418 967982	52250 1446704	224626	464507	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Carbon tetrachloride	FB	Ave	7565 722683	13975 1025868	44048 1544950	212637	473139	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Isobutyl alcohol	FB	Ave	+++++ 285712	7659 392778	20304 628868	117140	172678	+++++ 750	25.0 1000	62.5 1500	250	500

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320974

SDG No.:

Instrument ID: A3UX16 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/02/2018 18:31 Calibration End Date: 04/02/2018 21:12 Calibration ID: 44467

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
Benzene	FB	Ave	29401 2218437	57716 2964296	153537 4384142	725145	1444094	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,2-Dichloroethane	FB	Ave	9240 743594	20510 1003680	53661 1467860	251351	487776	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
n-Heptane	FB	Ave	+++++ 213047	34871 299082	57133 482179	85337	149935	+++++ 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Trichloroethene	FB	Ave	9193 671990	17213 914300	43818 1309794	213500	435917	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Methylcyclohexane	FB	Ave	10268 595395	12869 866165	48431 1412919	166577	407295	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,2-Dichloropropane	FB	Ave	5924 474120	12958 628859	34306 920538	154931	306216	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Dibromomethane	FB	Ave	4538 354671	9468 468697	23973 693688	111155	226562	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,4-Dioxane	FB	Ave	+++++ 118056	2518 168596	6513 260523	35041	74252	+++++ 600	20.0 800	50.0 1200	200	400
Dichlorobromomethane	FB	Ave	7319 728405	16615 983519	44965 1464800	222647	467180	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
2-Chloroethyl vinyl ether	FB	Ave	6973 612158	15212 837588	45966 1273256	211259	389122	1.00 60.0	2.00 80.0	5.00 120	20.0	40.0
cis-1,3-Dichloropropene	FB	Ave	8934 846186	18921 1146644	48383 1699418	260694	539345	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
4-Methyl-2-pentanone (MIBK)	FB	Ave	8958 757290	23004 1026578	68433 1616622	291882	470175	1.00 60.0	2.00 80.0	5.00 120	20.0	40.0
Toluene	CBNZ d5	Ave	29424 2530727	66668 3396829	175152 5080650	829476	1641485	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
trans-1,3-Dichloropropene	CBNZ d5	Ave	8351 792813	17210 1073752	44984 1638557	251943	497124	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Ethyl methacrylate	CBNZ d5	Ave	5946 666089	18229 902622	49028 1376797	230059	423060	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,1,2-Trichloroethane	CBNZ d5	Ave	5360 510550	13980 688366	35401 1010990	167542	325789	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Tetrachloroethene	CBNZ d5	Ave	5528 476368	11964 672771	33383 989849	153988	318072	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,3-Dichloropropane	CBNZ d5	Ave	11382 841416	23293 1141161	62784 1683348	290719	548902	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
2-Hexanone	CBNZ d5	Ave	6157 516151	15098 706110	47398 1135142	200024	313580	1.00 60.0	2.00 80.0	5.00 120	20.0	40.0
Chlorodibromomethane	CBNZ d5	Ave	5029 577035	12066 791825	29290 1216881	173355	361207	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Ethylene Dibromide	CBNZ d5	Ave	5527 545294	14101 740426	36968 1118633	184310	344656	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320974

SDG No.:

Instrument ID: A3UX16 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/02/2018 18:31 Calibration End Date: 04/02/2018 21:12 Calibration ID: 44467

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
Chlorobenzene	CBNZ d5	Ave	22066 1737225	44331 2328161	112756 3431884	562750	1117177	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,1,1,2-Tetrachloroethane	CBNZ d5	Ave	5527 612264	12889 832526	33974 1237283	189653	391715	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Ethylbenzene	CBNZ d5	Ave	10566 910003	22516 1217268	57454 1830124	295941	579551	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
m-Xylene & p-Xylene	CBNZ d5	Ave	12650 1104721	26301 1513608	72347 2250706	366289	723600	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
o-Xylene	CBNZ d5	Ave	13397 1112904	26493 1500181	69160 2234902	361446	715687	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Styrene	CBNZ d5	Ave	21051 1965663	44002 2666746	115234 3932937	621959	1258896	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Bromoform	CBNZ d5	Ave	+++++ 362681	6275 503819	17121 798403	103931	215923	+++++ 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Isopropylbenzene	CBNZ d5	Ave	30719 2509239	60196 3461102	163898 5132963	803202	1638547	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,1,2,2-Tetrachloroethane	DCBd 4	Ave	6202 615489	16546 826523	43667 1257140	209903	387222	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Bromobenzene	DCBd 4	Ave	8654 760711	17423 1029601	45950 1507564	241547	496711	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,2,3-Trichloropropane	DCBd 4	Ave	2119 227091	6523 310226	18045 470716	84467	144083	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
trans-1,4-Dichloro-2-butene	DCBd 4	Ave	+++++ 153809	2657 222410	8808 359840	46196	93507	+++++ 30.0	1.00 40.0	2.50 60.0	10.0	20.0
N-Propylbenzene	DCBd 4	Ave	7468 709753	17374 971765	42675 1425676	218949	458683	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
2-Chlorotoluene	DCBd 4	Ave	6981 672592	15526 897387	39216 1348238	212431	432433	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,3,5-Trimethylbenzene	DCBd 4	Ave	23235 2036326	49604 2827393	116364 4115780	634999	1340874	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
4-Chlorotoluene	DCBd 4	Ave	7400 734527	17674 979342	46083 1456288	226081	479929	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
tert-Butylbenzene	DCBd 4	Ave	20145 1959661	40988 2670871	114664 3894996	591726	1262279	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,2,4-Trimethylbenzene	DCBd 4	Ave	24006 2220439	53546 2998554	124120 4382994	676249	1431068	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
sec-Butylbenzene	DCBd 4	Ave	25584 2179123	52794 2959189	125138 4320214	636955	1405161	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,3-Dichlorobenzene	DCBd 4	Ave	15211 1386934	33498 1849625	74720 2708445	417388	884539	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
4-Isopropyltoluene	DCBd 4	Ave	22286 2018822	48311 2764542	106953 4005739	571426	1316557	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320974

SDG No.:

Instrument ID: A3UX16 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/02/2018 18:31 Calibration End Date: 04/02/2018 21:12 Calibration ID: 44467

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2 LVL 7	LVL 3 LVL 8	LVL 4	LVL 5
1,4-Dichlorobenzene	DCBd 4	Ave	16876 1424731	37979 1907556	79602 2800024	428523	908669	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
n-Butylbenzene	DCBd 4	Ave	19997 1543018	40442 2099784	80863 3003425	420080	1001676	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,2-Dichlorobenzene	DCBd 4	Ave	16014 1335044	32595 1805701	67361 2636899	389639	862080	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,2-Dibromo-3-Chloropropane	DCBd 4	Ave	+++++ 135839	1993 189639	7102 295899	41333	82288	+++++ 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,2,4-Trichlorobenzene	DCBd 4	Ave	7960 705246	18246 941249	23598 1306656	146775	451866	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Hexachlorobutadiene	DCBd 4	Ave	4204 257915	9496 341758	10303 432594	52639	170067	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Naphthalene	DCBd 4	Ave	23133 2149762	51007 2901214	99082 4402501	526075	1346455	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,2,3-Trichlorobenzene	DCBd 4	Ave	7543 649109	16889 866364	23962 1218145	126933	420991	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Dibromofluoromethane (Surr)	FB	Ave	6104 559022	12841 734949	32518 1049832	169734	351955	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
1,2-Dichloroethane-d4 (Surr)	FB	Ave	8874 634576	18865 832722	40472 1219435	205044	409781	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
Toluene-d8 (Surr)	CBNZ d5	Ave	28196 2215082	56226 2981423	138113 4288115	701850	1374096	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0
4-Bromofluorobenzene (Surr)	CBNZ d5	Ave	9866 801391	20661 1078022	47421 1569503	256622	515133	0.500 30.0	1.00 40.0	2.50 60.0	10.0	20.0

Curve Type Legend:

Ave = Average ISTD
Lin1 = Linear 1/conc ISTD
Qua = Quadratic ISTD

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320974

SDG No.:

Instrument ID: A3UX16 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/02/2018 18:31 Calibration End Date: 04/02/2018 21:12 Calibration ID: 44467

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-320974/16	UXM10308.D
Level 2	STD8260 240-320974/15	UXM10307.D
Level 3	STD8260 240-320974/14	UXM10306.D
Level 4	STD8260 240-320974/13	UXM10305.D
Level 5	ICIS 240-320974/12	UXM10304.D
Level 6	STD8260 240-320974/11	UXM10303.D
Level 7	STD8260 240-320974/10	UXM10302.D
Level 8	STD8260 240-320974/9	UXM10301.D

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 # LVL 7 #	LVL 2 # LVL 8 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1 LVL 7	LVL 2 LVL 8	LVL 3	LVL 4	LVL 5	LVL 6
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	+++++					50					
Acetone	+++++	-6.7						50				

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab Sample ID: ICV 240-320974/17 Calibration Date: 04/02/2018 21:35

Instrument ID: A3UX16 Calib Start Date: 04/02/2018 18:31

GC Column: DB-624 ID: 0.18(mm) Calib End Date: 04/02/2018 21:12

Lab File ID: UXM10309.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.2662	0.1968	0.1000	0.0148	0.0200	-26.1	30.0
Chloromethane	Ave	0.2471	0.2385	0.1000	0.0193	0.0200	-3.5	30.0
Vinyl chloride	Ave	0.2643	0.2481	0.1000	0.0188	0.0200	-6.2	30.0
Butadiene	Ave	0.2356	0.1882		0.0160	0.0200	-20.1	30.0
Bromomethane	Ave	0.2343	0.2426	0.0500	0.0207	0.0200	3.5	30.0
Chloroethane	Ave	0.1833	0.1892	0.0500	0.0206	0.0200	3.2	30.0
Dichlorofluoromethane	Ave	0.4236	0.4790		0.0226	0.0200	13.1	30.0
Trichlorofluoromethane	Ave	0.4082	0.3603	0.1000	0.0177	0.0200	-11.7	30.0
Ethyl ether	Ave	0.2022	0.2063		0.0204	0.0200	2.0	30.0
Acrolein	Ave	0.0374	0.0266		0.0712	0.100	-28.8	50.0
1,1-Dichloroethene	Ave	0.2486	0.2176	0.1000	0.0175	0.0200	-12.5	30.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Qua		0.1403	0.0500	0.0155	0.0200	-22.7	30.0
Acetone	Lin1		0.0599	0.0100	0.0347	0.0400	-13.2	50.0
Iodomethane	Ave	0.4569	0.4204		0.0184	0.0200	-8.0	30.0
Carbon disulfide	Ave	0.6742	0.6396	0.1000	0.0190	0.0200	-5.1	30.0
3-Chloro-1-propene	Ave	0.3211	0.3239		0.0202	0.0200	0.9	30.0
Methyl acetate	Ave	0.1707	0.1514	0.1000	0.0355	0.0400	-11.3	30.0
Methylene Chloride	Ave	0.2821	0.2824	0.1000	0.0200	0.0200	0.1	50.0
2-Methyl-2-propanol	Ave	0.0196	0.0166		0.170	0.200	-15.0	50.0
Acrylonitrile	Ave	0.0888	0.0793		0.179	0.200	-10.7	30.0
Methyl tert-butyl ether	Ave	0.8340	0.7710	0.1000	0.0185	0.0200	-7.6	30.0
trans-1,2-Dichloroethene	Ave	0.2903	0.2858	0.1000	0.0197	0.0200	-1.6	30.0
Hexane	Ave	0.2314	0.1764		0.0152	0.0200	-23.8	30.0
1,1-Dichloroethane	Ave	0.4344	0.4361	0.2000	0.0201	0.0200	0.4	30.0
Vinyl acetate	Ave	0.4029	0.4003		0.0199	0.0200	-0.6	50.0
cis-1,2-Dichloroethene	Ave	0.3313	0.3289	0.1000	0.0199	0.0200	-0.7	30.0
2,2-Dichloropropane	Ave	0.0819	0.0827		0.0202	0.0200	1.0	30.0
2-Butanone (MEK)	Ave	0.0335	0.0277	0.0100	0.0331	0.0400	-17.3	30.0
Chlorobromomethane	Ave	0.1585	0.1560		0.0197	0.0200	-1.6	30.0
Tetrahydrofuran	Ave	0.0644	0.0540		0.0336	0.0400	-16.1	30.0
Chloroform	Ave	0.4958	0.5007	0.2000	0.0202	0.0200	1.0	30.0
1,1,1-Trichloroethane	Ave	0.4301	0.4078	0.1000	0.0190	0.0200	-5.2	30.0
Cyclohexane	Ave	0.3212	0.2643	0.1000	0.0165	0.0200	-17.7	30.0
1,1-Dichloropropene	Ave	0.3701	0.3431		0.0185	0.0200	-7.3	30.0
Carbon tetrachloride	Ave	0.3535	0.3166	0.1000	0.0179	0.0200	-10.4	30.0
Isobutyl alcohol	Ave	0.0063	0.0054		0.425	0.500	-15.1	30.0
Benzene	Ave	1.162	1.131	0.5000	0.0195	0.0200	-2.7	30.0
1,2-Dichloroethane	Ave	0.3939	0.4015	0.1000	0.0204	0.0200	1.9	30.0
n-Heptane	Ave	0.2455	0.1121		0.00913	0.0200	-54.3*	30.0
Trichloroethene	Ave	0.3492	0.3133	0.1500	0.0179	0.0200	-10.3	30.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab Sample ID: ICV 240-320974/17 Calibration Date: 04/02/2018 21:35

Instrument ID: A3UX16 Calib Start Date: 04/02/2018 18:31

GC Column: DB-624 ID: 0.18(mm) Calib End Date: 04/02/2018 21:12

Lab File ID: UXM10309.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Ave	0.3312	0.2587	0.1000	0.0156	0.0200	-21.9	30.0
1,2-Dichloropropane	Ave	0.2485	0.2544	0.1000	0.0205	0.0200	2.4	30.0
Dibromomethane	Ave	0.1832	0.1805		0.0197	0.0200	-1.5	30.0
1,4-Dioxane	Ave	0.0029	0.0026		0.349	0.400	-12.7	50.0
Dichlorobromomethane	Ave	0.3567	0.3769	0.1500	0.0211	0.0200	5.7	30.0
2-Chloroethyl vinyl ether	Ave	0.1605	0.1569		0.0195	0.0200	-2.3	30.0
cis-1,3-Dichloropropene	Ave	0.4124	0.4506	0.1500	0.0219	0.0200	9.3	30.0
4-Methyl-2-pentanone (MIBK)	Ave	0.2127	0.1911	0.0500	0.0359	0.0400	-10.2	30.0
Toluene	Ave	1.370	1.326	0.4000	0.0194	0.0200	-3.2	30.0
trans-1,3-Dichloropropene	Ave	0.4039	0.3973	0.1000	0.0197	0.0200	-1.6	30.0
Ethyl methacrylate	Ave	0.3590	0.3359		0.0187	0.0200	-6.4	30.0
1,1,2-Trichloroethane	Ave	0.2739	0.2682	0.1000	0.0196	0.0200	-2.1	30.0
1,3-Dichloropropane	Ave	0.4752	0.4438		0.0187	0.0200	-6.6	30.0
Tetrachloroethene	Ave	0.2599	0.2143	0.1500	0.0165	0.0200	-17.6	30.0
2-Hexanone	Ave	0.1520	0.1288	0.0500	0.0339	0.0400	-15.2	30.0
Chlorodibromomethane	Ave	0.2829	0.2824		0.0200	0.0200	-0.2	30.0
Ethylene Dibromide	Ave	0.2909	0.2733		0.0188	0.0200	-6.0	30.0
Chlorobenzene	Ave	0.9346	0.9310	0.3000	0.0199	0.0200	-0.4	30.0
1,1,1,2-Tetrachloroethane	Ave	0.3042	0.3252		0.0214	0.0200	6.9	30.0
Ethylbenzene	Ave	0.4816	0.4798		0.0199	0.0200	-0.4	30.0
m-Xylene & p-Xylene	Ave	0.5899	0.6088		0.0206	0.0200	3.2	30.0
o-Xylene	Ave	0.5887	0.6268		0.0213	0.0200	6.5	30.0
Styrene	Ave	1.008	1.081	0.3000	0.0214	0.0200	7.2	30.0
Bromoform	Ave	0.1778	0.1797	0.1000	0.0202	0.0200	1.1	30.0
Isopropylbenzene	Ave	1.346	1.378	0.1000	0.0205	0.0200	2.4	30.0
1,1,2,2-Tetrachloroethane	Ave	0.5928	0.5114	0.3000	0.0173	0.0200	-13.7	30.0
Bromobenzene	Ave	0.7059	0.6508		0.0184	0.0200	-7.8	30.0
1,2,3-Trichloropropane	Ave	0.2268	0.1976		0.0174	0.0200	-12.9	30.0
trans-1,4-Dichloro-2-butene	Ave	0.1393	0.1308		0.0188	0.0200	-6.1	30.0
N-Propylbenzene	Ave	0.6561	0.6048		0.0184	0.0200	-7.8	30.0
2-Chlorotoluene	Ave	0.6132	0.5953		0.0194	0.0200	-2.9	30.0
1,3,5-Trimethylbenzene	Ave	1.899	1.784		0.0188	0.0200	-6.1	30.0
4-Chlorotoluene	Ave	0.6755	0.6337		0.0188	0.0200	-6.2	30.0
tert-Butylbenzene	Ave	1.757	1.713		0.0195	0.0200	-2.5	30.0
1,2,4-Trimethylbenzene	Ave	2.024	1.925		0.0190	0.0200	-4.9	30.0
sec-Butylbenzene	Ave	2.007	1.823		0.0182	0.0200	-9.2	30.0
1,3-Dichlorobenzene	Ave	1.254	1.190	0.6000	0.0190	0.0200	-5.1	30.0
4-Isopropyltoluene	Ave	1.821	1.699		0.0187	0.0200	-6.7	30.0
1,4-Dichlorobenzene	Ave	1.325	1.249	0.5000	0.0189	0.0200	-5.7	30.0
n-Butylbenzene	Ave	1.425	1.266		0.0178	0.0200	-11.1	30.0
1,2-Dichlorobenzene	Ave	1.214	1.169	0.4000	0.0193	0.0200	-3.7	30.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab Sample ID: ICV 240-320974/17 Calibration Date: 04/02/2018 21:35

Instrument ID: A3UX16 Calib Start Date: 04/02/2018 18:31

GC Column: DB-624 ID: 0.18(mm) Calib End Date: 04/02/2018 21:12

Lab File ID: UXM10309.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dibromo-3-Chloropropane	Ave	0.1177	0.1044	0.0500	0.0177	0.0200	-11.3	50.0
1,2,4-Trichlorobenzene	Ave	0.5866	0.5959	0.2000	0.0203	0.0200	1.6	50.0
Hexachlorobutadiene	Ave	0.2423	0.1921		0.0159	0.0200	-20.7	30.0
Naphthalene	Ave	1.862	1.744		0.0187	0.0200	-6.3	50.0
1,2,3-Trichlorobenzene	Ave	0.5456	0.5436		0.0199	0.0200	-0.4	30.0
Dibromofluoromethane (Surr)	Ave	0.2703	0.2441		0.0181	0.0200	-9.7	30.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3348	0.3169		0.0189	0.0200	-5.3	30.0
Toluene-d8 (Surr)	Ave	1.175	1.066		0.0181	0.0200	-9.3	30.0
4-Bromofluorobenzene (Surr)	Ave	0.4246	0.4290		0.0202	0.0200	1.0	30.0

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab File ID: BFB5602.D BFB Injection Date: 04/10/2018

Instrument ID: A3UX16 BFB Injection Time: 16:15

Analysis Batch No.: 321981

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	17.3	
75	30.0 - 60.0 % of mass 95	49.7	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.8	
173	Less than 2.0 % of mass 174	0.8	(1.0) 1
174	50.0 - 120.00 % of mass 95	78.8	
175	5.0 - 9.0 % of mass 174	5.9	(7.5) 1
176	95.0 - 101.0 % of mass 174	76.9	(97.6) 1
177	5.0 - 9.0 % of mass 176	4.9	(6.4) 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 240-321981/3	UXM10440.D	04/10/2018	16:38
	LCS 240-321981/4	UXM10441.D	04/10/2018	17:01
	CCV 240-321981/5	UXM10442.D	04/10/2018	17:25
	MB 240-321981/8	UXM10444.D	04/10/2018	18:11
WS-HRS7-A-032818	240-93410-1	UXM10448.D	04/10/2018	19:43
WS-HRS6-A-032818	240-93410-2	UXM10449.D	04/10/2018	20:07
	240-93414-C-5 MS	UXM10457.D	04/10/2018	23:12
	240-93414-C-5 MSD	UXM10458.D	04/10/2018	23:36

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab Sample ID: CCVIS 240-321981/3 Calibration Date: 04/10/2018 16:38

Instrument ID: A3UX16 Calib Start Date: 04/02/2018 18:31

GC Column: DB-624 ID: 0.18(mm) Calib End Date: 04/02/2018 21:12

Lab File ID: UXM10440.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.2662	0.3522	0.1000	0.0265	0.0200	32.3*	20.0
Chloromethane	Ave	0.2471	0.2853	0.1000	0.0231	0.0200	15.4	20.0
Vinyl chloride	Ave	0.2643	0.2904	0.1000	0.0220	0.0200	9.8	20.0
Butadiene	Ave	0.2356	0.2928		0.0249	0.0200	24.3*	20.0
Bromomethane	Ave	0.2343	0.2750	0.0500	0.0235	0.0200	17.4	20.0
Chloroethane	Ave	0.1833	0.2150	0.0500	0.0235	0.0200	17.3	20.0
Dichlorofluoromethane	Ave	0.4236	0.5108		0.0241	0.0200	20.6*	20.0
Trichlorofluoromethane	Ave	0.4082	0.5218	0.1000	0.0256	0.0200	27.8*	20.0
Ethyl ether	Ave	0.2022	0.2260		0.0223	0.0200	11.7	20.0
Acrolein	Ave	0.0374	0.0423		0.113	0.100	13.1	50.0
1,1-Dichloroethene	Ave	0.2486	0.2786	0.1000	0.0224	0.0200	12.1	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Qua		0.2099	0.0500	0.0217	0.0200	8.6	20.0
Acetone	Lin1		0.0749	0.0100	0.0445	0.0400	11.4	50.0
Iodomethane	Ave	0.4569	0.5034		0.0220	0.0200	10.2	20.0
Carbon disulfide	Ave	0.6742	0.8147	0.1000	0.0242	0.0200	20.8*	20.0
3-Chloro-1-propene	Ave	0.3211	0.3646		0.0227	0.0200	13.5	20.0
Methyl acetate	Ave	0.1707	0.1746	0.1000	0.0409	0.0400	2.3	20.0
Methylene Chloride	Ave	0.2821	0.3080	0.1000	0.0218	0.0200	9.2	50.0
2-Methyl-2-propanol	Ave	0.0196	0.0194		0.199	0.200	-0.6	50.0
Acrylonitrile	Ave	0.0888	0.0905		0.204	0.200	1.9	20.0
Methyl tert-butyl ether	Ave	0.8340	0.8932	0.1000	0.0214	0.0200	7.1	20.0
trans-1,2-Dichloroethene	Ave	0.2903	0.3127	0.1000	0.0215	0.0200	7.7	20.0
Hexane	Ave	0.2314	0.2355		0.0203	0.0200	1.7	20.0
1,1-Dichloroethane	Ave	0.4344	0.4846	0.2000	0.0223	0.0200	11.6	20.0
Vinyl acetate	Ave	0.4029	0.4848		0.0241	0.0200	20.3	50.0
2-Butanone (MEK)	Ave	0.0335	0.0325	0.0100	0.0387	0.0400	-3.2	20.0
cis-1,2-Dichloroethene	Ave	0.3313	0.3586	0.1000	0.0216	0.0200	8.2	20.0
2,2-Dichloropropane	Ave	0.0819	0.0929		0.0227	0.0200	13.4	20.0
Chlorobromomethane	Ave	0.1585	0.1739		0.0219	0.0200	9.7	20.0
Tetrahydrofuran	Ave	0.0644	0.0644		0.0400	0.0400	-0.1	20.0
Chloroform	Ave	0.4958	0.5523	0.2000	0.0223	0.0200	11.4	20.0
1,1,1-Trichloroethane	Ave	0.4301	0.4807	0.1000	0.0224	0.0200	11.8	20.0
Cyclohexane	Ave	0.3212	0.3537	0.1000	0.0220	0.0200	10.1	20.0
1,1-Dichloropropene	Ave	0.3701	0.3988		0.0215	0.0200	7.7	20.0
Carbon tetrachloride	Ave	0.3535	0.4032	0.1000	0.0228	0.0200	14.1	20.0
Isobutyl alcohol	Ave	0.0063	0.0062		0.487	0.500	-2.5	20.0
1,2-Dichloroethane	Ave	0.3939	0.4490	0.1000	0.0228	0.0200	14.0	20.0
Benzene	Ave	1.162	1.265	0.5000	0.0218	0.0200	8.9	20.0
n-Heptane	Ave	0.2455	0.1338		0.0109	0.0200	-45.5*	20.0
Trichloroethene	Ave	0.3492	0.3610	0.1500	0.0207	0.0200	3.4	20.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab Sample ID: CCVIS 240-321981/3 Calibration Date: 04/10/2018 16:38

Instrument ID: A3UX16 Calib Start Date: 04/02/2018 18:31

GC Column: DB-624 ID: 0.18(mm) Calib End Date: 04/02/2018 21:12

Lab File ID: UXM10440.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Ave	0.3312	0.3440	0.1000	0.0208	0.0200	3.9	20.0
1,2-Dichloropropane	Ave	0.2485	0.2726	0.1000	0.0219	0.0200	9.7	20.0
1,4-Dioxane	Ave	0.0029	0.0026		0.346	0.400	-13.4	50.0
Dibromomethane	Ave	0.1832	0.2008		0.0219	0.0200	9.6	20.0
Dichlorobromomethane	Ave	0.3567	0.4314	0.1500	0.0242	0.0200	20.9*	20.0
2-Chloroethyl vinyl ether	Ave	0.1605	0.1783		0.0445	0.0400	11.1	20.0
cis-1,3-Dichloropropene	Ave	0.4124	0.5015	0.1500	0.0243	0.0200	21.6*	20.0
4-Methyl-2-pentanone (MIBK)	Ave	0.2127	0.2210	0.0500	0.0416	0.0400	3.9	20.0
Toluene	Ave	1.370	1.405	0.4000	0.0205	0.0200	2.5	20.0
trans-1,3-Dichloropropene	Ave	0.4039	0.4481	0.1000	0.0222	0.0200	11.0	20.0
Ethyl methacrylate	Ave	0.3590	0.3674		0.0205	0.0200	2.3	20.0
1,1,2-Trichloroethane	Ave	0.2739	0.2823	0.1000	0.0206	0.0200	3.1	20.0
Tetrachloroethene	Ave	0.2599	0.2549	0.1500	0.0196	0.0200	-1.9	20.0
1,3-Dichloropropane	Ave	0.4752	0.4736		0.0199	0.0200	-0.3	20.0
2-Hexanone	Ave	0.1520	0.1407	0.0500	0.0370	0.0400	-7.5	20.0
Chlorodibromomethane	Ave	0.2829	0.3226		0.0228	0.0200	14.0	20.0
Ethylene Dibromide	Ave	0.2909	0.3017		0.0207	0.0200	3.7	20.0
Chlorobenzene	Ave	0.9346	0.9720	0.3000	0.0208	0.0200	4.0	20.0
1,1,1,2-Tetrachloroethane	Ave	0.3042	0.3533		0.0232	0.0200	16.1	20.0
Ethylbenzene	Ave	0.4816	0.5071		0.0211	0.0200	5.3	20.0
m-Xylene & p-Xylene	Ave	0.5899	0.6299		0.0214	0.0200	6.8	20.0
o-Xylene	Ave	0.5887	0.6331		0.0215	0.0200	7.5	20.0
Styrene	Ave	1.008	1.097	0.3000	0.0218	0.0200	8.8	20.0
Bromoform	Ave	0.1778	0.2107	0.1000	0.0237	0.0200	18.5	20.0
Isopropylbenzene	Ave	1.346	1.386	0.1000	0.0206	0.0200	3.0	20.0
1,1,2,2-Tetrachloroethane	Ave	0.5928	0.5804	0.3000	0.0196	0.0200	-2.1	20.0
Bromobenzene	Ave	0.7059	0.7173		0.0203	0.0200	1.6	20.0
1,2,3-Trichloropropane	Ave	0.2268	0.2186		0.0193	0.0200	-3.6	20.0
trans-1,4-Dichloro-2-butene	Ave	0.1393	0.1432		0.0206	0.0200	2.8	20.0
N-Propylbenzene	Ave	0.6561	0.6439		0.0196	0.0200	-1.8	20.0
2-Chlorotoluene	Ave	0.6132	0.6265		0.0204	0.0200	2.2	20.0
1,3,5-Trimethylbenzene	Ave	1.899	1.863		0.0196	0.0200	-1.9	20.0
4-Chlorotoluene	Ave	0.6755	0.6700		0.0198	0.0200	-0.8	20.0
tert-Butylbenzene	Ave	1.757	1.612		0.0183	0.0200	-8.3	20.0
1,2,4-Trimethylbenzene	Ave	2.024	1.991		0.0197	0.0200	-1.6	20.0
sec-Butylbenzene	Ave	2.007	1.908		0.0190	0.0200	-4.9	20.0
1,3-Dichlorobenzene	Ave	1.254	1.227	0.6000	0.0196	0.0200	-2.1	20.0
4-Isopropyltoluene	Ave	1.821	1.766		0.0194	0.0200	-3.0	20.0
1,4-Dichlorobenzene	Ave	1.325	1.280	0.5000	0.0193	0.0200	-3.4	20.0
n-Butylbenzene	Ave	1.425	1.264		0.0177	0.0200	-11.3	20.0
1,2-Dichlorobenzene	Ave	1.214	1.181	0.4000	0.0195	0.0200	-2.7	20.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab Sample ID: CCVIS 240-321981/3 Calibration Date: 04/10/2018 16:38

