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November 2, 2018

By US Postal Service and E-mail—[charlene.fitch@dnr.mo.gov](mailto:charlene.fitch@dnr.mo.gov)

Ms. Charlene Fitch  
Chief, Permits Section—Hazardous Waste Program  
Missouri Department of Natural Resources  
P.O. Box 176  
Jefferson City, MO 65102-0176

**Subject: Final Indoor Air Sampling: Heating-season Event 2018, Former Tronox/Kerr-McGee Facility, Springfield, Missouri; RCRA Permit No. MOD007129406 Technical Memorandum; 2800 West High Street, Springfield, Missouri**

Dear Ms. Fitch:

Greenfield Environmental Multistate Trust LLC, Trustee of the Multistate Environmental Response Trust (the Multistate Trust), respectfully submits the Final Indoor Air Sampling: Heating-season Event 2018, Former Tronox/Kerr-McGee Facility, Springfield, Missouri; RCRA Permit No. MOD007129406 Technical Memorandum (Heating-Season Event 2018 Sampling Technical Memorandum). The Heating-Season Event 2018 Sampling Technical Memorandum supports the Environmental Actions performed by the Multistate Trust and in accordance with the Indoor Air Work Plan<sup>1</sup>, as approved by and under the oversight of the Missouri Department of Natural Resources (MoDNR) as Lead Agency for the Site. This Heating-Season Event 2018 Sampling Technical Memorandum also incorporates the comments received from MoDNR<sup>2</sup> on the draft submittal dated April 27, 2018. The Multistate Trust hereby submits two hardcopies and one searchable electronic copy to MoDNR, and one hardcopy and one searchable electronic copy to the U.S. Environmental Protection Agency. If you have any questions or concerns, please do not hesitate to contact Lauri Gorton at (414) 732-4514 or [lg@g-etg.com](mailto:lg@g-etg.com) or me at (602) 312-6993 or [tl@g-etg.com](mailto:tl@g-etg.com).

Sincerely,

Greenfield Environmental Multistate Trust LLC  
Trustee of the Multistate Environmental Response Trust  
By: Greenfield Environmental Trust Group, Inc., Member

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Tasha Lewis  
Portfolio Manager

<sup>1</sup> Environmental Works Inc. (EWI). 2017. *Indoor Air Work Plan, Former Tronox Facility, 2800 West High Street, Springfield, Missouri*. Resource Conservation and Recovery Act Permit Number MOD007129406. June 27.

<sup>2</sup> "Indoor Air Sampling Work Plan – Heating Season 2018 Technical Memorandum; Former Kerr-McGee/Tronox Facility at 2800 West High Street in Springfield, Missouri; EPA ID# MOD007129406." Letter from Mark A. Hogan/MoDNR to Lauri J. Gorton/Multistate Trust. August 16, 2018.

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Enclosures: Table 1: Response to the Heating-season Event 2018 Sampling Technical Memorandum

Final Indoor Air Sampling: Heating-season Event 2018, Former Tronox/Kerr-McGee Facility,  
Springfield, Missouri; RCRA Permit No. MOD007129406 Technical Memorandum

cc: Bob Aston—Missouri State Coordinator, EPA Region 7  
Steve Brauner—Integral Consulting, Inc  
Don Dicks—MoDNR  
Lauri Gorton—Multistate Trust  
Michelle Hartman—Missouri Department of Health and Senior Services  
Jalal El-Jayyousi—MoDNR  
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**Table 1: Response to Comments on the Heating-season Event 2018 Sampling Technical Memorandum  
Former Tronox/Kerr-McGee Facility, Springfield, Missouri; EPA ID# MOD007129406. Dated April 27, 2018**

Comment Number	Reviewer	Comment	Response
1	MoDNR	<p><b>Page 7, Section 8.0</b> Sampling Results and Data Evaluation. During the Heating Season sampling event in March 2018, The Department's Environmental Services Program (ESP) split sampled Property 016. The Department requests that the split sample results be included in this Memo along with a brief evaluation discussing the notable differences in the results between the Trust's and ESP's laboratories. Please see the enclosed sampling results and reports.</p>	<p>The Following text has been added to Section 8.6 (new report section).            "The MoDNR Field Services Unit personnel collected split air samples with Jacobs personnel from Property 016 on February 15, 2018.            The naphthalene concentrations in the indoor air split samples collected by MoDNR (181126 and 181127) are approximately three times less than the samples collected by Jacobs (IAU-016 and IAD-016). The m&amp;p-xylene concentrations in the indoor air split sample collected by MoDNR (181126) is approximately eight times less than the sample collected by Jacobs (IAU-016). The remaining BTEXN concentrations were similar in the split samples. The MoDNR and Jacobs split sample results are summarized on Table 5.            The MoDNR site sampling and laboratory analytical reports, for the Property 16 split samples are included in Attachment 3."</p>
2	MoDNR	<p><b>Page 31, Attachment 1, HAPSITE Building Survey Results</b> – Property 015. Thank you for utilizing the HAPSITE portable GC/MS after obtaining PID readings above 1,000 ppb of VOCs. Since the HAPSITE was utilized, MDHSS requests a brief discussion regarding this sampling, such as when these samples were collected versus when products were removed from the home, and any results that exceeded the IA Action Level (AL).</p>	<p>The following text was added to Section 8.7, HAPSITE Sampling at Property 015 (new report section):            "Six HAPSITE quantitative-mode samples were collected at Property 015 between February 13 and February 15, 2018 to screen potential background sources and potential preferential pathways into the Property 15 building. The quantitative-mode HAPSITE sample represents an approximate 2-minute real-time grab sample. A sample can be collected approximately every 15 minutes.            Products potentially containing VOCs of concern were removed from Property 015 between 10 a.m. and to 12 noon on February 13, 2018. The HAPSITE was used to collect samples at Property 015 from approximately 5 p.m. to 6 p.m. on February 13, 2018. A subslab vapor and outdoor air HAPSITE sample were also analyzed with the HAPSITE after the subslab vapor sample was collected with the evacuated stainless-steel canister on February 15, 2018.            The HAPSITE sample results were consistent with the results from the evacuated stainless-steel canisters, including benzene, ethylbenzene, and naphthalene concentrations exceeding indoor air ALs. The HAPSITE results are summarized in Attachment 1 as part of the Property 15 building survey."</p>
3	MoDNR	<p><b>Pages 48 and 50, Attachment 1, Property 16 Pre-Sampling Building Survey notes.</b> "Are sumps or floor drains present? Yes, sump drains into ditch outside. Sump is dry. Sealed with plastic for sampling indoor air; cat tore it. Did not sample sump."            The Department notes that the sump is in a closet and thus must have one or more doors between it and any living space. Was the closet door and/or any other doors leading to it kept closed during the sampling? While likely not significant, the torn seal on the sump may have allowed vapors to migrate into the indoor living spaces during the sampling. Therefore, the Department suggests that the occupants of Property 016 make a habit to keep closed any doors leading to the sump to prevent any potential VI and odors, especially during heavy rains. Another suggestion would be to keep the sump sealed with plastic, similar to what the CH2M (now Jacobs) personnel implemented.</p>	<p>The following text was added to the Property 16 Building Survey, Attachment 1, for clarification:            "The sump is located in a closet. The closet has one door and that door was closed during sampling. Based on discussions with the residents, the closet door is usually closed. However, an opening exists under the wall of the closet (large enough for the cat to fit through). The closet is located in the garage space, which also has a door that is typically left closed."            For future sampling events, the Multistate Trust will work with the MoDNR to communicate information related to similar situations with the residents. It should be noted that one of the purposes of the sump is remove water that may enter the basement, therefore, the residents may have reservations covering the sump as it would impact the performance of the sump during high-water conditions.            Water in the sump was sampled during the high-water-table sampling event May 2018. BTEXN were not detected in this sample.</p>
4	MoDNR	<p><b>Attachment 2, Data Quality Evaluation.</b> Please add "indoor" to the wording "February 2018 outdoor air," which can be seen multiple times in titles and paragraphs. Only including outdoor air would be a misnomer when considering the scope of the Indoor Air Sampling Work Plan.</p>	<p>The Title of the Data Quality Evaluation report was changed from "Outdoor Air" to "Heating Season" "Sampling Event". Text was updated throughout the DQE report to include indoor air sampling throughout the text.</p>

**Table 1: Response to Comments on the Heating-season Event 2018 Sampling Technical Memorandum  
Former Tronox/Kerr-McGee Facility, Springfield, Missouri; EPA ID# MOD007129406. Dated April 27, 2018**

Comment Number	Reviewer	Comment	Response
5	MoDNR	<p><b>Pages 73-76, Attachment 2, Data Quality Evaluation.</b> "The results of the data quality review ... indicate the analytical systems were in control and all data results, without qualification, can be used in the decision making process." This could be interpreted such that if a data result does not have a J or U qualifier beside it, only then can the result be used for decision making. However, the Conclusion paragraph states "All data, as qualified, are considered usable for the decision-making process." These two statements seem contradictory with one another and thus should be rectified to maintain the same conclusion(s), or a more clarifying statement be made. If the determination of the laboratory is that some data results are not considered usable for the decision-making process, then the Department and MDHSS will take that into account.</p>	<p>The phrase "without qualification" was removed from the sentence referenced in the comment, the sentence now reads "The results of the data quality review for the February 2018 indoor air and outdoor air heating-season sampling event indicate the analytical systems were in control and all data results can be used in the decision-making process."</p>
6	MoDNR	<p><b>Pages 74-75, Data Quality Evaluation, Analytical Review.</b> "The analytical review of the cold weather samples found that four "SH" samples ... had three non-target target compounds present in their sample media at high concentration levels. ... The concentration of these compounds compelled the laboratory to analyze the samples at a dilution to compensate for the chromatographic interference posed by their presence. Likewise, four "SU" samples ... had a similar condition ... in their sample media. The non-target compounds were different from the those found in the "SH" set but had the same effect of the laboratory analyzing them at a dilution. The ancillary effect of the analytical dilutions raised the laboratory reporting limit per sample above the associated regulatory drivers."            What were the non-target compounds that were detected at high levels in the "SU" subslab samples versus the ones detected in the "SH" sewer headspace samples? These non-target compounds should be identified in this Memo. What are some potential sources for these non-target compounds? Could the non-target compounds in either "SU" or "SH" samples be affected by seasonal variations? And finally, are there any measures that could be used to address the elevated reporting limits and prevent them from exceeding the screening levels during future sampling events?</p>	<p>Because the dilutions in the heating season samples were not significant (less than 5X), the identity of the non-target compounds was not provided. Typically the laboratory does not report the presence of non-target compounds at such low dilution factors. Dilution factors that are less than 10X indicate lower concentrations of either target or non-target compounds but normally do not indicate extreme concentrations (with the possible exception of low-concentration methods which are not used for the "SH" samples and were not used in the 2018 heating-season sampling event. Note: the subslab sampling method has since been altered to collect a subslab vapor sample in 6-L canister for possible analysis using a low concentration method, TO-15 SIM).</p> <p>The Indoor Air Work Plan focuses on evaluating vapor intrusion for the Facility-related VOCs (BTEXN compounds) and does not include identification of non-target compounds (tentatively identified compounds or TICs). The non-target compounds found in the subslab vapor ("SU") samples may be related to other VOCs that were seen in soil vapor samples collected within the northeast neighborhood during the development of the Indoor Air Work Plan. The available information does not support attribution of these non-Facility-related VOCs to historical creosote wood treating operations at the Facility. For example, 1,3-butadiene, which was the most prevalent of the non-BTEXN analytes detected in soil gas, is not known to be associated with creosote wood-treating and has not been detected in groundwater at the Facility. The sewer manhole headspace samples ("SH") are likely to have a wide variety of target compounds, and with no direct means of tracing the source it become more challenging for the laboratory to analyze these samples at lower concentration levels. With no prior knowledge of non-target compounds being present and the variability in those concentrations (seasonal, characteristics of the unknown source/release) measures to address the elevated reporting limits would be difficult to implement. Once the identify of the compounds is known, this information may help understand their presence and possibly a source. The presence of these compounds do have a negative effect on the final quantitation of the project-prescribed target compound list but the laboratory is not compelled to analyze at lower concentration levels that may have adverse effects on the analytical instrumentation. Without a specific directive, the laboratory would not normally attempt to identify the non-target compounds. The laboratory can be directed to perform a TIC analysis to see if the identity of these non-targets can be confirmed. The Multistate Trust will discuss this with MoDNR.</p>



**Table 1: Response to Comments on the Heating-season Event 2018 Sampling Technical Memorandum  
Former Tronox/Kerr-McGee Facility, Springfield, Missouri; EPA ID# MOD007129406. Dated April 27, 2018**

Comment Number	Reviewer	Comment	Response
7	MoDNR	<p><b>Pages 83-92, Attachment 2, Data Quality Evaluation – Property 019 Samples.</b> The Department and MDHSS take note of the Data Quality Evaluation for Property 019 found in Attachment 2. However, there is no other mention in the document of the sampling activities at Property 019 in March 2018. Since the weather in March 2018 was predominantly cooler than usual for spring in Missouri, the Department suggests that the sampling activities at Property 019 could be included in this IA HS Tech Memo. Furthermore, the Department recognizes that verbal approval to add Property 019 to the air sampling program has since been given. Therefore, if the Multistate Trust includes the March 2018 event in this Memo, then sampling activities and results should be discussed and evaluated in Sections 4, 5, 8, and possibly Section 9 if conclusions are drawn; a building survey should also be included in Attachment 1.</p>	<p>The Property 019 sampling results (from March 2018) were added to the Technical Memorandum, including the text in the following sections.</p> <p>Section 4.1 "After the heating-season sampling event was completed at Properties 014, 015, 016, 033, and 044A in February 2018, the Multistate Trust agreed to sample Property 019 based on a request from the homeowner. Property 019 was sampled March 22 to 23, 2018 by EWI. The Multistate Trust also requested EWI collect an outdoor air sample along the southern fence line of the Facility property to evaluate outdoor air to the south of the groundwater treatment and recovery system (treatment plant)."</p> <p>Section 4.3 first paragraph: "A pre-sampling building survey was conducted at Property 019 on March 22, 2018, in accordance with the SOP."</p> <p>Section 4.3 last paragraph: "A car was parked in the garage at Property 019 and the garage door was opened and closed for vehicle access at least once during sampling. Odors, potentially petroleum odors were noted outside of the home during the building survey at Property 019. The odors were also noted inside the home when all the windows were open."</p> <p>Section 5.0: "The following samples were collected on March 22 to 23, 2018 from Property 019:  <ul style="list-style-type: none"> <li>· One indoor air sample (plus one field duplicate)</li> <li>· One crawlspace sample</li> <li>· One outdoor air sample (in the background)</li> </ul> </p> <p>A single on-Facility outdoor air sample was collected along the southern fence line of the Facility."</p> <p>Section 5.1 "and on March 22 to 23, 2018 at Property 019,"</p> <p>Section 5.5 "The Multistate Trust agreed to sample Property 019, which was sampled March 22 to 23, 2018 by EWI, based on a request from the homeowner. The Multistate Trust also requested EWI collect an outdoor air sample along the southern fence line of the Facility property to evaluate outdoor air to the south of the groundwater treatment and recovery system (treatment plant)."</p> <p>Section 8.1 "Property 019: None of the indoor air concentrations in the sample from the main floor of Property 019 exceeded the indoor air ALs, including the results from the duplicate sample. Indoor air samples from the Property 019 garage contained benzene at concentrations above indoor air ALs."</p> <p>Section 8.2 "A crawlspace sample was also collected at Property 019. All five Facility-related COCs were detected at low levels in the crawlspace samples, but none exceeded their respective indoor air ALs."</p> <p>Section 8.3 "Property 019 outdoor air concentrations are less than the indoor air concentrations (e.g., naphthalene is approximately two times greater in the indoor air sample on the main level than outdoor air); however, the indoor air concentrations in the Property 019 garage indicate a background source is present in the garage.</p>

# Final Indoor Air Sampling: Heating-season Event 2018, Former Tronox/Kerr-McGee Facility Springfield, Missouri; RCRA Permit No. MOD007129406

**PREPARED FOR:** Charlene Fitch Missouri Department of Natural Resources (MoDNR)  
Don Dicks/MoDNR  
Jalal El-Jayyousi/MoDNR  
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**COPY TO:** Tasha Lewis/Multistate Trust  
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**PREPARED BY:** Jacobs Engineering Group, Inc.

**DATE:** November 2, 2018

## 1.0 Introduction

This technical memorandum was prepared on behalf of the Greenfield Environmental Multistate Trust, LLC, not individually but solely in its representative capacity as Trustee for the Multistate Environmental Response Trust (Multistate Trust) for the Former Tronox/Kerr-McGee Facility<sup>1</sup> located at 2800 West High Street in Springfield, Missouri (Facility or Site), Resource Conservation and Recovery Act (RCRA) Post-Closure Care Permit Number MOD007129406 (Figure 1). This technical memorandum supports the Environmental Actions performed by the Multistate Trust as approved by and under the oversight of the Missouri Department of Natural Resources (MoDNR) as Lead Agency for the Site.

This technical memorandum presents the results of the February 2018 second seasonal indoor air sampling event (heating season indoor air sampling) performed in the residential neighborhood northeast of the Facility (Figure 2).

## 2.0 Background

The Facility is located on about 68 acres in northwest Springfield, Greene County, Missouri. In 1907, American Creosoting Corporation opened the Facility for wood treatment operations. In 1965, Kerr-McGee Chemical Corporation (KMCC) – Forest Products Division (FPD) purchased the property and continued wood treatment operations until decommissioning the Facility in 2004. In 2005, as part of a spinoff, Kerr-McGee transferred the Facility to Tronox, LLC. Tronox filed for bankruptcy in 2009, and in 2011, the court-appointed Multistate Trust took title to the property to investigate and remediate the Facility. During operations, wood was pressure-treated in large vessels with creosote solutions and subsequently used to produce railroad ties and utility poles. Facility-related chemicals of concern (COCs)

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<sup>1</sup> The Site is referred to as the Former Tronox Facility, Former Kerr-McGee Facility, Former Tronox/Kerr-McGee Wood Treatment Facility, and/or the Kerr-McGee Chemical Corporation (KMCC) Forest Products Division (FPD), Springfield, Missouri Facility.

were identified in the *Final Report, RCRA Facility Investigation for the Springfield, Missouri Facility, July 1992* (Environmental Works, Inc. [EWI], 2017).

Hydrogeological investigations identified impacted groundwater flowing offsite of the Facility property to the northeast. Corrective measures initiated in the mid-1980s included installing extraction wells, an onsite groundwater treatment system, and a low-permeability cap (EWI, 2016a). The groundwater treatment system is permitted to discharge water to the sanitary sewer system (Wastewater Contribution Permit No. 720). The treatment system effluent discharges onsite to Manhole A before flowing offsite to the public sanitary sewer system (Figure 3).

Groundwater in the area is first encountered from approximately 1 to 26 feet below ground surface and locally flows to the northeast. Additional groundwater monitoring wells were installed in the neighborhood near the Clifton Drainage in 2015, and groundwater samples were collected shortly after installation. In 2016, the Missouri Department of Natural Resources (MoDNR) approved the *Remedial Action Optimization Work Plan* and addendums (RAO Work Plan; EWI, 2016a, 2016b) for the Facility in response to the need to refine the conceptual site model (CSM) depicting the nature and extent of contamination resulting from releases associated with Facility operations. In December 2016 and January 2017, temporary soil vapor probes were installed on the eastern end of the Facility and throughout the neighborhood near the Clifton Drainage, and shallow and deep soil vapor samples were collected. The soil vapor probe locations are depicted in Figure 3 of the *Indoor Air Work Plan, Former Tronox Facility, 2800 West High Street, Springfield, Missouri, RCRA Permit No. MOD007129406* (EWI, 2017).

The CSM was refined to include vapor intrusion (VI) and was developed using groundwater and soil vapor data, residential structure proximity to groundwater at high and low water tables, and potential preferential pathways. The results indicated further evaluation of the VI pathway was warranted in the neighborhood near the Clifton Drainage northeast of the Facility (EWI, 2017). Five of the Facility-related COCs identified in the RAO Work Plan (EWI 2016a, 2016b), were identified as being sufficiently volatile and toxic when groundwater is the vapor source: benzene, toluene, ethylbenzene, xylenes, and naphthalene (BTEXN) (EWI, 2017).

In August 2017, a warm-season indoor air sampling event was performed in accordance with the Indoor Air Work Plan (EWI, 2017) and presented in the *Final Indoor Air Sampling: Warm-Season Event 2017* (CH2M, 2018b). Based on the results of the warm-season sampling event, the following conclusions were drawn: 1) significant VI was not occurring in the locations sampled and 2) outdoor volatile organic compound (VOC) sources were the likely cause of BTEXN detections in indoor air.

To further assess the potential sources of BTEXN concentrations in outdoor and indoor air, a confirmatory indoor air sampling event was conducted in December 2017, in accordance with the *Additional Outdoor Air Sampling and Indoor Air Confirmatory Sampling Work Plan* (Outdoor Air Work Plan; CH2M, 2017). Results of that sampling event were reported in the *Draft Outdoor Air Sampling and Indoor Confirmatory Air Sampling Technical Memorandum* (CH2M, 2018a)<sup>2</sup>. Based on the results of the confirmatory air sampling event, the following conclusions were drawn: 1) significant VI was not occurring in the locations sampled, 2) a clear outdoor point source was not identified, and 3) indoor VOC sources were the likely cause of BTEXN detections in indoor air.

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<sup>2</sup> The final version of the *Outdoor Air Sampling and Indoor Confirmatory Air Sampling Technical Memorandum* that incorporated MoDNR responses to comments was submitted to MoDNR on October 26, 2018. The reference for the final document is: Jacobs Engineering Group Inc. (Jacobs). 2018. *Final Additional Outdoor Air and Indoor Air Confirmatory Sampling: December 2017, Former Tronox/Kerr-McGee1 Facility, Springfield, Missouri; RCRA Permit No. MOD007129406*. October 26.

This technical memorandum presents the results and findings of the second seasonal indoor air sampling event (heating season indoor air sampling) performed in accordance with the Indoor Air Work Plan (EWI, 2017).

### 3.0 Purpose and Scope of the Heating-Season Air Sampling Event

The heating-season air sampling event was conducted in accordance with the Indoor Air Work Plan (EWI, 2017). The Indoor Air Work Plan presents the rationale for a multi-staged VI investigation in the neighborhood near the Clifton Drainage and includes procedures to perform building surveys, indoor air sampling, crawlspace air or subslab vapor sampling (depending on building construction), outdoor (ambient) air sampling, sump water sampling, sump headspace sampling, sewer gas headspace sampling, data validation, data management, and related activities (EWI, 2017).

The data quality objectives of the indoor air sampling event are to directly measure the concentrations of Facility-related COCs in residential indoor air to support an assessment of the completeness of the VI pathway and collect sufficient data to assess whether indoor air COCs detected above action levels (if any) are due to VI from Facility-related COCs or background sources.

Per the Indoor Air Work Plan (EWI, 2017), confirmatory sampling would be performed following the heating-season sampling event if indoor air concentrations of Facility-related COCs were detected above the indoor air action level (AL; see Section 7.0) and evaluation of the multiple lines of evidence supported Facility-related VI at a given structure. Following these criteria, confirmatory air sampling will not be necessary based on the heating-season sampling results presented in Section 8.0.

### 4.0 Preparatory Activities and Building Surveys

#### 4.1 Program Solicitation

Residential structures in the neighborhood near the Clifton Drainage were prioritized for air sampling in the Indoor Air Work Plan using a process that accounted for multiple factors that could affect the VI pathway (EWI, 2017). Prioritization scores were assigned to the residential structures, and the property owners with the highest-scoring residential structures were contacted for participation in the indoor air sampling event.

For the warm-season sampling event, nine residences in the neighborhood near the Clifton Drainage were visited in the weeks prior to the scheduled sampling event, and four homeowners (Properties 004, 007, 012, and 040) agreed to participate. Property 040 participated in the outdoor air and confirmatory indoor air sampling event in December 2017 and did not need to participate in another heating-season sampling event in February 2018. The other three homeowners declined to participate in this heating-season sampling event. The focus area was expanded for the heating-season sampling activities to include additional residences.

Homeowners and residents were notified of the upcoming indoor air sampling program, provided with reading materials about the program, and solicited for participation. Representatives of the Multistate Trust, MoDNR, and the Missouri Department of Health and Senior Services (MDHSS) went door-to-door to invite additional residents to participate in the sampling program. Five additional homeowners (Properties 014, 015, 016, 033, and 044A) agreed to sampling and signed access agreements.

After the heating-season sampling event was completed at Properties 014, 015, 016, 033, and 044A in February 2018, the Multistate Trust agreed to sample Property 019 based on a request from the homeowner. Property 019 was sampled March 22 to 23, 2018 by EWI. The Multistate Trust also requested EWI collect an outdoor air sample along the southern fence line of the Facility to evaluate outdoor air to the south of the groundwater treatment and recovery system (treatment plant).

## 4.2 Weather Station Installation and Wind Logging

The Indoor Air Work Plan specified that outdoor air samples were to be collected upwind of participating residential structures and distributed evenly throughout the neighborhood (EWI, 2017). A RainWise WindLog Wind Data Logger was set up near the northeastern corner of the Facility on July 27, 2017, to record wind direction and speed to assist in placement of outdoor air sample canisters. Wind data analyzed for the 24 hours (February 13, 2018) before the residential sampling event indicated the predominant wind direction was from the south-southeast. Outdoor air sample canisters were deployed southeast of each selected home, or in locations that provided an even distribution throughout the neighborhood.

## 4.3 Building Surveys

Pre-sampling building surveys were conducted at four properties (Properties 014, 015, 016 and 044A) on February 12 and 13, 2018, in accordance with the standard operating procedure (SOP), *Conducting Building Surveys for Vapor Intrusion Evaluations* (EWI, 2017). A pre-sampling building survey was conducted at Property 019 on March 22, 2018, in accordance with the SOP. A building survey was not conducted at Property 033 because the resident only allowed access to the crawlspace for sample collection.

The building surveys were performed to collect building characteristics information that could affect air sampling results and interpretation during data evaluation. In addition, BTEXN-containing household products or other items that may bias the indoor air results were identified (to the extent feasible) and placed outside the residence.

The field team obtained information about the history of the buildings and recent, current, or proposed building maintenance activities that could generate VOCs. The conditions of the foundations and slab also were documented. The heating, ventilation, and air conditioning (HVAC) system types and typical operating conditions were documented on the building survey form. The existing HVAC systems were in use for heating at least part of the time during sampling activities between February 14 and February 16, 2018.

Before collecting the indoor air samples, household products and other items that contain or operate using petroleum-based lubrication or fuel were removed. Items of potential concern were placed outside the building prior to sample collection. The products and other items were located by simple observation (for example, gasoline cans and mowers) and by using a photoionization detector (ppbRAE) to detect potential BTEXN-containing items not immediately observed. The items were containerized in plastic snap-lid storage tote boxes and moved outside the residence approximately 48 hours before starting sampling activities, typically to a shed, porch, or back patio, at the direction of the residents. No products were removed from Property 033, because the resident only allowed sampling of the crawlspace and did not want products removed from the home or indoor air sampling to be conducted at the time of the heating season sampling event. Motor vehicles were parked outside attached garages during the sampling event at Properties 015, 016, and 044A, however, a car body could not be removed from the garage at Property 014. Small combustion engines remained in the garage at Property 015 at the homeowner's request. A car was parked in the garage at Property 019 and the garage door was opened and closed for vehicle access at least once during sampling. Odors, potentially petroleum odors were noted outside of the home during the building survey at Property 019. Those odors were noted in inside the home when all the windows were open.

## 5.0 Sampling Activities

The heating-season indoor air sampling event was conducted in the neighborhood near the Clifton Drainage from February 14 through February 16, 2017 and March 22 to 23, 2018. The following samples were collected:

- Seven indoor air samples (plus one field duplicate)
- Two crawlspace samples
- Five outdoor air samples (one outside each of the five participating residences)
- Four subslab vapor samples (plus one field duplicate)
- Five sewer gas headspace samples (plus one field duplicate)

No sump water headspace samples or sump water samples were collected because the two sumps encountered were dry.

The following samples were collected on March 22 to 23, 2018 from Property 019:

- One indoor air sample (plus one field duplicate)
- One crawlspace sample
- One outdoor air sample (in the background)

A single on-Facility outdoor air sample was collected along the southern fence line of the Facility.

The sample locations are summarized in Table 1, and analytical data are presented in Tables 2 through 4. Sample locations and results are depicted on Figures 2, 3 and 4.

### 5.1 Indoor, Outdoor, and Crawlspace Air Sampling

Indoor, outdoor, and crawlspace air samples were collected from February 14 to February 16, 2018 at properties 014, 015, 016, 033 and 044A, and on March 22 to 23, 2018 at Property 019, in accordance with the SOP, *Indoor, Outdoor, and Crawl Space Air Sampling for VOCs Using Canisters* (EWI, 2017). An outdoor air sample was collected on March 22 to 23, 2018 from the south fence of the Facility (sample location OA-SF). The air samples were collected in laboratory-provided and individually certified-clean 6-liter stainless steel canisters equipped with 24-hour flow controllers, evacuated to between -28 and -30 inches of mercury as measured at sea level (or between -26.62 and -28.62 inches of mercury, as measured at the average neighborhood ground elevation of 1,275 feet above mean sea level).

The evacuated canisters were placed in the participating residential structures (Figure 2), approximately 3 to 5 feet above the floor to represent breathing height, turned on, and left undisturbed for approximately 24 hours. The evacuated canisters were slowly filled with target air to maintain a small amount of final vacuum (between -2 and -10 inches of pressure) after sampling. The canister vacuums were checked before and after sampling with a digital vacuum gauge, and all canister vacuums were within the above-specified limits except for the upstairs indoor air sample at Property 016, which finished at -11.54 inches mercury, and the field duplicate of one sewer headspace sample, which finished at -20.01 inches of mercury. The laboratory was informed of the low-volume canisters, the analysis proceeded taking into account the low-volume canisters and the resulting data were considered usable.

The sample canisters were shipped overnight to the laboratory. The analytical results are summarized in Table 2.

### 5.2 Subslab Vapor Sampling

A professional utility location service was used at Properties 014, 015, 016, and 044A on February 12, 2018, to scan the basement slabs and mark utilities or other obstructions that could damage or be damaged by the hammer drill used to install a subslab vapor probe at each residence, in accordance with the SOP, *Subslab Soil Gas Sampling from Cox-Colvin Vapor Pins* (EWI, 2017). A water dam leak check was performed to check the integrity of each vapor probe seal against the concrete slab. All subslab vapor probe locations passed the water dam leak check.

Immediately after collecting the indoor and outdoor air samples at Properties 015, 016, and 044A on February 15, 2018, a subslab vapor sample was collected from each subslab vapor probe. Because of the scheduling accommodations for Property 014, a subslab vapor sample and a field duplicate sample were collected before indoor air sampling. Careful measures were taken to prevent subslab soil vapors from entering the indoor air of the home, so that subsequent indoor air samples were not impacted by potential VOCs from the subslab.

Before collecting the subslab samples, a physical leak check of the sampling manifold and a helium leak check of the full sampling apparatus were performed. No vacuum loss occurred during the physical leak check and no helium was detected. Helium was also analyzed in the samples at the laboratory. No helium was detected in two of the five samples, and only trace detections of helium (0.018 to 0.08%) were detected above the reporting limit but below the project approved limit of 0.1 percent in the other three samples, indicating there were no leaks in the sample collection apparatus that might allow indoor (room) air to mix with the subslab vapor sample. Analytical results for all subslab vapor samples were below subslab vapor intrusion screening levels (VISLs) for the Facility-related COCs (Table 3).

### 5.3 Sump Water and Sump Water Headspace Sampling

Single sumps are present at Properties 015 and 016, in the northern and northwestern corners of the basements, respectively. The sump at Property 015 is in the garage in the basement. The sump at Property 016 is finished in concrete (the building survey, which include sump photographs are included in Attachment 1). Neither sump had water in it at the time of sampling. No sump water headspace or sump water samples were collected because both sumps were dry during the February 2018 sampling event.

### 5.4 Sewer Gas Headspace Sampling

Five sanitary sewer manhole, headspace (gas) samples and one field duplicate sample were collected on February 14 and February 15, 2018, in accordance with the Indoor Air Work Plan (EWI, 2017). The manhole sewer gas headspace samples were collected to assess the potential impact of permitted discharge from the groundwater treatment system (EWI, 2017). Field staff learned midway through the sampling event that treatment water was not being discharged during the February 2018 sampling event due to a previously unscheduled stoppage in treatment system operations to repair damage to the discharge sewer pipe.

The sewer manhole lids do not have holes or intentional venting, and no gaskets are around the ring where the lids seat. Manhole A, near the northeastern corner of the Facility, was unavailable for sampling because of on-Facility sewer line repairs. Sewer gas headspace samples were collected over a 24-hour period in laboratory-provided 6-liter stainless-steel canisters equipped with flow controllers. Analytical results for the sewer gas headspace samples are summarized in Table 4 and depicted on Figure 3.

Although treatment water was not being discharged during the February 2018 event, it was being discharged during the August 2017 warm season VI sampling event (CH2M, 2018b). The August 2017 manhole sewer gas headspace site-related VOC concentrations were relatively low (for example, less than 16 micrograms per cubic meter) in Manhole A, immediately downstream of the discharge point (Figure 3; CH2M, 2018b). Background contributions from the sewer system have not been evaluated. Discharge levels have been relatively constant during the past (for example, naphthalene at approximately 6 milligrams per liter [2017 *Corrective Action Report for the Tronox Facility, Springfield, Missouri, RCRA Permit MOD007129406* – Attachment 2]).

Sewer headspace vapor concentrations under constant discharge rates/concentrations are expected to be higher during warm (for example, August) compared with cold (for example, February) months due to temperature-dependent off-gassing inside the sewer line. The measured August 2017 levels at

Manhole A adjacent to the Facility discharge point have a relatively low VI potential. Therefore, even if discharge had been occurring during the February 2018 event, the potential for VI associated with the sewer gas is low, considering (1) the relatively constant discharge rates and low sewer manhole headspace concentrations measured during discharge, (2) the amount of sewer vapor-to-indoor air attenuation observed in research tracer studies, and (3) the lack of indoor impacts above risk-based screening levels during the August 2017 sampling event when discharge was occurring.

## 5.5 Deviations from the Work Plan

One deviation from the Indoor Air Work Plan (EWI, 2017) occurred during the heating-season sampling event. MoDNR requested that all crawlspace vents be covered for the duration of air sampling, so that a worst-case scenario of crawlspace detections would be from a subsurface source instead of an outdoor air source. However, vents in the crawlspace to outdoor air were inadvertently not covered during the crawlspace sampling at Property 033 and Property 044A. A subslab vapor sample also was collected at Property 044A as a more direct means of gauging potential detections of BTEXN from the subsurface.

The Multistate Trust agreed to sample Property 019, which was sampled March 22 to 23, 2018 by EWI, based on a request from the homeowner. The Multistate Trust also requested EWI collect an outdoor air sample along the southern fence line of the Facility property to evaluate outdoor air to the south of the groundwater treatment and recovery system, (treatment plant).

## 6.0 Laboratory Analysis

Eurofins Air Toxics, Inc. in Folsom, California, analyzed the 32 evacuated canister samples using U.S. Environmental Protection Agency (EPA) Method TO-15. Indoor, outdoor, and crawlspace samples were analyzed using Method TO-15 in SIM mode. The subslab vapor and sewer headspace samples were analyzed using Full Scan TO-15. Analytical data are summarized in Tables 2 through 4 and depicted on Figures 2 and 3. The target analyte list for all samples was comprised of the five Facility-related COCs.

The air laboratory verbally reported that high levels of non-target compounds were requiring the analysts to dilute several of the sewer headspace samples (SH-F\_0218, SH-D\_0218, SH-C\_0218, and SH-G\_0218) and subslab vapor samples (SU-015\_0218, SU-044A\_0218, SU-014\_0218, and SU-114\_0218). The additional dilutions increased the reporting limits for the Facility-related COCs for these samples. The ancillary effect of the analytical dilutions raised the laboratory reporting limit per sample for some Facility-related COCs above the associated screening levels. This is discussed further in the Data Quality Evaluation included as Attachment 2.

## 7.0 Screening Levels

Screening levels used for evaluating the sampling results were identified in the Indoor Air Work Plan (EWI, 2017). VISLs and indoor air ALs were calculated using methods consistent with EPA guidance and VI calculators (EPA, 2015a, 2015b, 2017a, 2017b) and MoDNR Technical Guidance (2006).

The indoor air ALs were derived to assess the need to further evaluate the source, significance, and potential need for additional actions. The indoor air ALs are based on EPA (2017a) regional screening levels (RSLs) for residential air using the MoDNR (2006) target cancer risk level of  $1 \times 10^{-5}$  or the target noncancer hazard quotient of 1, whichever results in a lower indoor air AL. The indoor air ALs are presented in Table 2.

The subslab VISLs were derived to guide the investigation. A VISL exceedance indicates further evaluation of VI is warranted, not that an unacceptable exposure exists. The subslab VISLs were based on EPA (2017a) RSLs for residential air, using a target cancer risk level of  $1 \times 10^{-6}$ , as requested by MDHSS, or a target noncancer hazard quotient of 1, whichever results in a lower subslab VISL. A subslab



vapor-to-indoor air attenuation factor of 0.03 (EPA, 2017b) was used in deriving the subslab VISL. The subslab VISLs are presented in Table 3.

## 8.0 Sampling Results and Data Evaluation

Table 1 summarizes the samples collected as part of the heating-season VI sampling event, and Tables 2 through 4 summarize the heating-season sampling results, as described below:

- Table 1, Sample List
- Table 2, Indoor, Crawlspace, and Outdoor Air Sample Results
- Table 3, Subslab Vapor Sample Results
- Table 4, Sewer Gas Headspace Sample Results

A data quality evaluation, which includes a Level 4 data validation, is included as Attachment 2.

### 8.1 Indoor Air

Each Facility-related COC was detected in the eight indoor air samples; four samples, plus a field duplicate, from the upstairs/main levels at Properties 014, 015, 016, and 044A, and three downstairs (basements) from Properties 014, 015, and 016. Property 044A does not have a basement. Results were similar between upstairs and downstairs samples at 014, 015, and 016, indicating a lack of concentration gradient from the basement (downstairs) to the main floor (upstairs). This indicates indoor air concentrations are not due to VI since higher concentrations would generally be expected in the lower level if VI were occurring. Analytical results for the indoor and outdoor air samples are summarized in Table 2. The indoor air results summarized by Property are as follows:

- Property 014: No Facility-related COCs were detected above indoor air ALs at Property 014.
- Property 015: Indoor air samples from Property 015, contained benzene, ethylbenzene, and naphthalene at concentrations above indoor air ALs; however, subslab vapor results indicate that a subslab vapor source is not present at Property 015, and at the request of the homeowner, several small engines were not removed from the garage during the indoor air sampling. Therefore, the indoor air results exceeding ALs appear to be related to an indoor background source not VI.
- Property 016: Indoor air samples from Property 016 contained naphthalene at concentrations above indoor air ALs; however, subslab vapor results indicate that a subslab vapor source is not present. Also, outdoor air concentrations of naphthalene were higher than the indoor air concentrations, indicating the indoor air naphthalene concentrations are due to an outdoor source and not from VI.
- Property 044A: Indoor air samples from Property 044A contained naphthalene at concentrations above indoor air ALs; however, subslab and crawlspace vapor results indicate that a subslab vapor source is not present. Also, outdoor air concentrations of naphthalene were higher than the indoor air concentrations, indicating the indoor air naphthalene concentrations are due to an outdoor source and not from VI.
- Property 019: None of the indoor air concentrations in the sample from the main floor of Property 019 exceeded the indoor air ALs, including the results from the duplicate sample. Indoor air samples from the Property 019 garage contained benzene at concentrations above indoor air ALs.

### 8.2 Crawlspace Air

Crawlspace air samples were collected at Properties 033 and 044A. The crawlspace at Property 033 is visibly vented to outdoor air in at least one location in the foundation. Details on how the crawl space is vented to the indoor air are unclear because access into the residence was not granted. MoDNR requested that all vents be covered for the duration of air sampling, so that a worst-case scenario of

crawlspace detections would be from a subsurface source instead of an outdoor air source. The indoor or outdoor air vents were inadvertently not sealed with plastic sheeting during the crawlspace sampling.

All five Facility-related COCs were detected at low levels in the crawlspace samples, but none exceeded their respective indoor air ALs. The lack of a decreasing concentration gradient from the crawlspace to the indoor air samples and the similarity of the indoor and outdoor air concentrations of naphthalene provides relative strong evidence of an outdoor air source of the naphthalene detected in indoor air. Analytical results for the crawlspace air samples are summarized in Table 2.

A crawlspace sample was also collected at Property 019. All five Facility-related COCs were detected at low levels in the crawlspace samples, but none exceeded their respective indoor air ALs.

### 8.3 Outdoor Air

Five outdoor air samples were collected in the neighborhood near each residential property that had indoor air samples collected. Analytical results for the outdoor air samples are summarized in Table 2. Outdoor air COC concentrations were similar to or greater than indoor air concentrations at all locations except Property 015 (which appears to have an indoor air background source), providing an additional line of evidence that outdoor air intrusion into the residential buildings is occurring. Property 019 outdoor air concentrations are less than the indoor air concentrations (e.g., naphthalene is approximately two times greater in the indoor air sample on the main level than outdoor air); however, the indoor air concentrations in the Property 019 garage indicate a background source is present in the garage.

### 8.4 Subslab Vapor

Most facility-related COC detections in subslab vapor samples were xylenes and toluene. There were sporadic low-level detections of COCs; however, none of the Facility-related COC concentrations exceeded VISLs, providing an additional line of evidence that the source of indoor air Facility-related COC detections is not VI. Analytical results for the subslab vapor samples are summarized in Table 3.

Removal of the subslab vapor probes and patching the concrete slabs as a precaution against probe locations becoming a conduit for groundwater if flooding occurred was performed at Properties 014, 015, and 016, but not at Property 044A because flooding is unlikely at this location. If flooding were to occur at Property 044A, there is little chance it would impact the living space of the residence.

### 8.5 Sewer Gas Headspace

One or more BTEXN compounds were detected in the five sewer gas headspace samples collected from Manholes B to F (Figure 3) and one field duplicate at Manhole C. The sewer gas headspace analytical results are summarized in Table 4.

A sample was not collected from manhole A near the Facility sewer outfall (Figure 3) because the manhole was plugged while the sewer line leading from the Facility water treatment system was being repaired.

Manhole C was the first manhole sampled offsite and takes inflow from the west along West High Street after it is joined by flow usually entering from Manhole A, and from the Greene County Highway Department facility from the south-southeast (Figure 3). Manholes D, E, and F are downgradient of Manhole C. Facility-related COC concentrations in Manhole B, which is located on Fulbright Avenue and lateral to the manholes along the Clifton Drainage, were nondetect or in the case of benzene, up to 17 times lower than in Manhole C and downgradient Manholes D, E, and F.

Facility-related COC concentrations were present at Manholes B, C, D, and E when the Facility water treatment system was not discharging to the sewer at Manhole A during the February 2018 heating season sampling event. Also, the Facility-related COC concentrations at Manholes C, D, E, and F were an

order of magnitude higher than at Manhole A during the August 2017 warm season sampling event while the Facility water treatment system was discharging to the sewer. The presence of Facility-related COCs when the groundwater treatment system is not discharging and the higher concentration present at Manholes C, D, E, and F when the Facility water treatment system is discharging indicates COCs are entering the sewer at some point downgradient of the Facility discharge at Manhole A.

## 8.6 Split Samples

The MoDNR Field Services Unit personnel collected split air samples with Jacobs personnel from Property 016 on February 15, 2018.

The naphthalene concentrations in the indoor air split samples collected by MoDNR (181126 and 181127) are approximately three times less than the samples collected by Jacobs (IAU-016 and IAD-016). The m&p-xylene concentrations in the indoor air split sample collected by MoDNR (181126) is approximately eight times less than the sample collected by Jacobs (IAU-016). The remaining BTEXN concentrations were similar in the split samples. The MoDNR and Jacobs split sample results are summarized on Table 5.

The MoDNR site sampling and laboratory analytical reports, for the Property 16 split samples are included in Attachment 3.

## 8.7 HAPSITE Sample Collection at Property 015

Six HAPSITE quantitative-mode samples were collected at Property 015 between February 13 and February 15, 2018 to screen potential background sources and potential preferential pathways into the Property 15 building. The quantitative-mode HAPSITE sample represents an approximate 2-minute real-time grab sample. A sample can be collected approximately every 15 minutes.

Products potentially containing VOCs of concern were removed from Property 015 between 10 a.m. and to 12 noon on February 13, 2018. The HAPSITE was used to collect samples at Property 015 from approximately 5 p.m. to 6 p.m. on February 13, 2018. A subslab vapor and outdoor air HAPSITE sample were also analyzed with the HAPSITE after the subslab vapor sample was collected with the evacuated stainless-steel canister on February 15, 2018.

The HAPSITE sampling results were consistent with the results from the evacuated stainless-steel canisters, including benzene, ethylbenzene, and naphthalene concentrations exceeding indoor air ALs. The HAPSITE results are summarized in Attachment 1 as part of the Building 15 survey.

## 9.0 Conclusions and Recommendations

A multiple-lines-of-evidence evaluation indicated none of the facility-related COCs detected in indoor air during the February 2018 and March 2018 heating-season appear to be from vapor intrusion. All indoor air detections exceeding ALs were similar to or lower than outdoor air concentrations, indicating a non-VI source. The subslab vapor and crawlspace concentrations do not represent a potential ongoing and significant VI source of Facility-related COCs at the residential properties sampled. The likely source of Facility-related COCs is outdoor air or indoor background sources from BTEXN containing products (Property 015). Per the Indoor Air Work Plan (EWI, 2017), further evaluation of the completeness and significance of the VI pathway will be provided in the final VI report. Multiple lines of evidence support the conclusion that sewer gas was not significantly impacting indoor air. This conclusion will be further assessed during subsequent residential sampling event(s), while discharge is occurring from the Facility groundwater treatment system.

Based on the conclusion that VI into the residential structures sampled was not occurring or was insignificant during the heating-season sampling event, confirmatory sampling, as described in the Indoor Air Work Plan (EWI, 2017), was not required within two weeks following receipt of validated

results showing exceedances. Temporary mitigation is not recommended since the data do not suggest VI is occurring under current conditions. Post-temporary mitigation sampling is unnecessary, as no mitigation was required or implemented.

The Indoor Air Work Plan (EWI, 2017) scope describes collecting the same sample media at participating properties in different seasons to adequately evaluate the potential effects of temporal and groundwater elevation variability and heating/cooling seasons on VI. Per the Indoor Air Work Plan (EWI, 2017), an additional sampling event is proposed for the high-water-table season (May 2018). For the subsequent sampling event, the following activities are recommended:

- For the high-water-table (spring) sampling event, request access for indoor air sampling at all residences sampled previously, including Property 019
- Collect the same number of samples (indoor air, crawlspace, outdoor air, subslab vapor, sump, sump headspace, and sewer gas headspace) as in the warm-season and heating-season sampling events, depending on availability
- Install subslab vapor probes and collect subslab samples in the high-water-table (spring) season at residences if flooding is not anticipated and access is granted
- Remove subslab vapor probes immediately following the high-water-table (spring) sampling event to avoid potential water entry issues.

No step-out screening of sumps at other residences is recommended, unless the participating homeowners refuse further sampling.

## 10.0 References

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Tables

**Table 1. Sample List**

Heating-Season Sampling Event, February 2018

Former Tronox/Kerr-McGee Facility, Springfield, Missouri

Location	Medium	Sample ID	Analytical Method
014	Indoor Air Upstairs (main)	IAU-014_0218	TO-15 SIM
	Indoor Air Upstairs (main)	IAU-114_0218 (Duplicate of IAU-014_0218)	TO-15 SIM
	Indoor Air Downstairs (basement)	IAD-014_0218	TO-15 SIM
	Subslab Vapor	SU-014_0218	TO-15 Scan and ASTM D 1946
	Subslab Vapor	SU-114_0218 (Duplicate of SU-014_0218)	TO-15 Scan and ASTM D 1946
	Outdoor Air	OA-014_0218	TO-15 SIM
015	Indoor Air Upstairs (main)	IAU-015_0218	TO-15 SIM
	Indoor Air Downstairs (basement)	IAD-015_0218	TO-15 SIM
	Subslab Vapor	SU-015_0218	TO-15 Scan and ASTM D 1946
	Outdoor Air	OA-015_0218	TO-15 SIM
016	Indoor Air Upstairs (main)	IAU-016_0218	TO-15 SIM
	Indoor Air Downstairs (basement)	IAD-016_0218	TO-15 SIM
	Subslab Vapor	SU-016_0218	TO-15 Scan and ASTM D 1946
	Outdoor Air	OA-016_0218	TO-15 SIM
033	Crawlspace	CS-033_0218	TO-15 SIM
	Outdoor Air	OA-033_0218	TO-15 SIM
044A	Crawlspace	CS-044A_0218	TO-15 SIM
	Indoor Air (main)	IA-044A_0218	TO-15 SIM
	Subslab Vapor	SU-044A_0218	TO-15 Scan and ASTM D 1946
	Outdoor Air	OA-044A_0218	TO-15 SIM
SH-A (Facility)	Sewer Head Space	Not collected	Not collected
SH-B (N. Fulbright)	Sewer Head Space	SH-B_0218	TO-15 Scan
SH-C (Back of 008)	Sewer Head Space	SH-C_0218	TO-15 Scan
	Sewer Head Space	SH-G_0218 (Duplicate of SH-C_0218)	TO-15 Scan
SH-D (Back of 005)	Sewer Head Space	SH-D_0218	TO-15 Scan
SH-E (Back of 037)	Sewer Head Space	SH-E_0218	TO-15 Scan
SH-F (Back of 016)	Sewer Head Space	SH-F_0218	TO-15 Scan

**Table 2. Indoor, Crawlspace, and Outdoor Air Sample Results**  
 Heating-Season Sampling Event, February 2018  
 Former Tronox/Kerr-McGee Facility, Springfield, Missouri

				Indoor Air Samples															Crawlspace Air Samples						Outdoor (Ambient) Air Samples																							
Location ID : Sample ID : Date Collected :				014 IAD-014_0218 2/16/2018 19:59			014 IAU-014_0218 2/16/2018 19:33			014 (Dup of IAU-014) IAU-114_0218 2/16/2018 19:33			015 IAD-015_0218 2/15/2018 11:53			015 IAU-015_0218 2/15/2018 11:56			016 IAD-016_0218 2/15/2018 10:18			016 IAU-016_0218 2/15/2018 10:07			044A IA-044A_0218 2/15/2018 16:32			033 CS-033_0218 2/15/2018 14:10			044A CS-044A_0218 2/15/2018 16:42			014 OA-014_0218 2/16/2018 20:05			015 OA-015_0218 2/15/2018 11:58			016 OA-016_0218 2/15/2018 10:15			033 OA-033_0218 2/15/2018 14:07			044A OA-044A_0218 2/15/2018 16:41		
Method	Chemical	Unit	Indoor Air Action Level <sup>a</sup>	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual						
TO-15 SIM	Benzene	µg/m <sup>3</sup>	3.6	<b>0.33</b>	0.066		<b>0.58</b>	0.08		<b>0.53</b>	0.072		<b>9.5</b>	0.067		<b>7.8</b>	0.068		<b>0.97</b>	0.028		<b>1</b>	0.075		<b>1.1</b>	0.028		<b>0.34</b>	0.026		<b>0.4</b>	0.025		<b>0.58</b>	0.052		<b>0.52</b>	0.026		<b>0.5</b>	0.03		<b>0.52</b>	0.027		<b>0.51</b>	0.027	
TO-15 SIM	Ethylbenzene	µg/m <sup>3</sup>	11	<b>0.36</b>	0.036		<b>0.44</b>	0.044		<b>0.44</b>	0.039		<b>12</b>	0.091		<b>10</b>	0.092		<b>0.44</b>	0.038		<b>0.5</b>	0.1		<b>0.29</b>	0.038		<b>0.5</b>	0.035		<b>0.2</b>	0.034		<b>0.28</b>	0.028		<b>0.23</b>	0.036		<b>0.12</b>	0.04	J	<b>0.22</b>	0.037		<b>0.14</b>	0.037	J
TO-15 SIM	Naphthalene	µg/m <sup>3</sup>	0.83	<b>0.46</b>	0.086		<b>0.63</b>	0.1		<b>0.68</b>	0.094		<b>2.3</b>	0.22		<b>1.9</b>	0.22		<b>0.98</b>	0.093		<b>1.2</b>	0.24		<b>0.9</b>	0.091		<b>0.64</b>	0.085		<b>0.3</b>	0.081	J	<b>0.36</b>	0.068		<b>2</b>	0.086		<b>2.3</b>	0.098		<b>2.2</b>	0.09		<b>2.1</b>	0.09	
TO-15 SIM	Toluene	µg/m <sup>3</sup>	5,200	<b>0.57</b>	0.031		<b>1.6</b>	0.038		<b>1.6</b>	0.034		<b>110</b>	0.079		<b>110</b>	0.08		<b>5.3</b>	0.033		<b>5.3</b>	0.088		<b>4.7</b>	0.032		<b>10</b>	0.031		<b>4.2</b>	0.029		<b>2.7</b>	0.025		<b>1.9</b>	0.031		<b>1.3</b>	0.035		<b>1.8</b>	0.032		<b>1.2</b>	0.032	
TO-15 SIM	Xylenes, Total	µg/m <sup>3</sup>	100	<b>1.9</b>			<b>2.1</b>			<b>2.1</b>			<b>49</b>			<b>44</b>			<b>1.7</b>			<b>1.8</b>			<b>1</b>			<b>2.2</b>			<b>0.91</b>			<b>1.2</b>			<b>1</b>			<b>0.4</b>		U	<b>1.1</b>			<b>0.56</b>		
TO-15 SIM	Xylene, o	µg/m <sup>3</sup>	100	<b>0.54</b>	0.036		<b>0.6</b>	0.044		<b>0.6</b>	0.039		<b>11</b>	0.091		<b>10</b>	0.092		<b>0.41</b>	0.038		<b>0.47</b>	0.1		<b>0.32</b>	0.038		<b>0.53</b>	0.035		<b>0.2</b>	0.034		<b>0.34</b>	0.028		<b>0.29</b>	0.036		<b>0.13</b>	0.04	J	<b>0.3</b>	0.037		<b>0.17</b>	0.037	
TO-15 SIM	Xylenes, m & p	µg/m <sup>3</sup>	100	<b>1.3</b>	0.036		<b>1.5</b>	0.044		<b>1.5</b>	0.039		<b>38</b>	0.091		<b>34</b>	0.092		<b>1.2</b>	0.038		<b>1.3</b>	0.1		<b>0.74</b>	0.038		<b>1.8</b>	0.035		<b>0.69</b>	0.034		<b>0.84</b>	0.028		<b>0.73</b>	0.036		<b>0.3</b>	0.04	J	<b>0.76</b>	0.037		<b>0.41</b>	0.037	

Notes:  
**Detects are bolded**  
 Exceedances of Indoor Air Action Level are shaded  
 CS : crawlspace  
 Dup : duplicate  
 IAU : indoor air upstairs  
 IAD : indoor air downstairs  
 J : estimated value  
 OA : outdoor air  
 Qual : laboratory qualifier  
 RL : reporting limit  
 µg/m<sup>3</sup> : micrograms per cubic meter  
<sup>a</sup>: The crawlspace and indoor air action level is a risk-based screening level based on the U.S. Environmental Protection Agency (EPA) 2017 residential indoor air regional screening levels (<https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-november-2017>). The RSLs used are based on target cancer risk = 1 x 10<sup>-5</sup> or target noncancer hazard quotient = 1, per Missouri Regulations 10



**Table 3. Subslab Vapor Sample Results**

Heating-Season Sampling Event, February 2018

Former Tronox/Kerr-McGee Facility, Springfield, Missouri

				Subslab Vapor														
				014			014 (Dup of SU-14)			015			016			044A		
Location ID :																		
Sample ID :				SU-014_0218			SU-114_0218			SU-015_0218			SU-016_0218			SU-044A_0218		
Date Collected :				2/15/2018 21:55			2/15/2018 21:55			2/15/2018 12:30			2/15/2018 11:11			2/15/2018 17:09		
Subslab Vapor Intrusion Screening																		
Method	Chemical	Unit	Level <sup>a</sup>	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual
D1946	Helium	Percent		<b>0.08</b>	0.017	J	<b>0.02</b>	0.017	J	0.017	0.017	U	<b>0.018</b>	0.018	J	0.018	0.018	U
TO-15	Benzene	µg/m <sup>3</sup>	12	<b>0.31</b>	2.2	J	2.2	2.2	U	2.3	2.3	U	2.4	2.4	U	2.4	2.4	U
TO-15	Ethylbenzene	µg/m <sup>3</sup>	37	3	3	U	3	3	U	3.1	3.1	U	3.2	3.2	U	3.2	3.2	U
TO-15	Naphthalene	µg/m <sup>3</sup>	2.8	2	2	U	2	2	U	2	2	U	<b>1.5</b>	2.1	J	2.1	2.1	U
TO-15	Toluene	µg/m <sup>3</sup>	170,000	<b>2.3</b>	2.6	J	<b>2.1</b>	2.6	J	<b>4.4</b>	2.7	J	<b>5.6</b>	2.8		2.8	2.8	U
TO-15	Xylenes, Total	µg/m <sup>3</sup>	3,500	10	10	U	10	10	U	10	10	U	11	11	U	11	11	U
TO-15	Xylene, o	µg/m <sup>3</sup>	3,500	3	3	U	3	3	U	3.1	3.1	U	3.2	3.2	U	3.2	3.2	U
TO-15	Xylenes, m & p	µg/m <sup>3</sup>	3,500	3	3	U	<b>1.4</b>	3	J	<b>1.7</b>	3.1	J	<b>2.3</b>	3.2	J	<b>2.2</b>	3.2	J

Notes:

**Detects are bolded**

SU : subslab

Dup : Duplicate

J : estimated value

Qual : laboratory qualifier

RL : reporting limit

U : nondetect

µg/m<sup>3</sup> : micrograms per cubic meter

<sup>a</sup> : Subslab vapor sample results are screened against the subslab vapor intrusion screening level.