Instrument ID: A3UX16 Calib Start Date: 04/02/2018 18:31

GC Column: DB-624 ID: 0.18(mm) Calib End Date: 04/02/2018 21:12

Lab File ID: UXM10440.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dibromo-3-Chloropropane	Ave	0.1177	0.1161	0.0500	0.0197	0.0200	-1.3	50.0
1,2,4-Trichlorobenzene	Ave	0.5866	0.5048	0.2000	0.0172	0.0200	-13.9	50.0
Hexachlorobutadiene	Ave	0.2423	0.1677		0.0138	0.0200	-30.8*	20.0
Naphthalene	Ave	1.862	1.561		0.0168	0.0200	-16.2	50.0
1,2,3-Trichlorobenzene	Ave	0.5456	0.4294		0.0157	0.0200	-21.3*	20.0
Dibromofluoromethane (Surr)	Ave	0.2703	0.2663		0.0197	0.0200	-1.5	20.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.3348	0.3302		0.0197	0.0200	-1.4	20.0
Toluene-d8 (Surr)	Ave	1.175	1.129		0.0192	0.0200	-3.9	20.0
4-Bromofluorobenzene (Surr)	Ave	0.4246	0.4328		0.0204	0.0200	1.9	20.0

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab File ID: BFB4010.D BFB Injection Date: 03/27/2018

Instrument ID: A3UX9 BFB Injection Time: 16:47

Analysis Batch No.: 320313

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	15.7	
75	30.0 - 60.0 % of mass 95	46.8	
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	0.0	(0.0) 1
174	50.0 - 120.00 % of mass 95	85.0	
175	5.0 - 9.0 % of mass 174	6.4	(7.5) 1
176	95.0 - 101.0 % of mass 174	84.2	(99.1) 1
177	5.0 - 9.0 % of mass 176	6.0	(7.1) 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
	STD8260 240-320313/8	UX970510.D	03/27/2018	17:19
	STD8260 240-320313/9	UX970511.D	03/27/2018	17:42
	ICIS 240-320313/10	UX970512.D	03/27/2018	18:06
	STD8260 240-320313/11	UX970513.D	03/27/2018	18:29
	STD8260 240-320313/12	UX970514.D	03/27/2018	18:52
	STD8260 240-320313/13	UX970515.D	03/27/2018	19:15
	ICV 240-320313/14	UX970516.D	03/27/2018	19:36
	STDA9 240-320313/17	UX970519.D	03/27/2018	20:45
	STDA9 240-320313/18	UX970520.D	03/27/2018	21:08
	STDA9 240-320313/19	UX970521.D	03/27/2018	21:31
	STDA9 240-320313/20	UX970522.D	03/27/2018	21:54
	STDA9 240-320313/21	UX970523.D	03/27/2018	22:17
	STDA9 240-320313/22	UX970524.D	03/27/2018	22:40
	ICV 240-320313/23	UX970525.D	03/27/2018	23:03

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320313

SDG No.:

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/27/2018 17:19 Calibration End Date: 03/27/2018 19:15 Calibration ID: 44378

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-320313/13	UX970515.D
Level 2	STD8260 240-320313/12	UX970514.D
Level 3	STD8260 240-320313/11	UX970513.D
Level 4	ICIS 240-320313/10	UX970512.D
Level 5	STD8260 240-320313/9	UX970511.D
Level 6	STD8260 240-320313/8	UX970510.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 3	LVL 4	LVL 5		B	M1	M2								
Dichlorodifluoromethane	+++++ 0.3241	0.2498	0.3317	0.3101	0.3228	Ave		0.3077			0.1000	10.8		20.0			
Chloromethane	0.2623 0.2284	0.2496	0.2451	0.2448	0.2333	Ave		0.2439			0.1000	4.9		20.0			
Vinyl chloride	0.2795 0.2515	0.2625	0.2689	0.2672	0.2637	Ave		0.2655			0.1000	3.4		20.0			
Butadiene	0.1713 0.2103	0.2041	0.2397	0.1846	0.2245	Ave		0.2058				12.2		20.0			
Bromomethane	0.2355 0.2157	0.1917	0.2170	0.2154	0.2155	Ave		0.2151			0.0500	6.5		20.0			
Chloroethane	0.1953 0.1928	0.1855	0.1921	0.1867	0.1931	Ave		0.1909			0.0500	2.0		20.0			
Dichlorofluoromethane	0.3739 0.4038	0.3858	0.4111	0.4108	0.4072	Ave		0.3988				3.9		20.0			
Trichlorofluoromethane	0.2310 0.3845	0.3016	0.3980	0.3756	0.3840	Ave		0.3458			0.1000	19.1		20.0			
Ethyl ether	0.1689 0.1604	0.1737	0.1630	0.1713	0.1658	Ave		0.1672				3.0		20.0			
Acrolein	+++++ 0.0268	0.0227	0.0276	0.0264	0.0286	Ave		0.0264				8.5		20.0			
Acetone	+++++ 0.0465	0.1305	0.0584	0.0536	0.0493	Lin1	0.1765	0.0466			0.0100	7.5			0.9980		0.9900
1,1-Dichloroethene	0.2768 0.3249	0.2716	0.3368	0.3227	0.3018	Ave		0.3057			0.1000	8.8		20.0			
1,1,2-Trichloro-1,2,2-trifluoroethane	0.1665 0.2340	0.1816	0.2214	0.2129	0.2003	Ave		0.2028			0.0500	12.5		20.0			
Iodomethane	0.4082 0.4027	0.3909	0.4138	0.3992	0.3979	Ave		0.4021				2.0		20.0			
Carbon disulfide	0.9389 0.8349	0.9808	0.8278	0.8514	0.8056	Ave		0.8732			0.1000	8.0		20.0			

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

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320313

SDG No.:

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/27/2018 17:19 Calibration End Date: 03/27/2018 19:15 Calibration ID: 44378

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 3	LVL 4	LVL 5		B	M1	M2								
3-Chloro-1-propene	0.1680 0.2034	0.1562	0.1829	0.1773	0.2031	Ave		0.1818				10.4		20.0			
Methyl acetate	0.1532 0.1230	0.1515	0.1321	0.1454	0.1372	Ave		0.1404			0.1000	8.4		20.0			
Methylene Chloride	+++++ 0.2632	0.3746	0.2788	0.2852	0.2609	Ave		0.2925			0.1000	16.1		20.0			
2-Methyl-2-propanol	0.0195 0.0191	0.0222	0.0206	0.0234	0.0214	Ave		0.0210				7.8		20.0			
Acrylonitrile	0.0685 0.0726	0.0817	0.0784	0.0836	0.0797	Ave		0.0774				7.4		20.0			
trans-1,2-Dichloroethene	0.3100 0.2654	0.2582	0.2735	0.2664	0.2574	Ave		0.2718			0.1000	7.2		20.0			
Methyl tert-butyl ether	0.6084 0.6875	0.6655	0.6864	0.7192	0.7033	Ave		0.6784			0.1000	5.7		20.0			
Hexane	0.2113 0.2031	0.2135	0.2001	0.1967	0.1784	Ave		0.2005				6.3		20.0			
1,1-Dichloroethane	0.3528 0.3296	0.3623	0.3426	0.3341	0.3365	Ave		0.3430			0.2000	3.6		20.0			
Vinyl acetate	0.2885 0.2725	0.2353	0.2476	0.2873	0.2913	Ave		0.2704				8.8		20.0			
cis-1,2-Dichloroethene	0.2582 0.2660	0.2781	0.2899	0.2781	0.2749	Ave		0.2742			0.1000	4.0		20.0			
2-Butanone (MEK)	+++++ 0.0303	0.0259	0.0308	0.0336	0.0330	Ave		0.0307			0.0100	9.9		20.0			
2,2-Dichloropropane	+++++ 0.0469	0.0290	0.0425	0.0466	0.0468	Ave		0.0424				18.2		20.0			
Chlorobromomethane	0.1550 0.1465	0.1647	0.1490	0.1485	0.1427	Ave		0.1511				5.2		20.0			
Tetrahydrofuran	+++++ 0.0465	0.0528	0.0489	0.0552	0.0516	Ave		0.0510				6.6		20.0			
Chloroform	0.3637 0.3831	0.3824	0.4086	0.3819	0.3890	Ave		0.3848			0.2000	3.8		20.0			
1,1,1-Trichloroethane	0.3317 0.3378	0.2832	0.3100	0.3104	0.3201	Ave		0.3155			0.1000	6.1		20.0			
Cyclohexane	0.3894 0.3978	0.3490	0.3879	0.3764	0.3465	Ave		0.3745			0.1000	5.8		20.0			
1,1-Dichloropropene	0.3142 0.2918	0.2695	0.2949	0.2901	0.2790	Ave		0.2899				5.2		20.0			
Carbon tetrachloride	0.2045 0.2695	0.2080	0.2431	0.2419	0.2412	Ave		0.2347			0.1000	10.4		20.0			

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

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320313

SDG No.:

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/27/2018 17:19 Calibration End Date: 03/27/2018 19:15 Calibration ID: 44378

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 3	LVL 4	LVL 5		B	M1	M2								
Isobutyl alcohol	0.0050 0.0051	0.0036	0.0052	0.0064	0.0060	Ave		0.0052				18.6		20.0			
Benzene	0.9317 0.9242	0.8956	0.9616	0.9460	0.9258	Ave		0.9308			0.5000	2.4		20.0			
1,2-Dichloroethane	0.2962 0.2797	0.2647	0.2905	0.2950	0.2902	Ave		0.2861			0.1000	4.2		20.0			
n-Heptane	+++++ 0.1208	0.2867	0.1278	0.1149	0.1072	Lin1	0.1695	0.1111				6.8			0.9960		0.9900
Trichloroethene	0.2380 0.2648	0.2536	0.2593	0.2681	0.2623	Ave		0.2577			0.1500	4.2		20.0			
Methylcyclohexane	0.2588 0.3089	0.2877	0.2850	0.2872	0.2737	Ave		0.2835			0.1000	5.9		20.0			
1,2-Dichloropropane	0.1821 0.1910	0.2130	0.1946	0.1974	0.1932	Ave		0.1952			0.1000	5.2		20.0			
Dibromomethane	0.1580 0.1724	0.1806	0.1862	0.1748	0.1806	Ave		0.1754				5.6		20.0			
1,4-Dioxane	+++++ 0.0037	0.0025	0.0033	0.0030	0.0039	Ave		0.0033				16.7		20.0			
Dichlorobromomethane	0.2277 0.3000	0.2133	0.2712	0.2866	0.2941	Ave		0.2655			0.1500	13.7		20.0			
2-Chloroethyl vinyl ether	0.1178 0.1418	0.1331	0.1426	0.1497	0.1484	Ave		0.1389				8.6		20.0			
cis-1,3-Dichloropropene	0.1716 0.3446	0.2280	0.2922	0.3171	0.3350	Lin1	-0.104	0.3367			0.1500	8.6			0.9980		0.9900
4-Methyl-2-pentanone (MIBK)	0.1479 0.1549	0.1328	0.1590	0.1788	0.1742	Ave		0.1579			0.0500	10.8		20.0			
Toluene	1.2605 1.2999	1.3151	1.3310	1.2887	1.2900	Ave		1.2975			0.4000	1.9		20.0			
trans-1,3-Dichloropropene	0.1675 0.3884	0.2287	0.3165	0.3529	0.3835	Lin1	-0.139	0.3803			0.1000	11.4			0.9970		0.9900
Ethyl methacrylate	0.2533 0.3807	0.2572	0.3453	0.3762	0.3836	Ave		0.3327				18.5		20.0			
1,1,2-Trichloroethane	0.2804 0.2758	0.2669	0.2792	0.2750	0.2791	Ave		0.2761			0.1000	1.8		20.0			
1,3-Dichloropropane	0.4832 0.4622	0.4382	0.4776	0.4786	0.4726	Ave		0.4687				3.5		20.0			
Tetrachloroethene	0.3083 0.3212	0.2972	0.3173	0.3026	0.3020	Ave		0.3081			0.1500	3.0		20.0			
2-Hexanone	0.1065 0.1358	0.1141	0.1443	0.1577	0.1548	Ave		0.1355			0.0500	15.6		20.0			

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

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320313

SDG No.:

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/27/2018 17:19 Calibration End Date: 03/27/2018 19:15 Calibration ID: 44378

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 3	LVL 4	LVL 5		B	M1	M2								
Chlorodibromomethane	0.1418 0.2814	0.1608	0.2345	0.2485	0.2705	Lin1	-0.093	0.2723				12.6			0.9970		0.9900
Ethylene Dibromide	0.2535 0.2906	0.2488	0.2866	0.2960	0.2982	Ave		0.2789				7.9		20.0			
Chlorobenzene	0.8980 0.8922	0.8716	0.8972	0.8791	0.8801	Ave		0.8864			0.3000	1.2		20.0			
1,1,1,2-Tetrachloroethane	0.2126 0.2914	0.2225	0.2599	0.2777	0.2826	Ave		0.2578				12.8		20.0			
Ethylbenzene	0.4507 0.4895	0.4670	0.4803	0.4829	0.4810	Ave		0.4752				3.0		20.0			
m-Xylene & p-Xylene	0.5320 0.6117	0.5812	0.6056	0.5947	0.5918	Ave		0.5862				4.9		20.0			
o-Xylene	0.5719 0.6036	0.5840	0.5974	0.5933	0.5903	Ave		0.5901				1.9		20.0			
Styrene	0.8317 1.0522	0.8759	1.0065	1.0247	1.0417	Ave		0.9721			0.3000	9.7		20.0			
Bromoform	+++++ 0.1795	0.0780	0.1162	0.1464	0.1681	Ave		0.1376			0.1000	29.9	*	20.0			
Isopropylbenzene	1.3108 1.4294	1.3428	1.3929	1.3974	1.3824	Ave		1.3760			0.1000	3.1		20.0			
1,1,2,2-Tetrachloroethane	0.5171 0.5895	0.6417	0.6467	0.6783	0.6448	Ave		0.6197			0.3000	9.3		20.0			
Bromobenzene	0.6956 0.6502	0.6656	0.6851	0.6629	0.6458	Ave		0.6675				2.9		20.0			
1,2,3-Trichloropropane	0.2668 0.2327	0.2026	0.2525	0.2597	0.2413	Ave		0.2426				9.5		20.0			
trans-1,4-Dichloro-2-butene	+++++ 0.1153	+++++	0.0359	0.0722	0.0921	Ave		0.0789				42.7	*	20.0			
N-Propylbenzene	0.4996 0.6593	0.5957	0.6501	0.6506	0.6343	Ave		0.6149				9.9		20.0			
2-Chlorotoluene	0.5617 0.5884	0.5641	0.5867	0.5867	0.5710	Ave		0.5764				2.1		20.0			
1,3,5-Trimethylbenzene	1.6672 1.9545	1.7670	1.9542	1.9558	1.8914	Ave		1.8650				6.5		20.0			
4-Chlorotoluene	0.5827 0.6297	0.6302	0.6328	0.6501	0.6123	Ave		0.6230				3.7		20.0			
tert-Butylbenzene	1.4311 1.6517	1.7058	1.6401	1.6263	1.6469	Ave		1.6170				5.9		20.0			
1,2,4-Trimethylbenzene	1.8769 2.1264	2.0108	2.0799	2.1112	2.0609	Ave		2.0444				4.5		20.0			

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

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320313

SDG No.:

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/27/2018 17:19 Calibration End Date: 03/27/2018 19:15 Calibration ID: 44378

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 3	LVL 4	LVL 5		B	M1	M2								
sec-Butylbenzene	0.3815 0.4862	0.3998	0.4580	0.4837	0.4539	Ave		0.4439				9.8		20.0			
1,3-Dichlorobenzene	1.2424 1.2395	1.3527	1.2927	1.2545	1.2327	Ave		1.2691			0.6000	3.6		20.0			
4-Isopropyltoluene	1.8139 1.9882	1.8726	1.9369	1.9144	1.8823	Ave		1.9014				3.1		20.0			
1,4-Dichlorobenzene	1.6201 1.3118	1.5584	1.3317	1.3316	1.2816	Ave		1.4059			0.5000	10.3		20.0			
n-Butylbenzene	1.5918 1.5744	1.4747	1.4862	1.5272	1.4711	Ave		1.5209				3.4		20.0			
1,2-Dichlorobenzene	1.2731 1.2234	1.2375	1.2637	1.2515	1.2145	Ave		1.2440			0.4000	1.8		20.0			
1,2-Dibromo-3-Chloropropane	+++++ 0.1257	0.0999	0.1181	0.1338	0.1346	Ave		0.1224			0.0500	11.7		20.0			
1,2,4-Trichlorobenzene	0.7727 0.7146	0.8516	0.7359	0.7435	0.7296	Ave		0.7580			0.2000	6.6		20.0			
Hexachlorobutadiene	0.3081 0.2410	0.3281	0.2507	0.2246	0.2304	Ave		0.2638				16.5		20.0			
Naphthalene	2.0798 2.0632	2.4036	2.2832	2.3953	2.2949	Ave		2.2533				6.6		20.0			
1,2,3-Trichlorobenzene	0.7568 0.6539	0.9297	0.7194	0.7025	0.6948	Ave		0.7429				13.1		20.0			
Dibromofluoromethane (Surr)	0.2100 0.2140	0.1992	0.2108	0.2223	0.2142	Ave		0.2117				3.6		20.0			
1,2-Dichloroethane-d4 (Surr)	0.2641 0.2295	0.2516	0.2436	0.2410	0.2324	Ave		0.2437				5.2		20.0			
Toluene-d8 (Surr)	0.9756 1.0941	1.0568	1.1071	1.0913	1.0917	Ave		1.0694				4.6		20.0			
4-Bromofluorobenzene (Surr)	0.4031 0.4270	0.4346	0.4202	0.4257	0.4237	Ave		0.4224				2.5		20.0			

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

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320313

SDG No.:

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/27/2018 17:19 Calibration End Date: 03/27/2018 19:15 Calibration ID: 44378

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-320313/13	UX970515.D
Level 2	STD8260 240-320313/12	UX970514.D
Level 3	STD8260 240-320313/11	UX970513.D
Level 4	ICIS 240-320313/10	UX970512.D
Level 5	STD8260 240-320313/9	UX970511.D
Level 6	STD8260 240-320313/8	UX970510.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Dichlorodifluoromethane	FB	Ave	+++++ 1582396	19767	262878	488791	1038839	+++++ 60.0	1.00	10.0	20.0	40.0
Chloromethane	FB	Ave	10051 1115298	19748	194273	385902	751009	0.500 60.0	1.00	10.0	20.0	40.0
Vinyl chloride	FB	Ave	10709 1227630	20774	213106	421124	848812	0.500 60.0	1.00	10.0	20.0	40.0
Butadiene	FB	Ave	6563 1026760	16150	189999	291028	722592	0.500 60.0	1.00	10.0	20.0	40.0
Bromomethane	FB	Ave	9024 1052986	15169	172012	339489	693661	0.500 60.0	1.00	10.0	20.0	40.0
Chloroethane	FB	Ave	7483 941162	14678	152234	294298	621515	0.500 60.0	1.00	10.0	20.0	40.0
Dichlorofluoromethane	FB	Ave	14327 1971505	30529	325796	647565	1310617	0.500 60.0	1.00	10.0	20.0	40.0
Trichlorofluoromethane	FB	Ave	8851 1877304	23865	315392	592054	1235732	0.500 60.0	1.00	10.0	20.0	40.0
Ethyl ether	FB	Ave	6473 783073	13746	129194	270060	533693	0.500 60.0	1.00	10.0	20.0	40.0
Acrolein	FB	Ave	+++++ 653800	8965	109536	208421	459725	+++++ 300	5.00	50.0	100	200
Acetone	FB	Lin1	+++++ 454436	20660	92574	168908	317545	+++++ 120	2.00	20.0	40.0	80.0
1,1-Dichloroethene	FB	Ave	10605 1585963	21492	266889	508622	971358	0.500 60.0	1.00	10.0	20.0	40.0
1,1,2-Trichloro-1,2,2-trifluoroethane	FB	Ave	6380 1142274	14371	175440	335630	644578	0.500 60.0	1.00	10.0	20.0	40.0
Iodomethane	FB	Ave	15642 1966131	30933	327940	629225	1280611	0.500 60.0	1.00	10.0	20.0	40.0
Carbon disulfide	FB	Ave	35976 4076039	77614	656075	1342101	2592920	0.500 60.0	1.00	10.0	20.0	40.0
3-Chloro-1-propene	FB	Ave	6438 993001	12363	144918	279516	653617	0.500 60.0	1.00	10.0	20.0	40.0

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320313

SDG No.:

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/27/2018 17:19 Calibration End Date: 03/27/2018 19:15 Calibration ID: 44378

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Methyl acetate	FB	Ave	11743 1201475	23980	209395	458274	883186	1.00 120	2.00	20.0	40.0	80.0
Methylene Chloride	FB	Ave	+++++ 1284973	29641	220921	449597	839783	+++++ 60.0	1.00	10.0	20.0	40.0
2-Methyl-2-propanol	FB	Ave	7460 933551	17604	163081	368196	688697	5.00 600	10.0	100	200	400
Acrylonitrile	FB	Ave	26264 3546623	64661	621181	1318264	2563900	5.00 600	10.0	100	200	400
trans-1,2-Dichloroethene	FB	Ave	11880 1295676	20434	216738	419976	828266	0.500 60.0	1.00	10.0	20.0	40.0
Methyl tert-butyl ether	FB	Ave	23312 3356248	52661	543981	1133682	2263571	0.500 60.0	1.00	10.0	20.0	40.0
Hexane	FB	Ave	8095 991370	16892	158554	310035	574183	0.500 60.0	1.00	10.0	20.0	40.0
1,1-Dichloroethane	FB	Ave	13519 1608972	28672	271509	526573	1083073	0.500 60.0	1.00	10.0	20.0	40.0
Vinyl acetate	FB	Ave	11053 1330488	18620	196211	452842	937450	0.500 60.0	1.00	10.0	20.0	40.0
cis-1,2-Dichloroethene	FB	Ave	9894 1298657	22010	229752	438425	884774	0.500 60.0	1.00	10.0	20.0	40.0
2-Butanone (MEK)	FB	Ave	+++++ 295430	4094	48801	105943	212121	+++++ 120	2.00	20.0	40.0	80.0
2,2-Dichloropropane	FB	Ave	+++++ 229024	2294	33694	73502	150773	+++++ 60.0	1.00	10.0	20.0	40.0
Chlorobromomethane	FB	Ave	5941 715441	13031	118124	234010	459176	0.500 60.0	1.00	10.0	20.0	40.0
Tetrahydrofuran	FB	Ave	+++++ 454366	8361	77572	174050	332278	+++++ 120	2.00	20.0	40.0	80.0
Chloroform	FB	Ave	13937 1870403	30257	323860	601956	1252123	0.500 60.0	1.00	10.0	20.0	40.0
1,1,1-Trichloroethane	FB	Ave	12711 1649002	22409	245695	489270	1030178	0.500 60.0	1.00	10.0	20.0	40.0
Cyclohexane	FB	Ave	14921 1942043	27614	307457	593328	1115338	0.500 60.0	1.00	10.0	20.0	40.0
1,1-Dichloropropene	FB	Ave	12039 1424699	21323	233690	457210	897864	0.500 60.0	1.00	10.0	20.0	40.0
Carbon tetrachloride	FB	Ave	7837 1315760	16456	192666	381323	776198	0.500 60.0	1.00	10.0	20.0	40.0
Isobutyl alcohol	FB	Ave	4830 619919	7149	102827	254119	479961	12.5 1500	25.0	250	500	1000
Benzene	FB	Ave	35702 4512062	70870	762061	1491112	2979786	0.500 60.0	1.00	10.0	20.0	40.0

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320313

SDG No.:

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/27/2018 17:19 Calibration End Date: 03/27/2018 19:15 Calibration ID: 44378

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
1,2-Dichloroethane	FB	Ave	11350 1365707	20950	230212	464962	934021	0.500 60.0	1.00	10.0	20.0	40.0
n-Heptane	FB	Lin1	+++++ 589975	22690	101281	181190	345041	+++++ 60.0	1.00	10.0	20.0	40.0
Trichloroethene	FB	Ave	9119 1292852	20067	205526	422632	844328	0.500 60.0	1.00	10.0	20.0	40.0
Methylcyclohexane	FB	Ave	9917 1508131	22766	225882	452653	880862	0.500 60.0	1.00	10.0	20.0	40.0
1,2-Dichloropropane	FB	Ave	6976 932252	16855	154217	311148	621746	0.500 60.0	1.00	10.0	20.0	40.0
Dibromomethane	FB	Ave	6055 841722	14289	147569	275511	581122	0.500 60.0	1.00	10.0	20.0	40.0
1,4-Dioxane	FB	Ave	+++++ 356611	3980	52258	94998	251840	+++++ 1200	20.0	200	400	800
Dichlorobromomethane	FB	Ave	8725 1464732	16882	214950	451764	946689	0.500 60.0	1.00	10.0	20.0	40.0
2-Chloroethyl vinyl ether	FB	Ave	9029 1384517	21070	226002	471949	955189	1.00 120	2.00	20.0	40.0	80.0
cis-1,3-Dichloropropene	FB	Lin1	6574 1682434	18042	231582	499769	1078146	0.500 60.0	1.00	10.0	20.0	40.0
4-Methyl-2-pentanone (MIBK)	FB	Ave	11338 1512333	21020	251988	563760	1121212	1.00 120	2.00	20.0	40.0	80.0
Toluene	CBNZ d5	Ave	40559 5240551	84921	874011	1695490	3447904	0.500 60.0	1.00	10.0	20.0	40.0
trans-1,3-Dichloropropene	CBNZ d5	Lin1	5391 1565828	14767	207806	464291	1024979	0.500 60.0	1.00	10.0	20.0	40.0
Ethyl methacrylate	CBNZ d5	Ave	8151 1534906	16611	226715	494937	1025315	0.500 60.0	1.00	10.0	20.0	40.0
1,1,2-Trichloroethane	CBNZ d5	Ave	9023 1112004	17238	183360	361825	746060	0.500 60.0	1.00	10.0	20.0	40.0
1,3-Dichloropropane	CBNZ d5	Ave	15548 1863296	28296	313580	629742	1263087	0.500 60.0	1.00	10.0	20.0	40.0
Tetrachloroethene	CBNZ d5	Ave	9919 1294762	19191	208328	398122	807220	0.500 60.0	1.00	10.0	20.0	40.0
2-Hexanone	CBNZ d5	Ave	6852 1094860	14742	189524	415007	827665	1.00 120	2.00	20.0	40.0	80.0
Chlorodibromomethane	CBNZ d5	Lin1	4564 1134407	10385	154010	326957	722896	0.500 60.0	1.00	10.0	20.0	40.0
Ethylene Dibromide	CBNZ d5	Ave	8156 1171385	16067	188218	389378	797088	0.500 60.0	1.00	10.0	20.0	40.0
Chlorobenzene	CBNZ d5	Ave	28896 3596932	56282	589160	1156588	2352415	0.500 60.0	1.00	10.0	20.0	40.0

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320313

SDG No.:

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/27/2018 17:19 Calibration End Date: 03/27/2018 19:15 Calibration ID: 44378