**Table 4. Sewer Gas Head Space Sample Results**

Heating-Season Sampling Event, February 2018

Former Tronox/Kerr-McGee Facility, Springfield, Missouri

Location ID : Sample ID : Date Collected :			Sewer Head Space Air																	
			SH-B SH-B_0218 2/15/2018 14:30			SH-C SH-C_0218 2/15/2018 14:33			SH-G (Dup of SH-C) SH-G_0218 2/15/2018 14:33			SH-D SH-D_0218 2/15/2018 14:20			SH-E SH-E_0218 2/15/2018 14:16			SH-F SH-F_0218 2/15/2018 14:09		
			Method	Chemical	Unit	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual
TO-15	Benzene	µg/m <sup>3</sup>	<b>0.27</b>	1.1	J	<b>4.8</b>	7	J	<b>1.6</b>	6.6	J	<b>3</b>	5.2	J	<b>2.6</b>	3.9	J	<b>1.1</b>	2.1	J
TO-15	Ethylbenzene	µg/m <sup>3</sup>	1.5	1.5	U	9.5	9.5	U	8.9	8.9	U	7	7	U	<b>4.2</b>	5.3	J	<b>2.2</b>	2.9	J
TO-15	Naphthalene	µg/m <sup>3</sup>	0.71	0.71	U	4.6	4.6	U	4.3	4.3	U	3.4	3.4	U	<b>47</b>	2.6		1.4	1.4	U
TO-15	Toluene	µg/m <sup>3</sup>	1.3	1.3	U	8.2	8.2	U	7.8	7.8	U	6.1	6.1	U	4.6	4.6	U	2.5	2.5	U
TO-15	Xylenes, Total	µg/m <sup>3</sup>	7.3	7.3	U	47	47	U	45	45	U	35	35	U	26	26	U	14	14	U
TO-15	Xylene, o	µg/m <sup>3</sup>	1.5	1.5	U	9.5	9.5	U	8.9	8.9	U	7	7	U	5.3	5.3	U	2.9	2.9	U
TO-15	Xylenes, m & p	µg/m <sup>3</sup>	1.5	1.5	U	9.5	9.5	U	8.9	8.9	U	<b>4.6</b>	7	J	<b>6.3</b>	5.3	J	<b>3.2</b>	2.9	J

Notes:

**Detects are bolded**

J : estimated value

Qual : laboratory qualifier

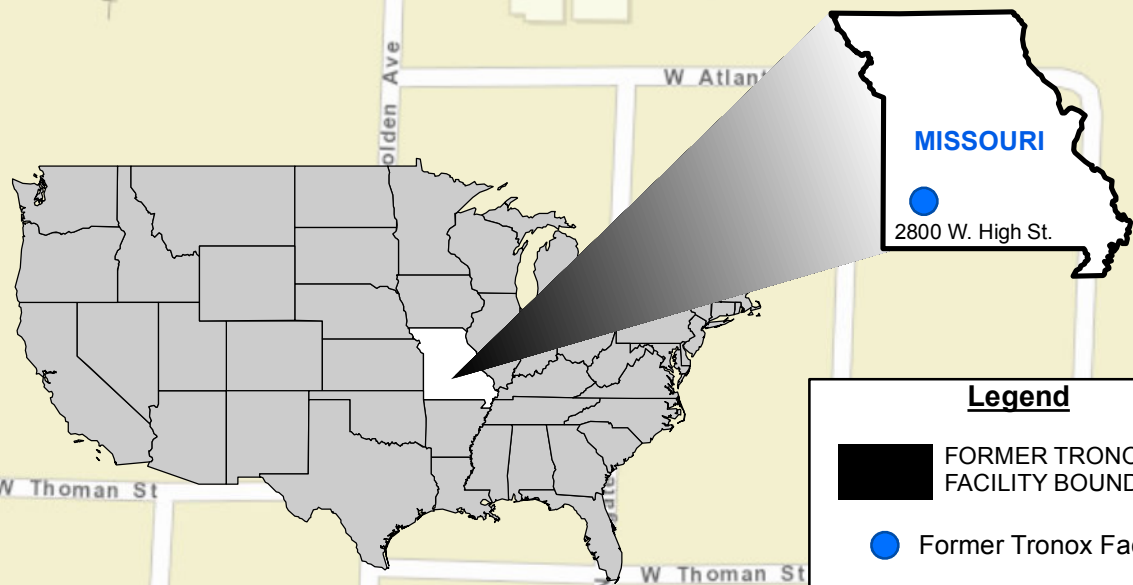
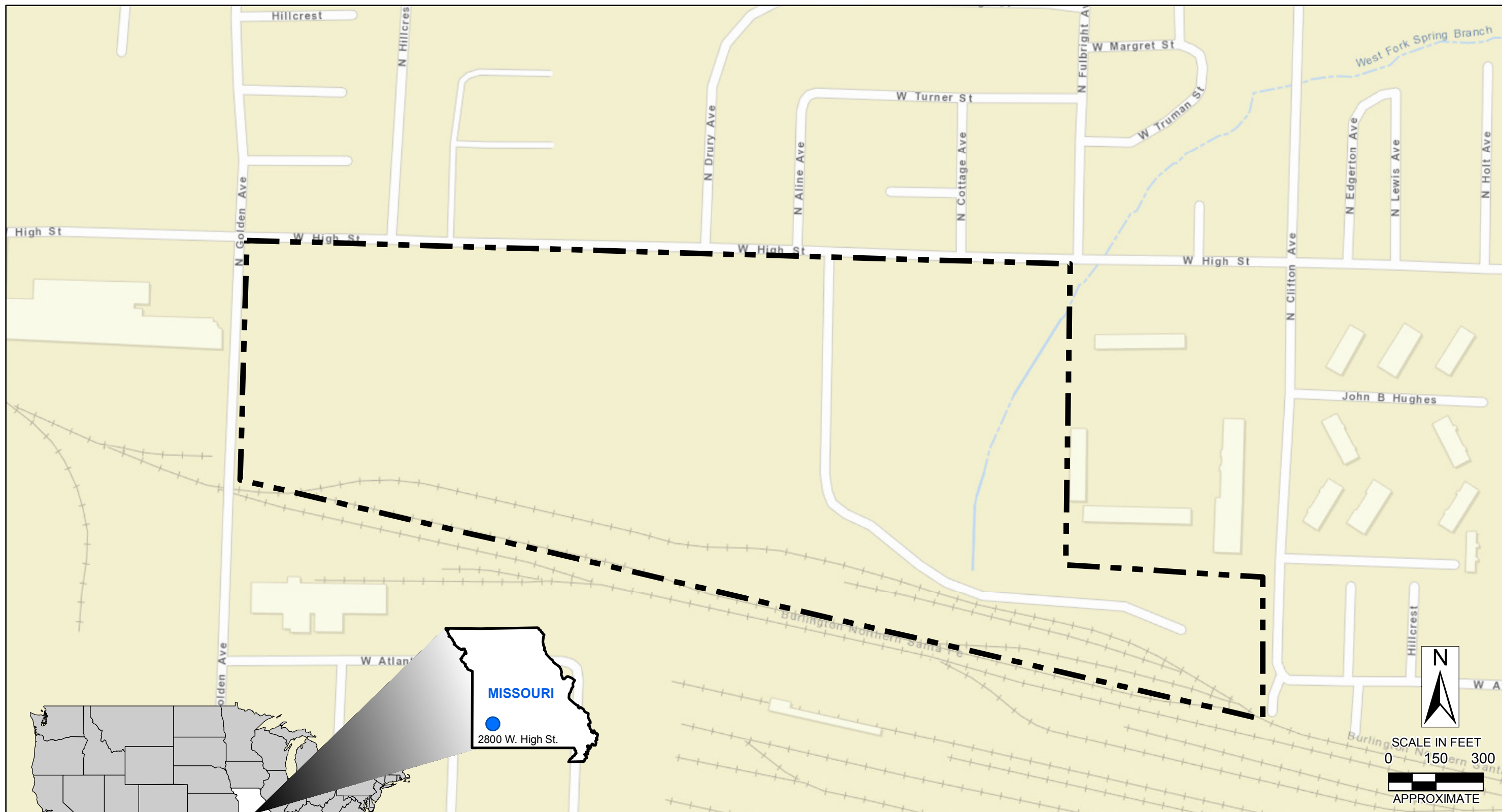
RL : reporting limit



SH : sewer headspace

U : nondetect

µg/m<sup>3</sup> : micrograms per cubic meter

Figures



Legend	
	FORMER TRONOX FACILITY BOUNDARY
	Former Tronox Facility Location

  
 Greenfield Environmental  
 Multistate Trust, LLC,  
 Trustee of the Multistate  
 Environmental Response Trust

Date: 09/10/2018 (Revised)  
 CREATED BY: Jacobs  
 CHECKED BY:  
 Shirley Steinmacher

**FIGURE 1**  
**Facility Location Map**  
 Indoor Air Sampling Technical Memorandum:  
 Heating-Season Sampling Event, February 2018  
 Former Tronox/Kerr-McGee Facility 2800 West High St, Springfield, MO

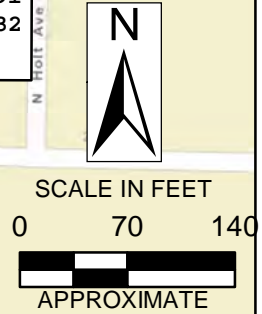
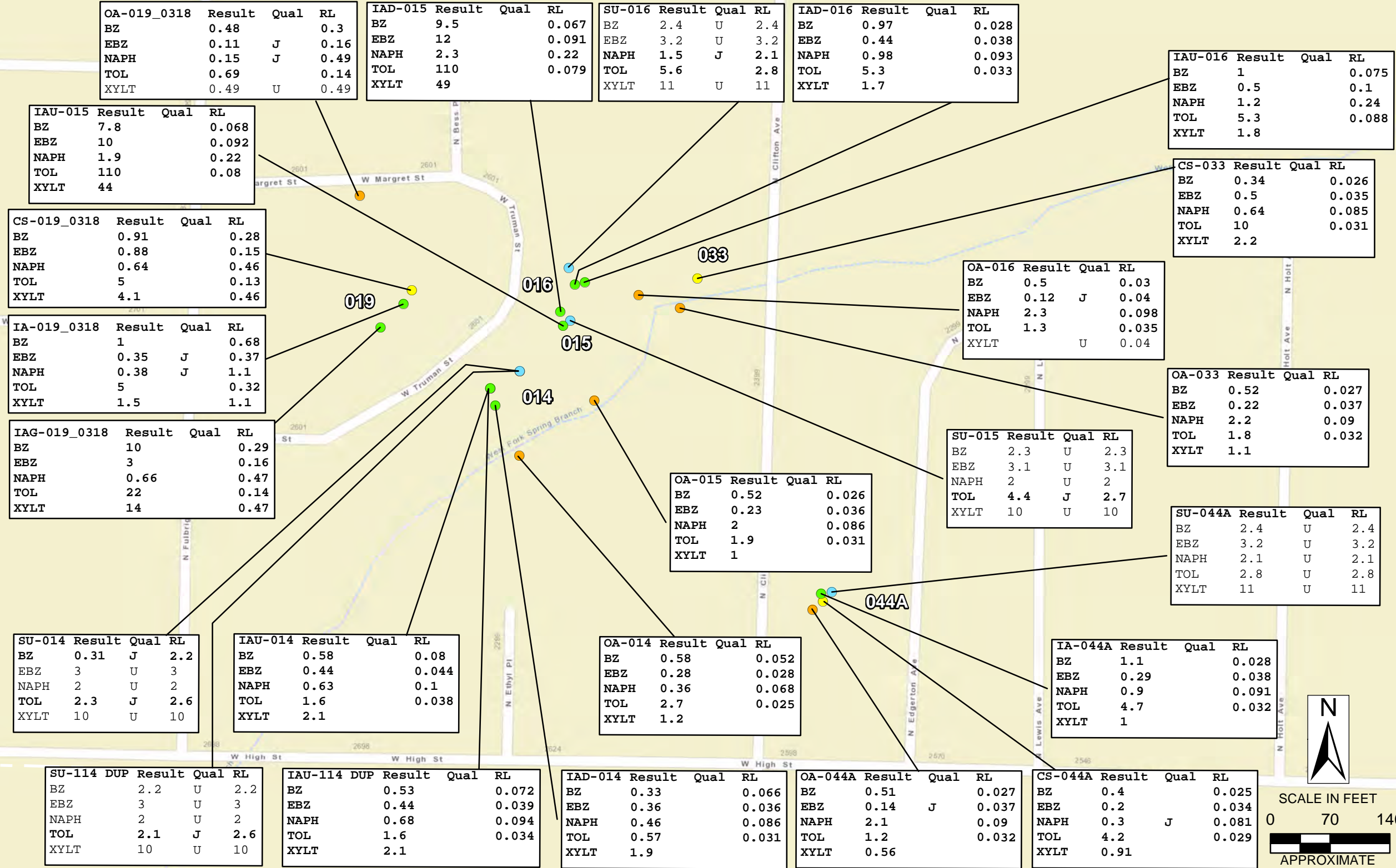


SCALE IN FEET  
 0 150 300  
 APPROXIMATE

**Definitions:**  
 BZ = Benzene  
 EBZ = Ethylbenzene  
 NAPH = Naphthalene  
 TOL = Toluene  
 XYLT = Xylenes, total  
 DUP = Field duplicate  
 SU = Subslab  
 CS = Crawlspace  
 OA = Outdoor air  
 IA = Indoor air (main)  
 IAU = Indoor air upstairs  
 IAD = Indoor air downstairs  
 IAG = Indoor air garage  
 Qual = Data Qualifier or flag  
 RL = Reporting Limit  
 J = Detection estimated  
 U = Non detected  
 AL = Action level  
 VISL = Vapor Intrusion screening level  
 µg/m<sup>3</sup> = micrograms per cubic meter


**Notes:**  
 All results reported in µg/m<sup>3</sup>  
 Bolded results are detects

Analyte	Indoor/Crawl Space Air AL	Subslab VISL
BZ	3.6	12
EBZ	11	37
NAPH	0.83	2.8
TOL	5,200	170,000
XYLT	100	3,500



**Legend**

- INDOOR AIR SAMPLE
- OUTDOOR AIR SAMPLE
- CRAWLSAPCE AIR SAMPLE
- SUBSLAB AIR SAMPLE
- FORMER TRONOX FACILITY BOUNDARY

  
 Greenfield Environmental  
 Multistate Trust, LLC,  
 Trustee of the Multistate  
 Environmental Response Trust

Date: 09/10/2018 (Revised)  
 CREATED BY: Jacobs  
 CHECKED BY:  
 Shirley Steinmacher

**FIGURE 2**  
**Indoor, Outdoor, Crawlspace, and Subslab**  
**Sampling Locations and Results**  
 Indoor Air Sampling Technical Memorandum:  
 Heating-Season Sampling Event, February 2018  
 Former Tronox/Kerr-McGee Facility 2800 West High St, Springfield, MO



**Definitions:**  
 BZ = Benzene  
 EBZ = Ethylbenzene  
 NAPH = Naphthalene  
 TOL = Toluene  
 XYLT = Xylenes, total  
 SH = Sewer headspace  
 DUP = Field duplicate  
 Qual = Data Qualifier or flag  
 RL = Reporting Limit  
 J = Detection estimated  
 U = Non detected  
 µg/m<sup>3</sup> = micrograms per cubic meter

**Notes:**  
 All results reported in µg/m<sup>3</sup>  
 Bolded results are detects

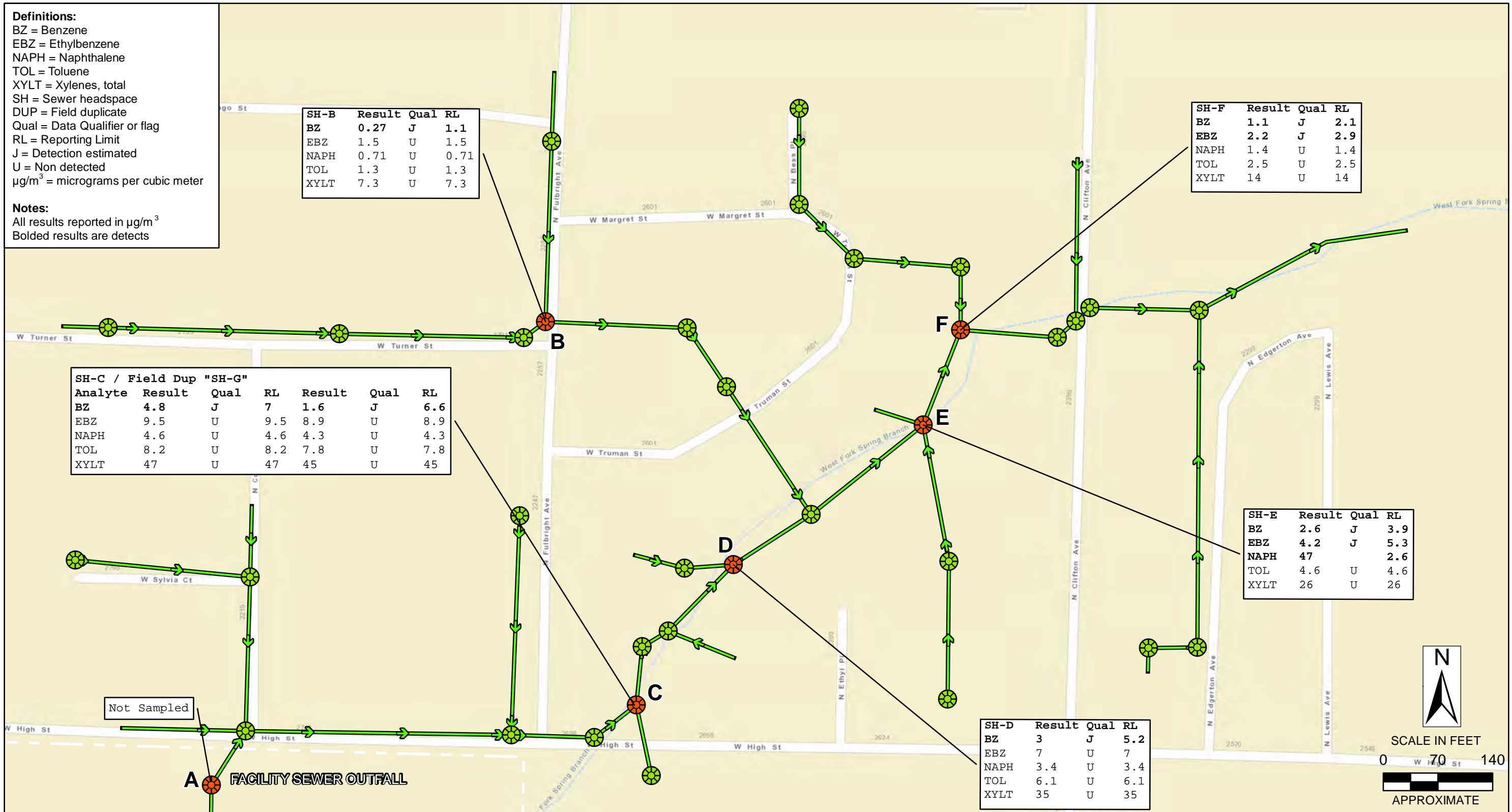
SH-B	Result	Qual	RL
BZ	0.27	J	1.1
EBZ	1.5	U	1.5
NAPH	0.71	U	0.71
TOL	1.3	U	1.3
XYLT	7.3	U	7.3

SH-F	Result	Qual	RL
BZ	1.1	J	2.1
EBZ	2.2	J	2.9
NAPH	1.4	U	1.4
TOL	2.5	U	2.5
XYLT	14	U	14

SH-C / Field Dup "SH-G"						
Analyte	Result	Qual	RL	Result	Qual	RL
BZ	4.8	J	7	1.6	J	6.6
EBZ	9.5	U	9.5	8.9	U	8.9
NAPH	4.6	U	4.6	4.3	U	4.3
TOL	8.2	U	8.2	7.8	U	7.8
XYLT	47	U	47	45	U	45

SH-E	Result	Qual	RL
BZ	2.6	J	3.9
EBZ	4.2	J	5.3
NAPH	47	U	2.6
TOL	4.6	U	4.6
XYLT	26	U	26

SH-D	Result	Qual	RL
BZ	3	J	5.2
EBZ	7	U	7
NAPH	3.4	U	3.4
TOL	6.1	U	6.1
XYLT	35	U	35



Not Sampled

**A FACILITY SEWER OUTFALL**

**Legend**

- FORMER TRONOX FACILITY BOUNDARY
- SANITARY SEWER FLOW
- SANITARY SEWER MANHOLE SELECTED FOR VAPOR INTRUSION SAMPLING
- SANITARY SEWER MANHOLE EVALUATED IN INDOOR AIR SAMPLING WORK PLAN (EWI, 2017) BUT NOT SELECTED FOR VAPOR INTRUSION SAMPLING

Greenfield Environmental Multistate Trust, LLC, Trustee of the Multistate Environmental Response Trust

Date: 09/10/2018 (Revised)  
 CREATED BY: Jacobs  
 CHECKED BY: Shirley Steinmacher

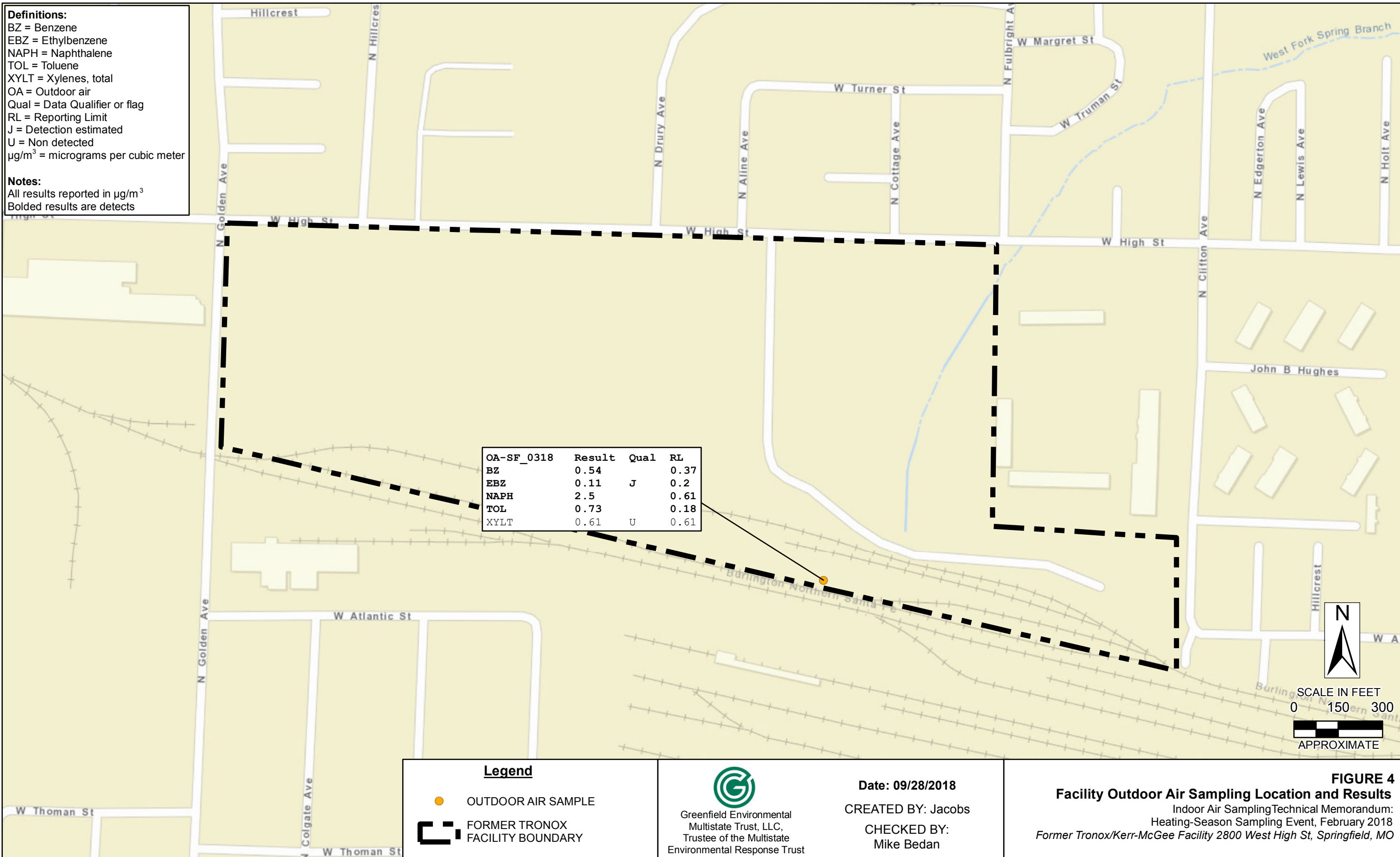
**FIGURE 3**  
**Sewer-Gas Headspace Sampling Locations and Results**  
 Indoor Air Sampling Technical Memorandum:  
 Heating-Season Sampling Event, February 2018  
 Former Tronox/Kerr-McGee Facility 2800 West High St, Springfield, MO

N

SCALE IN FEET  
 0 70 140  
  
 APPROXIMATE


**Definitions:**  
 BZ = Benzene  
 EBZ = Ethylbenzene  
 NAPH = Naphthalene  
 TOL = Toluene  
 XYLT = Xylenes, total  
 OA = Outdoor air  
 Qual = Data Qualifier or flag  
 RL = Reporting Limit  
 J = Detection estimated  
 U = Non detected  
 µg/m<sup>3</sup> = micrograms per cubic meter

**Notes:**  
 All results reported in µg/m<sup>3</sup>  
 Bolded results are detects



**Legend**

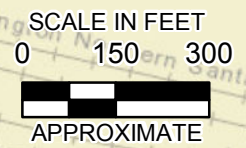
- OUTDOOR AIR SAMPLE
- FORMER TRONOX FACILITY BOUNDARY



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 Multistate Trust, LLC,  
 Trustee of the Multistate  
 Environmental Response Trust

Date: 09/28/2018  
 CREATED BY: Jacobs  
 CHECKED BY:  
 Mike Bedan

**FIGURE 4**  
**Facility Outdoor Air Sampling Location and Results**  
 Indoor Air Sampling Technical Memorandum:  
 Heating-Season Sampling Event, February 2018  
 Former Tronox/Kerr-McGee Facility 2800 West High St, Springfield, MO



Attachment 1  
Pre-Sampling Building Surveys



*Property 014*

## Inspection Information

Select an Installation ID	5
Installation Name	Former Tronox Facility, Springfield MO
Date	2/12/18
Time	1720
Preparer(s)	B. Irish (CH2M)
Other Preparer name	M. Zamboni (CH2M), S. Steinmacher (CH2M), B. Garcia (EWI)
Select a Building for Inspection	014
Building Address	Personally Identifiable Information (PII)
Building/Facility Name (if different than listed above)	N/A

## Contact Information

Primary Building POC Contact Name	PII
Primary Building POC Phone Number	PII
Primary Building POC email address	PII
Building POC Notes	PII

## Building Characteristics

Number of Floors Above ground	1
Number of Floors Below Ground	1
Building Length (Feet)	75
Building Width (Feet)	25
Building Height (Feet)	NA
Area (Square Feet)	~1,600 - 1900
Volume (Cubic Feet)	NA

## General Building Description

Estimated number of building occupants	1
General observations about age range and % of male to female ratio	Female
Are there any sensitive receptors in the	Yes

<p>building? (elderly, children, immuno-compromised, women of child bearing age, etc.)</p>	
<p>Describe the sensitive receptors</p>	<p>Elderly</p>
<p>How long have the current occupants occupied the building?</p>	<p>44 years</p>
<p>Current Activities within Building</p>	<p>Residential</p>
<p>Other current activities within building</p>	<p>NA</p>
<p>Historical Activities within Building (if known)</p>	<p>Unknown</p>
<p>Number of Floors</p>	<p>See page 1</p>
<p>Building Height Notes</p>	<p>See page 1</p>
<p>Are any pipes or utilities observed passing through exterior walls?</p>	<p>Not observed</p>
<p>Describe the pipes/utilities observed</p>	<p>NA</p>
<p>Attach Floorplan Sketch (if available)</p>	<p>General location of doors and windows</p> <p>TRUMAN AVE</p> <p>UPstairs</p> <p>DOWNstairs</p> <p>Dining - 21'5"</p> <p>Kitchen - 21'5" x 11'</p> <p>Bathroom I - 7'5" x 11'</p> <p>Bathroom II - 2'11" x 11'</p>
<p>Building Photo(s)</p>	<p>Photos was taken of the garage showing the location of the subslab vapor point and the setup for sample collection.</p>

Notes



## Building Construction Details

<b>Year Constructed</b>	1970s
<b>What is the Aboveground Construction Type for the building envelope/exterior?</b>	Single family ranch
<b>Other Type of Aboveground Construction</b>	Timber frame
<b>What is the type of building foundation?</b>	Concrete
<b>Other Type of Foundation Construction</b>	NA
<b>What is the grade of the slab?</b>	Slab on grade
<b>How many feet above/below the grade is the slab?</b>	Basement with ground level garage entry in NW portion
<b>What type of materials is the foundation?</b>	Poured concrete
<b>Other Type of Foundation Materials</b>	NA
<b>Foundation Wall Materials</b>	Poured concrete
<b>Other Type of Foundation Wall Materials</b>	NA
<b>General Description of Building Construction and Materials</b>	NA
<b>Does the building have a basement and/or crawlspace?</b>	The house has a basement and a ground level garage. No crawlspace.

<b>Describe the basement/crawlspace</b>	Garage is half of the basement. Basement finished 40 years ago.
<b>How many feet below grade?</b>	Front of house below approx. 5 feet below
<b>Approximate size in square feet</b>	Approximately 1,600 -1,900 square feet. basement and garage
<b>Maximum ceiling height of basement/crawlspace</b>	8 feet
<b>Minimum ceiling height of basement/crawlspace</b>	8 feet
<b>Is the basement separated in to multiple rooms?</b>	Yes
<b>Describe the multiple rooms</b>	The basement is segmented into a garage, shop area, TV/bedroom, and storage room.
<b>Construction materials of walls</b>	Poured cement walls in basement
<b>Are significant cracks present in the walls?</b>	Yes
<b>Describe cracks in the wall</b>	NA
<b>Basement Photos</b>	See above

## Potential Conduits from Soil

<b>Floor/foundation type</b>	Concrete
<b>Other Type of Floor/foundation</b>	NA
<b>Is the floor raised above the foundation?</b>	No
<b>Are expansion joints or cracks visible?</b>	Yes, cracks are visible in the floor
<b>Are expansion joints sealed?</b>	Yes
<b>Are sumps or floor drains present?</b>	No
<b>Are basements or subsurface vaults present?</b>	No
<b>Are there subsurface drainage problems?</b>	Yes, standing water is visible in a ditch outside of the residence
<b>Notes on potential conduits</b>	“Creosol smell used to be so bad, guests would leave. Children (adults now) used to ride their bikes in the ditch (Clifton Drainage) and ride inner tubes down it when it flooded. The children use to get oil or black spots on their clothes that would not wash off. The adult son present spoke of the black dots that would get on their skin and clothes when the plant was open. They called them “freckles.” The specks came from the air, from above, when the plant was in operation, and it got on cars too.

	It was hard to wash off.
<b>Photos of Potential Conduits</b>	NA

## Building Condition

<b>Is there standing water in the building (historic or current)?</b>	No current standing water however the basement has experienced flooding during heavy rainfalls from overflow off land (not from groundwater).
<b>Is there water damage in the building (historic or current)?</b>	Unknown
<b>Is there fire damage in the building (historic or current)?</b>	No
<b>Is there a septic system?</b>	No
<b>Building Condition Notes</b>	House is well kept. Cracks were sealed. Clean.
<b>Building Condition Photos</b>	NA

## Evaluation of Potential Existing Chemical Sources

<b>Are SSDs available for chemicals used with in the building?</b>	No
<b>List items, approximate quantities, and frequency</b>	Garage: Paint, paint strippers, metal cleaners, aerosols, windshield wiper cleaners, (possibly gasoline). Kitchen: solvents (spray-on oven cleaners), air fresheners and scented candles, carpet spot removers, insecticides, lamp oil Bathroom: Nail polish remover None of these items are used often.
<b>Do any of the products stored in the building contain VOCs?</b>	Yes, see above. Two totes filled and removed from house for sample duration.
<b>Are any of the target analytes used in the building?</b>	Possibly. Work done on motor vehicle in basement.
<b>Is the usage confined to a specific room or area?</b>	Basement garage.
<b>Describe the room or area</b>	NA
<b>Are pesticides used for pest control?</b>	Yes, however it is not used often.
<b>Names of pesticide products used?</b>	Unknown
<b>Has there been a pesticide application within the past 6 months?</b>	No
<b>Is smoking permitted in the building?</b>	No

<b>Notes regarding chemical use</b>	NA
<b>Has there been any remodeling or construction within the past 6 months?</b>	No
<b>Describe past remodel</b>	NA
<b>Is there a planned remodel in the near future?</b>	Unknown
<b>Describe remodel plans</b>	NA
<b>Does the building have an attached garage or do vehicles regularly enter the space?</b>	Yes, attached garage.
<b>Describe the garage/vehicle use</b>	The garage is used to store the body of an unfinished car.
<b>Are gas-powered equipment or cans of gasoline/fuels stored in the building or attached garage?</b>	Gasoline is possibly stored in the body of the unfinished car.
<b>Describe gas/fuels stored</b>	NA
<b>Do building occupants dry clean their clothes?</b>	No
<b>How often do they dry clean their clothes?</b>	NA
<b>Has there ever been a known chemical spill immediately outside or inside the building?</b>	No
<b>Describe known chemical spill</b>	NA
<b>Was the building screened with a ppbRAE to identify indoor VOC sources?</b>	Yes
<b>Describe the results of the ppbRAE screening</b>	Kitchen 220 – 240 ppb Kitchen drain 215 ppb Kitchen sink 230 – 240 ppb Living room 210 – 235 ppb Bathrooms 210 – 240 ppb Bedrooms 190 – 230 ppb Bathroom drain 230 – 233 ppb Basement 225 – 253 ppb
<b>Are there stationary sources nearby (i.e. gas stations, emission stacks, hazardous waste storage, etc.)?</b>	No
<b>Describe the nearby stationary sources</b>	NA

<b>Is there heavy vehicular traffic nearby or other mobile sources?</b>	No
<b>Photo of potential indoor chemical sources</b>	None

## Description of Vapor Mitigation Systems

<b>Has a radon or vapor mitigation system been installed in this building/room?</b>	No
<b>Date of installation?</b>	NA
<b>Type of system?</b>	NA
<b>Location of mitigation system</b>	NA
<b>Notes</b>	NA

## Air Handling information

<b>Are there any areas of the building that are positively or negatively pressurized?</b>	No
<b>Describe the building's pressure characteristics</b>	NA
<b>Number of HVAC Zones</b>	Unknown
<b>Describe thermostat location(s)</b>	Unknown
<b>How many HVAC Zones?</b>	Unknown
<b>Type of ventilation system(s)</b>	Central air handler/blower, mechanical ceiling fans, kitchen range hood, central air conditioning
<b>Describe other type of ventilation system(s)</b>	NA
<b>Type of heating system(s)</b>	Forced air with natural gas
<b>Describe other type of heating system(s)</b>	NA
<b>Type of fuel utilized</b>	Natural gas
<b>Describe other type of fuel(s)</b>	NA
<b>Are there other sources of outdoor air?</b>	No
<b>Describe other sources of outdoor air</b>	NA
<b>Are windows/doors left open routinely?</b>	No
<b>Are there seasonal differences?</b>	Unknown
<b>Are any components of the building's</b>	Unknown



<b>heating, cooling or ventilation / circulation systems visible from the exterior?</b>	
<b>Detail Air Handling components observed</b>	NA
<b>Air Handling Photos</b>	NA

*Property 015*

**HAPSITE Building Survey Results - Property 015**

Residential Building Survey, February 2018

Former Tronox Facility, Springfield, Missouri

		Property ID 015																		
		Location ID :	HP32-OA			HP32-OA			HP33-IA			HP34-IA			HP35-IA			HP36-SG		
		Sample ID :	Front Yard 2/13			Front Yard 2/15			Upstairs Living Rm			Basement Living Rm			Garage			Subslab Vapor		
		Date Collected :	2/13/2018, 16:50			2/15/2018, 11:48			2/13/2018, 17:10			2/13/2018, 17:25			2/13/2018, 17:40			2/15/2018, 13:19		
Method	Chemical	Unit	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual	Result	RL	Qual
HAPSITE	Benzene	µg/m <sup>3</sup>	<b>0.59</b>	0.32		<b>0.34</b>	0.32		<b>6.88</b>	0.32		<b>5.20</b>	0.32		<b>7.66</b>	0.32	U	0.32	0.32	U
HAPSITE	Ethylbenzene	µg/m <sup>3</sup>	0.44	0.44	U	0.44	0.44	U	<b>8.05</b>	0.44		<b>4.82</b>	0.44		<b>15.36</b>	0.44	U	0.44	0.44	U
HAPSITE	Naphthalene	µg/m <sup>3</sup>	<b>1.09</b>	0.53		0.53	0.53	U	<b>3.00</b>	0.53		<b>2.21</b>	0.53		<b>2.85</b>	0.53	U	<b>4.21</b>	0.53	
HAPSITE	Toluene	µg/m <sup>3</sup>	<b>0.53</b>	0.38		0.38	0.38	U	<b>104.56</b>	0.38		<b>61.78</b>	0.38		<b>92.75</b>	0.38	U	<b>1.67</b>	0.38	
HAPSITE	m,p-Xylenes	µg/m <sup>3</sup>	0.44	0.44	U	0.44	0.44	U	<b>25.32</b>	0.44		<b>15.95</b>	0.44		<b>48.58</b>	0.44	U	<b>0.76</b>	0.44	
HAPSITE	o-Xylene	µg/m <sup>3</sup>	0.44	0.44	U	0.44	0.44	U	<b>9.28</b>	0.44		<b>5.51</b>	0.44		<b>15.84</b>	0.44	U	0.44	0.44	U

Notes:

**Detects are bolded**

SG : subslab probe

IA : Indoor air

HP : HAPSITE Sample

OA : outdoor air

HAPSITE : HAPSITE portable gas

chromatograph/mass spectrometer

RL : reporting limit

µg/m<sup>3</sup> : micrograms per cubic meter

## Inspection Information

Select an Installation ID	5
Installation Name	Former Tronox Facility, Springfield MO
Date	2/13/18
Time	1005
Preparer(s)	B. Irish (CH2M)
Other Preparer name	B. Garcia (EWI)
Select a Building for Inspection	015
Building Address	Personally Identifiable Information (PII)
Building/Facility Name (if different than listed above)	N/A

## Contact Information

Primary Building POC Contact Name	PII
Primary Building POC Phone Number	PII
Primary Building POC email address	PII
Building POC Notes	PII

## Building Characteristics

Number of Floors Above ground	1
Number of Floors Below Ground	1
Building Length (Feet)	NA
Building Width (Feet)	NA
Building Height (Feet)	NA
Area (Square Feet)	~1,980
Volume (Cubic Feet)	NA

## General Building Description

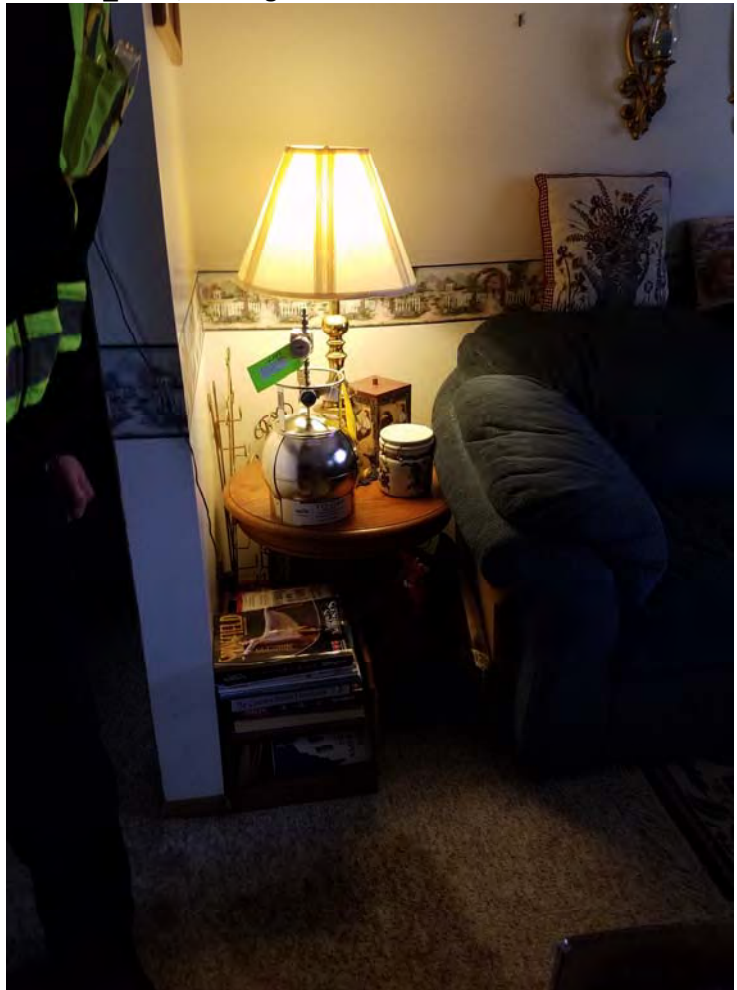
Estimated number of building occupants	5
General observations about age range and % of male to female ratio	Unknown

<p><b>Are there any sensitive receptors in the building? (elderly, children, immunocompromised, women of child bearing age, etc.)</b></p>	<p>No</p>
<p><b>Describe the sensitive receptors</b></p>	<p>NA</p>
<p><b>How long have the current occupants occupied the building?</b></p>	<p>49 years</p>
<p><b>Current Activities within Building</b></p>	<p>Residential</p>
<p><b>Other current activities within building</b></p>	<p>NA</p>
<p><b>Historical Activities within Building (if known)</b></p>	<p>Unknown</p>
<p><b>Number of Floors</b></p>	<p>2-story</p>
<p><b>Building Height Notes</b></p>	<p>Unknown</p>
<p><b>Are any pipes or utilities observed passing through exterior walls?</b></p>	<p>No</p>
<p><b>Describe the pipes/utilities observed</b></p>	<p>NA</p>
<p><b>Attach Floorplan Sketch (if available)</b></p>	

**Building Photo(s)**

Only sample photo is of the indoor air upstairs.

IAU-015\_0218, looking south-southwest.



**Notes**

None

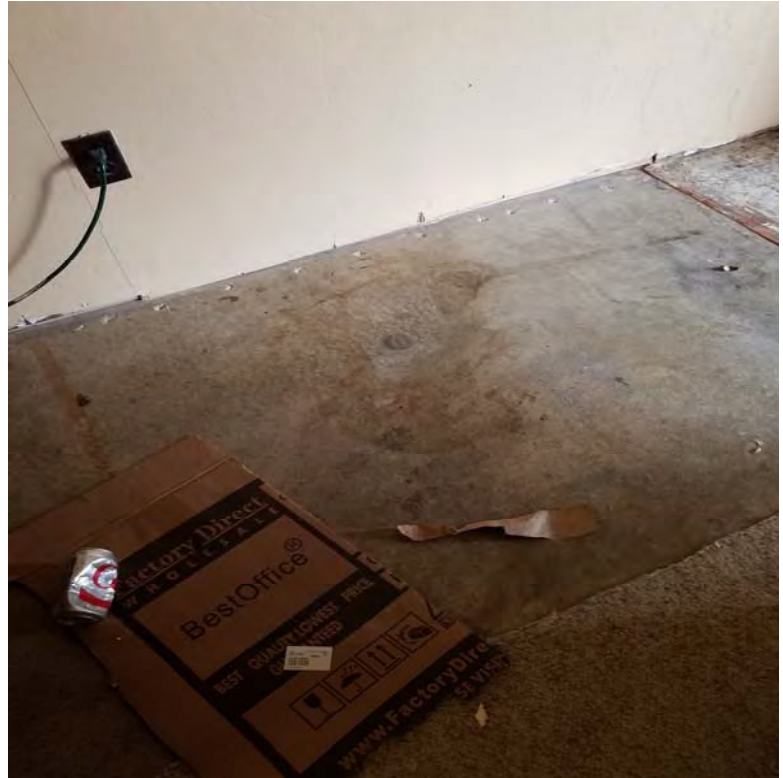
**Building Construction Details**

<b>Year Constructed</b>	1969
<b>What is the Aboveground Construction Type for the building envelope/exterior?</b>	Single family ranch
<b>Other Type of Aboveground Construction</b>	Timber frame
<b>What is the type of building foundation?</b>	Concrete
<b>Other Type of Foundation Construction</b>	NA

<b>What is the grade of the slab?</b>	Slab on grade
<b>How many feet above/below the grade is the slab?</b>	Basement with ground level garage
<b>What type of material is the foundation?</b>	Poured concrete
<b>Other Type of Foundation Materials</b>	NA
<b>Foundation Wall Materials</b>	Poured concrete
<b>Other Type of Foundation Wall Materials</b>	NA
<b>General Description of Building Construction and Materials</b>	NA
<b>Does the building have a basement and/or crawlspace?</b>	No crawlspace.
<b>Describe the basement/crawlspace</b>	Basement finished around the 1980s
<b>How many feet below grade?</b>	Unknown
<b>Approximate size in square feet</b>	Approximately 1,980 square feet
<b>Maximum ceiling height of basement/crawlspace</b>	8 feet
<b>Minimum ceiling height of basement/crawlspace</b>	7 feet
<b>Is the basement separated in to multiple rooms?</b>	Yes
<b>Describe the multiple rooms</b>	Kitchen, 2x Bedrooms, Living room, closets, and storage room
<b>Construction materials of walls</b>	Poured cement walls in basement
<b>Are significant cracks present in the walls?</b>	Yes
<b>Describe cracks in the wall</b>	The foundation is offset in the basement kitchen

## Basement Photos

Subslab probe hole patch. Basement living room.



## Potential Conduits from Soil

<b>Floor/foundation type</b>	Concrete
<b>Other Type of Floor/foundation</b>	NA
<b>Is the floor raised above the foundation?</b>	No
<b>Are expansion joints or cracks visible?</b>	Yes, cracks are visible in the floor
<b>Are expansion joints sealed?</b>	NA
<b>Are sumps or floor drains present?</b>	Yes, the sump exits the house and drains to the north. Sump in garage covered during sampling duration.
<b>Are basements or subsurface vaults present?</b>	NA
<b>Are there subsurface drainage problems?</b>	Yes, standing water occurs during heavy rainfalls in the north portion of the basement from surface runoff.
<b>Notes on potential conduits</b>	NA
<b>Photos of Potential Conduits</b>	NA




## Building Condition

<b>Is there standing water in the building (historic or current)?</b>	No current standing water, however the basement has experienced flooding during heavy rainfalls from overflow off land (not from groundwater).
<b>Is there water damage in the building (historic or current)?</b>	Unknown
<b>Is there fire damage in the building (historic or current)?</b>	No
<b>Is there a septic system?</b>	No
<b>Building Condition Notes</b>	NA
<b>Building Condition Photos</b>	None

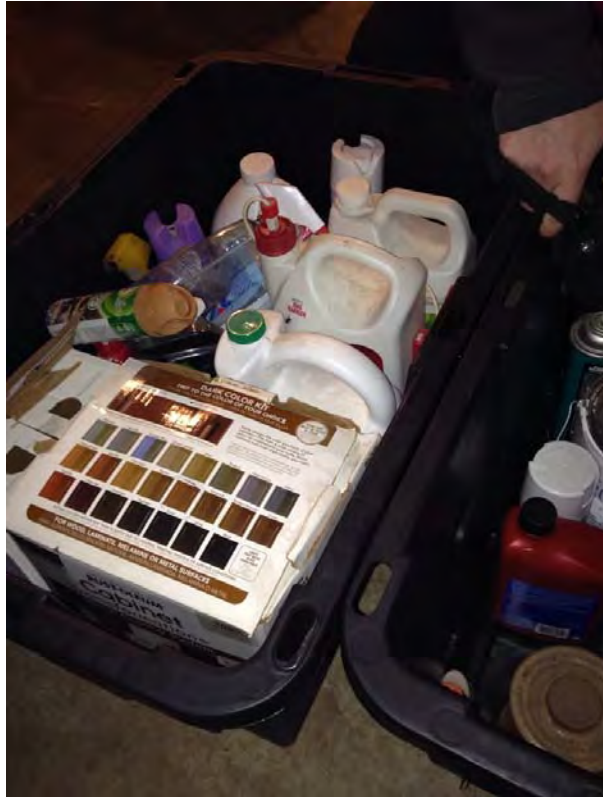
## Evaluation of Potential Existing Chemical Sources

<b>Are SSDs available for chemicals used with in the building?</b>	No
<b>List items, approximate quantities, and frequency</b>	Garage: Paint (rarely), paint strippers (rarely), metal cleaners (rarely), windshield wiper cleaner (rarely), solvents (rarely), insecticides (used 3 time/year), lamp oil.  Laundry room: carpet spot removers Bathrooms: Aerosols (rarely) Upstairs: Nail polish remover (4x per year)  Throughout house: air fresheners & scented candles (used rarely)
<b>Do any of the products stored in the building contain VOCs?</b>	Yes, see above.
<b>Are any of the target analytes used in the building?</b>	Unknown
<b>Is the usage confined to a specific room or area?</b>	NA
<b>Describe the room or area</b>	NA
<b>Are pesticides used for pest control?</b>	Yes, however it is not used often. Approx. 3x a year, by resident.
<b>Names of pesticide products used?</b>	Sevin; and a weed killer
<b>Has there been a pesticide application within the past 6 months?</b>	Yes, Summer of 2017
<b>Is smoking permitted in the building?</b>	Yes, only in basement

<b>Notes regarding chemical use</b>	NA
<b>Has there been any remodeling or construction within the past 6 months?</b>	Yes
<b>Describe past remodel</b>	Newly mudded wall texture in basement living room. House recently had carpets steamed clean.
<b>Is there a planned remodel in the near future?</b>	Minor, yes.
<b>Describe remodel plans</b>	Additional wall treatments.
<b>Does the building have an attached garage or do vehicles regularly enter the space?</b>	Yes, attached garage.
<b>Describe the garage/vehicle use</b>	One motorcycle is parked in the garage regularly.
<b>Are gas-powered equipment or cans of gasoline/fuels stored in the building or attached garage?</b>	Yes. Small engines present.
<b>Describe gas/fuels stored</b>	A few small engines in the garage. Were not full of fuel but could be some residue. No containers of fuel present.
<b>Do building occupants dry clean their clothes?</b>	No
<b>How often do they dry clean their clothes?</b>	NA
<b>Has there ever been a known chemical spill immediately outside or inside the building?</b>	No
<b>Describe known chemical spill</b>	NA
<b>Was the building screened with a ppbRAE to identify indoor VOC sources?</b>	Yes.
<b>Describe the results of the ppbRAE screening</b>	<p>The ppbRAE was used to remove household products emitting VOCs. These products were set into totes that were placed outside the residence for the duration of the air sampling.</p> <p>Kitchen, main floor 880 – 895 ppb  Living room 710 – 720 ppb  TV room, den 920 – 960 ppb  Basement living room 1100 ppb  Garage 1890 ppb  Kitchen downstairs 550 – 560 ppb</p>

	<p>Since the ppbRAE detected VOCs &gt;1,000 ppb concentration during the building survey, a HAPSITE (hazardous air pollutants on site) portable gas chromatograph/mass spectrometer was brought in to test inside the home. See attached table of HAPSITE results.</p>
<p><b>Are there stationary sources nearby (i.e. gas stations, emission stacks, hazardous waste storage, etc.)?</b></p>	<p>No</p>
<p><b>Describe the nearby stationary sources</b></p>	<p>NA</p>
<p><b>Is there heavy vehicular traffic nearby or other mobile sources?</b></p>	<p>No</p>
<p><b>Photo of potential indoor chemical sources</b></p>	<p>Products removed from home. Tote 1.</p>  <p>The photograph shows a black plastic tote filled with a variety of household chemicals. At the top, there are two paint cans, one yellow and one white. Below them are several spray cans, including a blue one and a yellow one labeled 'OFF'. There are also several bottles of cleaning products, including a red one and a white one. The chemicals are packed closely together in the tote.</p>

Products removed from home. Tote 2.



Products removed from home, Tote 3.



Products removed from home, paint buckets.



## Description of Vapor Mitigation Systems

<b>Has a radon or vapor mitigation system been installed in this building/room?</b>	No
<b>Date of installation?</b>	NA
<b>Type of system?</b>	NA
<b>Location of mitigation system</b>	NA
<b>Notes</b>	None

## Air Handling information

<b>Are there any areas of the building that are positively or negatively pressurized?</b>	No
<b>Describe the building's pressure characteristics</b>	NA
<b>Number of HVAC Zones</b>	Unknown
<b>Describe thermostat location(s)</b>	Unknown
<b>How many HVAC Zones?</b>	Unknown

<b>Type of ventilation system(s)</b>	Central air handler/blower, mechanical ceiling fans, kitchen range hood, central air conditioning
<b>Describe other type of ventilation system(s)</b>	NA
<b>Type of heating system(s)</b>	Forced air with natural gas
<b>Describe other type of heating system(s)</b>	Wood stove in basement; unused so far this year
<b>Type of fuel utilized</b>	Natural gas, wood
<b>Describe other type of fuel(s)</b>	NA
<b>Are there other sources of outdoor air?</b>	No
<b>Describe other sources of outdoor air</b>	NA
<b>Are windows/doors left open routinely?</b>	No
<b>Are there seasonal differences?</b>	Unknown
<b>Are any components of the building's heating, cooling or ventilation / circulation systems visible from the exterior?</b>	Unknown
<b>Detail Air Handling components observed</b>	NA
<b>Air Handling Photos</b>	None

*Property 016*

## Inspection Information

Select an Installation ID	5
Installation Name	Former Tronox Facility, Springfield MO
Date	2/12/18
Time	1130
Preparer(s)	B. Irish (CH2M)
Other Preparer name	S. Steinmacher (CH2M)
Select a Building for Inspection	016
Building Address	Personally Identifiable Information (PII)
Building/Facility Name (if different than listed above)	N/A

## Contact Information

Primary Building POC Contact Name	PII
Primary Building POC Phone Number	PII
Primary Building POC email address	PII
Building POC Notes	PII

## Building Characteristics

Number of Floors Above ground	1
Number of Floors Below Ground	1
Building Length (Feet)	60
Building Width (Feet)	25
Building Height (Feet)	NA
Area (Square Feet)	~2,700 sq. ft. upstairs and downstairs
Volume (Cubic Feet)	NA

## General Building Description

Estimated number of building occupants	7
General observations about age range and % of male to female ratio	Unknown



Are there any sensitive receptors in the building? (elderly, children, immunocompromised, women of child bearing age, etc.)	Yes
Describe the sensitive receptors	5 Children, ranging from ages 8 – 16 years of age
How long have the current occupants occupied the building?	17 years
Current Activities within Building	Residential
Other current activities within building	NA
Historical Activities within Building (if known)	Unknown
Number of Floors	1 floor plus basement
Building Height Notes	Unknown
Are any pipes or utilities observed passing through exterior walls?	Not observed
Describe the pipes/utilities observed	NA
Attach Floorplan Sketch (if available)	
Building Photo(s)	Photos were taken of sample locations throughout the residences.

Notes

IAU-016\_0218\_and\_MoDNR\_split\_kitchen; facing southeast



IAU-016\_0218\_and\_MoDNR\_split



IAD-016\_0218, facing southeast



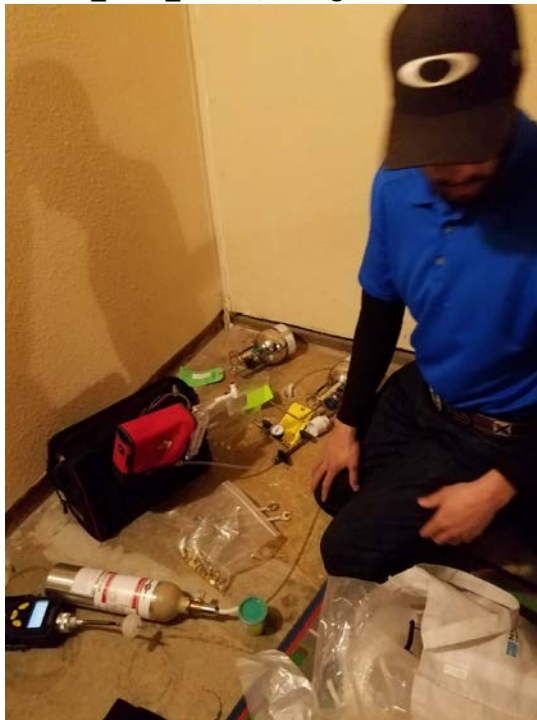
016\_Sump\_seal\_torn\_cat\_cannot-sample



016\_Sump\_closet, facing south



SU-016\_0218\_collect; facing southwest



SU-016\_0218\_patch



## Building Construction Details

<b>Year Constructed</b>	1970s
<b>What is the Aboveground Construction Type for the building envelope/exterior?</b>	Single family ranch
<b>Other Type of Aboveground Construction</b>	Timber frame, basement, slab on grade
<b>What is the type of building foundation?</b>	Concrete
<b>Other Type of Foundation Construction</b>	NA
<b>What is the grade of the slab?</b>	Slab on grade
<b>How many feet above/below the grade is the slab?</b>	Basement with ground level garage
<b>What type of materials is the foundation?</b>	Poured concrete
<b>Other Type of Foundation Materials</b>	NA
<b>Foundation Wall Materials</b>	Poured concrete
<b>Other Type of Foundation Wall Materials</b>	NA



<b>General Description of Building Construction and Materials</b>	NA
<b>Does the building have a basement and/or crawlspace?</b>	The house has a basement and a ground level garage. No crawlspace.
<b>Describe the basement/crawlspace</b>	Basement finished around the 15 years ago. A garage takes up half of the space in the basement.
<b>How many feet below grade?</b>	Approximately 5 feet below grade in front of house
<b>Approximate size in square feet</b>	Unknown
<b>Maximum ceiling height of basement/crawlspace</b>	8 feet
<b>Minimum ceiling height of basement/crawlspace</b>	Unknown
<b>Is the basement separated in to multiple rooms?</b>	Yes
<b>Describe the multiple rooms</b>	2 Bedrooms, laundry room, closets, living room, bathroom
<b>Construction materials of walls</b>	Poured cement walls in basement
<b>Are significant cracks present in the walls?</b>	Yes
<b>Describe cracks in the wall</b>	NA
<b>Basement Photos</b>	NA

## Potential Conduits from Soil

<b>Floor/foundation type</b>	Concrete
<b>Other Type of Floor/foundation</b>	NA
<b>Is the floor raised above the foundation?</b>	No
<b>Are expansion joints or cracks visible?</b>	Yes, cracks are visible in the floor
<b>Are expansion joints sealed?</b>	NA
<b>Are sumps or floor drains present?</b>	Yes, sump drains into ditch outside. Sump is dry. Sealed with plastic for sampling indoor air; cat tore it. Did not sample sump. The sump is located in a closet. The closet has one door and that door was closed during sampling. Based on discussions with the residents, the closet door is usually closed. However, an opening exists under the wall of the closet (large enough for the cat to fit through). The closet is located in the garage space, which also has a door that is typically left closed.

<b>Are basements or subsurface vaults present?</b>	No
<b>Are there subsurface drainage problems?</b>	Yes. Basement has flooding during heavy rainfalls (thought to be overflow runoff and not groundwater intrusion)
<b>Notes on potential conduits</b>	NA
<b>Photos of Potential Conduits</b>	NA

## Building Condition

<b>Is there standing water in the building (historic or current)?</b>	No current standing water, however the basement has experienced flooding during heavy rainfalls from overflow off land (not from groundwater).
<b>Is there water damage in the building (historic or current)?</b>	Unknown
<b>Is there fire damage in the building (historic or current)?</b>	No
<b>Is there a septic system?</b>	No
<b>Building Condition Notes</b>	Home is heavily used.
<b>Building Condition Photos</b>	NA

## Evaluation of Potential Existing Chemical Sources

<b>Are SSDs available for chemicals used with in the building?</b>	No
<b>List items, approximate quantities, and frequency</b>	Paint, solvent cleaners, metal cleaners, aerosols. Used rarely. Kitchen: laundry/carpet spot cleaners, aerosols. Used rarely. First floor bathroom: Nail polish remover
<b>Do any of the products stored in the building contain VOCs?</b>	Yes, see above.
<b>Are any of the target analytes used in the building?</b>	Unknown
<b>Is the usage confined to a specific room or area?</b>	NA
<b>Describe the room or area</b>	NA
<b>Are pesticides used for pest control?</b>	Yes, household pesticides are used weekly, typically.
<b>Names of pesticide products used?</b>	Unknown
<b>Has there been a pesticide application within the past 6 months?</b>	No

<b>Is smoking permitted in the building?</b>	No, except for the dedicated smoking room on the north end of the basement.
<b>Notes regarding chemical use</b>	NA
<b>Has there been any remodeling or construction within the past 6 months?</b>	No
<b>Describe past remodel</b>	NA
<b>Is there a planned remodel in the near future?</b>	Unknown
<b>Describe remodel plans</b>	NA
<b>Does the building have an attached garage or do vehicles regularly enter the space?</b>	Yes, attached garage.
<b>Describe the garage/vehicle use</b>	The garage is used to store 1 motorcycle.
<b>Are gas-powered equipment or cans of gasoline/fuels stored in the building or attached garage?</b>	Unknown.
<b>Describe gas/fuels stored</b>	NA
<b>Do building occupants dry clean their clothes?</b>	No
<b>How often do they dry clean their clothes?</b>	NA
<b>Has there ever been a known chemical spill immediately outside or inside the building?</b>	No
<b>Describe known chemical spill</b>	NA
<b>Was the building screened with a ppbRAE to identify indoor VOC sources?</b>	Yes.
<b>Describe the results of the ppbRAE screening</b>	Kitchen sink 430 ppb Under bathroom sink 490 ppb Basement 280 -290 ppb
<b>Are there stationary sources nearby (i.e. gas stations, emission stacks, hazardous waste storage, etc.)?</b>	No
<b>Describe the nearby stationary sources</b>	Clifton Drainage behind house fills when it rains. It used to fill with water and the kids would play in it on bikes and inner tubes. Smells odors during heavy rains in basement near garage.
<b>Is there heavy vehicular traffic nearby or other mobile sources?</b>	No
<b>Photo of potential indoor chemical sources</b>	NA



## Description of Vapor Mitigation Systems

<b>Has a radon or vapor mitigation system been installed in this building/room?</b>	No
<b>Date of installation?</b>	NA
<b>Type of system?</b>	NA
<b>Location of mitigation system</b>	NA
<b>Notes</b>	

## Air Handling information

<b>Are there any areas of the building that are positively or negatively pressurized?</b>	No
<b>Describe the building's pressure characteristics</b>	NA
<b>Number of HVAC Zones</b>	Unknown
<b>Describe thermostat location(s)</b>	Unknown
<b>How many HVAC Zones?</b>	Unknown
<b>Type of ventilation system(s)</b>	Central air handler/blower, mechanical ceiling fans, kitchen range hood, central air conditioning
<b>Describe other type of ventilation system(s)</b>	NA
<b>Type of heating system(s)</b>	Forced air with natural gas
<b>Describe other type of heating system(s)</b>	NA
<b>Type of fuel utilized</b>	Electric
<b>Describe other type of fuel(s)</b>	Natural gas
<b>Are there other sources of outdoor air?</b>	No
<b>Describe other sources of outdoor air</b>	NA
<b>Are windows/doors left open routinely?</b>	No
<b>Are there seasonal differences?</b>	Unknown
<b>Are any components of the building's heating, cooling or ventilation / circulation systems visible from the exterior?</b>	Unknown
<b>Detail Air Handling components observed</b>	NA
<b>Air Handling Photos</b>	None

*Property 033*

## Inspection Information

Select an Installation ID	5
Installation Name	Former Tronox Facility, Springfield MO
Date	February 12, 2018
Time	Unknown
Preparer(s)	S. Steinmacher
Other Preparer name	With notes from B. Garcia
Select a Building for Inspection	033
Building Address	Personally Identifiable Information (PII)
Building/Facility Name (if different than listed above)	NA

## Contact Information


Primary Building POC Contact Name	PII (record in appropriate location)
Primary Building POC Phone Number	PII (record in appropriate location)
Primary Building POC email address	PII (record in appropriate location)
Building POC Notes	PII (record in appropriate location)

## Building Characteristics

Number of Floors Above ground	1
Number of Floors Below Ground	1
Building Length (Feet)	Approximately 60
Building Width (Feet)	Approximately 28
Building Height (Feet)	Approximately 15
Area (Square Feet)	1,680 square feet
Volume (Cubic Feet)	Approximately 25,200 cubic feet

## General Building Description

Estimated number of building occupants	3, assumed
General observations about age range and % of male to female ratio	Adults, 2/3 male
Are there any sensitive receptors in the	Yes

<b>building? (elderly, children, immuno-compromised, women of child bearing age, etc.)</b>	
<b>Describe the sensitive receptors</b>	Elderly
<b>How long have the current occupants occupied the building?</b>	Unknown
<b>Current Activities within Building</b>	Residential
<b>Other current activities within building</b>	None aware of
<b>Historical Activities within Building (if known)</b>	Unknown, likely just residential
<b>Number of Floors</b>	See page 1
<b>Building Height Notes</b>	See page 1
<b>Are any pipes or utilities observed passing through exterior walls?</b>	Yes
<b>Describe the pipes/utilities observed</b>	Pipes through floors into crawlspace
<b>Attach Floorplan Sketch (if available)</b>	Did not enter home
<b>Building Photo(s)</b>	Crawlspace, looking northeast. 

Crawlspace, looking southeast. Far side vent is uncovered.



CS-033\_0218 before closing crawlspace entry.



## Building Construction Details

**Year Constructed**

Unknown

**What is the Aboveground Construction Type for the building envelope/exterior?**

Wood frame, vinyl siding

<b>Other Type of Aboveground Construction</b>	Patio behind house
<b>What is the type of building foundation?</b>	Crawlspace
<b>Other Type of Foundation Construction</b>	Wood floor above crawl space, to interior of home
<b>What is the grade of the slab?</b>	On grade
<b>How many feet above/below the grade is the slab?</b>	Zero
<b>What type of materials is the foundation?</b>	Unlined dirt crawlspace. Concrete foundation.
<b>Other Type of Foundation Materials</b>	NA
<b>Foundation Wall Materials</b>	Cinder blocks
<b>Other Type of Foundation Wall Materials</b>	NA
<b>General Description of Building Construction and Materials</b>	Vinyl siding
<b>Does the building have a basement and/or crawlspace?</b>	Crawlspace, but no basement.
<b>Describe the basement/crawlspace</b>	Crawlspace is approximately 2 - 4 feet in height and sits below entire house. Garage is on poured concrete slab to south.
<b>How many feet below grade?</b>	NA
<b>Approximate size in square feet</b>	1,346 square feet
<b>Maximum ceiling height of basement/crawlspace</b>	4 feet
<b>Minimum ceiling height of basement/crawlspace</b>	2 feet
<b>Is the basement separated in to multiple rooms?</b>	NA
<b>Describe the multiple rooms</b>	NA
<b>Construction materials of walls</b>	NA
<b>Are significant cracks present in the walls?</b>	Unknown
<b>Describe cracks in the wall</b>	NA
<b>Basement Photos</b>	See photos of crawlspace above.

## Potential Conduits from Soil

<b>Floor/foundation type</b>	Dirt
<b>Other Type of Floor/foundation</b>	Concrete slab.
<b>Is the floor raised above the foundation?</b>	No
<b>Are expansion joints or cracks visible?</b>	Unknown
<b>Are expansion joints sealed?</b>	Unknown
<b>Are sumps or floor drains present?</b>	No
<b>Are basements or subsurface vaults present?</b>	No
<b>Are there subsurface drainage problems?</b>	No
<b>Notes on potential conduits</b>	NA
<b>Photos of Potential Conduits</b>	

## Building Condition

<b>Is there standing water in the building (historic or current)?</b>	No
<b>Is there water damage in the building (historic or current)?</b>	Unknown
<b>Is there fire damage in the building (historic or current)?</b>	Unknown
<b>Is there a septic system?</b>	No
<b>Building Condition Notes</b>	Good, of what we can see
<b>Building Condition Photos</b>	

## Evaluation of Potential Existing Chemical Sources

<b>Are SSDs available for chemicals used with in the building?</b>	No
<b>List items, approximate quantities, and frequency</b>	NA
<b>Do any of the products stored in the building contain VOCs?</b>	Unknown
<b>Are any of the target analytes used in the building?</b>	Unknown

<b>Is the usage confined to a specific room or area?</b>	Unknown
<b>Describe the room or area</b>	NA
<b>Are pesticides used for pest control?</b>	Unknown
<b>Names of pesticide products used?</b>	Unknown
<b>Has there been a pesticide application within the past 6 months?</b>	Unknown
<b>Is smoking permitted in the building?</b>	Unknown
<b>Notes regarding chemical use</b>	Resident did not want to remove products
<b>Has there been any remodeling or construction within the past 6 months?</b>	Unknown
<b>Describe past remodel</b>	Unknown
<b>Is there a planned remodel in the near future?</b>	Unknown
<b>Describe remodel plans</b>	NA
<b>Does the building have an attached garage or do vehicles regularly enter the space?</b>	Yes
<b>Describe the garage/vehicle use</b>	Unknown
<b>Are gas-powered equipment or cans of gasoline/fuels stored in the building or attached garage?</b>	Unknown
<b>Describe gas/fuels stored</b>	NA
<b>Do building occupants dry clean their clothes?</b>	Unknown
<b>How often do they dry clean their clothes?</b>	Unknown
<b>Has there ever been a known chemical spill immediately outside or inside the building?</b>	Unknown
<b>Describe known chemical spill</b>	NA
<b>Was the building screened with a ppbRAE to identify indoor VOC sources?</b>	No
<b>Describe the results of the ppbRAE</b>	NA



<b>screening</b>	
<b>Are there stationary sources nearby (i.e. gas stations, emission stacks, hazardous waste storage, etc.)?</b>	Unknown
<b>Describe the nearby stationary sources</b>	NA
<b>Is there heavy vehicular traffic nearby or other mobile sources?</b>	No
<b>Photo of potential indoor chemical sources</b>	NA

## Description of Vapor Mitigation Systems

<b>Has a radon or vapor mitigation system been installed in this building/room?</b>	No
<b>Date of installation?</b>	NA
<b>Type of system?</b>	NA
<b>Location of mitigation system</b>	NA
<b>Notes</b>	None

## Air Handling information

<b>Are there any areas of the building that are positively or negatively pressurized?</b>	Unknown
<b>Describe the building's pressure characteristics</b>	Unknown
<b>Number of HVAC Zones</b>	Unknown
<b>Describe thermostat location(s)</b>	Unknown
<b>How many HVAC Zones?</b>	Unknown
<b>Type of ventilation system(s)</b>	Unknown
<b>Describe other type of ventilation system(s)</b>	Unknown
<b>Type of heating system(s)</b>	Unknown
<b>Describe other type of heating system(s)</b>	Unknown
<b>Type of fuel utilized</b>	Unknown
<b>Describe other type of fuel(s)</b>	Unknown

<b>Are there other sources of outdoor air?</b>	Unknown
<b>Describe other sources of outdoor air</b>	Unknown
<b>Are windows/doors left open routinely?</b>	Unknown
<b>Are there seasonal differences?</b>	Unknown Unknown
<b>Are any components of the building's heating, cooling or ventilation / circulation systems visible from the exterior?</b>	Unknown
<b>Detail Air Handling components observed</b>	NA
<b>Air Handling Photos</b>	Attach photos.

*Property 044A*

## Inspection Info

Select an Installation ID	5
Installation Name	Former Tronox Facility, Springfield MO
Date	2/12/18
Time	1405
Preparer(s)	B. Irish (CH2M)
Other Preparer name	S. Steinmacher
Select a Building for Inspection	044A
Building Address	Personally Identifiable Information (PII)
Building/Facility Name (if different than listed above)	N/A

## Contact Info

Primary Building POC Contact Name	PII
Primary Building POC Phone Number	PII
Primary Building POC email address	PII
Building POC Notes	PII

## Building Characteristics

Number of Floors Above ground	1
Number of Floors Below Ground	0
Building Length (Feet)	NA
Building Width (Feet)	NA
Building Height (Feet)	NA
Area (Square Feet)	~800
Volume (Cubic Feet)	NA

## General Building Description

Estimated number of building occupants	2
General observations about age range and % of male to female ratio	Under 30 years of age; 50% male and female
Are there any sensitive receptors in the	Yes

building? (elderly, children, immuno-compromised, women of child bearing age, etc.)	
Describe the sensitive receptors	Child bearing age female
How long have the current occupants occupied the building?	06/2016
Current Activities within Building	Residential
Other current activities within building	NA
Historical Activities within Building (if known)	Unknown
Number of Floors	1-story
Building Height Notes	Unknown
Are any pipes or utilities observed passing through exterior walls?	Unknown
Describe the pipes/utilities observed	Unknown
Attach Floorplan Sketch (if available)	
Building Photo(s)	NA
Notes	

## Building Construction Details

Year Constructed	1940s
What is the Aboveground Construction Type for the building envelope/exterior?	Duplex (A)
Other Type of Aboveground Construction	Timber frame
What is the type of building	Crawlspace

<b>foundation?</b>	
<b>Other Type of Foundation Construction</b>	NA
<b>What is the grade of the slab?</b>	Slab on grade
<b>How many feet above/below the grade is the slab?</b>	NA
<b>What type of materials is the foundation?</b>	Crawlspace over soil.
<b>Other Type of Foundation Materials</b>	NA
<b>Foundation Wall Materials</b>	Poured concrete
<b>Other Type of Foundation Wall Materials</b>	NA
<b>General Description of Building Construction and Materials</b>	NA
<b>Does the building have a basement and/or crawlspace?</b>	Yes, crawlspace. No basement. Crawlspace connects with 44B
<b>Describe the basement/crawlspace</b>	Garage lowest level; down 3-4 steps to grade.
<b>How many feet below grade?</b>	NA
<b>Approximate size in square feet</b>	Approximately 800 square feet
<b>Maximum ceiling height of basement/crawlspace</b>	Unknown
<b>Minimum ceiling height of basement/crawlspace</b>	Unknown
<b>Is the basement separated in to multiple rooms?</b>	NA
<b>Describe the multiple rooms</b>	NA
<b>Construction materials of walls</b>	Poured cement
<b>Are significant cracks present in the walls?</b>	No
<b>Describe cracks in the wall</b>	NA
<b>Basement Photos</b>	NA

## Potential Conduits from Soil

<b>Floor/foundation type</b>	Crawlspace over soil.
<b>Other Type of Floor/foundation</b>	NA
<b>Is the floor raised above the foundation?</b>	No
<b>Are expansion joints or cracks visible?</b>	No
<b>Are expansion joints sealed?</b>	NA
<b>Are sumps or floor drains present?</b>	No
<b>Are basements or subsurface vaults present?</b>	NA
<b>Are there subsurface drainage problems?</b>	No
<b>Notes on potential conduits</b>	NA
<b>Photos of Potential Conduits</b>	NA

## Building Condition

<b>Is there standing water in the building (historic or current)?</b>	No
<b>Is there water damage in the building (historic or current)?</b>	Unknown
<b>Is there fire damage in the building (historic or current)?</b>	No
<b>Is there a septic system?</b>	No
<b>Building Condition Notes</b>	NA
<b>Building Condition Photos</b>	None

## Evaluation of Potential Existing Chemical Sources

<b>Are SSDs available for chemicals used with in the building?</b>	No
<b>List items, approximate quantities, and frequency</b>	Garage: Paint (rarely) Laundry room: carpet spot removers Bathroom: Aerosols (rarely), Nail polish remover (monthly), aerosols Throughout house: air fresheners & scented candles (used rarely)
<b>Do any of the products stored in the</b>	Yes, see above.

<b>building contain VOCs?</b>	
<b>Are any of the target analytes used in the building?</b>	Unknown
<b>Is the usage confined to a specific room or area?</b>	NA
<b>Describe the room or area</b>	NA
<b>Are pesticides used for pest control?</b>	No
<b>Names of pesticide products used?</b>	Unknown
<b>Has there been a pesticide application within the past 6 months?</b>	No
<b>Is smoking permitted in the building?</b>	No
<b>Notes regarding chemical use</b>	NA
<b>Has there been any remodeling or construction within the past 6 months?</b>	Yes
<b>Describe past remodel</b>	NA
<b>Is there a planned remodel in the near future?</b>	Unknown
<b>Describe remodel plans</b>	NA
<b>Does the building have an attached garage or do vehicles regularly enter the space?</b>	Yes, attached garage.
<b>Describe the garage/vehicle use</b>	Unknown
<b>Are gas-powered equipment or cans of gasoline/fuels stored in the building or attached garage?</b>	Unknown
<b>Describe gas/fuels stored</b>	NA
<b>Do building occupants dry clean their clothes?</b>	No
<b>How often do they dry clean their clothes?</b>	NA
<b>Has there ever been a known chemical spill immediately outside or inside the building?</b>	No
<b>Describe known chemical spill</b>	NA
<b>Was the building screened with a</b>	No



<b>ppbRAE to identify indoor VOC sources?</b>	
<b>Describe the results of the ppbRAE screening</b>	NA
<b>Are there stationary sources nearby (i.e. gas stations, emission stacks, hazardous waste storage, etc.)?</b>	No
<b>Describe the nearby stationary sources</b>	NA
<b>Is there heavy vehicular traffic nearby or other mobile sources?</b>	Moderate traffic on High St and Clifton Ave
<b>Photo of potential indoor chemical sources</b>	NA

## Description of Vapor Mitigation Systems

<b>Has a radon or vapor mitigation system been installed in this building/room?</b>	No
<b>Date of installation?</b>	NA
<b>Type of system?</b>	NA
<b>Location of mitigation system</b>	NA
<b>Notes</b>	NA

## Air Handling information

<b>Are there any areas of the building that are positively or negatively pressurized?</b>	No
<b>Describe the building's pressure characteristics</b>	NA
<b>Number of HVAC Zones</b>	Unknown
<b>Describe thermostat location(s)</b>	Unknown
<b>How many HVAC Zones?</b>	Unknown
<b>Type of ventilation system(s)</b>	Central air handler/blower, mechanical ceiling fans, kitchen range hood, central air conditioning, bathroom ventilation fans
<b>Describe other type of ventilation system(s)</b>	NA
<b>Type of heating system(s)</b>	Forced air
<b>Describe other type of heating system(s)</b>	

<b>Type of fuel utilized</b>	Electric
<b>Describe other type of fuel(s)</b>	NA
<b>Are there other sources of outdoor air?</b>	No
<b>Describe other sources of outdoor air</b>	NA
<b>Are windows/doors left open routinely?</b>	No
<b>Are there seasonal differences?</b>	Unknown
<b>Are any components of the building's heating, cooling or ventilation / circulation systems visible from the exterior?</b>	Unknown
<b>Detail Air Handling components observed</b>	NA
<b>Air Handling Photos</b>	NA

Attachment 2  
Data Quality Evaluation and  
Laboratory Analytical Reports

# *Data Quality Evaluation*

# Data Quality Evaluation, February 2018 Heating Season Sampling Event, Former Tronox Facility, Springfield, Missouri

PREPARED FOR: Former Tronox/Kerr Mcgee Facility, Springfield, MO  
PREPARED BY: Tiffany Davis/CH2M Mark Stinnett/CH2M  
DATE: April 2018

The results of the data quality review for the February 2018 indoor air and outdoor air heating-season sampling event indicate the analytical systems were in control and all data results can be used in the decision-making process. The following sections provide a full description of the data quality review and associated findings.

## Introduction

This memorandum presents the results of the data validation process for the samples collected for the Former Tronox/Kerry McGee Facility located in Springfield, Missouri. The samples were collected in February 2018. The quality control (QC) areas that were reviewed and the resulting findings are documented within each subsection that follows. These data were validated for compliance with the analytical method requirements. This process also included a review of these data to assess the precision, accuracy, representativeness, completeness, and comparability (PARCC) based upon procedures described in the U.S. Environmental Protection Agency (EPA) guidance document, *National Functional Guidelines for Organic Superfund Data Review* (EPA, 2017) and *National Functional Guidelines for Inorganic Superfund Methods Data Review* (EPA, 2017). Quality assurance (QA)/quality control (QC) summary forms and data reports were reviewed.

Field samples along with their associated QC were submitted to Eurofins AirToxics in Folsom, California, for project-selected analytical fractions.

## Data Qualification

The analytical systems were in control and no data was qualified during evaluation.

## Analytical Method and Sample Reference

A description of each sample (sample identification, analytical fractions, sample type, and other information) is in Table 1.

**Table 1. Sample Reference**

SDG	NativeID	Method	Matrix	QA/QC Type
1802327A	IAU-016_0218	TO-15 SIM	Air	N
1802327A	IAD-016_0218	TO-15 SIM	Air	N
1802327A	OA-016_0218	TO-15 SIM	Air	N
1802327A	IAD-015_0218	TO-15 SIM	Air	N
1802327A	IAU-015_0218	TO-15 SIM	Air	N
1802327A	OA-015_0218	TO-15 SIM	Air	N
1802327A	OA-033_0218	TO-15 SIM	Air	N
1802327A	CS-033_0218	TO-15 SIM	Air	N
1802327A	IA-044A_0218	TO-15 SIM	Air	N
1802327A	OA-044A_0218	TO-15 SIM	Air	N
1802327A	CS-044A_0218	TO-15 SIM	Air	N
1802327B	SH-F_0218	TO-15	Air	N
1802327B	SH-E_0218	TO-15	Air	N
1802327B	SH-D_0218	TO-15	Air	N
1802327B	SH-B_0218	TO-15	Air	N
1802327B	SH-C_0218	TO-15	Air	N
1802327B	SH-G_0218	TO-15	Air	FD
1802327C	SU-016_0218	TO-15	Air	N
1802327C	SU-015_0218	TO-15	Air	N
1802327C	SU-044A_0218	TO-15	Air	N
1802327D	SU-016_0218	ASTM_D1946	Air	N
1802327D	SU-015_0218	ASTM_D1946	Air	N
1802327D	SU-044A_0218	ASTM_D1946	Air	N
1802368A	OA-014_0218	TO-15 SIM	Air	N
1802368A	IAU-014_0218	TO-15 SIM	Air	N
1802368A	IAU-114_0218	TO-15 SIM	Air	FD
1802368A	IAD-014_0218	TO-15 SIM	Air	N
1802368BR1	SU-014_0218	TO-15	Air	N
1802368BR1	SU-114_0218	TO-15	Air	FD
1802368C	SU-014_0218	ASTM_D1946	Air	N
1802368C	SU-114_0218	ASTM_D1946	Air	FD

FD = field duplicate

SDG = sample delivery group

## Analytical Review

The analytical review of the cold weather samples found that four “SH” samples (SH-F\_0218, SH-D\_0218, SH-C\_0218, and SH-G\_0218) had three non-target target compounds present in their sample media at high concentration levels. These compounds were present in all “SH” samples. The concentration of these compounds compelled the laboratory to analyze the samples at a dilution to compensate for the chromatographic interference posed by their presence. Likewise, four “SU” samples (SU-015\_0218, SU-044A\_0218, SU-014\_0218, and SU-114\_0218) had a similar condition with the presence of non-target compounds at higher concentrations in their sample media. The non-target

compounds were different from the those found in the “SH” set but had the same effect of the laboratory analyzing them at a dilution. The ancillary effect of the analytical dilutions raised the laboratory reporting limit per sample above the associated regulatory drivers.

## Quality Control Review

The QC review included an evaluation of the analytical data relative to QA/QC measures, as well as the PARCC of the analytical data.

## Quality Assurance/Quality Control Measures

The following list represents the QA/QC measures that were reviewed during the data quality evaluation.

- **Holding Times** – The holding times were evaluated to verify that samples were extracted and analyzed within the method required holding times.
- **Blank samples** – Method blanks were prepared and analyzed by the laboratory. Field blank, equipment blank, and trip blank samples were provided for this project. Blank samples enable the reviewer to determine if an analyte may be attributed to sampling or laboratory procedures, rather than environmental contamination from site activities.
- **Surrogate Recoveries** – Surrogate compounds were added to each sample, and the recoveries were used to monitor laboratory performance and possible matrix interference.
- **Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)** – These samples are a “controlled matrix,” laboratory reagent water, in which target compounds have been added prior to extraction/analysis. The recoveries served as a monitor of the overall performance of each step during the analysis, including sample preparation. Precision information also was determined by calculating the reproducibility, as relative percent difference (RPD), between the recoveries of each spiked parameter.
- **Matrix Spike (MS)/Matrix Spike Duplicate (MSD) Samples** – Spike recoveries were used to evaluate potential matrix interferences, as well as accuracy. Precision information also was determined by calculating the reproducibility, as RPD, between the recoveries of each spiked parameter.
- **Field Duplicate (FD) Samples** – These samples were collected to determine precision between a native and FD. The precision may only be determined when the target compound is detected and the acceptance criteria is based on the determined concentrations. If the results for the native and FD are less than five times the laboratory reporting limit concentration, the difference between the concentrations of the native and FD sample must be less than the value of the reporting limit. Otherwise, the two results must agree to within 20% RPD to meet acceptance criteria.
- **Gas Chromatography/Mass Spectrometry (GC/MS) Tuning** – The mass spectrum of the tuning compound was evaluated for method compliance based on the established criteria in the analytical method to verify the proper mass assignment and mass resolution.
- **Initial Calibration** – The initial calibration ensures the instrument is capable of producing acceptable qualitative and quantitative data for the compounds of interest.
- **Continuing Calibration** – The continuing calibration checks satisfactory performance of the instrument and its predicted response to the target compounds.
- **Internal Standards** – The internal standards were used in quantitation of the target parameters and monitor the instrument sensitivity and response for stability during each analysis.

The evaluation of the analytical data reports for each SDG found that the QA/QC measures were within acceptable control limits for all the sample results with the exceptions described below:

### Blanks

Naphthalene, toluene, and o-xylene were detected in the method blank for SDG 1802327B.

Affected data and the assigned qualifiers are summarized in Attachment 2.

### Precision, Accuracy, Representativeness, Completeness, and Comparability

In addition to reviewing the QA/QC measures described above, the data quality evaluation also addressed the PARCC of the analytical data, as defined below.

- **Precision**—Measure of agreement between duplicate results, as estimated by comparing LCSD and MSD recoveries and FD sample results. If the agreement between the native and FD, the MS and MSD sample, and LCS and LCSD results for the analyses are within acceptable criteria, this is a satisfactory indication that the sample matrix did not interfere with the overall analytical process. All analyses are within precision criteria.
- **Accuracy**—Measure of the agreement between an experimental determination and the true value of the parameter. Each of the samples was spiked with a surrogate compound with a known concentration before preparation. The surrogate and MS/MSD data provide a measure of the matrix effects that may affect accuracy and precision of the analytical method. The LCS results demonstrate accuracy of the method. All analyses are within precision criteria.
- **Representativeness**—Qualitative measure of the degree to which sample data accurately and precisely represent a characteristic environmental condition. Representativeness is a subjective parameter used to evaluate the efficacy of the sampling plan design. Representativeness can be demonstrated by providing full descriptions in the project scoping documents of the sampling techniques and the rationale used for selecting sampling locations. Representativeness was deemed acceptable.
- **Completeness**—Percentage of measurements that are judged to be valid compared to the total number of measurements made. All data was deemed to be valid.
- **Comparability**—Qualitative measure designed to express the confidence with which one data set may be compared to another. Factors that affect comparability are sample collection and handling techniques, sample matrix type, and analytical method. Comparability is limited by the other PARCC parameters because data sets can be compared with confidence only when precision and accuracy are known. However, comparability can also be established if the current data set is comparable with other previously collected data at the site due to the laboratory's use of EPA or appropriate methods to analyze the samples, as supported by the results of the laboratory's analytical reports. Comparability of the data set was deemed acceptable.

The evaluation of the analytical data reports for PARCC measures indicated that the overall data set was acceptable.

## Conclusion

An overall evaluation of the data for the February 2018 indoor air and outdoor air heating-season sampling event indicated that the analytical systems were generally in control. The exceptions in the method blank resulted in the qualification of 11 data points as described in the above sections. All data, as qualified, are considered usable for the decision-making process.



Attachment 1  
Secondary Data Qualifier Codes

Attachment 1. Secondary Data Qualifier, or Validation Reason, Codes

Secondary Data Qualifier	Description
2SH	Second source calibration verification standard greater than the upper control limit
2SL	Second source calibration verification standard less than the lower control limit
ABH	Ambient blank concentration greater than the RL
ABL	Ambient blank concentration less than the RL
BKD	The result is qualified because the DDT and/or Endrin breakdown was greater than 20%
CBKD	The result is qualified because the combined DDT/Endrin breakdown is greater than 30%
CCBH	Continuing calibration blank concentration greater than the RL
CCBL	Continuing calibration blank concentration less than RL
CCC	CCC failure
CCRRF	Continuing calibration relative response factor below the LCL
CCVF	Continuing calibration not analyzed at the required frequency
CCVH	Continuing calibration recovery greater than upper control limit
CCVL	Continuing calibration recovery less than lower control limit
CF	Confirmation result
CFP	Confirmation precision exceeded
CO	Compounds were reported combined on one column
DL	Secondary dilution
EBH	Equipment blank concentration greater than the RL
EBL	Equipment blank concentration less than the RL
EMPC	Estimated maximum possible concentration reported
FBH	Field blank concentration greater than the RL
FBL	Field blank concentration less than the RL
FD	Field duplicate exceeds RPD criteria
GPC	The results are qualified due to GPC calibration deficiencies
HTA	Analytical holding time exceeded
HTP	Preparation holding time exceeded
IB	Result between the MDL and RL
ICBH	Initial calibration blank concentration greater than the RL
ICBL	Initial calibration blank concentration less than RL
ICR2	Initial calibration exceeded the R2 for first order regression
ICRR	Exceeds RSD criteria and initial calibration exceeded the R2 for first order regression

Attachment 1. Secondary Data Qualifier, or Validation Reason, Codes

Secondary Data Qualifier	Description
ICRRF	Initial calibration relative response factor below the LCL
ICRSD	Initial calibration RSD exceeded
ICSH	Interference present and %recovery is greater than upper control limit
ICSL	Interference present and %recovery is less than lower control limit
ICSP	Single point initial calibrations used for quantitation
ICVH	Initial calibration recovery exceeds the upper control limit
ICVL	Initial calibration recovery exceeds the lower control limit
ICVSH	Initial calibration verification recovery greater than upper control limit
ICVSL	Initial calibration verification recovery less than lower control limit
ISH	Internal standard response exceeded the UCL criteria
ISL	Internal standard response exceeded the LCL criteria
LBH	Laboratory blank contamination greater than the RL
LBL	Laboratory blank contamination less than the RL
LCSDH	LCSD recovery greater than criteria
LCS DL	LCSD recovery less than the criteria
LCSH	LCS recovery greater than criteria
LCSL	LCS recovery less than the criteria
LCSP	LCS/LCSD RPD criteria exceeded
LDP	Laboratory duplicate precision out
LR	Linear range exceeded; concentration above linear range
MSA	Quantitated by the method of standard additions
MSALL	Global matrix spike flagging
MSAR2	method of standard additions R2 out
MSDH	Matrix spike duplicate recovery criteria greater than the upper limit
MSDL	Matrix spike duplicate recovery criteria less than the lower limit
MSDP	Matrix spike duplicate RPD criteria exceedance
MSH	Matrix spike recovery criteria greater than the upper limit
MSL	Matrix spike recovery criteria less than the lower limit
NMS	Not site-specific matrix spike
PH	Sample pH out; not properly preserved
PRM	Result differs from preliminary result

Attachment 1. Secondary Data Qualifier, or Validation Reason, Codes

Secondary Data Qualifier	Description
PSH	Post-spike recovery criteria greater than the upper limit
PSL	Post-spike recovery criteria less than the lower limit
RA	Sample was reanalyzed
RE	Sample was re-extracted and reanalyzed
RT	Result is outside the laboratory determined retention time window
SCRN	Screening method and/or data
SDIL	Serial dilution %D exceeds the upper control limit
SPCC	SPCC failure
SSH	Surrogate recovery greater than upper limit
SSL	Surrogate recovery less than lower limit
SSR	Surrogate spike recovery <10%
TBH	Trip blank concentration greater than the RL
TBL	Trip blank concentration less than the RL
TD	Total concentration < dissolved concentration
TEMP	Cooler temperature out upon arrival
TIC	Tentatively identified compound
TN	GC/MS tune does not meet criteria
XCC	No continuing calibration analyzed in the analytical batch
X-DL	Data not used due to dilution; another value is more appropriate or data was not requested
XIC	No initial calibration analyzed in the analytical batch
XICVS	Initial calibration verification standard was not analyzed
XLCS	No LCS in the analytical batch
XLD	Laboratory duplicate not reported
XMS	Matrix spike not reported
XMSD	Matrix spike duplicate not reported
X-RE	Data not used due to reanalysis, another value is more appropriate, or data were not requested
XICS	No interference check standard in analytical batch
XSDIL	No serial dilution in the analytical batch

Attachment 2  
Assigned Qualifier

Attachment 2. Assigned Qualifiers

Parameter Class	SDG	Lab Sample ID	Sample ID	Sample Type	Analytical Method	Parameter	Lab Result	Lab Qual	Final Result	Primary Qualifier	Units	Secondary Qualifier
VOC	1802327B	1802327B-14A	SH-B_0218	N	TO-15	Naphthalene	0.23	J	0.71	U	µg/m <sup>3</sup>	LBL
VOC	1802327B	1802327B-16A	SH-G_0218	N	TO-15	Naphthalene	1.2	J	4.3	U	µg/m <sup>3</sup>	LBL
VOC	1802327B	1802327B-10A	SH-F_0218	N	TO-15	O-Xylene	2.6	J	2.9	U	µg/m <sup>3</sup>	LBL
VOC	1802327B	1802327B-12A	SH-E_0218	N	TO-15	O-Xylene	4	J	5.3	U	µg/m <sup>3</sup>	LBL
VOC	1802327B	1802327B-13A	SH-D_0218	N	TO-15	O-Xylene	3.4	J	7	U	µg/m <sup>3</sup>	LBL
VOC	1802327B	1802327B-10A	SH-F_0218	N	TO-15	Toluene	2.3	J	2.5	U	µg/m <sup>3</sup>	LBL
VOC	1802327B	1802327B-12A	SH-E_0218	N	TO-15	Toluene	3.6	J	4.6	U	µg/m <sup>3</sup>	LBL
VOC	1802327B	1802327B-13A	SH-D_0218	N	TO-15	Toluene	3.3	J	6.1	U	µg/m <sup>3</sup>	LBL
VOC	1802327B	1802327B-14A	SH-B_0218	N	TO-15	Toluene	1.1	J	1.3	U	µg/m <sup>3</sup>	LBL
VOC	1802327B	1802327B-15A	SH-C_0218	N	TO-15	Toluene	2.3	J	8.2	U	µg/m <sup>3</sup>	LBL
VOC	1802327B	1802327B-16A	SH-G_0218	N	TO-15	Toluene	2.2	J	7.8	U	µg/m <sup>3</sup>	LBL

# Data Quality Evaluation, March 2018 Heating Season Sampling Event, Property 019 Samples, Former Tronox Facility, Springfield, Missouri

PREPARED FOR: Former Tronox Facility  
PREPARED BY: Tiffany Davis/CH2M  
Mark Stinnett/CH2M  
DATE: April 13, 2018

The results of the data quality review for the March 2018 indoor air and outdoor air (heating-season) sampling event indicate that the analytical systems were in control and all data results can be used in the decision-making process. The following sections provide a full description of the data quality review and associated findings.

## Introduction

This memorandum presents the results of the data validation process for the samples collected at Property 019 located near the Former Tronox Facility located in Springfield, Missouri. The samples were collected in March 2018.

The quality control (QC) areas that were reviewed and the resulting findings are documented within each subsection that follows. These data were validated for compliance with the analytical method requirements. This process also included a review of these data to assess the precision, accuracy, representativeness, completeness, and comparability (PARCC) based upon procedures described in the U.S. Environmental Protection Agency (USEPA) guidance document, *National Functional Guidelines for Organic Superfund Data Review (EPA 2017) and National Functional Guidelines for Inorganic Superfund Methods Data Review (EPA 2017)*. Quality assurance/quality control (QA/QC) summary forms and data reports were reviewed.

Field samples along with their associated QC were submitted to Eurofins AirToxics located in Folsom, California, for project-selected analytical fractions.

## Data Qualification

The analytical systems were in control and no data was qualified during evaluation.

## Analytical Method and Sample Reference

A complete description of each sample (sample identification, analytical fractions, sample type, and other information) is found in **Table 1**.

Table 1. Sample Reference

SDG	NativeID	Method	Matrix	QAQC Type
1803448	IA-019_0318	TO-15 SIM	Air	N
1803448	IA-119_0318	TO-15 SIM	Air	FD
1803448	OA-019_0318	TO-15 SIM	Air	N
1803448	CS-019_0318	TO-15 SIM	Air	N

Table 1. Sample Reference

SDG	NativeID	Method	Matrix	QAQC Type
1803448	IAG-019-0318	TO-15 SIM	Air	N
1803448	OA-SF_0318	TO-15 SIM	Air	N

## Analytical Review

The analytical review of the samples found that “IA” samples (IA-019\_0318 and IA-119\_0318) had non-target compound(s) at high concentration levels present in their sample media. The concentration of these compounds compelled the laboratory to analyze these two samples at a dilution to compensate for possible chromatographic interference to the project defined target list.

## Quality Control Review

The quality control review includes an evaluation of the analytical data relative to quality assurance/quality control measures, as well as the PARCC of the analytical data.

## Quality Assurance/Quality Control Measures

The following list represents the QA/QC measures that were reviewed during the data quality evaluation.

- **Holding Times** – The holding times are evaluated to verify that samples were extracted and analyzed within the method required holding times.
- **Blank samples** – Method blanks are prepared and analyzed by the laboratory. Field blank, equipment blank, and trip blank samples were provided for this project. Blank samples enable the reviewer to determine if an analyte may be attributed to sampling or laboratory procedures, rather than environmental contamination from site activities.
- **Surrogate Recoveries** – Surrogate Compounds are added to each sample and the recoveries are used to monitor lab performance and possible matrix interference.
- **Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)** – These samples are a “controlled matrix,” laboratory reagent water, in which target compounds have been added prior to extraction/analysis. The recoveries serve as a monitor of the overall performance of each step during the analysis, including sample preparation. Precision information is also determined by calculating the reproducibility, as relative percent difference (RPD), between the recoveries of each spiked parameter.
- **Field Duplicate (FD) Samples** – These samples are collected to determine precision between a native and field duplicate. The precision may only be determined when the target compound is detected and the acceptance criteria is based on the determined concentrations. If the results for the native and field duplicate are less than five times the laboratory reporting limit concentration the difference between the concentrations of the native and field duplicate sample must be less than the value of the reporting limit. Otherwise, the two results must agree to within 20 percent RPD to meet acceptance criteria.
- **Gas Chromatography/Mass Spectrometry (GC/MS) Tuning** – The mass spectrum of the tuning compound is evaluated for method compliance based on the established criteria in the analytical method to verify the proper mass assignment and mass resolution.
- **Initial Calibration** – The initial calibration ensures that the instrument is capable of producing acceptable qualitative and quantitative data for the compounds of interest.



- **Continuing Calibration** – The continuing calibration checks satisfactory performance of the instrument and its predicted response to the target compounds.
- **Internal Standards** – The internal standards are used in quantitation of the target parameters and monitor the instrument sensitivity and response for stability during each analysis.

The evaluation of the analytical data report found that the QA/QC measures were within acceptable control limits for all the sample results.

## Precision, Accuracy, Representativeness, Completeness, and Comparability

In addition to the review of the QA/QC measures described above, the data quality evaluation also addressed the PARCC of the analytical data, as defined below.

- **Precision**—Measure of agreement between duplicate results, as estimated by comparing LCS and LCSD recoveries and FD sample results. If the agreement between the native/FD, LCS/ LCSD results for the analyses are within acceptable criteria, this is a satisfactory indication that the sample matrix did not interfere with the overall analytical process. All analyses are within precision criteria.
- **Accuracy**--Measure of the agreement between an experimental determination and the true value of the parameter. Each of the samples was spiked with a surrogate compound with a known concentration before preparation. The surrogate provides a measure of the matrix effects that may affect accuracy and precision of the analytical method. The LCS results demonstrate accuracy of the method. All analyses are within precision criteria.
- **Representativeness**--Qualitative measure of the degree to which sample data accurately and precisely represent a characteristic environmental condition. Representativeness is a subjective parameter used to evaluate the efficacy of the sampling plan design. Representativeness can be demonstrated by providing full descriptions in the project scoping documents of the sampling techniques and the rationale used for selecting sampling locations. Representativeness was deemed acceptable.
- **Completeness**--Percentage of measurements that are judged to be valid compared to the total number of measurements made. All data was deemed to be valid.
- **Comparability**--Qualitative measure designed to express the confidence with which one data set may be compared to another. Factors that affect comparability are sample collection and handling techniques, sample matrix type, and analytical method. Comparability is limited by the other PARCC parameters because data sets can be compared with confidence only when precision and accuracy are known. However, comparability can also be established if the current data set is comparable with other previously collected data at the site due to the laboratory's use of USEPA or appropriate methods to analyze the samples, as supported by the results of the laboratory's analytical reports. Comparability of the data set was deemed acceptable.

The evaluation of the analytical data reports for PARCC measures indicated that the overall data set was acceptable.

## Conclusion

An overall evaluation of the data for the March 2018 indoor air and outdoor air (heating-season) sampling event indicated that the analytical systems were generally in control. All data are considered usable for the decision-making process.

**Initial and Continuing Calibration Worksheets - VOC**

**SDG Number:**

**1803448**

<b>Initial Calibration Curve Calculations</b>			
<b>Formula for Calculation of Relative Response Factors (RRF)</b>			
$\frac{\text{Area}_x}{\text{Area}_{IS}}$	multiplied by	$\frac{\text{Amount}_{IS}}{\text{Amount}_x}$	= RRF
where:			
Area <sub>x</sub> = Area of the characteristic ion for the compound to be measured			
Area <sub>IS</sub> = Area of the characteristic ion for the referenced Internal Standard			
Amount <sub>IS</sub> = Amount of Internal Standard added			
Amount <sub>x</sub> = Amount of compound added			
<b>Formula for Calculation of Relative Standard Deviation (%RSD)</b>			
$\frac{\text{Standard Deviation of RRFs of } x}{\text{Average RRF}_x}$	multiplied by	100	= %RSD
<b>Instrument:</b> msd21		<b>Date:</b> 2/12/2018	
Toluene	referenced to:	1,4-difluorobenze	
			1.610 <b>Level 4</b>
			1.445 <b>Level 5</b>
45813		5	1.463 <b>Level 6</b>
333364		0.5	
	<b>Calc RRF</b>	<b>1.374</b>	1.374 <b>Level 7</b>
			1.409 <b>Level 8</b>
			1.506 <b>Level 12</b>
			1.3795 <b>Level 13</b>
			1.2323 <b>Level 15</b>
Standard Deviation =	0.1099731		
Average RRF =	1.4274	<b>Laboratory AVG RRF =</b>	1.42737
		<b>OK?</b>	<b>Yes</b>
% RSD =	7.705	<b>Laboratory %RSD =</b>	7.704
		<b>OK?</b>	<b>Yes</b>

ok

**Initial and Continuing Calibration Worksheets - VOC**

**SDG Number:**

**1803448**

<b>Continuing Calibration Curve Calculations</b>				
<b>Formula for Calculation of Relative Response Factors (RRF)</b>				
$\frac{\text{Area}_x}{\text{Area}_{IS}}$	multiplied by	$\frac{\text{Amount}_{IS}}{\text{Amount}_x}$	= RRF	
where:				
Area <sub>x</sub> = Area of the characteristic ion for the compound to be measured				
Area <sub>IS</sub> = Area of the characteristic ion for the referenced Internal Standard				
Amount <sub>IS</sub> = Amount of Internal Standard added				
Amount <sub>x</sub> = Amount of compound added				
<b>CCAL Filename:</b> 21032701sim		<b>Date/Time:</b> 3/27/2018 9:32		
Toluene	referenced to:	1,4-difluorobeneze		
760335		5	<b>CCAL RRF=</b>	1.1922
318886		10	<b>Laboratory CCAL RRF =</b> 1.19217	
<b>Formula for Calculation of percent Difference (%D)</b>				
$\frac{\text{ICAL AVG RRF} - \text{CCAL RRF}}{\text{ICAL AVG RRF}}$	multiplied by	100	= %D	
Where:				
ICAL AVG RRF = The average relative response factor from the curve				
CCAL RRF = The Relative Response Factor from the continuing calibration verification run daily				
				<b>%D =</b> 16.48
<b>Laboratory %D =</b> 16.48				
<b>OK?</b>				<b>Yes</b>

## Sample Compound Concentrations - VOC

**SDG Number:**

**1803448**

Formula for Calculation of Concentrations		Soil	
$\frac{(\text{Area}_x) (\text{Conc}_{\text{IS}}) (\text{Df})}{(\text{Area}_{\text{IS}}) (\text{RRF}_x)}$		=	Concentration in ppbv
<p>where:</p> <p>Area<sub>x</sub> = Area of the characteristic ion for the compound to be measured                      Area<sub>IS</sub> = Area of the characteristic ion for the referenced Internal Standard                      Conc<sub>IS</sub> = Concentration of Internal Standard added (ng/mL)                      RRF<sub>x</sub> = Average RRF of compound from initial calibration curve                      DF = Dilution Factor</p>			
<p><b>Sample ID:</b> CS-019_0318</p>		<p><b>Air</b> Toluene</p>	
		Area <sub>x</sub> =	57411
		Area <sub>IS</sub> =	265537
		Conc <sub>IS</sub>	5
		RRF <sub>x</sub> =	1.4274
		DF =	1.75
<b>Compound(s)</b>	<b>Lab Conc</b>	<b>Lab Conc (ug/m3)</b>	<b>Calc Concentration in ppbv</b>
Toluene		5	1.325 Calc Conc (ug/m3) 4.99
Concentrations agree within 2% ?			<b>Yes</b>
<p><b>Sample ID:</b> CS-019_0318</p>		<p><b>Air</b> o-Xylene</p>	
		Area <sub>x</sub> =	3425
		Area <sub>IS</sub> =	211408
		Conc <sub>IS</sub>	5
		RRF <sub>x</sub> =	0.50013
		DF =	1.75
<b>Compound(s)</b>	<b>Lab Conc</b>	<b>Lab Conc (ug/m3)</b>	<b>Calc Concentration in ppbv</b>
o-Xylene		1.2	0.283 Calc Conc (ug/m3) 1.23
Concentrations agree within 2% ?			<b>Yes</b>

# Surrogate Recoveries - VOC

**SDG Number:**

**1803448**

**Formula for Calculation of Surrogate Recovery**

$$\% \text{ Recovery} = \frac{\text{Concentration or amount found}}{\text{Concentration or amount spiked}} \times 100$$

**Sample ID:**  
CS-019\_0318

	<b>Surrogate</b>	<b>Amt/Conc found</b>	<b>Amount/Conc spiked</b>	<b>% Rec</b>	<b>Lab %REC</b>	<b>OK?</b>
1	1,2-dichloroethane-d4	5.70	5	114.0	114.0	<b>Yes</b>
2	4-Bromofluorobenzene	4.16	5	83.2	83.0	<b>Yes</b>
3	Toluene-d8	4.93	5	98.6	99.0	<b>Yes</b>

**LCS/LCSD Recoveries - VOC**

**SDG Number:**

**1803448**

<b>Formula for Calculation of LCS and LCSD Recovery</b>						
<b>% Recovery</b>		=	$\frac{\text{Concentration or amount found}}{\text{Concentration or amount spiked}} \times 100$			
<b>LCS Sample ID:</b> LCS			<b>LCS Sample ID:</b> LCSD			
	<b>Compound</b>	<b>Conc found</b>	<b>Conc spiked</b>	<b>% Rec</b>	<b>Lab %REC</b>	<b>OK?</b>
LCS #1	Toluene	10.46	10	104.60	105.00	<b>Yes</b>
LCSD #1	Toluene	10.38	10	103.77	104.00	<b>Yes</b>
LCS #2	o-Xylene	11.02	10	110.18	110.00	<b>Yes</b>
LCSD #2	o-Xylene	11.31	10	113.07	113.00	<b>Yes</b>
LCS #3						
LCSD #3						
<b>Formula for Calculation of Relative Percent Difference</b>						
Relative Percent Difference		=	$\frac{ \text{LCSR} - \text{LCSDR} }{(1/2) (\text{LCSR} + \text{LCSDR})} \times 100$			
where:						
LCSR = Laboratory Control Spike Recovery						
LCSDR = Laboratory Control Spike Duplicate Recovery						
	<b>Compound(s)</b>		<b>RPD</b>		<b>Lab RPD</b>	<b>OK?</b>
1	Toluene		1		0.96	<b>Yes</b>
2	o-Xylene		3		2.7	<b>Yes</b>
3						

# MS/MSD Accuracy and Precision Recoveries - VOC

**SDG Number:**

**1803448**

**Formula for Calculation of Matrix Spike Recovery**

$$\text{Matrix Spike Recovery} = \frac{\text{SSR} - \text{SR}}{\text{SA}} \times 100$$

where:                      SSR = Spike sample result  
                                      SR = Sample result  
                                      SA = Spike added

**Sample ID:**  
Not Applicable

**Compound**  
0

**Matrix Spike**  
SSR =  
SR =  
SA =

**Matrix Spike Duplicate**

MS Concentration  
MS % Recovery =  
Lab MS % Recovery  
**OK?    Yes**

MSD Concentration  
MSD % Recovery =  
Lab MSD % Recovery  
**OK?    Yes**

**Formula for Calculation of Relative Percent Difference**

$$\text{Relative Percent Difference} = \frac{|\text{MSR} - \text{MSDR}|}{(1/2) (\text{MSR} + \text{MSDR})} \times 100$$

where:

MSR = Matrix Spike Recovery  
 MSDR = Matrix Spike Duplicate Recovery

Compound(s)	RPD (Rec)	RPD (Conc)	Lab RPD	OK?
<b>Comment:</b> Laboratory used % Recoveries to determine RPD versus concentrations.				

Initial Calibration Input	
SDG	1803448
Instrument	msd21
Date of calibration curve	2/12/2018
	2118s0212a.m
Compound	Toluene
IS Reference	1,4-difluorobeneze
RRFPoint 1 Name	Level 4
RRFPoint 1 RRF	1.61007
RRFPoint 2 Name	Level 5
RRFPoint 2 RRF	1.4451
RRFPoint 3 Name	Level 6
RRFPoint 3 RRF	1.463
RRFPoint 4 Name	Level 7
RRFPoint 4 RRF	1.374
Compound Area	45813
IS Reference Area	333364
IS Reference Concentration	5.000
Compound Concentration	0.500
RRFPoint 5 Name	Level 8
RRFPoint 5 RRF	1.40873
RRFPoint 6 Name	Level 12
RRFPoint 6 RRF	1.50608
RRFPoint 7Name	Level 13
RRFPoint 7 RRF	1.37949
RRFPoint 8 Name	Level 15
RRFPoint 8 RRF	1.23232
RRFPoint 9 Name	
RRFPoint 9 RRF	
Laboratory AVG RRF	1.4274
Laboratory RSD	7.704

Sample Concentration Input	
SDG	1803448
Sample ID	CS-019_0318
	1803448-03A
	<b>Soil</b>
Compound	
Area Compound	
Area Referenced IS	
Concentration of IS (ng/mL)	
RRF of Compound	
Water purged (mL)	
Dilution Factor	
Wt Sample (g)	
Dry Weight/% solids	
Lab Concentration	
	6.9 in Hg to 5.1 psi
Sample #1	<b>Air</b>
Compound	Toluene
Area Compound	57411
Area Referenced IS	265537
Conc of IS	5
RRF of Compound	1.4274
Dilution Factor	1.75
Lab Concentration (ug/m3)	5
3/27/18 03:24pm	21032710sim
Compound	o-Xylene
Area Compound	3425
Area Referenced IS	211408
Conc of IS	5
RRF of Compound	0.50013
Dilution Factor	1.75
Lab Concentration (ug/m3)	1.2
3/27/18 03:24pm	21032710sim

Surrogate Recovery Input	
SDG	1803448
Sample ID	CS-019_0318
Surrogate #1	1,2-dichloroethane-d4
Amount/Concentration Found	5.70
Amount/Concentration spiked	5.00
Lab % Recovery	114
Surrogate #2	4-Bromofluorobenzene
Amount/Concentration Found	4.16
Amount/Concentration spiked	5.00
Lab % Recovery	83
Surrogate #3	Toluene-d8
Amount/Concentration Found	4.93
Amount/Concentration Spiked	5.00
Lab % Recovery	99

Bromochloromethane	65494
1,4-difluorobenzene	265537
Benzene	
Toluene	
chlorobenzene-d5	211408
m,p-xylene	
o-xylene	

LCS/LCSD Recovery Input		
SDG	1803448	21032705sim.d
LCS Sample ID	LCS	21032704sim.d
LCSD Sample ID	LCSD	
LCS Compound #1	Toluene	
Amount/Concentration Found	10.46	
Amount/Concentration Spiked	10	
Lab % Recovery	105	
Lab RPD	0.96	
LCSD Compound #1	Toluene	
Amount/Concentration Found	10.377	
Amount/Concentration Spiked	10	
Lab % Recovery	104	
LCS Compound #2	o-Xylene	
Amount/Concentration Found	11.018	
Amount/Concentration Spiked	10	
Lab % Recovery	110	
Lab RPD	2.7	
LCSD Compound #2	o-Xylene	
Amount/Concentration Found	11.307	
Amount/Concentration Spiked	10	
Lab % Recovery	113	
LCS Compound #3		
Amount/Concentration Found		
Amount/Concentration Spiked		
Lab % Recovery		
Lab RPD		
LCSD Compound #3		
Amount/Concentration Found		
Amount/Concentration Spiked		
Lab % Recovery		

Continuing Calibration Input	
CCAL Filename	21032701sim
CCAL Date, Time	3/27/2018 9:32
CCAL Compound Area	760335
CCAL IS Area	318886
CCAL IS Concentration	5
CCAL Compound Concentration	10
CCAL Compound Reported Conc	8.352
Laboratory CCAL RRF	1.19217
Laboratory %D	16.47794

Sample #2	
Sample ID	
6.5 in Hg	<b>Air</b>
Compound	
Area Compound	
Area Referenced IS	
Conc of IS	
RRF of Compound	
Dilution Factor	
Lab Concentration	
Compound	
Area Compound	
Area Referenced IS	
Conc of IS	
RRF of Compound	
Dilution Factor	
Lab Concentration	

MS/MSD Recovery Input	
SDG	1803448
Sample ID	Not Applicable
MS Compound #1	
MS Result	
Sample Result	
MS Spike Amount	
Lab MS % Recovery	
MSD Result	
Sample Result	
MSD Spike Amount	
Lab MS % Recovery	
Lab RPD	



# *Analytical Reports*

2/21/2018

Mr. Mark Stinnett  
CH2M Hill  
3011 SW Williston Road

Gainesville FL 32608

Project Name: Former Tronox-Springfield, Mo

Project #:

Workorder #: 1802327A

Dear Mr. Mark Stinnett

The following report includes the data for the above referenced project for sample(s) received on 2/16/2018 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 SIM are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Brian Whittaker  
Project Manager

**WORK ORDER #: 1802327A**

Work Order Summary

<b>CLIENT:</b>	Mr. Mark Stinnett CH2M Hill 3011 SW Williston Road Gainesville, FL 32608	<b>BILL TO:</b>	Accounts Payable Greenfield Environmental, Inc. PO Box 1189 Helena, MT 59624
<b>PHONE:</b>	352-335-7991	<b>P.O. #</b>	Springfield, MO
<b>FAX:</b>	352-3352959	<b>PROJECT #</b>	Former Tronox-Springfield, Mo
<b>DATE RECEIVED:</b>	02/16/2018	<b>CONTACT:</b>	Brian Whittaker
<b>DATE COMPLETED:</b>	02/21/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	IAU-016_0218	Modified TO-15 SIM	12.6 "Hg	5.2 psi
02A	IAD-016_0218	Modified TO-15 SIM	7.6 "Hg	4.8 psi
03A	OA-016_0218	Modified TO-15 SIM	8.4 "Hg	5.1 psi
05A	IAD-015_0218	Modified TO-15 SIM	6.1 "Hg	4.9 psi
06A	IAU-015_0218	Modified TO-15 SIM	6.5 "Hg	4.8 psi
07A	OA-015_0218	Modified TO-15 SIM	5.3 "Hg	5.2 psi
09A	OA-033_0218	Modified TO-15 SIM	6.3 "Hg	5.1 psi
11A	CS-033_0218	Modified TO-15 SIM	5.5 "Hg	4.9 psi
17A	IA-044A_0218	Modified TO-15 SIM	6.7 "Hg	5.1 psi
18A	OA-044A_0218	Modified TO-15 SIM	6.5 "Hg	5 psi
19A	CS-044A_0218	Modified TO-15 SIM	4.1 "Hg	5 psi
20A	Lab Blank	Modified TO-15 SIM	NA	NA
21A	CCV	Modified TO-15 SIM	NA	NA
22A	LCS	Modified TO-15 SIM	NA	NA
22AA	LCSD	Modified TO-15 SIM	NA	NA

CERTIFIED BY:   
 Technical Director

DATE: 02/21/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,  
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935  
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE**  
**Modified TO-15 SIM**  
**CH2M Hill**  
**Workorder# 1802327A**

Eleven 6 Liter Summa Canister (SIM Certified) samples were received on February 16, 2018. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the SIM acquisition mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
ICAL %RSD acceptance criteria	$\leq 30\%$ RSD with 2 compounds allowed out to $< 40\%$ RSD	Project specific; default criteria is $\leq 30\%$ RSD with 10% of compounds allowed out to $< 40\%$ RSD
Daily Calibration	$\pm 30\%$ Difference	Project specific; default criteria is $\leq 30\%$ Difference with 10% of compounds allowed out up to $\leq 40\%$ ; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. All The canisters used for this project have been certified to the Reporting Limit for the target analytes included in this workorder. Concentrations that are below the level at which the canister was certified may be false positives.

Dilution was performed on samples IAU-016\_0218, IAD-015\_0218 and IAU-015\_0218 due to the presence of high level non-target species.

Total Xylenes concentration is calculated by summing the individual concentrations of m,p-Xylene and O-Xylene.

A Limit of Detection (LOD) and Method Detection Limit (MDL) study are not maintained for Total Xylenes.

### **Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

MODIFIED EPA METHOD TO-15 GC/MS SIM  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	IAU-016_0218	<b>Date/Time Analyzed:</b>	2/19/18 01:35 PM
<b>Lab ID:</b>	1802327A-01A	<b>Dilution Factor:</b>	4.68
<b>Date/Time Collecte</b>	2/15/18 10:07 AM	<b>Instrument/Filename:</b>	msd20.i / 20021908sim
<b>Media:</b>	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.026	0.075	0.75	1.0
Ethyl Benzene	100-41-4	0.029	0.10	0.41	0.50
m,p-Xylene	108-38-3	0.034	0.10	0.81	1.3
Naphthalene	91-20-3	0.10	0.24	1.2	1.2
o-Xylene	95-47-6	0.032	0.10	0.41	0.47
Toluene	108-88-3	0.011	0.088	0.35	5.3
Total Xylenes	9999-9999-015	NA	D	1.2	1.8

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	79
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS SIM  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	IAD-016_0218	<b>Date/Time Analyzed:</b>	2/19/18 02:16 PM
<b>Lab ID:</b>	1802327A-02A	<b>Dilution Factor:</b>	1.77
<b>Date/Time Collecte</b>	2/15/18 10:18 AM	<b>Instrument/Filename:</b>	msd20.i / 20021909sim
<b>Media:</b>	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.0097	0.028	0.28	0.97
Ethyl Benzene	100-41-4	0.011	0.038	0.15	0.44
m,p-Xylene	108-38-3	0.013	0.038	0.31	1.2
Naphthalene	91-20-3	0.038	0.093	0.46	0.98
o-Xylene	95-47-6	0.012	0.038	0.15	0.41
Toluene	108-88-3	0.0041	0.033	0.13	5.3
Total Xylenes	9999-9999-015	NA	D	0.46	1.7

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	80
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS SIM  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	OA-016_0218	<b>Date/Time Analyzed:</b>	2/19/18 02:57 PM
<b>Lab ID:</b>	1802327A-03A	<b>Dilution Factor:</b>	1.87
<b>Date/Time Collecte</b>	2/15/18 10:15 AM	<b>Instrument/Filename:</b>	msd20.i / 20021910sim
<b>Media:</b>	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.010	0.030	0.30	0.50
Ethyl Benzene	100-41-4	0.011	0.040	0.16	0.12 J
m,p-Xylene	108-38-3	0.013	0.040	0.32	0.30 J
Naphthalene	91-20-3	0.040	0.098	0.49	2.3
o-Xylene	95-47-6	0.013	0.040	0.16	0.13 J
Toluene	108-88-3	0.0044	0.035	0.14	1.3
Total Xylenes	9999-9999-015	NA	D	0.49	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	82
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	101



MODIFIED EPA METHOD TO-15 GC/MS SIM  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	IAD-015_0218	<b>Date/Time Analyzed:</b>	2/19/18 03:38 PM
<b>Lab ID:</b>	1802327A-05A	<b>Dilution Factor:</b>	4.20
<b>Date/Time Collecte</b>	2/15/18 11:53 AM	<b>Instrument/Filename:</b>	msd20.i / 20021911sim
<b>Media:</b>	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.023	0.067	0.67	9.5
Ethyl Benzene	100-41-4	0.026	0.091	0.36	12
m,p-Xylene	108-38-3	0.030	0.091	0.73	38
Naphthalene	91-20-3	0.090	0.22	1.1	2.3
o-Xylene	95-47-6	0.028	0.091	0.36	11
Toluene	108-88-3	0.0098	0.079	0.32	110
Total Xylenes	9999-9999-015	NA	D	1.1	49

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	78
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS SIM  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	IAU-015_0218	<b>Date/Time Analyzed:</b>	2/19/18 04:38 PM
<b>Lab ID:</b>	1802327A-06A	<b>Dilution Factor:</b>	4.25
<b>Date/Time Collecte</b>	2/15/18 11:56 AM	<b>Instrument/Filename:</b>	msd20.i / 20021912sim
<b>Media:</b>	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.023	0.068	0.68	7.8
Ethyl Benzene	100-41-4	0.026	0.092	0.37	10
m,p-Xylene	108-38-3	0.031	0.092	0.74	34
Naphthalene	91-20-3	0.091	0.22	1.1	1.9
o-Xylene	95-47-6	0.029	0.092	0.37	10
Toluene	108-88-3	0.0099	0.080	0.32	110
Total Xylenes	9999-9999-015	NA	D	1.1	44

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	78
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS SIM  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	OA-015_0218	<b>Date/Time Analyzed:</b>	2/19/18 05:38 PM
<b>Lab ID:</b>	1802327A-07A	<b>Dilution Factor:</b>	1.64
<b>Date/Time Collecte</b>	2/15/18 11:58 AM	<b>Instrument/Filename:</b>	msd20.i / 20021913sim
<b>Media:</b>	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.0090	0.026	0.26	0.52
Ethyl Benzene	100-41-4	0.010	0.036	0.14	0.23
m,p-Xylene	108-38-3	0.012	0.036	0.28	0.73
Naphthalene	91-20-3	0.035	0.086	0.43	2.0
o-Xylene	95-47-6	0.011	0.036	0.14	0.29
Toluene	108-88-3	0.0038	0.031	0.12	1.9
Total Xylenes	9999-9999-015	NA	D	0.43	1.0

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	82
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS SIM  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	OA-033_0218	<b>Date/Time Analyzed:</b>	2/19/18 06:20 PM
<b>Lab ID:</b>	1802327A-09A	<b>Dilution Factor:</b>	1.71
<b>Date/Time Collecte</b>	2/15/18 02:07 PM	<b>Instrument/Filename:</b>	msd20.i / 20021914sim
<b>Media:</b>	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.0093	0.027	0.27	0.52
Ethyl Benzene	100-41-4	0.010	0.037	0.15	0.22
m,p-Xylene	108-38-3	0.012	0.037	0.30	0.76
Naphthalene	91-20-3	0.037	0.090	0.45	2.2
o-Xylene	95-47-6	0.012	0.037	0.15	0.30
Toluene	108-88-3	0.0040	0.032	0.13	1.8
Total Xylenes	9999-9999-015	NA	D	0.44	1.1

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	82
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS SIM  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	CS-033_0218	<b>Date/Time Analyzed:</b>	2/19/18 07:01 PM
<b>Lab ID:</b>	1802327A-11A	<b>Dilution Factor:</b>	1.63
<b>Date/Time Collecte</b>	2/15/18 02:10 PM	<b>Instrument/Filename:</b>	msd20.i / 20021915sim
<b>Media:</b>	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.0089	0.026	0.26	0.34
Ethyl Benzene	100-41-4	0.010	0.035	0.14	0.50
m,p-Xylene	108-38-3	0.012	0.035	0.28	1.8
Naphthalene	91-20-3	0.035	0.085	0.43	0.64
o-Xylene	95-47-6	0.011	0.035	0.14	0.53
Toluene	108-88-3	0.0038	0.031	0.12	10
Total Xylenes	9999-9999-015	NA	D	0.42	2.2

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	81
4-Bromofluorobenzene	460-00-4	70-130	101
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS SIM  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	IA-044A_0218	<b>Date/Time Analyzed:</b>	2/19/18 09:30 PM
<b>Lab ID:</b>	1802327A-17A	<b>Dilution Factor:</b>	1.73
<b>Date/Time Collecte</b>	2/15/18 04:32 PM	<b>Instrument/Filename:</b>	msd20.i / 20021917sim
<b>Media:</b>	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.0094	0.028	0.28	1.1
Ethyl Benzene	100-41-4	0.010	0.038	0.15	0.29
m,p-Xylene	108-38-3	0.012	0.038	0.30	0.74
Naphthalene	91-20-3	0.037	0.091	0.45	0.90
o-Xylene	95-47-6	0.012	0.038	0.15	0.32
Toluene	108-88-3	0.0040	0.032	0.13	4.7
Total Xylenes	9999-9999-015	NA	D	0.45	1.0

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	80
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	100

MODIFIED EPA METHOD TO-15 GC/MS SIM  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	OA-044A_0218	<b>Date/Time Analyzed:</b>	2/19/18 10:12 PM
<b>Lab ID:</b>	1802327A-18A	<b>Dilution Factor:</b>	1.71
<b>Date/Time Collecte</b>	2/15/18 04:41 PM	<b>Instrument/Filename:</b>	msd20.i / 20021918sim
<b>Media:</b>	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.0093	0.027	0.27	0.51
Ethyl Benzene	100-41-4	0.010	0.037	0.15	0.14 J
m,p-Xylene	108-38-3	0.012	0.037	0.30	0.41
Naphthalene	91-20-3	0.037	0.090	0.45	2.1
o-Xylene	95-47-6	0.012	0.037	0.15	0.17
Toluene	108-88-3	0.0040	0.032	0.13	1.2
Total Xylenes	9999-9999-015	NA	D	0.44	0.56

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	82
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS SIM  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	CS-044A_0218	<b>Date/Time Analyzed:</b>	2/20/18 07:53 AM
<b>Lab ID:</b>	1802327A-19A	<b>Dilution Factor:</b>	1.55
<b>Date/Time Collecte</b>	2/15/18 04:42 PM	<b>Instrument/Filename:</b>	msd20.i / 20021920sim
<b>Media:</b>	6 Liter Summa Canister (SIM Certified)		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.0085	0.025	0.25	0.40
Ethyl Benzene	100-41-4	0.0095	0.034	0.13	0.20
m,p-Xylene	108-38-3	0.011	0.034	0.27	0.69
Naphthalene	91-20-3	0.033	0.081	0.41	0.30 J
o-Xylene	95-47-6	0.010	0.034	0.13	0.20
Toluene	108-88-3	0.0036	0.029	0.12	4.2
Total Xylenes	9999-9999-015	NA	D	0.40	0.91

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	80
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	101



MODIFIED EPA METHOD TO-15 GC/MS SIM  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	Lab Blank	<b>Date/Time Analyzed:</b>	2/19/18 12:34 PM
<b>Lab ID:</b>	1802327A-20A	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msd20.i / 20021907sima
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.0055	0.016	0.16	0.010 J
Ethyl Benzene	100-41-4	0.0061	0.022	0.087	Not Detected
m,p-Xylene	108-38-3	0.0072	0.022	0.17	Not Detected
Naphthalene	91-20-3	0.021	0.052	0.26	0.031 J
o-Xylene	95-47-6	0.0068	0.022	0.087	Not Detected
Toluene	108-88-3	0.0023	0.019	0.075	0.0093 J
Total Xylenes	9999-9999-015	NA	D	0.26	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	86
4-Bromofluorobenzene	460-00-4	70-130	100
Toluene-d8	2037-26-5	70-130	101

MODIFIED EPA METHOD TO-15 GC/MS SIM  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	CCV	<b>Date/Time Analyzed:</b>	2/19/18 09:38 AM
<b>Lab ID:</b>	1802327A-21A	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msd20.i / 20021903sim
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	%Recovery
Benzene	71-43-2	104
Ethyl Benzene	100-41-4	105
m,p-Xylene	108-38-3	105
Naphthalene	91-20-3	120
o-Xylene	95-47-6	105
Toluene	108-88-3	108
Total Xylenes	9999-9999-015	105

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	74
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	102

MODIFIED EPA METHOD TO-15 GC/MS SIM  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	LCS	<b>Date/Time Analyzed:</b>	2/19/18 10:30 AM
<b>Lab ID:</b>	1802327A-22A	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msd20.i / 20021904sim
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	%Recovery
Benzene	71-43-2	100
Ethyl Benzene	100-41-4	102
m,p-Xylene	108-38-3	102
Naphthalene	91-20-3	90
o-Xylene	95-47-6	105
Toluene	108-88-3	104
Total Xylenes	9999-9999-015	104

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	77
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	102

\* % Recovery is calculated using unrounded analytical results.

MODIFIED EPA METHOD TO-15 GC/MS SIM  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	LCSD	<b>Date/Time Analyzed:</b>	2/19/18 11:12 AM
<b>Lab ID:</b>	1802327A-22AA	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msd20.i / 20021905sim
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	%Recovery
Benzene	71-43-2	100
Ethyl Benzene	100-41-4	102
m,p-Xylene	108-38-3	103
Naphthalene	91-20-3	87
o-Xylene	95-47-6	106
Toluene	108-88-3	104
Total Xylenes	9999-9999-015	104

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	78
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	102

\* % Recovery is calculated using unrounded analytical results.



Air Toxics

# Analysis Request /Canister Chain of Custody

For Laboratory Use Only

Acct: \_\_\_\_\_ WO # \_\_\_\_\_ Sample #s: \_\_\_\_\_

COC#: \_\_\_\_\_

1083

**Sample Transportation Notice**  
**CH2M HILL**  
 Client: Multistate Environmental Trust, LLI Acct:  
 Project Name: Former Tronox-Springfield, Mo  
 Project Manager: Tom Hutchinson-CH2M HILL P.O.# \_\_\_\_\_  
 Sampler: Shirley Steinmacher, Billy Irish, Mike Zamboni, Jon McKinney, Barbara Garcia  
 Site Name: Former Tronox Facility-Springfield, Mo

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

Lab ID	Location Identification/Sample ID	Can #	Date of Collection	Time of Collection	Check all analyses requested						Canister Vacuum/Pressure		Turn Around Time: <input type="checkbox"/> Normal <input checked="" type="checkbox"/> Rush! <small>Specify: 72 H TAT FORM 1</small>						
					TO-15 TOTAL SCAN	TO-15 SIM	ASTM D 1946							Lab Use Only					
														Initial	Final	Receipt	Final (psig)		
01A	IAU-016-0218	6L0946	2/15/18	1007		X													
02A	IAD-016-0218	6L1102	2/15/18	1018		X													indoor air
03A	OA-016-0218	6L1777	2/15/18	1015		X													outdoor air
	SU-016-0218	1L3048	2/15/18	1111	X		X												Subslab soil gas
05A	IAD-015-0218	8 <sup>th</sup> 009893	2/15/18	1153		X													indoor air
06A	IAU-015-0218	6L1503	2/15/18	1156		X													indoor air
07A	OA-015-0218	6L1629	2/15/18	1158		X													outdoor air
	SU-015-0218	1L2995	2/15/18	1230	X		X												Subslab soil gas
09A	OA-033-0218	6L1263	2/15/18	1407		X													outdoor air
Relinquished by: <u>[Signature]</u>			Date: 2/15/18	Time: 1815	Received by: <u>[Signature]</u> EAR			Date: 02/16/18	Time: 1010	Level IV Data Required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Circle One)									
Relinquished by: _____			Date: _____	Time: _____	Received by: _____			Date: _____	Time: _____	Specific EDD format Required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Circle One)									
Relinquished by: _____			Date: _____	Time: _____	Received by: _____			Date: _____	Time: _____										
Shipper Name: <u>Coel Gx</u>			Custody Seals Intact? Yes <input type="checkbox"/> No <input type="checkbox"/> <b>None</b> <input checked="" type="checkbox"/>		Note: primary TCL VOC BETXN. He for GS														
			Sample Condition Upon Receipt: <u>Good</u>																

1802327



Air Toxics

# Analysis Request /Canister Chain of Custody

For Laboratory Use Only

Acct: \_\_\_\_\_ WO # \_\_\_\_\_ Sample #s: \_\_\_\_\_

COC#: \_\_\_\_\_

2 of 3

**Sample Transportation Notice**  
**CH2M HILL**  
 Client: Multistate Environmental Trust, LLI Acct: \_\_\_\_\_  
 Project Name: Former Tronox-Springfield, Mo  
 Project Manager: Tom Hutchinson-CH2M HILL P.O.# \_\_\_\_\_  
 Sampler: Shirley Steinmacher, Billy Irish, Mike Zamboni, Jon McKinney, Barbara Garcia  
 Site Name: Former Tronox Facility-Springfield, Mo

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

Lab ID	Location Identification/Sample ID	Can #	Date of Collection	Time of Collection	Check all analyses requested					Canister Vacuum/Pressure		Turn Around Time:		Remarks: (Matrix code)		
					TO-15 TOTAL SCAN	TO-15 SIM	ASTM D 1946					Initial	Final		Lab Use Only	
															Receipt	Final (psig)
	<del>JA-044-0218</del> SH-F-0218	00002317	2/15/18	1409	X											
11A	CS-033-0218	6L1527	2/15/18	1410		X									Sever headspace	
	SH-E-0218	6L0482	2/15/18	1416	X										Sever headspace	
	SH-D-0218	00001652	2/15/18	1420	X										Sever headspace	
	SH-B-0218	6L1745	2/15/18	1430	X										Sever headspace	
	SH-C-0218	6L0338	2/15/18	1433	X										Sever headspace	
	SH-G-0218	6L1532	2/15/18	1433	X										LOW volume	
17A	JA-044A-0218	6L0858	2/15/18	1632		X									Sever headspace	
18A	JA-044A-0218	6L1215	2/15/18	1641		X									Sever headspace	
															Sever headspace	

Relinquished by:	Date: 2/15/18	Time: 18:15	Received by:	Date: 02/16/18	Time: 1010	Level IV Data Required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Circle One)
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Specific EDD format Required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Circle One)
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	

Shipper Name: <u>Bed Ex</u>	Custody Seals Intact? Yes No <input checked="" type="radio"/> None		Note: primary TCL VOC BETXN. He for GS
	Sample Condition Upon Receipt: <u>Good</u>		

1802327



Air Toxics

# Analysis Request /Canister Chain of Custody

For Laboratory Use Only

Acct: \_\_\_\_\_ WO # \_\_\_\_\_ Sample #: \_\_\_\_\_

COC#: \_\_\_\_\_

3 of 3

## Sample Transportation Notice

CH2M HILL

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

Client: Multistate Environmental Trust, LLC Acct: \_\_\_\_\_

Project Name: Former Tronox-Springfield, Mo

Project Manager: Tom Hutchinson-CH2M HILL P.O.# \_\_\_\_\_

Sampler: Shirley Steinmacher, Billy Irish, Mike Zamboni, Jon McKinney, Barbara Garcia

Site Name: Former Tronox Facility-Springfield, Mo

TO-15 TOTAL SCAN	TO-15 SIM	ASTM D 1946	Check all analyses requested				Canister Vacuum/Pressure		Lab Use Only	Turn Around Time:
							Initial	Final		
										<input type="checkbox"/> Normal
										<input checked="" type="checkbox"/> Rush!
										Specify: 72 H TAT FORM 1

Lab ID	Location Identification/Sample ID	Can #	Date of Collection	Time of Collection
19A	CS-044A_0218	60507	2/15/18	16:42
	SU-044A_0218	1L2324	2/15/18	17:09

Check spec air

Relinquished by: <u>[Signature]</u>	Date: <u>2/15/18</u>	Time: <u>18:15</u>	Received by: <u>[Signature]</u>	Date: <u>02/16/18</u>	Time: <u>10:10</u>	Level IV Data Required? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle One)
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Specific EDD format Required? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle One)
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	

### Lab Use Only

Shipper Name: <u>Fed Ex</u>	Custody Seals Intact? Yes No <input checked="" type="radio"/> None	Note: primary TCL VOC BETXN. He for GS
	Sample Condition Upon Receipt: <u>Good</u>	

1802827

2/20/2018

Mr. Mark Stinnett

CH2M Hill

3011 SW Williston Road

Gainesville FL 32608

Project Name: Former Tronox-Springfield, Mo

Project #:

Workorder #: 1802327B

Dear Mr. Mark Stinnett

The following report includes the data for the above referenced project for sample(s) received on 2/16/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Brian Whittaker

Project Manager



**WORK ORDER #: 1802327B**

Work Order Summary

<b>CLIENT:</b>	Mr. Mark Stinnett CH2M Hill 3011 SW Williston Road Gainesville, FL 32608	<b>BILL TO:</b>	Accounts Payable Greenfield Environmental, Inc. PO Box 1189 Helena, MT 59624
<b>PHONE:</b>	352-335-7991	<b>P.O. #</b>	Springfield, MO
<b>FAX:</b>	352-3352959	<b>PROJECT #</b>	Former Tronox-Springfield, Mo
<b>DATE RECEIVED:</b>	02/16/2018	<b>CONTACT:</b>	Brian Whittaker
<b>DATE COMPLETED:</b>	02/20/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
10A	SH-F_0218	TO-15	6.3 "Hg	4.8 psi
12A	SH-E_0218	TO-15	3.7 "Hg	5 psi
13A	SH-D_0218	TO-15	5.1 "Hg	5 psi
14A	SH-B_0218	TO-15	6.9 "Hg	4.4 psi
15A	SH-C_0218	TO-15	5.9 "Hg	4.6 psi
16A	SH-G_0218	TO-15	21.4 "Hg	4.8 psi
17A	Lab Blank	TO-15	NA	NA
18A	CCV	TO-15	NA	NA
19A	LCS	TO-15	NA	NA
19AA	LCSD	TO-15	NA	NA

CERTIFIED BY:   
 \_\_\_\_\_  
 Technical Director

DATE: 02/20/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,  
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935  
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE**  
**EPA Method TO-15**  
**CH2M Hill**  
**Workorder# 1802327B**

Six 6 Liter Summa Canister samples were received on February 16, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

**Receiving Notes**

The Chain of Custody (COC) information for sample SH-F\_0218 did not match the information on the canister with regard to canister identification. The client was notified of the discrepancy and the information on the canister was used to process and report the sample.

Sample SH-G\_0218 was received with significant vacuum remaining in the canister. The residual canister vacuum resulted in elevated reporting limits.

**Analytical Notes**

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Total Xylenes concentration is calculated by summing the individual concentrations of m,p-Xylene and O-Xylene.