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
1,1,1,2-Tetrachloroethane	CBNZ d5	Ave	6841 1174608	14368	170641	365384	755384	0.500 60.0	1.00	10.0	20.0	40.0
Ethylbenzene	CBNZ d5	Ave	14504 1973477	30154	315402	635357	1285503	0.500 60.0	1.00	10.0	20.0	40.0
m-Xylene & p-Xylene	CBNZ d5	Ave	17120 2466235	37529	397673	782472	1581812	0.500 60.0	1.00	10.0	20.0	40.0
o-Xylene	CBNZ d5	Ave	18402 2433517	37712	392250	780643	1577787	0.500 60.0	1.00	10.0	20.0	40.0
Styrene	CBNZ d5	Ave	26761 4241737	56559	660889	1348205	2784188	0.500 60.0	1.00	10.0	20.0	40.0
Bromoform	CBNZ d5	Ave	+++++ 723792	5038	76290	192575	449214	+++++ 60.0	1.00	10.0	20.0	40.0
Isopropylbenzene	CBNZ d5	Ave	42180 5762586	86708	914650	1838480	3694884	0.500 60.0	1.00	10.0	20.0	40.0
1,1,2,2-Tetrachloroethane	DCBd 4	Ave	9675 1485048	24252	255286	539147	1068153	0.500 60.0	1.00	10.0	20.0	40.0
Bromobenzene	DCBd 4	Ave	13016 1637978	25152	270448	526927	1069854	0.500 60.0	1.00	10.0	20.0	40.0
1,2,3-Trichloropropane	DCBd 4	Ave	4992 586148	7658	99678	206436	399712	0.500 60.0	1.00	10.0	20.0	40.0
trans-1,4-Dichloro-2-butene	DCBd 4	Ave	+++++ 290482	+++++	14158	57371	152607	+++++ 60.0	+++++	10.0	20.0	40.0
N-Propylbenzene	DCBd 4	Ave	9349 1661095	22514	256603	517141	1050733	0.500 60.0	1.00	10.0	20.0	40.0
2-Chlorotoluene	DCBd 4	Ave	10511 1482354	21317	231613	466390	945829	0.500 60.0	1.00	10.0	20.0	40.0
1,3,5-Trimethylbenzene	DCBd 4	Ave	31196 4924194	66778	771424	1554647	3133221	0.500 60.0	1.00	10.0	20.0	40.0
4-Chlorotoluene	DCBd 4	Ave	10903 1586434	23816	249777	516765	1014371	0.500 60.0	1.00	10.0	20.0	40.0
tert-Butylbenzene	DCBd 4	Ave	26779 4161309	64464	647413	1292715	2728256	0.500 60.0	1.00	10.0	20.0	40.0
1,2,4-Trimethylbenzene	DCBd 4	Ave	35121 5357099	75991	821015	1678140	3414055	0.500 60.0	1.00	10.0	20.0	40.0
sec-Butylbenzene	DCBd 4	Ave	7138 1224862	15110	180807	384476	751908	0.500 60.0	1.00	10.0	20.0	40.0
1,3-Dichlorobenzene	DCBd 4	Ave	23248 3122692	51119	510281	997194	2042073	0.500 60.0	1.00	10.0	20.0	40.0
4-Isopropyltoluene	DCBd 4	Ave	33942 5009022	70769	764560	1521693	3118076	0.500 60.0	1.00	10.0	20.0	40.0
1,4-Dichlorobenzene	DCBd 4	Ave	30315 3304996	58893	525678	1058471	2123104	0.500 60.0	1.00	10.0	20.0	40.0

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320313

SDG No.:

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/27/2018 17:19 Calibration End Date: 03/27/2018 19:15 Calibration ID: 44378

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
n-Butylbenzene	DCBd 4	Ave	29786 3966583	55732	586652	1213978	2436921	0.500 60.0	1.00	10.0	20.0	40.0
1,2-Dichlorobenzene	DCBd 4	Ave	23822 3082251	46767	498818	994794	2011936	0.500 60.0	1.00	10.0	20.0	40.0
1,2-Dibromo-3-Chloropropane	DCBd 4	Ave	+++++ 316800	3774	46618	106354	223035	+++++ 60.0	1.00	10.0	20.0	40.0
1,2,4-Trichlorobenzene	DCBd 4	Ave	14458 1800356	32184	290488	590967	1208563	0.500 60.0	1.00	10.0	20.0	40.0
Hexachlorobutadiene	DCBd 4	Ave	5765 607080	12401	98964	178534	381624	0.500 60.0	1.00	10.0	20.0	40.0
Naphthalene	DCBd 4	Ave	38917 5198056	90835	901271	1903983	3801695	0.500 60.0	1.00	10.0	20.0	40.0
1,2,3-Trichlorobenzene	DCBd 4	Ave	14162 1647521	35136	283969	558397	1150957	0.500 60.0	1.00	10.0	20.0	40.0
Dibromofluoromethane (Surr)	FB	Ave	8048 1044748	15760	167076	350335	689272	0.500 60.0	1.00	10.0	20.0	40.0
1,2-Dichloroethane-d4 (Surr)	FB	Ave	10118 1120652	19906	193065	379937	748085	0.500 60.0	1.00	10.0	20.0	40.0
Toluene-d8 (Surr)	CBNZ d5	Ave	31392 4410729	68244	726972	1435814	2917982	0.500 60.0	1.00	10.0	20.0	40.0
4-Bromofluorobenzene (Surr)	CBNZ d5	Ave	12971 1721478	28067	275949	560018	1132514	0.500 60.0	1.00	10.0	20.0	40.0

Curve Type Legend:

Ave = Average ISTD
Lin1 = Linear 1/conc ISTD

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320313

SDG No.:

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/27/2018 17:19 Calibration End Date: 03/27/2018 19:15 Calibration ID: 44378

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD8260 240-320313/13	UX970515.D
Level 2	STD8260 240-320313/12	UX970514.D
Level 3	STD8260 240-320313/11	UX970513.D
Level 4	ICIS 240-320313/10	UX970512.D
Level 5	STD8260 240-320313/9	UX970511.D
Level 6	STD8260 240-320313/8	UX970510.D

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Acetone	+++++	-9.3						50				
n-Heptane	+++++	5.5						50				
cis-1,3-Dichloropropene	12.7						50					
trans-1,3-Dichloropropene	17.3						50					
Chlorodibromomethane	20.2						50					

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab Sample ID: ICV 240-320313/14 Calibration Date: 03/27/2018 19:36

Instrument ID: A3UX9 Calib Start Date: 03/27/2018 17:19

GC Column: DB-624 ID: 0.18(mm) Calib End Date: 03/27/2018 19:15

Lab File ID: UX970516.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3077	0.2766	0.1000	0.0180	0.0200	-10.1	30.0
Chloromethane	Ave	0.2439	0.2204	0.1000	0.0181	0.0200	-9.6	30.0
Vinyl chloride	Ave	0.2655	0.2482	0.1000	0.0187	0.0200	-6.5	30.0
Butadiene	Ave	0.2058	0.2014		0.0196	0.0200	-2.1	30.0
Bromomethane	Ave	0.2151	0.2126	0.0500	0.0198	0.0200	-1.2	30.0
Chloroethane	Ave	0.1909	0.1810	0.0500	0.0190	0.0200	-5.2	30.0
Dichlorofluoromethane	Ave	0.3988	0.4444		0.0223	0.0200	11.4	30.0
Trichlorofluoromethane	Ave	0.3458	0.3823	0.1000	0.0221	0.0200	10.6	30.0
Ethyl ether	Ave	0.1672	0.1762		0.0211	0.0200	5.4	30.0
Acrolein	Ave	0.0264	0.0240		0.0910	0.100	-9.0	50.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	0.2028	0.2198	0.0500	0.0217	0.0200	8.4	30.0
1,1-Dichloroethene	Ave	0.3057	0.3179	0.1000	0.0208	0.0200	4.0	30.0
Acetone	Lin1		0.0492	0.0100	0.0384	0.0400	-4.0	50.0
Iodomethane	Ave	0.4021	0.3984		0.0198	0.0200	-0.9	30.0
Carbon disulfide	Ave	0.8732	0.7660	0.1000	0.0175	0.0200	-12.3	30.0
3-Chloro-1-propene	Ave	0.1818	0.1694		0.0186	0.0200	-6.8	30.0
Methyl acetate	Ave	0.1404	0.1256	0.1000	0.0358	0.0400	-10.5	30.0
Methylene Chloride	Ave	0.2925	0.2812	0.1000	0.0192	0.0200	-3.9	50.0
2-Methyl-2-propanol	Ave	0.0210	0.0201		0.191	0.200	-4.6	50.0
Acrylonitrile	Ave	0.0774	0.0760		0.196	0.200	-1.8	30.0
Methyl tert-butyl ether	Ave	0.6784	0.6528	0.1000	0.0192	0.0200	-3.8	30.0
trans-1,2-Dichloroethene	Ave	0.2718	0.2677	0.1000	0.0197	0.0200	-1.5	30.0
Hexane	Ave	0.2005	0.1840		0.0184	0.0200	-8.2	30.0
1,1-Dichloroethane	Ave	0.3430	0.3325	0.2000	0.0194	0.0200	-3.1	30.0
Vinyl acetate	Ave	0.2704	0.2807		0.0208	0.0200	3.8	50.0
2,2-Dichloropropane	Ave	0.0424	0.0468		0.0221	0.0200	10.3	30.0
2-Butanone (MEK)	Ave	0.0307	0.0306	0.0100	0.0398	0.0400	-0.4	30.0
cis-1,2-Dichloroethene	Ave	0.2742	0.2635	0.1000	0.0192	0.0200	-3.9	30.0
Chlorobromomethane	Ave	0.1511	0.1451		0.0192	0.0200	-4.0	30.0
Tetrahydrofuran	Ave	0.0510	0.0478		0.0375	0.0400	-6.4	30.0
Chloroform	Ave	0.3848	0.3859	0.2000	0.0201	0.0200	0.3	30.0
1,1,1-Trichloroethane	Ave	0.3155	0.3279	0.1000	0.0208	0.0200	3.9	30.0
Cyclohexane	Ave	0.3745	0.3747	0.1000	0.0200	0.0200	0.0	30.0
1,1-Dichloropropene	Ave	0.2899	0.2977		0.0205	0.0200	2.7	30.0
Carbon tetrachloride	Ave	0.2347	0.2466	0.1000	0.0210	0.0200	5.1	30.0
Isobutyl alcohol	Ave	0.0052	0.0052		0.500	0.500	0.0	30.0
1,2-Dichloroethane	Ave	0.2861	0.2790	0.1000	0.0195	0.0200	-2.5	30.0
Benzene	Ave	0.9308	0.9192	0.5000	0.0198	0.0200	-1.2	30.0
n-Heptane	Lin1		0.1158		0.0193	0.0200	-3.4	30.0
Trichloroethene	Ave	0.2577	0.2687	0.1500	0.0209	0.0200	4.3	30.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab Sample ID: ICV 240-320313/14 Calibration Date: 03/27/2018 19:36

Instrument ID: A3UX9 Calib Start Date: 03/27/2018 17:19

GC Column: DB-624 ID: 0.18(mm) Calib End Date: 03/27/2018 19:15

Lab File ID: UX970516.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Ave	0.2835	0.2782	0.1000	0.0196	0.0200	-1.9	30.0
1,2-Dichloropropane	Ave	0.1952	0.1961	0.1000	0.0201	0.0200	0.4	30.0
1,4-Dioxane	Ave	0.0033	0.0038		0.460	0.400	15.1	50.0
Dibromomethane	Ave	0.1754	0.1756		0.0200	0.0200	0.1	30.0
Dichlorobromomethane	Ave	0.2655	0.2623	0.1500	0.0198	0.0200	-1.2	30.0
2-Chloroethyl vinyl ether	Ave	0.1389	0.1377		0.0198	0.0200	-0.8	30.0
cis-1,3-Dichloropropene	Lin1		0.3106	0.1500	0.0188	0.0200	-6.2	30.0
4-Methyl-2-pentanone (MIBK)	Ave	0.1579	0.1455	0.0500	0.0369	0.0400	-7.9	30.0
Toluene	Ave	1.298	1.308	0.4000	0.0202	0.0200	0.8	30.0
trans-1,3-Dichloropropene	Lin1		0.3318	0.1000	0.0178	0.0200	-10.9	30.0
Ethyl methacrylate	Ave	0.3327	0.3546		0.0213	0.0200	6.6	30.0
1,1,2-Trichloroethane	Ave	0.2761	0.2893	0.1000	0.0210	0.0200	4.8	30.0
1,3-Dichloropropane	Ave	0.4687	0.4624		0.0197	0.0200	-1.4	30.0
Tetrachloroethene	Ave	0.3081	0.3190	0.1500	0.0207	0.0200	3.6	30.0
2-Hexanone	Ave	0.1355	0.1303	0.0500	0.0384	0.0400	-3.9	30.0
Chlorodibromomethane	Lin1		0.2548		0.0191	0.0200	-4.7	30.0
Ethylene Dibromide	Ave	0.2789	0.2948		0.0211	0.0200	5.7	30.0
Chlorobenzene	Ave	0.8864	0.9074	0.3000	0.0205	0.0200	2.4	30.0
1,1,1,2-Tetrachloroethane	Ave	0.2578	0.2771		0.0215	0.0200	7.5	30.0
Ethylbenzene	Ave	0.4752	0.4854		0.0204	0.0200	2.1	30.0
m-Xylene & p-Xylene	Ave	0.5862	0.6052		0.0206	0.0200	3.2	30.0
o-Xylene	Ave	0.5901	0.5903		0.0200	0.0200	0.0	30.0
Styrene	Ave	0.9721	1.020	0.3000	0.0210	0.0200	4.9	30.0
Bromoform	Ave	0.1376	0.1480	0.1000	0.0215	0.0200	7.5	30.0
Isopropylbenzene	Ave	1.376	1.412	0.1000	0.0205	0.0200	2.6	30.0
1,1,2,2-Tetrachloroethane	Ave	0.6197	0.6164	0.3000	0.0199	0.0200	-0.5	30.0
Bromobenzene	Ave	0.6675	0.6618		0.0198	0.0200	-0.9	30.0
1,2,3-Trichloropropane	Ave	0.2426	0.2438		0.0201	0.0200	0.5	30.0
trans-1,4-Dichloro-2-butene	Ave	0.0789	0.0621		0.0158	0.0200	-21.2	30.0
N-Propylbenzene	Ave	0.6149	0.6559		0.0213	0.0200	6.7	30.0
2-Chlorotoluene	Ave	0.5764	0.5836		0.0202	0.0200	1.2	30.0
1,3,5-Trimethylbenzene	Ave	1.865	1.913		0.0205	0.0200	2.6	30.0
4-Chlorotoluene	Ave	0.6230	0.6367		0.0204	0.0200	2.2	30.0
tert-Butylbenzene	Ave	1.617	1.598		0.0198	0.0200	-1.1	30.0
1,2,4-Trimethylbenzene	Ave	2.044	2.038		0.0199	0.0200	-0.3	30.0
sec-Butylbenzene	Ave	0.4439	0.4564		0.0206	0.0200	2.8	30.0
1,3-Dichlorobenzene	Ave	1.269	1.236	0.6000	0.0195	0.0200	-2.6	30.0
4-Isopropyltoluene	Ave	1.901	1.905		0.0200	0.0200	0.2	30.0
1,4-Dichlorobenzene	Ave	1.406	1.274	0.5000	0.0181	0.0200	-9.4	30.0
n-Butylbenzene	Ave	1.521	1.440		0.0189	0.0200	-5.3	30.0
1,2-Dichlorobenzene	Ave	1.244	1.230	0.4000	0.0198	0.0200	-1.1	30.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab Sample ID: ICV 240-320313/14 Calibration Date: 03/27/2018 19:36

Instrument ID: A3UX9 Calib Start Date: 03/27/2018 17:19

GC Column: DB-624 ID: 0.18(mm) Calib End Date: 03/27/2018 19:15

Lab File ID: UX970516.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dibromo-3-Chloropropane	Ave	0.1224	0.1232	0.0500	0.0201	0.0200	0.6	50.0
1,2,4-Trichlorobenzene	Ave	0.7580	0.7432	0.2000	0.0196	0.0200	-1.9	50.0
Hexachlorobutadiene	Ave	0.2638	0.2176		0.0165	0.0200	-17.5	30.0
Naphthalene	Ave	2.253	2.171		0.0193	0.0200	-3.7	50.0
1,2,3-Trichlorobenzene	Ave	0.7429	0.6732		0.0181	0.0200	-9.4	30.0
Dibromofluoromethane (Surr)	Ave	0.2117	0.2030		0.0192	0.0200	-4.1	30.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.2437	0.2254		0.0185	0.0200	-7.5	30.0
Toluene-d8 (Surr)	Ave	1.069	1.122		0.0210	0.0200	4.9	30.0
4-Bromofluorobenzene (Surr)	Ave	0.4224	0.4296		0.0203	0.0200	1.7	30.0

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320313

SDG No.:

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/27/2018 20:45 Calibration End Date: 03/27/2018 22:40 Calibration ID: 44382

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STDA9 240-320313/22	UX970524.D
Level 2	STDA9 240-320313/21	UX970523.D
Level 3	STDA9 240-320313/20	UX970522.D
Level 4	STDA9 240-320313/19	UX970521.D
Level 5	STDA9 240-320313/18	UX970520.D
Level 6	STDA9 240-320313/17	UX970519.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 3	LVL 4	LVL 5		B	M1	M2								
Acetonitrile	0.0257 0.0203	0.0177	0.0210	0.0208	0.0202	Ave		0.0209				12.4		20.0			
Isopropyl ether	0.1876 0.2213	0.2056	0.2160	0.2137	0.2196	Ave		0.2106				6.0		20.0			
2-Chloro-1,3-butadiene	0.2811 0.2616	0.2528	0.2379	0.2224	0.2462	Ave		0.2503				8.0		20.0			
Tert-butyl ethyl ether	0.5129 0.5994	0.4878	0.5394	0.5555	0.6202	Ave		0.5525				9.1		20.0			
Ethyl acetate	0.1858 0.1605	0.1613	0.1488	0.1565	0.1592	Ave		0.1620				7.7		20.0			
Propionitrile	0.0291 0.0301	0.0287	0.0284	0.0293	0.0301	Ave		0.0293				2.4		20.0			
Methacrylonitrile	0.1077 0.0983	0.1012	0.0948	0.0984	0.1003	Ave		0.1001				4.3		20.0			
Tert-amyl methyl ether	0.5747 0.6313	0.5834	0.5932	0.6452	0.6496	Ave		0.6129				5.4		20.0			
n-Butanol	0.0038 0.0056	0.0048	0.0043	0.0048	0.0053	Ave		0.0047				13.7		20.0			
Ethyl acrylate	0.2470 0.2628	0.1974	0.2204	0.2434	0.2534	Ave		0.2374				10.2		20.0			
Methyl methacrylate	0.1519 0.1500	0.1390	0.1291	0.1417	0.1449	Ave		0.1428				5.8		20.0			
2-Nitropropane	0.0262 0.0275	0.0215	0.0205	0.0217	0.0248	Ave		0.0237				12.1		20.0			
n-Butyl acetate	0.1742 0.2946	0.2407	0.2372	0.2677	0.2999	Ave		0.2524				18.4		20.0			
1-Chlorohexane	0.4035 0.3563	0.3608	0.3127	0.2949	0.3186	Ave		0.3411				11.7		20.0			
Cyclohexanone	0.0150 0.0149	0.0118	0.0127	0.0138	0.0134	Ave		0.0136				9.1		20.0			

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

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320313

SDG No.:

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/27/2018 20:45 Calibration End Date: 03/27/2018 22:40 Calibration ID: 44382

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 3	LVL 4	LVL 5		B	M1	M2								
Pentachloroethane	+++++ 0.2949	0.1767	0.2517	0.2695	0.2928	Ave		0.2571				18.8		20.0			
1,2,3-Trimethylbenzene	1.8486 2.1221	2.1942	2.1659	2.1145	2.1838	Ave		2.1048				6.2		20.0			
Benzyl chloride	0.1592 +++++	0.1167	0.1200	0.1451	0.1822	Ave		0.1446				19.0		20.0			
1,3,5-Trichlorobenzene	0.8874 0.7600	0.9708	0.8205	0.7738	0.7765	Ave		0.8315				9.9		20.0			
2-Methylnaphthalene	1.6204 0.8746	2.5277	1.1371	1.1642	1.0637	Ave		1.3979				43.3	*	20.0			
1-Chloro-1-fluoroethane TIC	0.0246 0.2087	0.1627	0.2014	0.2017	0.1987	None											

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

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320313

SDG No.:

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/27/2018 20:45 Calibration End Date: 03/27/2018 22:40 Calibration ID: 44382

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STDA9 240-320313/22	UX970524.D
Level 2	STDA9 240-320313/21	UX970523.D
Level 3	STDA9 240-320313/20	UX970522.D
Level 4	STDA9 240-320313/19	UX970521.D
Level 5	STDA9 240-320313/18	UX970520.D
Level 6	STDA9 240-320313/17	UX970519.D

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Acetonitrile	FB	Ave	9796 953674	13667	167055	323576	636901	5.00 600	10.0	100	200	400
Isopropyl ether	FB	Ave	7162 1038888	15855	171968	333197	693919	0.500 60.0	1.00	10.0	20.0	40.0
2-Chloro-1,3-butadiene	FB	Ave	10735 1227791	19498	189399	346814	777910	0.500 60.0	1.00	10.0	20.0	40.0
Tert-butyl ethyl ether	FB	Ave	19585 2813397	37615	429325	866185	1960026	0.500 60.0	1.00	10.0	20.0	40.0
Ethyl acetate	FB	Ave	14193 1506465	24870	236871	488104	1006211	1.00 120	2.00	20.0	40.0	80.0
Propionitrile	FB	Ave	11122 1414983	22132	226266	456353	950509	5.00 600	10.0	100	200	400
Methacrylonitrile	FB	Ave	41130 4613467	78023	754556	1534703	3168158	5.00 600	10.0	100	200	400
Tert-amyl methyl ether	FB	Ave	21945 2963260	44988	472165	1006080	2052922	0.500 60.0	1.00	10.0	20.0	40.0
n-Butanol	FB	Ave	3624 656287	9180	85052	187139	416746	12.5 1500	25.0	250	500	1000
Ethyl acrylate	FB	Ave	9433 1233429	15222	175461	379597	800765	0.500 60.0	1.00	10.0	20.0	40.0
Methyl methacrylate	FB	Ave	11603 1407848	21444	205507	441902	915741	1.00 120	2.00	20.0	40.0	80.0
2-Nitropropane	FB	Ave	2001 258189	3320	32590	67543	156702	1.00 120	2.00	20.0	40.0	80.0
n-Butyl acetate	CBNZ d5	Ave	5382 1140609	15178	153380	348822	789437	0.500 60.0	1.00	10.0	20.0	40.0
1-Chlorohexane	CBNZ d5	Ave	12465 1379563	22753	202154	384258	838647	0.500 60.0	1.00	10.0	20.0	40.0
Cyclohexanone	DCBd 4	Ave	2650 337051	4315	46001	103197	200942	5.00 600	10.0	100	200	400
Pentachloroethane	DCBd 4	Ave	+++++ 1336960	12896	183029	402224	877145	+++++ 120	2.00	20.0	40.0	80.0

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320313

SDG No.:

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/27/2018 20:45 Calibration End Date: 03/27/2018 22:40 Calibration ID: 44382

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
1,2,3-Trimethylbenzene	DCBd 4	Ave	32740 4810763	80086	787588	1578155	3270987	0.500 60.0	1.00	10.0	20.0	40.0
Benzyl chloride	DCBd 4	Ave	2819 +++++	4261	43641	108264	272969	0.500 +++++	1.00	10.0	20.0	40.0
1,3,5-Trichlorobenzene	DCBd 4	Ave	15717 1722915	35433	298365	577523	1163083	0.500 60.0	1.00	10.0	20.0	40.0
2-Methylnaphthalene	DCBd 4	Ave	57397 3965349	184518	826959	1737730	3186478	1.00 120	2.00	20.0	40.0	80.0
1-Chloro-1-fluoroethane TIC	FB	None	939 979846	12545	160281	314481	627836	0.500 60.0	1.00	10.0	20.0	40.0

Curve Type Legend:

Ave = Average ISTD
None = No Calib Curve

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab Sample ID: ICV 240-320313/23 Calibration Date: 03/27/2018 23:03

Instrument ID: A3UX9 Calib Start Date: 03/27/2018 17:19

GC Column: DB-624 ID: 0.18(mm) Calib End Date: 03/27/2018 19:15

Lab File ID: UX970525.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dibromofluoromethane (Surr)	Ave	0.2117	0.2030		0.0192	0.0200	-4.1	30.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.2437	0.2204		0.0181	0.0200	-9.6	30.0
Toluene-d8 (Surr)	Ave	1.069	1.100		0.0206	0.0200	2.9	30.0
4-Bromofluorobenzene (Surr)	Ave	0.4224	0.4212		0.0199	0.0200	-0.3	30.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab Sample ID: ICV 240-320313/23 Calibration Date: 03/27/2018 23:03

Instrument ID: A3UX9 Calib Start Date: 03/27/2018 20:45

GC Column: DB-624 ID: 0.18(mm) Calib End Date: 03/27/2018 22:40

Lab File ID: UX970525.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Acetonitrile	Ave	0.0209	0.0200		0.191	0.200	-4.4	30.0
Isopropyl ether	Ave	0.2106	0.2436		0.0231	0.0200	15.6	30.0
2-Chloro-1,3-butadiene	Ave	0.2503	0.2679		0.0214	0.0200	7.0	30.0
Tert-butyl ethyl ether	Ave	0.5525	0.5629		0.0204	0.0200	1.9	30.0
Ethyl acetate	Ave	0.1620	0.1719		0.0424	0.0400	6.1	50.0
Propionitrile	Ave	0.0293	0.0321		0.219	0.200	9.6	30.0
Methacrylonitrile	Ave	0.1001	0.1062		0.212	0.200	6.1	30.0
Tert-amyl methyl ether	Ave	0.6129	0.6534		0.0213	0.0200	6.6	30.0
n-Butanol	Ave	0.0047	0.0050		0.521	0.500	4.2	30.0
Ethyl acrylate	Ave	0.2374	0.2597		0.0219	0.0200	9.4	30.0
Methyl methacrylate	Ave	0.1428	0.1494		0.0419	0.0400	4.7	30.0
2-Nitropropane	Ave	0.0237	0.0228		0.0384	0.0400	-4.0	30.0
n-Butyl acetate	Ave	0.2524	0.2727		0.0216	0.0200	8.0	30.0
1-Chlorohexane	Ave	0.3411	0.3511		0.0206	0.0200	2.9	30.0
Cyclohexanone	Ave	0.0136	0.0138		0.203	0.200	1.5	30.0
Pentachloroethane	Ave	0.2571	0.2474		0.0385	0.0400	-3.8	30.0
1,2,3-Trimethylbenzene	Ave	2.105	2.243		0.0213	0.0200	6.5	30.0
Benzyl chloride	Ave	0.1446	0.1478		0.0204	0.0200	2.1	30.0
1,3,5-Trichlorobenzene	Ave	0.8315	0.7609		0.0183	0.0200	-8.5	30.0
2-Methylnaphthalene	Ave	1.398	0.7835		0.0224	0.0400	-43.9*	30.0

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab File ID: BFB4019.D BFB Injection Date: 04/09/2018

Instrument ID: A3UX9 BFB Injection Time: 09:05

Analysis Batch No.: 321696

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	16.4	
75	30.0 - 60.0 % of mass 95	50.8	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.5	
173	Less than 2.0 % of mass 174	0.0	(0.0) 1
174	50.0 - 120.00 % of mass 95	72.5	
175	5.0 - 9.0 % of mass 174	6.1	(8.4) 1
176	95.0 - 101.0 % of mass 174	70.1	(96.7) 1
177	5.0 - 9.0 % of mass 176	4.7	(6.7) 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 240-321696/4	UX970792.D	04/09/2018	09:33
	CCV 240-321696/6	UX970794.D	04/09/2018	10:19
	LCS 240-321696/7	UX970795.D	04/09/2018	10:43
	MB 240-321696/9	UX970797.D	04/09/2018	11:29
WS-HRS7-A-032818	240-93410-1	UX970803.D	04/09/2018	13:51
WS-HRS6-A-032818	240-93410-2	UX970804.D	04/09/2018	14:14
WS-UTILITY-A-032818	240-93410-3	UX970805.D	04/09/2018	14:37
WS-HRS4-A-032818	240-93410-4	UX970806.D	04/09/2018	15:00
WS-HRS3-A-032818	240-93410-5	UX970807.D	04/09/2018	15:23
WS-LS5-A-032818	240-93410-6	UX970808.D	04/09/2018	15:45
WS-HRS1-A-032818	240-93410-7	UX970809.D	04/09/2018	16:09
WS-SP1/SP1A-A-032818	240-93410-8	UX970810.D	04/09/2018	16:32
TB-032818	240-93410-9	UX970811.D	04/09/2018	16:55
WS-SP1/SP1A-A-032818 MS	240-93410-8 MS	UX970812.D	04/09/2018	17:18
WS-SP1/SP1A-A-032818 MSD	240-93410-8 MSD	UX970813.D	04/09/2018	17:41

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab Sample ID: CCVIS 240-321696/4 Calibration Date: 04/09/2018 09:33