Dilution was performed on samples SH-F\_0218, SH-E\_0218, SH-D\_0218, SH-C\_0218 and SH-G\_0218 due to the presence of high level non-target species.

A Limit of Detection (LOD) and Method Detection Limit (MDL) study are not maintained for Total Xylenes.

**Definition of Data Qualifying Flags**

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	SH-F_0218	<b>Date/Time Analyzed:</b>	2/19/18 11:10 PM
<b>Lab ID:</b>	1802327B-10A	<b>Dilution Factor:</b>	3.36
<b>Date/Time Collecte</b>	2/15/18 02:09 PM	<b>Instrument/Filename:</b>	msd3.i / 3021919
<b>Media:</b>	6 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.52	2.1	5.4	1.1 J
Ethyl Benzene	100-41-4	0.68	2.9	7.3	2.2 J
m,p-Xylene	108-38-3	0.68	2.9	7.3	3.2 J
Naphthalene	91-20-3	0.25	1.4	18	15 J
o-Xylene	95-47-6	0.30	2.9	7.3	2.6 J
Toluene	108-88-3	0.39	2.5	6.3	2.3 J
Total Xylene	1330-20-7	NA	D	14	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	SH-E_0218	<b>Date/Time Analyzed:</b>	2/19/18 11:58 PM
<b>Lab ID:</b>	1802327B-12A	<b>Dilution Factor:</b>	6.11
<b>Date/Time Collecte</b>	2/15/18 02:16 PM	<b>Instrument/Filename:</b>	msd3.i / 3021921
<b>Media:</b>	6 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.94	3.9	9.8	2.6 J
Ethyl Benzene	100-41-4	1.2	5.3	13	4.2 J
m,p-Xylene	108-38-3	1.2	5.3	13	6.3 J
Naphthalene	91-20-3	0.46	2.6	32	47
o-Xylene	95-47-6	0.55	5.3	13	4.0 J
Toluene	108-88-3	0.72	4.6	12	3.6 J
Total Xylene	1330-20-7	NA	D	26	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	SH-D_0218	<b>Date/Time Analyzed:</b>	2/20/18 12:21 AM
<b>Lab ID:</b>	1802327B-13A	<b>Dilution Factor:</b>	8.07
<b>Date/Time Collecte</b>	2/15/18 02:20 PM	<b>Instrument/Filename:</b>	msd3.i / 3021922
<b>Media:</b>	6 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	1.2	5.2	13	3.0 J
Ethyl Benzene	100-41-4	1.6	7.0	18	Not Detected U
m,p-Xylene	108-38-3	1.6	7.0	18	4.6 J
Naphthalene	91-20-3	0.61	3.4	42	18 J
o-Xylene	95-47-6	0.72	7.0	18	3.4 J
Toluene	108-88-3	0.94	6.1	15	3.3 J
Total Xylene	1330-20-7	NA	D	35	Not Detected

J = Estimated value.

U = The analyte was not detected above the MDL.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	SH-B_0218	<b>Date/Time Analyzed:</b>	2/19/18 10:46 PM
<b>Lab ID:</b>	1802327B-14A	<b>Dilution Factor:</b>	1.69
<b>Date/Time Collecte</b>	2/15/18 02:30 PM	<b>Instrument/Filename:</b>	msd3.i / 3021918
<b>Media:</b>	6 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.26	1.1	2.7	0.27 J
Ethyl Benzene	100-41-4	0.34	1.5	3.7	Not Detected U
m,p-Xylene	108-38-3	0.34	1.5	3.7	Not Detected U
Naphthalene	91-20-3	0.13	0.71	8.8	0.23 J
o-Xylene	95-47-6	0.15	1.5	3.7	Not Detected U
Toluene	108-88-3	0.20	1.3	3.2	1.1 J
Total Xylene	1330-20-7	NA	D	7.3	Not Detected

J = Estimated value.

U = The analyte was not detected above the MDL.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	96
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	SH-C_0218	<b>Date/Time Analyzed:</b>	2/20/18 12:45 AM
<b>Lab ID:</b>	1802327B-15A	<b>Dilution Factor:</b>	10.9
<b>Date/Time Collecte</b>	2/15/18 02:33 PM	<b>Instrument/Filename:</b>	msd3.i / 3021923
<b>Media:</b>	6 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	1.7	7.0	17	4.8 J
Ethyl Benzene	100-41-4	2.2	9.5	24	Not Detected U
m,p-Xylene	108-38-3	2.2	9.5	24	Not Detected U
Naphthalene	91-20-3	0.82	4.6	57	16 J
o-Xylene	95-47-6	0.98	9.5	24	Not Detected U
Toluene	108-88-3	1.3	8.2	20	2.3 J
Total Xylene	1330-20-7	NA	D	47	Not Detected

J = Estimated value.

U = The analyte was not detected above the MDL.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	101



EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	SH-G_0218	<b>Date/Time Analyzed:</b>	2/19/18 11:33 PM
<b>Lab ID:</b>	1802327B-16A	<b>Dilution Factor:</b>	10.3
<b>Date/Time Collecte</b>	2/15/18 02:33 PM	<b>Instrument/Filename:</b>	msd3.i / 3021920
<b>Media:</b>	6 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	1.6	6.6	16	1.6 J
Ethyl Benzene	100-41-4	2.1	8.9	22	Not Detected U
m,p-Xylene	108-38-3	2.1	8.9	22	Not Detected U
Naphthalene	91-20-3	0.77	4.3	54	1.2 J
o-Xylene	95-47-6	0.92	8.9	22	Not Detected U
Toluene	108-88-3	1.2	7.8	19	2.2 J
Total Xylene	1330-20-7	NA	D	45	Not Detected

J = Estimated value.

U = The analyte was not detected above the MDL.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	Lab Blank	<b>Date/Time Analyzed:</b>	2/19/18 11:52 AM
<b>Lab ID:</b>	1802327B-17A	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msd3.i / 3021905c
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.15	0.64	1.6	Not Detected U
Ethyl Benzene	100-41-4	0.20	0.87	2.2	Not Detected U
m,p-Xylene	108-38-3	0.20	0.87	2.2	Not Detected U
Naphthalene	91-20-3	0.075	0.42	5.2	0.12 J
o-Xylene	95-47-6	0.090	0.87	2.2	0.20 J
Toluene	108-88-3	0.12	0.75	1.9	0.17 J
Total Xylene	1330-20-7	NA	D	4.3	Not Detected

U = The analyte was not detected above the MDL.

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	99

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	CCV	<b>Date/Time Analyzed:</b>	2/19/18 10:40 AM
<b>Lab ID:</b>	1802327B-18A	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msd3.i / 3021902
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	%Recovery
Benzene	71-43-2	102
Ethyl Benzene	100-41-4	108
m,p-Xylene	108-38-3	110
Naphthalene	91-20-3	111
o-Xylene	95-47-6	112
Toluene	108-88-3	108
Total Xylene	1330-20-7	111

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	107
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	LCS	<b>Date/Time Analyzed:</b>	2/19/18 11:03 AM
<b>Lab ID:</b>	1802327B-19A	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msd3.i / 3021903
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	%Recovery
Benzene	71-43-2	108
Ethyl Benzene	100-41-4	111
m,p-Xylene	108-38-3	113
Naphthalene	91-20-3	115
o-Xylene	95-47-6	118
Toluene	108-88-3	114
Total Xylene	1330-20-7	116

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	92
4-Bromofluorobenzene	460-00-4	70-130	106
Toluene-d8	2037-26-5	70-130	102

\* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	LCSD	<b>Date/Time Analyzed:</b>	2/19/18 11:26 AM
<b>Lab ID:</b>	1802327B-19AA	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msd3.i / 3021904
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	%Recovery
Benzene	71-43-2	107
Ethyl Benzene	100-41-4	112
m,p-Xylene	108-38-3	113
Naphthalene	91-20-3	122
o-Xylene	95-47-6	119
Toluene	108-88-3	114
Total Xylene	1330-20-7	116

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	108
Toluene-d8	2037-26-5	70-130	103

\* % Recovery is calculated using unrounded analytical results.



2/21/2018

Mr. Mark Stinnett  
CH2M Hill  
3011 SW Williston Road

Gainesville FL 32608

Project Name: Former Tronox-Springfield, Mo

Project #:

Workorder #: 1802327C

Dear Mr. Mark Stinnett

The following report includes the data for the above referenced project for sample(s) received on 2/16/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Brian Whittaker  
Project Manager

**WORK ORDER #: 1802327C**

Work Order Summary

<b>CLIENT:</b>	Mr. Mark Stinnett CH2M Hill 3011 SW Williston Road Gainesville, FL 32608	<b>BILL TO:</b>	Accounts Payable Greenfield Environmental, Inc. PO Box 1189 Helena, MT 59624
<b>PHONE:</b>	352-335-7991	<b>P.O. #</b>	Springfield, MO
<b>FAX:</b>	352-3352959	<b>PROJECT #</b>	Former Tronox-Springfield, Mo
<b>DATE RECEIVED:</b>	02/16/2018	<b>CONTACT:</b>	Brian Whittaker
<b>DATE COMPLETED:</b>	02/21/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
04A	SU-016_0218	TO-15	5.5 "Hg	15 psi
08A	SU-015_0218	TO-15	4.5 "Hg	15 psi
20A	SU-044A_0218	TO-15	5.5 "Hg	15 psi
21A	Lab Blank	TO-15	NA	NA
22A	CCV	TO-15	NA	NA
23A	LCS	TO-15	NA	NA
23AA	LCSD	TO-15	NA	NA

CERTIFIED BY:   
 \_\_\_\_\_  
 Technical Director

DATE: 02/21/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,  
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935  
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020



**LABORATORY NARRATIVE**  
**EPA Method TO-15**  
**CH2M Hill**  
**Workorder# 1802327C**

Three 1 Liter Summa Canister samples were received on February 16, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Total Xylenes concentration is calculated by summing the individual concentrations of m,p-Xylene and O-Xylene.

A Limit of Detection (LOD) and Method Detection Limit (MDL) study are not maintained for Total Xylenes.

**Definition of Data Qualifying Flags**

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	SU-016_0218	<b>Date/Time Analyzed:</b>	2/20/18 11:33 PM
<b>Lab ID:</b>	1802327C-04A	<b>Dilution Factor:</b>	2.47
<b>Date/Time Collecte</b>	2/15/18 11:11 AM	<b>Instrument/Filename:</b>	msdp.i / p022024
<b>Media:</b>	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.32	2.4	3.9	Not Detected
Ethyl Benzene	100-41-4	0.86	3.2	5.4	Not Detected
m,p-Xylene	108-38-3	1.2	3.2	5.4	2.3 J
Naphthalene	91-20-3	1.4	2.1	13	1.5 J
o-Xylene	95-47-6	0.96	3.2	5.4	Not Detected
Toluene	108-88-3	0.56	2.8	4.6	5.6
Total Xylene	1330-20-7	NA	D	11	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	91
4-Bromofluorobenzene	460-00-4	70-130	103
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	SU-015_0218	<b>Date/Time Analyzed:</b>	2/20/18 11:59 PM
<b>Lab ID:</b>	1802327C-08A	<b>Dilution Factor:</b>	2.38
<b>Date/Time Collecte</b>	2/15/18 12:30 PM	<b>Instrument/Filename:</b>	msdp.i / p022025
<b>Media:</b>	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.30	2.3	3.8	Not Detected
Ethyl Benzene	100-41-4	0.83	3.1	5.2	Not Detected
m,p-Xylene	108-38-3	1.1	3.1	5.2	1.7 J
Naphthalene	91-20-3	1.4	2.0	12	Not Detected
o-Xylene	95-47-6	0.93	3.1	5.2	Not Detected
Toluene	108-88-3	0.54	2.7	4.5	4.4 J
Total Xylene	1330-20-7	NA	D	10	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	105
Toluene-d8	2037-26-5	70-130	102

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	SU-044A_0218	<b>Date/Time Analyzed:</b>	2/21/18 12:25 AM
<b>Lab ID:</b>	1802327C-20A	<b>Dilution Factor:</b>	2.47
<b>Date/Time Collecte</b>	2/15/18 05:09 PM	<b>Instrument/Filename:</b>	msdp.i / p022026
<b>Media:</b>	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.32	2.4	3.9	Not Detected
Ethyl Benzene	100-41-4	0.86	3.2	5.4	Not Detected
m,p-Xylene	108-38-3	1.2	3.2	5.4	2.2 J
Naphthalene	91-20-3	1.4	2.1	13	Not Detected
o-Xylene	95-47-6	0.96	3.2	5.4	Not Detected
Toluene	108-88-3	0.56	2.8	4.6	4.6
Total Xylene	1330-20-7	NA	D	11	Not Detected

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	104
Toluene-d8	2037-26-5	70-130	101

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	Lab Blank	<b>Date/Time Analyzed:</b>	2/20/18 02:44 PM
<b>Lab ID:</b>	1802327C-21A	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msdp.i / p022008c
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.13	0.96	1.6	Not Detected
Ethyl Benzene	100-41-4	0.35	1.3	2.2	Not Detected
m,p-Xylene	108-38-3	0.48	1.3	2.2	Not Detected
Naphthalene	91-20-3	0.58	0.84	5.2	Not Detected
o-Xylene	95-47-6	0.39	1.3	2.2	Not Detected
Toluene	108-88-3	0.23	1.1	1.9	Not Detected
Total Xylene	1330-20-7	NA	D	4.3	Not Detected

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	CCV	<b>Date/Time Analyzed:</b>	2/20/18 11:06 AM
<b>Lab ID:</b>	1802327C-22A	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msdp.i / p022002
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	%Recovery
Benzene	71-43-2	110
Ethyl Benzene	100-41-4	93
m,p-Xylene	108-38-3	94
Naphthalene	91-20-3	66
o-Xylene	95-47-6	91
Toluene	108-88-3	103
Total Xylene	1330-20-7	92

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	LCS	<b>Date/Time Analyzed:</b>	2/20/18 11:31 AM
<b>Lab ID:</b>	1802327C-23A	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msdp.i / p022003
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	%Recovery
Benzene	71-43-2	111
Ethyl Benzene	100-41-4	95
m,p-Xylene	108-38-3	96
Naphthalene	91-20-3	81
o-Xylene	95-47-6	95
Toluene	108-88-3	103
Total Xylene	1330-20-7	96

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	100

\* % Recovery is calculated using unrounded analytical results.



EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	LCSD	<b>Date/Time Analyzed:</b>	2/20/18 12:05 PM
<b>Lab ID:</b>	1802327C-23AA	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msdp.i / p022004
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	%Recovery
Benzene	71-43-2	110
Ethyl Benzene	100-41-4	94
m,p-Xylene	108-38-3	95
Naphthalene	91-20-3	79
o-Xylene	95-47-6	94
Toluene	108-88-3	104
Total Xylene	1330-20-7	94

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	101

\* % Recovery is calculated using unrounded analytical results.



Air Toxics

# Analysis Request / Canister Chain of Custody

For Laboratory Use Only

Acct: \_\_\_\_\_ WO # \_\_\_\_\_ Sample #s: \_\_\_\_\_

COC#: \_\_\_\_\_

1083

### Sample Transportation Notice

CH2M HILL

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

Client: Multistate Environmental Trust, LLI Acct: \_\_\_\_\_

Project Name: Former Tronox-Springfield, Mo

Project Manager: Tom Hutchinson-CH2M HILL P.O.# \_\_\_\_\_

Sampler: Shirley Steinmacher, Billy Irish, Mike Zamboni, Jon McKinney, Barbara Garcia

Site Name: Former Tronox Facility-Springfield, Mo

Lab ID	Location Identification/Sample ID	Can #	Date of Collection	Time of Collection	Check all analyses requested				Canister Vacuum/Pressure		Turn Around Time:	
					TO-15 TOTAL SCAN	TO-15 SIM	ASTM D 1946		Initial	Final	Receipt	Final (psig)
	IAU-016-0218	60946	2/15/18	1007		X			29.17	-11.54		Remarks: (Matrix code
	IAD-016-0218	61102	2/15/18	1018		X			29.12	-6.78		indoor air
	OA-016-0218	61777	2/15/18	1015		X			29.12	-7.18		outdoor air
07A	SU-016-0218	1L3048	2/15/18	1111	X		X		29.20	-4.59		subslab soil gas
	IAD-015-0218	8 <sup>th</sup> 00000	2/15/18	1153		X			29.16	5.09		indoor air
	IAU-015-0218	61503	2/15/18	1156		X			29.28	-5.43		indoor air
	OA-015-0218	61629	2/15/18	1158		X			29.37	-4.06		outdoor air
07A	SU-015-0218	1L2995	2/15/18	1230	X		X		29.26	3.65		subslab soil gas
	OA-033-0218	61263	2/15/18	1407		X			29.05	-4.77		outdoor air

indoor air

Relinquished by:	Date: 2/15/18	Time: 1815	Received by:	Date: 02/16/18	Time: 1010	Level IV Data Required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Circle One)
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Specific EDD format Required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Circle One)
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	

Shipper Name: <u>Geel Gx</u>	Custody Seals Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> None		Note: primary TCL VOC BETXN. He for GS	
	Sample Condition Upon Receipt: <u>Good</u>			

1802327



Air Toxics

# Analysis Request / Canister Chain of Custody

For Laboratory Use Only

Acct: \_\_\_\_\_ WO # \_\_\_\_\_ Sample #s: \_\_\_\_\_

COC#: \_\_\_\_\_

2 of 3

## Sample Transportation Notice

CH2M HILL

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

Client: Multistate Environmental Trust, LLC Acct: \_\_\_\_\_

Project Name: Former Tronox-Springfield, Mo

Project Manager: Tom Hutchinson-CH2M HILL P.O.# \_\_\_\_\_

Sampler: Shirley Steinmacher, Billy Irish, Mike Zamboni, Jon McKinney, Barbara Garcia

Site Name: Former Tronox Facility-Springfield, Mo

Lab ID	Location Identification/Sample ID	Can #	Date of Collection	Time of Collection	Check all analyses requested				Canister Vacuum/Pressure		Turn Around Time:		Remarks: (Matrix code)	
					TO-15 TOTAL SCAN	TO-15 SIM	ASTM D 1946				Initial	Final		Receipt
<del>OA-044-0218</del>	SM-F-0218	00032317	2/15/18	1409	X					-28.11	-4.89			
CS-033-0218		6L1527	2/15/18	1410		X				-27.74	-4.11			Sever headspace
SM-E-0218		6L0482	2/15/18	1416	X					-29.03	-2.21			Sever headspace
SM-O-0218		00001652	2/15/18	1420	X					-29.19	-3.76			Sever headspace
SM-B-0218		6L1745	2/15/18	1430	X					-28.92	-5.39			Sever headspace
SM-C-0218		6L0378	2/15/18	1433	X					-28.92	-4.38			Sever headspace
SM-G-0218		6L1532	2/15/18	1433	X					-29.17	-20.01			LOW volume x Sever headspace
IA-044A-0218		6L0858	2/15/18	1632		X				-28.66	-5.63			Indoor air
OA-044A-0218		6L1215	2/15/18	1641		X				-27.59	-4.44			-29.05 -5.69 Indoor air

Relinquished by:	Date: 2/15/18	Time: 18:15	Received by:	Date: 02/16/18	Time: 1010	Level IV Data Required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Circle One)
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Specific EDD format Required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Circle One)
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	

Shipper Name: <u>Bed Ex</u>	Custody Seals Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> None			Note: primary TCL VOC BETXN. He for GS
	Sample Condition Upon Receipt: <u>Good</u>			

1802327



2/21/2018

Mr. Mark Stinnett

CH2M Hill

3011 SW Williston Road

Gainesville FL 32608

Project Name: Former Tronox-Springfield, Mo

Project #:

Workorder #: 1802327D

Dear Mr. Mark Stinnett

The following report includes the data for the above referenced project for sample(s) received on 2/16/2018 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Brian Whittaker

Project Manager

**WORK ORDER #: 1802327D**

Work Order Summary

<b>CLIENT:</b>	Mr. Mark Stinnett CH2M Hill 3011 SW Williston Road Gainesville, FL 32608	<b>BILL TO:</b>	Accounts Payable Greenfield Environmental, Inc. PO Box 1189 Helena, MT 59624
<b>PHONE:</b>	352-335-7991	<b>P.O. #</b>	Springfield, MO
<b>FAX:</b>	352-3352959	<b>PROJECT #</b>	Former Tronox-Springfield, Mo
<b>DATE RECEIVED:</b>	02/16/2018	<b>CONTACT:</b>	Brian Whittaker
<b>DATE COMPLETED:</b>	02/21/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
04A	SU-016_0218	Modified ASTM D-1946	5.5 "Hg	15 psi
08A	SU-015_0218	Modified ASTM D-1946	4.5 "Hg	15 psi
20A	SU-044A_0218	Modified ASTM D-1946	5.5 "Hg	15 psi
21A	Lab Blank	Modified ASTM D-1946	NA	NA
22A	LCS	Modified ASTM D-1946	NA	NA
22AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY:   
 \_\_\_\_\_  
 Technical Director

DATE: 02/21/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,  
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935  
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE**  
**Modified ASTM D-1946**  
**CH2M Hill**  
**Workorder# 1802327D**

Three 1 Liter Summa Canister samples were received on February 16, 2018. The laboratory performed analysis via Modified ASTM Method D-1946 for Helium in air using GC/TCD. The method involves direct injection of 1.0 mL of sample.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>ASTM D-1946</i>	<i>ATL Modifications</i>
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A minimum of 5-point calibration curve is performed. Quantitation is based on average Response Factor.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a $\geq 95\%$ accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections $> 5 X$ 's the RL.

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit.

**Definition of Data Qualifying Flags**

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit.

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the detection limit.

M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946  
 Former Tronox-Springfield, Mo

<b>Client ID:</b>	SU-016_0218	<b>Date/Time Analyzed:</b>	2/20/18 09:29 AM
<b>Lab ID:</b>	1802327D-04A	<b>Dilution Factor:</b>	2.47
<b>Date/Time Collecte</b>	2/15/18 11:11 AM	<b>Instrument/Filename:</b>	gc10.i / 10022013c
<b>Media:</b>	1 Liter Summa Canister		

Compound	CAS#	MDL (%)	LOD (%)	Rpt. Limit (%)	Amount (%)
Helium	7440-59-7	0.0078	0.018	0.12	0.018 J

J = Estimated value.

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946  
 Former Tronox-Springfield, Mo

<b>Client ID:</b>	SU-015_0218	<b>Date/Time Analyzed:</b>	2/20/18 09:59 AM
<b>Lab ID:</b>	1802327D-08A	<b>Dilution Factor:</b>	2.38
<b>Date/Time Collecte</b>	2/15/18 12:30 PM	<b>Instrument/Filename:</b>	gc10.i / 10022014c
<b>Media:</b>	1 Liter Summa Canister		

Compound	CAS#	MDL (%)	LOD (%)	Rpt. Limit (%)	Amount (%)
Helium	7440-59-7	0.0075	0.017	0.12	Not Detected

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946  
 Former Tronox-Springfield, Mo

<b>Client ID:</b>	SU-044A_0218	<b>Date/Time Analyzed:</b>	2/20/18 10:30 AM
<b>Lab ID:</b>	1802327D-20A	<b>Dilution Factor:</b>	2.47
<b>Date/Time Collecte</b>	2/15/18 05:09 PM	<b>Instrument/Filename:</b>	gc10.i / 10022015c
<b>Media:</b>	1 Liter Summa Canister		

<b>Compound</b>	<b>CAS#</b>	<b>MDL (%)</b>	<b>LOD (%)</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Helium	7440-59-7	0.0078	0.018	0.12	Not Detected

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946  
 Former Tronox-Springfield, Mo

<b>Client ID:</b>	Lab Blank	<b>Date/Time Analyzed:</b>	2/19/18 09:51 PM
<b>Lab ID:</b>	1802327D-21A	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	gc10.i / 10022003c
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	MDL (%)	LOD (%)	Rpt. Limit (%)	Amount (%)
Helium	7440-59-7	0.0032	0.0072	0.050	Not Detected

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946  
 Former Tronox-Springfield, Mo

<b>Client ID:</b>	LCS	<b>Date/Time Analyzed:</b>	2/19/18 09:26 PM
<b>Lab ID:</b>	1802327D-22A	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	gc10.i / 10022002c
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	%Recovery
Helium	7440-59-7	102

\* % Recovery is calculated using unrounded analytical results.

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946  
 Former Tronox-Springfield, Mo

<b>Client ID:</b>	LCSD	<b>Date/Time Analyzed:</b>	2/20/18 01:15 PM
<b>Lab ID:</b>	1802327D-22AA	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	gc10.i / 10022020c
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	%Recovery
Helium	7440-59-7	101

\* % Recovery is calculated using unrounded analytical results.



Air Toxics

# Analysis Request /Canister Chain of Custody

For Laboratory Use Only

Acct: \_\_\_\_\_ WO # \_\_\_\_\_ Sample #: \_\_\_\_\_

COC#: \_\_\_\_\_

1083

### Sample Transportation Notice

CH2M HILL

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

Client: Multistate Environmental Trust, LLI Acct: \_\_\_\_\_

Project Name: Former Tronox-Springfield, Mo

Project Manager: Tom Hutchinson-CH2M HILL P.O.# \_\_\_\_\_

Sampler: Shirley Steinmacher, Billy Irish, Mike Zamboni, Jon McKinney, Barbara Garcia

Site Name: Former Tronox Facility-Springfield, Mo

Lab ID	Location Identification/Sample ID	Can #	Date of Collection	Time of Collection	Check all analyses requested						Canister Vacuum/Pressure		Turn Around Time: <input type="checkbox"/> Normal <input checked="" type="checkbox"/> Rush! Specify: 72 H TAT FORM 1				
					TO-15 TOTAL SCAN	TO-15 SIM	ASTM D 1946					Initial		Final	Receipt	Final (psig)	
	IAU-016-0218	6C0946	2/15/18	1007		X							-29.17	-11.54			Remarks: (Matrix code
	IAD-016-0218	6L1102	2/15/18	1018		X							-29.12	-6.78			indoor air
	OA-016-0218	6L1777	2/15/18	1015		X							-29.12	-7.18			outdoor air
04A	SU-016-0218	1L3048	2/15/18	1111	X		X						-29.20	-4.59			subslab soil gas
	IAD-015-0218	8 <sup>th</sup> 009903	2/15/18	1153		X							-29.16	-5.09			indoor air
	IAU-015-0218	6L1503	2/15/18	1156		X							-29.28	-5.43			indoor air
	OA-015-0218	6L1629	2/15/18	1158		X							-29.27	-4.06			outdoor air
08A	SU-015-0218	1L2995	2/15/18	1230	X		X						-29.26	-3.65			subslab soil gas
	OA-033-0218	6L1263	2/15/18	1407		X							-29.05	-4.77			outdoor air

Relinquished by:	Date: 2/15/18	Time: 1815	Received by:  EARL	Date: 02/16/18	Time: 1010	Level IV Data Required? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle One)
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Specific EDD format Required? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle One)
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	

Shipper Name: <u>Good</u>	Custody Seals Intact? <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> None		Note: primary TCL VOC BETXN. He for GS
	Sample Condition Upon Receipt: <u>Good</u>		

1802327







Air Toxics

# Analysis Request /Canister Chain of Custody

For Laboratory Use Only

Acct: \_\_\_\_\_ WO # \_\_\_\_\_ Sample #: \_\_\_\_\_

COC#: \_\_\_\_\_

3 of 3

## Sample Transportation Notice

CH2M HILL

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Client: Multistate Environmental Trust, LLI Acct: \_\_\_\_\_

Project Name: Former Tronox-Springfield, Mo

Project Manager: Tom Hutchinson-CH2M HILL P.O.# \_\_\_\_\_

Sampler: Shirley Steinmacher, Billy Irish, Mike Zamboni, Jon McKinney, Barbara Garcia

Site Name: Former Tronox Facility-Springfield, Mo

Lab ID	Location Identification/Sample ID	Can #	Date of Collection	Time of Collection	Check all analyses requested						Canister Vacuum/Pressure		Turn Around Time: <input type="checkbox"/> Normal <input checked="" type="checkbox"/> Rush! Specify: 72 H TAT FORM 1							
					TO-15 TOTAL SCAN	TO-15 SIM	ASTM D 1946							Initial	Final	Receipt	Final (psig)			
	CS-044A-0218	6L0507	2/15/18	16:42		X														
20A	SV-044A-0218	1L2334	2/15/18	17:09	X		X													

Flow pack air

Relinquished by: <u>[Signature]</u>	Date: <u>2/15/18</u>	Time: <u>18:15</u>	Received by: <u>[Signature]</u>	Date: <u>02/16/18</u>	Time: <u>10:10</u>	Level IV Data Required?	<input checked="" type="radio"/> Yes <input type="radio"/> No (Circle One)
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	Specific EDD format Required?	<input checked="" type="radio"/> Yes <input type="radio"/> No (Circle One)
Relinquished by:	Date:	Time:	Received by:	Date:	Time:		

Lab Use Only			
Shipper Name: <u>Fed Ex</u>	Custody Seals Intact?	Yes No <u>None</u>	Note: primary TCL VOC BETXN. He for GS
	Sample Condition Upon Receipt:	<u>Good</u>	

1802827

3/13/2018  
Mr. Mark Stinnett  
CH2M Hill  
3011 SW Williston Road

Gainesville FL 32608

Project Name: Former Tronox-Springfield, Mo  
Project #:  
Workorder #: 1802368BR2

Dear Mr. Mark Stinnett

The following report includes the data for the above referenced project for sample(s) received on 2/19/2018 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Brian Whittaker  
Project Manager

**WORK ORDER #: 1802368BR2**

Work Order Summary

<b>CLIENT:</b>	Mr. Mark Stinnett CH2M Hill 3011 SW Williston Road Gainesville, FL 32608	<b>BILL TO:</b>	Accounts Payable Greenfield Environmental, Inc. PO Box 1189 Helena, MT 59624
<b>PHONE:</b>	352-335-7991	<b>P.O. #</b>	690813.FI.01
<b>FAX:</b>	352-3352959	<b>PROJECT #</b>	Former Tronox-Springfield, Mo
<b>DATE RECEIVED:</b>	02/19/2018	<b>CONTACT:</b>	Brian Whittaker
<b>DATE COMPLETED:</b>	02/22/2018		
<b>DATE REISSUED:</b>	03/13/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
05A	SU-014_0218	TO-15	4.0 "Hg	15 psi
06A	SU-114_0218	TO-15	4.0 "Hg	15 psi
07A	Lab Blank	TO-15	NA	NA
08A	CCV	TO-15	NA	NA
09A	LCS	TO-15	NA	NA
09AA	LCSD	TO-15	NA	NA

CERTIFIED BY:   
 \_\_\_\_\_  
 Technical Director

DATE: 03/13/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,  
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935  
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE**  
**EPA Method TO-15**  
**CH2M Hill**  
**Workorder# 1802368BR2**

Two 1 Liter Summa Canister samples were received on February 19, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

**Receiving Notes**

There were no receiving discrepancies.

Per client request, the work order was reissued on 03/13/18 to correct identification of the following samples(s) SU-014\_0218 and SU-114\_0218 provided via Email on 03/12/18 .

**Analytical Notes**

As per client project requirements, the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit. Concentrations that are below the level at which the canister was certified (0.2 ppbv for compounds reported at 0.5 ppbv and 0.8 ppbv for compounds reported at 2.0 ppbv) may be false positives.

Total Xylenes concentration is calculated by summing the individual concentrations of m,p-Xylene and O-Xylene.

A Limit of Detection (LOD) and Method Detection Limit (MDL) study are not maintained for Total Xylenes.

Due to laboratory error, the workorder was reissued on 2/23/18 to apply the appropriate flags to the final report.

**Definition of Data Qualifying Flags**

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	SU-014_0218	<b>Date/Time Analyzed:</b>	2/20/18 10:40 PM
<b>Lab ID:</b>	1802368BR2-05A	<b>Dilution Factor:</b>	2.33
<b>Date/Time Collecte</b>	2/15/18 09:55 PM	<b>Instrument/Filename:</b>	msdp.i / p022022
<b>Media:</b>	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.30	2.2	3.7	0.31 J
Ethyl Benzene	100-41-4	0.81	3.0	5.0	Not Detected U
m,p-Xylene	108-38-3	1.1	3.0	5.0	Not Detected U
Naphthalene	91-20-3	1.3	2.0	12	Not Detected U
o-Xylene	95-47-6	0.91	3.0	5.0	Not Detected U
Toluene	108-88-3	0.53	2.6	4.4	2.3 J
Total Xylene	1330-20-7	NA	D	10	Not Detected

J = Estimated value.

U = The analyte was not detected above the MDL.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	88
4-Bromofluorobenzene	460-00-4	70-130	99
Toluene-d8	2037-26-5	70-130	103

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	SU-114_0218	<b>Date/Time Analyzed:</b>	2/20/18 11:07 PM
<b>Lab ID:</b>	1802368BR2-06A	<b>Dilution Factor:</b>	2.33
<b>Date/Time Collecte</b>	2/15/18 09:55 PM	<b>Instrument/Filename:</b>	msdp.i / p022023
<b>Media:</b>	1 Liter Summa Canister		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.30	2.2	3.7	Not Detected U
Ethyl Benzene	100-41-4	0.81	3.0	5.0	Not Detected U
m,p-Xylene	108-38-3	1.1	3.0	5.0	1.4 J
Naphthalene	91-20-3	1.3	2.0	12	Not Detected U
o-Xylene	95-47-6	0.91	3.0	5.0	Not Detected U
Toluene	108-88-3	0.53	2.6	4.4	2.1 J
Total Xylene	1330-20-7	NA	D	10	Not Detected

U = The analyte was not detected above the MDL.

J = Estimated value.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	102
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	Lab Blank	<b>Date/Time Analyzed:</b>	2/20/18 02:44 PM
<b>Lab ID:</b>	1802368BR2-07A	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msdp.i / p022008c
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	MDL (ug/m3)	LOD (ug/m3)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	71-43-2	0.13	0.96	1.6	Not Detected U
Ethyl Benzene	100-41-4	0.35	1.3	2.2	Not Detected U
m,p-Xylene	108-38-3	0.48	1.3	2.2	Not Detected U
Naphthalene	91-20-3	0.58	0.84	5.2	Not Detected U
o-Xylene	95-47-6	0.39	1.3	2.2	Not Detected U
Toluene	108-88-3	0.23	1.1	1.9	Not Detected U
Total Xylene	1330-20-7	NA	D	4.3	Not Detected

U = The analyte was not detected above the MDL.

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	90
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	100



EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	CCV	<b>Date/Time Analyzed:</b>	2/20/18 11:06 AM
<b>Lab ID:</b>	1802368BR2-08A	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msdp.i / p022002
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	%Recovery
Benzene	71-43-2	110
Ethyl Benzene	100-41-4	93
m,p-Xylene	108-38-3	94
Naphthalene	91-20-3	66
o-Xylene	95-47-6	91
Toluene	108-88-3	103
Total Xylene	1330-20-7	93

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	95
4-Bromofluorobenzene	460-00-4	70-130	98
Toluene-d8	2037-26-5	70-130	100

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	LCS	<b>Date/Time Analyzed:</b>	2/20/18 11:31 AM
<b>Lab ID:</b>	1802368BR2-09A	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msdp.i / p022003
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	%Recovery
Benzene	71-43-2	111
Ethyl Benzene	100-41-4	95
m,p-Xylene	108-38-3	96
Naphthalene	91-20-3	81
o-Xylene	95-47-6	95
Toluene	108-88-3	103
Total Xylene	1330-20-7	95

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	94
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	100

\* % Recovery is calculated using unrounded analytical results.

EPA METHOD TO-15 GC/MS FULL SCAN  
Former Tronox-Springfield, Mo

<b>Client ID:</b>	LCSD	<b>Date/Time Analyzed:</b>	2/20/18 12:05 PM
<b>Lab ID:</b>	1802368BR2-09AA	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	msdp.i / p022004
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	%Recovery
Benzene	71-43-2	110
Ethyl Benzene	100-41-4	94
m,p-Xylene	108-38-3	95
Naphthalene	91-20-3	79
o-Xylene	95-47-6	94
Toluene	108-88-3	104
Total Xylene	1330-20-7	94

D: Analyte not within the DoD scope of accreditation.

Surrogates	CAS#	Limits	%Recovery
1,2-Dichloroethane-d4	17060-07-0	70-130	93
4-Bromofluorobenzene	460-00-4	70-130	97
Toluene-d8	2037-26-5	70-130	101

\* % Recovery is calculated using unrounded analytical results.



Air Toxics

# Analysis Request / Canister Chain of Custody

For Laboratory Use Only

Acct: \_\_\_\_\_ WO # \_\_\_\_\_ Sample #: \_\_\_\_\_

COC#: 1

## Sample Transportation Notice

CH2M HILL

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Client: Multistate Environmental Trust, LLC Acct: 6A0813.FI.01

Project Name: Former Tronox-Springfield, Mo

Project Manager: Tom Hutchinson-CH2M HILL P.O.# \_\_\_\_\_

Sampler: Shirley Steinmacher, Billy Irish, Mike Zamboni, Jon McKinney, Barbara Garcia

Site Name: Former Tronox Facility-Springfield, Mo

Lab ID	Location Identification/Sample ID	Can #	Date of Collection	Time of Collection	Check all analyses requested			Canister Vacuum/Pressure		Turn Around Time:	
					TO-15 TOTAL SCAN	TO-15 SIM	ASTM D 1946	Initial	Final	Normal	Rush!
	OA-014 / OA-014-0218	6L1858	2/15-2/16/18	2146-2005		X					
	<del>OA-014</del> IAU-014 / IAU-014-0218	6L1315	↓	2212-1933		X					
	IAU-114 / IAU-114-0218	6L1718	2/15-2/16/18	2212-1933		X					
	IAD-014 / IAD-014-0218	6L1000	2/15-2/16/18	2200-1959		X					
OSA	SV-014 / SV-014-0218	1L1593	2/15/18	2155	X		X				
66A	SV-114 / SV-114-0218	1L2224	2/15/18	2155	X		X				

Relinquished by: <u>Shirley Steinmacher</u>	Date: <u>2/17/18</u>	Time: <u>1110</u>	Received by: <u>FEDEX</u>	Date: <u>2/17/18</u>	Time: <u>1110</u>	Level IV Data Required? <u>Yes</u> (Circle One)
Relinquished by: _____	Date: _____	Time: _____	Received by: <u>MBA</u>	Date: <u>2/19/18</u>	Time: <u>0905</u>	Specific EDD format Required? <u>Yes</u> (Circle One)
Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____	

Shipper Name: <u>FEDEX</u>	Custody Seals Intact? <u>Yes</u> <u>No</u> <u>None</u>		Sample Condition Upon Receipt: <u>Good</u>	Lab Use Only
				Note: primary TCL VOC BETXN. He for GS -> He for GS

Eurofins Air Toxics, Inc. 180 Blue Ravine Rd. Suite B Folsom, CA 95630 (916) 985-1000 Fax: (916) 351-8279

1802368

3/13/2018  
Mr. Mark Stinnett  
CH2M Hill  
3011 SW Williston Road

Gainesville FL 32608

Project Name: Former Tronox-Springfield, Mo  
Project #:  
Workorder #: 1802368CR1

Dear Mr. Mark Stinnett

The following report includes the data for the above referenced project for sample(s) received on 2/19/2018 at Air Toxics Ltd.

The data and associated QC analyzed by Modified ASTM D-1946 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Brian Whittaker at 916-985-1000 if you have any questions regarding the data in this report.

Regards,



Brian Whittaker  
Project Manager

**WORK ORDER #: 1802368CR1**

Work Order Summary

<b>CLIENT:</b>	Mr. Mark Stinnett CH2M Hill 3011 SW Williston Road Gainesville, FL 32608	<b>BILL TO:</b>	Accounts Payable Greenfield Environmental, Inc. PO Box 1189 Helena, MT 59624
<b>PHONE:</b>	352-335-7991	<b>P.O. #</b>	690813.FI.01
<b>FAX:</b>	352-3352959	<b>PROJECT #</b>	Former Tronox-Springfield, Mo
<b>DATE RECEIVED:</b>	02/19/2018	<b>CONTACT:</b>	Brian Whittaker
<b>DATE COMPLETED:</b>	02/22/2018		
<b>DATE REISSUED:</b>	03/13/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
05A	SU-014_0218	Modified ASTM D-1946	4.0 "Hg	15 psi
06A	SU-114_0218	Modified ASTM D-1946	4.0 "Hg	15 psi
07A	Lab Blank	Modified ASTM D-1946	NA	NA
08A	LCS	Modified ASTM D-1946	NA	NA
08AA	LCSD	Modified ASTM D-1946	NA	NA

CERTIFIED BY:   
 \_\_\_\_\_  
 Technical Director

DATE: 03/13/18

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,  
 TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935  
 Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
 Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

**LABORATORY NARRATIVE**  
**Modified ASTM D-1946**  
**CH2M Hill**  
**Workorder# 1802368CR1**

Two 1 Liter Summa Canister samples were received on February 19, 2018. The laboratory performed analysis via Modified ASTM Method D-1946 for Helium in air using GC/TCD. The method involves direct injection of 1.0 mL of sample.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>ASTM D-1946</i>	<i>ATL Modifications</i>
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A minimum of 5-point calibration curve is performed. Quantitation is based on average Response Factor.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a $\geq 95\%$ accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections $> 5 X$ 's the RL.

**Receiving Notes**

There were no receiving discrepancies.

Per client request, the work order was reissued on 03/13/18 to correct identification of the following samples(s) SU-014\_0218 and SU-114\_0218 provided via Email on 03/12/18 .

**Analytical Notes**

As per project specific client request the laboratory has reported estimated values for target compound hits that are below the Reporting Limit but greater than the Method Detection Limit.

**Definition of Data Qualifying Flags**

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit.

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the detection limit.

M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946  
 Former Tronox-Springfield, Mo

<b>Client ID:</b>	SU-014_0218	<b>Date/Time Analyzed:</b>	2/20/18 11:12 AM
<b>Lab ID:</b>	1802368CR1-05A	<b>Dilution Factor:</b>	2.33
<b>Date/Time Collecte</b>	2/15/18 09:55 PM	<b>Instrument/Filename:</b>	gc10.i / 10022016c
<b>Media:</b>	1 Liter Summa Canister		

<b>Compound</b>	<b>CAS#</b>	<b>MDL (%)</b>	<b>LOD (%)</b>	<b>Rpt. Limit (%)</b>	<b>Amount (%)</b>
Helium	7440-59-7	0.000000000	0.017	0.12	0.080 J

J = Estimated value.

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946  
 Former Tronox-Springfield, Mo

<b>Client ID:</b>	SU-114_0218	<b>Date/Time Analyzed:</b>	2/20/18 11:46 AM
<b>Lab ID:</b>	1802368CR1-06A	<b>Dilution Factor:</b>	2.33
<b>Date/Time Collecte</b>	2/15/18 09:55 PM	<b>Instrument/Filename:</b>	gc10.i / 10022017c
<b>Media:</b>	1 Liter Summa Canister		

Compound	CAS#	MDL (%)	LOD (%)	Rpt. Limit (%)	Amount (%)
Helium	7440-59-7	0.000000000	0.017	0.12	0.020 J

J = Estimated value.

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946  
 Former Tronox-Springfield, Mo

<b>Client ID:</b>	Lab Blank	<b>Date/Time Analyzed:</b>	2/19/18 09:51 PM
<b>Lab ID:</b>	1802368CR1-07A	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	gc10.i / 10022003c
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	MDL (%)	LOD (%)	Rpt. Limit (%)	Amount (%)
Helium	7440-59-7	0.000000000	0.0072	0.050	Not Detected U

U = The analyte was not detected above the MDL.

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946  
 Former Tronox-Springfield, Mo

<b>Client ID:</b>	LCS	<b>Date/Time Analyzed:</b>	2/19/18 09:26 PM
<b>Lab ID:</b>	1802368CR1-08A	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	gc10.i / 10022002c
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	%Recovery
Helium	7440-59-7	102

\* % Recovery is calculated using unrounded analytical results.

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946  
 Former Tronox-Springfield, Mo

<b>Client ID:</b>	LCSD	<b>Date/Time Analyzed:</b>	2/20/18 01:15 PM
<b>Lab ID:</b>	1802368CR1-08AA	<b>Dilution Factor:</b>	1.00
<b>Date/Time Collecte</b>	NA - Not Applicable	<b>Instrument/Filename:</b>	gc10.i / 10022020c
<b>Media:</b>	NA - Not Applicable		

Compound	CAS#	%Recovery
Helium	7440-59-7	101

\* % Recovery is calculated using unrounded analytical results.



Air Toxics

# Analysis Request / Canister Chain of Custody

For Laboratory Use Only

Acct: \_\_\_\_\_ WO # \_\_\_\_\_ Sample #: \_\_\_\_\_

COC#: 1

## Sample Transportation Notice

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

CH2M HILL

Client: Multistate Environmental Trust, LLC Acct: 690813.FI.01

Project Name: Former Tronox-Springfield, Mo

Project Manager: Tom Hutchinson-CH2M HILL P.O.# \_\_\_\_\_

Sampler: Shirley Steinmacher, Billy Irish, Mike Zamboni, Jon McKinney, Barbara Garcia

Site Name: Former Tronox Facility-Springfield, Mo

Lab ID	Location Identification/Sample ID	Can #	Date of Collection	Time of Collection	Check all analyses requested				Canister Vacuum/Pressure		Turn Around Time:		Remarks: (Matrix code, etc.)	
					TO-15 TOTAL SCAN	TO-15 SIM	ASTM D 1946		Initial	Final	Receipt	Final (psig)		<input type="checkbox"/> Normal
	OA-014 / OA-014-0218	6L1858	2/15-2/16/18	2146-2005		X				-29.22	-1.58			Outdoor
	IAU-014 / IAU-014-0218	6L1315	↓	2212-1933		X				-28.97	-9.76			Indoor air (At) all
	IAU-114 / IAU-114-0218	6L1718	2/15-2/16/18	2212-1933		X				-28.50	-7.16			AI
	IAD-014 / IAD-014-0218	6L1000	2/15-2/16/18	2200-1959		X				-29.07	-7.33			AI
OSA	SV-014 / SV-014-0218	IL1593	2/15/18	2155	X		X			-29.31	-3.14			Soil gas GS
66A	SV-114 / SV-114-0218	IL2224	2/15/18	2155	X		X			-29.28	-3.44			Soil gas GS
<i>Shirley Steinmacher</i>														

Relinquished by: <i>Shirley Steinmacher</i>	Date: 2/17/18	Time: 1110	Received by: FEDEX	Date: 2/17/18	Time: 1110	Level IV Data Required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Circle One)
Relinquished by:	Date:	Time:	Received by: <i>FEDEX</i>	Date: 2/19/18	Time: 0905	Specific EDD format Required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Circle One)
Relinquished by:	Date:	Time:	Received by:	Date:	Time:	

Shipper Name: <i>Ed</i>	Custody Seals Intact? Yes No <input checked="" type="radio"/> None	Note: primary TCL VOC BETXN. He for GS - 2/15 He for GS
Sample Condition Upon Receipt: <i>Good</i>		

1802368

Attachment 3  
MoDNR Split Sample Documentation  
and Laboratory Analytical Report

# *Site Sampling Report*



# Site Sampling Report

## Greenfield Environmental Trust Inc., Former Kerr McGee Springfield, Greene County, MO

### Site Information:

LDPR Code: FERBL  
Job Code: NJ00KMSF

ESP Staff: Caleb Troutt & Eric Sappington  
Investigation Date: 2/14/18-2/15/18

### Introduction:

The Missouri Department of Natural Resources (MoDNR) Division of Environmental Quality (DEQ) Hazardous Waste Program (HWP) requested MoDNR Environmental Services Program (ESP) Field Services Unit (FSU) personnel to collect SUMMA canister air samples from one residence located near the Kerr McGee site located in Springfield, Greene County, Missouri. Sampling was conducted as part of an air sampling investigation event. ESP Environmental Specialist Caleb Troutt and Environmental Supervisor Eric Sappington traveled to the site the week of 2/14/18 to conduct sampling. Environmental Specialists from consultant CH2M, sampling team Shirley Steinmacher and Billy Irish, with assistance from several Environmental Works Inc. staff, were on site conducting sampling of indoor air, outdoor air, sub slab and crawl space air samples at various houses located near the Kerr McGee site. HWP project manager Mark Hogan chose one location where ESP staff would collect split samples with CH2M staff: **Property 016.**

### Field Methods:

All sampling was performed in accordance to a sampling plan written by CH2M personnel and approved and reviewed by HWP staff. The CH2M plan outlined the methods used for all air sampling performed on the site. All sampling was performed by CH2M personnel with ESP personnel providing additional SUMMA canisters for split sampling and independent analysis.

### Observations:

Detailed sampling procedures were outlined in the sampling plan and ESP personnel observed no deviations from the written plan during the split sampling event.

CH2M used a water dam and helium with a shroud to check for leaks in the vapor pin. No leaks were detected.

Split samples were collected for indoor and outdoor air samples by placing a 6 liter SUMMA canister at a location immediately next to the CH2M canister. A "T" bar was used to connect two, one liter SUMMA canisters, to collect a sub slab vapor sample.

Greenfield Environmental Trust, Former Kerr McGee Site  
Site Sampling Report  
February 14-15, 2018  
Page 2

CH2M received their sampling equipment from and submitted their samples to Eurofins Air Toxics, 180 Blue Ravine Road, Folsom, CA. ESP received air sampling supplies from and submitted their samples to Test America, 880 Riverside Parkway, West Sacramento Ca.

Refer to Table 1 for additional information recorded for each sample collected by ESP personnel. Refer to Appendix A for Chain of Custody Information and Appendix B for field notes.

Submitted by: Caleb Troutt  
Caleb Troutt  
Environmental Specialist  
Field Services Unit  
Environmental Services Program

Approved by: **APPROVED**  
*By Eric Sappington at 1:32 pm, Apr 17, 2018*  
Eric Sappington  
Unit Chief  
Environmental Emergency Response/Field Services Unit  
Environmental Services Program

c: Mark Hogan, Environmental Specialist, HWP

Table 1  
ESP Sampling Information

ESP Identification #	Start/Stop Time	Start/Stop PSI	Can ID #	Collection Stop Date	Sample Description
181126	1027/1007	29/5	34001588	2/15/18	Indoor air sample from kitchen. IAU-016
181127	1031/1018	29/3.75	34000464	2/15/18	Indoor air sample from main room in basement. IAD-016
181128	1039/1015	30/3.0	34001527	2/15/18	Outdoor air sample from southeast corner of back yard. OA-016
181129	1057/1111	30/8	34002423	2/15/18	Subslab vapor from main room in basement. SU-016

## **Appendix A**

### **Greenfield Environmental Trust, Former Kerr McGee Site Chain of Custody Records**



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD



Description of Delivery  
 Tape sealed and initialed \_\_\_\_\_ Total No. Of Containers: \_\_\_\_\_  
 Shipped \_\_\_\_\_ Carrier: \_\_\_\_\_  
 X Hand Delivered By: \_\_\_\_\_

Collector's Name: Caleb Troutt  
 (Please Print)  
 Affiliation: KCRO NERO SERO SLRO SWRO WPP DGLS HWP  ESP  MoDOT  
 (circle one) MDC DHSS Other: \_\_\_\_\_

**LAB USE ONLY!**  
 Laboratory ID: 180326003  
 Location: Contract Lab

Sample Number	Sample Collected	Analyses Requested	Disinfect. Type	Field Parameters (include units)	Matrix (circle one)	Container Type	Preservative Type	Number of Containers
181126 (Sample A)	Date: 2/15/2018	TO-15 SIM	(circle one) None	D.O. Flow	Water Soil Organic Sludge Other:			
	Time: 1007		Cl <sub>2</sub> UV Ozone Other:	pH Cond. Temp. Other:				
181127 (Sample B)	Date: 2/15/2018	TO-15 SIM	None Cl <sub>2</sub> UV Ozone Other:	D.O. Flow pH Cond. Temp. Other:	Water Soil Organic Sludge Other:			
	Time: 1018							
181128 (Sample C)	Date: 2/15/2018	TO-15 SIM	None Cl <sub>2</sub> UV Ozone Other:	D.O. Flow pH Cond. Temp. Other:	Water Soil Organic Sludge Other:			
	Time: 1015							
181129 (Sample D)	Date: 2/15/2018	TO-15	None Cl <sub>2</sub> UV Ozone Other:	D.O. Flow pH Cond. Temp. Other:	Water Soil Organic Sludge Other:			
	Time: 1111							

Relinquished By: Caleb Troutt	Received By: [Signature]	Date: 3-26-18	Time: 1058
Relinquished By:	Received By:	Date:	Time:
Relinquished By:	Received By:	Date:	Time:





MISSOURI DEPARTMENT OF NATURAL RESOURCES  
FIELD SHEET AND CHAIN-OF-CUSTODY RECORD



<b>Sample A</b>		<b>LDPR:</b> FERBL	<b>Job Code:</b> NJ00KMSF	<b>Sample Reference ID:</b>	
<b>Facility ID:</b>	<b>Site/Study Name:</b> Greenfield Trust Greenfield trust CT 3/29		<b>County:</b> Greene	<b>Sample Event Type: (circle one)</b>	
<b>Sample Comment (where and how the sample was collected):</b> Sample # 181126 was taken in kitchen.			<input checked="" type="checkbox"/> <b>Grab</b> <input type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:		<b>Sample Type: (circle one)</b>
<b>GPS Coordinates (UTM Zone 15 NAD83 Only)</b>		<b>X Easting</b>	<b>Y Northing</b>	<b>Accuracy (circle one)</b>	<b>EPE (meters) PDOP</b>
				<input checked="" type="checkbox"/> Bypass/SSO <input type="checkbox"/> Complaint <input type="checkbox"/> Emergency Response <input type="checkbox"/> Inspection <input checked="" type="checkbox"/> Investigation <input type="checkbox"/> Monitoring <input type="checkbox"/> Special Project	<input checked="" type="checkbox"/> Air <input type="checkbox"/> Soil <input type="checkbox"/> Container <input type="checkbox"/> Spill <input type="checkbox"/> Discharge <input type="checkbox"/> Storm Water <input type="checkbox"/> Groundwater <input type="checkbox"/> Surface Water <input type="checkbox"/> Organic <input type="checkbox"/> Wipes <input type="checkbox"/> Sediment <input type="checkbox"/> Rinsate Water <input type="checkbox"/> Sludge <input type="checkbox"/> Drinking Water Supply

<b>Sample B</b>		<b>LDPR:</b> FERBL	<b>Job Code:</b> NJ00KMSF	<b>Sample Reference ID:</b>	
<b>Facility ID:</b>	<b>Site/Study Name:</b> Greenfield Trust Greenfield trust CT 3/29		<b>County:</b> Greene	<b>Sample Event Type: (circle one)</b>	
<b>Sample Comment (where and how the sample was collected):</b> Sample # 181127 was taken in basement			<input checked="" type="checkbox"/> <b>Grab</b> <input type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:		<b>Sample Type: (circle one)</b>
<b>GPS Coordinates (UTM Zone 15 NAD83 Only)</b>		<b>X Easting</b>	<b>Y Northing</b>	<b>Accuracy (circle one)</b>	<b>EPE (meters) PDOP</b>
				<input type="checkbox"/> Bypass/SSO <input type="checkbox"/> Complaint <input type="checkbox"/> Emergency Response <input type="checkbox"/> Inspection <input checked="" type="checkbox"/> Investigation <input type="checkbox"/> Monitoring <input type="checkbox"/> Special Project	<input checked="" type="checkbox"/> Air <input type="checkbox"/> Soil <input type="checkbox"/> Container <input type="checkbox"/> Spill <input type="checkbox"/> Discharge <input type="checkbox"/> Storm Water <input type="checkbox"/> Groundwater <input type="checkbox"/> Surface Water <input type="checkbox"/> Organic <input type="checkbox"/> Wipes <input type="checkbox"/> Sediment <input type="checkbox"/> Sludge <input type="checkbox"/> Drinking Water Supply

<b>Sample C</b>		<b>LDPR:</b> FERBL	<b>Job Code:</b> NJ00KMSF	<b>Sample Reference ID:</b>	
<b>Facility ID:</b>	<b>Site/Study Name:</b> Greenfield Trust Greenfield trust CT 3/29		<b>County:</b> Greene	<b>Sample Event Type: (circle one)</b>	
<b>Sample Comment (where and how the sample was collected):</b> Sample #181128 was taken in back yard.			<input checked="" type="checkbox"/> <b>Grab</b> <input type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:		<b>Sample Type: (circle one)</b>
<b>GPS Coordinates (UTM Zone 15 NAD83 Only)</b>		<b>X Easting</b>	<b>Y Northing</b>	<b>Accuracy (circle one)</b>	<b>EPE (meters) PDOP</b>
				<input type="checkbox"/> Bypass/SSO <input type="checkbox"/> Complaint <input type="checkbox"/> Emergency Response <input type="checkbox"/> Inspection <input checked="" type="checkbox"/> Investigation <input type="checkbox"/> Monitoring <input type="checkbox"/> Special Project	<input checked="" type="checkbox"/> Air <input type="checkbox"/> Soil <input type="checkbox"/> Container <input type="checkbox"/> Spill <input type="checkbox"/> Discharge <input type="checkbox"/> Storm Water <input type="checkbox"/> Groundwater <input type="checkbox"/> Surface Water <input type="checkbox"/> Organic <input type="checkbox"/> Wipes <input type="checkbox"/> Sediment <input type="checkbox"/> Sludge <input type="checkbox"/> Drinking Water Supply

<b>Sample D</b>		<b>LDPR:</b> FERBL	<b>Job Code:</b> NJ00KMSF	<b>Sample Reference ID:</b>	
<b>Facility ID:</b>	<b>Site/Study Name:</b> Greenfield Trust Greenfield trust CT 3/29		<b>County:</b> Greene	<b>Sample Event Type: (circle one)</b>	
<b>Sample Comment (where and how the sample was collected):</b> Sample # 181129 was taken from sub-slab in basement			<input checked="" type="checkbox"/> <b>Grab</b> <input type="checkbox"/> Composite <input type="checkbox"/> Modified <input type="checkbox"/> Other:		<b>Sample Type: (circle one)</b>
<b>GPS Coordinates (UTM Zone 15 NAD83 Only)</b>		<b>X Easting</b>	<b>Y Northing</b>	<b>Accuracy (circle one)</b>	<b>EPE (meters) PDOP</b>
				<input type="checkbox"/> Bypass/SSO <input type="checkbox"/> Complaint <input type="checkbox"/> Emergency Response <input type="checkbox"/> Inspection <input checked="" type="checkbox"/> Investigation <input type="checkbox"/> Monitoring <input type="checkbox"/> Special Project	<input checked="" type="checkbox"/> Air <input type="checkbox"/> Soil <input type="checkbox"/> Container <input type="checkbox"/> Spill <input type="checkbox"/> Discharge <input type="checkbox"/> Storm Water <input type="checkbox"/> Groundwater <input type="checkbox"/> Surface Water <input type="checkbox"/> Organic <input type="checkbox"/> Wipes <input type="checkbox"/> Sediment <input type="checkbox"/> Sludge <input type="checkbox"/> Drinking Water Supply

**Remarks:**





## **Appendix B**

### **Greenfield Environmental Trust, Former Kerr McGee Site Field Notes**

2/14/18 - Property 016

Greenfield Environmental Test site  
with Caled.

Spl. the air samples with  
Greenfield and spec.

Calibrated EWI on 2 Jacobs  
Start time 10:27 CH<sub>2</sub>m

Set one in kitchen

on top of fridge on main  
floor Irish

- Bill, English, Shirley, Steiner  
Setting another in basement  
on top of a dresser.  
set 10:31

The jump in the gauge was  
dry. They sealed it up  
with plastic / duct tape.  
in an effort to keep any  
vapors out.

Setting a third one outside  
in the back yard chained  
to a fence (chain link)  
start time 10:39,  
SE corner.

will return tomorrow at 9:45

2/15/18 - returned to

2622 w. Trana to

pick up 3 - 6L 24

hour samples and to

collect a 5-12 min 1L

for a vapor pin in the  
basement.

It did not rain with

for last 24 hours, very

windy and cold down

to 60s.

Final readings on the canisters:

outside - ~ 3 psi - stop time 10:15

basement - ~ 3 psi; stop time 10:18

main floor - 5.05 psi - stop time 10:07

We used a digital gauge for  
the contractor's help.

Loc ID - Project 016

SU-016 - ID # to  
the sub slab.

IAU-016 (upstairs)

IAO-016 (downstairs)

OA-016 (outside)

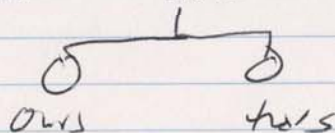
- The above are designations for  
the contractor uses.

CH<sub>2</sub>M

CH<sub>2</sub>M has been taken over

by Jacobs Engineering, but  
for this contract they will  
themselves CH<sub>2</sub>M

They conducted a manifold  
leak check on the  
+5 air controller





- They conducted a leak check using a water dam - pipe, sealed with play doh with a graduated syringe.

They also use a Hg site to conduct some analysis at sites (not this one)

- Also conducted a He leak test, detected nothing

- Start time 10:57 10

- collecting for 5 minutes

using a stop watch.

rate is 200 ml/minute

Stop time - 11:11

our final pressure - 4.62 psi

2-14-18  
 Greenfield Trust Inc.  
 Kerr Megee - former co-ordinator site  
 Environmental Works + CH2M

- Sealing of sump in basement with duct tape
- Met Michael Barbara, + Shirley

Canister # 34001588  
 set in kitchen on top of fridge  
 Sample # 181124

	Start	Stop
time	1027	1007
Pressure	29	5 in

- no rain overnight
- used gauge to test canister
- vapor pin installed on 2-12-18

Canister # 34000464  
 set in basement main room on top of dresser

Sample # 181127

	Start	Stop
time	1031	1018
pressure	29	3.75

~~up~~ up to 7 people in house. Grandchildren there everyday

Canister # 34001527 set in backyard on fence SE corner

Sample # 181128

	Start	Stop
time	1039	1015
Pressure	30	3.0

2-15-18

- arrived

Loc ID-016

940

Canister # 34002423

taken from port in family  
room in basement

- Vapor pin installed on 2-14-18
- COX-colvin
- Helium leak check - 0%
- water dam leak check - pass

- Used T-split to sample  
at same time, using amp  
flow controller

Sample # 181/29

- used vacuum gauge with  
flow controller to do  
a manifold leak check
- Passed

Checked subslab air - with  
multi rae and GEM 5000  
landfill gas meter  
→ .5 VOC

200 Ml per min

	Start	Stop
Time:	1057	1111
Pressure:	29	4.62

## *Split Sample Results*

*Test America  
Analytical Report*



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

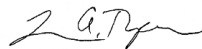
## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.  
TestAmerica Sacramento  
880 Riverside Parkway  
West Sacramento, CA 95605  
Tel: (916)373-5600

TestAmerica Job ID: 320-36329-1  
Client Project/Site: DNR-MO Split Samples

For:  
Missouri Department of Natural Resources  
Environmental Services Program  
2710 W Main Street  
Jefferson City, Missouri 65109

Attn: Caleb Troutt



---

Authorized for release by:  
3/6/2018 2:29:07 PM

Laura Turpen, Project Manager I  
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### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: Missouri Department of Natural Resources  
Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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)

# Case Narrative

Client: Missouri Department of Natural Resources  
Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

**Job ID: 320-36329-1**

**Laboratory: TestAmerica Sacramento**

## Narrative

**Job Narrative**  
**320-36329-1**

## Comments

No additional comments.

## Receipt

The samples were received on 2/22/2018 9:25 AM; the samples arrived in good condition.

## Air - GC/MS VOA

Method(s) TO-15: The continuing calibration verification (CCV) associated with batch 320-211096 recovered above the upper control limit for Vinyl acetate. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: 181129 (320-36329-4), (CCVIS 320-211096/2) and (MB 320-211096/7).