Instrument ID: A3UX9 Calib Start Date: 03/27/2018 17:19

GC Column: DB-624 ID: 0.18(mm) Calib End Date: 03/27/2018 19:15

Lab File ID: UX970792.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3077	0.2692	0.1000	0.0175	0.0200	-12.5	20.0
Chloromethane	Ave	0.2439	0.2552	0.1000	0.0209	0.0200	4.6	20.0
Vinyl chloride	Ave	0.2655	0.2684	0.1000	0.0202	0.0200	1.1	20.0
Butadiene	Ave	0.2058	0.1936		0.0188	0.0200	-5.9	20.0
Bromomethane	Ave	0.2151	0.1930	0.0500	0.0179	0.0200	-10.3	20.0
Chloroethane	Ave	0.1909	0.1817	0.0500	0.0190	0.0200	-4.8	20.0
Dichlorofluoromethane	Ave	0.3988	0.4158		0.0209	0.0200	4.3	20.0
Trichlorofluoromethane	Ave	0.3458	0.3738	0.1000	0.0216	0.0200	8.1	20.0
Ethyl ether	Ave	0.1672	0.1801		0.0215	0.0200	7.7	20.0
Acrolein	Ave	0.0264	0.0332		0.126	0.100	25.5	50.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	0.2028	0.2149	0.0500	0.0212	0.0200	6.0	20.0
1,1-Dichloroethene	Ave	0.3057	0.3604	0.1000	0.0236	0.0200	17.9	20.0
Acetone	Lin1		0.0709	0.0100	0.0570	0.0400	42.6	50.0
Iodomethane	Ave	0.4021	0.3672		0.0183	0.0200	-8.7	20.0
Carbon disulfide	Ave	0.8732	0.8405	0.1000	0.0192	0.0200	-3.8	20.0
3-Chloro-1-propene	Ave	0.1818	0.2413		0.0265	0.0200	32.7*	20.0
Methyl acetate	Ave	0.1404	0.1566	0.1000	0.0446	0.0400	11.5	20.0
Methylene Chloride	Ave	0.2925	0.3240	0.1000	0.0221	0.0200	10.7	50.0
2-Methyl-2-propanol	Ave	0.0210	0.0264		0.251	0.200	25.6	50.0
Acrylonitrile	Ave	0.0774	0.0921		0.238	0.200	18.9	20.0
trans-1,2-Dichloroethene	Ave	0.2718	0.3127	0.1000	0.0230	0.0200	15.0	20.0
Methyl tert-butyl ether	Ave	0.6784	0.7521	0.1000	0.0222	0.0200	10.9	20.0
Hexane	Ave	0.2005	0.1923		0.0192	0.0200	-4.1	20.0
1,1-Dichloroethane	Ave	0.3430	0.3824	0.2000	0.0223	0.0200	11.5	20.0
Vinyl acetate	Ave	0.2704	0.3961		0.0293	0.0200	46.5	50.0
2,2-Dichloropropane	Ave	0.0424	0.0504		0.0238	0.0200	19.0	20.0
2-Butanone (MEK)	Ave	0.0307	0.0364	0.0100	0.0474	0.0400	18.4	20.0
cis-1,2-Dichloroethene	Ave	0.2742	0.2994	0.1000	0.0218	0.0200	9.2	20.0
Chlorobromomethane	Ave	0.1511	0.1703		0.0225	0.0200	12.7	20.0
Tetrahydrofuran	Ave	0.0510	0.0634		0.0497	0.0400	24.3*	20.0
Chloroform	Ave	0.3848	0.4401	0.2000	0.0229	0.0200	14.4	20.0
1,1,1-Trichloroethane	Ave	0.3155	0.3578	0.1000	0.0227	0.0200	13.4	20.0
Cyclohexane	Ave	0.3745	0.3509	0.1000	0.0187	0.0200	-6.3	20.0
1,1-Dichloropropene	Ave	0.2899	0.3267		0.0225	0.0200	12.7	20.0
Carbon tetrachloride	Ave	0.2347	0.2795	0.1000	0.0238	0.0200	19.1	20.0
Isobutyl alcohol	Ave	0.0052	0.0072		0.686	0.500	37.2*	20.0
1,2-Dichloroethane	Ave	0.2861	0.3474	0.1000	0.0243	0.0200	21.4*	20.0
Benzene	Ave	0.9308	1.022	0.5000	0.0220	0.0200	9.8	20.0
n-Heptane	Lin1		0.1123		0.0187	0.0200	-6.5	20.0
Trichloroethene	Ave	0.2577	0.2803	0.1500	0.0218	0.0200	8.8	20.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab Sample ID: CCVIS 240-321696/4 Calibration Date: 04/09/2018 09:33

Instrument ID: A3UX9 Calib Start Date: 03/27/2018 17:19

GC Column: DB-624 ID: 0.18(mm) Calib End Date: 03/27/2018 19:15

Lab File ID: UX970792.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methylcyclohexane	Ave	0.2835	0.2821	0.1000	0.0199	0.0200	-0.5	20.0
1,2-Dichloropropane	Ave	0.1952	0.2162	0.1000	0.0222	0.0200	10.8	20.0
1,4-Dioxane	Ave	0.0033	0.0039		0.481	0.400	20.2	50.0
Dibromomethane	Ave	0.1754	0.1803		0.0206	0.0200	2.8	20.0
Dichlorobromomethane	Ave	0.2655	0.3264	0.1500	0.0246	0.0200	23.0*	20.0
2-Chloroethyl vinyl ether	Ave	0.1389	0.1621		0.0467	0.0400	16.7	20.0
cis-1,3-Dichloropropene	Lin1		0.3630	0.1500	0.0219	0.0200	9.3	20.0
4-Methyl-2-pentanone (MIBK)	Ave	0.1579	0.2085	0.0500	0.0528	0.0400	32.0*	20.0
Toluene	Ave	1.298	1.355	0.4000	0.0209	0.0200	4.4	20.0
trans-1,3-Dichloropropene	Lin1		0.3994	0.1000	0.0214	0.0200	6.8	20.0
Ethyl methacrylate	Ave	0.3327	0.3909		0.0235	0.0200	17.5	20.0
1,1,2-Trichloroethane	Ave	0.2761	0.2912	0.1000	0.0211	0.0200	5.5	20.0
1,3-Dichloropropane	Ave	0.4687	0.4951		0.0211	0.0200	5.6	20.0
Tetrachloroethene	Ave	0.3081	0.2950	0.1500	0.0192	0.0200	-4.2	20.0
2-Hexanone	Ave	0.1355	0.1790	0.0500	0.0528	0.0400	32.1*	20.0
Chlorodibromomethane	Lin1		0.2750		0.0205	0.0200	2.7	20.0
Ethylene Dibromide	Ave	0.2789	0.3067		0.0220	0.0200	9.9	20.0
Chlorobenzene	Ave	0.8864	0.9012	0.3000	0.0203	0.0200	1.7	20.0
1,1,1,2-Tetrachloroethane	Ave	0.2578	0.2900		0.0225	0.0200	12.5	20.0
Ethylbenzene	Ave	0.4752	0.4863		0.0205	0.0200	2.3	20.0
m-Xylene & p-Xylene	Ave	0.5862	0.6009		0.0205	0.0200	2.5	20.0
o-Xylene	Ave	0.5901	0.5849		0.0198	0.0200	-0.9	20.0
Styrene	Ave	0.9721	1.018	0.3000	0.0209	0.0200	4.7	20.0
Bromoform	Ave	0.1376	0.1586	0.1000	0.0230	0.0200	15.2	20.0
Isopropylbenzene	Ave	1.376	1.400	0.1000	0.0203	0.0200	1.7	20.0
1,1,2,2-Tetrachloroethane	Ave	0.6197	0.7315	0.3000	0.0236	0.0200	18.0	20.0
Bromobenzene	Ave	0.6675	0.6661		0.0200	0.0200	-0.2	20.0
1,2,3-Trichloropropane	Ave	0.2426	0.2738		0.0226	0.0200	12.9	20.0
trans-1,4-Dichloro-2-butene	Ave	0.0789	0.1569		0.0398	0.0200	99.0*	20.0
N-Propylbenzene	Ave	0.6149	0.6620		0.0215	0.0200	7.7	20.0
2-Chlorotoluene	Ave	0.5764	0.5893		0.0204	0.0200	2.2	20.0
1,3,5-Trimethylbenzene	Ave	1.865	2.095		0.0225	0.0200	12.3	20.0
4-Chlorotoluene	Ave	0.6230	0.6412		0.0206	0.0200	2.9	20.0
tert-Butylbenzene	Ave	1.617	1.647		0.0204	0.0200	1.9	20.0
1,2,4-Trimethylbenzene	Ave	2.044	2.233		0.0218	0.0200	9.2	20.0
sec-Butylbenzene	Ave	0.4439	0.4481		0.0202	0.0200	1.0	20.0
1,3-Dichlorobenzene	Ave	1.269	1.249	0.6000	0.0197	0.0200	-1.6	20.0
4-Isopropyltoluene	Ave	1.901	1.934		0.0203	0.0200	1.7	20.0
1,4-Dichlorobenzene	Ave	1.406	1.302	0.5000	0.0185	0.0200	-7.4	20.0
n-Butylbenzene	Ave	1.521	1.538		0.0202	0.0200	1.1	20.0
1,2-Dichlorobenzene	Ave	1.244	1.239	0.4000	0.0199	0.0200	-0.4	20.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab Sample ID: CCVIS 240-321696/4 Calibration Date: 04/09/2018 09:33

Instrument ID: A3UX9 Calib Start Date: 03/27/2018 17:19

GC Column: DB-624 ID: 0.18(mm) Calib End Date: 03/27/2018 19:15

Lab File ID: UX970792.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,2-Dibromo-3-Chloropropane	Ave	0.1224	0.1353	0.0500	0.0221	0.0200	10.5	50.0
1,2,4-Trichlorobenzene	Ave	0.7580	0.6682	0.2000	0.0176	0.0200	-11.8	50.0
Hexachlorobutadiene	Ave	0.2638	0.1874		0.0142	0.0200	-29.0*	20.0
Naphthalene	Ave	2.253	2.270		0.0202	0.0200	0.8	50.0
1,2,3-Trichlorobenzene	Ave	0.7429	0.6149		0.0166	0.0200	-17.2	20.0
Dibromofluoromethane (Surr)	Ave	0.2117	0.2219		0.0210	0.0200	4.8	20.0
1,2-Dichloroethane-d4 (Surr)	Ave	0.2437	0.2643		0.0217	0.0200	8.4	20.0
Toluene-d8 (Surr)	Ave	1.069	1.126		0.0211	0.0200	5.3	20.0
4-Bromofluorobenzene (Surr)	Ave	0.4224	0.4480		0.0212	0.0200	6.1	20.0

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab Sample ID: CCV 240-321696/6 Calibration Date: 04/09/2018 10:19

Instrument ID: A3UX9 Calib Start Date: 03/27/2018 20:45

GC Column: DB-624 ID: 0.18(mm) Calib End Date: 03/27/2018 22:40

Lab File ID: UX970794.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Acetonitrile	Ave	0.0209	0.0261		0.249	0.200	24.7*	20.0
Isopropyl ether	Ave	0.2106	0.2329		0.0221	0.0200	10.6	20.0
2-Chloro-1,3-butadiene	Ave	0.2503	0.3132		0.0250	0.0200	25.1*	20.0
Tert-butyl ethyl ether	Ave	0.5525	0.6479		0.0235	0.0200	17.3	20.0
Ethyl acetate	Ave	0.1620	0.1864		0.0460	0.0400	15.0	50.0
Propionitrile	Ave	0.0293	0.0334		0.228	0.200	14.1	20.0
Methacrylonitrile	Ave	0.1001	0.1229		0.245	0.200	22.7*	20.0
Tert-amyl methyl ether	Ave	0.6129	0.6876		0.0224	0.0200	12.2	20.0
n-Butanol	Ave	0.0047	0.0052		0.545	0.500	9.0	20.0
Ethyl acrylate	Ave	0.2374	0.2704		0.0228	0.0200	13.9	20.0
Methyl methacrylate	Ave	0.1428	0.1792		0.0502	0.0400	25.5*	20.0
2-Nitropropane	Ave	0.0237	0.0350		0.0591	0.0400	47.8*	20.0
n-Butyl acetate	Ave	0.2524	0.3106		0.0246	0.0200	23.1*	20.0
1-Chlorohexane	Ave	0.3411	0.3336		0.0196	0.0200	-2.2	20.0
Cyclohexanone	Ave	0.0136	0.0163		0.239	0.200	19.6	20.0
Pentachloroethane	Ave	0.2571	0.2847		0.0443	0.0400	10.7	20.0
1,2,3-Trimethylbenzene	Ave	2.105	2.241		0.0213	0.0200	6.5	20.0
Benzyl chloride	Ave	0.1446	0.1662		0.0230	0.0200	14.9	20.0
1,3,5-Trichlorobenzene	Ave	0.8315	0.6841		0.0165	0.0200	-17.7	20.0
2-Methylnaphthalene	Ave	1.398	0.6561		0.0188	0.0400	-53.1*	20.0

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Sample No.: ICIS 240-320974/12 Date Analyzed: 04/02/2018 19:39

Instrument ID: A3UX16 GC Column: DB-624 ID: 0.18(mm)

Lab File ID (Standard): UXM10304.D Heated Purge: (Y/N) N

Calibration ID: 44467

		FB		CBNZd5		DCBd4	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT		1222297	5.81	1188918	8.50	709896	10.74
UPPER LIMIT		2444594	6.31	2377836	9.00	1419792	11.24
LOWER LIMIT		611149	5.31	594459	8.00	354948	10.24
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICV 240-320974/17		1064744	5.82	1075940	8.50	683105	10.74
CCVIS 240-321981/3		1032732	5.81	1102902	8.50	662137	10.74

FB = Fluorobenzene
CBNZd5 = Chlorobenzene-d5
DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8260C

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Sample No.: CCVIS 240-321981/3 Date Analyzed: 04/10/2018 16:38

Instrument ID: A3UX16 GC Column: DB-624 ID: 0.18(mm)

Lab File ID (Standard): UXM10440.D Heated Purge: (Y/N) N

Calibration ID: 44467

		FB		CBNZd5		DCBd4	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1032732	5.81	1102902	8.50	662137	10.74
UPPER LIMIT		2065464	6.31	2205804	9.00	1324274	11.24
LOWER LIMIT		516366	5.31	551451	8.00	331069	10.24
LAB SAMPLE ID	CLIENT SAMPLE ID						
LCS 240-321981/4		1109517	5.81	1184022	8.50	692835	10.74
CCV 240-321981/5		1115400	5.81	1149701	8.50	600558	10.74
MB 240-321981/8		933264	5.81	937059	8.50	437092	10.74
240-93410-1	WS-HRS7-A-032818	904642	5.81	933653	8.50	475851	10.74
240-93410-2	WS-HRS6-A-032818	880206	5.81	876426	8.50	419633	10.74
240-93414-C-5 MS		915122	5.81	1005629	8.50	651869	10.74
240-93414-C-5 MSD		1072297	5.81	1146526	8.50	662796	10.74

FB = Fluorobenzene
CBNZd5 = Chlorobenzene-d5
DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8260C

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Sample No.: ICIS 240-320313/10 Date Analyzed: 03/27/2018 18:06

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm)

Lab File ID (Standard): UX970512.D Heated Purge: (Y/N) N

Calibration ID: 44378

		FB		CBNZd5		DCBd4	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MID-POINT		1576279	5.72	1315668	8.41	794881	10.65
UPPER LIMIT		3152558	6.22	2631336	8.91	1589762	11.15
LOWER LIMIT		788140	5.22	657834	7.91	397441	10.15
LAB SAMPLE ID	CLIENT SAMPLE ID						
ICV 240-320313/14		1593456	5.72	1262058	8.41	771827	10.65
ICV 240-320313/23		1537752	5.73	1271814	8.41	747251	10.65
CCVIS 240-321696/4		1506079	5.72	1286399	8.41	732283	10.65

FB = Fluorobenzene
CBNZd5 = Chlorobenzene-d5
DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8260C

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Sample No.: CCVIS 240-321696/4 Date Analyzed: 04/09/2018 09:33

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm)

Lab File ID (Standard): UX970792.D Heated Purge: (Y/N) N

Calibration ID: 44382

		FB		CBNZd5		DCBd4	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1506079	5.72	1286399	8.41	732283	10.65
UPPER LIMIT		3012158	6.22	2572798	8.91	1464566	11.15
LOWER LIMIT		753040	5.22	643200	7.91	366142	10.15
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCV 240-321696/6		1536676	5.73	1302725	8.41	720307	10.65
LCS 240-321696/7		1522644	5.72	1296738	8.41	726052	10.65
MB 240-321696/9		1462123	5.72	1251802	8.41	688665	10.65
240-93410-1	WS-HRS7-A-032818	1433336	5.72	1236378	8.41	698839	10.65
240-93410-2	WS-HRS6-A-032818	1481057	5.73	1261484	8.41	678316	10.65
240-93410-3	WS-UTILITY-A-032818	1467683	5.73	1269349	8.41	694468	10.65
240-93410-4	WS-HRS4-A-032818	1432684	5.73	1254417	8.41	681589	10.65
240-93410-5	WS-HRS3-A-032818	1404343	5.72	1189256	8.41	657473	10.65
240-93410-6	WS-LS5-A-032818	1294266	5.72	1100874	8.41	622774	10.65
240-93410-7	WS-HRS1-A-032818	1431310	5.73	1221511	8.41	661416	10.65
240-93410-8	WS-SP1/SP1A-A-032818	1449076	5.72	1243081	8.41	677417	10.65
240-93410-9	TB-032818	1447642	5.72	1246240	8.41	692619	10.65
240-93410-8 MS	WS-SP1/SP1A-A-032818 MS	1430157	5.72	1217377	8.41	669273	10.65
240-93410-8 MSD	WS-SP1/SP1A-A-032818 MSD	1413827	5.73	1221035	8.41	701599	10.65

FB = Fluorobenzene
CBNZd5 = Chlorobenzene-d5
DCBd4 = 1,4-Dichlorobenzene-d4

Area Limit = 50%-200% of internal standard area
RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII 8260C

Initial Calibration: **3/27/2018** Trichloroethene

IS AREA	COMPOUND OF INTEREST AREA	IS AMOUNT PPB	COMPOUND AMOUNT PPB	RRF
1532718	9119	20	0.5	0.2380
1582667	20067	20	1	0.2536
1585037	205526	20	10	0.2593
1576279	422632	20	20	0.2681
1609217	844328	20	40	0.2623
1627373	1292852	20	60	0.2648
			AVERAGE RRF	0.2577
			%RSD	4.2122

SAMPLE CALC **SAMPLE ID** **WS-HRS4-A-032818**

IS AREA	DILUTION	COMPOUND OF INTEREST AREA	IS AMOUNT (NG)	Volume Purged (G or ML)	AVE RRF	CONCENTRATION PPB
1432684	1	72205	20	5	0.2577	3.91

SAMPLE CALC **SAMPLE ID** **LCS 240-321696/7**

IS AREA	DILUTION	COMPOUND OF INTEREST AREA	IS AMOUNT (NG)	Amount/Volume Purged (G or ML)	AVE RRF	CONCENTRATION PPB
1522644	1	406824	20	5	0.2577	20.7

LCS %R	SPIKE AMOUNT	LCS CONCENTRATION
103.68	20	20.7

TUNE % ABUNDANCE	RAW ABUNDANCE m/z 95	RAW ABUNDANCE m/z 50	03/27/18 @ 16:47
15.7	520448	81904	

SURROGATE %R **TOLUENE-D8** **AMOUNT SURROGATE (PPB)** **20** **%R =** **102.1203** **SAMPLE WS-HRS4-A-032818**

IS AREA	DILUTION	COMPOUND OF INTEREST AREA	IS AMOUNT (NG)	Volume Purged (G or ML)	AVE RRF	CONCENTRATION PPB
1254417	1	1370007	20	5	1.0695	20.42

CCV RRF ON 04/09/18 @ 09:33

IS AREA	COMPOUND OF INTEREST AREA	IS AMOUNT (NG)	COMPOUND AMOUNT PPB	RRF
1506079	422116	20	20	0.2803

% DIFFERENCE CCV

-8.8

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320313

SDG No.:

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/27/2018 17:19 Calibration End Date: 03/27/2018 19:15 Calibration ID: 44378

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 3	LVL 4	LVL 5		B	M1	M2								
Isobutyl alcohol	0.0050 0.0051	0.0036	0.0052	0.0064	0.0060	Ave		0.0052				18.6		20.0			
Benzene	0.9317 0.9242	0.8956	0.9616	0.9460	0.9258	Ave		0.9308			0.5000	2.4		20.0			
1,2-Dichloroethane	0.2962 0.2797	0.2647	0.2905	0.2950	0.2902	Ave		0.2861			0.1000	4.2		20.0			
n-Heptane	+++++ 0.1208	0.2867	0.1278	0.1149	0.1072	Lin1	0.1695	0.1111				6.8			0.9960		0.9900
Trichloroethene	0.2380 0.2648	0.2536	0.2593	0.2681	0.2623	Ave		0.2577			0.1500	4.2		20.0			
Methylcyclohexane	0.2588 0.3089	0.2877	0.2850	0.2872	0.2737	Ave		0.2835			0.1000	5.9		20.0			
1,2-Dichloropropane	0.1821 0.1910	0.2130	0.1946	0.1974	0.1932	Ave		0.1952			0.1000	5.2		20.0			
Dibromomethane	0.1580 0.1724	0.1806	0.1862	0.1748	0.1806	Ave		0.1754				5.6		20.0			
1,4-Dioxane	+++++ 0.0037	0.0025	0.0033	0.0030	0.0039	Ave		0.0033				16.7		20.0			
Dichlorobromomethane	0.2277 0.3000	0.2133	0.2712	0.2866	0.2941	Ave		0.2655			0.1500	13.7		20.0			
2-Chloroethyl vinyl ether	0.1178 0.1418	0.1331	0.1426	0.1497	0.1484	Ave		0.1389				8.6		20.0			
cis-1,3-Dichloropropene	0.1716 0.3446	0.2280	0.2922	0.3171	0.3350	Lin1	-0.104	0.3367			0.1500	8.6			0.9980		0.9900
4-Methyl-2-pentanone (MIBK)	0.1479 0.1549	0.1328	0.1590	0.1788	0.1742	Ave		0.1579			0.0500	10.8		20.0			
Toluene	1.2605 1.2999	1.3151	1.3310	1.2887	1.2900	Ave		1.2975			0.4000	1.9		20.0			
trans-1,3-Dichloropropene	0.1675 0.3884	0.2287	0.3165	0.3529	0.3835	Lin1	-0.139	0.3803			0.1000	11.4			0.9970		0.9900
Ethyl methacrylate	0.2533 0.3807	0.2572	0.3453	0.3762	0.3836	Ave		0.3327				18.5		20.0			
1,1,2-Trichloroethane	0.2804 0.2758	0.2669	0.2792	0.2750	0.2791	Ave		0.2761			0.1000	1.8		20.0			
1,3-Dichloropropane	0.4832 0.4622	0.4382	0.4776	0.4786	0.4726	Ave		0.4687				3.5		20.0			
Tetrachloroethene	0.3083 0.3212	0.2972	0.3173	0.3026	0.3020	Ave		0.3081			0.1500	3.0		20.0			
2-Hexanone	0.1065 0.1358	0.1141	0.1443	0.1577	0.1548	Ave		0.1355			0.0500	15.6		20.0			

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

TestAmerica Canton

Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\UX970510.D
Lims ID: std8260 L6
Client ID:
Sample Type: IC Calib Level: 6
Inject. Date: 27-Mar-2018 17:19:30 ALS Bottle#: 2 Worklist Smp#: 8
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 240-0074433-008
Operator ID: 001904 Instrument ID: A3UX9
Sublist: chrom-8260_9*sub61

Method: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\8260_9.m
Limit Group: MSV 8260C ICAL
Last Update: 28-Mar-2018 15:18:58 Calib Date: 27-Mar-2018 22:40:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\UX970524.D

Column 1 : DB-624 (0.18 mm) Det: MS SCAN
Process Host: XAWRK005

First Level Reviewer: laveyt Date: 27-Mar-2018 18:05:28

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.726	5.723	0.003	99	1627373	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.412	8.409	0.003	84	1343826	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.649	10.645	0.004	93	839788	20.0	20.0	
$ 4 Dibromofluoromethane (Surr	113	5.135	5.144	-0.009	93	1044748	60.0	60.6	
$ 5 1,2-Dichloroethane-d4 (Sur	65	5.431	5.428	0.003	98	1120652	60.0	56.5	
$ 6 Toluene-d8 (Surr)	98	7.099	7.096	0.003	92	4410729	60.0	61.4	
$ 7 4-Bromofluorobenzene (Surr	95	9.513	9.510	0.003	92	1721478	60.0	60.7	
9 Dichlorodifluoromethane	85	1.703	1.712	-0.009	99	1582396	60.0	63.2	
10 Chloromethane	50	1.893	1.890	0.003	99	1115298	60.0	56.2	
11 Vinyl chloride	62	2.011	2.020	-0.009	99	1227630	60.0	56.8	
12 Butadiene	54	2.058	2.055	0.003	84	1026760	60.0	61.3	
13 Bromomethane	94	2.354	2.363	-0.009	91	1052986	60.0	60.2	
15 Chloroethane	64	2.484	2.493	-0.009	99	941162	60.0	60.6	
16 Dichlorofluoromethane	67	2.662	2.671	-0.009	99	1971505	60.0	60.8	
17 Trichlorofluoromethane	101	2.721	2.730	-0.009	99	1877304	60.0	66.7	
18 Ethyl ether	59	2.958	2.967	-0.009	83	783073	60.0	57.6	
21 Acrolein	56	3.076	3.085	-0.009	98	653800	300.0	304.1	
24 1,1-Dichloroethene	61	3.230	3.227	0.003	95	1585963	60.0	63.8	
23 Acetone	43	3.218	3.227	-0.009	98	454436	120.0	115.9	
22 1,1,2-Trichloro-1,2,2-trif	101	3.230	3.239	-0.009	73	1142274	60.0	69.2	
25 Iodomethane	142	3.384	3.381	0.003	99	1966131	60.0	60.1	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
26 Carbon disulfide	76	3.431	3.428	0.003	99	4076039	60.0	57.4	
28 3-Chloro-1-propene	41	3.514	3.511	0.003	88	993001	60.0	67.1	
29 Methyl acetate	43	3.526	3.523	0.003	94	1201475	120.0	105.2	
30 Methylene Chloride	49	3.679	3.677	0.002	84	1284973	60.0	54.0	
31 2-Methyl-2-propanol	59	3.727	3.712	0.015	99	933551	600.0	545.6	
32 Acrylonitrile	53	3.833	3.830	0.003	99	3546623	600.0	562.9	
34 trans-1,2-Dichloroethene	61	3.869	3.866	0.003	90	1295676	60.0	58.6	
33 Methyl tert-butyl ether	73	3.869	3.878	-0.009	92	3356248	60.0	60.8	
35 Hexane	57	4.117	4.114	0.003	84	991370	60.0	60.8	
36 1,1-Dichloroethane	63	4.236	4.245	-0.009	96	1608972	60.0	57.7	
37 Vinyl acetate	43	4.271	4.268	0.003	96	1330488	60.0	60.5	
41 2-Butanone (MEK)	72	4.744	4.742	0.002	69	295430	120.0	118.3	
43 cis-1,2-Dichloroethene	96	4.732	4.742	-0.010	78	1298657	60.0	58.2	
42 2,2-Dichloropropane	97	4.744	4.742	0.002	86	229024	60.0	66.4	
47 Chlorobromomethane	49	4.945	4.943	0.002	80	715441	60.0	58.2	
48 Tetrahydrofuran	42	4.993	4.990	0.003	78	454366	120.0	109.4	
49 Chloroform	83	5.005	5.002	0.003	93	1870403	60.0	59.7	
50 1,1,1-Trichloroethane	97	5.182	5.179	0.003	96	1649002	60.0	64.2	
51 Cyclohexane	84	5.241	5.239	0.003	79	1942043	60.0	63.7	
52 1,1-Dichloropropene	75	5.312	5.309	0.003	97	1424699	60.0	60.4	
53 Carbon tetrachloride	117	5.324	5.321	0.003	96	1315760	60.0	68.9	
54 Isobutyl alcohol	41	5.371	5.369	0.002	93	619919	1500.0	1458.7	
56 1,2-Dichloroethane	62	5.502	5.499	0.003	96	1365707	60.0	58.7	
55 Benzene	78	5.490	5.499	-0.009	94	4512062	60.0	59.6	
58 n-Heptane	71	5.703	5.700	0.003	79	589975	60.0	63.7	
60 Trichloroethene	130	6.034	6.043	-0.009	95	1292852	60.0	61.7	
62 Methylcyclohexane	83	6.212	6.221	-0.009	85	1508131	60.0	65.4	
63 1,2-Dichloropropane	63	6.223	6.232	-0.009	93	932252	60.0	58.7	
66 Dibromomethane	174	6.330	6.339	-0.009	93	841722	60.0	59.0	
65 1,4-Dioxane	88	6.342	6.339	0.003	85	356611	1200.0	1337.0	
67 Dichlorobromomethane	83	6.460	6.457	0.003	99	1464732	60.0	67.8	
69 2-Chloroethyl vinyl ether	63	6.697	6.706	-0.009	92	1384517	120.0	122.5	
71 cis-1,3-Dichloropropene	75	6.851	6.848	0.003	97	1682434	60.0	61.7	
72 4-Methyl-2-pentanone (MIBK	43	6.969	6.966	0.003	90	1512333	120.0	117.7	
73 Toluene	91	7.158	7.155	0.003	99	5240551	60.0	60.1	
74 trans-1,3-Dichloropropene	75	7.324	7.321	0.003	90	1565828	60.0	61.6	
75 Ethyl methacrylate	69	7.395	7.392	0.003	83	1534906	60.0	68.7	
76 1,1,2-Trichloroethane	97	7.501	7.499	0.002	90	1112004	60.0	59.9	
77 1,3-Dichloropropane	76	7.655	7.652	0.003	83	1863296	60.0	59.2	
78 Tetrachloroethene	166	7.655	7.652	0.003	79	1294762	60.0	62.5	
80 2-Hexanone	43	7.714	7.712	0.002	89	1094860	120.0	120.2	
82 Chlorodibromomethane	129	7.868	7.865	0.003	89	1134407	60.0	62.3	

TestAmerica Canton

Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\UX970511.D
Lims ID: std8260 L5
Client ID:
Sample Type: IC Calib Level: 5
Inject. Date: 27-Mar-2018 17:42:30 ALS Bottle#: 3 Worklist Smp#: 9
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 240-0074433-009
Operator ID: 001904 Instrument ID: A3UX9
Sublist: chrom-8260_9*sub61

Method: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\8260_9.m
Limit Group: MSV 8260C ICAL
Last Update: 28-Mar-2018 15:19:06 Calib Date: 27-Mar-2018 22:40:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\UX970524.D

Column 1 : DB-624 (0.18 mm) Det: MS SCAN
Process Host: XAWRK005

First Level Reviewer: laveyt Date: 27-Mar-2018 19:16:41

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.722	5.723	-0.001	99	1609217	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.408	8.409	-0.001	84	1336379	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.645	10.645	0.000	92	828276	20.0	20.0	
$ 4 Dibromofluoromethane (Surr	113	5.142	5.144	-0.002	94	689272	40.0	40.5	
$ 5 1,2-Dichloroethane-d4 (Sur	65	5.426	5.428	-0.002	99	748085	40.0	38.2	
$ 6 Toluene-d8 (Surr)	98	7.095	7.096	-0.001	92	2917982	40.0	40.8	
$ 7 4-Bromofluorobenzene (Surr	95	9.509	9.510	-0.001	93	1132514	40.0	40.1	
9 Dichlorodifluoromethane	85	1.711	1.712	-0.001	99	1038839	40.0	42.0	
10 Chloromethane	50	1.888	1.890	-0.002	98	751009	40.0	38.3	
11 Vinyl chloride	62	2.018	2.020	-0.002	99	848812	40.0	39.7	
12 Butadiene	54	2.054	2.055	-0.001	85	722592	40.0	43.6	
13 Bromomethane	94	2.362	2.363	-0.001	90	693661	40.0	40.1	
15 Chloroethane	64	2.492	2.493	-0.001	99	621515	40.0	40.5	
16 Dichlorofluoromethane	67	2.669	2.671	-0.002	98	1310617	40.0	40.8	
17 Trichlorofluoromethane	101	2.717	2.730	-0.013	100	1235732	40.0	44.4	
18 Ethyl ether	59	2.965	2.967	-0.002	83	533693	40.0	39.7	
21 Acrolein	56	3.083	3.085	-0.002	98	459725	200.0	216.3	
23 Acetone	43	3.225	3.227	-0.002	99	317545	80.0	80.8	
24 1,1-Dichloroethene	61	3.225	3.227	-0.002	95	971358	40.0	39.5	
22 1,1,2-Trichloro-1,2,2-trif	101	3.237	3.239	-0.002	67	644578	40.0	39.5	
25 Iodomethane	142	3.391	3.381	0.010	99	1280611	40.0	39.6	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
26 Carbon disulfide	76	3.427	3.428	-0.001	99	2592920	40.0	36.9	
28 3-Chloro-1-propene	41	3.509	3.511	-0.002	86	653617	40.0	44.7	
29 Methyl acetate	43	3.521	3.523	-0.002	94	883186	80.0	78.2	
30 Methylene Chloride	49	3.687	3.677	0.010	79	839783	40.0	35.7	M
31 2-Methyl-2-propanol	59	3.722	3.712	0.010	100	688697	400.0	407.0	
32 Acrylonitrile	53	3.829	3.830	-0.001	99	2563900	400.0	411.5	
34 trans-1,2-Dichloroethene	61	3.864	3.866	-0.002	88	828266	40.0	37.9	
33 Methyl tert-butyl ether	73	3.876	3.878	-0.002	91	2263571	40.0	41.5	
35 Hexane	57	4.113	4.114	-0.001	85	574183	40.0	35.6	
36 1,1-Dichloroethane	63	4.243	4.245	-0.002	96	1083073	40.0	39.2	
37 Vinyl acetate	43	4.279	4.268	0.011	96	937450	40.0	43.1	
42 2,2-Dichloropropane	97	4.740	4.742	-0.002	85	150773	40.0	44.2	
43 cis-1,2-Dichloroethene	96	4.740	4.742	-0.002	78	884774	40.0	40.1	
41 2-Butanone (MEK)	72	4.740	4.742	-0.002	75	212121	80.0	85.9	
47 Chlorobromomethane	49	4.941	4.943	-0.002	82	459176	40.0	37.8	
48 Tetrahydrofuran	42	4.989	4.990	-0.002	79	332278	80.0	80.9	
49 Chloroform	83	5.000	5.002	-0.002	94	1252123	40.0	40.4	
50 1,1,1-Trichloroethane	97	5.178	5.179	-0.001	97	1030178	40.0	40.6	
51 Cyclohexane	84	5.237	5.239	-0.001	78	1115338	40.0	37.0	
52 1,1-Dichloropropene	75	5.320	5.309	0.011	97	897864	40.0	38.5	
53 Carbon tetrachloride	117	5.320	5.321	-0.001	96	776198	40.0	41.1	
54 Isobutyl alcohol	41	5.379	5.369	0.010	92	479961	1000.0	1142.1	
55 Benzene	78	5.497	5.499	-0.002	94	2979786	40.0	39.8	
56 1,2-Dichloroethane	62	5.497	5.499	-0.002	97	934021	40.0	40.6	
58 n-Heptane	71	5.698	5.700	-0.002	74	345041	40.0	37.1	
60 Trichloroethene	130	6.042	6.043	-0.001	95	844328	40.0	40.7	
62 Methylcyclohexane	83	6.219	6.221	-0.002	85	880862	40.0	38.6	
63 1,2-Dichloropropane	63	6.231	6.232	-0.001	93	621746	40.0	39.6	
65 1,4-Dioxane	88	6.337	6.339	-0.002	83	251840	800.0	954.9	
66 Dibromomethane	174	6.337	6.339	-0.002	92	581122	40.0	41.2	
67 Dichlorobromomethane	83	6.456	6.457	-0.001	99	946689	40.0	44.3	
69 2-Chloroethyl vinyl ether	63	6.704	6.706	-0.002	90	955189	80.0	85.5	
71 cis-1,3-Dichloropropene	75	6.846	6.848	-0.002	97	1078146	40.0	40.1	
72 4-Methyl-2-pentanone (MIBK	43	6.965	6.966	-0.001	92	1121212	80.0	88.2	
73 Toluene	91	7.154	7.155	-0.001	99	3447904	40.0	39.8	
74 trans-1,3-Dichloropropene	75	7.331	7.321	0.010	89	1024979	40.0	40.7	
75 Ethyl methacrylate	69	7.391	7.392	-0.001	83	1025315	40.0	46.1	
76 1,1,2-Trichloroethane	97	7.497	7.499	-0.002	90	746060	40.0	40.4	
78 Tetrachloroethene	166	7.651	7.652	-0.001	76	807220	40.0	39.2	
77 1,3-Dichloropropane	76	7.651	7.652	-0.001	84	1263087	40.0	40.3	
80 2-Hexanone	43	7.710	7.712	-0.002	90	827665	80.0	91.4	
82 Chlorodibromomethane	129	7.864	7.865	-0.001	89	722896	40.0	40.1	

TestAmerica Canton

Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\UX970512.D
Lims ID: ICIS L4
Client ID:
Sample Type: ICIS Calib Level: 4
Inject. Date: 27-Mar-2018 18:06:30 ALS Bottle#: 4 Worklist Smp#: 10
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 240-0074433-010
Operator ID: 001904 Instrument ID: A3UX9
Sublist: chrom-8260_9*sub61

Method: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\8260_9.m
Limit Group: MSV 8260C ICAL
Last Update: 28-Mar-2018 15:19:10 Calib Date: 27-Mar-2018 22:40:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\UX970524.D

Column 1 : DB-624 (0.18 mm) Det: MS SCAN
Process Host: XAWRK005

First Level Reviewer: laveyt Date: 27-Mar-2018 19:19:14

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.724	5.724	0.000	99	1576279	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.410	8.410	0.000	84	1315668	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.646	10.646	0.000	94	794881	20.0	20.0	
$ 4 Dibromofluoromethane (Surr	113	5.144	5.144	0.000	93	350335	20.0	21.0	
$ 5 1,2-Dichloroethane-d4 (Sur	65	5.428	5.428	0.000	99	379937	20.0	19.8	
$ 6 Toluene-d8 (Surr)	98	7.096	7.096	0.000	92	1435814	20.0	20.4	
$ 7 4-Bromofluorobenzene (Surr	95	9.510	9.510	0.000	93	560018	20.0	20.2	
9 Dichlorodifluoromethane	85	1.712	1.712	0.000	99	488791	20.0	20.2	
10 Chloromethane	50	1.890	1.890	0.000	99	385902	20.0	20.1	
11 Vinyl chloride	62	2.020	2.020	0.000	98	421124	20.0	20.1	
12 Butadiene	54	2.055	2.055	0.000	84	291028	20.0	17.9	
13 Bromomethane	94	2.363	2.363	0.000	90	339489	20.0	20.0	
15 Chloroethane	64	2.493	2.493	0.000	97	294298	20.0	19.6	
16 Dichlorofluoromethane	67	2.671	2.671	0.000	98	647565	20.0	20.6	
17 Trichlorofluoromethane	101	2.730	2.730	0.000	99	592054	20.0	21.7	
18 Ethyl ether	59	2.967	2.967	0.000	81	270060	20.0	20.5	
21 Acrolein	56	3.085	3.085	0.000	99	208421	100.0	100.1	
24 1,1-Dichloroethene	61	3.227	3.227	0.000	95	508622	20.0	21.1	
23 Acetone	43	3.227	3.227	0.000	99	168908	40.0	42.2	
22 1,1,2-Trichloro-1,2,2-trif	101	3.239	3.239	0.000	65	335630	20.0	21.0	
25 Iodomethane	142	3.381	3.381	0.000	98	629225	20.0	19.9	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
26 Carbon disulfide	76	3.428	3.428	0.000	99	1342101	20.0	19.5	
28 3-Chloro-1-propene	41	3.511	3.511	0.000	82	279516	20.0	19.5	
29 Methyl acetate	43	3.523	3.523	0.000	95	458274	40.0	41.4	
30 Methylene Chloride	49	3.677	3.677	0.000	83	449597	20.0	19.5	M
31 2-Methyl-2-propanol	59	3.712	3.712	0.000	99	368196	200.0	222.2	
32 Acrylonitrile	53	3.830	3.830	0.000	99	1318264	200.0	216.0	
34 trans-1,2-Dichloroethene	61	3.866	3.866	0.000	68	419976	20.0	19.6	
33 Methyl tert-butyl ether	73	3.878	3.878	0.000	91	1133682	20.0	21.2	
35 Hexane	57	4.114	4.114	0.000	84	310035	20.0	19.6	
36 1,1-Dichloroethane	63	4.245	4.245	0.000	96	526573	20.0	19.5	
37 Vinyl acetate	43	4.268	4.268	0.000	97	452842	20.0	21.2	
41 2-Butanone (MEK)	72	4.742	4.742	0.000	66	105943	40.0	43.8	
43 cis-1,2-Dichloroethene	96	4.742	4.742	0.000	78	438425	20.0	20.3	
42 2,2-Dichloropropane	97	4.742	4.742	0.000	52	73502	20.0	22.0	
47 Chlorobromomethane	49	4.943	4.943	0.000	82	234010	20.0	19.7	
48 Tetrahydrofuran	42	4.990	4.990	0.000	78	174050	40.0	43.3	
49 Chloroform	83	5.002	5.002	0.000	94	601956	20.0	19.8	
50 1,1,1-Trichloroethane	97	5.179	5.179	0.000	96	489270	20.0	19.7	
51 Cyclohexane	84	5.239	5.239	0.000	77	593328	20.0	20.1	
52 1,1-Dichloropropene	75	5.309	5.309	0.000	97	457210	20.0	20.0	
53 Carbon tetrachloride	117	5.321	5.321	0.000	97	381323	20.0	20.6	
54 Isobutyl alcohol	41	5.369	5.369	0.000	92	254119	500.0	617.3	
56 1,2-Dichloroethane	62	5.499	5.499	0.000	97	464962	20.0	20.6	
55 Benzene	78	5.499	5.499	0.000	94	1491112	20.0	20.3	
58 n-Heptane	71	5.700	5.700	0.000	79	181190	20.0	19.2	
60 Trichloroethene	130	6.043	6.043	0.000	96	422632	20.0	20.8	
62 Methylcyclohexane	83	6.221	6.221	0.000	86	452653	20.0	20.3	
63 1,2-Dichloropropane	63	6.232	6.232	0.000	93	311148	20.0	20.2	
66 Dibromomethane	174	6.339	6.339	0.000	95	275511	20.0	19.9	
65 1,4-Dioxane	88	6.339	6.339	0.000	39	94998	400.0	367.7	
67 Dichlorobromomethane	83	6.457	6.457	0.000	98	451764	20.0	21.6	
69 2-Chloroethyl vinyl ether	63	6.706	6.706	0.000	91	471949	40.0	43.1	
71 cis-1,3-Dichloropropene	75	6.848	6.848	0.000	97	499769	20.0	19.1	
72 4-Methyl-2-pentanone (MIBK	43	6.966	6.966	0.000	89	563760	40.0	45.3	
73 Toluene	91	7.155	7.155	0.000	99	1695490	20.0	19.9	
74 trans-1,3-Dichloropropene	75	7.321	7.321	0.000	91	464291	20.0	18.9	
75 Ethyl methacrylate	69	7.392	7.392	0.000	82	494937	20.0	22.6	
76 1,1,2-Trichloroethane	97	7.499	7.499	0.000	92	361825	20.0	19.9	
77 1,3-Dichloropropane	76	7.652	7.652	0.000	84	629742	20.0	20.4	
78 Tetrachloroethene	166	7.652	7.652	0.000	77	398122	20.0	19.6	
80 2-Hexanone	43	7.712	7.712	0.000	91	415007	40.0	46.5	
82 Chlorodibromomethane	129	7.865	7.865	0.000	90	326957	20.0	18.6	

TestAmerica Canton

Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\UX970513.D
Lims ID: std8260 L3
Client ID:
Sample Type: IC Calib Level: 3
Inject. Date: 27-Mar-2018 18:29:30 ALS Bottle#: 5 Worklist Smp#: 11
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 240-0074433-011
Operator ID: 001904 Instrument ID: A3UX9
Sublist: chrom-8260_9*sub61

Method: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\8260_9.m
Limit Group: MSV 8260C ICAL
Last Update: 28-Mar-2018 15:19:16 Calib Date: 27-Mar-2018 22:40:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\UX970524.D

Column 1 : DB-624 (0.18 mm) Det: MS SCAN
Process Host: XAWRK005

First Level Reviewer: laveyt Date: 27-Mar-2018 19:20:53

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.722	5.724	-0.002	100	1585037	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.408	8.410	-0.002	84	1313274	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.645	10.646	-0.001	93	789484	20.0	20.0	
$ 4 Dibromofluoromethane (Surr	113	5.142	5.144	-0.002	92	167076	10.0	9.96	
$ 5 1,2-Dichloroethane-d4 (Sur	65	5.438	5.428	0.010	97	193065	10.0	10.0	
$ 6 Toluene-d8 (Surr)	98	7.095	7.096	-0.001	92	726972	10.0	10.4	
$ 7 4-Bromofluorobenzene (Surr	95	9.509	9.510	-0.001	94	275949	10.0	9.95	
9 Dichlorodifluoromethane	85	1.711	1.712	-0.001	100	262878	10.0	10.8	
10 Chloromethane	50	1.888	1.890	-0.002	100	194273	10.0	10.0	
11 Vinyl chloride	62	2.018	2.020	-0.002	99	213106	10.0	10.1	
12 Butadiene	54	2.066	2.055	0.011	84	189999	10.0	11.7	
13 Bromomethane	94	2.373	2.363	0.010	89	172012	10.0	10.1	
15 Chloroethane	64	2.504	2.493	0.011	98	152234	10.0	10.1	
16 Dichlorofluoromethane	67	2.669	2.671	-0.002	98	325796	10.0	10.3	
17 Trichlorofluoromethane	101	2.728	2.730	-0.002	99	315392	10.0	11.5	
18 Ethyl ether	59	2.965	2.967	-0.002	83	129194	10.0	9.75	
21 Acrolein	56	3.083	3.085	-0.002	100	109536	50.0	52.3	
23 Acetone	43	3.225	3.227	-0.002	98	92574	20.0	21.3	
24 1,1-Dichloroethene	61	3.225	3.227	-0.002	95	266889	10.0	11.0	
22 1,1,2-Trichloro-1,2,2-trif	101	3.237	3.239	-0.002	64	175440	10.0	10.9	
25 Iodomethane	142	3.391	3.381	0.010	99	327940	10.0	10.3	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
26 Carbon disulfide	76	3.438	3.428	0.010	98	656075	10.0	9.48	
28 3-Chloro-1-propene	41	3.509	3.511	-0.002	86	144918	10.0	10.1	
29 Methyl acetate	43	3.521	3.523	-0.002	94	209395	20.0	18.8	
30 Methylene Chloride	49	3.687	3.677	0.010	81	220921	10.0	9.53	
31 2-Methyl-2-propanol	59	3.710	3.712	-0.002	99	163081	100.0	97.9	
32 Acrylonitrile	53	3.829	3.830	-0.001	99	621181	100.0	101.2	
34 trans-1,2-Dichloroethene	61	3.876	3.866	0.010	60	216738	10.0	10.1	
33 Methyl tert-butyl ether	73	3.876	3.878	-0.002	91	543981	10.0	10.1	
35 Hexane	57	4.113	4.114	-0.001	85	158554	10.0	9.98	
36 1,1-Dichloroethane	63	4.243	4.245	-0.002	96	271509	10.0	9.99	
37 Vinyl acetate	43	4.278	4.268	0.010	97	196211	10.0	9.16	
42 2,2-Dichloropropane	97	4.752	4.742	0.010	53	33694	10.0	10.0	
43 cis-1,2-Dichloroethene	96	4.740	4.742	-0.002	77	229752	10.0	10.6	
41 2-Butanone (MEK)	72	4.740	4.742	-0.002	63	48801	20.0	20.1	
47 Chlorobromomethane	49	4.941	4.943	-0.002	80	118124	10.0	9.87	
48 Tetrahydrofuran	42	4.988	4.990	-0.002	78	77572	20.0	19.2	
49 Chloroform	83	5.000	5.002	-0.002	94	323860	10.0	10.6	
50 1,1,1-Trichloroethane	97	5.178	5.179	-0.001	96	245695	10.0	9.83	
51 Cyclohexane	84	5.237	5.239	-0.001	77	307457	10.0	10.4	
52 1,1-Dichloropropene	75	5.320	5.309	0.011	97	233690	10.0	10.2	
53 Carbon tetrachloride	117	5.332	5.321	0.011	96	192666	10.0	10.4	
54 Isobutyl alcohol	41	5.367	5.369	-0.002	92	102827	250.0	248.4	
55 Benzene	78	5.497	5.499	-0.002	94	762061	10.0	10.3	
56 1,2-Dichloroethane	62	5.497	5.499	-0.002	57	230212	10.0	10.2	
58 n-Heptane	71	5.698	5.700	-0.002	76	101281	10.0	9.98	
60 Trichloroethene	130	6.042	6.043	-0.001	97	205526	10.0	10.1	
62 Methylcyclohexane	83	6.219	6.221	-0.002	86	225882	10.0	10.1	
63 1,2-Dichloropropane	63	6.231	6.232	-0.001	92	154217	10.0	9.97	
65 1,4-Dioxane	88	6.337	6.339	-0.002	38	52258	200.0	201.2	
66 Dibromomethane	174	6.337	6.339	-0.002	90	147569	10.0	10.6	
67 Dichlorobromomethane	83	6.456	6.457	-0.001	99	214950	10.0	10.2	
69 2-Chloroethyl vinyl ether	63	6.704	6.706	-0.002	90	226002	20.0	20.5	
71 cis-1,3-Dichloropropene	75	6.846	6.848	-0.002	97	231582	10.0	8.99	
72 4-Methyl-2-pentanone (MIBK	43	6.965	6.966	-0.001	90	251988	20.0	20.1	
73 Toluene	91	7.154	7.155	-0.001	98	874011	10.0	10.3	
74 trans-1,3-Dichloropropene	75	7.331	7.321	0.010	89	207806	10.0	8.69	
75 Ethyl methacrylate	69	7.390	7.392	-0.002	83	226715	10.0	10.4	
76 1,1,2-Trichloroethane	97	7.497	7.499	-0.002	90	183360	10.0	10.1	
78 Tetrachloroethene	166	7.651	7.652	-0.001	78	208328	10.0	10.3	
77 1,3-Dichloropropane	76	7.651	7.652	-0.001	83	313580	10.0	10.2	
80 2-Hexanone	43	7.710	7.712	-0.002	89	189524	20.0	21.3	
82 Chlorodibromomethane	129	7.864	7.865	-0.001	88	154010	10.0	8.95	

TestAmerica Canton

Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\UX970514.D
Lims ID: std8260 L2
Client ID:
Sample Type: IC Calib Level: 2
Inject. Date: 27-Mar-2018 18:52:30 ALS Bottle#: 6 Worklist Smp#: 12
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 240-0074433-012
Operator ID: 001904 Instrument ID: A3UX9
Sublist: chrom-8260_9*sub61

Method: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\8260_9.m
Limit Group: MSV 8260C ICAL
Last Update: 28-Mar-2018 15:19:22 Calib Date: 27-Mar-2018 22:40:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\UX970524.D

Column 1 : DB-624 (0.18 mm) Det: MS SCAN
Process Host: XAWRK005

First Level Reviewer: laveyt Date: 27-Mar-2018 19:54:09

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.723	5.724	-0.001	100	1582667	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.409	8.410	-0.001	84	1291485	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.645	10.646	-0.001	94	755823	20.0	20.0	
$ 4 Dibromofluoromethane (Surr	113	5.143	5.144	-0.001	93	15760	1.00	0.9406	
$ 5 1,2-Dichloroethane-d4 (Sur	65	5.439	5.428	0.011	98	19906	1.00	1.03	
$ 6 Toluene-d8 (Surr)	98	7.095	7.096	-0.001	92	68244	1.00	0.9882	
$ 7 4-Bromofluorobenzene (Surr	95	9.509	9.510	-0.001	84	28067	1.00	1.03	
9 Dichlorodifluoromethane	85	1.735	1.712	0.023	52	19767	1.00	0.8118	
10 Chloromethane	50	1.889	1.890	-0.001	97	19748	1.00	1.02	
11 Vinyl chloride	62	2.007	2.020	-0.013	97	20774	1.00	0.9886	
12 Butadiene	54	2.054	2.055	-0.001	88	16150	1.00	0.99	M
13 Bromomethane	94	2.386	2.363	0.023	87	15169	1.00	0.8910	
15 Chloroethane	64	2.504	2.493	0.011	44	14678	1.00	0.9716	
16 Dichlorofluoromethane	67	2.658	2.671	-0.013	94	30529	1.00	0.9674	
17 Trichlorofluoromethane	101	2.717	2.730	-0.013	69	23865	1.00	0.8722	
18 Ethyl ether	59	2.977	2.967	0.010	80	13746	1.00	1.04	
21 Acrolein	56	3.084	3.085	-0.001	96	8965	5.00	4.29	
24 1,1-Dichloroethene	61	3.226	3.227	-0.001	90	21492	1.00	0.8883	
23 Acetone	43	3.226	3.227	-0.001	97	20660	2.00	1.81	
22 1,1,2-Trichloro-1,2,2-trif	101	3.250	3.239	0.011	59	14371	1.00	0.8956	
25 Iodomethane	142	3.380	3.381	-0.001	95	30933	1.00	0.9721	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
26 Carbon disulfide	76	3.427	3.428	-0.001	97	77614	1.00	1.12	
28 3-Chloro-1-propene	41	3.510	3.511	-0.001	56	12363	1.00	0.8593	
29 Methyl acetate	43	3.534	3.523	0.011	93	23980	2.00	2.16	
30 Methylene Chloride	49	3.687	3.677	0.010	79	29641	1.00	1.28	
31 2-Methyl-2-propanol	59	3.711	3.712	-0.001	93	17604	10.0	10.6	
32 Acrylonitrile	53	3.829	3.830	-0.001	99	64661	10.0	10.6	
34 trans-1,2-Dichloroethene	61	3.877	3.866	0.011	62	20434	1.00	0.9500	
33 Methyl tert-butyl ether	73	3.865	3.878	-0.013	88	52661	1.00	0.9810	
35 Hexane	57	4.125	4.114	0.011	85	16892	1.00	1.06	
36 1,1-Dichloroethane	63	4.244	4.245	-0.001	95	28672	1.00	1.06	
37 Vinyl acetate	43	4.267	4.268	-0.001	97	18620	1.00	0.8702	
41 2-Butanone (MEK)	72	4.740	4.742	-0.002	65	4094	2.00	1.69	
43 cis-1,2-Dichloroethene	96	4.740	4.742	-0.002	75	22010	1.00	1.01	
42 2,2-Dichloropropane	97	4.729	4.742	-0.013	45	2294	1.00	0.6841	
47 Chlorobromomethane	49	4.942	4.943	-0.001	77	13031	1.00	1.09	
48 Tetrahydrofuran	42	4.989	4.990	-0.001	69	8361	2.00	2.07	
49 Chloroform	83	5.001	5.002	-0.001	92	30257	1.00	0.99	
50 1,1,1-Trichloroethane	97	5.178	5.179	-0.001	95	22409	1.00	0.8975	
51 Cyclohexane	84	5.237	5.239	-0.001	84	27614	1.00	0.9318	
52 1,1-Dichloropropene	75	5.320	5.309	0.011	91	21323	1.00	0.9295	
53 Carbon tetrachloride	117	5.320	5.321	-0.001	74	16456	1.00	0.8861	
54 Isobutyl alcohol	41	5.379	5.369	0.010	45	7149	25.0	17.3	
56 1,2-Dichloroethane	62	5.498	5.499	-0.001	55	20950	1.00	0.9255	
55 Benzene	78	5.498	5.499	-0.001	94	70870	1.00	0.9621	
58 n-Heptane	71	5.723	5.700	0.023	36	22690	1.00	1.06	
60 Trichloroethene	130	6.042	6.043	-0.001	95	20067	1.00	0.9840	
62 Methylcyclohexane	83	6.220	6.221	-0.001	83	22766	1.00	1.01	
63 1,2-Dichloropropane	63	6.231	6.232	-0.001	90	16855	1.00	1.09	
66 Dibromomethane	174	6.338	6.339	-0.001	85	14289	1.00	1.03	
65 1,4-Dioxane	88	6.338	6.339	-0.001	37	3980	20.0	15.3	
67 Dichlorobromomethane	83	6.456	6.457	-0.001	96	16882	1.00	0.8035	
69 2-Chloroethyl vinyl ether	63	6.705	6.706	-0.001	88	21070	2.00	1.92	
71 cis-1,3-Dichloropropene	75	6.847	6.848	-0.001	96	18042	1.00	0.9859	
72 4-Methyl-2-pentanone (MIBK	43	6.965	6.966	-0.001	92	21020	2.00	1.68	
73 Toluene	91	7.154	7.155	-0.001	97	84921	1.00	1.01	
74 trans-1,3-Dichloropropene	75	7.332	7.321	0.011	87	14767	1.00	0.9675	
75 Ethyl methacrylate	69	7.391	7.392	-0.001	83	16611	1.00	0.7731	
76 1,1,2-Trichloroethane	97	7.498	7.499	-0.001	87	17238	1.00	0.9669	
77 1,3-Dichloropropane	76	7.651	7.652	-0.001	82	28296	1.00	0.9349	
78 Tetrachloroethene	166	7.651	7.652	-0.001	78	19191	1.00	0.9647	
80 2-Hexanone	43	7.711	7.712	-0.001	83	14742	2.00	1.68	
82 Chlorodibromomethane	129	7.864	7.865	-0.001	90	10385	1.00	0.9314	