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

## VOA Prep

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

# Detection Summary

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

**Client Sample ID: 181126**

**Lab Sample ID: 320-36329-1**

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.0		0.064	ug/m3	1		TO-15 SIM	Total/NA
Chloroform	1.9		0.098	ug/m3	1		TO-15 SIM	Total/NA
1,2-Dichloroethane	0.33		0.081	ug/m3	1		TO-15 SIM	Total/NA
Methylene Chloride	0.78		0.69	ug/m3	1		TO-15 SIM	Total/NA
Tetrachloroethene	0.92		0.14	ug/m3	1		TO-15 SIM	Total/NA
Ethylbenzene	0.47		0.087	ug/m3	1		TO-15 SIM	Total/NA
Naphthalene	0.45		0.068	ug/m3	1		TO-15 SIM	Total/NA
Toluene	3.7		0.075	ug/m3	1		TO-15 SIM	Total/NA
m,p-Xylene	1.2		0.17	ug/m3	1		TO-15 SIM	Total/NA
o-Xylene	0.42		0.087	ug/m3	1		TO-15 SIM	Total/NA
Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.33		0.020	ppb v/v	1		TO-15 SIM	Total/NA
Chloroform	0.38		0.020	ppb v/v	1		TO-15 SIM	Total/NA
1,2-Dichloroethane	0.082		0.020	ppb v/v	1		TO-15 SIM	Total/NA
Methylene Chloride	0.22		0.20	ppb v/v	1		TO-15 SIM	Total/NA
Tetrachloroethene	0.14		0.020	ppb v/v	1		TO-15 SIM	Total/NA
Ethylbenzene	0.11		0.020	ppb v/v	1		TO-15 SIM	Total/NA
Naphthalene	0.087		0.013	ppb v/v	1		TO-15 SIM	Total/NA
Toluene	0.98		0.020	ppb v/v	1		TO-15 SIM	Total/NA
m,p-Xylene	0.27		0.040	ppb v/v	1		TO-15 SIM	Total/NA
o-Xylene	0.096		0.020	ppb v/v	1		TO-15 SIM	Total/NA

**Client Sample ID: 181127**

**Lab Sample ID: 320-36329-2**

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.92		0.064	ug/m3	1		TO-15 SIM	Total/NA
Chloroform	0.63		0.098	ug/m3	1		TO-15 SIM	Total/NA
1,2-Dichloroethane	0.23		0.081	ug/m3	1		TO-15 SIM	Total/NA
Methylene Chloride	0.76		0.69	ug/m3	1		TO-15 SIM	Total/NA
Tetrachloroethene	0.22		0.14	ug/m3	1		TO-15 SIM	Total/NA
Ethylbenzene	0.42		0.087	ug/m3	1		TO-15 SIM	Total/NA
Naphthalene	0.37		0.068	ug/m3	1		TO-15 SIM	Total/NA
Toluene	4.2		0.075	ug/m3	1		TO-15 SIM	Total/NA
m,p-Xylene	1.2		0.17	ug/m3	1		TO-15 SIM	Total/NA
o-Xylene	0.38		0.087	ug/m3	1		TO-15 SIM	Total/NA
Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.29		0.020	ppb v/v	1		TO-15 SIM	Total/NA
Chloroform	0.13		0.020	ppb v/v	1		TO-15 SIM	Total/NA
1,2-Dichloroethane	0.058		0.020	ppb v/v	1		TO-15 SIM	Total/NA
Methylene Chloride	0.22		0.20	ppb v/v	1		TO-15 SIM	Total/NA
Tetrachloroethene	0.033		0.020	ppb v/v	1		TO-15 SIM	Total/NA
Ethylbenzene	0.096		0.020	ppb v/v	1		TO-15 SIM	Total/NA
Naphthalene	0.071		0.013	ppb v/v	1		TO-15 SIM	Total/NA
Toluene	1.1		0.020	ppb v/v	1		TO-15 SIM	Total/NA
m,p-Xylene	0.28		0.040	ppb v/v	1		TO-15 SIM	Total/NA
o-Xylene	0.089		0.020	ppb v/v	1		TO-15 SIM	Total/NA

**Client Sample ID: 181128**

**Lab Sample ID: 320-36329-3**

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

# Detection Summary

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

## Client Sample ID: 181128 (Continued)

## Lab Sample ID: 320-36329-3

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.47		0.064	ug/m3	1		TO-15 SIM	Total/NA
Methylene Chloride	0.91		0.69	ug/m3	1		TO-15 SIM	Total/NA
Ethylbenzene	0.16		0.087	ug/m3	1		TO-15 SIM	Total/NA
Naphthalene	1.5		0.068	ug/m3	1		TO-15 SIM	Total/NA
Toluene	1.2		0.075	ug/m3	1		TO-15 SIM	Total/NA
m,p-Xylene	0.48		0.17	ug/m3	1		TO-15 SIM	Total/NA
o-Xylene	0.18		0.087	ug/m3	1		TO-15 SIM	Total/NA
Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.15		0.020	ppb v/v	1		TO-15 SIM	Total/NA
Methylene Chloride	0.26		0.20	ppb v/v	1		TO-15 SIM	Total/NA
Ethylbenzene	0.036		0.020	ppb v/v	1		TO-15 SIM	Total/NA
Naphthalene	0.29		0.013	ppb v/v	1		TO-15 SIM	Total/NA
Toluene	0.32		0.020	ppb v/v	1		TO-15 SIM	Total/NA
m,p-Xylene	0.11		0.040	ppb v/v	1		TO-15 SIM	Total/NA
o-Xylene	0.042		0.020	ppb v/v	1		TO-15 SIM	Total/NA

## Client Sample ID: 181129

## Lab Sample ID: 320-36329-4

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Acetone	40		12	ug/m3	1		TO-15	Total/NA
2-Butanone (MEK)	7.2		2.4	ug/m3	1		TO-15	Total/NA
Toluene	3.9		1.5	ug/m3	1		TO-15	Total/NA
Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Acetone	17		5.0	ppb v/v	1		TO-15	Total/NA
2-Butanone (MEK)	2.4		0.80	ppb v/v	1		TO-15	Total/NA
Toluene	1.0		0.40	ppb v/v	1		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

# Client Sample Results

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

**Client Sample ID: 181126**

**Lab Sample ID: 320-36329-1**

**Date Collected: 02/15/18 10:07**

**Matrix: Air**

**Date Received: 02/22/18 09:25**

**Sample Container: Summa Canister 6L**

**Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Benzene</b>	<b>1.0</b>		0.064	ug/m3			03/01/18 21:24	1
<b>Chloroform</b>	<b>1.9</b>		0.098	ug/m3			03/01/18 21:24	1
1,1-Dichloroethane	ND		0.081	ug/m3			03/01/18 21:24	1
<b>1,2-Dichloroethane</b>	<b>0.33</b>		0.081	ug/m3			03/01/18 21:24	1
1,1-Dichloroethene	ND		0.079	ug/m3			03/01/18 21:24	1
cis-1,2-Dichloroethene	ND		0.079	ug/m3			03/01/18 21:24	1
trans-1,2-Dichloroethene	ND		0.079	ug/m3			03/01/18 21:24	1
<b>Methylene Chloride</b>	<b>0.78</b>		0.69	ug/m3			03/01/18 21:24	1
<b>Tetrachloroethene</b>	<b>0.92</b>		0.14	ug/m3			03/01/18 21:24	1
1,1,1-Trichloroethane	ND		0.11	ug/m3			03/01/18 21:24	1
1,1,2-Trichloroethane	ND		0.27	ug/m3			03/01/18 21:24	1
Trichloroethene	ND		0.11	ug/m3			03/01/18 21:24	1
Vinyl chloride	ND		0.051	ug/m3			03/01/18 21:24	1
<b>Ethylbenzene</b>	<b>0.47</b>		0.087	ug/m3			03/01/18 21:24	1
<b>Naphthalene</b>	<b>0.45</b>		0.068	ug/m3			03/01/18 21:24	1
<b>Toluene</b>	<b>3.7</b>		0.075	ug/m3			03/01/18 21:24	1
<b>m,p-Xylene</b>	<b>1.2</b>		0.17	ug/m3			03/01/18 21:24	1
<b>o-Xylene</b>	<b>0.42</b>		0.087	ug/m3			03/01/18 21:24	1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Benzene</b>	<b>0.33</b>		0.020	ppb v/v			03/01/18 21:24	1
<b>Chloroform</b>	<b>0.38</b>		0.020	ppb v/v			03/01/18 21:24	1
1,1-Dichloroethane	ND		0.020	ppb v/v			03/01/18 21:24	1
<b>1,2-Dichloroethane</b>	<b>0.082</b>		0.020	ppb v/v			03/01/18 21:24	1
1,1-Dichloroethene	ND		0.020	ppb v/v			03/01/18 21:24	1
cis-1,2-Dichloroethene	ND		0.020	ppb v/v			03/01/18 21:24	1
trans-1,2-Dichloroethene	ND		0.020	ppb v/v			03/01/18 21:24	1
<b>Methylene Chloride</b>	<b>0.22</b>		0.20	ppb v/v			03/01/18 21:24	1
<b>Tetrachloroethene</b>	<b>0.14</b>		0.020	ppb v/v			03/01/18 21:24	1
1,1,1-Trichloroethane	ND		0.020	ppb v/v			03/01/18 21:24	1
1,1,2-Trichloroethane	ND		0.050	ppb v/v			03/01/18 21:24	1
Trichloroethene	ND		0.020	ppb v/v			03/01/18 21:24	1
Vinyl chloride	ND		0.020	ppb v/v			03/01/18 21:24	1
<b>Ethylbenzene</b>	<b>0.11</b>		0.020	ppb v/v			03/01/18 21:24	1
<b>Naphthalene</b>	<b>0.087</b>		0.013	ppb v/v			03/01/18 21:24	1
<b>Toluene</b>	<b>0.98</b>		0.020	ppb v/v			03/01/18 21:24	1
<b>m,p-Xylene</b>	<b>0.27</b>		0.040	ppb v/v			03/01/18 21:24	1
<b>o-Xylene</b>	<b>0.096</b>		0.020	ppb v/v			03/01/18 21:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130		03/01/18 21:24	1
1,2-Dichloroethane-d4 (Surr)	97		70 - 130		03/01/18 21:24	1
Toluene-d8 (Surr)	99		70 - 130		03/01/18 21:24	1

TestAmerica Sacramento

# Client Sample Results

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

**Client Sample ID: 181127**

**Lab Sample ID: 320-36329-2**

**Date Collected: 02/15/18 10:18**

**Matrix: Air**

**Date Received: 02/22/18 09:25**

**Sample Container: Summa Canister 6L**

**Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.92		0.064	ug/m3			03/01/18 22:24	1
Chloroform	0.63		0.098	ug/m3			03/01/18 22:24	1
1,1-Dichloroethane	ND		0.081	ug/m3			03/01/18 22:24	1
1,2-Dichloroethane	0.23		0.081	ug/m3			03/01/18 22:24	1
1,1-Dichloroethene	ND		0.079	ug/m3			03/01/18 22:24	1
cis-1,2-Dichloroethene	ND		0.079	ug/m3			03/01/18 22:24	1
trans-1,2-Dichloroethene	ND		0.079	ug/m3			03/01/18 22:24	1
Methylene Chloride	0.76		0.69	ug/m3			03/01/18 22:24	1
Tetrachloroethene	0.22		0.14	ug/m3			03/01/18 22:24	1
1,1,1-Trichloroethane	ND		0.11	ug/m3			03/01/18 22:24	1
1,1,2-Trichloroethane	ND		0.27	ug/m3			03/01/18 22:24	1
Trichloroethene	ND		0.11	ug/m3			03/01/18 22:24	1
Vinyl chloride	ND		0.051	ug/m3			03/01/18 22:24	1
Ethylbenzene	0.42		0.087	ug/m3			03/01/18 22:24	1
Naphthalene	0.37		0.068	ug/m3			03/01/18 22:24	1
Toluene	4.2		0.075	ug/m3			03/01/18 22:24	1
m,p-Xylene	1.2		0.17	ug/m3			03/01/18 22:24	1
o-Xylene	0.38		0.087	ug/m3			03/01/18 22:24	1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.29		0.020	ppb v/v			03/01/18 22:24	1
Chloroform	0.13		0.020	ppb v/v			03/01/18 22:24	1
1,1-Dichloroethane	ND		0.020	ppb v/v			03/01/18 22:24	1
1,2-Dichloroethane	0.058		0.020	ppb v/v			03/01/18 22:24	1
1,1-Dichloroethene	ND		0.020	ppb v/v			03/01/18 22:24	1
cis-1,2-Dichloroethene	ND		0.020	ppb v/v			03/01/18 22:24	1
trans-1,2-Dichloroethene	ND		0.020	ppb v/v			03/01/18 22:24	1
Methylene Chloride	0.22		0.20	ppb v/v			03/01/18 22:24	1
Tetrachloroethene	0.033		0.020	ppb v/v			03/01/18 22:24	1
1,1,1-Trichloroethane	ND		0.020	ppb v/v			03/01/18 22:24	1
1,1,2-Trichloroethane	ND		0.050	ppb v/v			03/01/18 22:24	1
Trichloroethene	ND		0.020	ppb v/v			03/01/18 22:24	1
Vinyl chloride	ND		0.020	ppb v/v			03/01/18 22:24	1
Ethylbenzene	0.096		0.020	ppb v/v			03/01/18 22:24	1
Naphthalene	0.071		0.013	ppb v/v			03/01/18 22:24	1
Toluene	1.1		0.020	ppb v/v			03/01/18 22:24	1
m,p-Xylene	0.28		0.040	ppb v/v			03/01/18 22:24	1
o-Xylene	0.089		0.020	ppb v/v			03/01/18 22:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130		03/01/18 22:24	1
1,2-Dichloroethane-d4 (Surr)	94		70 - 130		03/01/18 22:24	1
Toluene-d8 (Surr)	99		70 - 130		03/01/18 22:24	1

TestAmerica Sacramento



# Client Sample Results

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

**Client Sample ID: 181128**

**Lab Sample ID: 320-36329-3**

**Date Collected: 02/15/18 10:15**

**Matrix: Air**

**Date Received: 02/22/18 09:25**

**Sample Container: Summa Canister 6L**

**Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Benzene</b>	<b>0.47</b>		0.064	ug/m3			03/01/18 23:24	1
Chloroform	ND		0.098	ug/m3			03/01/18 23:24	1
1,1-Dichloroethane	ND		0.081	ug/m3			03/01/18 23:24	1
1,2-Dichloroethane	ND		0.081	ug/m3			03/01/18 23:24	1
1,1-Dichloroethene	ND		0.079	ug/m3			03/01/18 23:24	1
cis-1,2-Dichloroethene	ND		0.079	ug/m3			03/01/18 23:24	1
trans-1,2-Dichloroethene	ND		0.079	ug/m3			03/01/18 23:24	1
<b>Methylene Chloride</b>	<b>0.91</b>		0.69	ug/m3			03/01/18 23:24	1
Tetrachloroethene	ND		0.14	ug/m3			03/01/18 23:24	1
1,1,1-Trichloroethane	ND		0.11	ug/m3			03/01/18 23:24	1
1,1,2-Trichloroethane	ND		0.27	ug/m3			03/01/18 23:24	1
Trichloroethene	ND		0.11	ug/m3			03/01/18 23:24	1
Vinyl chloride	ND		0.051	ug/m3			03/01/18 23:24	1
<b>Ethylbenzene</b>	<b>0.16</b>		0.087	ug/m3			03/01/18 23:24	1
<b>Naphthalene</b>	<b>1.5</b>		0.068	ug/m3			03/01/18 23:24	1
<b>Toluene</b>	<b>1.2</b>		0.075	ug/m3			03/01/18 23:24	1
<b>m,p-Xylene</b>	<b>0.48</b>		0.17	ug/m3			03/01/18 23:24	1
<b>o-Xylene</b>	<b>0.18</b>		0.087	ug/m3			03/01/18 23:24	1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Benzene</b>	<b>0.15</b>		0.020	ppb v/v			03/01/18 23:24	1
Chloroform	ND		0.020	ppb v/v			03/01/18 23:24	1
1,1-Dichloroethane	ND		0.020	ppb v/v			03/01/18 23:24	1
1,2-Dichloroethane	ND		0.020	ppb v/v			03/01/18 23:24	1
1,1-Dichloroethene	ND		0.020	ppb v/v			03/01/18 23:24	1
cis-1,2-Dichloroethene	ND		0.020	ppb v/v			03/01/18 23:24	1
trans-1,2-Dichloroethene	ND		0.020	ppb v/v			03/01/18 23:24	1
<b>Methylene Chloride</b>	<b>0.26</b>		0.20	ppb v/v			03/01/18 23:24	1
Tetrachloroethene	ND		0.020	ppb v/v			03/01/18 23:24	1
1,1,1-Trichloroethane	ND		0.020	ppb v/v			03/01/18 23:24	1
1,1,2-Trichloroethane	ND		0.050	ppb v/v			03/01/18 23:24	1
Trichloroethene	ND		0.020	ppb v/v			03/01/18 23:24	1
Vinyl chloride	ND		0.020	ppb v/v			03/01/18 23:24	1
<b>Ethylbenzene</b>	<b>0.036</b>		0.020	ppb v/v			03/01/18 23:24	1
<b>Naphthalene</b>	<b>0.29</b>		0.013	ppb v/v			03/01/18 23:24	1
<b>Toluene</b>	<b>0.32</b>		0.020	ppb v/v			03/01/18 23:24	1
<b>m,p-Xylene</b>	<b>0.11</b>		0.040	ppb v/v			03/01/18 23:24	1
<b>o-Xylene</b>	<b>0.042</b>		0.020	ppb v/v			03/01/18 23:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130		03/01/18 23:24	1
1,2-Dichloroethane-d4 (Surr)	86		70 - 130		03/01/18 23:24	1
Toluene-d8 (Surr)	98		70 - 130		03/01/18 23:24	1

# Client Sample Results

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

**Client Sample ID: 181129**

**Lab Sample ID: 320-36329-4**

**Date Collected: 02/15/18 11:11**

**Matrix: Air**

**Date Received: 02/22/18 09:25**

**Sample Container: Summa Canister 1L**

**Method: TO-15 - Volatile Organic Compounds in Ambient Air**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Acetone</b>	<b>40</b>		12	ug/m3			03/05/18 16:39	1
Benzene	ND		1.3	ug/m3			03/05/18 16:39	1
Benzyl chloride	ND		4.1	ug/m3			03/05/18 16:39	1
Bromodichloromethane	ND		2.0	ug/m3			03/05/18 16:39	1
Bromoform	ND		4.1	ug/m3			03/05/18 16:39	1
Bromomethane	ND		3.1	ug/m3			03/05/18 16:39	1
<b>2-Butanone (MEK)</b>	<b>7.2</b>		2.4	ug/m3			03/05/18 16:39	1
Carbon disulfide	ND		2.5	ug/m3			03/05/18 16:39	1
Carbon tetrachloride	ND		5.0	ug/m3			03/05/18 16:39	1
Chlorobenzene	ND		1.4	ug/m3			03/05/18 16:39	1
Dibromochloromethane	ND		3.4	ug/m3			03/05/18 16:39	1
Chloroethane	ND		2.1	ug/m3			03/05/18 16:39	1
Chloroform	ND		1.5	ug/m3			03/05/18 16:39	1
Chloromethane	ND		1.7	ug/m3			03/05/18 16:39	1
1,2-Dibromoethane (EDB)	ND		6.1	ug/m3			03/05/18 16:39	1
1,2-Dichlorobenzene	ND		2.4	ug/m3			03/05/18 16:39	1
1,3-Dichlorobenzene	ND		2.4	ug/m3			03/05/18 16:39	1
1,4-Dichlorobenzene	ND		2.4	ug/m3			03/05/18 16:39	1
Dichlorodifluoromethane	ND		2.0	ug/m3			03/05/18 16:39	1
1,1-Dichloroethane	ND		1.2	ug/m3			03/05/18 16:39	1
1,2-Dichloroethane	ND		3.2	ug/m3			03/05/18 16:39	1
1,1-Dichloroethene	ND		3.2	ug/m3			03/05/18 16:39	1
cis-1,2-Dichloroethene	ND		1.6	ug/m3			03/05/18 16:39	1
trans-1,2-Dichloroethene	ND		1.6	ug/m3			03/05/18 16:39	1
1,2-Dichloropropane	ND		1.8	ug/m3			03/05/18 16:39	1
cis-1,3-Dichloropropene	ND		1.8	ug/m3			03/05/18 16:39	1
trans-1,3-Dichloropropene	ND		1.8	ug/m3			03/05/18 16:39	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8	ug/m3			03/05/18 16:39	1
Ethylbenzene	ND		1.7	ug/m3			03/05/18 16:39	1
4-Ethyltoluene	ND		2.0	ug/m3			03/05/18 16:39	1
Hexachlorobutadiene	ND		21	ug/m3			03/05/18 16:39	1
2-Hexanone	ND		1.6	ug/m3			03/05/18 16:39	1
Methylene Chloride	ND		1.4	ug/m3			03/05/18 16:39	1
4-Methyl-2-pentanone (MIBK)	ND		1.6	ug/m3			03/05/18 16:39	1
Styrene	ND		1.7	ug/m3			03/05/18 16:39	1
1,1,2,2-Tetrachloroethane	ND		2.7	ug/m3			03/05/18 16:39	1
Tetrachloroethene	ND		2.7	ug/m3			03/05/18 16:39	1
<b>Toluene</b>	<b>3.9</b>		1.5	ug/m3			03/05/18 16:39	1
1,2,4-Trichlorobenzene	ND		15	ug/m3			03/05/18 16:39	1
1,1,1-Trichloroethane	ND		1.6	ug/m3			03/05/18 16:39	1
1,1,2-Trichloroethane	ND		2.2	ug/m3			03/05/18 16:39	1
Trichloroethene	ND		2.1	ug/m3			03/05/18 16:39	1
Trichlorofluoromethane	ND		2.2	ug/m3			03/05/18 16:39	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1	ug/m3			03/05/18 16:39	1
1,2,4-Trimethylbenzene	ND		3.9	ug/m3			03/05/18 16:39	1
1,3,5-Trimethylbenzene	ND		2.0	ug/m3			03/05/18 16:39	1
Vinyl acetate	ND		2.8	ug/m3			03/05/18 16:39	1
Vinyl chloride	ND		1.0	ug/m3			03/05/18 16:39	1

TestAmerica Sacramento

# Client Sample Results

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

**Client Sample ID: 181129**

**Lab Sample ID: 320-36329-4**

**Date Collected: 02/15/18 11:11**

**Matrix: Air**

**Date Received: 02/22/18 09:25**

**Sample Container: Summa Canister 1L**

**Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylene	ND		3.5	ug/m3			03/05/18 16:39	1
o-Xylene	ND		1.7	ug/m3			03/05/18 16:39	1
Naphthalene	ND		4.2	ug/m3			03/05/18 16:39	1
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Acetone</b>	<b>17</b>		5.0	ppb v/v			03/05/18 16:39	1
Benzene	ND		0.40	ppb v/v			03/05/18 16:39	1
Benzyl chloride	ND		0.80	ppb v/v			03/05/18 16:39	1
Bromodichloromethane	ND		0.30	ppb v/v			03/05/18 16:39	1
Bromoform	ND		0.40	ppb v/v			03/05/18 16:39	1
Bromomethane	ND		0.80	ppb v/v			03/05/18 16:39	1
<b>2-Butanone (MEK)</b>	<b>2.4</b>		0.80	ppb v/v			03/05/18 16:39	1
Carbon disulfide	ND		0.80	ppb v/v			03/05/18 16:39	1
Carbon tetrachloride	ND		0.80	ppb v/v			03/05/18 16:39	1
Chlorobenzene	ND		0.30	ppb v/v			03/05/18 16:39	1
Dibromochloromethane	ND		0.40	ppb v/v			03/05/18 16:39	1
Chloroethane	ND		0.80	ppb v/v			03/05/18 16:39	1
Chloroform	ND		0.30	ppb v/v			03/05/18 16:39	1
Chloromethane	ND		0.80	ppb v/v			03/05/18 16:39	1
1,2-Dibromoethane (EDB)	ND		0.80	ppb v/v			03/05/18 16:39	1
1,2-Dichlorobenzene	ND		0.40	ppb v/v			03/05/18 16:39	1
1,3-Dichlorobenzene	ND		0.40	ppb v/v			03/05/18 16:39	1
1,4-Dichlorobenzene	ND		0.40	ppb v/v			03/05/18 16:39	1
Dichlorodifluoromethane	ND		0.40	ppb v/v			03/05/18 16:39	1
1,1-Dichloroethane	ND		0.30	ppb v/v			03/05/18 16:39	1
1,2-Dichloroethane	ND		0.80	ppb v/v			03/05/18 16:39	1
1,1-Dichloroethene	ND		0.80	ppb v/v			03/05/18 16:39	1
cis-1,2-Dichloroethene	ND		0.40	ppb v/v			03/05/18 16:39	1
trans-1,2-Dichloroethene	ND		0.40	ppb v/v			03/05/18 16:39	1
1,2-Dichloropropane	ND		0.40	ppb v/v			03/05/18 16:39	1
cis-1,3-Dichloropropene	ND		0.40	ppb v/v			03/05/18 16:39	1
trans-1,3-Dichloropropene	ND		0.40	ppb v/v			03/05/18 16:39	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	ppb v/v			03/05/18 16:39	1
Ethylbenzene	ND		0.40	ppb v/v			03/05/18 16:39	1
4-Ethyltoluene	ND		0.40	ppb v/v			03/05/18 16:39	1
Hexachlorobutadiene	ND		2.0	ppb v/v			03/05/18 16:39	1
2-Hexanone	ND		0.40	ppb v/v			03/05/18 16:39	1
Methylene Chloride	ND		0.40	ppb v/v			03/05/18 16:39	1
4-Methyl-2-pentanone (MIBK)	ND		0.40	ppb v/v			03/05/18 16:39	1
Styrene	ND		0.40	ppb v/v			03/05/18 16:39	1
1,1,2,2-Tetrachloroethane	ND		0.40	ppb v/v			03/05/18 16:39	1
Tetrachloroethene	ND		0.40	ppb v/v			03/05/18 16:39	1
<b>Toluene</b>	<b>1.0</b>		0.40	ppb v/v			03/05/18 16:39	1
1,2,4-Trichlorobenzene	ND		2.0	ppb v/v			03/05/18 16:39	1
1,1,1-Trichloroethane	ND		0.30	ppb v/v			03/05/18 16:39	1
1,1,2-Trichloroethane	ND		0.40	ppb v/v			03/05/18 16:39	1
Trichloroethene	ND		0.40	ppb v/v			03/05/18 16:39	1
Trichlorofluoromethane	ND		0.40	ppb v/v			03/05/18 16:39	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	ppb v/v			03/05/18 16:39	1

TestAmerica Sacramento

# Client Sample Results

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

**Client Sample ID: 181129**

**Lab Sample ID: 320-36329-4**

**Date Collected: 02/15/18 11:11**

**Matrix: Air**

**Date Received: 02/22/18 09:25**

**Sample Container: Summa Canister 1L**

**Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	ND		0.80	ppb v/v			03/05/18 16:39	1
1,3,5-Trimethylbenzene	ND		0.40	ppb v/v			03/05/18 16:39	1
Vinyl acetate	ND		0.80	ppb v/v			03/05/18 16:39	1
Vinyl chloride	ND		0.40	ppb v/v			03/05/18 16:39	1
m,p-Xylene	ND		0.80	ppb v/v			03/05/18 16:39	1
o-Xylene	ND		0.40	ppb v/v			03/05/18 16:39	1
Naphthalene	ND		0.80	ppb v/v			03/05/18 16:39	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130				03/05/18 16:39	1
1,2-Dichloroethane-d4 (Surr)	104		70 - 130				03/05/18 16:39	1
Toluene-d8 (Surr)	103		70 - 130				03/05/18 16:39	1

# Surrogate Summary

Client: Missouri Department of Natural Resources  
Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

Matrix: Air

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (70-130)	DCA (70-130)	TOL (70-130)
320-36329-4	181129	97	104	103
LCS 320-211096/3	Lab Control Sample	100	108	103
LCSD 320-211096/4	Lab Control Sample Dup	101	106	103
MB 320-211096/7	Method Blank	98	103	103

#### Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

## Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)

Matrix: Air

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (70-130)	DCA (70-130)	TOL (70-130)
320-36329-1	181126	100	97	99
320-36329-2	181127	100	94	99
320-36329-3	181128	97	86	98
LCS 320-210721/4	Lab Control Sample	108	98	102
LCSD 320-210721/5	Lab Control Sample Dup	108	98	102
MB 320-210721/8	Method Blank	97	98	101

#### Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

# QC Sample Results

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 320-211096/7

Matrix: Air

Analysis Batch: 211096

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		12	ug/m3			03/05/18 14:51	1
Benzene	ND		1.3	ug/m3			03/05/18 14:51	1
Benzyl chloride	ND		4.1	ug/m3			03/05/18 14:51	1
Bromodichloromethane	ND		2.0	ug/m3			03/05/18 14:51	1
Bromoform	ND		4.1	ug/m3			03/05/18 14:51	1
Bromomethane	ND		3.1	ug/m3			03/05/18 14:51	1
2-Butanone (MEK)	ND		2.4	ug/m3			03/05/18 14:51	1
Carbon disulfide	ND		2.5	ug/m3			03/05/18 14:51	1
Carbon tetrachloride	ND		5.0	ug/m3			03/05/18 14:51	1
Chlorobenzene	ND		1.4	ug/m3			03/05/18 14:51	1
Dibromochloromethane	ND		3.4	ug/m3			03/05/18 14:51	1
Chloroethane	ND		2.1	ug/m3			03/05/18 14:51	1
Chloroform	ND		1.5	ug/m3			03/05/18 14:51	1
Chloromethane	ND		1.7	ug/m3			03/05/18 14:51	1
1,2-Dibromoethane (EDB)	ND		6.1	ug/m3			03/05/18 14:51	1
1,2-Dichlorobenzene	ND		2.4	ug/m3			03/05/18 14:51	1
1,3-Dichlorobenzene	ND		2.4	ug/m3			03/05/18 14:51	1
1,4-Dichlorobenzene	ND		2.4	ug/m3			03/05/18 14:51	1
Dichlorodifluoromethane	ND		2.0	ug/m3			03/05/18 14:51	1
1,1-Dichloroethane	ND		1.2	ug/m3			03/05/18 14:51	1
1,2-Dichloroethane	ND		3.2	ug/m3			03/05/18 14:51	1
1,1-Dichloroethene	ND		3.2	ug/m3			03/05/18 14:51	1
cis-1,2-Dichloroethene	ND		1.6	ug/m3			03/05/18 14:51	1
trans-1,2-Dichloroethene	ND		1.6	ug/m3			03/05/18 14:51	1
1,2-Dichloropropane	ND		1.8	ug/m3			03/05/18 14:51	1
cis-1,3-Dichloropropene	ND		1.8	ug/m3			03/05/18 14:51	1
trans-1,3-Dichloropropene	ND		1.8	ug/m3			03/05/18 14:51	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		2.8	ug/m3			03/05/18 14:51	1
Ethylbenzene	ND		1.7	ug/m3			03/05/18 14:51	1
4-Ethyltoluene	ND		2.0	ug/m3			03/05/18 14:51	1
Hexachlorobutadiene	ND		21	ug/m3			03/05/18 14:51	1
2-Hexanone	ND		1.6	ug/m3			03/05/18 14:51	1
Methylene Chloride	ND		1.4	ug/m3			03/05/18 14:51	1
4-Methyl-2-pentanone (MIBK)	ND		1.6	ug/m3			03/05/18 14:51	1
Styrene	ND		1.7	ug/m3			03/05/18 14:51	1
1,1,2,2-Tetrachloroethane	ND		2.7	ug/m3			03/05/18 14:51	1
Tetrachloroethene	ND		2.7	ug/m3			03/05/18 14:51	1
Toluene	ND		1.5	ug/m3			03/05/18 14:51	1
1,2,4-Trichlorobenzene	ND		15	ug/m3			03/05/18 14:51	1
1,1,1-Trichloroethane	ND		1.6	ug/m3			03/05/18 14:51	1
1,1,2-Trichloroethane	ND		2.2	ug/m3			03/05/18 14:51	1
Trichloroethene	ND		2.1	ug/m3			03/05/18 14:51	1
Trichlorofluoromethane	ND		2.2	ug/m3			03/05/18 14:51	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		3.1	ug/m3			03/05/18 14:51	1
1,2,4-Trimethylbenzene	ND		3.9	ug/m3			03/05/18 14:51	1
1,3,5-Trimethylbenzene	ND		2.0	ug/m3			03/05/18 14:51	1
Vinyl acetate	ND		2.8	ug/m3			03/05/18 14:51	1
Vinyl chloride	ND		1.0	ug/m3			03/05/18 14:51	1

TestAmerica Sacramento

# QC Sample Results

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

**Lab Sample ID: MB 320-211096/7**

**Matrix: Air**

**Analysis Batch: 211096**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
m,p-Xylene	ND		3.5	ug/m3			03/05/18 14:51	1
o-Xylene	ND		1.7	ug/m3			03/05/18 14:51	1
Naphthalene	ND		4.2	ug/m3			03/05/18 14:51	1
Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Acetone	ND		5.0	ppb v/v			03/05/18 14:51	1
Benzene	ND		0.40	ppb v/v			03/05/18 14:51	1
Benzyl chloride	ND		0.80	ppb v/v			03/05/18 14:51	1
Bromodichloromethane	ND		0.30	ppb v/v			03/05/18 14:51	1
Bromoform	ND		0.40	ppb v/v			03/05/18 14:51	1
Bromomethane	ND		0.80	ppb v/v			03/05/18 14:51	1
2-Butanone (MEK)	ND		0.80	ppb v/v			03/05/18 14:51	1
Carbon disulfide	ND		0.80	ppb v/v			03/05/18 14:51	1
Carbon tetrachloride	ND		0.80	ppb v/v			03/05/18 14:51	1
Chlorobenzene	ND		0.30	ppb v/v			03/05/18 14:51	1
Dibromochloromethane	ND		0.40	ppb v/v			03/05/18 14:51	1
Chloroethane	ND		0.80	ppb v/v			03/05/18 14:51	1
Chloroform	ND		0.30	ppb v/v			03/05/18 14:51	1
Chloromethane	ND		0.80	ppb v/v			03/05/18 14:51	1
1,2-Dibromoethane (EDB)	ND		0.80	ppb v/v			03/05/18 14:51	1
1,2-Dichlorobenzene	ND		0.40	ppb v/v			03/05/18 14:51	1
1,3-Dichlorobenzene	ND		0.40	ppb v/v			03/05/18 14:51	1
1,4-Dichlorobenzene	ND		0.40	ppb v/v			03/05/18 14:51	1
Dichlorodifluoromethane	ND		0.40	ppb v/v			03/05/18 14:51	1
1,1-Dichloroethane	ND		0.30	ppb v/v			03/05/18 14:51	1
1,2-Dichloroethane	ND		0.80	ppb v/v			03/05/18 14:51	1
1,1-Dichloroethene	ND		0.80	ppb v/v			03/05/18 14:51	1
cis-1,2-Dichloroethene	ND		0.40	ppb v/v			03/05/18 14:51	1
trans-1,2-Dichloroethene	ND		0.40	ppb v/v			03/05/18 14:51	1
1,2-Dichloropropane	ND		0.40	ppb v/v			03/05/18 14:51	1
cis-1,3-Dichloropropene	ND		0.40	ppb v/v			03/05/18 14:51	1
trans-1,3-Dichloropropene	ND		0.40	ppb v/v			03/05/18 14:51	1
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	ppb v/v			03/05/18 14:51	1
Ethylbenzene	ND		0.40	ppb v/v			03/05/18 14:51	1
4-Ethyltoluene	ND		0.40	ppb v/v			03/05/18 14:51	1
Hexachlorobutadiene	ND		2.0	ppb v/v			03/05/18 14:51	1
2-Hexanone	ND		0.40	ppb v/v			03/05/18 14:51	1
Methylene Chloride	ND		0.40	ppb v/v			03/05/18 14:51	1
4-Methyl-2-pentanone (MIBK)	ND		0.40	ppb v/v			03/05/18 14:51	1
Styrene	ND		0.40	ppb v/v			03/05/18 14:51	1
1,1,2,2-Tetrachloroethane	ND		0.40	ppb v/v			03/05/18 14:51	1
Tetrachloroethene	ND		0.40	ppb v/v			03/05/18 14:51	1
Toluene	ND		0.40	ppb v/v			03/05/18 14:51	1
1,2,4-Trichlorobenzene	ND		2.0	ppb v/v			03/05/18 14:51	1
1,1,1-Trichloroethane	ND		0.30	ppb v/v			03/05/18 14:51	1
1,1,2-Trichloroethane	ND		0.40	ppb v/v			03/05/18 14:51	1
Trichloroethene	ND		0.40	ppb v/v			03/05/18 14:51	1
Trichlorofluoromethane	ND		0.40	ppb v/v			03/05/18 14:51	1

TestAmerica Sacramento



# QC Sample Results

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

**Lab Sample ID: MB 320-211096/7**

**Matrix: Air**

**Analysis Batch: 211096**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	ppb v/v			03/05/18 14:51	1
1,2,4-Trimethylbenzene	ND		0.80	ppb v/v			03/05/18 14:51	1
1,3,5-Trimethylbenzene	ND		0.40	ppb v/v			03/05/18 14:51	1
Vinyl acetate	ND		0.80	ppb v/v			03/05/18 14:51	1
Vinyl chloride	ND		0.40	ppb v/v			03/05/18 14:51	1
m,p-Xylene	ND		0.80	ppb v/v			03/05/18 14:51	1
o-Xylene	ND		0.40	ppb v/v			03/05/18 14:51	1
Naphthalene	ND		0.80	ppb v/v			03/05/18 14:51	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130		03/05/18 14:51	1
1,2-Dichloroethane-d4 (Surr)	103		70 - 130		03/05/18 14:51	1
Toluene-d8 (Surr)	103		70 - 130		03/05/18 14:51	1

**Lab Sample ID: LCS 320-211096/3**

**Matrix: Air**

**Analysis Batch: 211096**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	47.5	56.7		ug/m3		119	65 - 125
Benzene	63.9	66.9		ug/m3		105	68 - 128
Benzyl chloride	82.8	78.0		ug/m3		94	67 - 127
Bromodichloromethane	134	137		ug/m3		103	71 - 131
Bromoform	207	191		ug/m3		93	66 - 126
Bromomethane	77.7	79.2		ug/m3		102	73 - 134
2-Butanone (MEK)	59.0	65.0		ug/m3		110	73 - 133
Carbon disulfide	62.3	65.1		ug/m3		105	71 - 131
Carbon tetrachloride	126	125		ug/m3		100	63 - 126
Chlorobenzene	92.1	84.9		ug/m3		92	63 - 123
Dibromochloromethane	170	162		ug/m3		95	66 - 126
Chloroethane	52.8	58.4		ug/m3		111	73 - 133
Chloroform	97.7	104		ug/m3		107	70 - 130
Chloromethane	41.3	46.7		ug/m3		113	61 - 140
1,2-Dibromoethane (EDB)	154	144		ug/m3		93	64 - 124
1,2-Dichlorobenzene	120	106		ug/m3		88	62 - 126
1,3-Dichlorobenzene	120	107		ug/m3		89	59 - 130
1,4-Dichlorobenzene	120	106		ug/m3		88	58 - 132
Dichlorodifluoromethane	98.9	104		ug/m3		105	69 - 129
1,1-Dichloroethane	80.9	90.7		ug/m3		112	71 - 131
1,2-Dichloroethane	80.9	86.4		ug/m3		107	71 - 131
1,1-Dichloroethene	79.3	87.6		ug/m3		110	72 - 132
cis-1,2-Dichloroethene	79.3	84.1		ug/m3		106	70 - 130
trans-1,2-Dichloroethene	79.3	89.8		ug/m3		113	72 - 132
1,2-Dichloropropane	92.4	97.4		ug/m3		105	72 - 132
cis-1,3-Dichloropropene	90.8	97.1		ug/m3		107	72 - 132
trans-1,3-Dichloropropene	90.8	90.5		ug/m3		100	66 - 126
1,2-Dichloro-1,1,1,2-tetrafluoroethane	140	136		ug/m3		97	74 - 134

TestAmerica Sacramento



# QC Sample Results

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

**Lab Sample ID: LCS 320-211096/3**

**Matrix: Air**

**Analysis Batch: 211096**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	86.8	83.6		ug/m3		96	64 - 124
4-Ethyltoluene	98.3	93.2		ug/m3		95	66 - 129
Hexachlorobutadiene	213	176		ug/m3		82	58 - 131
2-Hexanone	82.0	84.7		ug/m3		103	69 - 129
Methylene Chloride	69.5	78.9		ug/m3		114	67 - 127
4-Methyl-2-pentanone (MIBK)	81.9	94.7		ug/m3		116	74 - 134
Styrene	85.2	81.7		ug/m3		96	67 - 127
1,1,2,2-Tetrachloroethane	137	128		ug/m3		94	64 - 124
Tetrachloroethene	136	125		ug/m3		92	63 - 123
Toluene	75.4	76.7		ug/m3		102	68 - 128
1,2,4-Trichlorobenzene	148	115		ug/m3		78	58 - 138
1,1,1-Trichloroethane	109	116		ug/m3		107	69 - 129
1,1,2-Trichloroethane	109	105		ug/m3		96	64 - 124
Trichloroethene	107	106		ug/m3		99	70 - 130
Trichlorofluoromethane	112	115		ug/m3		102	71 - 131
1,1,2-Trichloro-1,2,2-trifluoroethane	153	155		ug/m3		101	70 - 130
1,2,4-Trimethylbenzene	98.3	90.9		ug/m3		92	60 - 132
1,3,5-Trimethylbenzene	98.3	90.0		ug/m3		92	65 - 125
Vinyl acetate	70.4	89.5		ug/m3		127	65 - 134
Vinyl chloride	51.1	53.2		ug/m3		104	59 - 152
m,p-Xylene	174	168		ug/m3		96	65 - 125
o-Xylene	86.8	83.8		ug/m3		96	65 - 125
Naphthalene	105	80.6		ug/m3		77	50 - 147

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20	23.9		ppb v/v		119	65 - 125
Benzene	20	20.9		ppb v/v		105	68 - 128
Benzyl chloride	16	15.1		ppb v/v		94	67 - 127
Bromodichloromethane	20	20.5		ppb v/v		103	71 - 131
Bromoform	20	18.5		ppb v/v		93	66 - 126
Bromomethane	20	20.4		ppb v/v		102	73 - 134
2-Butanone (MEK)	20	22.0		ppb v/v		110	73 - 133
Carbon disulfide	20	20.9		ppb v/v		105	71 - 131
Carbon tetrachloride	20	19.9		ppb v/v		100	63 - 126
Chlorobenzene	20	18.4		ppb v/v		92	63 - 123
Dibromochloromethane	20	19.0		ppb v/v		95	66 - 126
Chloroethane	20	22.1		ppb v/v		111	73 - 133
Chloroform	20	21.4		ppb v/v		107	70 - 130
Chloromethane	20	22.6		ppb v/v		113	61 - 140
1,2-Dibromoethane (EDB)	20	18.7		ppb v/v		93	64 - 124
1,2-Dichlorobenzene	20	17.6		ppb v/v		88	62 - 126
1,3-Dichlorobenzene	20	17.8		ppb v/v		89	59 - 130
1,4-Dichlorobenzene	20	17.7		ppb v/v		88	58 - 132
Dichlorodifluoromethane	20	21.0		ppb v/v		105	69 - 129
1,1-Dichloroethane	20	22.4		ppb v/v		112	71 - 131
1,2-Dichloroethane	20	21.3		ppb v/v		107	71 - 131
1,1-Dichloroethene	20	22.1		ppb v/v		110	72 - 132

TestAmerica Sacramento

# QC Sample Results

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

**Lab Sample ID: LCS 320-211096/3**

**Matrix: Air**

**Analysis Batch: 211096**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	20	21.2		ppb v/v		106	70 - 130
trans-1,2-Dichloroethene	20	22.7		ppb v/v		113	72 - 132
1,2-Dichloropropane	20	21.1		ppb v/v		105	72 - 132
cis-1,3-Dichloropropene	20	21.4		ppb v/v		107	72 - 132
trans-1,3-Dichloropropene	20	19.9		ppb v/v		100	66 - 126
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20	19.4		ppb v/v		97	74 - 134
Ethylbenzene	20	19.3		ppb v/v		96	64 - 124
4-Ethyltoluene	20	19.0		ppb v/v		95	66 - 129
Hexachlorobutadiene	20	16.5		ppb v/v		82	58 - 131
2-Hexanone	20	20.7		ppb v/v		103	69 - 129
Methylene Chloride	20	22.7		ppb v/v		114	67 - 127
4-Methyl-2-pentanone (MIBK)	20	23.1		ppb v/v		116	74 - 134
Styrene	20	19.2		ppb v/v		96	67 - 127
1,1,2,2-Tetrachloroethane	20	18.7		ppb v/v		94	64 - 124
Tetrachloroethene	20	18.5		ppb v/v		92	63 - 123
Toluene	20	20.4		ppb v/v		102	68 - 128
1,2,4-Trichlorobenzene	20	15.5		ppb v/v		78	58 - 138
1,1,1-Trichloroethane	20	21.3		ppb v/v		107	69 - 129
1,1,2-Trichloroethane	20	19.2		ppb v/v		96	64 - 124
Trichloroethene	20	19.8		ppb v/v		99	70 - 130
Trichlorofluoromethane	20	20.5		ppb v/v		102	71 - 131
1,1,2-Trichloro-1,2,2-trifluoroethane	20	20.2		ppb v/v		101	70 - 130
1,2,4-Trimethylbenzene	20	18.5		ppb v/v		92	60 - 132
1,3,5-Trimethylbenzene	20	18.3		ppb v/v		92	65 - 125
Vinyl acetate	20	25.4		ppb v/v		127	65 - 134
Vinyl chloride	20	20.8		ppb v/v		104	59 - 152
m,p-Xylene	40	38.6		ppb v/v		96	65 - 125
o-Xylene	20	19.3		ppb v/v		96	65 - 125
Naphthalene	20	15.4		ppb v/v		77	50 - 147

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		70 - 130
1,2-Dichloroethane-d4 (Surr)	108		70 - 130
Toluene-d8 (Surr)	103		70 - 130

**Lab Sample ID: LCSD 320-211096/4**

**Matrix: Air**

**Analysis Batch: 211096**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	47.5	56.6		ug/m3		119	65 - 125	0	25
Benzene	63.9	66.4		ug/m3		104	68 - 128	1	25
Benzyl chloride	82.8	76.7		ug/m3		93	67 - 127	2	25
Bromodichloromethane	134	136		ug/m3		101	71 - 131	1	25
Bromoform	207	189		ug/m3		92	66 - 126	1	25
Bromomethane	77.7	80.1		ug/m3		103	73 - 134	1	25

TestAmerica Sacramento

# QC Sample Results

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

**Lab Sample ID: LCSD 320-211096/4**

**Client Sample ID: Lab Control Sample Dup**

**Matrix: Air**

**Prep Type: Total/NA**

**Analysis Batch: 211096**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	
								RPD	Limit
2-Butanone (MEK)	59.0	64.5		ug/m3		109	73 - 133	1	25
Carbon disulfide	62.3	65.0		ug/m3		104	71 - 131	0	25
Carbon tetrachloride	126	124		ug/m3		99	63 - 126	1	25
Chlorobenzene	92.1	84.1		ug/m3		91	63 - 123	1	25
Dibromochloromethane	170	160		ug/m3		94	66 - 126	1	25
Chloroethane	52.8	58.1		ug/m3		110	73 - 133	1	25
Chloroform	97.7	103		ug/m3		106	70 - 130	1	25
Chloromethane	41.3	46.3		ug/m3		112	61 - 140	1	25
1,2-Dibromoethane (EDB)	154	143		ug/m3		93	64 - 124	0	25
1,2-Dichlorobenzene	120	104		ug/m3		87	62 - 126	1	25
1,3-Dichlorobenzene	120	105		ug/m3		88	59 - 130	1	25
1,4-Dichlorobenzene	120	104		ug/m3		87	58 - 132	2	25
Dichlorodifluoromethane	98.9	104		ug/m3		105	69 - 129	0	25
1,1-Dichloroethane	80.9	90.0		ug/m3		111	71 - 131	1	25
1,2-Dichloroethane	80.9	84.3		ug/m3		104	71 - 131	2	25
1,1-Dichloroethene	79.3	86.9		ug/m3		110	72 - 132	1	25
cis-1,2-Dichloroethene	79.3	83.2		ug/m3		105	70 - 130	1	25
trans-1,2-Dichloroethene	79.3	88.8		ug/m3		112	72 - 132	1	25
1,2-Dichloropropane	92.4	96.7		ug/m3		105	72 - 132	1	25
cis-1,3-Dichloropropene	90.8	96.4		ug/m3		106	72 - 132	1	25
trans-1,3-Dichloropropene	90.8	89.3		ug/m3		98	66 - 126	1	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	140	136		ug/m3		97	74 - 134	0	25
Ethylbenzene	86.8	82.7		ug/m3		95	64 - 124	1	25
4-Ethyltoluene	98.3	92.2		ug/m3		94	66 - 129	1	25
Hexachlorobutadiene	213	174		ug/m3		82	58 - 131	1	25
2-Hexanone	82.0	82.3		ug/m3		100	69 - 129	3	25
Methylene Chloride	69.5	78.2		ug/m3		113	67 - 127	1	25
4-Methyl-2-pentanone (MIBK)	81.9	91.3		ug/m3		111	74 - 134	4	25
Styrene	85.2	81.0		ug/m3		95	67 - 127	1	25
1,1,2,2-Tetrachloroethane	137	126		ug/m3		92	64 - 124	2	25
Tetrachloroethene	136	125		ug/m3		92	63 - 123	1	25
Toluene	75.4	76.0		ug/m3		101	68 - 128	1	25
1,2,4-Trichlorobenzene	148	114		ug/m3		77	58 - 138	1	25
1,1,1-Trichloroethane	109	115		ug/m3		106	69 - 129	1	25
1,1,2-Trichloroethane	109	104		ug/m3		96	64 - 124	0	25
Trichloroethene	107	106		ug/m3		99	70 - 130	0	25
Trichlorofluoromethane	112	115		ug/m3		102	71 - 131	0	25
1,1,2-Trichloro-1,2,2-trifluoroethane	153	154		ug/m3		101	70 - 130	0	25
1,2,4-Trimethylbenzene	98.3	88.9		ug/m3		90	60 - 132	2	25
1,3,5-Trimethylbenzene	98.3	88.0		ug/m3		89	65 - 125	2	25
Vinyl acetate	70.4	87.1		ug/m3		124	65 - 134	3	25
Vinyl chloride	51.1	52.9		ug/m3		103	59 - 152	1	25
m,p-Xylene	174	165		ug/m3		95	65 - 125	1	25
o-Xylene	86.8	82.5		ug/m3		95	65 - 125	2	25
Naphthalene	105	79.9		ug/m3		76	50 - 147	1	25

TestAmerica Sacramento

# QC Sample Results

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	20	23.8		ppb v/v		119	65 - 125	0	25
Benzene	20	20.8		ppb v/v		104	68 - 128	1	25
Benzyl chloride	16	14.8		ppb v/v		93	67 - 127	2	25
Bromodichloromethane	20	20.2		ppb v/v		101	71 - 131	1	25
Bromoform	20	18.3		ppb v/v		92	66 - 126	1	25
Bromomethane	20	20.6		ppb v/v		103	73 - 134	1	25
2-Butanone (MEK)	20	21.9		ppb v/v		109	73 - 133	1	25
Carbon disulfide	20	20.9		ppb v/v		104	71 - 131	0	25
Carbon tetrachloride	20	19.8		ppb v/v		99	63 - 126	1	25
Chlorobenzene	20	18.3		ppb v/v		91	63 - 123	1	25
Dibromochloromethane	20	18.8		ppb v/v		94	66 - 126	1	25
Chloroethane	20	22.0		ppb v/v		110	73 - 133	1	25
Chloroform	20	21.2		ppb v/v		106	70 - 130	1	25
Chloromethane	20	22.4		ppb v/v		112	61 - 140	1	25
1,2-Dibromoethane (EDB)	20	18.6		ppb v/v		93	64 - 124	0	25
1,2-Dichlorobenzene	20	17.4		ppb v/v		87	62 - 126	1	25
1,3-Dichlorobenzene	20	17.5		ppb v/v		88	59 - 130	1	25
1,4-Dichlorobenzene	20	17.4		ppb v/v		87	58 - 132	2	25
Dichlorodifluoromethane	20	21.0		ppb v/v		105	69 - 129	0	25
1,1-Dichloroethane	20	22.2		ppb v/v		111	71 - 131	1	25
1,2-Dichloroethane	20	20.8		ppb v/v		104	71 - 131	2	25
1,1-Dichloroethene	20	21.9		ppb v/v		110	72 - 132	1	25
cis-1,2-Dichloroethene	20	21.0		ppb v/v		105	70 - 130	1	25
trans-1,2-Dichloroethene	20	22.4		ppb v/v		112	72 - 132	1	25
1,2-Dichloropropane	20	20.9		ppb v/v		105	72 - 132	1	25
cis-1,3-Dichloropropene	20	21.2		ppb v/v		106	72 - 132	1	25
trans-1,3-Dichloropropene	20	19.7		ppb v/v		98	66 - 126	1	25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	20	19.5		ppb v/v		97	74 - 134	0	25
Ethylbenzene	20	19.0		ppb v/v		95	64 - 124	1	25
4-Ethyltoluene	20	18.8		ppb v/v		94	66 - 129	1	25
Hexachlorobutadiene	20	16.3		ppb v/v		82	58 - 131	1	25
2-Hexanone	20	20.1		ppb v/v		100	69 - 129	3	25
Methylene Chloride	20	22.5		ppb v/v		113	67 - 127	1	25
4-Methyl-2-pentanone (MIBK)	20	22.3		ppb v/v		111	74 - 134	4	25
Styrene	20	19.0		ppb v/v		95	67 - 127	1	25
1,1,1,2-Tetrachloroethane	20	18.3		ppb v/v		92	64 - 124	2	25
Tetrachloroethene	20	18.4		ppb v/v		92	63 - 123	1	25
Toluene	20	20.2		ppb v/v		101	68 - 128	1	25
1,2,4-Trichlorobenzene	20	15.4		ppb v/v		77	58 - 138	1	25
1,1,1-Trichloroethane	20	21.1		ppb v/v		106	69 - 129	1	25
1,1,2-Trichloroethane	20	19.1		ppb v/v		96	64 - 124	0	25
Trichloroethene	20	19.7		ppb v/v		99	70 - 130	0	25
Trichlorofluoromethane	20	20.4		ppb v/v		102	71 - 131	0	25
1,1,2-Trichloro-1,2,2-trifluoroethane	20	20.2		ppb v/v		101	70 - 130	0	25
1,2,4-Trimethylbenzene	20	18.1		ppb v/v		90	60 - 132	2	25
1,3,5-Trimethylbenzene	20	17.9		ppb v/v		89	65 - 125	2	25
Vinyl acetate	20	24.7		ppb v/v		124	65 - 134	3	25
Vinyl chloride	20	20.7		ppb v/v		103	59 - 152	1	25
m,p-Xylene	40	38.0		ppb v/v		95	65 - 125	1	25
o-Xylene	20	19.0		ppb v/v		95	65 - 125	2	25
Naphthalene	20	15.2		ppb v/v		76	50 - 147	1	25

TestAmerica Sacramento

# QC Sample Results

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

## Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

**Lab Sample ID: LCSD 320-211096/4**  
**Matrix: Air**  
**Analysis Batch: 211096**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Surrogate	LCS D %Recovery	LCS D Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,2-Dichloroethane-d4 (Surr)	106		70 - 130
Toluene-d8 (Surr)	103		70 - 130

## Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)

**Lab Sample ID: MB 320-210721/8**  
**Matrix: Air**  
**Analysis Batch: 210721**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.064	ug/m3			03/01/18 17:15	1
Chloroform	ND		0.098	ug/m3			03/01/18 17:15	1
1,1-Dichloroethane	ND		0.081	ug/m3			03/01/18 17:15	1
1,2-Dichloroethane	ND		0.081	ug/m3			03/01/18 17:15	1
1,1-Dichloroethene	ND		0.079	ug/m3			03/01/18 17:15	1
cis-1,2-Dichloroethene	ND		0.079	ug/m3			03/01/18 17:15	1
trans-1,2-Dichloroethene	ND		0.079	ug/m3			03/01/18 17:15	1
Methylene Chloride	ND		0.69	ug/m3			03/01/18 17:15	1
Tetrachloroethene	ND		0.14	ug/m3			03/01/18 17:15	1
1,1,1-Trichloroethane	ND		0.11	ug/m3			03/01/18 17:15	1
1,1,2-Trichloroethane	ND		0.27	ug/m3			03/01/18 17:15	1
Trichloroethene	ND		0.11	ug/m3			03/01/18 17:15	1
Vinyl chloride	ND		0.051	ug/m3			03/01/18 17:15	1
Ethylbenzene	ND		0.087	ug/m3			03/01/18 17:15	1
Naphthalene	ND		0.068	ug/m3			03/01/18 17:15	1
Toluene	ND		0.075	ug/m3			03/01/18 17:15	1
m,p-Xylene	ND		0.17	ug/m3			03/01/18 17:15	1
o-Xylene	ND		0.087	ug/m3			03/01/18 17:15	1

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.020	ppb v/v			03/01/18 17:15	1
Chloroform	ND		0.020	ppb v/v			03/01/18 17:15	1
1,1-Dichloroethane	ND		0.020	ppb v/v			03/01/18 17:15	1
1,2-Dichloroethane	ND		0.020	ppb v/v			03/01/18 17:15	1
1,1-Dichloroethene	ND		0.020	ppb v/v			03/01/18 17:15	1
cis-1,2-Dichloroethene	ND		0.020	ppb v/v			03/01/18 17:15	1
trans-1,2-Dichloroethene	ND		0.020	ppb v/v			03/01/18 17:15	1
Methylene Chloride	ND		0.20	ppb v/v			03/01/18 17:15	1
Tetrachloroethene	ND		0.020	ppb v/v			03/01/18 17:15	1
1,1,1-Trichloroethane	ND		0.020	ppb v/v			03/01/18 17:15	1
1,1,2-Trichloroethane	ND		0.050	ppb v/v			03/01/18 17:15	1
Trichloroethene	ND		0.020	ppb v/v			03/01/18 17:15	1
Vinyl chloride	ND		0.020	ppb v/v			03/01/18 17:15	1
Ethylbenzene	ND		0.020	ppb v/v			03/01/18 17:15	1
Naphthalene	ND		0.013	ppb v/v			03/01/18 17:15	1
Toluene	ND		0.020	ppb v/v			03/01/18 17:15	1
m,p-Xylene	ND		0.040	ppb v/v			03/01/18 17:15	1

TestAmerica Sacramento

# QC Sample Results

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

## Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS) (Continued)

**Lab Sample ID: MB 320-210721/8**  
**Matrix: Air**  
**Analysis Batch: 210721**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	ND		0.020	ppb v/v			03/01/18 17:15	1
Surrogate	%Recovery	MB Qualifier	MB Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130				03/01/18 17:15	1
1,2-Dichloroethane-d4 (Surr)	98		70 - 130				03/01/18 17:15	1
Toluene-d8 (Surr)	101		70 - 130				03/01/18 17:15	1

**Lab Sample ID: LCS 320-210721/4**  
**Matrix: Air**  
**Analysis Batch: 210721**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	3.83	3.65		ug/m3		95	63 - 123
Chloroform	5.86	5.45		ug/m3		93	68 - 128
1,1-Dichloroethane	4.86	4.70		ug/m3		97	63 - 134
1,2-Dichloroethane	4.86	4.80		ug/m3		99	63 - 133
1,1-Dichloroethene	4.76	4.55		ug/m3		96	63 - 123
cis-1,2-Dichloroethene	4.76	4.93		ug/m3		104	67 - 127
trans-1,2-Dichloroethene	4.76	5.27		ug/m3		111	67 - 127
Methylene Chloride	4.17	3.77		ug/m3		90	41 - 150
Tetrachloroethene	8.14	6.63		ug/m3		81	61 - 121
1,1,1-Trichloroethane	6.55	6.07		ug/m3		93	65 - 132
1,1,2-Trichloroethane	6.55	5.78		ug/m3		88	59 - 119
Trichloroethene	6.45	5.73		ug/m3		89	63 - 123
Vinyl chloride	3.07	2.78		ug/m3		91	51 - 139
Ethylbenzene	5.21	4.06		ug/m3		78	64 - 124
Naphthalene	6.29	5.47		ug/m3		87	31 - 150
Toluene	4.52	3.75		ug/m3		83	61 - 121
m,p-Xylene	10.4	7.86		ug/m3		75	65 - 125
o-Xylene	5.21	3.76		ug/m3		72	64 - 124
Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	1.2	1.14		ppb v/v		95	63 - 123
Chloroform	1.2	1.12		ppb v/v		93	68 - 128
1,1-Dichloroethane	1.2	1.16		ppb v/v		97	63 - 134
1,2-Dichloroethane	1.2	1.18		ppb v/v		99	63 - 133
1,1-Dichloroethene	1.2	1.15		ppb v/v		96	63 - 123
cis-1,2-Dichloroethene	1.2	1.24		ppb v/v		104	67 - 127
trans-1,2-Dichloroethene	1.2	1.33		ppb v/v		111	67 - 127
Methylene Chloride	1.2	1.09		ppb v/v		90	41 - 150
Tetrachloroethene	1.2	0.977		ppb v/v		81	61 - 121
1,1,1-Trichloroethane	1.2	1.11		ppb v/v		93	65 - 132
1,1,2-Trichloroethane	1.2	1.06		ppb v/v		88	59 - 119
Trichloroethene	1.2	1.07		ppb v/v		89	63 - 123
Vinyl chloride	1.2	1.09		ppb v/v		91	51 - 139
Ethylbenzene	1.2	0.936		ppb v/v		78	64 - 124
Naphthalene	1.2	1.04		ppb v/v		87	31 - 150

TestAmerica Sacramento

# QC Sample Results

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

## Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS) (Continued)

**Lab Sample ID: LCS 320-210721/4**  
**Matrix: Air**  
**Analysis Batch: 210721**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Toluene	1.2	0.995		ppb v/v		83	61 - 121
m,p-Xylene	2.4	1.81		ppb v/v		75	65 - 125
o-Xylene	1.2	0.866		ppb v/v		72	64 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	108		70 - 130
1,2-Dichloroethane-d4 (Surr)	98		70 - 130
Toluene-d8 (Surr)	102		70 - 130

**Lab Sample ID: LCSD 320-210721/5**  
**Matrix: Air**  
**Analysis Batch: 210721**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	3.83	3.58		ug/m3		93	63 - 123	2	25
Chloroform	5.86	5.27		ug/m3		90	68 - 128	4	25
1,1-Dichloroethane	4.86	4.57		ug/m3		94	63 - 134	3	25
1,2-Dichloroethane	4.86	4.64		ug/m3		96	63 - 133	3	25
1,1-Dichloroethene	4.76	4.42		ug/m3		93	63 - 123	3	25
cis-1,2-Dichloroethene	4.76	4.80		ug/m3		101	67 - 127	3	25
trans-1,2-Dichloroethene	4.76	5.14		ug/m3		108	67 - 127	3	25
Methylene Chloride	4.17	3.70		ug/m3		89	41 - 150	2	25
Tetrachloroethene	8.14	6.43		ug/m3		79	61 - 121	3	25
1,1,1-Trichloroethane	6.55	5.86		ug/m3		89	65 - 132	4	25
1,1,2-Trichloroethane	6.55	5.56		ug/m3		85	59 - 119	4	25
Trichloroethene	6.45	5.71		ug/m3		89	63 - 123	0	25
Vinyl chloride	3.07	2.76		ug/m3		90	51 - 139	1	25
Ethylbenzene	5.21	4.01		ug/m3		77	64 - 124	1	25
Naphthalene	6.29	5.56		ug/m3		88	31 - 150	2	25
Toluene	4.52	3.66		ug/m3		81	61 - 121	2	25
m,p-Xylene	10.4	7.78		ug/m3		75	65 - 125	1	25
o-Xylene	5.21	3.69		ug/m3		71	64 - 124	2	25

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	1.2	1.12		ppb v/v		93	63 - 123	2	25
Chloroform	1.2	1.08		ppb v/v		90	68 - 128	4	25
1,1-Dichloroethane	1.2	1.13		ppb v/v		94	63 - 134	3	25
1,2-Dichloroethane	1.2	1.15		ppb v/v		96	63 - 133	3	25
1,1-Dichloroethene	1.2	1.12		ppb v/v		93	63 - 123	3	25
cis-1,2-Dichloroethene	1.2	1.21		ppb v/v		101	67 - 127	3	25
trans-1,2-Dichloroethene	1.2	1.30		ppb v/v		108	67 - 127	3	25
Methylene Chloride	1.2	1.07		ppb v/v		89	41 - 150	2	25
Tetrachloroethene	1.2	0.948		ppb v/v		79	61 - 121	3	25
1,1,1-Trichloroethane	1.2	1.07		ppb v/v		89	65 - 132	4	25
1,1,2-Trichloroethane	1.2	1.02		ppb v/v		85	59 - 119	4	25
Trichloroethene	1.2	1.06		ppb v/v		89	63 - 123	0	25
Vinyl chloride	1.2	1.08		ppb v/v		90	51 - 139	1	25

TestAmerica Sacramento



# QC Sample Results

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

## Method: TO-15 SIM - Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS) (Continued)

**Lab Sample ID: LCSD 320-210721/5**  
**Matrix: Air**  
**Analysis Batch: 210721**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	1.2	0.923		ppb v/v		77	64 - 124	1	25
Naphthalene	1.2	1.06		ppb v/v		88	31 - 150	2	25
Toluene	1.2	0.972		ppb v/v		81	61 - 121	2	25
m,p-Xylene	2.4	1.79		ppb v/v		75	65 - 125	1	25
o-Xylene	1.2	0.851		ppb v/v		71	64 - 124	2	25

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	108		70 - 130
1,2-Dichloroethane-d4 (Surr)	98		70 - 130
Toluene-d8 (Surr)	102		70 - 130



# QC Association Summary

Client: Missouri Department of Natural Resources  
Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

## Air - GC/MS VOA

### Analysis Batch: 210721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-36329-1	181126	Total/NA	Air	TO-15 SIM	
320-36329-2	181127	Total/NA	Air	TO-15 SIM	
320-36329-3	181128	Total/NA	Air	TO-15 SIM	
MB 320-210721/8	Method Blank	Total/NA	Air	TO-15 SIM	
LCS 320-210721/4	Lab Control Sample	Total/NA	Air	TO-15 SIM	
LCSD 320-210721/5	Lab Control Sample Dup	Total/NA	Air	TO-15 SIM	

### Analysis Batch: 211096

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-36329-4	181129	Total/NA	Air	TO-15	
MB 320-211096/7	Method Blank	Total/NA	Air	TO-15	
LCS 320-211096/3	Lab Control Sample	Total/NA	Air	TO-15	
LCSD 320-211096/4	Lab Control Sample Dup	Total/NA	Air	TO-15	

# Lab Chronicle

Client: Missouri Department of Natural Resources  
Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

**Client Sample ID: 181126**

**Date Collected: 02/15/18 10:07**

**Date Received: 02/22/18 09:25**

**Lab Sample ID: 320-36329-1**

**Matrix: Air**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 SIM		1	895 mL	500 mL	210721	03/01/18 21:24	AP1	TAL SAC

**Client Sample ID: 181127**

**Date Collected: 02/15/18 10:18**

**Date Received: 02/22/18 09:25**

**Lab Sample ID: 320-36329-2**

**Matrix: Air**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 SIM		1	850 mL	500 mL	210721	03/01/18 22:24	AP1	TAL SAC

**Client Sample ID: 181128**

**Date Collected: 02/15/18 10:15**

**Date Received: 02/22/18 09:25**

**Lab Sample ID: 320-36329-3**

**Matrix: Air**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15 SIM		1	840 mL	500 mL	210721	03/01/18 23:24	AP1	TAL SAC

**Client Sample ID: 181129**

**Date Collected: 02/15/18 11:11**

**Date Received: 02/22/18 09:25**

**Lab Sample ID: 320-36329-4**

**Matrix: Air**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		1	480 mL	250 mL	211096	03/05/18 16:39	AP1	TAL SAC

## Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

# Accreditation/Certification Summary

Client: Missouri Department of Natural Resources  
 Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

## Laboratory: TestAmerica Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
Arizona	State Program	9	AZ0708	08-11-18
Arkansas DEQ	State Program	6	88-0691	06-17-18
California	State Program	9	2897	01-31-19
Colorado	State Program	8	CA00044	08-31-18
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-18
Georgia	State Program	4	N/A	01-28-19
Hawaii	State Program	9	N/A	01-29-19
Illinois	NELAP	5	200060	03-17-18
Kansas	NELAP	7	E-10375	10-31-18
L-A-B	DoD ELAP		L2468	01-20-21
Louisiana	NELAP	6	30612	06-30-18
Maine	State Program	1	CA0004	04-14-18
Michigan	State Program	5	9947	01-31-18 *
Nevada	State Program	9	CA00044	07-31-18
New Hampshire	NELAP	1	2997	04-18-18
New Jersey	NELAP	2	CA005	06-30-18
New York	NELAP	2	11666	04-01-18
Oregon	NELAP	10	4040	01-29-19
Pennsylvania	NELAP	3	68-01272	03-31-18
Texas	NELAP	6	T104704399	05-31-18
US Fish & Wildlife	Federal		LE148388-0	07-31-18
USDA	Federal		P330-11-00436	01-17-21
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-18 *
Virginia	NELAP	3	460278	03-14-18
Washington	State Program	10	C581	05-05-18
West Virginia (DW)	State Program	3	9930C	12-31-18
Wyoming	State Program	8	8TMS-L	01-28-19

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

# Method Summary

Client: Missouri Department of Natural Resources  
Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL SAC
TO-15 SIM	Volatile Organic Compounds in Ambient Air, Low Concentration (GC/MS)	EPA-21	TAL SAC

**Protocol References:**

EPA = US Environmental Protection Agency

EPA-21 = "Compendium Of Methods For The Determination Of Toxic Organic Compounds In Ambient Air", Second Edition, EPA/625/R-96/010B, January 1999

**Laboratory References:**

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



# Sample Summary

Client: Missouri Department of Natural Resources  
Project/Site: DNR-MO Split Samples

TestAmerica Job ID: 320-36329-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-36329-1	181126	Air	02/15/18 10:07	02/22/18 09:25
320-36329-2	181127	Air	02/15/18 10:18	02/22/18 09:25
320-36329-3	181128	Air	02/15/18 10:15	02/22/18 09:25
320-36329-4	181129	Air	02/15/18 11:11	02/22/18 09:25

- 1
- 2
- 3
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- 5
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- 10
- 11
- 12
- 13
- 14
- 15
- 16



# Login Sample Receipt Checklist

Client: Missouri Department of Natural Resources

Job Number: 320-36329-1

**Login Number: 36329**

**List Source: TestAmerica Sacramento**

**List Number: 1**

**Creator: Iliev, Gabriela K**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	N/A	
Cooler Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Certification Type

TD-15 SCAN

Date Cleaned/Batch ID

1-24-18 320-35383

Date of QC

1/26/2018, 1/29/18



320-35383 Chain of Custody

C:\msdchem\1\DATA\180126  
C:\msdchem\1\DATA\180129

Canister ID	Filename	Canister ID	Filename
34002421	ms6012605.d	34002429	ms6012615.d
34002422	ms6012606.d	34002430	—
34002423	ms6012607.d	34002431	ms6012617.d
34002424	ms6012608.d	34002432	ms6012618.d
34002425	ms6012610.d	34002433	ms6012620.d
34002426	ms6012611.d	34002434	—
34002427	ms6012612.d	34002435	ms6012908.d
34002428	ms6012613.d	34002436	—

The above canisters were cleaned as a batch. This certifies this batch contains no target analyte concentration greater than or equal to the method criteria for the "Certification Type" indicated above.