TestAmerica Canton

Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\UX970515.D
Lims ID: std8260 L1
Client ID:
Sample Type: IC Calib Level: 1
Inject. Date: 27-Mar-2018 19:15:30 ALS Bottle#: 7 Worklist Smp#: 13
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 240-0074433-013
Operator ID: 001904 Instrument ID: A3UX9
Sublist: chrom-8260_9*sub61

Method: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\8260_9.m
Limit Group: MSV 8260C ICAL
Last Update: 28-Mar-2018 15:19:28 Calib Date: 27-Mar-2018 22:40:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\UX970524.D

Column 1 : DB-624 (0.18 mm) Det: MS SCAN
Process Host: XAWRK005

First Level Reviewer: laveyt Date: 27-Mar-2018 20:00:33

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.723	5.724	-0.001	99	1532718	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.409	8.410	-0.001	84	1287109	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.645	10.646	-0.001	95	748473	20.0	20.0	
$ 4 Dibromofluoromethane (Surr	113	5.131	5.144	-0.013	87	8048	0.5000	0.4960	
$ 5 1,2-Dichloroethane-d4 (Sur	65	5.439	5.428	0.011	96	10118	0.5000	0.5417	
$ 6 Toluene-d8 (Surr)	98	7.095	7.096	-0.001	89	31392	0.5000	0.4561	
$ 7 4-Bromofluorobenzene (Surr	95	9.521	9.510	0.011	90	12971	0.5000	0.4772	
9 Dichlorodifluoromethane	85		1.712				ND	ND	U
10 Chloromethane	50	1.889	1.890	-0.001	94	10051	0.5000	0.5377	
11 Vinyl chloride	62	2.019	2.020	-0.001	36	10709	0.5000	0.5262	
12 Butadiene	54	2.031	2.055	-0.024	46	6563	0.5000	0.4162	
13 Bromomethane	94	2.374	2.363	0.011	56	9024	0.5000	0.5473	
15 Chloroethane	64	2.504	2.493	0.011	1	7483	0.5000	0.5115	
16 Dichlorofluoromethane	67	2.670	2.671	-0.001	93	14327	0.5000	0.4688	
17 Trichlorofluoromethane	101	2.741	2.730	0.011	19	8851	0.5000	0.3340	
18 Ethyl ether	59	2.966	2.967	-0.001	75	6473	0.5000	0.5052	
21 Acrolein	56		3.085				ND	ND	U
23 Acetone	43		3.227				ND	ND	U
24 1,1-Dichloroethene	61	3.214	3.227	-0.013	58	10605	0.5000	0.4526	
22 1,1,2-Trichloro-1,2,2-trif	101	3.238	3.239	-0.001	49	6380	0.5000	0.4106	
25 Iodomethane	142	3.392	3.381	0.011	48	15642	0.5000	0.5076	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
26 Carbon disulfide	76	3.427	3.428	-0.001	95	35976	0.5000	0.5376	
28 3-Chloro-1-propene	41	3.522	3.511	0.011	42	6438	0.5000	0.4620	
29 Methyl acetate	43	3.534	3.523	0.011	93	11743	1.00	1.09	
30 Methylene Chloride	49		3.677				ND	ND	U
31 2-Methyl-2-propanol	59	3.723	3.712	0.011	49	7460	5.00	4.63	
32 Acrylonitrile	53	3.829	3.830	-0.001	89	26264	5.00	4.43	
34 trans-1,2-Dichloroethene	61	3.877	3.866	0.011	63	11880	0.5000	0.5703	
33 Methyl tert-butyl ether	73	3.877	3.878	-0.001	93	23312	0.5000	0.4484	
35 Hexane	57	4.125	4.114	0.011	84	8095	0.5000	0.5269	
36 1,1-Dichloroethane	63	4.244	4.245	-0.001	93	13519	0.5000	0.5143	
37 Vinyl acetate	43	4.279	4.268	0.011	92	11053	0.5000	0.5334	
42 2,2-Dichloropropane	97		4.742				ND	ND	U
43 cis-1,2-Dichloroethene	96	4.741	4.742	-0.001	67	9894	0.5000	0.4708	
41 2-Butanone (MEK)	72		4.742				ND	ND	U
47 Chlorobromomethane	49	4.954	4.943	0.011	81	5941	0.5000	0.5131	
48 Tetrahydrofuran	42		4.990				ND	ND	U
49 Chloroform	83	5.001	5.002	-0.001	89	13937	0.5000	0.4726	
50 1,1,1-Trichloroethane	97	5.167	5.179	-0.012	94	12711	0.5000	0.5257	
51 Cyclohexane	84	5.249	5.239	0.011	86	14921	0.5000	0.5199	
52 1,1-Dichloropropene	75	5.320	5.309	0.011	93	12039	0.5000	0.5419	
53 Carbon tetrachloride	117	5.332	5.321	0.011	73	7837	0.5000	0.4357	
54 Isobutyl alcohol	41	5.380	5.369	0.011	24	4830	12.5	12.1	
55 Benzene	78	5.498	5.499	-0.001	94	35702	0.5000	0.5005	
56 1,2-Dichloroethane	62	5.498	5.499	-0.001	56	11350	0.5000	0.5177	
58 n-Heptane	71		5.700				ND	ND	U
60 Trichloroethene	130	6.042	6.043	-0.001	93	9119	0.5000	0.4618	
62 Methylcyclohexane	83	6.220	6.221	-0.001	85	9917	0.5000	0.4564	
63 1,2-Dichloropropane	63	6.232	6.232	0.000	83	6976	0.5000	0.4663	
65 1,4-Dioxane	88		6.339				ND	ND	U
66 Dibromomethane	174	6.338	6.339	-0.001	92	6055	0.5000	0.4504	
67 Dichlorobromomethane	83	6.456	6.457	-0.001	94	8725	0.5000	0.4288	
69 2-Chloroethyl vinyl ether	63	6.705	6.706	-0.001	83	9029	1.00	0.8482	
71 cis-1,3-Dichloropropene	75	6.847	6.848	-0.001	91	6574	0.5000	0.5635	
72 4-Methyl-2-pentanone (MIBK	43	6.965	6.966	-0.001	95	11338	1.00	0.9367	
73 Toluene	91	7.154	7.155	-0.001	97	40559	0.5000	0.4857	
74 trans-1,3-Dichloropropene	75	7.320	7.321	-0.001	1	5391	0.5000	0.5865	a
75 Ethyl methacrylate	69	7.403	7.392	0.011	80	8151	0.5000	0.3807	
76 1,1,2-Trichloroethane	97	7.498	7.499	-0.001	79	9023	0.5000	0.5078	
78 Tetrachloroethene	166	7.663	7.652	0.011	83	9919	0.5000	0.5003	
77 1,3-Dichloropropane	76	7.651	7.652	-0.001	84	15548	0.5000	0.5154	
80 2-Hexanone	43	7.711	7.712	-0.001	88	6852	1.00	0.7855	
82 Chlorodibromomethane	129	7.864	7.865	-0.001	1	4564	0.5000	0.6012	

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS4-A-032818 | Lab Sample ID: 240-93410-4

Matrix: Water | Lab File ID: UX970806.D

Analysis Method: 8260C | Date Collected: 03/28/2018 10:40

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 15:00

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	0.23	U	1.0	0.23
79-00-5	1,1,2-Trichloroethane	0.34	U	1.0	0.34
75-34-3	1,1-Dichloroethane	0.25	U	1.0	0.25
75-35-4	1,1-Dichloroethene	3.8		1.0	0.27
526-73-8	1,2,3-Trimethylbenzene	0.22	U	5.0	0.22
120-82-1	1,2,4-Trichlorobenzene	0.27	U	1.0	0.27
95-63-6	1,2,4-Trimethylbenzene	0.24	U	1.0	0.24
107-06-2	1,2-Dichloroethane	0.30	U	1.0	0.30
108-67-8	1,3,5-Trimethylbenzene	0.24	U	1.0	0.24
71-43-2	Benzene	0.28	U	1.0	0.28
56-23-5	Carbon tetrachloride	0.35	U	1.0	0.35
67-66-3	Chloroform	0.67	J	1.0	0.31
156-59-2	cis-1,2-Dichloroethene	1.2		1.0	0.30
75-71-8	Dichlorodifluoromethane	0.50	U	1.0	0.50
100-41-4	Ethylbenzene	0.26	U	1.0	0.26
1634-04-4	Methyl tert-butyl ether	0.27	U	1.0	0.27
75-09-2	Methylene Chloride	0.53	U	1.0	0.53
91-20-3	Naphthalene	0.25	U	1.0	0.25
127-18-4	Tetrachloroethene	0.30	U	1.0	0.30
108-88-3	Toluene	0.23	U	1.0	0.23
156-60-5	trans-1,2-Dichloroethene	0.29	U	1.0	0.29
79-01-6	Trichloroethene	3.9	✓	1.0	0.33
75-01-4	Vinyl chloride	0.45	U	1.0	0.45
1330-20-7	Xylenes, Total	0.24	U	2.0	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	102		73-120
1868-53-7	Dibromofluoromethane (Surr)	99		69-124
460-00-4	4-Bromofluorobenzene (Surr)	103		69-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	114		61-138

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX9\20180409-74746.b\UX970806.D
Lims ID: 240-93410-B-4
Client ID: WS-HRS4-A-032818
Sample Type: Client
Inject. Date: 09-Apr-2018 15:00:30 ALS Bottle#: 18 Worklist Smp#: 18
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 240-0074746-018
Operator ID: 001765 Instrument ID: A3UX9

Method: \\ChromNA\Canton\ChromData\A3UX9\20180409-74746.b\8260_9.m
Limit Group: MSV 8260C ICAL
Last Update: 09-Apr-2018 15:45:40 Calib Date: 27-Mar-2018 22:40:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\UX970524.D

Column 1 : DB-624 (0.18 mm) Det: MS SCAN
Process Host: XAWRK022

First Level Reviewer: bosworthh Date: 09-Apr-2018 15:46:31

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.726	5.726	0.000	99	1432684	20.0	
* 2 Chlorobenzene-d5	117	8.412	8.412	0.000	85	1254417	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.648	10.648	0.000	96	681589	20.0	
$ 4 Dibromofluoromethane (Surr	113	5.146	5.143	0.003	93	300456	19.8	
$ 5 1,2-Dichloroethane-d4 (Sur	65	5.430	5.427	0.003	99	397917	22.8	
$ 6 Toluene-d8 (Surr)	98	7.099	7.096	0.003	93	1370007	20.4	
$ 7 4-Bromofluorobenzene (Surr	95	9.512	9.510	0.002	85	544396	20.5	
9 Dichlorodifluoromethane	85		1.712				ND	
11 Vinyl chloride	62		2.008				ND	
24 1,1-Dichloroethene	61	3.241	3.226	0.015	93	84307	3.85	
30 Methylene Chloride	49		3.676				ND	U
34 trans-1,2-Dichloroethene	61		3.865				ND	
33 Methyl tert-butyl ether	73		3.877				ND	
36 1,1-Dichloroethane	63	4.247	4.244	0.003	86	4763	0.1939	
43 cis-1,2-Dichloroethene	96	4.744	4.741	0.003	76	24061	1.22	
49 Chloroform	83	5.004	5.001	0.003	95	18514	0.6717	
50 1,1,1-Trichloroethane	97		5.179				ND	
53 Carbon tetrachloride	117		5.321				ND	
56 1,2-Dichloroethane	62		5.498				ND	
55 Benzene	78		5.498				ND	
60 Trichloroethene	130	6.045	6.043	0.002	99	72205	3.91	
73 Toluene	91		7.155				ND	
76 1,1,2-Trichloroethane	97		7.498				ND	
78 Tetrachloroethene	166		7.652				ND	
87 Ethylbenzene	106		8.528				ND	
88 m-Xylene & p-Xylene	106		8.634				ND	
89 o-Xylene	106		9.013				ND	
101 1,3,5-Trimethylbenzene	105		9.924				ND	
106 1,2,4-Trimethylbenzene	105		10.302				ND	
111 1,2,3-Trimethylbenzene	105		10.719				ND	
117 1,2,4-Trichlorobenzene	180		12.645				ND	
119 Naphthalene	128		12.894				ND	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
S 131 Xylenes, Total	106		17.230				ND	
T 157 Chlorodifluoromethane TIC	51		2.370				ND	

QC Flag Legend

Review Flags

U - Marked Undetected

Reagents:

vm100ss_stk_00029	Amount Added:	1.00	Units: uL	Run Reagent
vmDist_H2o_00113	Amount Added:	0.00	Units:	Run Reagent
vm100is_stk_00040	Amount Added:	1.00	Units: uL	Run Reagent

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320313

SDG No.:

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/27/2018 17:19 Calibration End Date: 03/27/2018 19:15 Calibration ID: 44378

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 3	LVL 4	LVL 5		B	M1	M2								
Isobutyl alcohol	0.0050 0.0051	0.0036	0.0052	0.0064	0.0060	Ave		0.0052				18.6		20.0			
Benzene	0.9317 0.9242	0.8956	0.9616	0.9460	0.9258	Ave		0.9308			0.5000	2.4		20.0			
1,2-Dichloroethane	0.2962 0.2797	0.2647	0.2905	0.2950	0.2902	Ave		0.2861			0.1000	4.2		20.0			
n-Heptane	+++++ 0.1208	0.2867	0.1278	0.1149	0.1072	Lin1	0.1695	0.1111				6.8			0.9960		0.9900
Trichloroethene	0.2380 0.2648	0.2536	0.2593	0.2681	0.2623	Ave		0.2577			0.1500	4.2		20.0			
Methylcyclohexane	0.2588 0.3089	0.2877	0.2850	0.2872	0.2737	Ave		0.2835			0.1000	5.9		20.0			
1,2-Dichloropropane	0.1821 0.1910	0.2130	0.1946	0.1974	0.1932	Ave		0.1952			0.1000	5.2		20.0			
Dibromomethane	0.1580 0.1724	0.1806	0.1862	0.1748	0.1806	Ave		0.1754				5.6		20.0			
1,4-Dioxane	+++++ 0.0037	0.0025	0.0033	0.0030	0.0039	Ave		0.0033				16.7		20.0			
Dichlorobromomethane	0.2277 0.3000	0.2133	0.2712	0.2866	0.2941	Ave		0.2655			0.1500	13.7		20.0			
2-Chloroethyl vinyl ether	0.1178 0.1418	0.1331	0.1426	0.1497	0.1484	Ave		0.1389				8.6		20.0			
cis-1,3-Dichloropropene	0.1716 0.3446	0.2280	0.2922	0.3171	0.3350	Lin1	-0.104	0.3367			0.1500	8.6			0.9980		0.9900
4-Methyl-2-pentanone (MIBK)	0.1479 0.1549	0.1328	0.1590	0.1788	0.1742	Ave		0.1579			0.0500	10.8		20.0			
Toluene	1.2605 1.2999	1.3151	1.3310	1.2887	1.2900	Ave		1.2975			0.4000	1.9		20.0			
trans-1,3-Dichloropropene	0.1675 0.3884	0.2287	0.3165	0.3529	0.3835	Lin1	-0.139	0.3803			0.1000	11.4			0.9970		0.9900
Ethyl methacrylate	0.2533 0.3807	0.2572	0.3453	0.3762	0.3836	Ave		0.3327				18.5		20.0			
1,1,2-Trichloroethane	0.2804 0.2758	0.2669	0.2792	0.2750	0.2791	Ave		0.2761			0.1000	1.8		20.0			
1,3-Dichloropropane	0.4832 0.4622	0.4382	0.4776	0.4786	0.4726	Ave		0.4687				3.5		20.0			
Tetrachloroethene	0.3083 0.3212	0.2972	0.3173	0.3026	0.3020	Ave		0.3081			0.1500	3.0		20.0			
2-Hexanone	0.1065 0.1358	0.1141	0.1443	0.1577	0.1548	Ave		0.1355			0.0500	15.6		20.0			

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

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 240-321696/7

Matrix: Water | Lab File ID: UX970795.D

Analysis Method: 8260C | Date Collected:

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 10:43

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	23.2		1.0	0.23
79-00-5	1,1,2-Trichloroethane	21.4		1.0	0.34
75-34-3	1,1-Dichloroethane	22.3		1.0	0.25
75-35-4	1,1-Dichloroethene	22.5		1.0	0.27
120-82-1	1,2,4-Trichlorobenzene	17.2		1.0	0.27
95-63-6	1,2,4-Trimethylbenzene	21.5		1.0	0.24
107-06-2	1,2-Dichloroethane	23.5		1.0	0.30
108-67-8	1,3,5-Trimethylbenzene	22.0		1.0	0.24
71-43-2	Benzene	21.5		1.0	0.28
56-23-5	Carbon tetrachloride	23.4		1.0	0.35
67-66-3	Chloroform	22.5		1.0	0.31
156-59-2	cis-1,2-Dichloroethene	20.9		1.0	0.30
75-71-8	Dichlorodifluoromethane	17.0		1.0	0.50
100-41-4	Ethylbenzene	19.8		1.0	0.26
1634-04-4	Methyl tert-butyl ether	22.1		1.0	0.27
75-09-2	Methylene Chloride	20.2		1.0	0.53
91-20-3	Naphthalene	18.6		1.0	0.25
127-18-4	Tetrachloroethene	18.6		1.0	0.30
108-88-3	Toluene	20.5		1.0	0.23
156-60-5	trans-1,2-Dichloroethene	22.8		1.0	0.29
79-01-6	Trichloroethene	20.7		1.0	0.33
75-01-4	Vinyl chloride	20.8		1.0	0.45
1330-20-7	Xylenes, Total	39.7		2.0	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	104		73-120
1868-53-7	Dibromofluoromethane (Surr)	101		69-124
460-00-4	4-Bromofluorobenzene (Surr)	105		69-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	109		61-138

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX9\20180409-74746.b\UX970795.D
Lims ID: LCS
Client ID:
Sample Type: LCS
Inject. Date: 09-Apr-2018 10:43:30 ALS Bottle#: 7 Worklist Smp#: 7
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 240-0074746-007
Operator ID: 001765 Instrument ID: A3UX9

Method: \\ChromNA\Canton\ChromData\A3UX9\20180409-74746.b\8260_9.m
Limit Group: MSV 8260C ICAL
Last Update: 10-Apr-2018 08:27:58 Calib Date: 27-Mar-2018 22:40:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\UX970524.D

Column 1 : DB-624 (0.18 mm) Det: MS SCAN
Process Host: XAWRK005

First Level Reviewer: bosworthh Date: 09-Apr-2018 12:11:49

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.724	5.723	0.001	99	1522644	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.410	8.409	0.001	85	1296738	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.646	10.646	0.000	96	726052	20.0	20.0	
$ 4 Dibromofluoromethane (Surr	113	5.144	5.143	0.001	93	324889	20.0	20.2	
$ 5 1,2-Dichloroethane-d4 (Sur	65	5.428	5.427	0.001	100	405730	20.0	21.9	
$ 6 Toluene-d8 (Surr)	98	7.096	7.096	0.000	93	1449178	20.0	20.9	
$ 7 4-Bromofluorobenzene (Surr	95	9.510	9.510	0.000	87	575630	20.0	21.0	
9 Dichlorodifluoromethane	85	1.712	1.712	0.000	99	398586	20.0	17.0	
10 Chloromethane	50	1.890	1.889	0.001	100	400135	20.0	21.5	
11 Vinyl chloride	62	2.008	2.008	0.000	99	420582	20.0	20.8	
12 Butadiene	54	2.055	2.043	0.012	87	324955	20.0	20.7	
13 Bromomethane	94	2.375	2.363	0.012	92	298236	20.0	18.2	
15 Chloroethane	64	2.481	2.493	-0.012	99	280411	20.0	19.3	
16 Dichlorofluoromethane	67	2.671	2.658	0.013	98	702839	20.0	23.2	
17 Trichlorofluoromethane	101	2.718	2.718	0.000	99	561307	20.0	21.3	
18 Ethyl ether	59	2.967	2.966	0.001	85	276448	20.0	21.7	
21 Acrolein	56	3.085	3.084	0.001	98	213008	100.0	105.9	
22 1,1,2-Trichloro-1,2,2-trif	101	3.239	3.215	0.024	60	284838	20.0	18.5	
23 Acetone	43	3.227	3.226	0.001	100	180659	40.0	47.1	
24 1,1-Dichloroethene	61	3.227	3.226	0.001	95	524820	20.0	22.5	
25 Iodomethane	142	3.381	3.380	0.001	98	558861	20.0	18.3	
26 Carbon disulfide	76	3.428	3.428	0.000	99	1194004	20.0	18.0	
28 3-Chloro-1-propene	41	3.511	3.510	0.001	86	364096	20.0	26.3	
29 Methyl acetate	43	3.523	3.522	0.001	95	438692	40.0	41.0	
30 Methylene Chloride	49	3.677	3.676	0.001	83	450717	20.0	20.2	
31 2-Methyl-2-propanol	59	3.712	3.712	0.000	98	363292	200.0	226.9	
32 Acrylonitrile	53	3.830	3.830	0.000	99	1327073	200.0	225.1	
34 trans-1,2-Dichloroethene	61	3.878	3.865	0.013	64	472496	20.0	22.8	
33 Methyl tert-butyl ether	73	3.878	3.877	0.001	92	1141763	20.0	22.1	
35 Hexane	57	4.114	4.114	0.000	86	253971	20.0	16.6	
36 1,1-Dichloroethane	63	4.245	4.244	0.001	96	583115	20.0	22.3	
37 Vinyl acetate	43	4.268	4.268	0.000	96	585499	20.0	28.4	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
41 2-Butanone (MEK)	72	4.742	4.741	0.001	69	106313	40.0	45.5	
43 cis-1,2-Dichloroethene	96	4.742	4.741	0.001	80	437112	20.0	20.9	
42 2,2-Dichloropropane	97	4.742	4.741	0.001	89	84234	20.0	26.1	
47 Chlorobromomethane	49	4.943	4.942	0.001	84	254928	20.0	22.2	
48 Tetrahydrofuran	42	4.990	4.990	0.000	78	171782	40.0	44.2	
49 Chloroform	83	5.002	5.001	0.001	94	660332	20.0	22.5	
50 1,1,1-Trichloroethane	97	5.179	5.179	0.000	97	556288	20.0	23.2	
51 Cyclohexane	84	5.238	5.238	0.000	80	542034	20.0	19.0	M
52 1,1-Dichloropropene	75	5.321	5.309	0.012	98	489313	20.0	22.2	
53 Carbon tetrachloride	117	5.321	5.321	0.000	97	418440	20.0	23.4	
54 Isobutyl alcohol	41	5.369	5.368	0.001	95	222397	500.0	559.3	
56 1,2-Dichloroethane	62	5.499	5.498	0.001	59	511972	20.0	23.5	
55 Benzene	78	5.499	5.498	0.001	95	1525271	20.0	21.5	
58 n-Heptane	71	5.700	5.700	0.000	81	154808	20.0	16.8	
60 Trichloroethene	130	6.043	6.043	0.000	98	406824	20.0	20.7	
62 Methylcyclohexane	83	6.221	6.220	0.001	84	372180	20.0	17.2	
63 1,2-Dichloropropane	63	6.232	6.232	0.000	88	340614	20.0	22.9	
66 Dibromomethane	174	6.339	6.338	0.001	96	256165	20.0	19.2	
65 1,4-Dioxane	88	6.339	6.338	0.001	83	115435	400.0	462.6	
67 Dichlorobromomethane	83	6.457	6.457	0.000	99	474586	20.0	23.5	
69 2-Chloroethyl vinyl ether	63	6.706	6.705	0.001	93	236061	20.0	22.3	
71 cis-1,3-Dichloropropene	75	6.848	6.847	0.001	97	556171	20.0	22.0	
72 4-Methyl-2-pentanone (MIBK	43	6.966	6.966	0.000	92	556626	40.0	46.3	
73 Toluene	91	7.155	7.155	0.000	99	1728020	20.0	20.5	
74 trans-1,3-Dichloropropene	75	7.333	7.332	0.001	91	505863	20.0	20.9	
75 Ethyl methacrylate	69	7.392	7.392	0.000	84	487542	20.0	22.6	
76 1,1,2-Trichloroethane	97	7.499	7.498	0.001	90	383639	20.0	21.4	
77 1,3-Dichloropropane	76	7.652	7.652	0.000	86	631347	20.0	20.8	
78 Tetrachloroethene	166	7.652	7.652	0.000	77	371194	20.0	18.6	
80 2-Hexanone	43	7.712	7.711	0.001	91	415008	40.0	47.2	
82 Chlorodibromomethane	129	7.865	7.865	0.000	90	334631	20.0	19.3	
83 Ethylene Dibromide	107	7.984	7.983	0.001	98	381050	20.0	21.1	
85 Chlorobenzene	112	8.433	8.433	0.000	95	1150323	20.0	20.0	
86 1,1,1,2-Tetrachloroethane	131	8.504	8.504	0.000	94	364740	20.0	21.8	
87 Ethylbenzene	106	8.528	8.528	0.000	98	608903	20.0	19.8	
88 m-Xylene & p-Xylene	106	8.634	8.634	0.000	99	762149	20.0	20.1	
89 o-Xylene	106	9.013	9.013	0.000	96	751746	20.0	19.6	
90 Styrene	104	9.025	9.025	0.000	92	1290086	20.0	20.5	
91 Bromoform	173	9.214	9.214	0.000	94	179864	20.0	20.2	
92 Isopropylbenzene	105	9.368	9.368	0.000	95	1789365	20.0	20.1	
94 1,1,2,2-Tetrachloroethane	83	9.628	9.628	0.000	97	507190	20.0	22.5	
95 Bromobenzene	156	9.676	9.675	0.001	95	480047	20.0	19.8	
97 1,2,3-Trichloropropane	110	9.688	9.687	0.001	84	197323	20.0	22.4	
96 trans-1,4-Dichloro-2-buten	53	9.688	9.687	0.001	67	80634	20.0	28.2	
98 N-Propylbenzene	120	9.759	9.758	0.001	99	478216	20.0	21.4	
100 2-Chlorotoluene	126	9.853	9.853	0.000	96	441223	20.0	21.1	
101 1,3,5-Trimethylbenzene	105	9.924	9.924	0.000	94	1491368	20.0	22.0	
102 4-Chlorotoluene	126	9.960	9.959	0.001	98	463839	20.0	20.5	
104 tert-Butylbenzene	119	10.256	10.255	0.001	91	1210208	20.0	20.6	
106 1,2,4-Trimethylbenzene	105	10.303	10.302	0.001	97	1595925	20.0	21.5	
107 sec-Butylbenzene	134	10.469	10.468	0.001	94	341998	20.0	21.2	
108 1,3-Dichlorobenzene	146	10.587	10.586	0.001	97	916046	20.0	19.9	

FORM III
GC/MS VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Matrix: Water Level: Low Lab File ID: UX970795.D

Lab ID: LCS 240-321696/7 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
1,1,1-Trichloroethane	20.0	23.2	116	64-147	
1,1,2-Trichloroethane	20.0	21.4	107	76-121	
1,1-Dichloroethane	20.0	22.3	112	74-120	
1,1-Dichloroethene	20.0	22.5	113	65-127	
1,2,4-Trichlorobenzene	20.0	17.2	86	34-141	
1,2,4-Trimethylbenzene	20.0	21.5	108	80-120	
1,2-Dichloroethane	20.0	23.5	118	68-133	
1,3,5-Trimethylbenzene	20.0	22.0	110	79-120	
Benzene	20.0	21.5	108	79-120	
Carbon tetrachloride	20.0	23.4	117	55-171	
Chloroform	20.0	22.5	113	80-120	
cis-1,2-Dichloroethene	20.0	20.9	105	77-120	
Dichlorodifluoromethane	20.0	17.0	85	42-141	
Ethylbenzene	20.0	19.8	99	80-120	
Methyl tert-butyl ether	20.0	22.1	111	73-120	
Methylene Chloride	20.0	20.2	101	64-140	
m-Xylene & p-Xylene	20.0	20.1	100	80-120	
Naphthalene	20.0	18.6	93	31-127	
o-Xylene	20.0	19.6	98	80-120	
Tetrachloroethene	20.0	18.6	93	80-122	
Toluene	20.0	20.5	103	78-120	
trans-1,2-Dichloroethene	20.0	22.8	114	74-124	
Trichloroethene	20.0	20.7	104	76-124	
Vinyl chloride	20.0	20.8	104	65-124	
Xylenes, Total	40.0	39.7	99	80-120	

Column to be used to flag recovery and RPD values

FORM III 8260C

MS Tune Report

TestAmerica Canton

Data File: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\BFB4010.D

Injection Date: 27-Mar-2018 16:47:30 Instrument ID: A3UX9

Lims ID: BFB

Client ID:

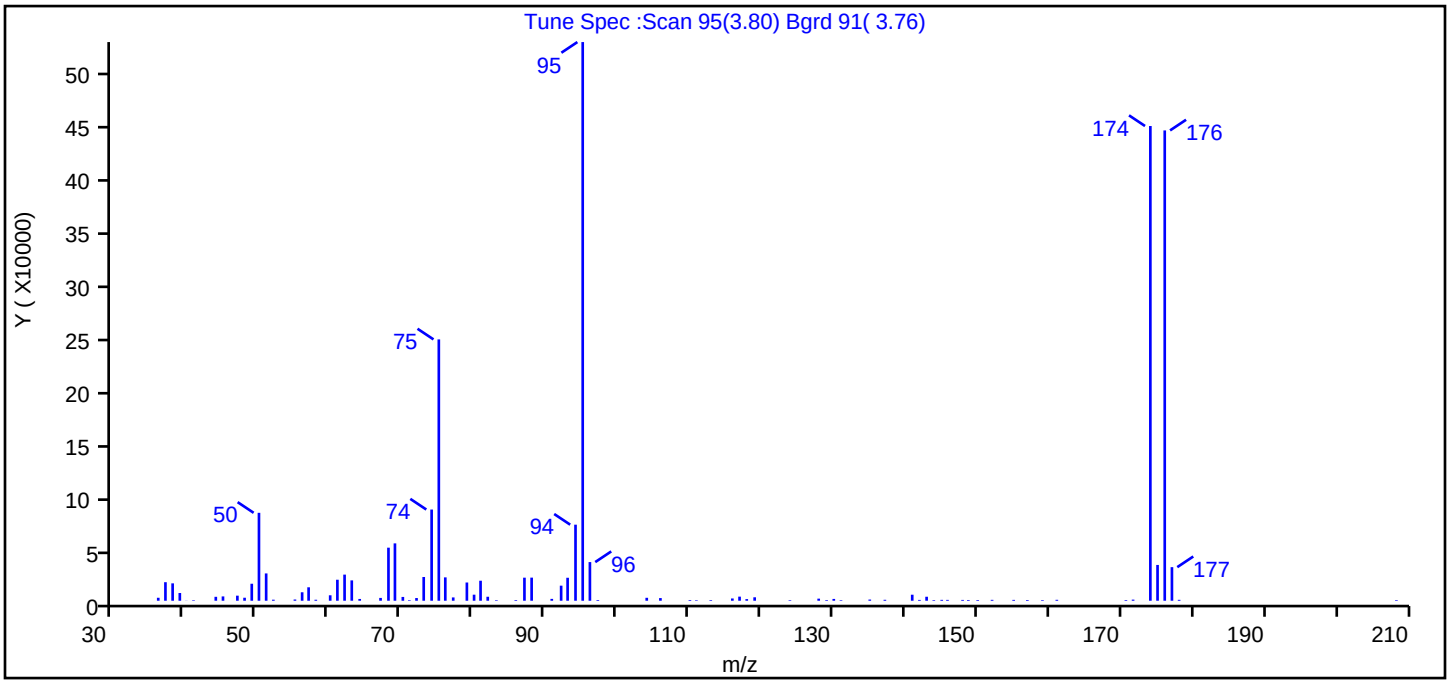
Operator ID: 001904 ALS Bottle#: 2 Worklist Smp#: 2

Injection Vol: 5.0 mL Dil. Factor: 1.0000

Method: 8260_9 Limit Group: MSV 8260C ICAL

Tune Method: BFB Method 8260

$ 8 BFB



m/z	Ion Abundance Criteria	% Relative Abundance
95	Base peak, 100% relative abundance	100.0
50	15 to 40% of m/z 95	15.7
75	30 to 60% of m/z 95	46.8
96	5 to 9% of m/z 95	6.9
173	Less than 2% of m/z 174	0.0 (0.0)
174	50 to 120% of m/z 95	85.0
175	5 to 9% of m/z 174	6.4 (7.5)
176	Greater than 95% but less than 101% of m/z 174	84.2 (99.1)
177	5 to 9% of m/z 176	6.0 (7.1)

Data File: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\BFB4010.D\8260_9.rslt\spectra.d
Injection Date: 27-Mar-2018 16:47:30
Spectrum: Tune Spec :Scan 95(3.80) Bgrd 91(3.76)
Base Peak: 95.15
Minimum % Base Peak: 0
Number of Points: 87

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.15	2770	64.15	1653	93.05	21400	141.95	778
37.15	17264	67.05	2625	94.15	70856	142.95	3718
38.15	16198	68.15	49432	95.15	520448	143.95	580
39.15	7197	69.05	53432	96.15	36008	145.05	824
40.05	101	70.15	3534	97.25	678	145.85	796
41.05	509	71.05	551	104.05	2735	147.95	765
44.15	3656	72.05	2508	105.95	2476	148.75	690
45.15	4020	73.05	22120	110.05	669	150.05	661
47.15	4721	74.15	84960	110.95	509	152.05	834
48.15	2798	75.15	243456	112.95	613	155.05	797
49.15	15837	76.05	21760	115.95	2111	156.95	681
50.15	81904	77.15	3084	116.95	3816	159.05	599
51.15	25440	79.05	16984	117.95	1514	161.05	868
52.15	970	80.05	5641	119.05	3212	170.65	635
55.15	1143	80.95	18640	123.95	545	171.65	1034
56.15	7888	81.95	3712	127.95	1946	174.05	442240
57.05	12518	83.15	532	129.05	626	175.05	33344
58.05	928	85.85	636	130.05	1691	176.05	438144
60.05	5076	87.05	21480	131.05	539	177.05	31280
61.05	19568	88.05	21536	135.05	1102	178.05	846
62.05	24336	90.85	1727	137.15	885	208.25	586
63.05	18960	92.15	14039	140.95	5611		

FORM I
GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 240-93410-1

SDG No.:

Client Sample ID: WS-HRS4-A-032818 | Lab Sample ID: 240-93410-4

Matrix: Water | Lab File ID: UX970806.D

Analysis Method: 8260C | Date Collected: 03/28/2018 10:40

Sample wt/vol: 5(mL) | Date Analyzed: 04/09/2018 15:00

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: DB-624 ID: 0.18(mm)

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

Analysis Batch No.: 321696 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-55-6	1,1,1-Trichloroethane	0.23	U	1.0	0.23
79-00-5	1,1,2-Trichloroethane	0.34	U	1.0	0.34
75-34-3	1,1-Dichloroethane	0.25	U	1.0	0.25
75-35-4	1,1-Dichloroethene	3.8		1.0	0.27
526-73-8	1,2,3-Trimethylbenzene	0.22	U	5.0	0.22
120-82-1	1,2,4-Trichlorobenzene	0.27	U	1.0	0.27
95-63-6	1,2,4-Trimethylbenzene	0.24	U	1.0	0.24
107-06-2	1,2-Dichloroethane	0.30	U	1.0	0.30
108-67-8	1,3,5-Trimethylbenzene	0.24	U	1.0	0.24
71-43-2	Benzene	0.28	U	1.0	0.28
56-23-5	Carbon tetrachloride	0.35	U	1.0	0.35
67-66-3	Chloroform	0.67	J	1.0	0.31
156-59-2	cis-1,2-Dichloroethene	1.2		1.0	0.30
75-71-8	Dichlorodifluoromethane	0.50	U	1.0	0.50
100-41-4	Ethylbenzene	0.26	U	1.0	0.26
1634-04-4	Methyl tert-butyl ether	0.27	U	1.0	0.27
75-09-2	Methylene Chloride	0.53	U	1.0	0.53
91-20-3	Naphthalene	0.25	U	1.0	0.25
127-18-4	Tetrachloroethene	0.30	U	1.0	0.30
108-88-3	Toluene	0.23	U	1.0	0.23
156-60-5	trans-1,2-Dichloroethene	0.29	U	1.0	0.29
79-01-6	Trichloroethene	3.9		1.0	0.33
75-01-4	Vinyl chloride	0.45	U	1.0	0.45
1330-20-7	Xylenes, Total	0.24	U	2.0	0.24

CAS NO.	SURROGATE	%REC	Q	LIMITS
2037-26-5	Toluene-d8 (Surr)	102		73-120
1868-53-7	Dibromofluoromethane (Surr)	99		69-124
460-00-4	4-Bromofluorobenzene (Surr)	103		69-120
17060-07-0	1,2-Dichloroethane-d4 (Surr)	114		61-138

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX9\20180409-74746.b\UX970806.D
Lims ID: 240-93410-B-4
Client ID: WS-HRS4-A-032818
Sample Type: Client
Inject. Date: 09-Apr-2018 15:00:30 ALS Bottle#: 18 Worklist Smp#: 18
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 240-0074746-018
Operator ID: 001765 Instrument ID: A3UX9

Method: \\ChromNA\Canton\ChromData\A3UX9\20180409-74746.b\8260_9.m
Limit Group: MSV 8260C ICAL
Last Update: 09-Apr-2018 15:45:40 Calib Date: 27-Mar-2018 22:40:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\UX970524.D

Column 1 : DB-624 (0.18 mm) Det: MS SCAN
Process Host: XAWRK022

First Level Reviewer: bosworthh Date: 09-Apr-2018 15:46:31

	Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ug/l	Flags
*	1 Fluorobenzene	96	5.726	5.726	0.000	99	1432684	20.0	
*	2 Chlorobenzene-d5	117	8.412	8.412	0.000	85	1254417	20.0	
*	3 1,4-Dichlorobenzene-d4	152	10.648	10.648	0.000	96	681589	20.0	
$	4 Dibromofluoromethane (Surr	113	5.146	5.143	0.003	93	300456	19.8	
$	5 1,2-Dichloroethane-d4 (Sur	65	5.430	5.427	0.003	99	397917	22.8	
$	6 Toluene-d8 (Surr)	98	7.099	7.096	0.003	93	1370007	20.4	
$	7 4-Bromofluorobenzene (Surr	95	9.512	9.510	0.002	85	544396	20.5	
	9 Dichlorodifluoromethane	85		1.712				ND	
	11 Vinyl chloride	62		2.008				ND	
	24 1,1-Dichloroethene	61	3.241	3.226	0.015	93	84307	3.85	
	30 Methylene Chloride	49		3.676				ND	U
	34 trans-1,2-Dichloroethene	61		3.865				ND	
	33 Methyl tert-butyl ether	73		3.877				ND	
	36 1,1-Dichloroethane	63	4.247	4.244	0.003	86	4763	0.1939	
	43 cis-1,2-Dichloroethene	96	4.744	4.741	0.003	76	24061	1.22	
	49 Chloroform	83	5.004	5.001	0.003	95	18514	0.6717	
	50 1,1,1-Trichloroethane	97		5.179				ND	
	53 Carbon tetrachloride	117		5.321				ND	
	56 1,2-Dichloroethane	62		5.498				ND	
	55 Benzene	78		5.498				ND	
	60 Trichloroethene	130	6.045	6.043	0.002	99	72205	3.91	
	73 Toluene	91		7.155				ND	
	76 1,1,2-Trichloroethane	97		7.498				ND	
	78 Tetrachloroethene	166		7.652				ND	
	87 Ethylbenzene	106		8.528				ND	
	88 m-Xylene & p-Xylene	106		8.634				ND	
	89 o-Xylene	106		9.013				ND	
	101 1,3,5-Trimethylbenzene	105		9.924				ND	
	106 1,2,4-Trimethylbenzene	105		10.302				ND	
	111 1,2,3-Trimethylbenzene	105		10.719				ND	
	117 1,2,4-Trichlorobenzene	180		12.645				ND	
	119 Naphthalene	128		12.894				ND	

TestAmerica Canton
Recovery Report

Data File: \\ChromNA\Canton\ChromData\A3UX9\20180409-74746.b\UX970806.D
Lims ID: 240-93410-B-4
Client ID: WS-HRS4-A-032818
Sample Type: Client
Inject. Date: 09-Apr-2018 15:00:30 ALS Bottle#: 18 Worklist Smp#: 18
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 240-0074746-018
Operator ID: 001765 Instrument ID: A3UX9

Method: \\ChromNA\Canton\ChromData\A3UX9\20180409-74746.b\8260_9.m
Limit Group: MSV 8260C ICAL
Last Update: 09-Apr-2018 15:45:40 Calib Date: 27-Mar-2018 22:40:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\UX970524.D

Column 1 : DB-624 (0.18 mm) Det: MS SCAN
Process Host: XAWRK022

First Level Reviewer: bosworthh Date: 09-Apr-2018 15:46:31

Compound	Amount Added	Amount Recovered	% Rec.
$ 4 Dibromofluoromethane (Surr)	20.0	19.8	99.05
$ 5 1,2-Dichloroethane-d4 (Surr)	20.0	22.8	113.97
$ 6 Toluene-d8 (Surr)	20.0	20.4	102.12
$ 7 4-Bromofluorobenzene (Surr)	20.0	20.5	102.74

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

Lab Name: TestAmerica Canton Job No.: 240-93410-1 Analy Batch No.: 320313

SDG No.:

Instrument ID: A3UX9 GC Column: DB-624 ID: 0.18(mm) Heated Purge: (Y/N) N

Calibration Start Date: 03/27/2018 17:19 Calibration End Date: 03/27/2018 19:15 Calibration ID: 44378

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 3	LVL 4	LVL 5		B	M1	M2								
sec-Butylbenzene	0.3815 0.4862	0.3998	0.4580	0.4837	0.4539	Ave		0.4439				9.8		20.0			
1,3-Dichlorobenzene	1.2424 1.2395	1.3527	1.2927	1.2545	1.2327	Ave		1.2691			0.6000	3.6		20.0			
4-Isopropyltoluene	1.8139 1.9882	1.8726	1.9369	1.9144	1.8823	Ave		1.9014				3.1		20.0			
1,4-Dichlorobenzene	1.6201 1.3118	1.5584	1.3317	1.3316	1.2816	Ave		1.4059			0.5000	10.3		20.0			
n-Butylbenzene	1.5918 1.5744	1.4747	1.4862	1.5272	1.4711	Ave		1.5209				3.4		20.0			
1,2-Dichlorobenzene	1.2731 1.2234	1.2375	1.2637	1.2515	1.2145	Ave		1.2440			0.4000	1.8		20.0			
1,2-Dibromo-3-Chloropropane	+++++ 0.1257	0.0999	0.1181	0.1338	0.1346	Ave		0.1224			0.0500	11.7		20.0			
1,2,4-Trichlorobenzene	0.7727 0.7146	0.8516	0.7359	0.7435	0.7296	Ave		0.7580			0.2000	6.6		20.0			
Hexachlorobutadiene	0.3081 0.2410	0.3281	0.2507	0.2246	0.2304	Ave		0.2638				16.5		20.0			
Naphthalene	2.0798 2.0632	2.4036	2.2832	2.3953	2.2949	Ave		2.2533				6.6		20.0			
1,2,3-Trichlorobenzene	0.7568 0.6539	0.9297	0.7194	0.7025	0.6948	Ave		0.7429				13.1		20.0			
Dibromofluoromethane (Surr)	0.2100 0.2140	0.1992	0.2108	0.2223	0.2142	Ave		0.2117				3.6		20.0			
1,2-Dichloroethane-d4 (Surr)	0.2641 0.2295	0.2516	0.2436	0.2410	0.2324	Ave		0.2437				5.2		20.0			
Toluene-d8 (Surr)	0.9756 1.0941	1.0568	1.1071	1.0913	1.0917	Ave		1.0694				4.6		20.0			
4-Bromofluorobenzene (Surr)	0.4031 0.4270	0.4346	0.4202	0.4257	0.4237	Ave		0.4224				2.5		20.0			

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

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 240-93410-1

SDG No.:

Lab Sample ID: CCVIS 240-321696/4 Calibration Date: 04/09/2018 09:33

Instrument ID: A3UX9 Calib Start Date: 03/27/2018 17:19

GC Column: DB-624 ID: 0.18(mm) Calib End Date: 03/27/2018 19:15

Lab File ID: UX970792.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.3077	0.2692	0.1000	0.0175	0.0200	-12.5	20.0
Chloromethane	Ave	0.2439	0.2552	0.1000	0.0209	0.0200	4.6	20.0
Vinyl chloride	Ave	0.2655	0.2684	0.1000	0.0202	0.0200	1.1	20.0
Butadiene	Ave	0.2058	0.1936		0.0188	0.0200	-5.9	20.0
Bromomethane	Ave	0.2151	0.1930	0.0500	0.0179	0.0200	-10.3	20.0
Chloroethane	Ave	0.1909	0.1817	0.0500	0.0190	0.0200	-4.8	20.0
Dichlorofluoromethane	Ave	0.3988	0.4158		0.0209	0.0200	4.3	20.0
Trichlorofluoromethane	Ave	0.3458	0.3738	0.1000	0.0216	0.0200	8.1	20.0
Ethyl ether	Ave	0.1672	0.1801		0.0215	0.0200	7.7	20.0
Acrolein	Ave	0.0264	0.0332		0.126	0.100	25.5	50.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	0.2028	0.2149	0.0500	0.0212	0.0200	6.0	20.0
1,1-Dichloroethene	Ave	0.3057	0.3604	0.1000	0.0236	0.0200	17.9	20.0
Acetone	Lin1		0.0709	0.0100	0.0570	0.0400	42.6	50.0
Iodomethane	Ave	0.4021	0.3672		0.0183	0.0200	-8.7	20.0
Carbon disulfide	Ave	0.8732	0.8405	0.1000	0.0192	0.0200	-3.8	20.0
3-Chloro-1-propene	Ave	0.1818	0.2413		0.0265	0.0200	32.7*	20.0
Methyl acetate	Ave	0.1404	0.1566	0.1000	0.0446	0.0400	11.5	20.0
Methylene Chloride	Ave	0.2925	0.3240	0.1000	0.0221	0.0200	10.7	50.0
2-Methyl-2-propanol	Ave	0.0210	0.0264		0.251	0.200	25.6	50.0
Acrylonitrile	Ave	0.0774	0.0921		0.238	0.200	18.9	20.0
trans-1,2-Dichloroethene	Ave	0.2718	0.3127	0.1000	0.0230	0.0200	15.0	20.0
Methyl tert-butyl ether	Ave	0.6784	0.7521	0.1000	0.0222	0.0200	10.9	20.0
Hexane	Ave	0.2005	0.1923		0.0192	0.0200	-4.1	20.0
1,1-Dichloroethane	Ave	0.3430	0.3824	0.2000	0.0223	0.0200	11.5	20.0
Vinyl acetate	Ave	0.2704	0.3961		0.0293	0.0200	46.5	50.0
2,2-Dichloropropane	Ave	0.0424	0.0504		0.0238	0.0200	19.0	20.0
2-Butanone (MEK)	Ave	0.0307	0.0364	0.0100	0.0474	0.0400	18.4	20.0
cis-1,2-Dichloroethene	Ave	0.2742	0.2994	0.1000	0.0218	0.0200	9.2	20.0
Chlorobromomethane	Ave	0.1511	0.1703		0.0225	0.0200	12.7	20.0
Tetrahydrofuran	Ave	0.0510	0.0634		0.0497	0.0400	24.3*	20.0
Chloroform	Ave	0.3848	0.4401	0.2000	0.0229	0.0200	14.4	20.0
1,1,1-Trichloroethane	Ave	0.3155	0.3578	0.1000	0.0227	0.0200	13.4	20.0
Cyclohexane	Ave	0.3745	0.3509	0.1000	0.0187	0.0200	-6.3	20.0
1,1-Dichloropropene	Ave	0.2899	0.3267		0.0225	0.0200	12.7	20.0
Carbon tetrachloride	Ave	0.2347	0.2795	0.1000	0.0238	0.0200	19.1	20.0
Isobutyl alcohol	Ave	0.0052	0.0072		0.686	0.500	37.2*	20.0
1,2-Dichloroethane	Ave	0.2861	0.3474	0.1000	0.0243	0.0200	21.4*	20.0
Benzene	Ave	0.9308	1.022	0.5000	0.0220	0.0200	9.8	20.0
n-Heptane	Lin1		0.1123		0.0187	0.0200	-6.5	20.0
Trichloroethene	Ave	0.2577	0.2803	0.1500	0.0218	0.0200	8.8	20.0

FORM VII 8260C

TestAmerica Canton
Target Compound Quantitation Report

Data File: \\ChromNA\Canton\ChromData\A3UX9\20180409-74746.b\UX970792.D
Lims ID: CCVIS
Client ID:
Sample Type: CCVIS
Inject. Date: 09-Apr-2018 09:33:30 ALS Bottle#: 4 Worklist Smp#: 4
Purge Vol: 5.000 mL Dil. Factor: 1.0000
Sample Info: 240-0074746-004
Operator ID: 001765 Instrument ID: A3UX9
Sublist: chrom-8260_9*sub61

Method: \\ChromNA\Canton\ChromData\A3UX9\20180409-74746.b\8260_9.m
Limit Group: MSV 8260C ICAL
Last Update: 10-Apr-2018 08:26:52 Calib Date: 27-Mar-2018 22:40:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Canton\ChromData\A3UX9\20180327-74433.b\UX970524.D

Column 1 : DB-624 (0.18 mm) Det: MS SCAN
Process Host: XAWRK005

First Level Reviewer: bosworthh Date: 10-Apr-2018 08:26:52

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
* 1 Fluorobenzene	96	5.723	5.723	0.000	99	1506079	20.0	20.0	
* 2 Chlorobenzene-d5	117	8.409	8.409	0.000	86	1286399	20.0	20.0	
* 3 1,4-Dichlorobenzene-d4	152	10.646	10.646	0.000	94	732283	20.0	20.0	
$ 4 Dibromofluoromethane (Surr	113	5.143	5.143	0.000	93	334174	20.0	21.0	
$ 5 1,2-Dichloroethane-d4 (Sur	65	5.427	5.427	0.000	100	398001	20.0	21.7	
$ 6 Toluene-d8 (Surr)	98	7.096	7.096	0.000	92	1448937	20.0	21.1	
$ 7 4-Bromofluorobenzene (Surr	95	9.510	9.510	0.000	87	576306	20.0	21.2	
9 Dichlorodifluoromethane	85	1.712	1.712	0.000	100	405449	20.0	17.5	
10 Chloromethane	50	1.889	1.889	0.000	100	384338	20.0	20.9	
11 Vinyl chloride	62	2.008	2.008	0.000	98	404277	20.0	20.2	
12 Butadiene	54	2.043	2.043	0.000	88	291549	20.0	18.8	
13 Bromomethane	94	2.363	2.363	0.000	90	290683	20.0	17.9	
15 Chloroethane	64	2.493	2.493	0.000	98	273681	20.0	19.0	
16 Dichlorofluoromethane	67	2.658	2.658	0.000	98	626198	20.0	20.9	
17 Trichlorofluoromethane	101	2.718	2.718	0.000	99	562993	20.0	21.6	
18 Ethyl ether	59	2.966	2.966	0.000	84	271181	20.0	21.5	
21 Acrolein	56	3.084	3.084	0.000	99	249711	100.0	125.5	
22 1,1,2-Trichloro-1,2,2-trif	101	3.215	3.215	0.000	58	323604	20.0	21.2	
23 Acetone	43	3.226	3.226	0.000	100	213680	40.0	57.0	
24 1,1-Dichloroethene	61	3.226	3.226	0.000	94	542799	20.0	23.6	
25 Iodomethane	142	3.380	3.380	0.000	100	553097	20.0	18.3	
26 Carbon disulfide	76	3.428	3.428	0.000	99	1265801	20.0	19.2	
28 3-Chloro-1-propene	41	3.510	3.510	0.000	87	363336	20.0	26.5	
29 Methyl acetate	43	3.522	3.522	0.000	96	471785	40.0	44.6	
30 Methylene Chloride	49	3.676	3.676	0.000	83	487897	20.0	22.1	
31 2-Methyl-2-propanol	59	3.712	3.712	0.000	99	397724	200.0	251.2	
32 Acrylonitrile	53	3.830	3.830	0.000	98	1386885	200.0	237.9	
34 trans-1,2-Dichloroethene	61	3.865	3.865	0.000	63	470893	20.0	23.0	
33 Methyl tert-butyl ether	73	3.877	3.877	0.000	92	1132716	20.0	22.2	
35 Hexane	57	4.114	4.114	0.000	86	289598	20.0	19.2	
36 1,1-Dichloroethane	63	4.244	4.244	0.000	96	575930	20.0	22.3	

Compound	Sig	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Q	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
37 Vinyl acetate	43	4.268	4.268	0.000	97	596595	20.0	29.3	
41 2-Butanone (MEK)	72	4.741	4.741	0.000	71	109503	40.0	47.4	
43 cis-1,2-Dichloroethene	96	4.741	4.741	0.000	79	450927	20.0	21.8	
42 2,2-Dichloropropane	97	4.741	4.741	0.000	87	75963	20.0	23.8	
47 Chlorobromomethane	49	4.942	4.942	0.000	85	256470	20.0	22.5	
48 Tetrahydrofuran	42	4.990	4.990	0.000	80	190989	40.0	49.7	
49 Chloroform	83	5.001	5.001	0.000	94	662859	20.0	22.9	
50 1,1,1-Trichloroethane	97	5.179	5.179	0.000	97	538844	20.0	22.7	
51 Cyclohexane	84	5.238	5.238	0.000	83	528521	20.0	18.7	M
52 1,1-Dichloropropene	75	5.309	5.309	0.000	98	491984	20.0	22.5	
53 Carbon tetrachloride	117	5.321	5.321	0.000	97	420876	20.0	23.8	
54 Isobutyl alcohol	41	5.368	5.368	0.000	94	269786	500.0	685.9	
56 1,2-Dichloroethane	62	5.498	5.498	0.000	97	523200	20.0	24.3	
55 Benzene	78	5.498	5.498	0.000	95	1539896	20.0	22.0	
58 n-Heptane	71	5.700	5.700	0.000	80	169175	20.0	18.7	
60 Trichloroethene	130	6.043	6.043	0.000	97	422116	20.0	21.8	
62 Methylcyclohexane	83	6.220	6.220	0.000	85	424902	20.0	19.9	
63 1,2-Dichloropropane	63	6.232	6.232	0.000	93	325674	20.0	22.2	
66 Dibromomethane	174	6.338	6.338	0.000	96	271587	20.0	20.6	
65 1,4-Dioxane	88	6.338	6.338	0.000	45	118657	400.0	480.7	
67 Dichlorobromomethane	83	6.457	6.457	0.000	99	491650	20.0	24.6	
69 2-Chloroethyl vinyl ether	63	6.705	6.705	0.000	93	488302	40.0	46.7	
71 cis-1,3-Dichloropropene	75	6.847	6.847	0.000	96	546650	20.0	21.9	
72 4-Methyl-2-pentanone (MIBK	43	6.966	6.966	0.000	91	627972	40.0	52.8	
73 Toluene	91	7.155	7.155	0.000	99	1743190	20.0	20.9	
74 trans-1,3-Dichloropropene	75	7.332	7.332	0.000	90	513796	20.0	21.4	
75 Ethyl methacrylate	69	7.392	7.392	0.000	85	502905	20.0	23.5	
76 1,1,2-Trichloroethane	97	7.498	7.498	0.000	92	374641	20.0	21.1	
77 1,3-Dichloropropane	76	7.652	7.652	0.000	86	636954	20.0	21.1	
78 Tetrachloroethene	166	7.652	7.652	0.000	75	379474	20.0	19.2	
80 2-Hexanone	43	7.711	7.711	0.000	91	460567	40.0	52.8	
82 Chlorodibromomethane	129	7.865	7.865	0.000	90	353758	20.0	20.5	
83 Ethylene Dibromide	107	7.983	7.983	0.000	99	394501	20.0	22.0	
85 Chlorobenzene	112	8.433	8.433	0.000	96	1159318	20.0	20.3	
86 1,1,1,2-Tetrachloroethane	131	8.504	8.504	0.000	94	373090	20.0	22.5	
87 Ethylbenzene	106	8.528	8.528	0.000	98	625572	20.0	20.5	
88 m-Xylene & p-Xylene	106	8.634	8.634	0.000	99	772950	20.0	20.5	
89 o-Xylene	106	9.013	9.013	0.000	95	752399	20.0	19.8	
90 Styrene	104	9.025	9.025	0.000	92	1309295	20.0	20.9	
91 Bromoform	173	9.214	9.214	0.000	94	203972	20.0	23.0	
92 Isopropylbenzene	105	9.368	9.368	0.000	95	1800519	20.0	20.3	
94 1,1,2,2-Tetrachloroethane	83	9.628	9.628	0.000	96	535679	20.0	23.6	
95 Bromobenzene	156	9.675	9.675	0.000	95	487788	20.0	20.0	
97 1,2,3-Trichloropropane	110	9.687	9.687	0.000	86	200497	20.0	22.6	
96 trans-1,4-Dichloro-2-buten	53	9.687	9.687	0.000	70	114928	20.0	39.8	
98 N-Propylbenzene	120	9.758	9.758	0.000	99	484782	20.0	21.5	
100 2-Chlorotoluene	126	9.853	9.853	0.000	96	431517	20.0	20.4	
101 1,3,5-Trimethylbenzene	105	9.924	9.924	0.000	93	1533898	20.0	22.5	
102 4-Chlorotoluene	126	9.959	9.959	0.000	98	469521	20.0	20.6	
104 tert-Butylbenzene	119	10.255	10.255	0.000	91	1206121	20.0	20.4	
106 1,2,4-Trimethylbenzene	105	10.302	10.302	0.000	97	1635405	20.0	21.8	
107 sec-Butylbenzene	134	10.468	10.468	0.000	94	328114	20.0	20.2	

TETRA TECH

INTERNAL CORRESPONDENCE

TO: **M. MARTIN** **DATE:** **JUNE 19, 2018**

FROM: **TERRI L. SOLOMON** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – HEXAVALENT CHROMIUM**
LOCKHEED MARTIN CORPORATION (LMC) – MIDDLE RIVER COMPLEX (MRC)
SDG TMM-096

SAMPLES: 8/Aqueous/
Hexavalent Chromium

WS-HRS1-A-032818	WS-HRS3-A-032818
WS-HRS4-A-032818	WS-HRS6-A-032818
WS-HRS7-A-032818	WS-LS5-A-032818
WS-SP1/SP1A-A-032818	WS-UTILITY-A-032818

Overview

The sample set for SDG TMM-096, consisted of eight (8) aqueous environmental samples. All samples were analyzed for hexavalent chromium. No field duplicate pairs were included in this sample delivery group (SDG).