[Signature]  
1<sup>st</sup> level Reviewed By:

1/29/18, 1/30/18  
Date:

[Signature]  
2nd level Reviewed By:

1/30/18  
Date:



Certification Type TO-15 SIM  
 Date Cleaned/Batch ID 2-1-18 320-35681  
 Date of QC 2/3/18



320-35681 Chain of Custody

Canister ID	Filename
34001552	MS1020307
8046	MS1020308
34000262	MS1020309
34000464	MS1020310
8275	MS1020312
34000609	MS1020313
34000188	MS1020314
34001527	MS1020315
34001588	MS1020317
7866	MS1020318
34000429	MS1020319
34000175	MS1020320

The above canisters were cleaned as a batch. This certifies this batch contains no target analyte concentration greater than or equal to the method criteria for the "Certification Type" indicated above.

<sup>ES 2/5/18</sup>  
 Emily James 21 Ali Z  
 1<sup>st</sup> level Reviewed By:

2/5/18 2/7/18  
 Date:

2nd level Reviewed By:

2/2/18  
 Date:

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002421 Lab Sample ID: 320-35383-1  
 Matrix: Air Lab File ID: MS6012605.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 15:04  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	0.97	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	ND		0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	ND		0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.27
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002421 Lab Sample ID: 320-35383-1  
 Matrix: Air Lab File ID: MS6012605.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 15:04  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.12
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	0.14	J	0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	0.29	J	0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.21
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002421 Lab Sample ID: 320-35383-1  
 Matrix: Air Lab File ID: MS6012605.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 15:04  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	0.14	J	0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054
1330-20-7	Xylenes, Total	ND		1.2	0.074

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	90		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		70-130
2037-26-5	Toluene-d8 (Surr)	98		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012605.D  
 Lims ID: 320-35383-A-1  
 Client ID: 34002421  
 Sample Type: Client  
 Inject. Date: 26-Jan-2018 15:04:30 ALS Bottle#: 3 Worklist Smp#: 5  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35383-A-1  
 Misc. Info.: 500mL  
 Operator ID: LHS Instrument ID: ATMS6  
 Method: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\TO15\_ATMS6.m  
 Limit Group: MSA - TO15 - ICAL  
 Last Update: 29-Jan-2018 12:17:11 Calib Date: 23-Jan-2018 18:39:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS6\20180123-53204.b\MS6012311.D  
 Column 1 : RTX Volatiles ( 0.32 mm) Det: MS SCAN  
 Process Host: XAWRK028

First Level Reviewer: phanthasena Date: 29-Jan-2018 12:17:11

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	13.289	13.289	0.000	97	51338	4.00	
* 2 1,4-Difluorobenzene	114	15.425	15.431	-0.006	94	207476	4.00	
* 3 Chlorobenzene-d5 (IS)	117	22.153	22.153	0.000	87	181893	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	14.494	14.500	-0.006	34	66728	4.03	
\$ 5 Toluene-d8 (Surr)	100	18.880	18.880	0.000	99	136999	3.93	
\$ 6 4-Bromofluorobenzene (Surr	95	24.714	24.714	0.000	92	101162	3.60	
11 Propene	41	4.644	4.614	0.030	95	3208	0.2854	
17 Butane	43	5.454	5.450	0.006	75	2487	0.0945	
32 Acetone	43	8.410	8.323	0.091	96	20210	0.9727	
39 Methylene Chloride	49	9.706	9.694	0.012	85	2235	0.1436	
58 Isooctane	57	14.403	14.409	-0.006	94	9447	0.1371	

Reagents:

VAMSIS20\_00098 Amount Added: 50.00 Units: mL Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012605.D

Injection Date: 26-Jan-2018 15:04:30

Instrument ID: ATMS6

Operator ID: LHS

Lims ID: 320-35383-A-1

Lab Sample ID: 320-35383-1

Worklist Smp#: 5

Client ID: 34002421

Purge Vol: 25.000 mL

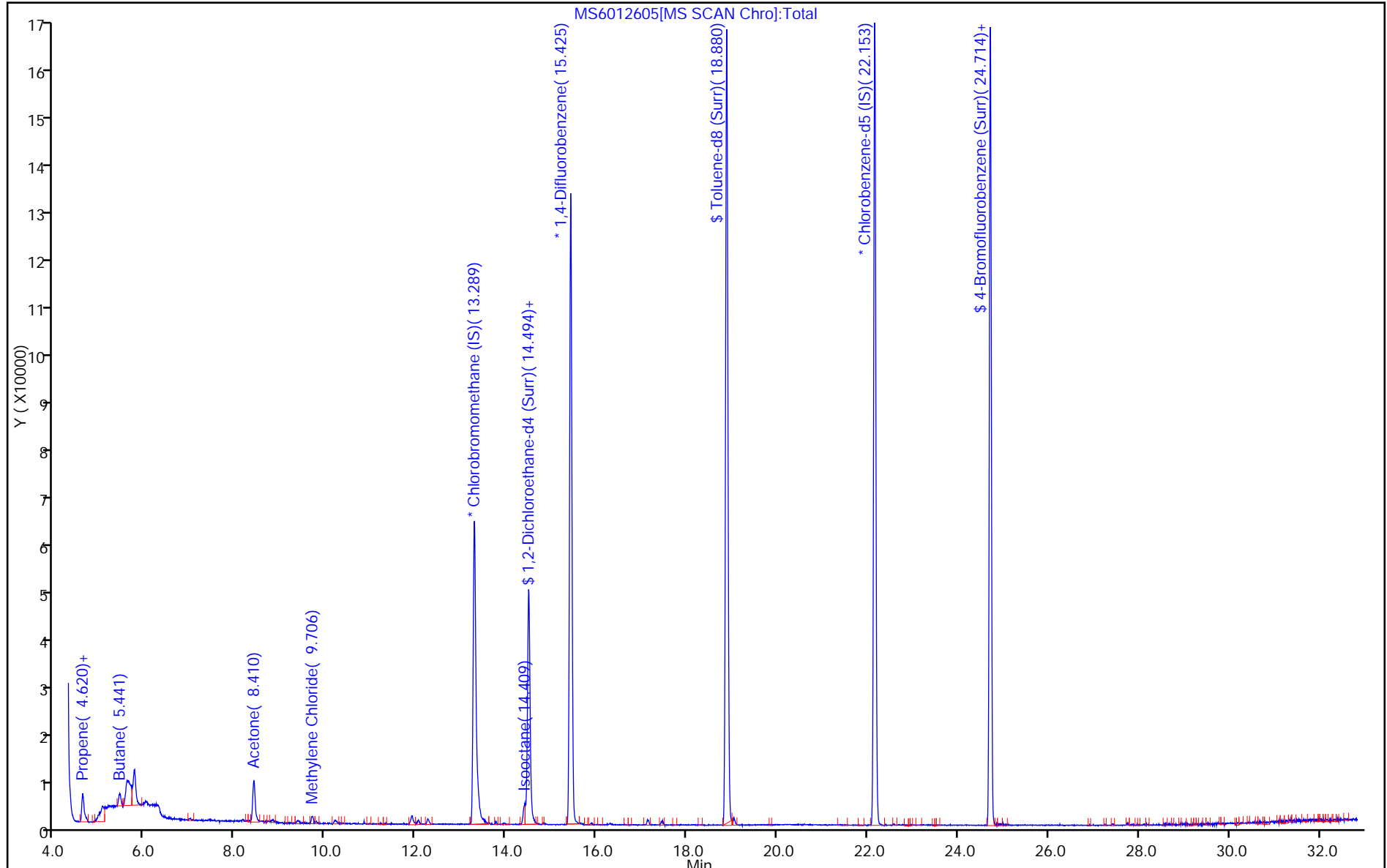
Dil. Factor: 1.0000

ALS Bottle#: 3

Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012605.D

Injection Date: 26-Jan-2018 15:04:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-1

Lab Sample ID: 320-35383-1

Client ID: 34002421

Operator ID: LHS

ALS Bottle#: 3

Worklist Smp#: 5

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

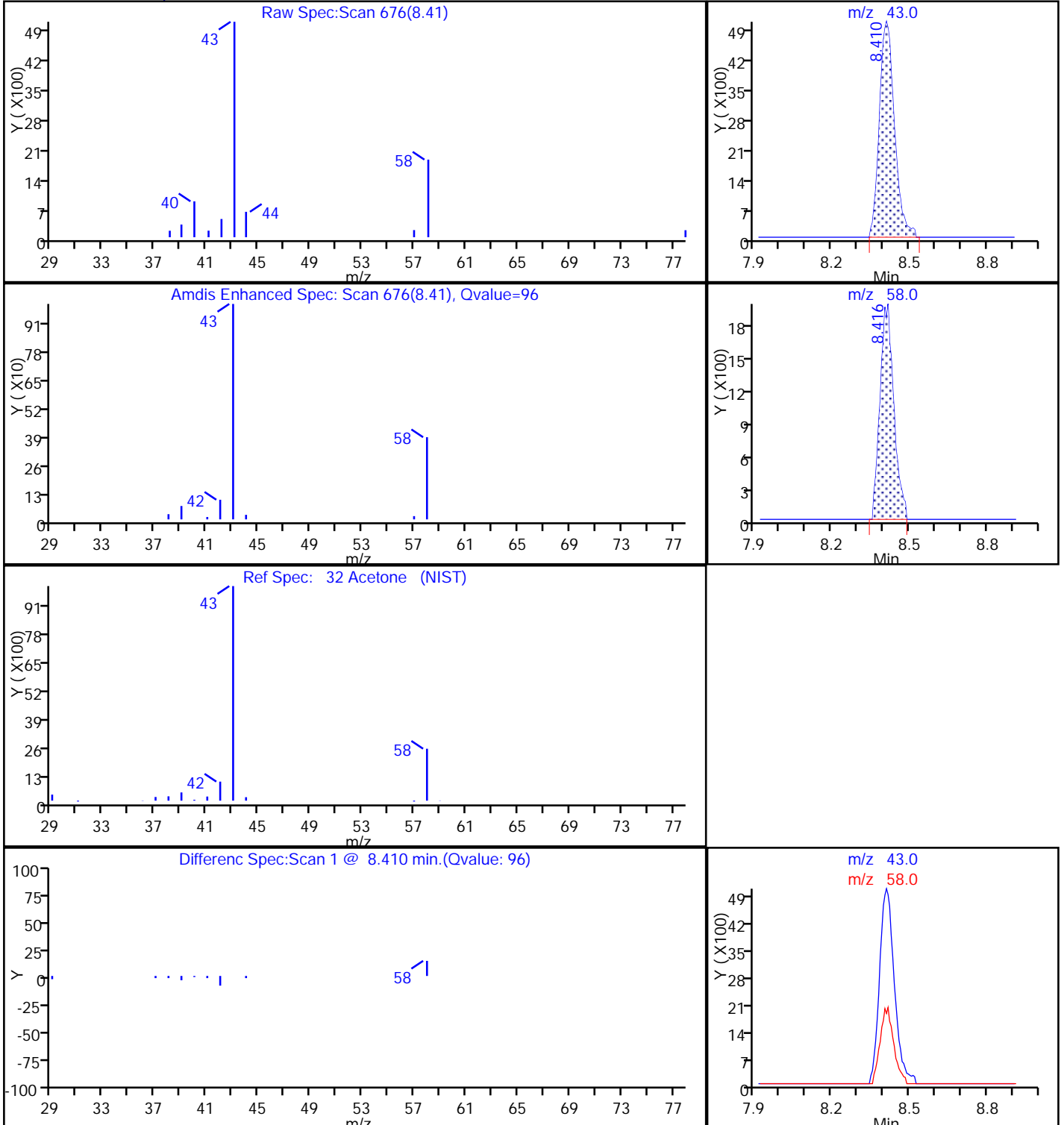
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

32 Acetone, CAS: 67-64-1



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012605.D

Injection Date: 26-Jan-2018 15:04:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-1

Lab Sample ID: 320-35383-1

Client ID: 34002421

Operator ID: LHS

ALS Bottle#: 3 Worklist Smp#: 5

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

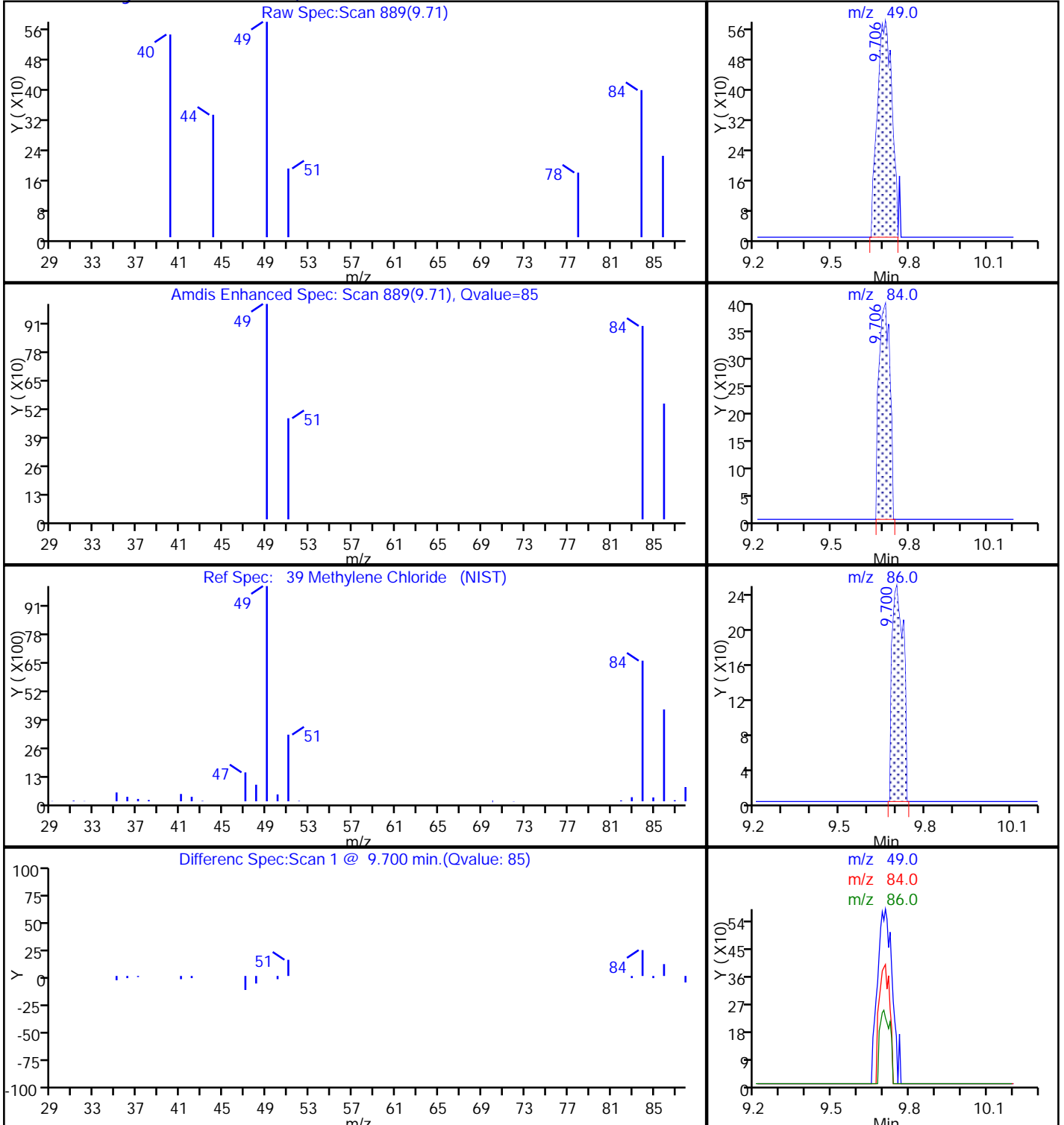
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

39 Methylene Chloride, CAS: 75-09-2





TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012605.D

Injection Date: 26-Jan-2018 15:04:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-1

Lab Sample ID: 320-35383-1

Client ID: 34002421

Operator ID: LHS

ALS Bottle#: 3 Worklist Smp#: 5

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

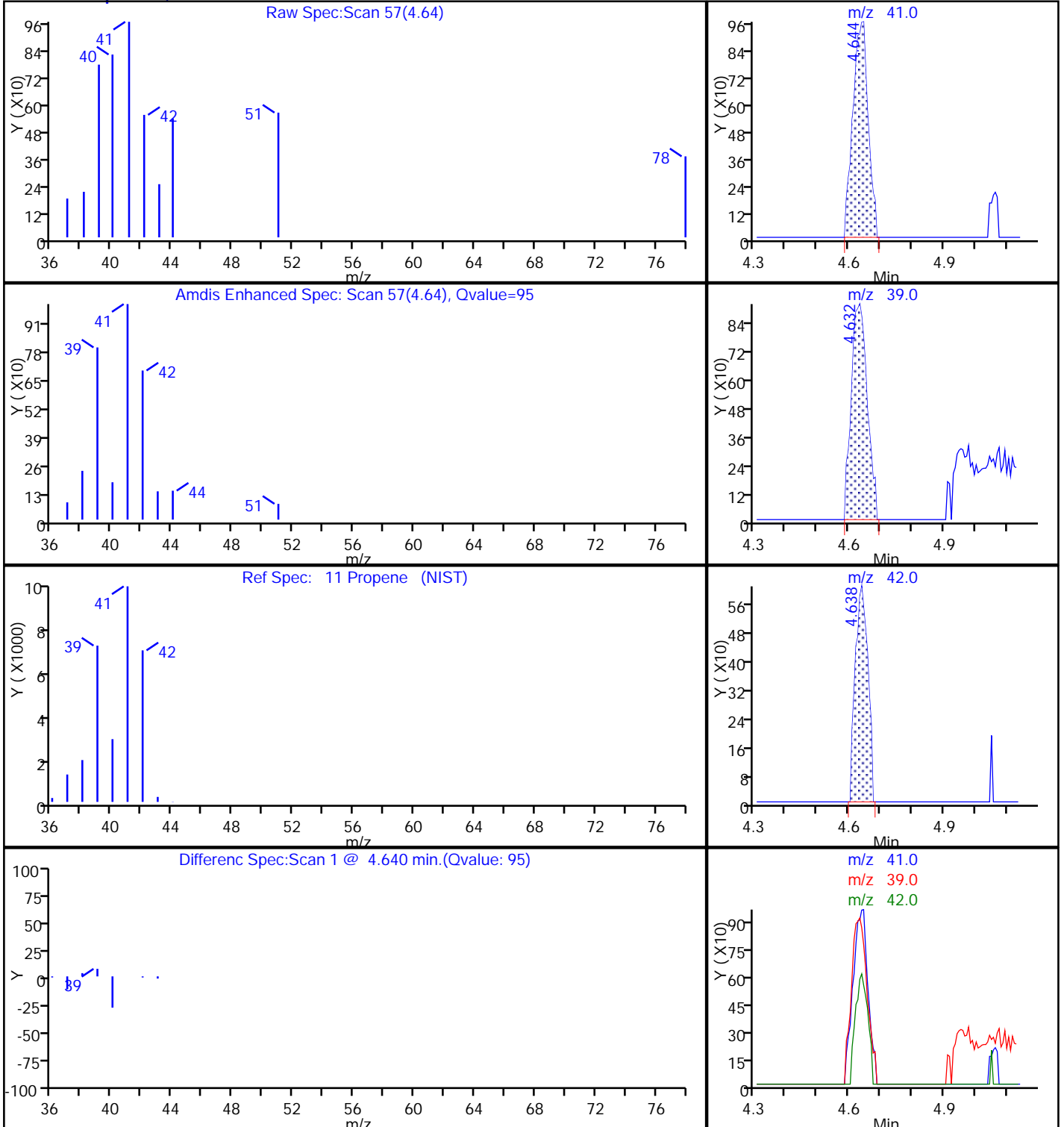
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

11 Propene, CAS: 115-07-1



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012605.D

Injection Date: 26-Jan-2018 15:04:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-1

Lab Sample ID: 320-35383-1

Client ID: 34002421

Operator ID: LHS

ALS Bottle#: 3 Worklist Smp#: 5

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

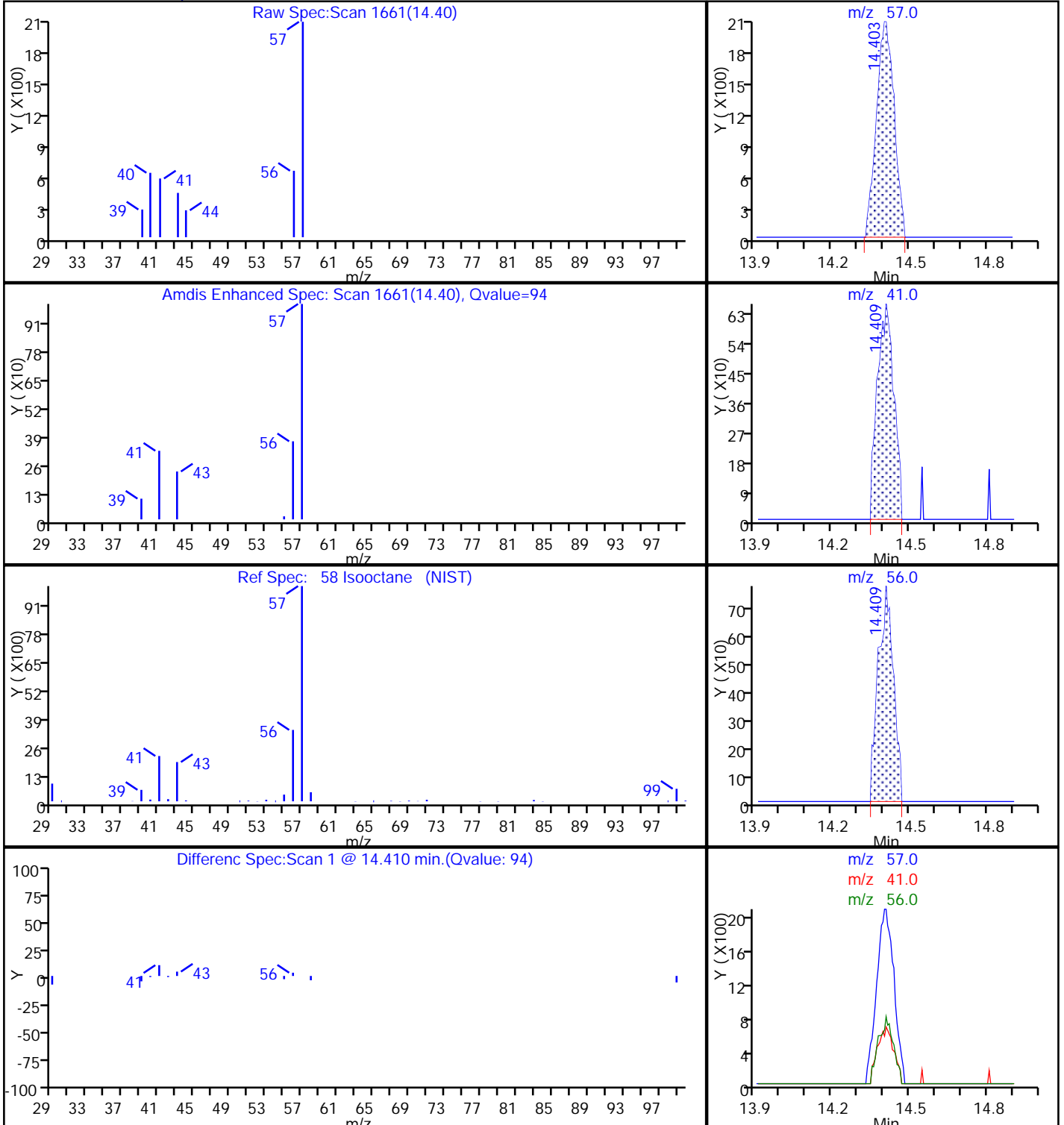
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

58 Isooctane, CAS: 540-84-1

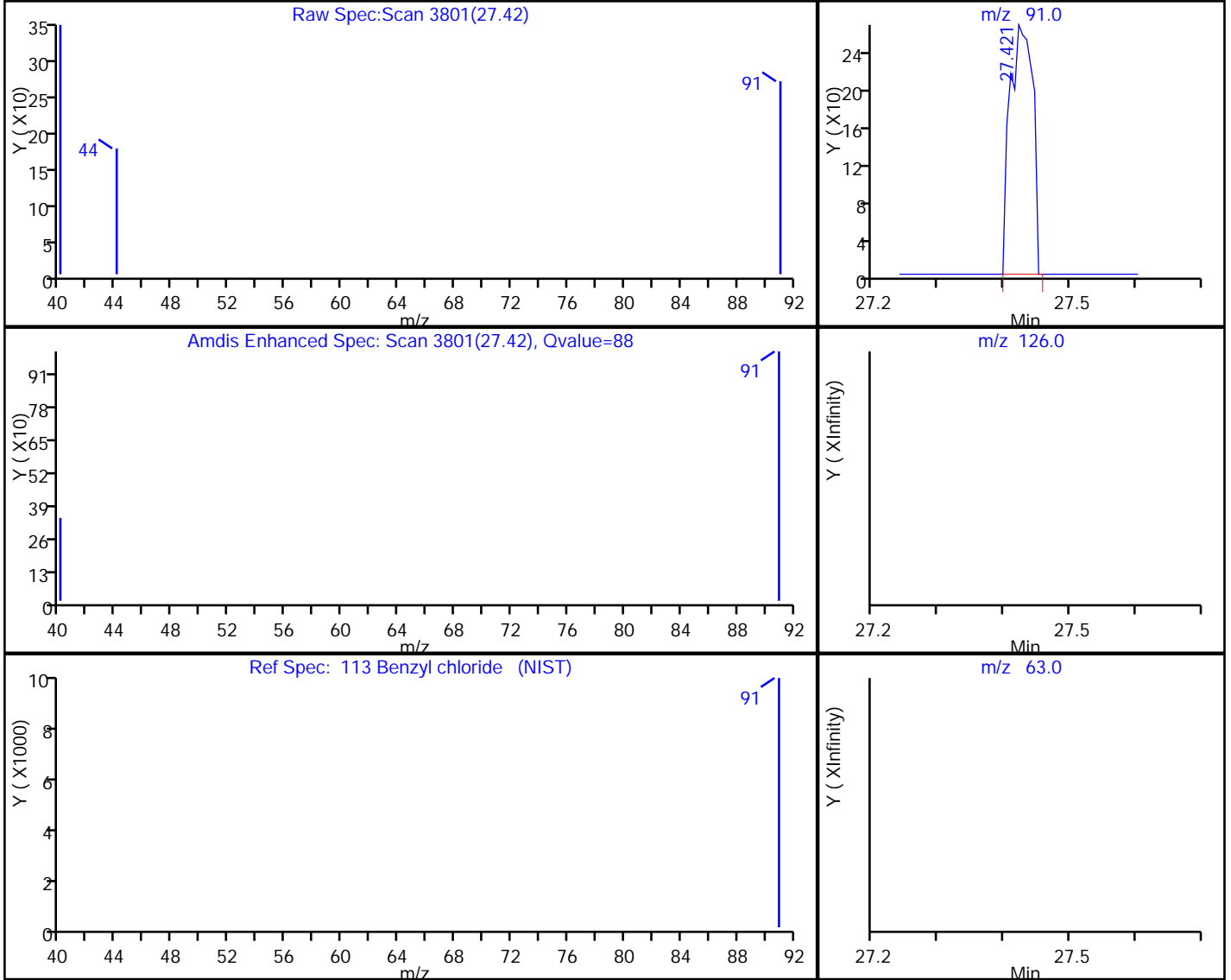


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012605.D  
 Injection Date: 26-Jan-2018 15:04:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-1 Lab Sample ID: 320-35383-1  
 Client ID: 34002421  
 Operator ID: LHS ALS Bottle#: 3 Worklist Smp#: 5  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

113 Benzyl chloride, CAS: 100-44-7

Processing Results



RT	Mass	Response	Amount
27.42	91.00	652	0.253294
27.42	126.00	0	
27.42	63.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:17:11

Audit Action: Marked Compound Undetected

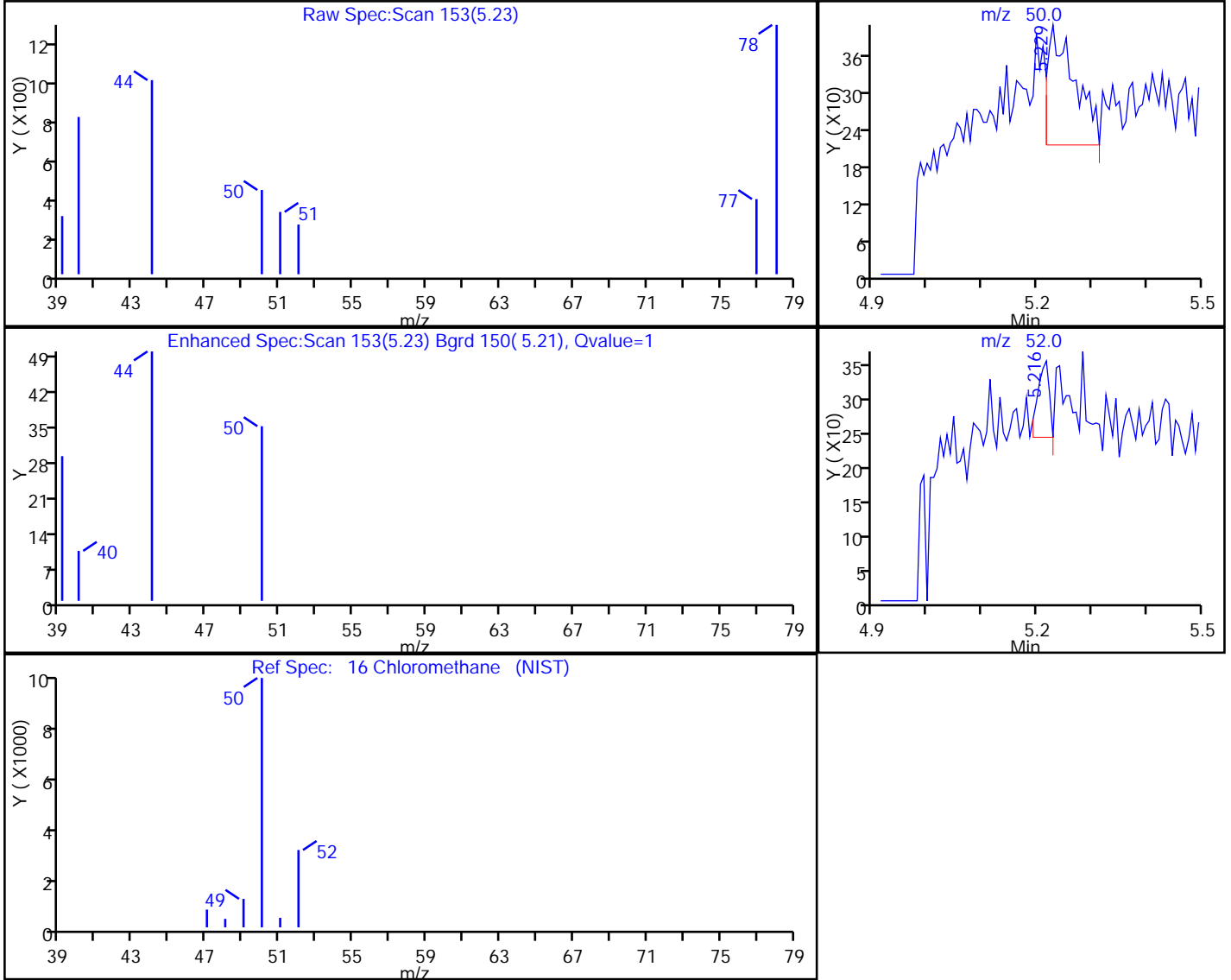
Audit Reason: Invalid Compound ID

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012605.D  
 Injection Date: 26-Jan-2018 15:04:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-1 Lab Sample ID: 320-35383-1  
 Client ID: 34002421  
 Operator ID: LHS ALS Bottle#: 3 Worklist Smp#: 5  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

16 Chloromethane, CAS: 74-87-3

Processing Results



RT	Mass	Response	Amount
5.23	50.00	667	0.051256
5.22	52.00	160	

Reviewer: phanthasena, 29-Jan-2018 12:17:11

Audit Action: Marked Compound Undetected

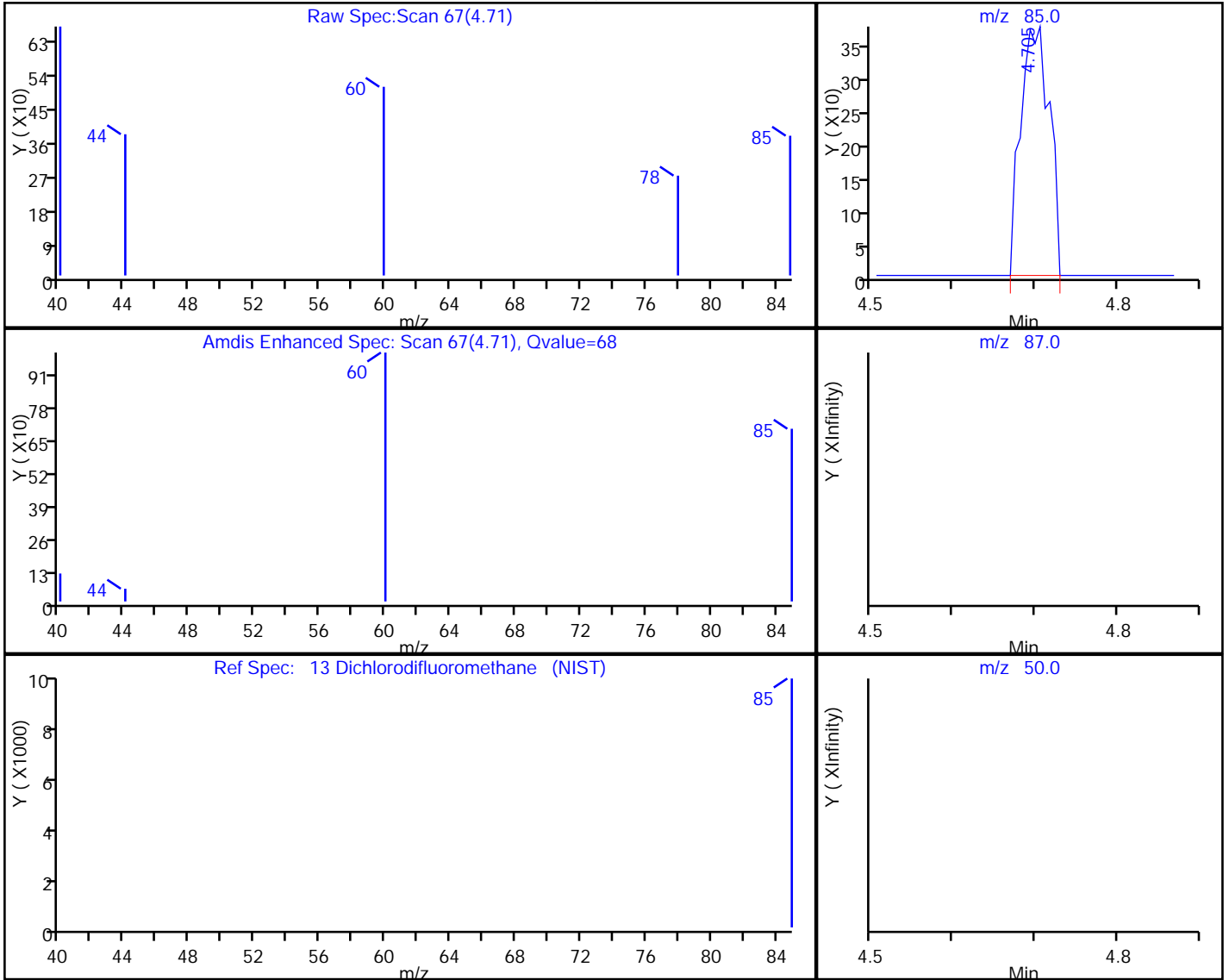
Audit Reason: Invalid Compound ID

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012605.D  
Injection Date: 26-Jan-2018 15:04:30 Instrument ID: ATMS6  
Lims ID: 320-35383-A-1 Lab Sample ID: 320-35383-1  
Client ID: 34002421  
Operator ID: LHS ALS Bottle#: 3 Worklist Smp#: 5  
Purge Vol: 25.000 mL Dil. Factor: 1.0000  
Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

13 Dichlorodifluoromethane, CAS: 75-71-8

Processing Results



RT	Mass	Response	Amount
4.71	85.00	905	0.030115
4.69	87.00	0	
4.69	50.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:17:11

Audit Action: Marked Compound Undetected

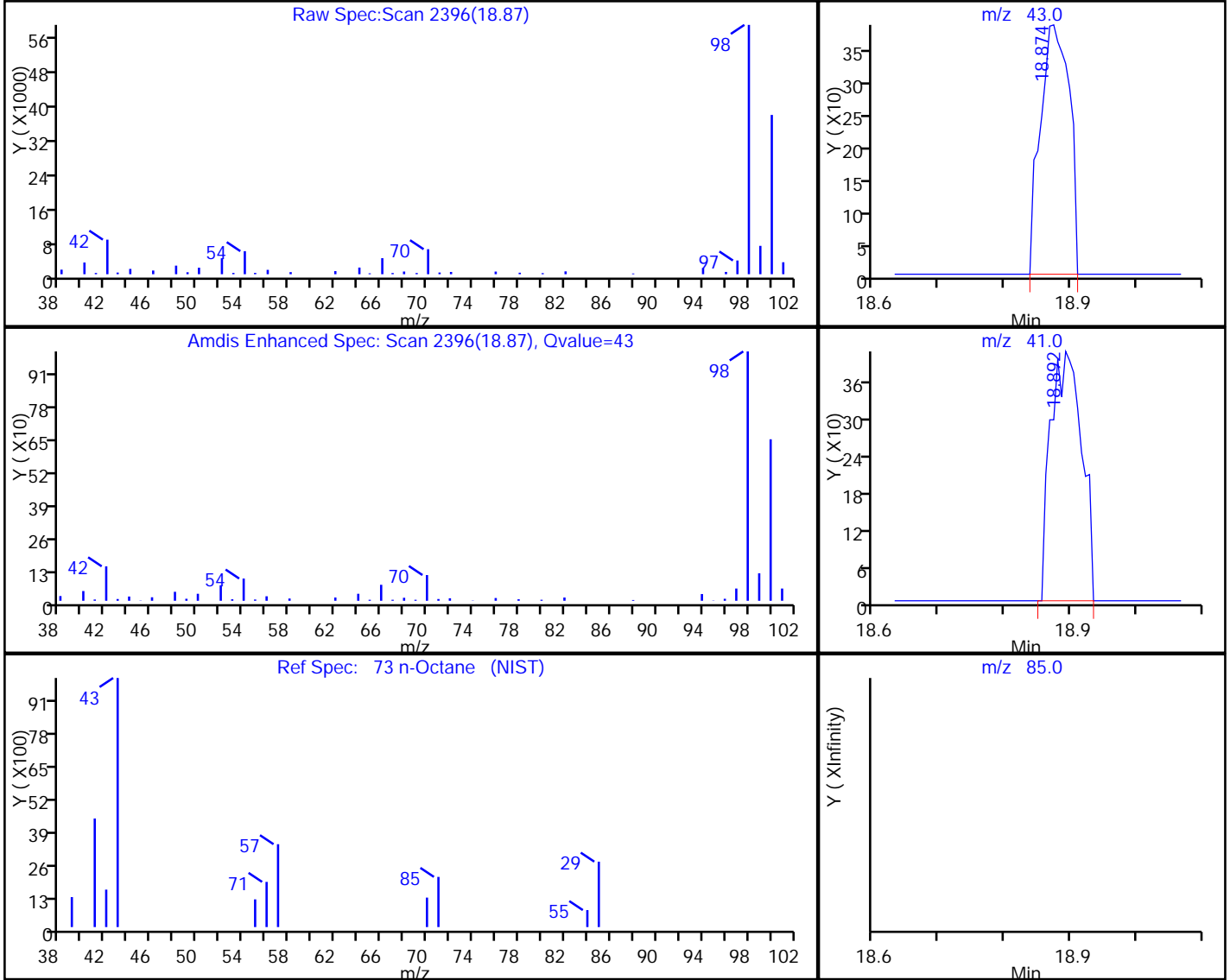
Audit Reason: Invalid Compound ID

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012605.D  
 Injection Date: 26-Jan-2018 15:04:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-1 Lab Sample ID: 320-35383-1  
 Client ID: 34002421  
 Operator ID: LHS ALS Bottle#: 3 Worklist Smp#: 5  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

73 n-Octane, CAS: 111-65-9

Processing Results



RT	Mass	Response	Amount
18.87	43.00	1184	0.031950
18.89	41.00	1316	
18.85	85.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:17:11

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002422 Lab Sample ID: 320-35383-2  
 Matrix: Air Lab File ID: MS6012606.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 16:04  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	0.35	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	ND		0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	ND		0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.27
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002422 Lab Sample ID: 320-35383-2  
 Matrix: Air Lab File ID: MS6012606.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 16:04  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.12
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	0.077	J	0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	ND		0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.21
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067



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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002422 Lab Sample ID: 320-35383-2  
 Matrix: Air Lab File ID: MS6012606.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 16:04  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	ND		0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054
1330-20-7	Xylenes, Total	ND		1.2	0.074

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	90		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		70-130
2037-26-5	Toluene-d8 (Surr)	99		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012606.D  
 Lims ID: 320-35383-A-2  
 Client ID: 34002422  
 Sample Type: Client  
 Inject. Date: 26-Jan-2018 16:04:30 ALS Bottle#: 4 Worklist Smp#: 6  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35383-A-2  
 Misc. Info.: 500mL  
 Operator ID: LHS Instrument ID: ATMS6  
 Method: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\TO15\_ATMS6.m  
 Limit Group: MSA - TO15 - ICAL  
 Last Update: 29-Jan-2018 12:21:43 Calib Date: 23-Jan-2018 18:39:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS6\20180123-53204.b\MS6012311.D  
 Column 1 : RTX Volatiles ( 0.32 mm) Det: MS SCAN  
 Process Host: XAWRK028

First Level Reviewer: phanthasena

Date: 29-Jan-2018 12:21:43

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	13.296	13.289	0.007	98	51335	4.00	
* 2 1,4-Difluorobenzene	114	15.425	15.431	-0.006	94	203013	4.00	
* 3 Chlorobenzene-d5 (IS)	117	22.159	22.153	0.006	87	180028	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	14.500	14.500	0.000	41	65181	4.03	
\$ 5 Toluene-d8 (Surr)	100	18.880	18.880	0.000	99	135439	3.97	
\$ 6 4-Bromofluorobenzene (Surr	95	24.715	24.714	0.001	92	100158	3.60	
16 Chloromethane	50	5.229	5.204	0.025	42	461	0.0354	
32 Acetone	43	8.423	8.323	0.104	96	7195	0.3463	
39 Methylene Chloride	49	9.719	9.694	0.025	83	1205	0.0774	

**Reagents:**

VAMSIS20\_00098

Amount Added: 50.00

Units: mL

Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012606.D

Injection Date: 26-Jan-2018 16:04:30

Instrument ID: ATMS6

Operator ID: LHS

Lims ID: 320-35383-A-2

Lab Sample ID: 320-35383-2

Worklist Smp#: 6

Client ID: 34002422

Purge Vol: 25.000 mL

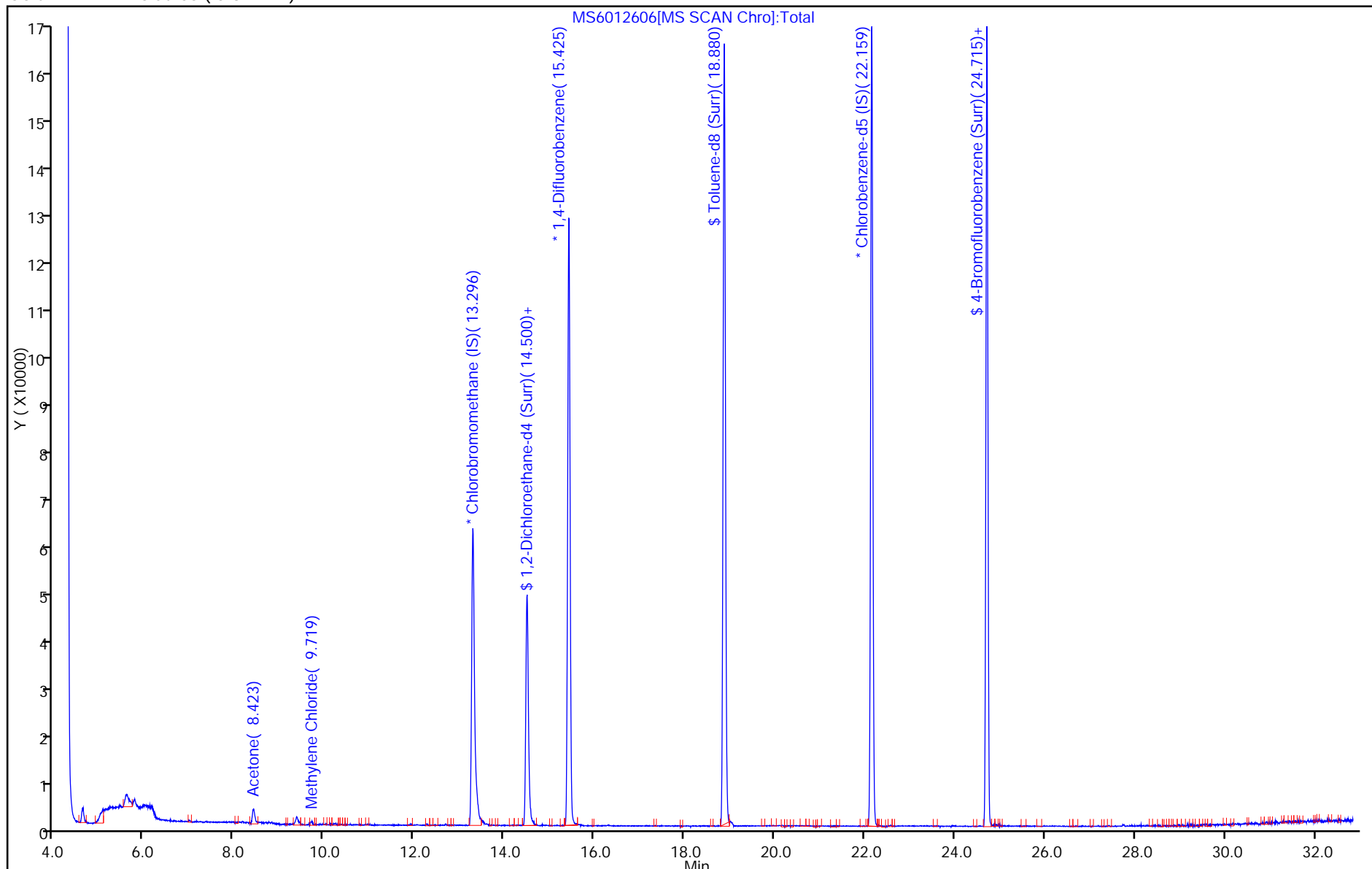
Dil. Factor: 1.0000

ALS Bottle#: 4

Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012606.D

Injection Date: 26-Jan-2018 16:04:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-2

Lab Sample ID: 320-35383-2

Client ID: 34002422

Operator ID: LHS

ALS Bottle#: 4 Worklist Smp#: 6

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

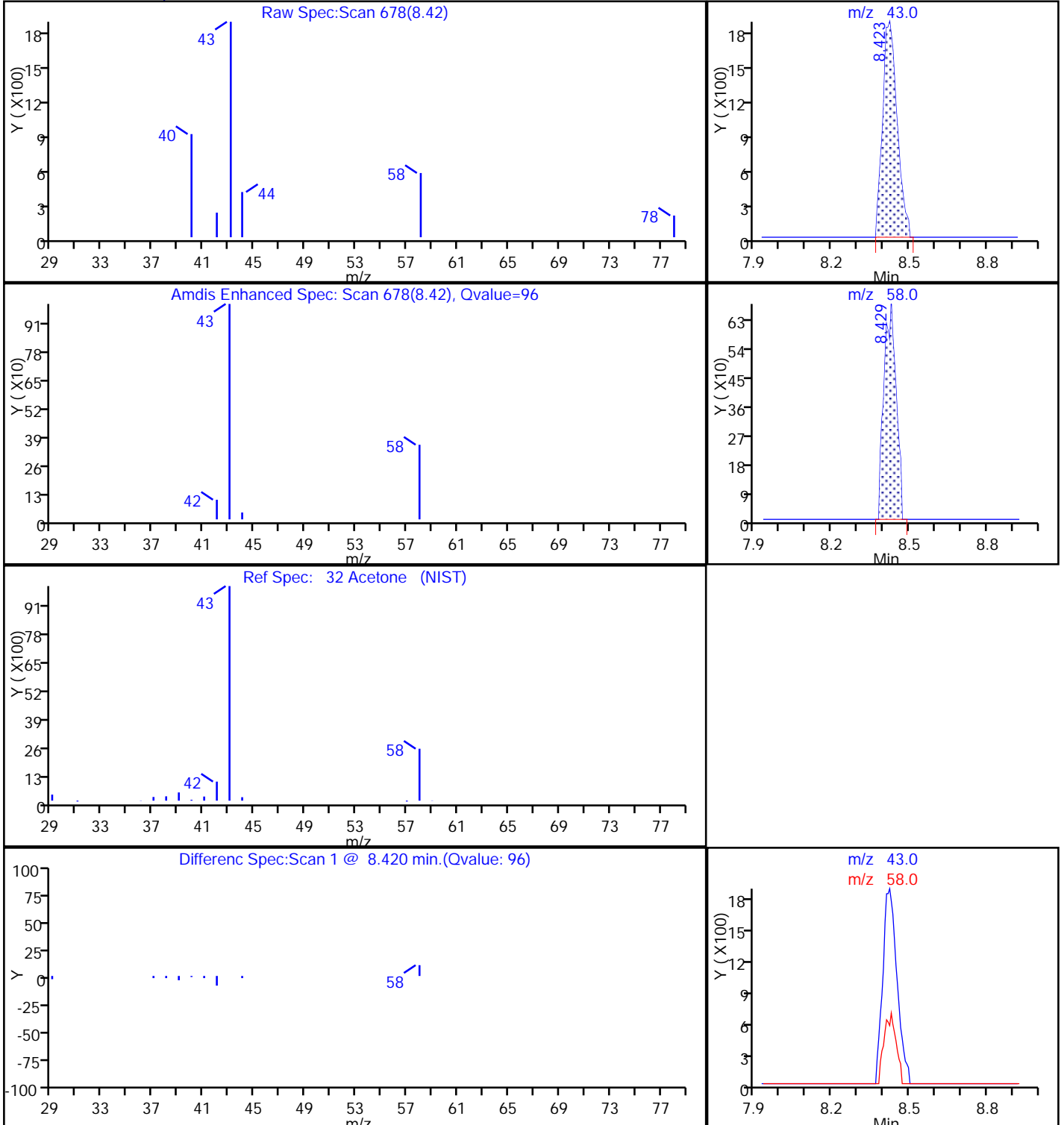
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

32 Acetone, CAS: 67-64-1



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012606.D

Injection Date: 26-Jan-2018 16:04:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-2

Lab Sample ID: 320-35383-2

Client ID: 34002422

Operator ID: LHS

ALS Bottle#: 4 Worklist Smp#: 6

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

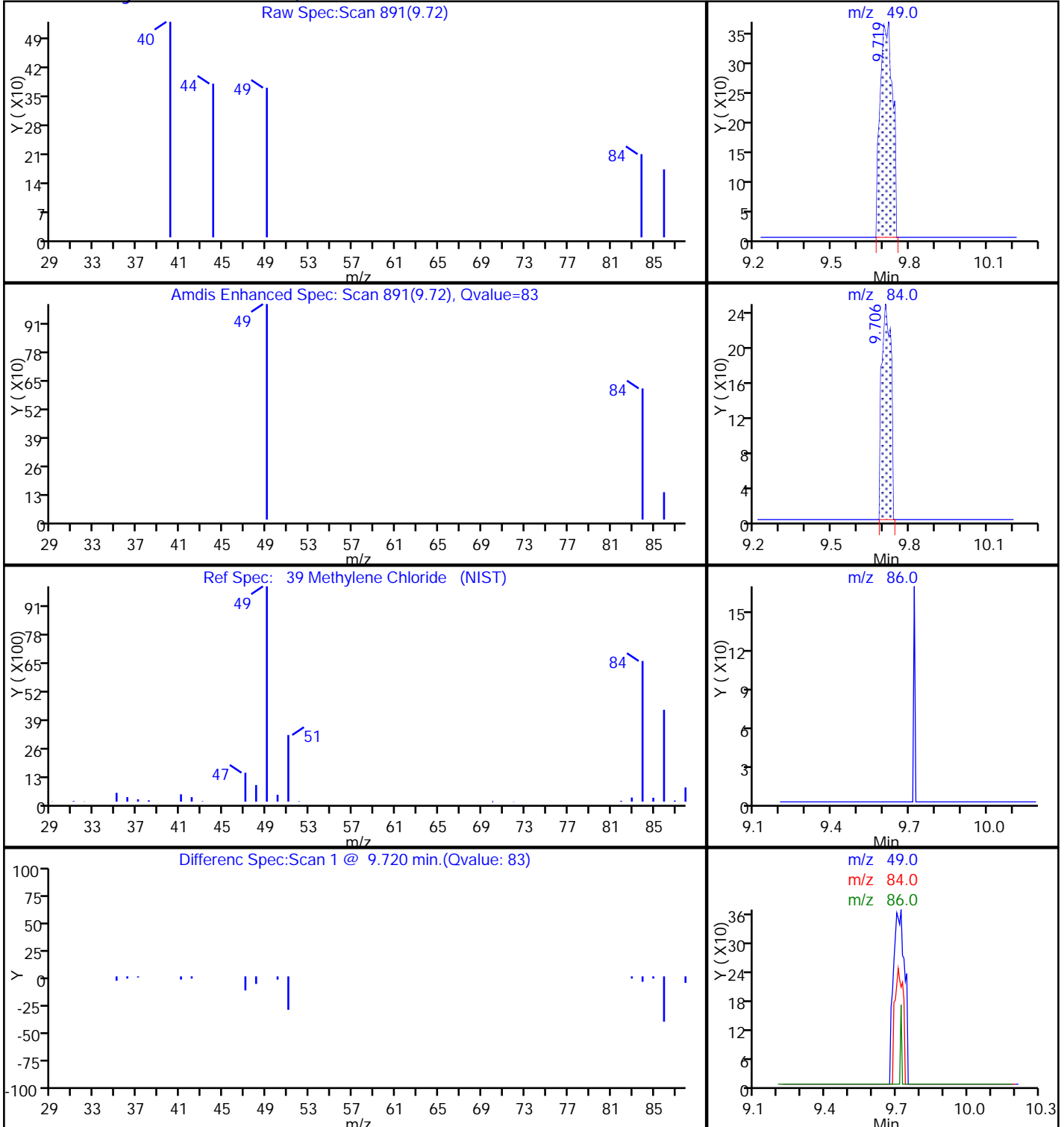
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

39 Methylene Chloride, CAS: 75-09-2

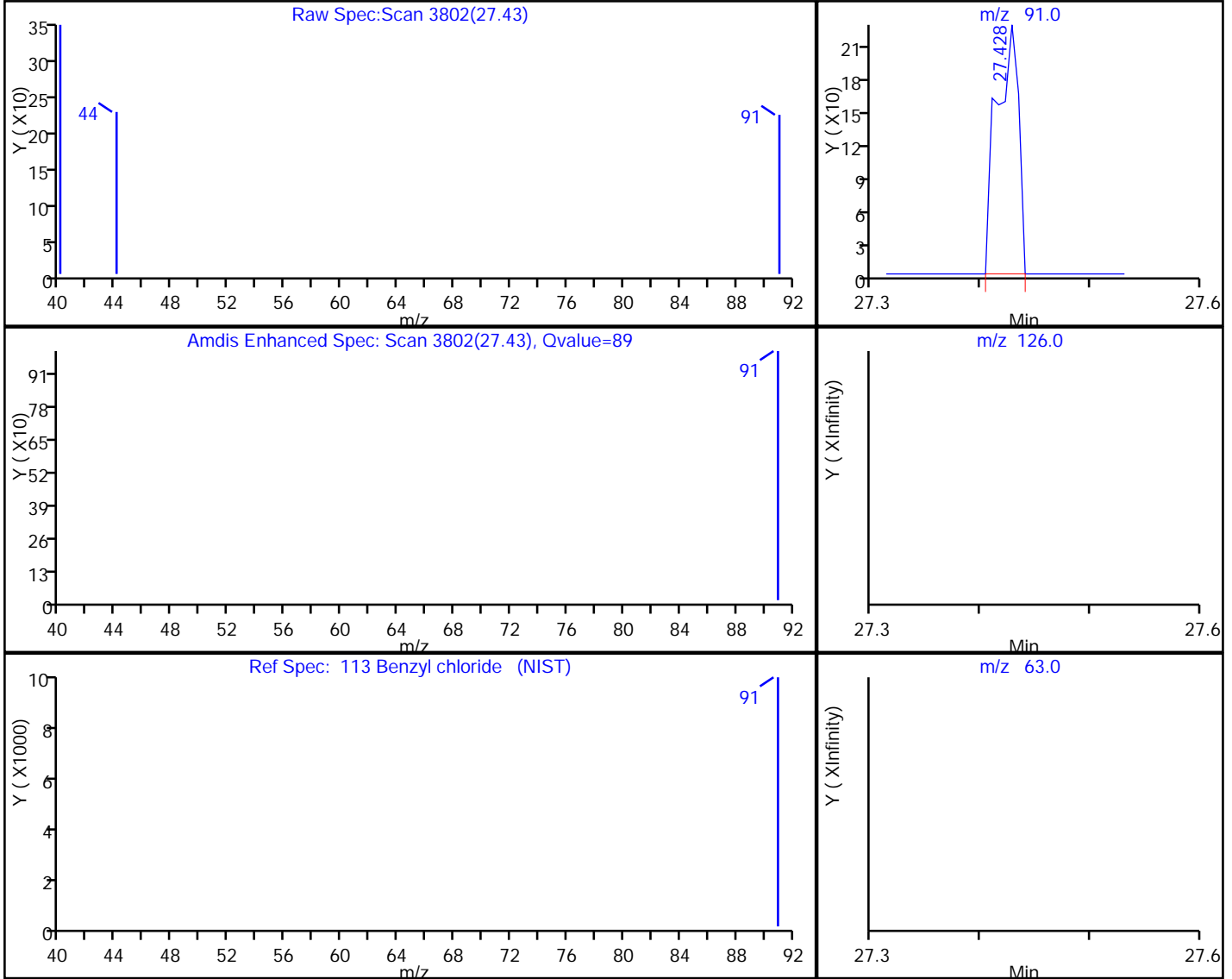


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012606.D  
Injection Date: 26-Jan-2018 16:04:30 Instrument ID: ATMS6  
Lims ID: 320-35383-A-2 Lab Sample ID: 320-35383-2  
Client ID: 34002422  
Operator ID: LHS ALS Bottle#: 4 Worklist Smp#: 6  
Purge Vol: 25.000 mL Dil. Factor: 1.0000  
Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

113 Benzyl chloride, CAS: 100-44-7

Processing Results



RT	Mass	Response	Amount
27.43	91.00	307	0.248060
27.42	126.00	0	
27.42	63.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:21:43

Audit Action: Marked Compound Undetected

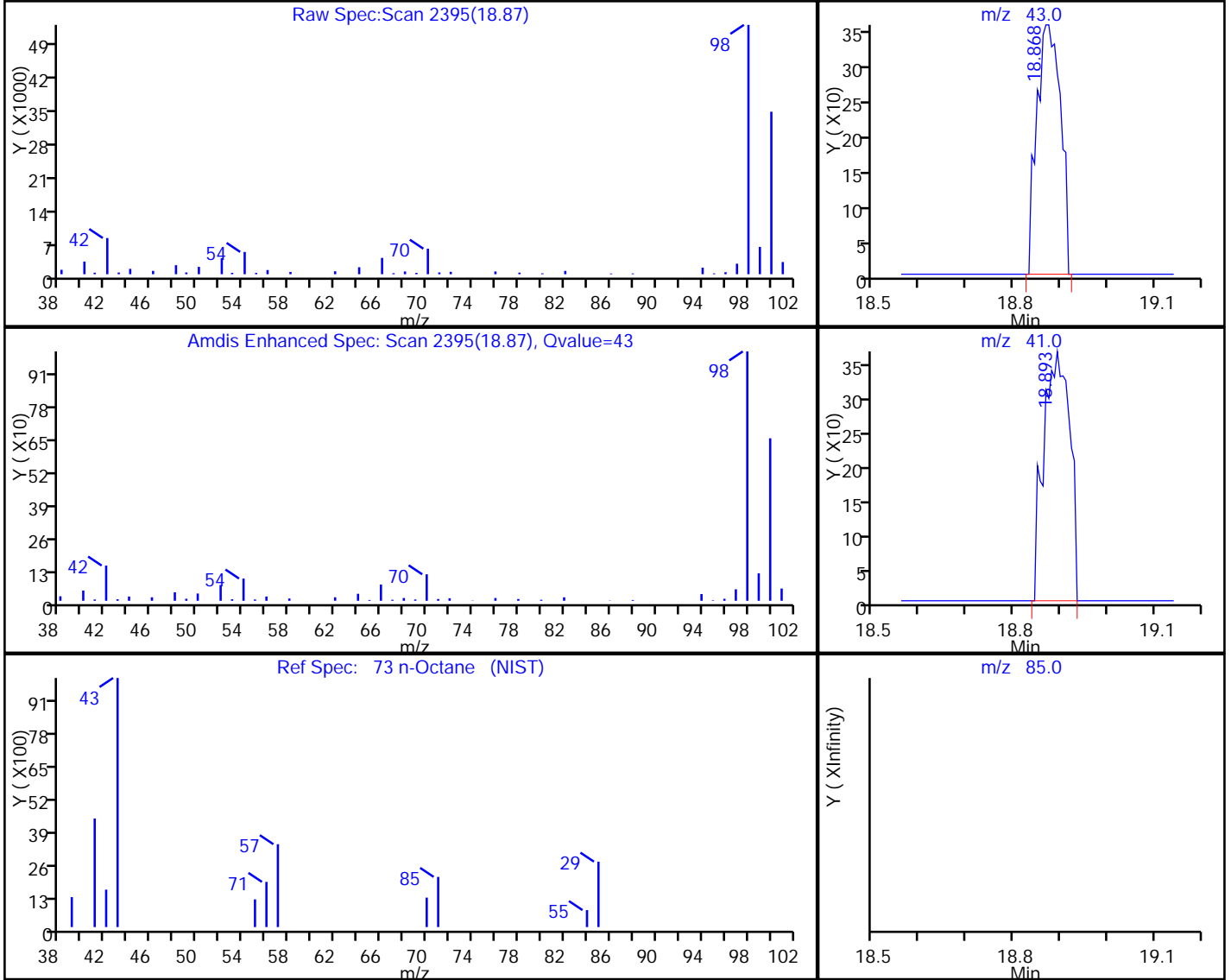
Audit Reason: Invalid Compound ID

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012606.D  
 Injection Date: 26-Jan-2018 16:04:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-2 Lab Sample ID: 320-35383-2  
 Client ID: 34002422  
 Operator ID: LHS ALS Bottle#: 4 Worklist Smp#: 6  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

73 n-Octane, CAS: 111-65-9

Processing Results



RT	Mass	Response	Amount
18.87	43.00	1242	0.033862
18.89	41.00	1415	
18.85	85.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:21:43

Audit Action: Marked Compound Undetected

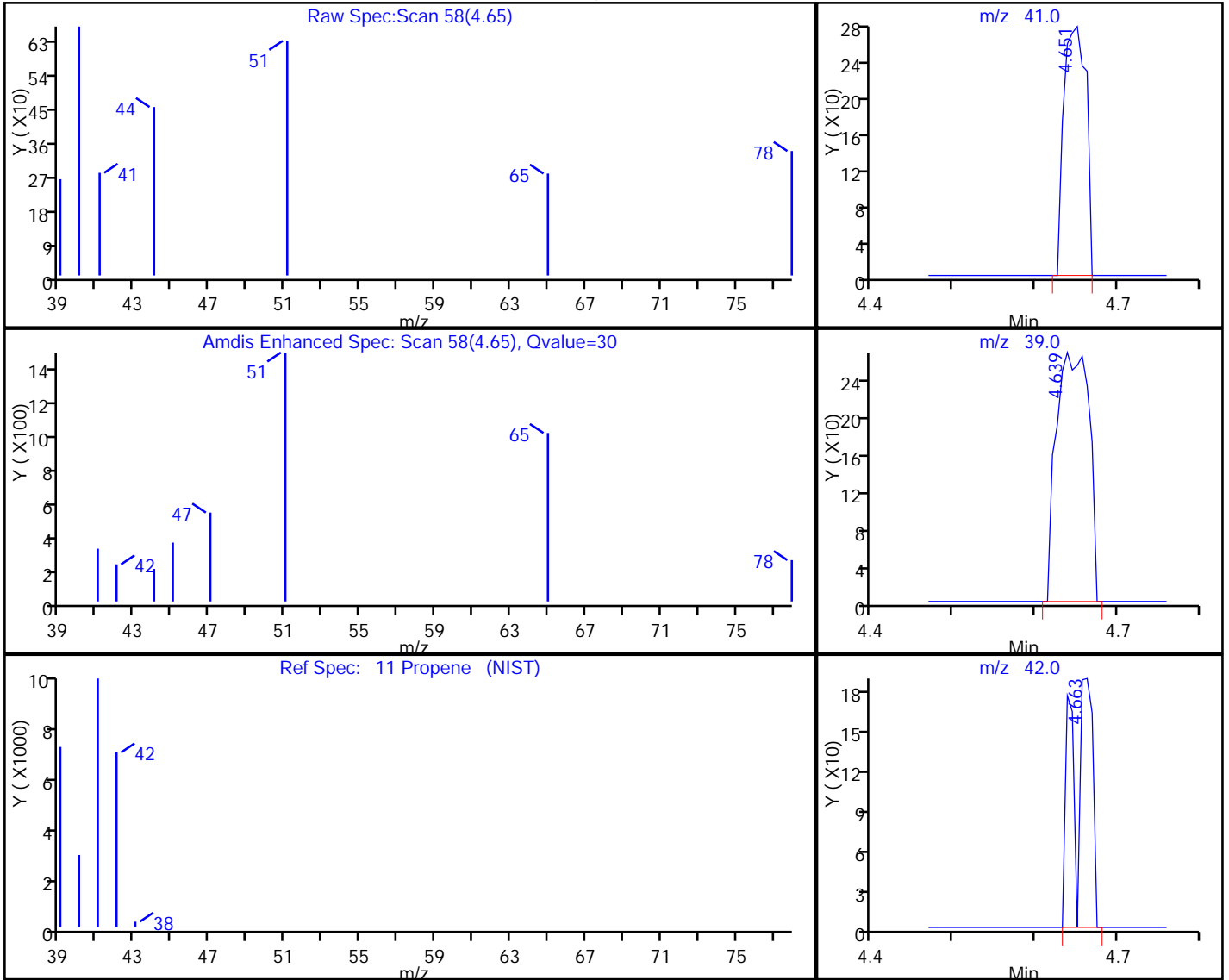
Audit Reason: Invalid Compound ID

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012606.D  
Injection Date: 26-Jan-2018 16:04:30 Instrument ID: ATMS6  
Lims ID: 320-35383-A-2 Lab Sample ID: 320-35383-2  
Client ID: 34002422  
Operator ID: LHS ALS Bottle#: 4 Worklist Smp#: 6  
Purge Vol: 25.000 mL Dil. Factor: 1.0000  
Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

11 Propene, CAS: 115-07-1

Processing Results



RT	Mass	Response	Amount
4.65	41.00	517	0.045999
4.64	39.00	749	
4.66	42.00	319	

Reviewer: phanhasena, 29-Jan-2018 12:21:43

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID



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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002423 Lab Sample ID: 320-35383-3  
 Matrix: Air Lab File ID: MS6012607.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 17:04  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	1.8	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	0.24	J	0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	ND		0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.27
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002423 Lab Sample ID: 320-35383-3  
 Matrix: Air Lab File ID: MS6012607.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 17:04  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.12
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	0.11	J	0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	0.22	J	0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.21
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002423 Lab Sample ID: 320-35383-3  
 Matrix: Air Lab File ID: MS6012607.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 17:04  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	ND		0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054
1330-20-7	Xylenes, Total	ND		1.2	0.074

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	92		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	102		70-130
2037-26-5	Toluene-d8 (Surr)	99		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012607.D  
 Lims ID: 320-35383-A-3  
 Client ID: 34002423  
 Sample Type: Client  
 Inject. Date: 26-Jan-2018 17:04:30 ALS Bottle#: 5 Worklist Smp#: 7  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35383-A-3  
 Misc. Info.: 500mL  
 Operator ID: LHS Instrument ID: ATMS6  
 Method: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\TO15\_ATMS6.m  
 Limit Group: MSA - TO15 - ICAL  
 Last Update: 29-Jan-2018 12:23:02 Calib Date: 23-Jan-2018 18:39:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS6\20180123-53204.b\MS6012311.D  
 Column 1 : RTX Volatiles ( 0.32 mm) Det: MS SCAN  
 Process Host: XAWRK028

First Level Reviewer: phanthasena

Date: 29-Jan-2018 12:23:02

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	13.289	13.289	0.000	98	50369	4.00	
* 2 1,4-Difluorobenzene	114	15.425	15.431	-0.006	94	202212	4.00	
* 3 Chlorobenzene-d5 (IS)	117	22.153	22.153	0.000	87	177644	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	14.494	14.500	-0.006	35	65541	4.06	
\$ 5 Toluene-d8 (Surr)	100	18.874	18.880	-0.006	99	134238	3.95	
\$ 6 4-Bromofluorobenzene (Surr	95	24.714	24.714	0.000	93	100851	3.67	
11 Propene	41	4.632	4.614	0.018	90	2423	0.2197	
17 Butane	43	5.448	5.450	0.000	75	1061	0.0411	
32 Acetone	43	8.398	8.323	0.079	93	35951	1.76	
39 Methylene Chloride	49	9.700	9.694	0.006	96	1685	0.1103	
40 Carbon disulfide	76	9.785	9.778	0.012	91	1373	0.0585	
48 2-Butanone (MEK)	72	12.255	12.206	0.055	94	1424	0.2369	

**Reagents:**

VAMSIS20\_00098

Amount Added: 50.00

Units: mL

Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012607.D

Injection Date: 26-Jan-2018 17:04:30

Instrument ID: ATMS6

Operator ID: LHS

Lims ID: 320-35383-A-3

Lab Sample ID: 320-35383-3

Worklist Smp#: 7

Client ID: 34002423

Purge Vol: 25.000 mL

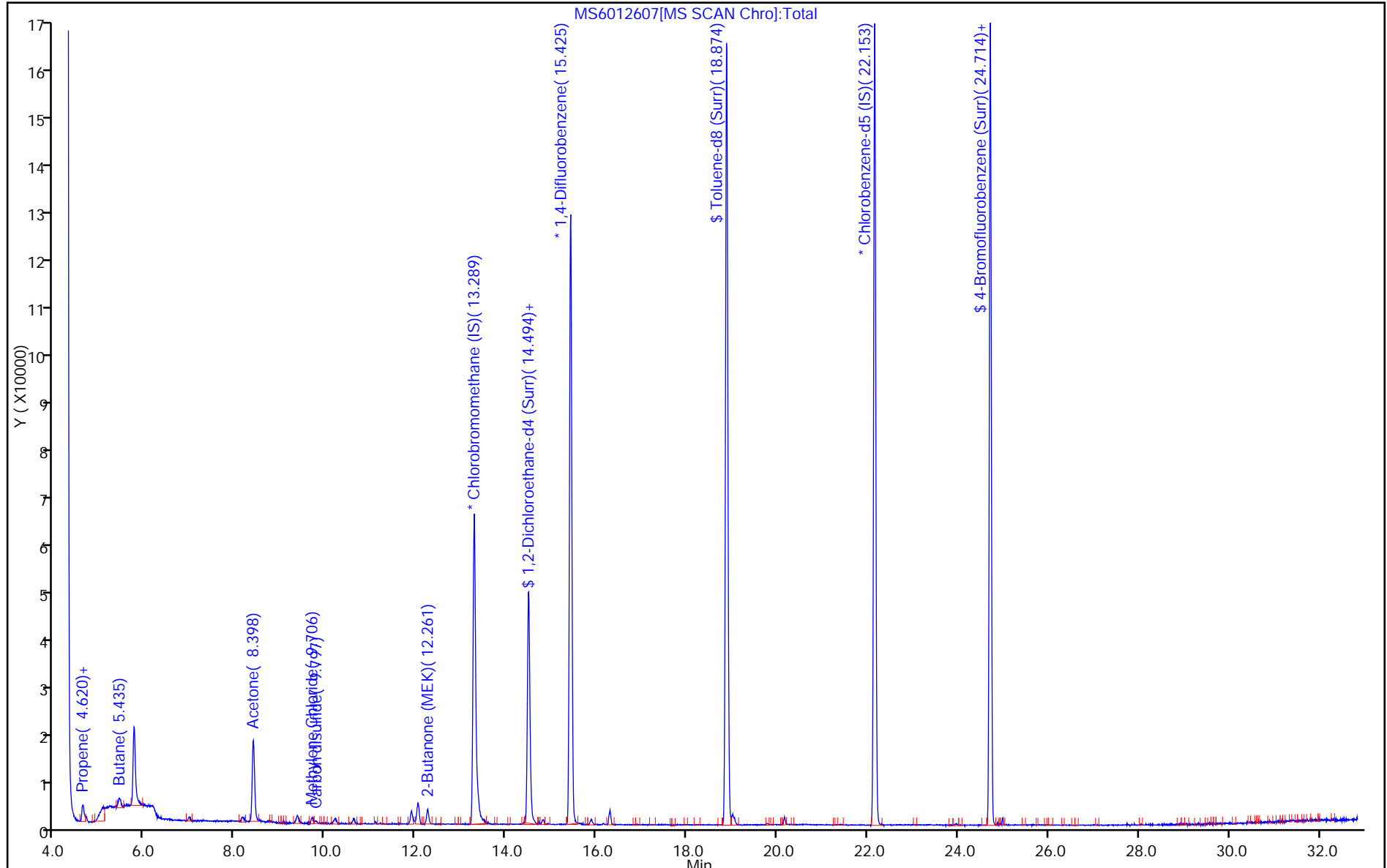
Dil. Factor: 1.0000

ALS Bottle#: 5

Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012607.D

Injection Date: 26-Jan-2018 17:04:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-3

Lab Sample ID: 320-35383-3

Client ID: 34002423

Operator ID: LHS

ALS Bottle#: 5 Worklist Smp#: 7

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

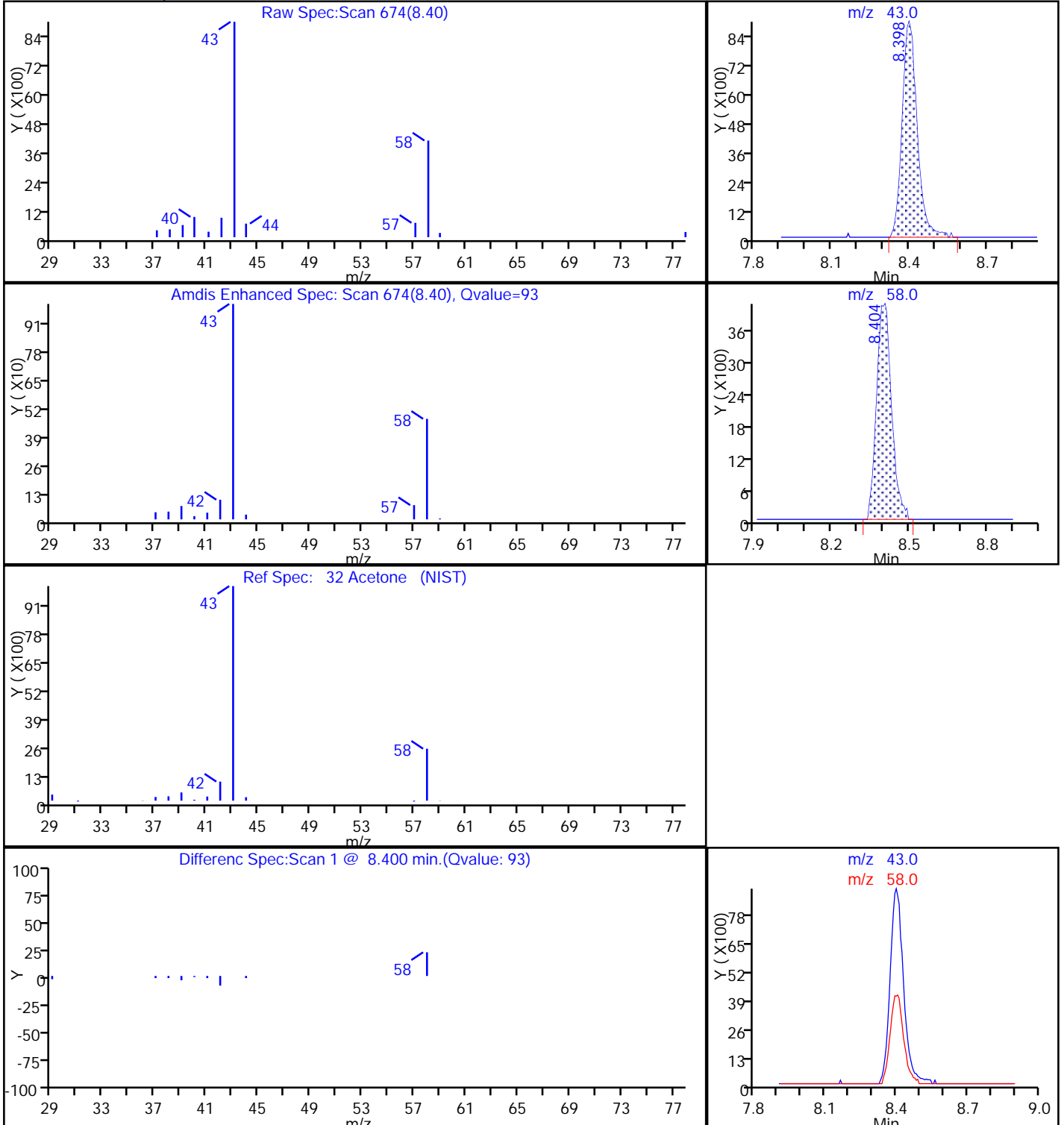
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

32 Acetone, CAS: 67-64-1



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012607.D

Injection Date: 26-Jan-2018 17:04:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-3

Lab Sample ID: 320-35383-3

Client ID: 34002423

Operator ID: LHS

ALS Bottle#: 5

Worklist Smp#: 7

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

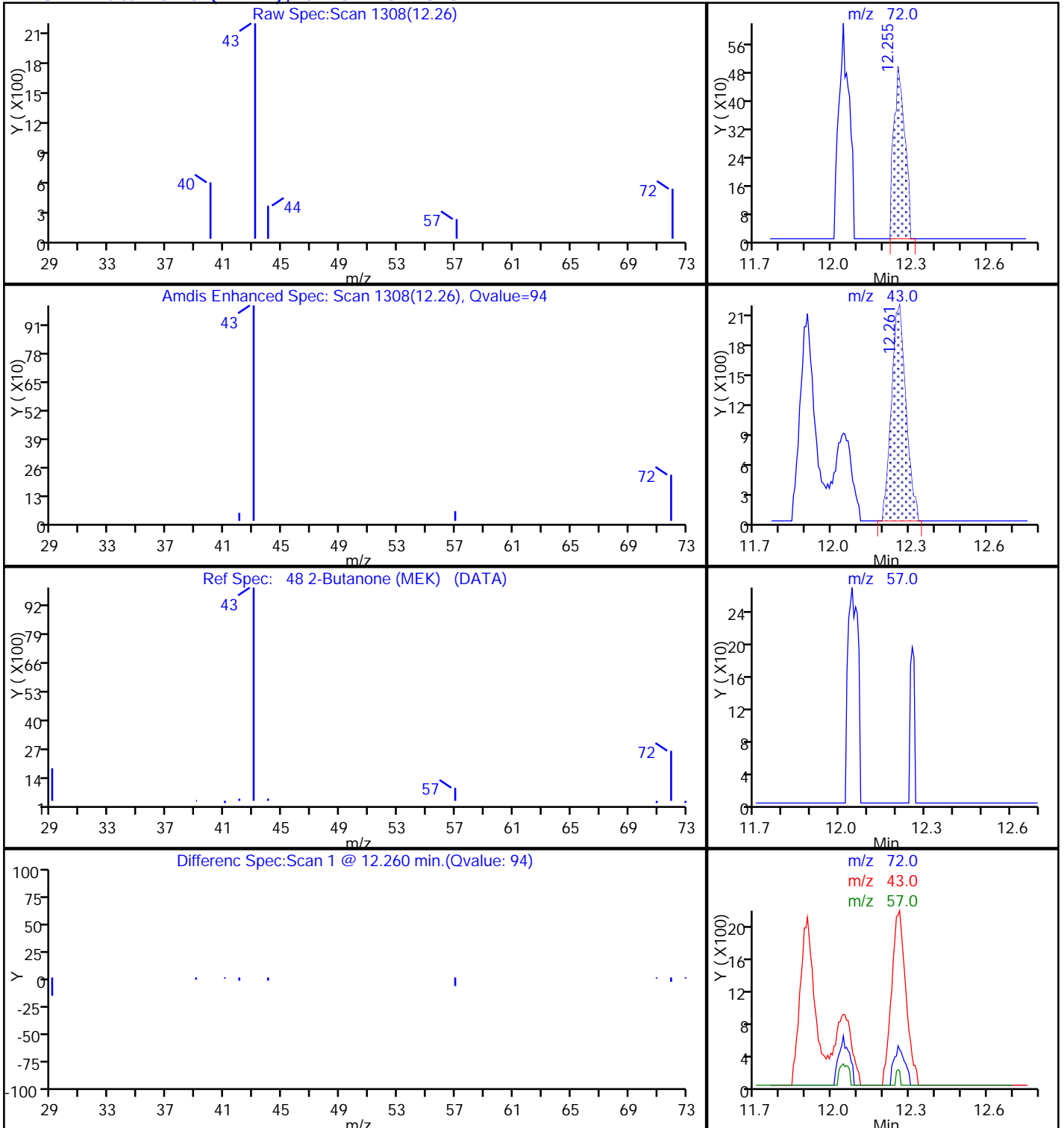
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

48 2-Butanone (MEK), CAS: 78-93-3



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012607.D

Injection Date: 26-Jan-2018 17:04:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-3

Lab Sample ID: 320-35383-3

Client ID: 34002423

Operator ID: LHS

ALS Bottle#: 5 Worklist Smp#: 7

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

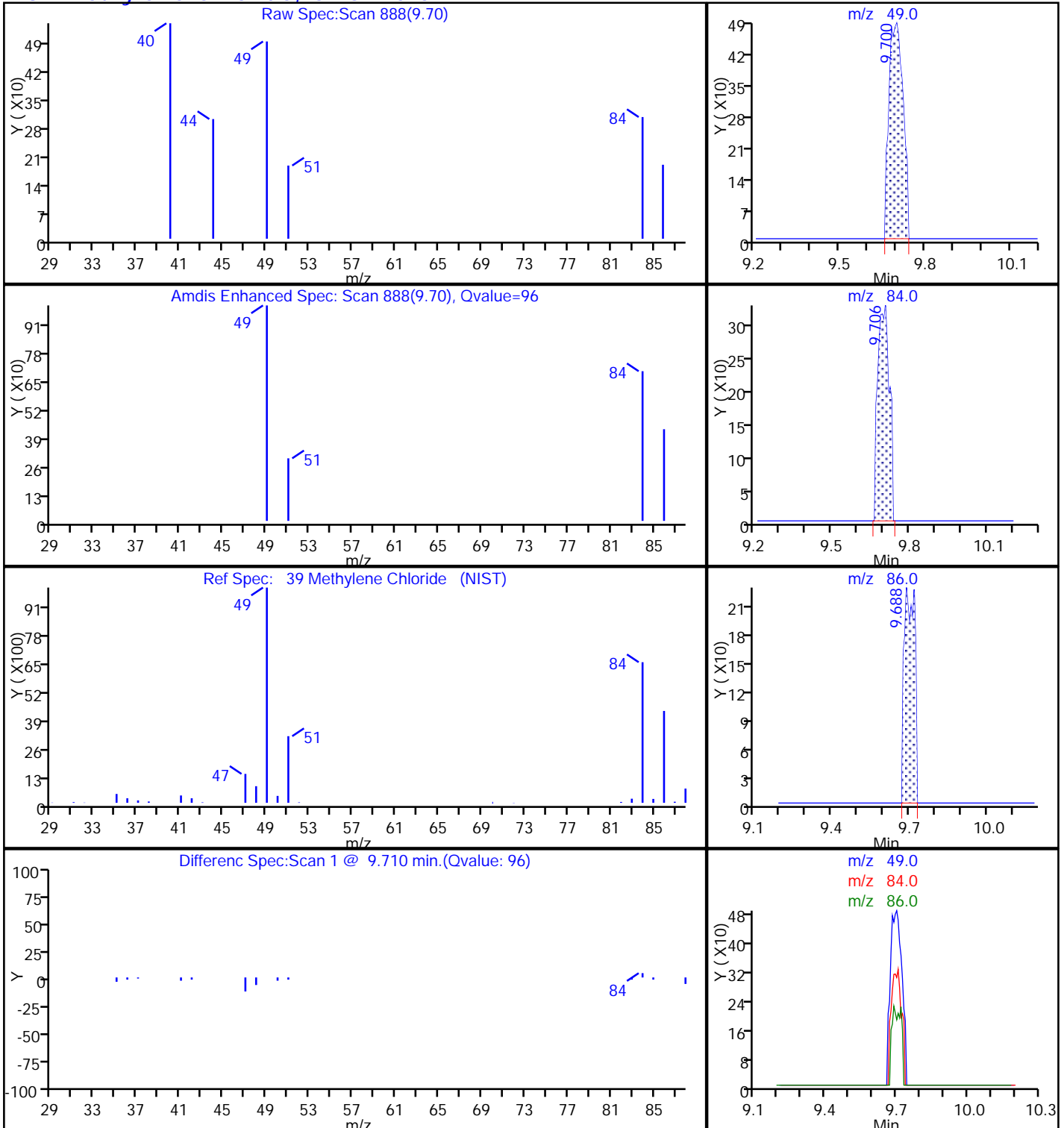
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

39 Methylene Chloride, CAS: 75-09-2





TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012607.D

Injection Date: 26-Jan-2018 17:04:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-3

Lab Sample ID: 320-35383-3

Client ID: 34002423

Operator ID: LHS

ALS Bottle#: 5 Worklist Smp#: 7

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

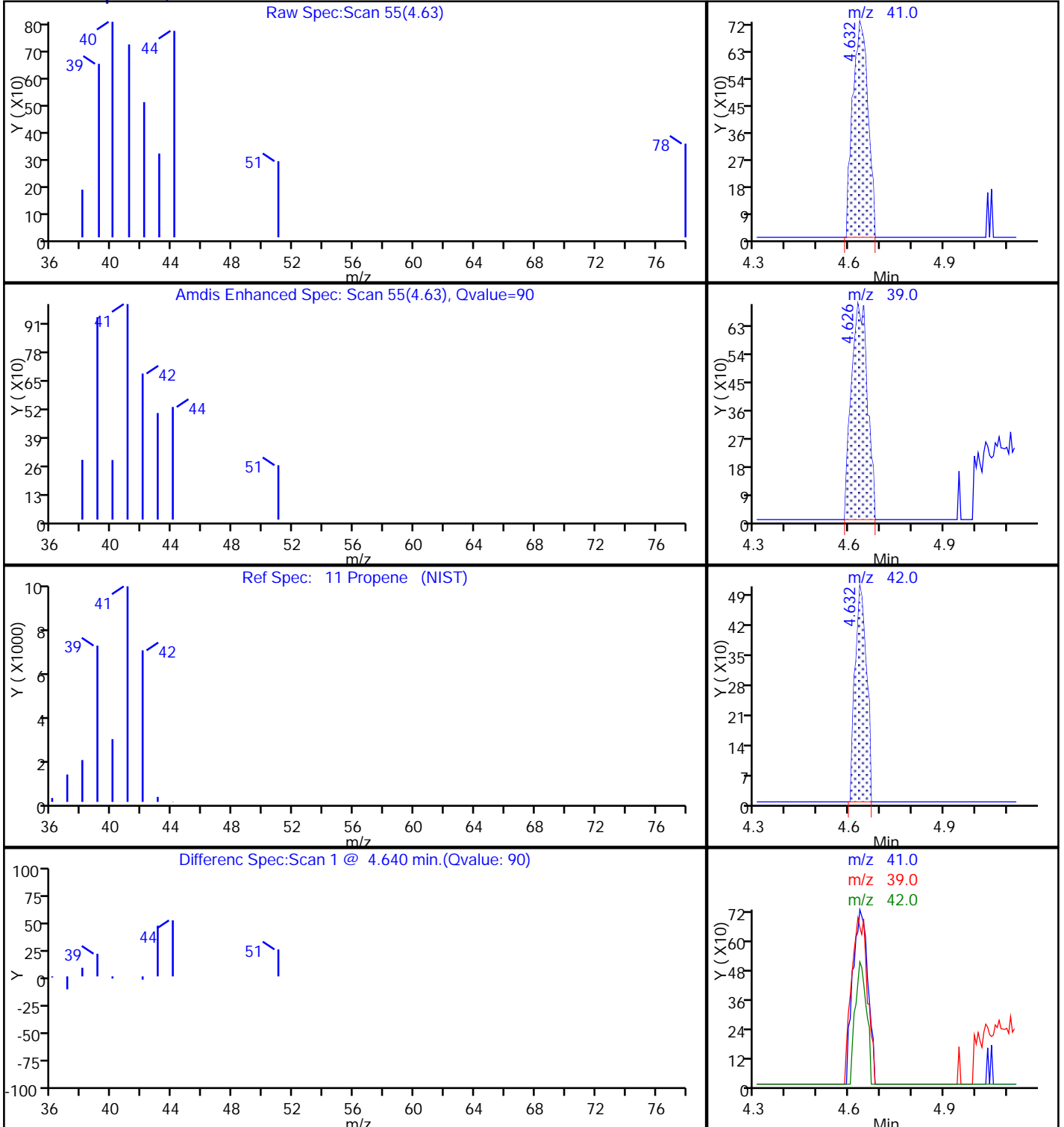
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

11 Propene, CAS: 115-07-1

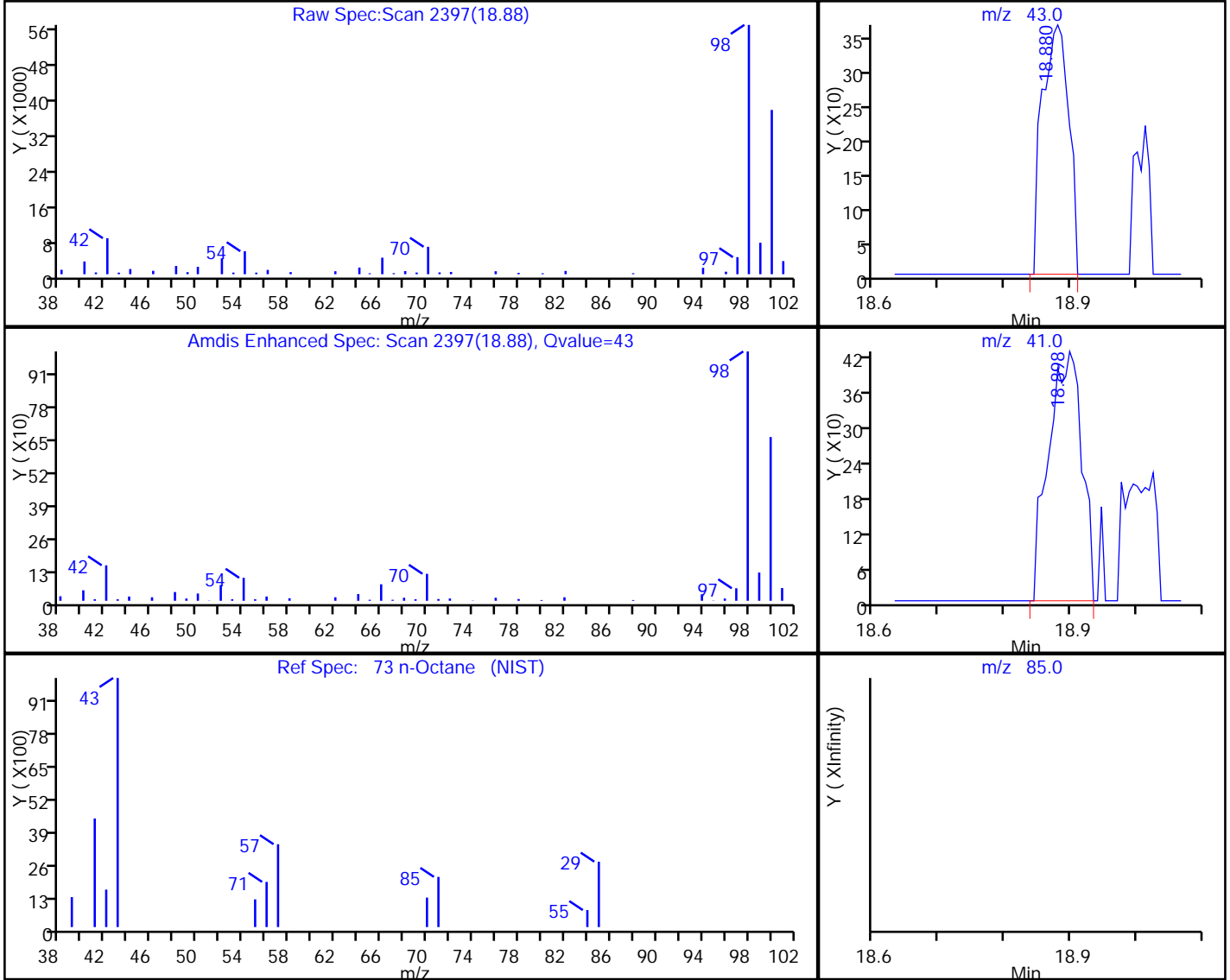


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012607.D  
 Injection Date: 26-Jan-2018 17:04:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-3 Lab Sample ID: 320-35383-3  
 Client ID: 34002423  
 Operator ID: LHS ALS Bottle#: 5 Worklist Smp#: 7  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

73 n-Octane, CAS: 111-65-9

Processing Results



RT	Mass	Response	Amount
18.88	43.00	1012	0.027961
18.90	41.00	1495	
18.85	85.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:23:02

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002424 Lab Sample ID: 320-35383-4  
 Matrix: Air Lab File ID: MS6012608.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 18:02  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	0.86	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	ND		0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	ND		0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.27
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002424 Lab Sample ID: 320-35383-4  
 Matrix: Air Lab File ID: MS6012608.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 18:02  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.12
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	0.10	J	0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	0.23	J	0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.21
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002424 Lab Sample ID: 320-35383-4  
 Matrix: Air Lab File ID: MS6012608.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 18:02  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	ND		0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054
1330-20-7	Xylenes, Total	ND		1.2	0.074

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	91		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		70-130
2037-26-5	Toluene-d8 (Surr)	99		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012608.D  
 Lims ID: 320-35383-A-4  
 Client ID: 34002424  
 Sample Type: Client  
 Inject. Date: 26-Jan-2018 18:02:30 ALS Bottle#: 6 Worklist Smp#: 8  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35383-A-4  
 Misc. Info.: 500mL  
 Operator ID: LHS Instrument ID: ATMS6  
 Method: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\TO15\_ATMS6.m  
 Limit Group: MSA - TO15 - ICAL  
 Last Update: 29-Jan-2018 12:24:32 Calib Date: 23-Jan-2018 18:39:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS6\20180123-53204.b\MS6012311.D  
 Column 1 : RTX Volatiles ( 0.32 mm) Det: MS SCAN  
 Process Host: XAWRK028

First Level Reviewer: phanthasena

Date: 29-Jan-2018 12:24:32

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	13.289	13.289	0.000	98	50020	4.00	
* 2 1,4-Difluorobenzene	114	15.424	15.431	-0.007	94	198315	4.00	
* 3 Chlorobenzene-d5 (IS)	117	22.153	22.153	0.000	87	175237	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	14.494	14.500	-0.006	33	63763	4.03	
\$ 5 Toluene-d8 (Surr)	100	18.880	18.880	0.000	99	131717	3.95	
\$ 6 4-Bromofluorobenzene (Surr	95	24.714	24.714	0.000	92	99049	3.66	
11 Propene	41	4.632	4.614	0.018	92	2544	0.2323	
17 Butane	43	5.459	5.450	0.011	80	1417	0.0552	
32 Acetone	43	8.410	8.323	0.091	94	17336	0.8563	
39 Methylene Chloride	49	9.688	9.694	-0.006	47	1514	0.0998	

**Reagents:**

VAMSIS20\_00098

Amount Added: 50.00

Units: mL

Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012608.D

Injection Date: 26-Jan-2018 18:02:30

Instrument ID: ATMS6

Operator ID: LHS

Lims ID: 320-35383-A-4

Lab Sample ID: 320-35383-4

Worklist Smp#: 8

Client ID: 34002424

Purge Vol: 25.000 mL

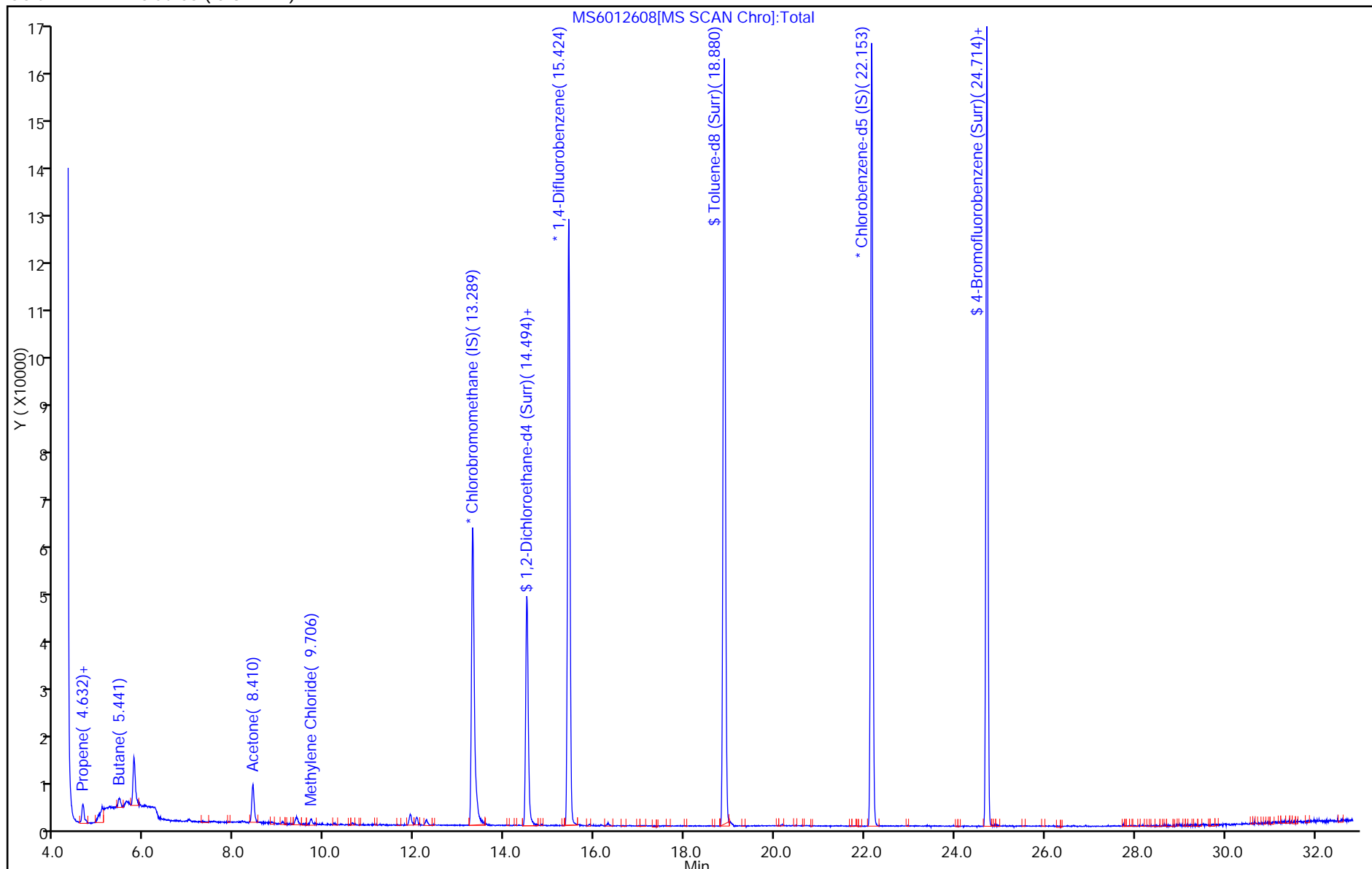
Dil. Factor: 1.0000

ALS Bottle#: 6

Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012608.D

Injection Date: 26-Jan-2018 18:02:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-4

Lab Sample ID: 320-35383-4

Client ID: 34002424

Operator ID: LHS

ALS Bottle#: 6 Worklist Smp#: 8

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

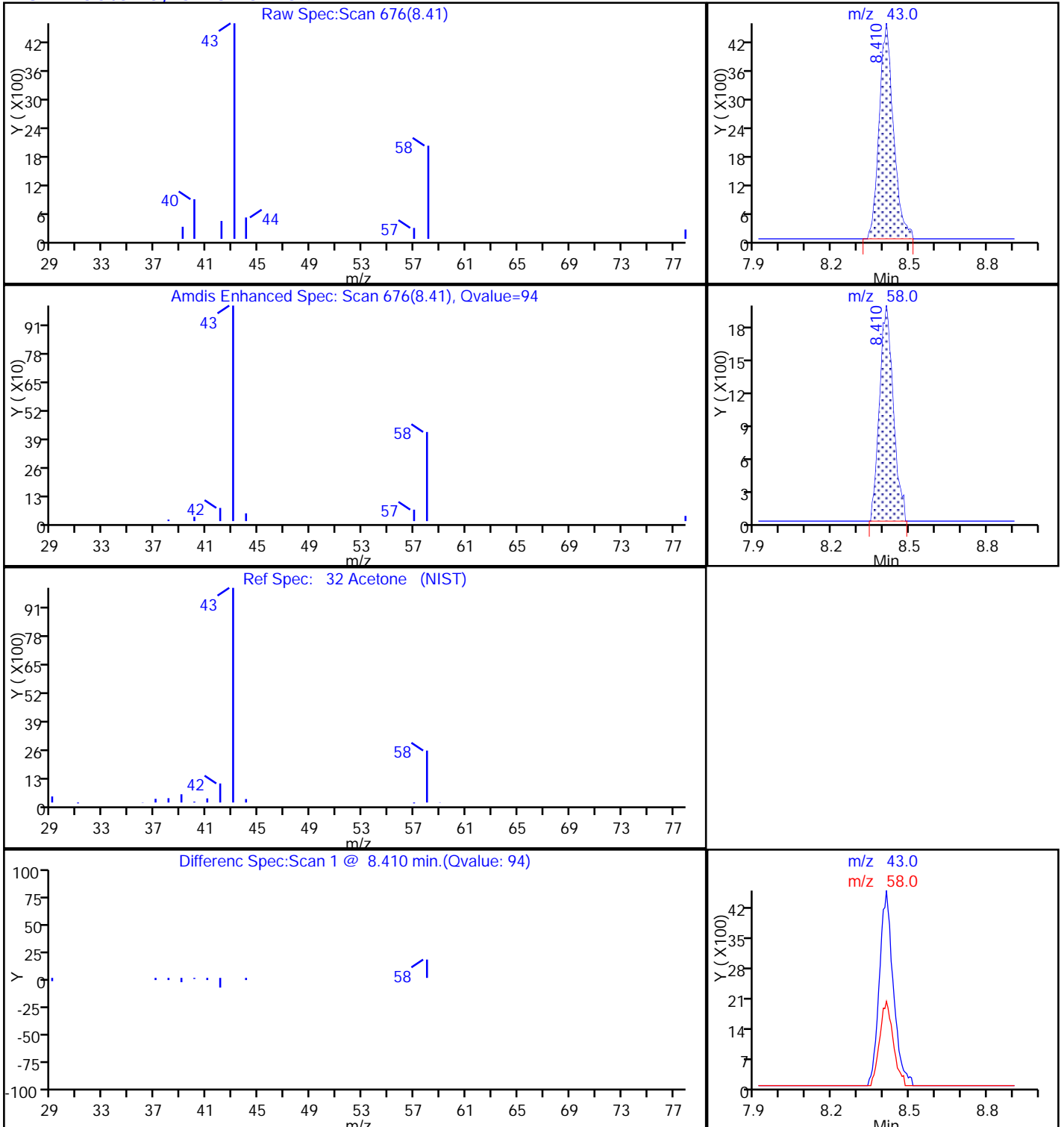
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

32 Acetone, CAS: 67-64-1





TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012608.D

Injection Date: 26-Jan-2018 18:02:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-4

Lab Sample ID: 320-35383-4

Client ID: 34002424

Operator ID: LHS

ALS Bottle#: 6 Worklist Smp#: 8

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

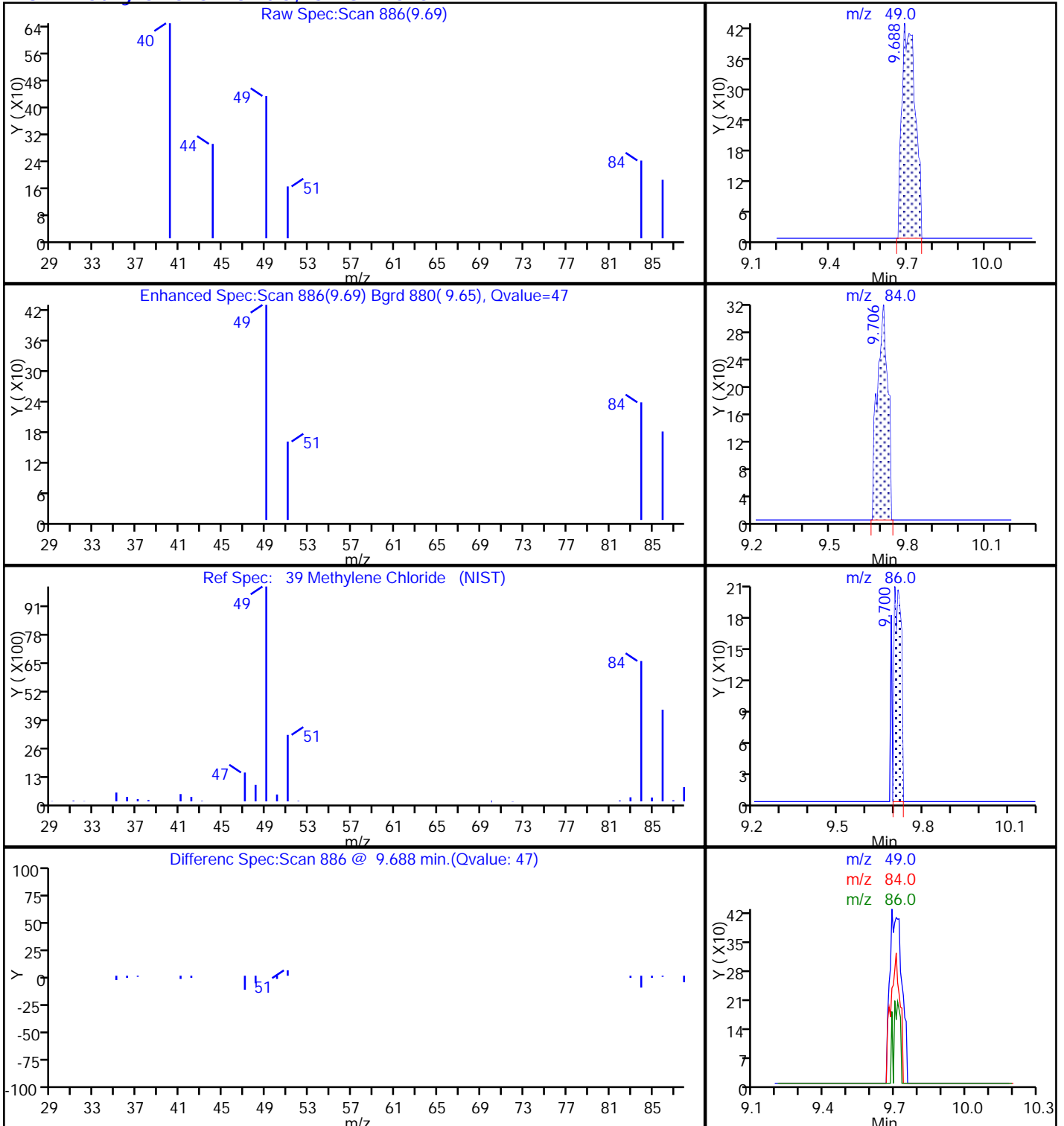
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

39 Methylene Chloride, CAS: 75-09-2



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012608.D

Injection Date: 26-Jan-2018 18:02:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-4

Lab Sample ID: 320-35383-4

Client ID: 34002424

Operator ID: LHS

ALS Bottle#: 6 Worklist Smp#: 8

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

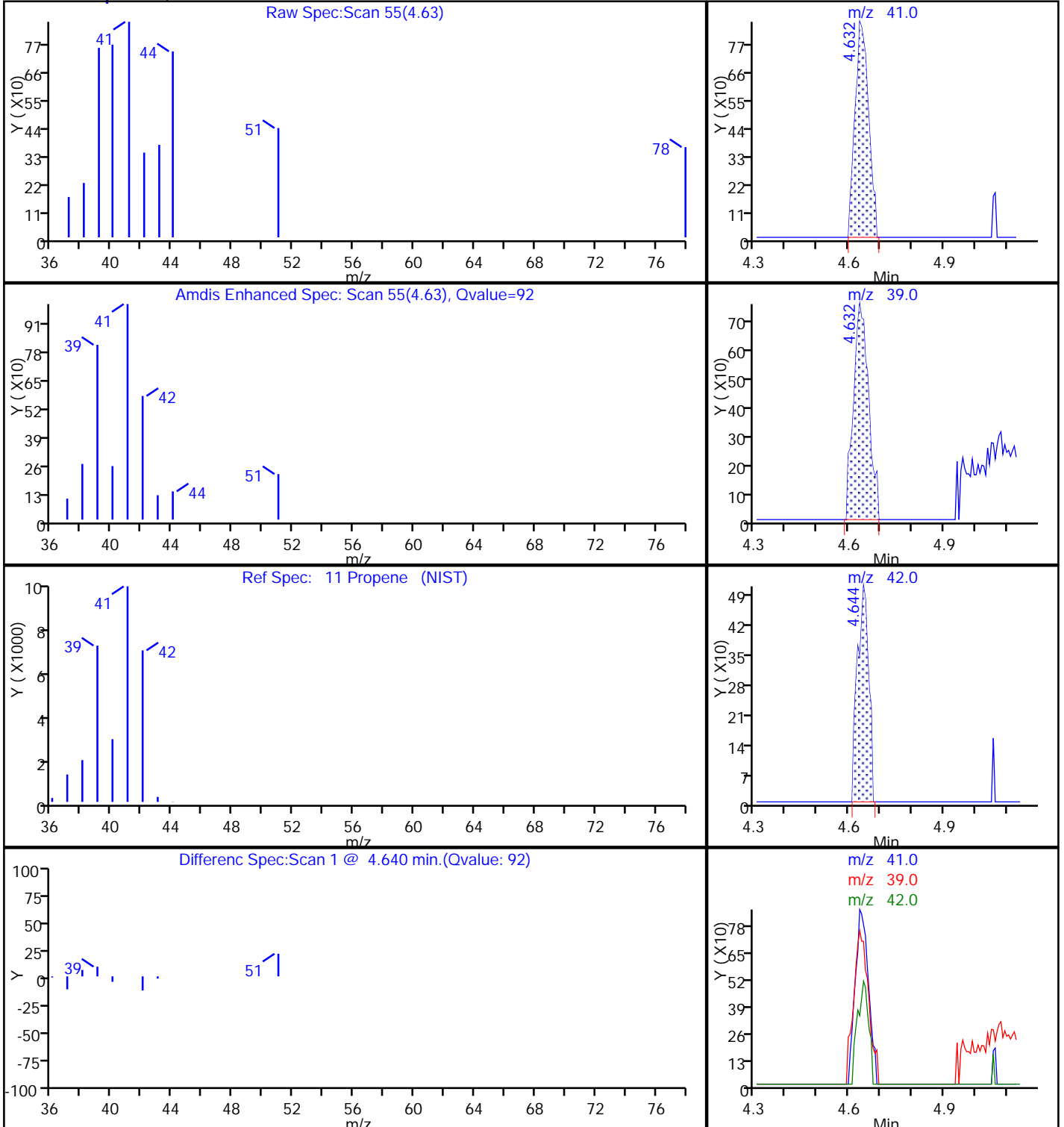
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

11 Propene, CAS: 115-07-1

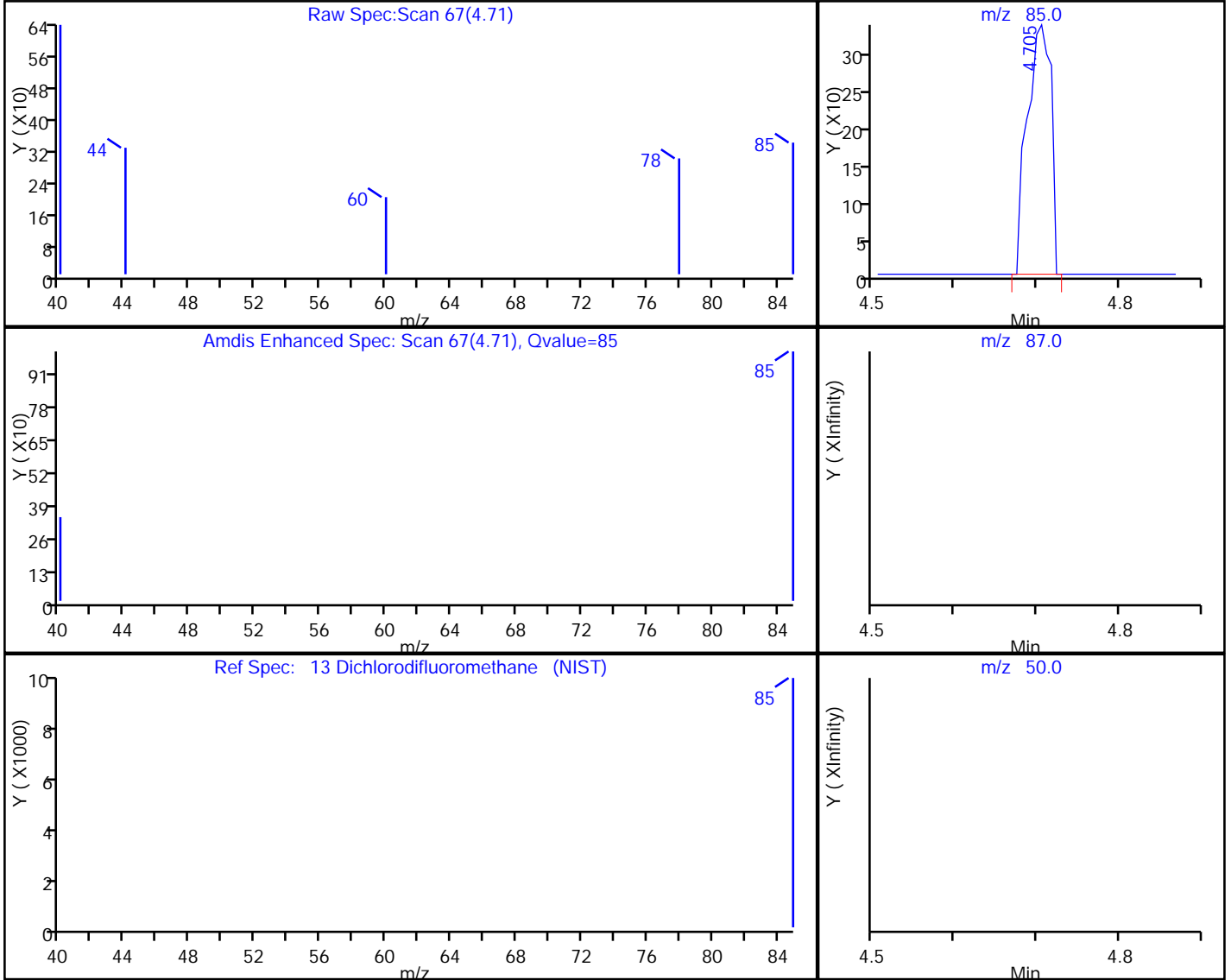


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012608.D  
 Injection Date: 26-Jan-2018 18:02:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-4 Lab Sample ID: 320-35383-4  
 Client ID: 34002424  
 Operator ID: LHS ALS Bottle#: 6 Worklist Smp#: 8  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

13 Dichlorodifluoromethane, CAS: 75-71-8

Processing Results



RT	Mass	Response	Amount
4.71	85.00	670	0.022883
4.69	87.00	0	
4.69	50.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:24:32

Audit Action: Marked Compound Undetected

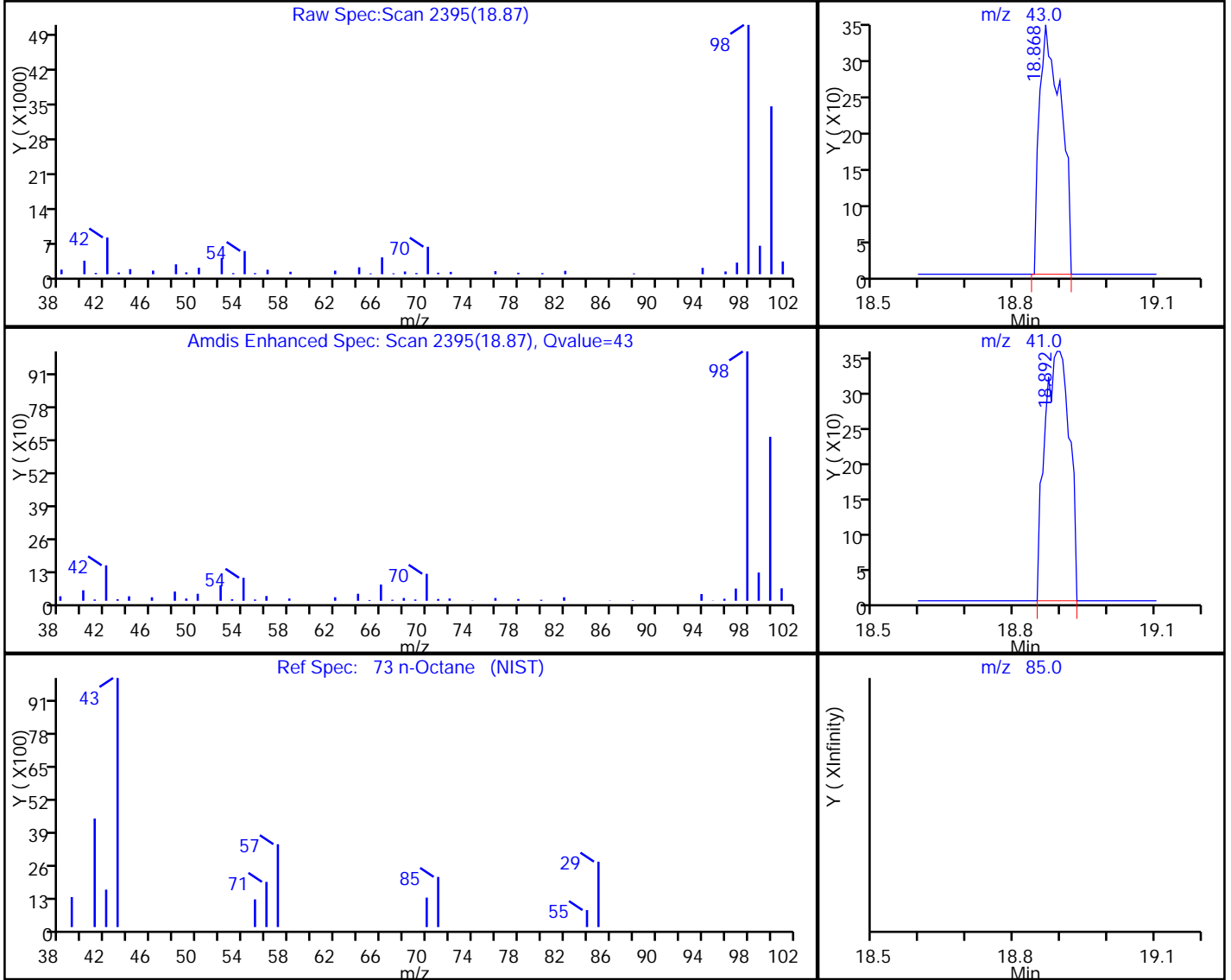
Audit Reason: Invalid Compound ID

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012608.D  
 Injection Date: 26-Jan-2018 18:02:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-4 Lab Sample ID: 320-35383-4  
 Client ID: 34002424  
 Operator ID: LHS ALS Bottle#: 6 Worklist Smp#: 8  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

73 n-Octane, CAS: 111-65-9

Processing Results



RT	Mass	Response	Amount
18.87	43.00	1085	0.030390
18.89	41.00	1280	
18.85	85.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:24:32

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002425 Lab Sample ID: 320-35383-5  
 Matrix: Air Lab File ID: MS6012610.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 19:59  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	1.7	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	0.24	J	0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	0.078	J	0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.27
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
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 Matrix: Air Lab File ID: MS6012610.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 19:59  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.12
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	0.11	J	0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	0.29	J	0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.21
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002425 Lab Sample ID: 320-35383-5  
 Matrix: Air Lab File ID: MS6012610.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 19:59  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	0.16	J	0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054
1330-20-7	Xylenes, Total	ND		1.2	0.074

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	92		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		70-130
2037-26-5	Toluene-d8 (Surr)	99		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012610.D  
 Lims ID: 320-35383-A-5  
 Client ID: 34002425  
 Sample Type: Client  
 Inject. Date: 26-Jan-2018 19:59:30 ALS Bottle#: 7 Worklist Smp#: 10  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35383-A-5  
 Misc. Info.: 500mL  
 Operator ID: LHS Instrument ID: ATMS6  
 Method: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\TO15\_ATMS6.m  
 Limit Group: MSA - TO15 - ICAL  
 Last Update: 29-Jan-2018 12:27:04 Calib Date: 23-Jan-2018 18:39:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS6\20180123-53204.b\MS6012311.D  
 Column 1 : RTX Volatiles ( 0.32 mm) Det: MS SCAN  
 Process Host: XAWRK028

First Level Reviewer: phanthasena Date: 29-Jan-2018 12:26:15

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	13.295	13.289	0.006	98	49468	4.00	
* 2 1,4-Difluorobenzene	114	15.425	15.431	-0.006	95	197676	4.00	
* 3 Chlorobenzene-d5 (IS)	117	22.153	22.153	0.000	87	176413	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	14.494	14.500	-0.006	39	63945	4.06	
\$ 5 Toluene-d8 (Surr)	100	18.880	18.880	0.000	99	131835	3.97	
\$ 6 4-Bromofluorobenzene (Surr	95	24.714	24.714	0.000	92	100223	3.68	
11 Propene	41	4.644	4.614	0.030	94	3108	0.2870	
17 Butane	43	5.460	5.450	0.012	41	1431	0.0564	
32 Acetone	43	8.404	8.323	0.085	93	34467	1.72	
39 Methylene Chloride	49	9.700	9.694	0.006	94	1721	0.1147	
40 Carbon disulfide	76	9.791	9.777	0.018	91	1790	0.0776	
48 2-Butanone (MEK)	72	12.267	12.206	0.067	94	1392	0.2358	
58 Isooctane	57	14.415	14.403	0.006	93	10788	0.1644	

Reagents:

VAMIS20\_00098 Amount Added: 50.00 Units: mL Run Reagent



Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012610.D

Injection Date: 26-Jan-2018 19:59:30

Instrument ID: ATMS6

Operator ID: LHS

Lims ID: 320-35383-A-5

Lab Sample ID: 320-35383-5

Worklist Smp#: 10

Client ID: 34002425

Purge Vol: 25.000 mL

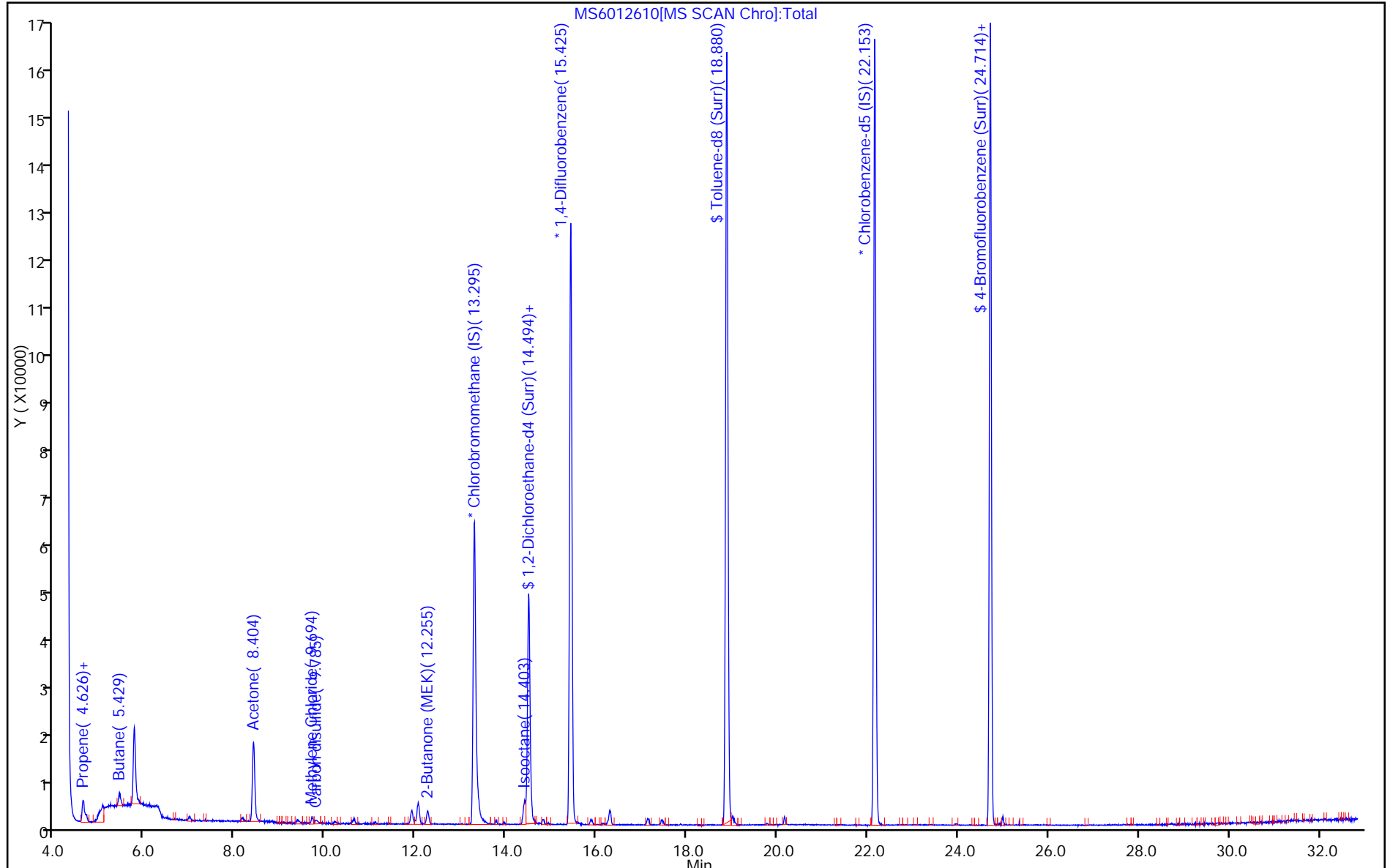
Dil. Factor: 1.0000

ALS Bottle#: 7

Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012610.D

Injection Date: 26-Jan-2018 19:59:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-5