The samples were collected by Tetra Tech, Inc. on March 28, 2018 and analyzed by ALS Environmental. All analyses were conducted in accordance with EPA method 218.6 analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, initial/continuing calibrations, laboratory method blank results, laboratory control sample results, analyte quantitation, and detection limits. Areas of concern are listed below.

Major

No major issues were identified.

Minor

No minor issues were identified.

Notes

Non-detected results were reported to the MDL.

It was noted that the laboratory incorrectly identified a sample ID as WS-HRS6-A-032819. The chain of custody identifies the sample as WS-HRS6-A-032818. The validator amended the analytical result summary sheet and the electronic deliverable to match the chain of custody.

It was noted that the laboratory incorrectly identified several sample IDs as WS-HR51-A-032818, WS-HR53-A-032818, WS-HR54-A-032818, WS-HR56-A-032818 and WS-HR57-A-032818. The chain of custody identifies the samples as WS-HRS1-A-032818, WS-HRS3-A-032818, WS-HRS4-A-032818, WS-HRS6-A-032818 and WS-HRS7-A-032818. The validator amended the analytical result summary sheets and the electronic deliverable to match the chain of custody.

It was noted that the laboratory adjusted the pH of the samples and all samples were analyzed within 3 days of sampling.

Executive Summary

Laboratory Performance: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Superfund Methods Data Review" (January 2017). The text of this report has been formulated to address only those areas affecting data quality.

Tetra Tech, Inc.
Terri L. Solomon
Chemist/Data Validator

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

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.

Appendix A

Qualified Analytical Results

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: 08468	NSAMPLE	WS-HRS1-A-032818			WS-HRS3-A-032818			WS-HRS4-A-032818			WS-HRS6-A-032818		
SDG: TMM-096	LAB_ID	2305225007			2305225005			2305225004			2305225002		
FRACTION: MISC	SAMP_DATE	3/28/2018			3/28/2018			3/28/2018			3/28/2018		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		1.2			19			660			106		

PROJ_NO: 08468	NSAMPLE	WS-HRS7-A-032818			WS-LS5-A-032818			WS-SP1/SP1A-A-032818			WS-UTILITY-A-032818		
SDG: TMM-096	LAB_ID	2305225001			2305225006			2305225008			2305225003		
FRACTION: MISC	SAMP_DATE	3/28/2018			3/28/2018			3/28/2018			3/28/2018		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
HEXAVALENT CHROMIUM		0.047	U		17.3			0.047	U		0.84		

Appendix B

Results as Reported by the Laboratory

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305225 TMM096|112IC07776

Lab ID: **2305225001**
Sample ID: **WS-HR57-A-032818**

Date Collected: 3/28/2018 09:48
Date Received: 3/28/2018 23:00

Matrix: Water

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Hexavalent Chromium	ND		ug/L	0.25	0.047	EPA 218.6		3/31/18 06:59	MBW	A

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305225 TMM096|112IC07776

Lab ID: **2305225002** Date Collected: 3/28/2018 10:10 Matrix: Water

Sample ID: **WS-HR56-A-032819** 18 Date Received: 3/28/2018 23:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY											
Hexavalent Chromium	106		ug/L	2.5	0.47	EPA 218.6			3/31/18 11:14	MBW	A

Mrs. Vanessa N Badman
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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305225 TMM096|112IC07776

Lab ID: **2305225003** Date Collected: 3/28/2018 10:13 Matrix: Water

Sample ID: **WS-UTILITY-A-032818** Date Received: 3/28/2018 23:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Hexavalent Chromium	0.84		ug/L	0.25	0.047	EPA 218.6		3/31/18 07:35	MBW	A

Mrs. Vanessa N Badman
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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305225 TMM096|112IC07776

Lab ID: **2305225004**
Sample ID: **WS-HR54-A-032818**

Date Collected: 3/28/2018 10:40
Date Received: 3/28/2018 23:00

Matrix: Water

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Hexavalent Chromium	660		ug/L	25.0	4.7	EPA 218.6		3/31/18 11:23	MBW	A

Mrs. Vanessa N Badman
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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305225 TMM096|112IC07776

Lab ID: **2305225005** Date Collected: 3/28/2018 10:43 Matrix: Water
Sample ID: **WS-HR53-A-032818** Date Received: 3/28/2018 23:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY											
Hexavalent Chromium	19.0		ug/L	0.25	0.047	EPA 218.6			3/31/18 07:53	MBW	A

Mrs. Vanessa N Badman
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ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305225 TMM096|112IC07776

Lab ID: **2305225006** Date Collected: 3/28/2018 10:55 Matrix: Water

Sample ID: **WS-LS5-A-032818** Date Received: 3/28/2018 23:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Hexavalent Chromium	17.3		ug/L	0.25	0.047	EPA 218.6		3/31/18 08:02	MBW	A

Mrs. Vanessa N Badman
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ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305225 TMM096|112IC07776

Lab ID: **2305225007**
Sample ID: **WS-HR51-A-032818**

Date Collected: 3/28/2018 11:05
Date Received: 3/28/2018 23:00

Matrix: Water

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Hexavalent Chromium	1.2		ug/L	0.25	0.047	EPA 218.6		3/31/18 08:11	MBW	A

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2305225 TMM096|112IC07776

Lab ID: **2305225008** Date Collected: 3/28/2018 11:10 Matrix: Water

Sample ID: **WS-SP1/SP1A-A-032818** Date Received: 3/28/2018 23:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
WET CHEMISTRY										
Hexavalent Chromium	ND		ug/L	0.25	0.047	EPA 218.6		3/31/18 08:20	MBW	A

Mrs. Vanessa N Badman
Project Coordinator

Appendix C

Support Documentation

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Page 1 of 1

Courier:

Tracking #:

* 2 3 0 5 2 2 5 *

Co. Name: TETRA TECH INC

Contact (Report to): TONY APANAVAGE Phone: 301-528-3000

Address: 20251 Century Blvd. Ste. 200 Germantown, MD, 20874

Bill to (if different than Report to): TETRA TECH PO#: ASK PM

Project Name/#: 112IC07776 ALS Quote #:

TAT: [ ] Normal-Standard TAT is 10-12 business days. [X] Rush-Subject to ALS approval and surcharges. Date Required: Approved By:

Email? [X] Y tony.apanavage@tetratech.com

Fax? [ ] Y No.:

***Container Type	PL
***Container Size	250mL
***Preservative	Cr6 Buffer

ANALYSES/METHOD REQUESTED: Hex Chrom 218.6

Enter Number of Containers Per Analysis

	Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	Hex Chrom 218.6
1	WS-HR57-A-032818		3/28/18	0948	G	WW	1
2	WS-HR56-A-032818		↓	1010	↓	↓	1
3	WS-UTILITY-A-032818		↓	1013	↓	↓	1
4	WS-HR54-A-032818		↓	1040	↓	↓	1
5	WS-HR53-A-032818		↓	1043	↓	↓	1
6	WS-LS5-A-032818		↓	1055	↓	↓	1
7	WS-HR51-A-032818		↓	1105	↓	↓	1
8	WS-SP1/SP1A-A-032818		↓	1110	↓	↓	1

(completed by Sample Receiving)

Performed by: (initials)

Cooler Temp: 1°C

Therm. ID: 318

No. of Coolers:

Notes:

Circle appropriate Y or N.

Correct containers?	(Y)	N
Correct sample volume?	(Y)	N
Correct preservation?	(Y)	N
Headspace/Volatiles?	—	—
Custody seals Present?	Y	(N)
(if present) Seals intact?	—	—
Received on ice?	(Y)	N
COC/Labels complete/accurate?	(Y)	N
Container in good condition?	(Y)	N

SAMPLED BY (Please Print): Josh Mullis

Project Comments: Filtered in the field

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	[signature] Tetra Tech Inc	3/28/18	1525	2	[signature]	3/28	1525
3	[signature]			4	[signature] ALS	3/28	2300
5				6			
7				8			
9				10			

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] Other:

EDDs Required? [ ] If yes, format type:

SDWA Forms? yes [ ] yes [ ] yes [ ] yes [ ] Other

State Samples Collected In? (MD) NJ [ ] NY [ ] PA [ ]

Enter PWSID No.

DOD Criteria Required?

ALS FIELD SERVICES: [X] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

* G=Grab; C=Composite **Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY ***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Rev 01-2013

Tetra Tech, Inc.

ALS-Middletown
Case Narrative
TMM-096

Sample Management

This report contains the results of the analysis of eight (8) water samples collected on March 28, 2018. Analytical results and quality control information are summarized in this data package.

Sample Receipt

The samples arrived at ALS via courier on March 28, 2018. Upon receipt, the samples were inspected and compared to the Chain of Custody. Sample temperature was documented on the enclosed Chain of Custody. Samples were received intact and properly preserved, unless noted on the enclosed Certificate of Analysis and/or Chain of Custody.

Hexavalent Chromium by EPA Method 218.6

Sample handling. Eight (8) aqueous samples were analyzed for hexavalent chromium by EPA Method 218.6. The samples were pH adjusted and analyzed within the 28-day holding period established for the method.

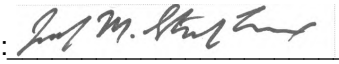
Calibration. A calibration was properly established. Continuing calibration verification standards were analyzed to verify the calibration. The standards were within the QC limits.

Blanks. Method blanks were analyzed with the samples. Hexavalent chromium was not detected above the reporting limit in the blanks.

Laboratory Control Samples. Laboratory control samples identified as 2714532, 2714534, 2714655, and 2714657 were analyzed initially and every 20 samples. The recoveries were within the QC limits.

Spikes. Matrix spike and matrix spike duplicate analyses were not performed on any samples from this data deliverable.

I Jennifer M. Lamoreux, as the designated Quality Assurance Officer, hereby attest that all electronic deliverables have been thoroughly reviewed and are in agreement with the associated hardcopy data. The enclosed electronic files have been reviewed for accuracy (including significant figures), completeness and format. The laboratory will be responsible for any labor time necessary to correct enclosed electronic deliverables that have been found to be in error. I can be reached at (717) 944-5541 if there are any questions or problems with the enclosed electronic deliverables.

Signature:  Title: Reporting Manager Date: 4/23/2018

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

SAMPLE SUMMARY

Workorder: 2305225 TMM096|112IC07776

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2305225001	WS-HR57-A-032818	Water	3/28/2018 09:48	3/28/2018 23:00	Collected by Client
2305225002	WS-HR56-A-032819	Water	3/28/2018 10:10	3/28/2018 23:00	Collected by Client
2305225003	WS-UTILITY-A-032818	Water	3/28/2018 10:13	3/28/2018 23:00	Collected by Client
2305225004	WS-HR54-A-032818	Water	3/28/2018 10:40	3/28/2018 23:00	Collected by Client
2305225005	WS-HR53-A-032818	Water	3/28/2018 10:43	3/28/2018 23:00	Collected by Client
2305225006	WS-LS5-A-032818	Water	3/28/2018 10:55	3/28/2018 23:00	Collected by Client
2305225007	WS-HR51-A-032818	Water	3/28/2018 11:05	3/28/2018 23:00	Collected by Client
2305225008	WS-SP1/SP1A-A-032818	Water	3/28/2018 11:10	3/28/2018 23:00	Collected by Client

Form 4B
Inorganic Blank Summary

Analysis Method: EPA 218.6
Instrument: IC-4

SDG No.: TMM096

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
2714531	Hexavalent Chromium	MB	QC-Water	03/31/2018 04:51	0.25	U	ug/L
2714538	Hexavalent Chromium	MB	QC-Water	03/31/2018 07:26	0.25	U	ug/L
2714654	Hexavalent Chromium	MB	QC-Water	03/31/2018 09:15	0.25	U	ug/L
2714661	Hexavalent Chromium	MB	QC-Water	03/31/2018 11:41	0.25	U	ug/L

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

Form 6B
Inorganic Initial and Continuing Calibration Verification Summary

Analysis Method: EPA 218.6 SDG No. TMM096

Instrument ID: IC-4 Units: ug/L

Sample ID	Analyte	Type	Analyzed	True Conc.	Conc. Recovered	Recovery (%)	(1)	Acc. Limit (%)
2714533	Hexavalent Chromium	CCVL	03/31/2018 05:10	5	4.8	96.8		90 - 110
2714537	Hexavalent Chromium	CCVH	03/31/2018 07:17	20	19.8	99.1		90 - 110
2714656	Hexavalent Chromium	CCVL	03/31/2018 09:33	5	4.9	97.8		90 - 110
2714660	Hexavalent Chromium	CCVH	03/31/2018 11:32	20	19.3	96.6		90 - 110

(1) The following qualifiers are used:
* : Values outside of acceptable limits

Comments:

Form 8B
Laboratory Control Sample (LCS) Recovery Summary

Analysis Method: EPA 218.6 SDG No.: TMM096

Matrix (soil/water): QC-Water Instrument ID: IC-4

Units: ug/L

Sample ID	Analyte	Type	Analyzed	True Conc.	Conc. Recovered	Recovery (%)	(1)	Acc. Limit (%)
2714532	Hexavalent Chromium	MRL	03/31/2018 05:00	0.25	0.22	86.8		50 - 150
2714534	Hexavalent Chromium	LCS	03/31/2018 05:19	10	9.8	97.9		90 - 110
2714655	Hexavalent Chromium	MRL	03/31/2018 09:24	0.25	0.24	96		50 - 150
2714657	Hexavalent Chromium	LCS	03/31/2018 09:42	10	9.6	96.4		90 - 110

(1) The following qualifiers are used:

* : Values outside of acceptable limits

Comments:

Pos	Name	lutionFac	*SampleType	Comment	*Instrument	*Batch	*Sequence1	*InitialCal	Status
1	Cal Std 1	1	CAL		IC-4		033118	033118	finished
2	Cal Std 2	1	CAL		IC-4		033118	033118	finished
3	Cal Std 3	1	CAL		IC-4		033118	033118	finished
4	Cal Std 4	1	CAL		IC-4		033118	033118	finished
5	Cal Std 5	1	CAL		IC-4		033118	033118	finished
6	Cal Std 6	1	CAL		IC-4		033118	033118	finished
7	2714531	1	MB	LRB	IC-4	202288	033118	033118	finished
8	2714532	1	MRL	MRL	IC-4	202288	033118	033118	finished
9	2714533	1	CCVL	LFB	IC-4	202288	033118	033118	finished
10	2714534	1	LCS	QCS	IC-4	202288	033118	033118	finished
11	2304645001	1	SAMPLE		IC-4	202288	033118	033118	finished
12	2304646001	1	SAMPLE		IC-4	202288	033118	033118	finished
13	2304900001	1	SAMPLE		IC-4	202288	033118	033118	finished
14	2304900002	1	SAMPLE		IC-4	202288	033118	033118	finished
15	2304942002	1	SAMPLE		IC-4	202288	033118	033118	finished
16	2714535	1	MS		IC-4	202288	033118	033118	finished
17	2714536	1	MSD		IC-4	202288	033118	033118	finished
18	2304943002	1	SAMPLE		IC-4	202288	033118	033118	finished
19	2304944002	1	SAMPLE		IC-4	202288	033118	033118	finished
20	2304959001	1	SAMPLE		IC-4	202288	033118	033118	finished
21	2305225001	1	SAMPLE		IC-4	202288	033118	033118	finished
22	2305225002	1	SAMPLE		IC-4	202288	033118	033118	finished
23	2714537	1	CCVH		IC-4	202288	033118	033118	finished
24	2714538	1	MB		IC-4	202288	033118	033118	finished
25	2305225003	1	SAMPLE		IC-4	202288	033118	033118	finished
26	2305225004	1	SAMPLE		IC-4	202288	033118	033118	finished
27	2305225005	1	SAMPLE		IC-4	202288	033118	033118	finished
28	2305225006	1	SAMPLE		IC-4	202288	033118	033118	finished
29	2305225007	1	SAMPLE		IC-4	202288	033118	033118	finished
30	2305225008	1	SAMPLE		IC-4	202288	033118	033118	finished
31	2305334002	1	SAMPLE		IC-4	202288	033118	033118	finished
32	2305471001	1	SAMPLE		IC-4	202288	033118	033118	finished
33	2714539	1	MS		IC-4	202288	033118	033118	finished
34	2714540	1	MSD		IC-4	202288	033118	033118	finished
35	2305472001	1	SAMPLE		IC-4	202288	033118	033118	finished
36	2714654	1	MB	LRB	IC-4	202303	033118	033118	finished
37	2714655	1	MRL	MRL	IC-4	202303	033118	033118	finished
38	2714656	1	CCVL	LFB	IC-4	202303	033118	033118	finished
39	2714657	1	LCS	QCS	IC-4	202303	033118	033118	finished
40	2305529001	1	SAMPLE		IC-4	202303	033118	033118	finished
41	2714658	1	MS		IC-4	202303	033118	033118	finished
42	2714659	1	MSD		IC-4	202303	033118	033118	finished

43	2305529002	1	SAMPLE		IC-4	202303	033118	033118	finished
44	2305530001	1	SAMPLE		IC-4	202303	033118	033118	finished
45	2305530002	1	SAMPLE		IC-4	202303	033118	033118	finished
46	2305531001	1	SAMPLE		IC-4	202303	033118	033118	finished
47	2305531002	1	SAMPLE		IC-4	202303	033118	033118	finished
48	2305532001	1	SAMPLE		IC-4	202303	033118	033118	finished
1	2305525002	10	SAMPLE	RR	IC-4	202303	033118	033118	finished
2	2305525004	100	SAMPLE	RR	IC-4	202303	033118	033118	finished
49	2714660	1	CCVH		IC-4	202303	033118	033118	finished
50	2714661	1	MB		IC-4	202303	033118	033118	finished
1	SHUTDOWN		MISC		IC-4	202303	033118	033118	finished

Cr+6 218.6 pH Filtration Prep

Sample	Adjusted With	Final pH 9-9.5, SI units	0.4 µm Filtered
2305225001	Ammonium Hydroxide	X	Yes
2305225002	Ammonium Hydroxide	X	Yes
2305225003	Ammonium Hydroxide	X	Yes
2305225004	Ammonium Hydroxide	X	Yes
2305225005	Ammonium Hydroxide	X	Yes
2305225006	Ammonium Hydroxide	X	Yes
2305225007	Ammonium Hydroxide	X	Yes
2305225008	Ammonium Hydroxide	X	Yes
		MBW 3/31/18	

Date:	3.31.2018 00:30
Tech:	MBW

Queue:	WETC
Batch:	202288

Reagent:	
Cr+6 Buffer:	N/A

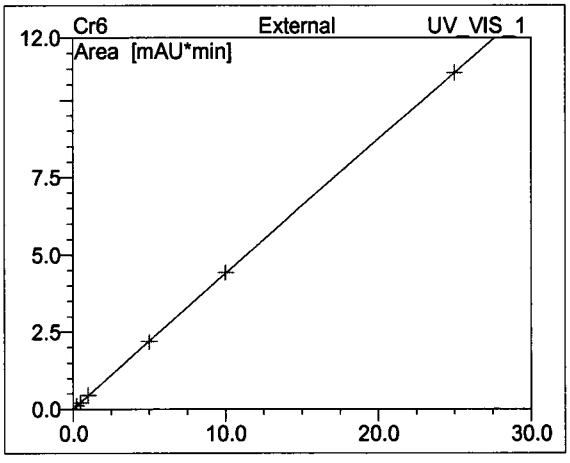
Reviewed by:	CHW
Reviewed date:	4/11/18

Comments:
An "X" in the Final pH column indicates that the sample pH is within this range.
Ammonium Hydroxide - 161014002

_Q:WETC|_B:202288|_D:3.31.2018 00:30

Calibration Batch Report

Sequence:	4-033118	Instrument:	IC-4
Instrument Method:	cr+6	InitialCal:	033118
Ini. Date/Time:	03/31/18 05:00	Method:	218_6_033118



No.	Ret.Time min	Peak Name	Cal.Type	Points	Offset (C0)	Slope (C1)	Curve (C2)	Coeff.Det. %
1	5.11	Cr6	0QOff	6	-0.006	0.447	0.000	99.9985
AVERAGE:					-0.0061	0.4468	-0.0005	99.9985

Peak Integration Report

Sample Name:	**2305525004**	*Dilution:*	**100**
Sample Type:	**SAMPLE**	*Analyst:*	**MBW**
Program:	**cr+6**	*Queue:*	**WETC**
Inj. Date/Time:	**03/31/18 11:23**	*Batch:*	**202303**
Instrument:	**IC-4**	*Comment:*	
Sequence1:	**033118**	*InitialCal:*	**033118**
Sequence2:		*Method:*	**218_6_033118**

SAMPLE WS-HRS4-A-032818

Hex Chromium 660 ug/L

No.	Time min	Peak Name	Area mAU*min	Height mAU	Amount
1	5.13	Cr6	2.922	15.431	6.60
		TOTAL:	2.92	15.43	6.60

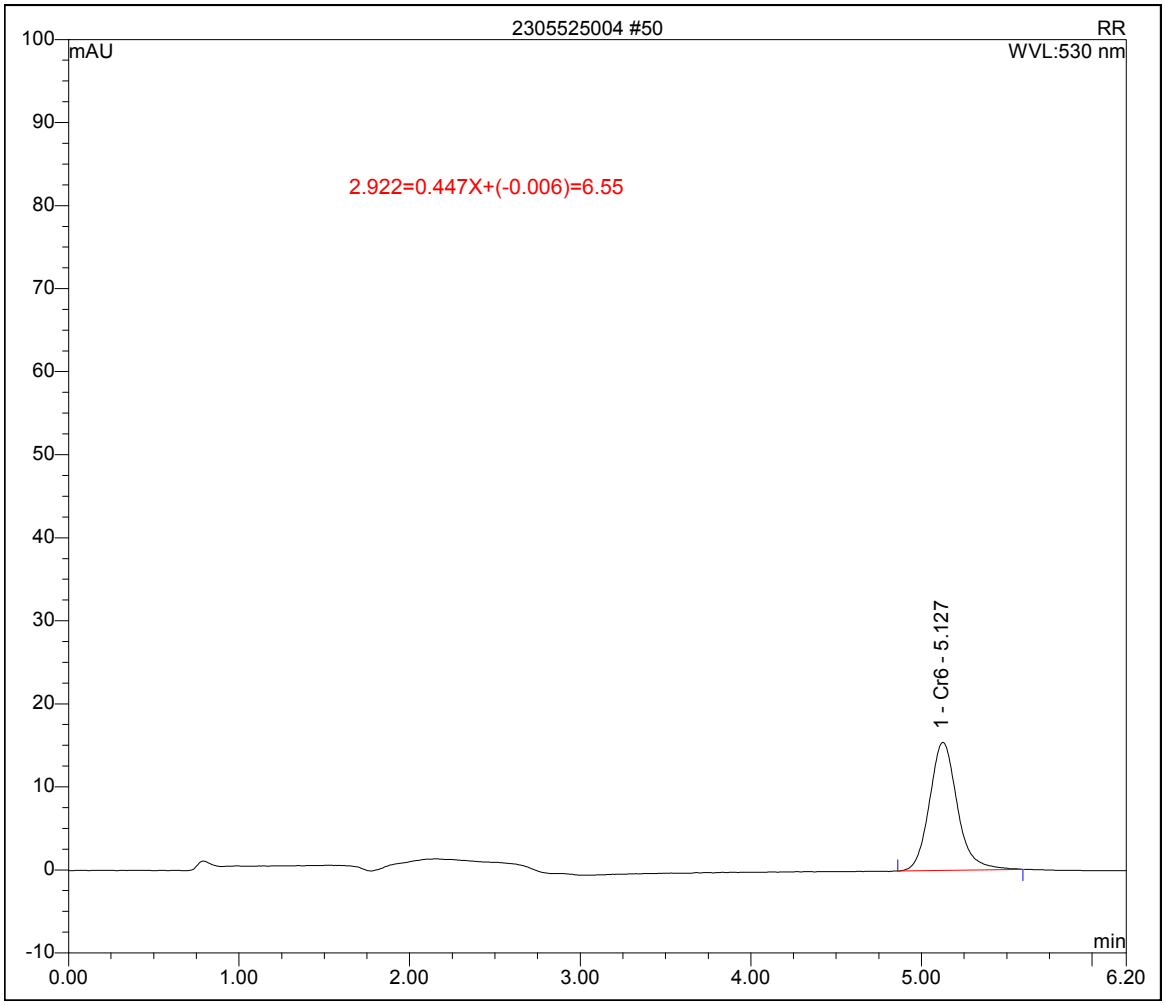


Table C-1
Chemical Results for Sump Water Samples - March 2018
Building A Basement
Lockheed Martin Middle River Complex, Middle River, Maryland

LOCATION	WS-HRS1	WS-HRS3	WS-HRS4	WS-HRS6	WS-HRS7	WS-LS5-A	WS-SP1/SP1A	WS-UTILITY
SAMPLE ID	WS-HRS1-A-032818	WS-HRS3-A-032818	WS-HRS4-A-032818	WS-HRS6-A-032818	WS-HRS7-A-032818	WS-LS5-A-032818	WS-SP1/SP1A-A-	WS-UTILITY-A-032818
SAMPLE DATE	20180328	20180328	20180328	20180328	20180328	20180328	20180328	20180328
MATRIX	SU	SU	SU	SU	SU	SU	SU	AQ
VOLATILES (UG/L)								
1,1,1-TRICHLOROETHANE	0.23 U	0.23 U	0.23 U	0.23 U	0.62 J	0.23 U	1.2 U	0.38 U
1,1,2-TRICHLOROETHANE	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	1.7 U	0.57 U
1,1-DICHLOROETHANE	0.25 U	0.25 U	0.25 U	0.25 U	2.3	0.25 U	4.6 J	0.55 J
1,1-DICHLOROETHENE	0.27 U	0.27 U	3.8	0.27 U	21	0.27 U	48	0.45 U
1,2,3-TRIMETHYLBENZENE	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	1.1 U	0.37 U
1,2,4-TRICHLOROBENZENE	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	1.4 U	0.45 U
1,2,4-TRIMETHYLBENZENE	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	1.2 U	0.4 U
1,2-DICHLOROETHANE	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ	0.3 UJ	1.5 UJ	0.5 UJ
1,3,5-TRIMETHYLBENZENE	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	1.2 U	0.4 U
BENZENE	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	1.4 U	0.47 U
CARBON TETRACHLORIDE	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	1.8 U	0.58 U
CHLORODIFLUOROMETHANE	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	1 UJ	5 UJ	1.7 UJ
CHLOROFORM	0.31 U	0.31 U	0.67 J	0.31 U	0.93 J	15	1.6 U	0.52 U
CIS-1,2-DICHLOROETHENE	0.3 U	0.3 U	1.2	0.3 U	5.7	0.3 U	11	1 J
DICHLORODIFLUOROMETHANE	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.84 U
ETHYLBENZENE	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	1.3 U	0.43 U
METHYL TERT-BUTYL ETHER	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	1.4 U	0.45 U
METHYLENE CHLORIDE	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	2.7 U	0.89 U
NAPHTHALENE	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1.3 U	0.42 U
TETRACHLOROETHENE	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	1.5 U	0.5 U
TOLUENE	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	1.8	1.2 U	0.38 U
TOTAL XYLENES	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	1.2 U	0.4 U
TRANS-1,2-DICHLOROETHENE	0.29 U	0.29 U	0.29 U	0.29 U	0.32 J	0.29 U	1.5 U	0.51 J
TRICHLOROETHENE	0.33 U	0.33 U	3.9	4.1	130	2.3	160	53
VINYL CHLORIDE	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	2.3 U	0.75 U
MISCELLANEOUS PARAMETERS (UG/L)								
HEXAVALENT CHROMIUM	1.2	19	660	106	0.047 U	17.3	0.047 U	0.84

J - positive result is estimated
µg/L - micrograms per liter
U - the analyte is considered not detected at the reported value.