Lab Sample ID: 320-35383-5

Client ID: 34002425

Operator ID: LHS

ALS Bottle#: 7 Worklist Smp#: 10

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

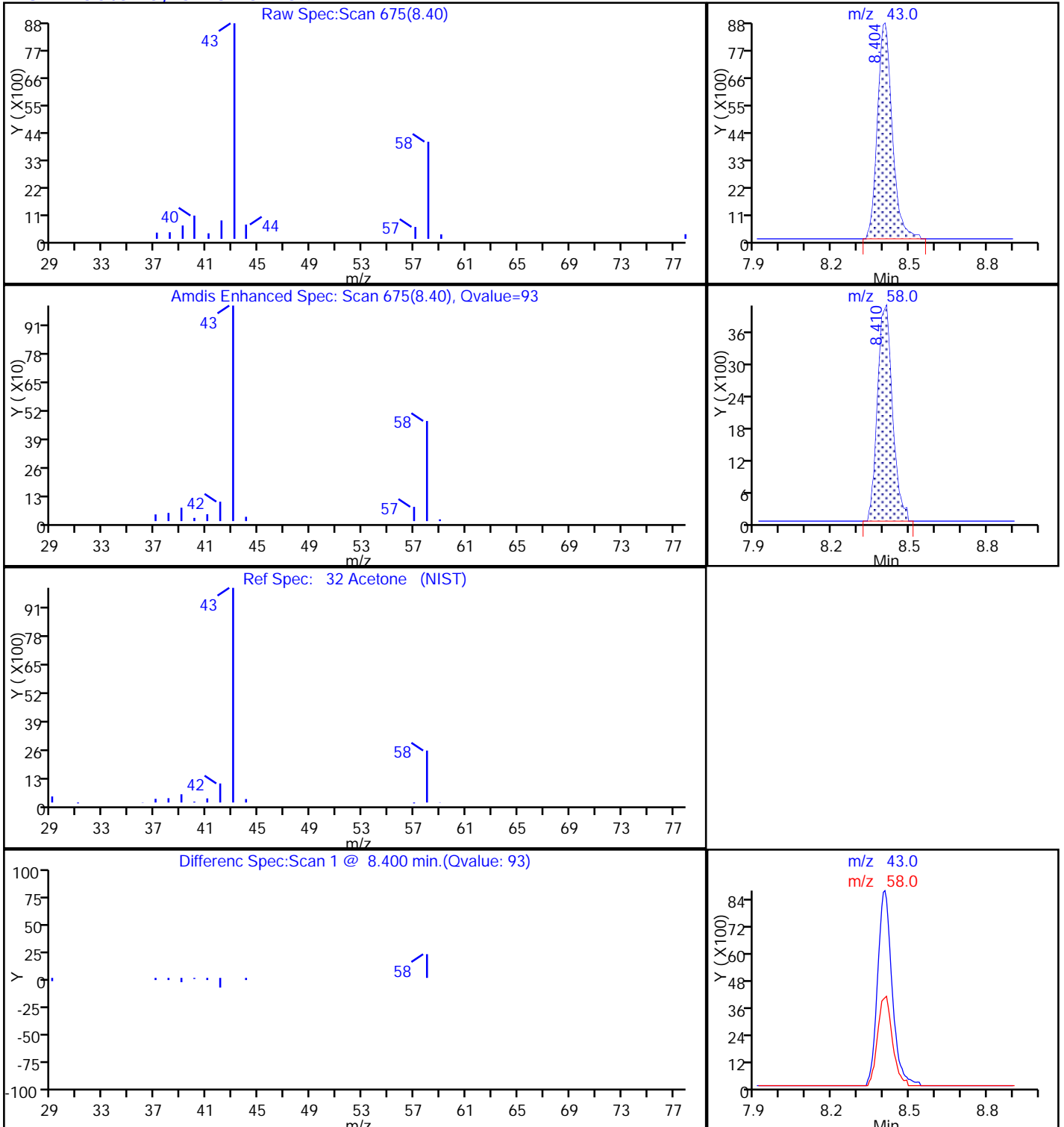
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

32 Acetone, CAS: 67-64-1



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012610.D

Injection Date: 26-Jan-2018 19:59:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-5

Lab Sample ID: 320-35383-5

Client ID: 34002425

Operator ID: LHS

ALS Bottle#: 7 Worklist Smp#: 10

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

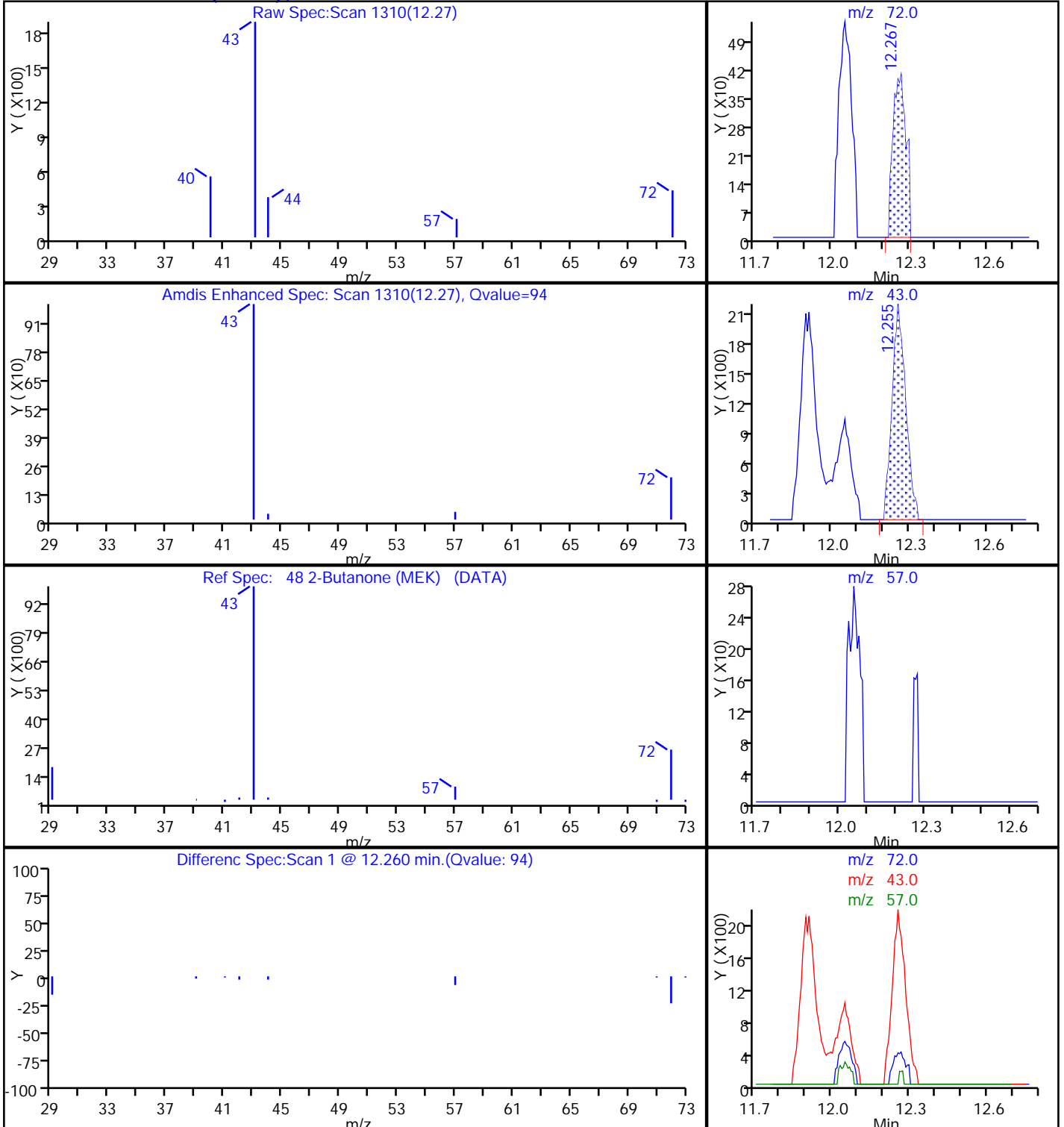
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

48 2-Butanone (MEK), CAS: 78-93-3



TestAmerica Sacramento

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Injection Date: 26-Jan-2018 19:59:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-5

Lab Sample ID: 320-35383-5

Client ID: 34002425

Operator ID: LHS

ALS Bottle#: 7 Worklist Smp#: 10

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

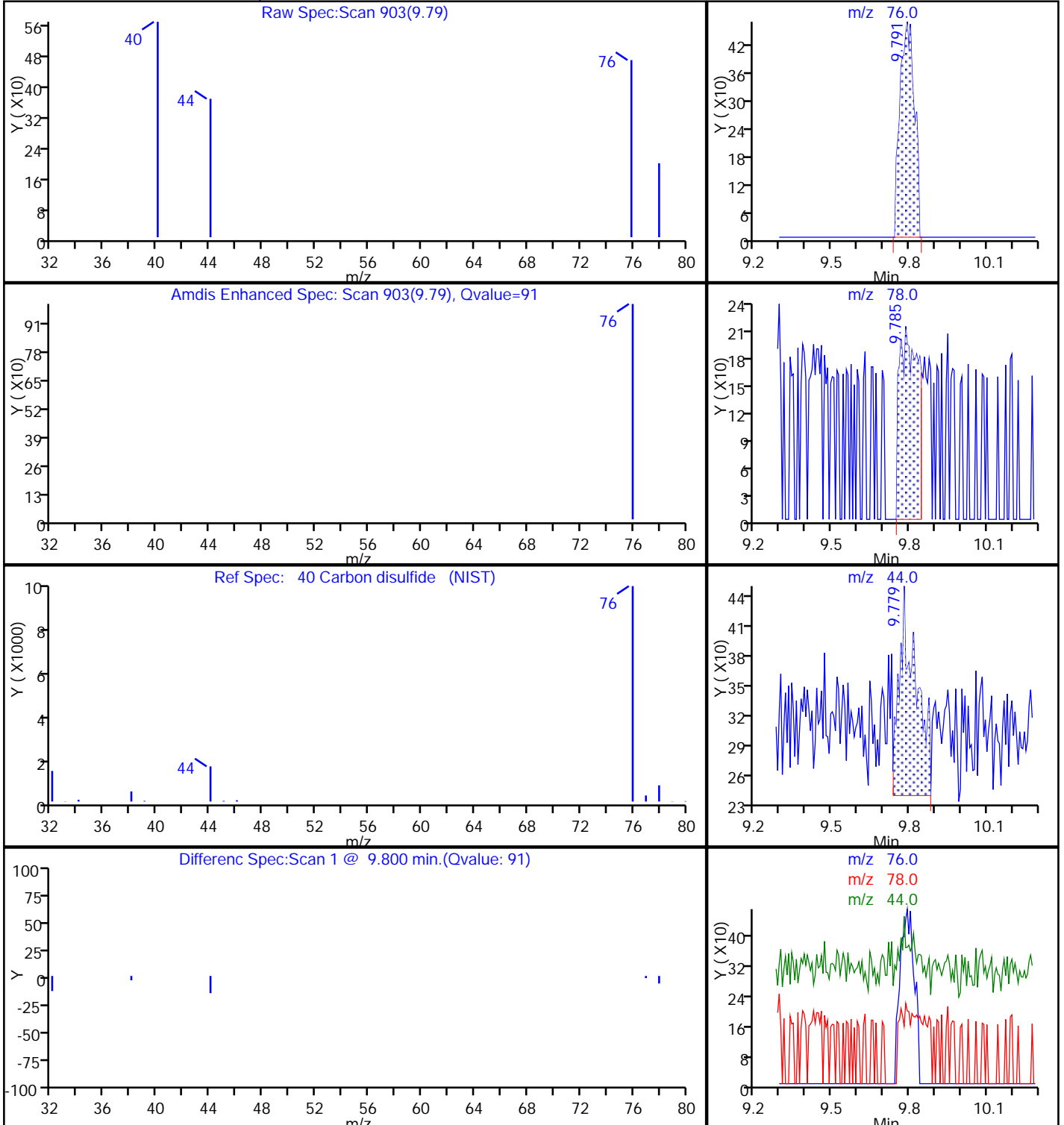
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

40 Carbon disulfide, CAS: 75-15-0



TestAmerica Sacramento

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Injection Date: 26-Jan-2018 19:59:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-5

Lab Sample ID: 320-35383-5

Client ID: 34002425

Operator ID: LHS

ALS Bottle#: 7 Worklist Smp#: 10

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

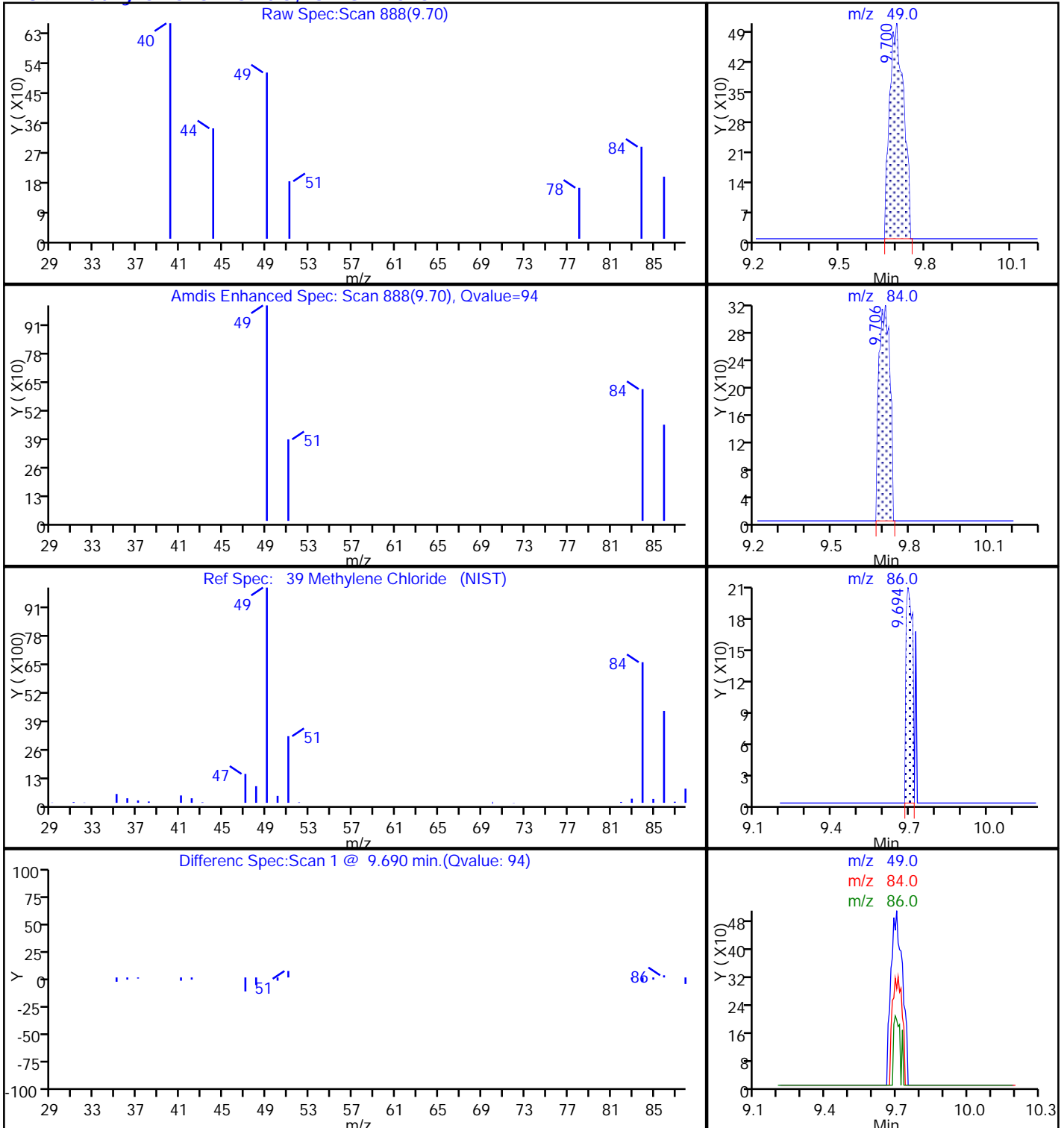
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

39 Methylene Chloride, CAS: 75-09-2



TestAmerica Sacramento

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Injection Date: 26-Jan-2018 19:59:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-5

Lab Sample ID: 320-35383-5

Client ID: 34002425

Operator ID: LHS

ALS Bottle#: 7 Worklist Smp#: 10

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

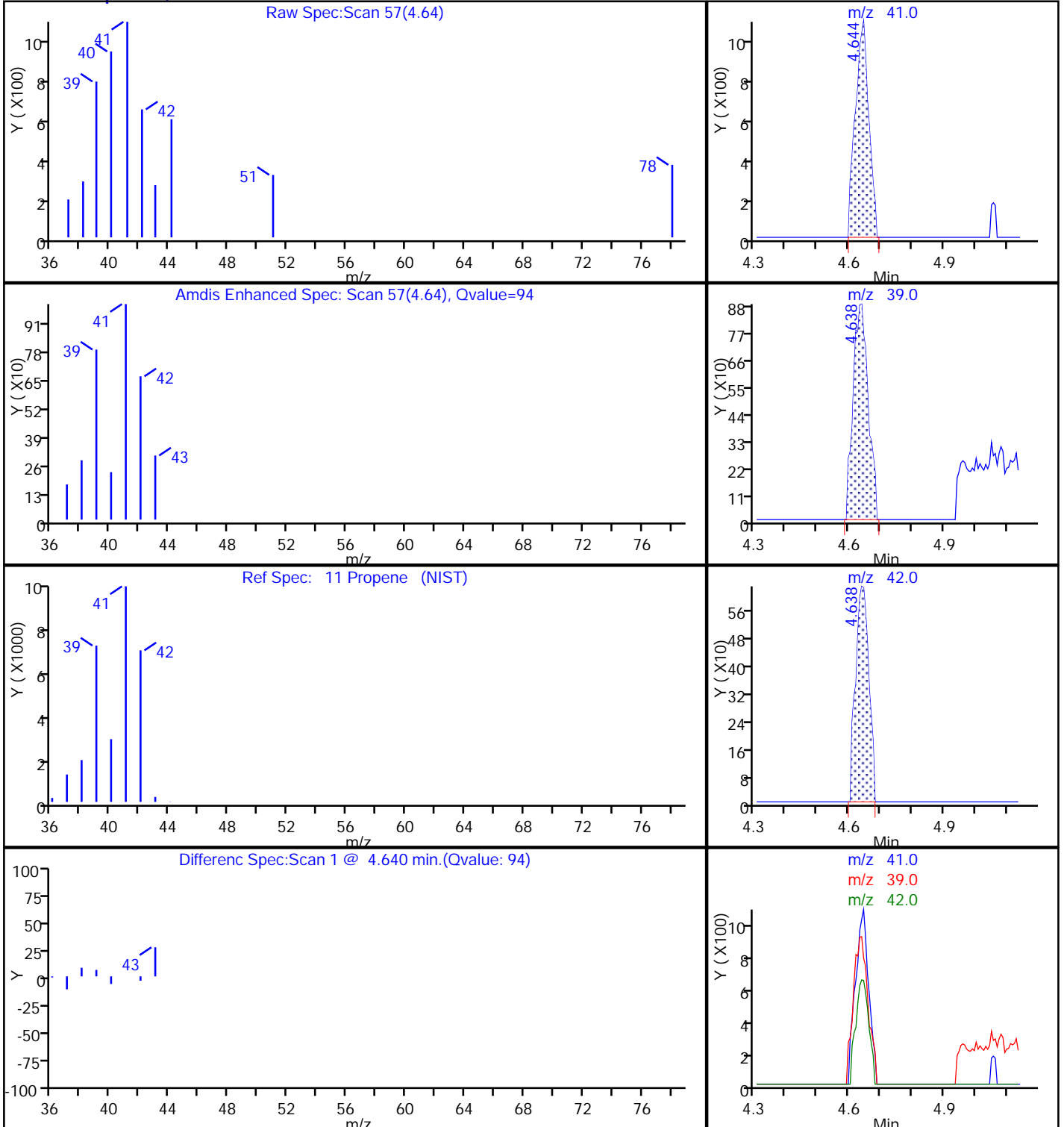
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

11 Propene, CAS: 115-07-1



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012610.D

Injection Date: 26-Jan-2018 19:59:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-5

Lab Sample ID: 320-35383-5

Client ID: 34002425

Operator ID: LHS

ALS Bottle#: 7 Worklist Smp#: 10

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

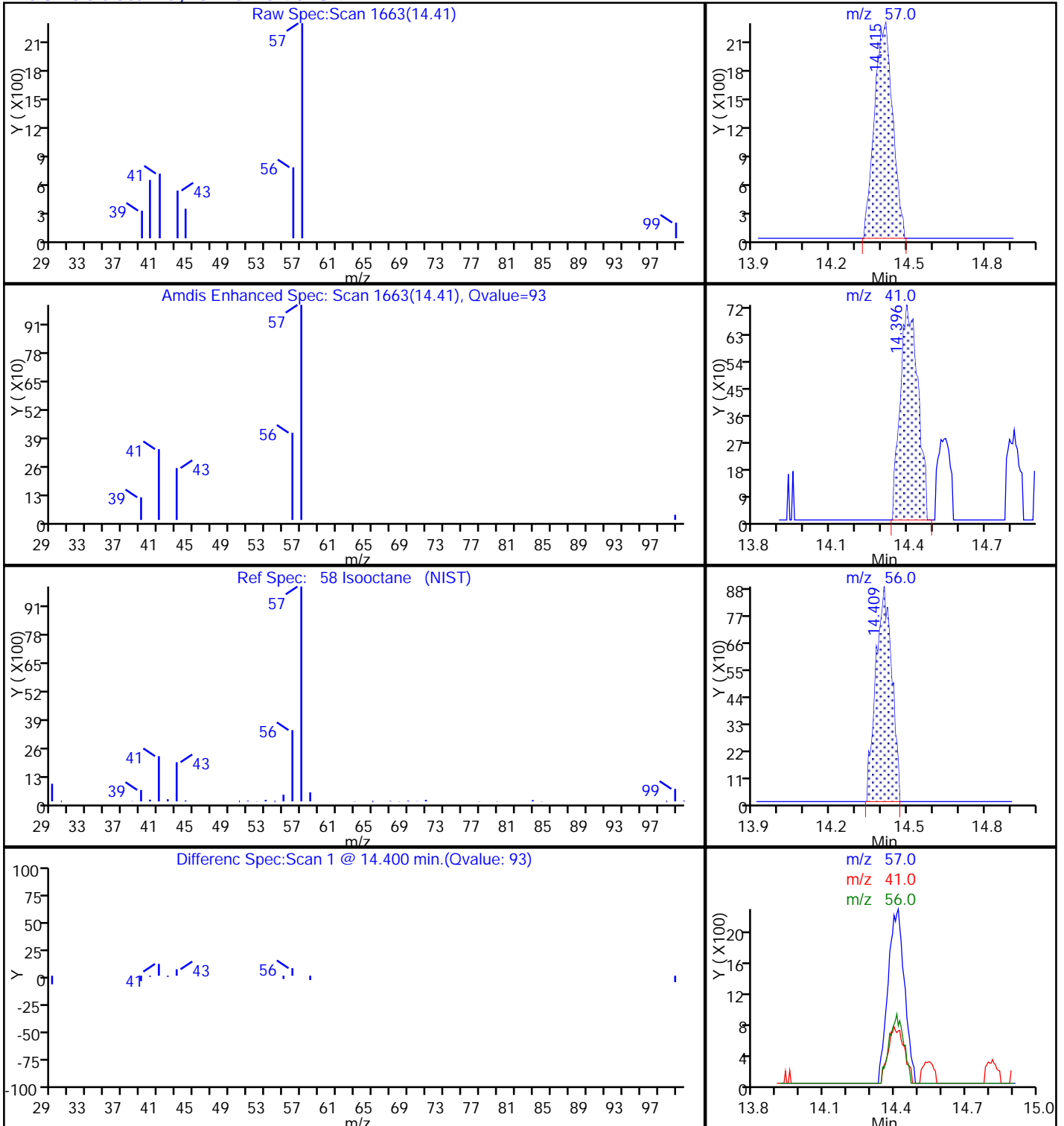
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

58 Isooctane, CAS: 540-84-1

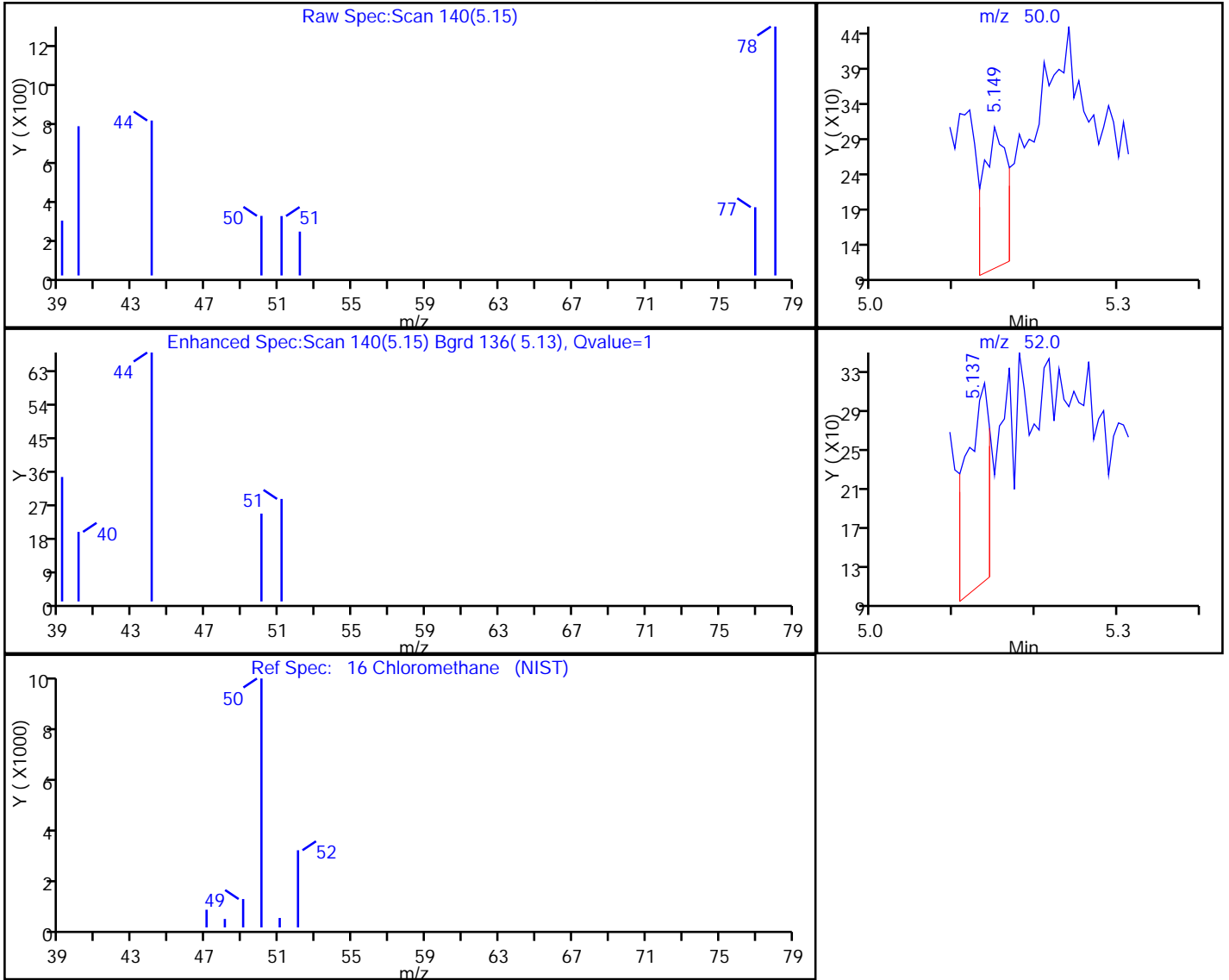


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012610.D  
 Injection Date: 26-Jan-2018 19:59:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-5 Lab Sample ID: 320-35383-5  
 Client ID: 34002425  
 Operator ID: LHS ALS Bottle#: 7 Worklist Smp#: 10  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

16 Chloromethane, CAS: 74-87-3

Processing Results



RT	Mass	Response	Amount
5.15	50.00	397	0.031661
5.14	52.00	388	

Reviewer: phanhasena, 29-Jan-2018 12:26:15

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

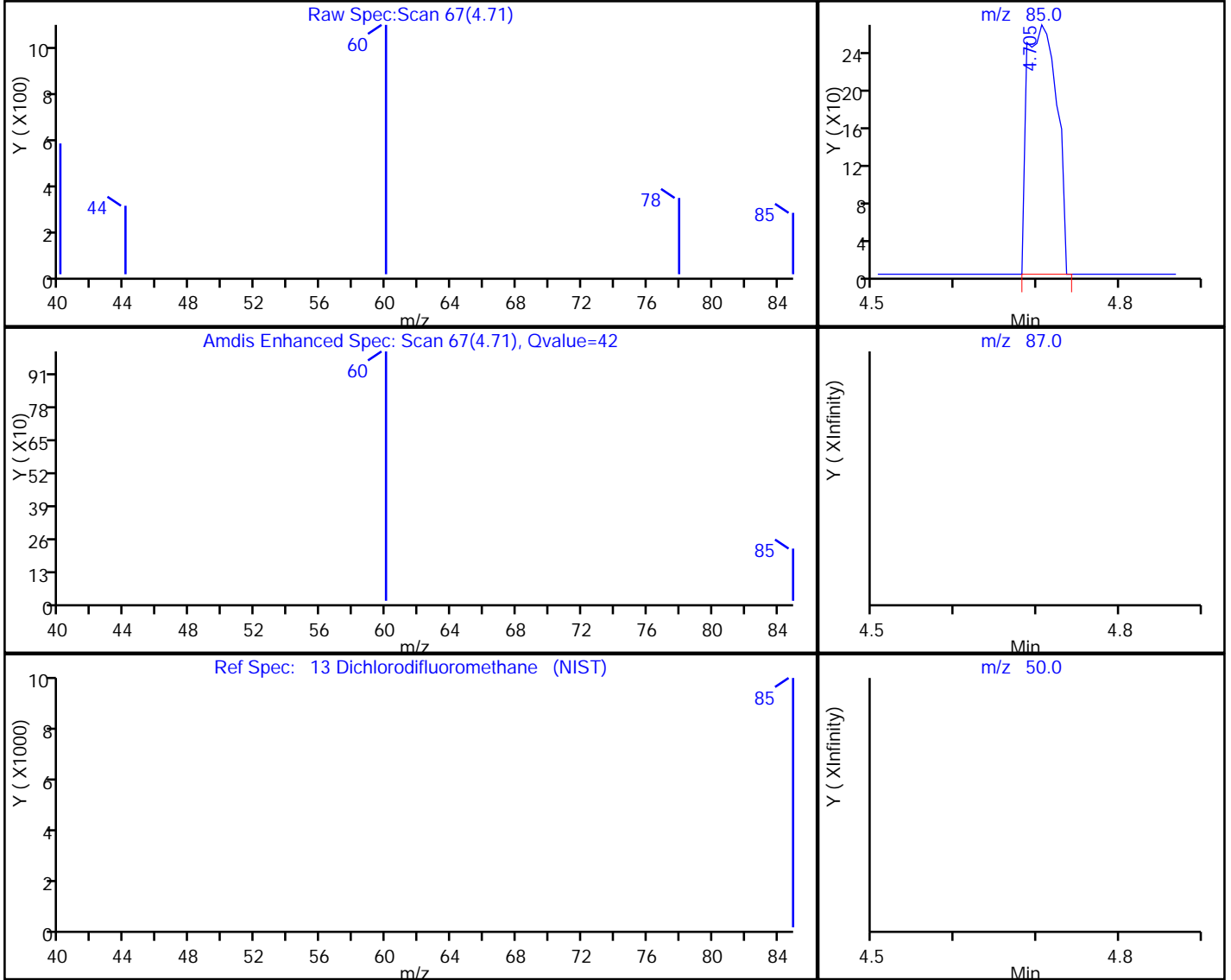


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012610.D  
 Injection Date: 26-Jan-2018 19:59:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-5 Lab Sample ID: 320-35383-5  
 Client ID: 34002425  
 Operator ID: LHS ALS Bottle#: 7 Worklist Smp#: 10  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

13 Dichlorodifluoromethane, CAS: 75-71-8

Processing Results



RT	Mass	Response	Amount
4.71	85.00	671	0.023173
4.69	87.00	0	
4.69	50.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:26:15

Audit Action: Marked Compound Undetected

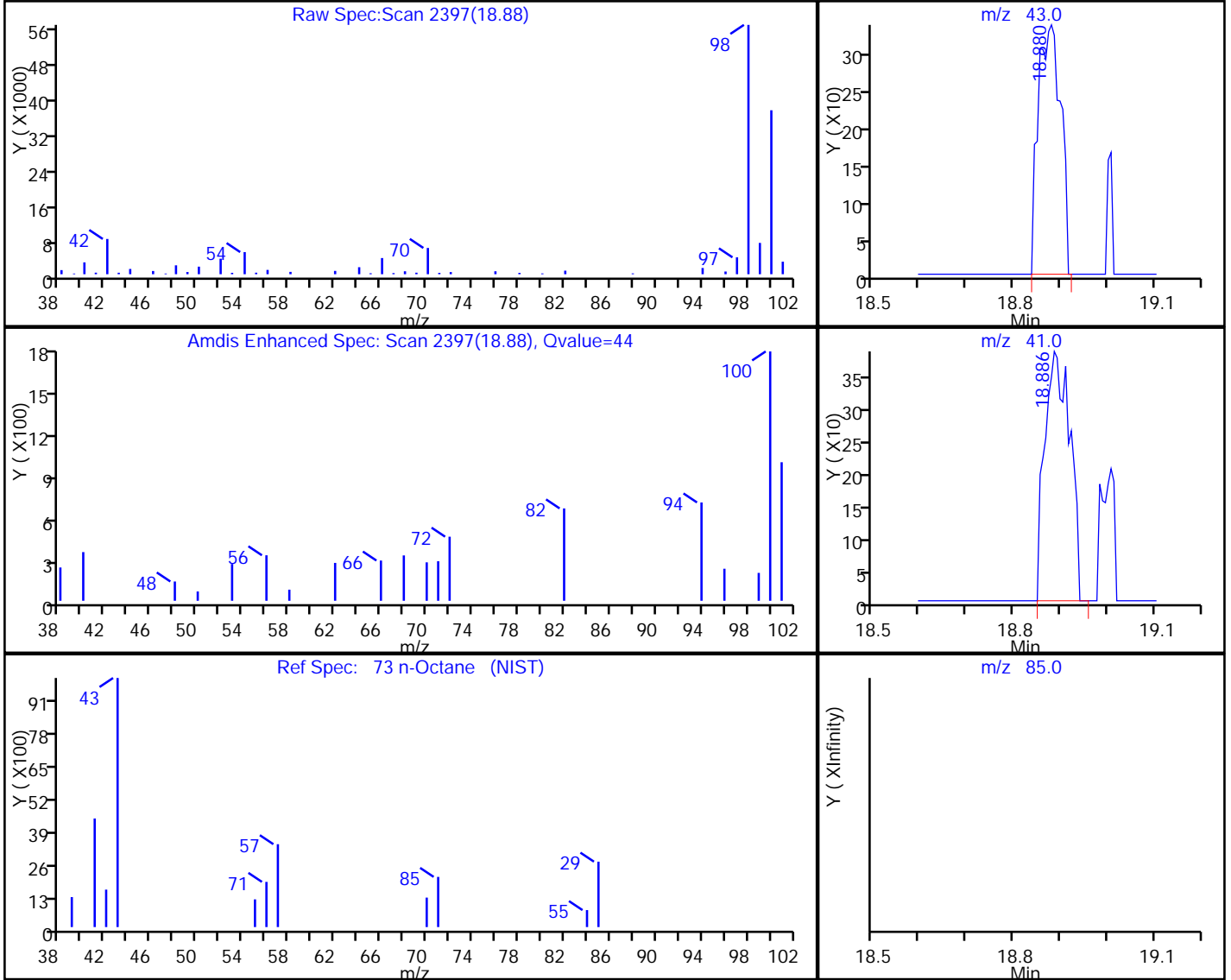
Audit Reason: Invalid Compound ID

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012610.D  
 Injection Date: 26-Jan-2018 19:59:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-5 Lab Sample ID: 320-35383-5  
 Client ID: 34002425  
 Operator ID: LHS ALS Bottle#: 7 Worklist Smp#: 10  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

73 n-Octane, CAS: 111-65-9

Processing Results



RT	Mass	Response	Amount
18.88	43.00	1118	0.031106
18.89	41.00	1450	
18.85	85.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:26:15

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002426 Lab Sample ID: 320-35383-6  
 Matrix: Air Lab File ID: MS6012611.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 20:59  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	0.76	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	ND		0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	ND		0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.27
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002426 Lab Sample ID: 320-35383-6  
 Matrix: Air Lab File ID: MS6012611.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 20:59  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.12
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	0.12	J	0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	0.35	J	0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.21
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002426 Lab Sample ID: 320-35383-6  
 Matrix: Air Lab File ID: MS6012611.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 20:59  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	ND		0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054
1330-20-7	Xylenes, Total	ND		1.2	0.074

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	90		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	103		70-130
2037-26-5	Toluene-d8 (Surr)	100		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012611.D  
 Lims ID: 320-35383-A-6  
 Client ID: 34002426  
 Sample Type: Client  
 Inject. Date: 26-Jan-2018 20:59:30 ALS Bottle#: 8 Worklist Smp#: 11  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35383-A-6  
 Misc. Info.: 500mL  
 Operator ID: LHS Instrument ID: ATMS6  
 Method: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\TO15\_ATMS6.m  
 Limit Group: MSA - TO15 - ICAL  
 Last Update: 29-Jan-2018 12:28:14 Calib Date: 23-Jan-2018 18:39:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS6\20180123-53204.b\MS6012311.D  
 Column 1 : RTX Volatiles ( 0.32 mm) Det: MS SCAN  
 Process Host: XAWRK028

First Level Reviewer: phanthasena Date: 29-Jan-2018 12:26:55

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	13.302	13.289	0.013	98	47756	4.00	
* 2 1,4-Difluorobenzene	114	15.431	15.431	0.000	97	192175	4.00	
* 3 Chlorobenzene-d5 (IS)	117	22.159	22.153	0.006	87	166235	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	14.500	14.500	0.000	34	62911	4.11	
\$ 5 Toluene-d8 (Surr)	100	18.880	18.880	0.000	99	128561	3.98	
\$ 6 4-Bromofluorobenzene (Surr	95	24.714	24.714	0.000	92	92996	3.62	
11 Propene	41	4.651	4.614	0.037	93	3650	0.3491	
17 Butane	43	5.466	5.450	0.018	55	2535	0.1035	
32 Acetone	43	8.423	8.323	0.104	95	14701	0.7606	
39 Methylene Chloride	49	9.706	9.694	0.012	94	1789	0.1236	

Reagents:

VAMSIS20\_00098 Amount Added: 50.00 Units: mL Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012611.D

Injection Date: 26-Jan-2018 20:59:30

Instrument ID: ATMS6

Operator ID: LHS

Lims ID: 320-35383-A-6

Lab Sample ID: 320-35383-6

Worklist Smp#: 11

Client ID: 34002426

Purge Vol: 25.000 mL

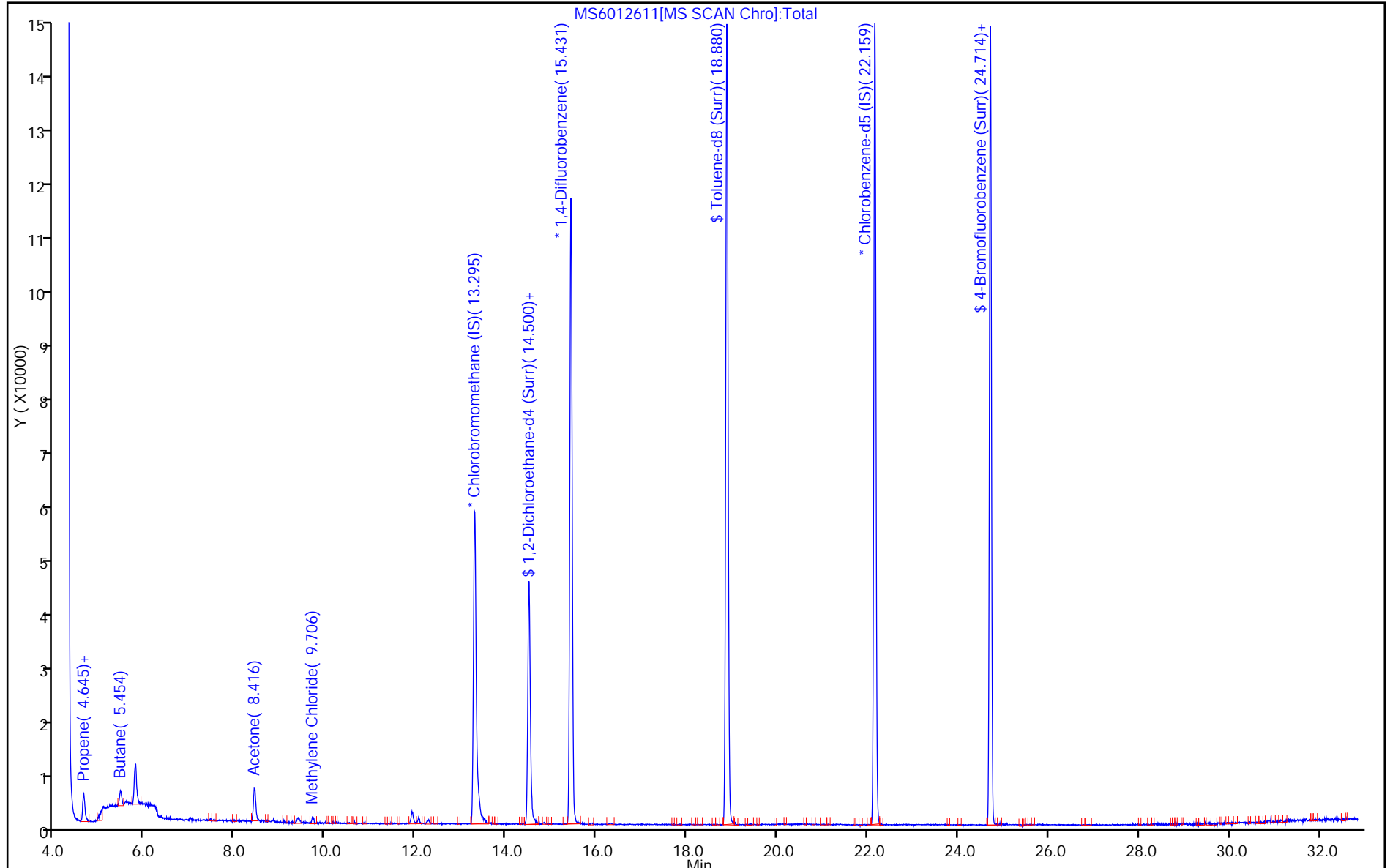
Dil. Factor: 1.0000

ALS Bottle#: 8

Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012611.D

Injection Date: 26-Jan-2018 20:59:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-6

Lab Sample ID: 320-35383-6

Client ID: 34002426

Operator ID: LHS

ALS Bottle#: 8 Worklist Smp#: 11

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

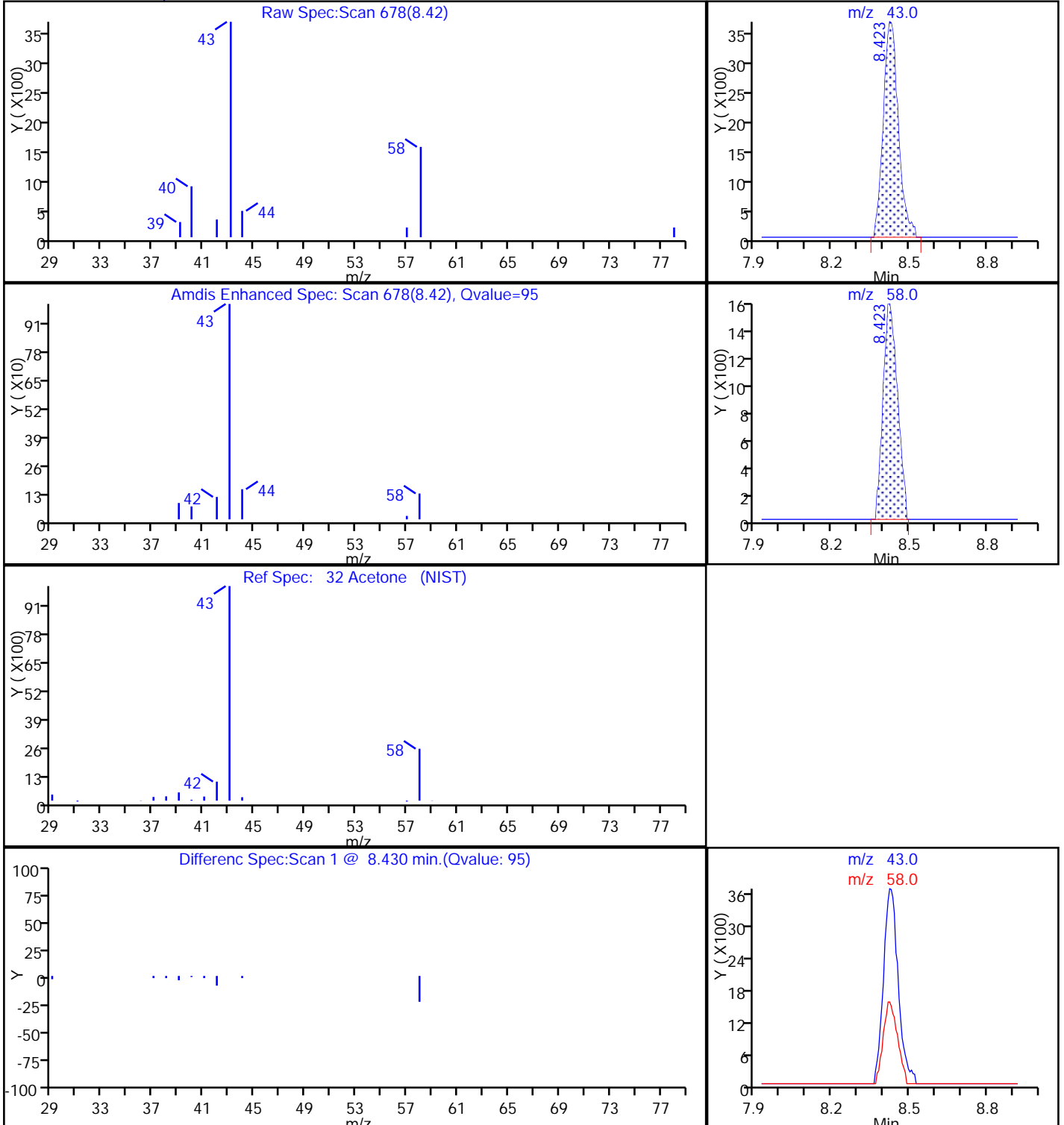
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

32 Acetone, CAS: 67-64-1





TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012611.D

Injection Date: 26-Jan-2018 20:59:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-6

Lab Sample ID: 320-35383-6

Client ID: 34002426

Operator ID: LHS

ALS Bottle#: 8 Worklist Smp#: 11

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

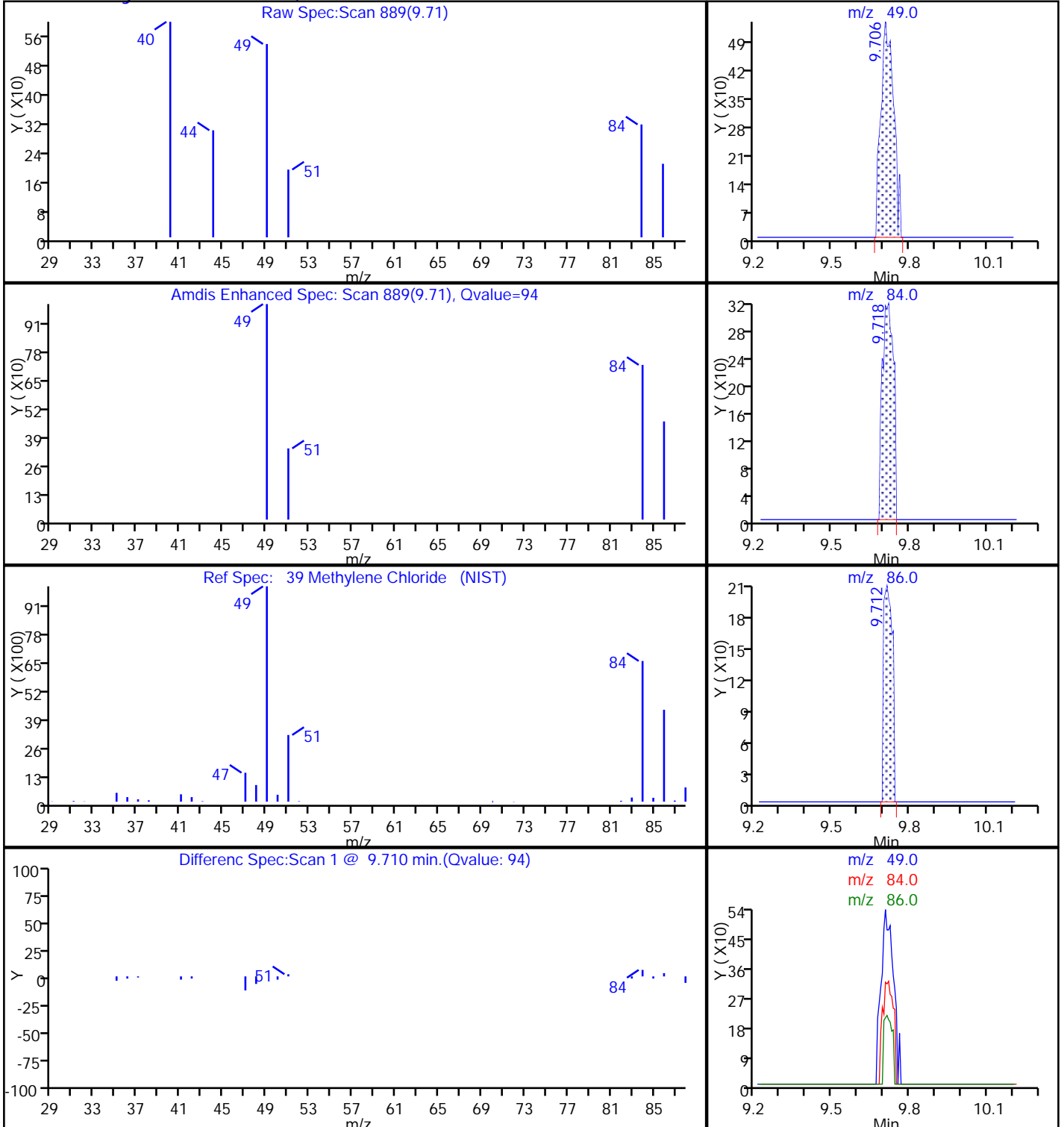
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

39 Methylene Chloride, CAS: 75-09-2



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012611.D

Injection Date: 26-Jan-2018 20:59:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-6

Lab Sample ID: 320-35383-6

Client ID: 34002426

Operator ID: LHS

ALS Bottle#: 8 Worklist Smp#: 11

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

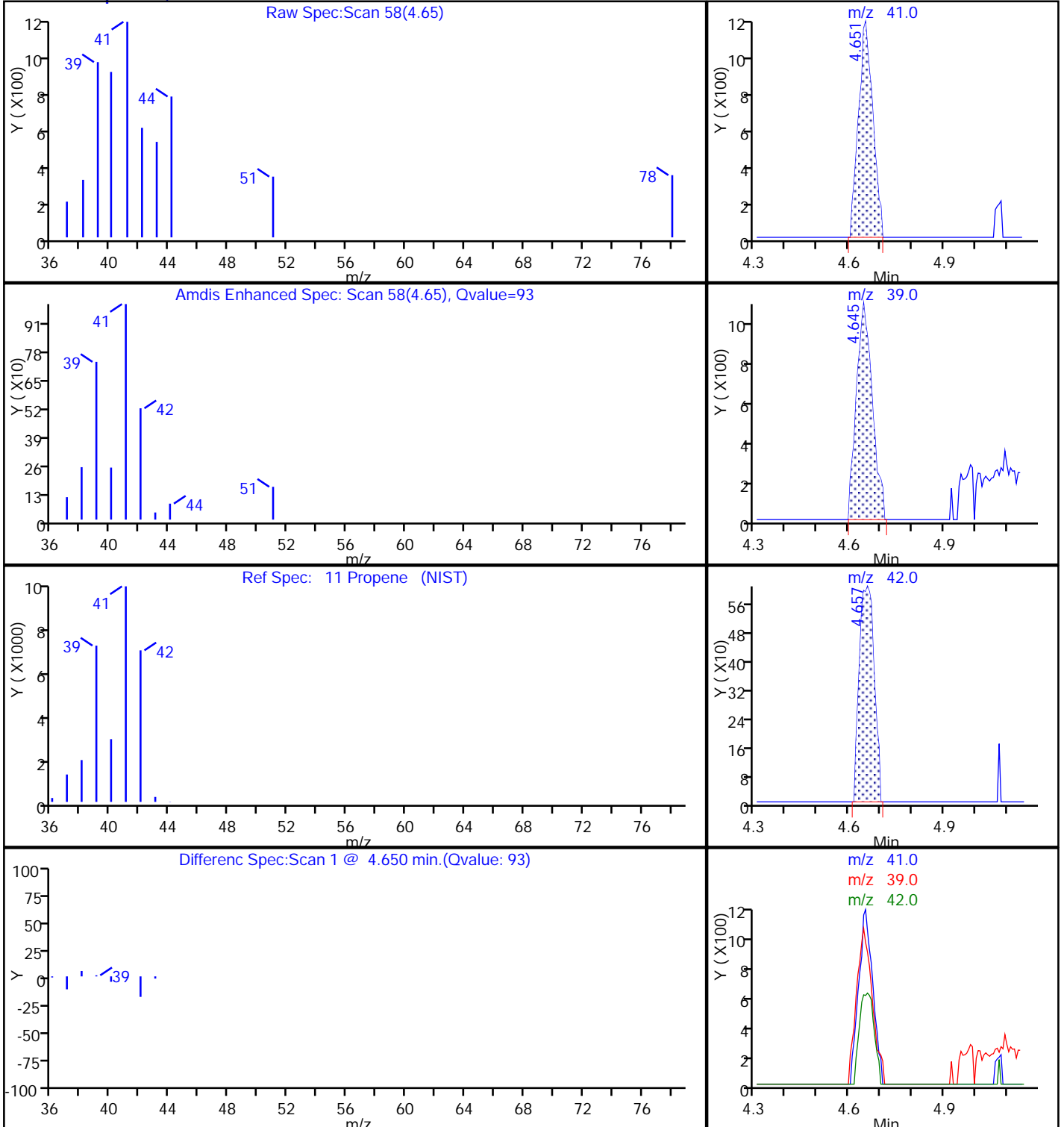
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

11 Propene, CAS: 115-07-1

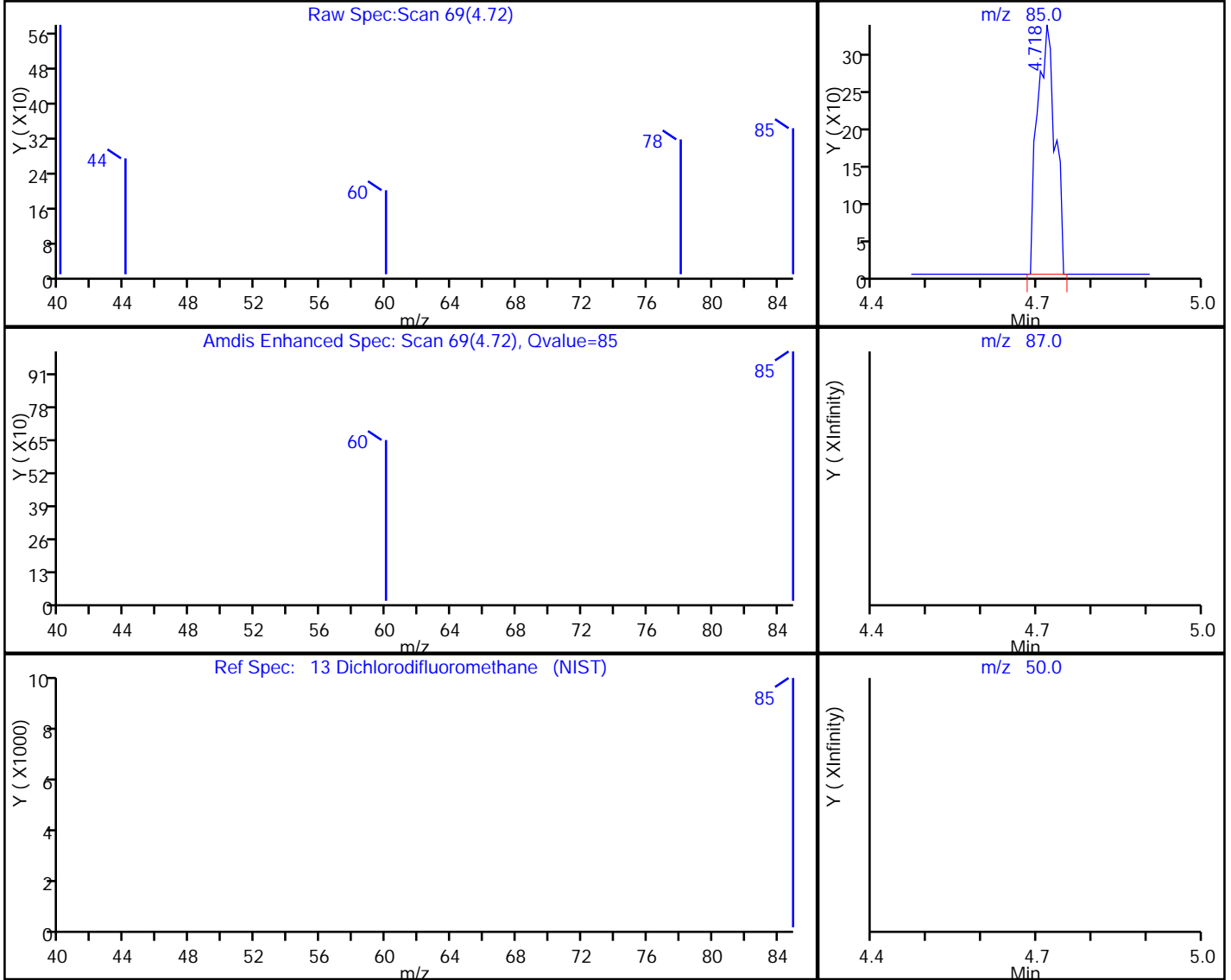


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012611.D  
 Injection Date: 26-Jan-2018 20:59:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-6 Lab Sample ID: 320-35383-6  
 Client ID: 34002426  
 Operator ID: LHS ALS Bottle#: 8 Worklist Smp#: 11  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

13 Dichlorodifluoromethane, CAS: 75-71-8

Processing Results



RT	Mass	Response	Amount
4.72	85.00	762	0.027259
4.69	87.00	0	
4.69	50.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:26:55

Audit Action: Marked Compound Undetected

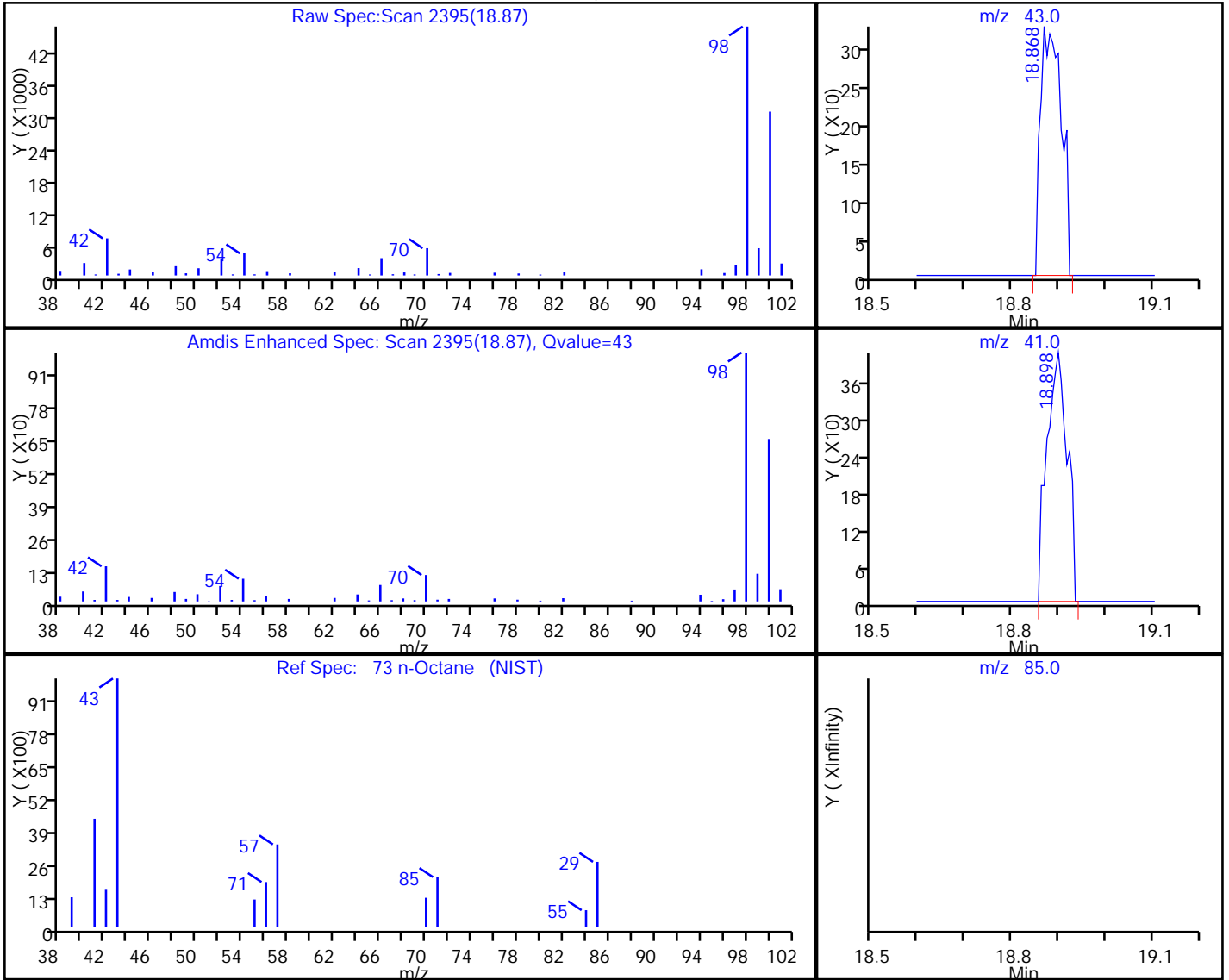
Audit Reason: Invalid Compound ID

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012611.D  
 Injection Date: 26-Jan-2018 20:59:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-6 Lab Sample ID: 320-35383-6  
 Client ID: 34002426  
 Operator ID: LHS ALS Bottle#: 8 Worklist Smp#: 11  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

73 n-Octane, CAS: 111-65-9

Processing Results



RT	Mass	Response	Amount
18.87	43.00	997	0.029438
18.90	41.00	1225	
18.85	85.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:28:14

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002427 Lab Sample ID: 320-35383-7  
 Matrix: Air Lab File ID: MS6012612.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 21:59  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	1.9	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	0.27	J	0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	0.16	J	0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.27
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002427 Lab Sample ID: 320-35383-7  
 Matrix: Air Lab File ID: MS6012612.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 21:59  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.12
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	0.11	J	0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	0.37	J	0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.21
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002427 Lab Sample ID: 320-35383-7  
 Matrix: Air Lab File ID: MS6012612.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 21:59  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	0.12	J	0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054
1330-20-7	Xylenes, Total	ND		1.2	0.074

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	87		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		70-130
2037-26-5	Toluene-d8 (Surr)	100		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012612.D  
 Lims ID: 320-35383-A-7  
 Client ID: 34002427  
 Sample Type: Client  
 Inject. Date: 26-Jan-2018 21:59:30 ALS Bottle#: 9 Worklist Smp#: 12  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35383-A-7  
 Misc. Info.: 500mL  
 Operator ID: LHS Instrument ID: ATMS6  
 Method: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\TO15\_ATMS6.m  
 Limit Group: MSA - TO15 - ICAL  
 Last Update: 29-Jan-2018 12:30:02 Calib Date: 23-Jan-2018 18:39:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS6\20180123-53204.b\MS6012311.D  
 Column 1 : RTX Volatiles ( 0.32 mm) Det: MS SCAN  
 Process Host: XAWRK028

First Level Reviewer: phanthasena

Date: 29-Jan-2018 12:30:02

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	13.289	13.289	0.000	98	47589	4.00	
* 2 1,4-Difluorobenzene	114	15.424	15.431	-0.007	95	191079	4.00	
* 3 Chlorobenzene-d5 (IS)	117	22.159	22.153	0.006	87	166459	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	14.488	14.500	-0.012	44	61566	4.04	
\$ 5 Toluene-d8 (Surr)	100	18.874	18.880	-0.006	99	128107	3.99	
\$ 6 4-Bromofluorobenzene (Surr	95	24.714	24.714	0.000	91	89810	3.49	
11 Propene	41	4.614	4.614	0.000	90	3816	0.3662	
13 Dichlorodifluoromethane	85	4.693	4.687	0.006	85	643	0.0231	
16 Chloromethane	50	5.204	5.209	0.000	96	1740	0.1442	
17 Butane	43	5.447	5.450	-0.001	83	2433	0.0997	
32 Acetone	43	8.398	8.323	0.079	94	36395	1.89	
39 Methylene Chloride	49	9.688	9.694	-0.006	93	1563	0.1083	
40 Carbon disulfide	76	9.773	9.782	0.000	94	3637	0.1639	
48 2-Butanone (MEK)	72	12.261	12.212	0.061	94	1556	0.2740	
58 Isooctane	57	14.408	14.409	-0.001	93	7711	0.1215	

**Reagents:**

VAMIS20\_00098 Amount Added: 50.00 Units: mL Run Reagent



Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012612.D

Injection Date: 26-Jan-2018 21:59:30

Instrument ID: ATMS6

Operator ID: LHS

Lims ID: 320-35383-A-7

Lab Sample ID: 320-35383-7

Worklist Smp#: 12

Client ID: 34002427

Purge Vol: 25.000 mL

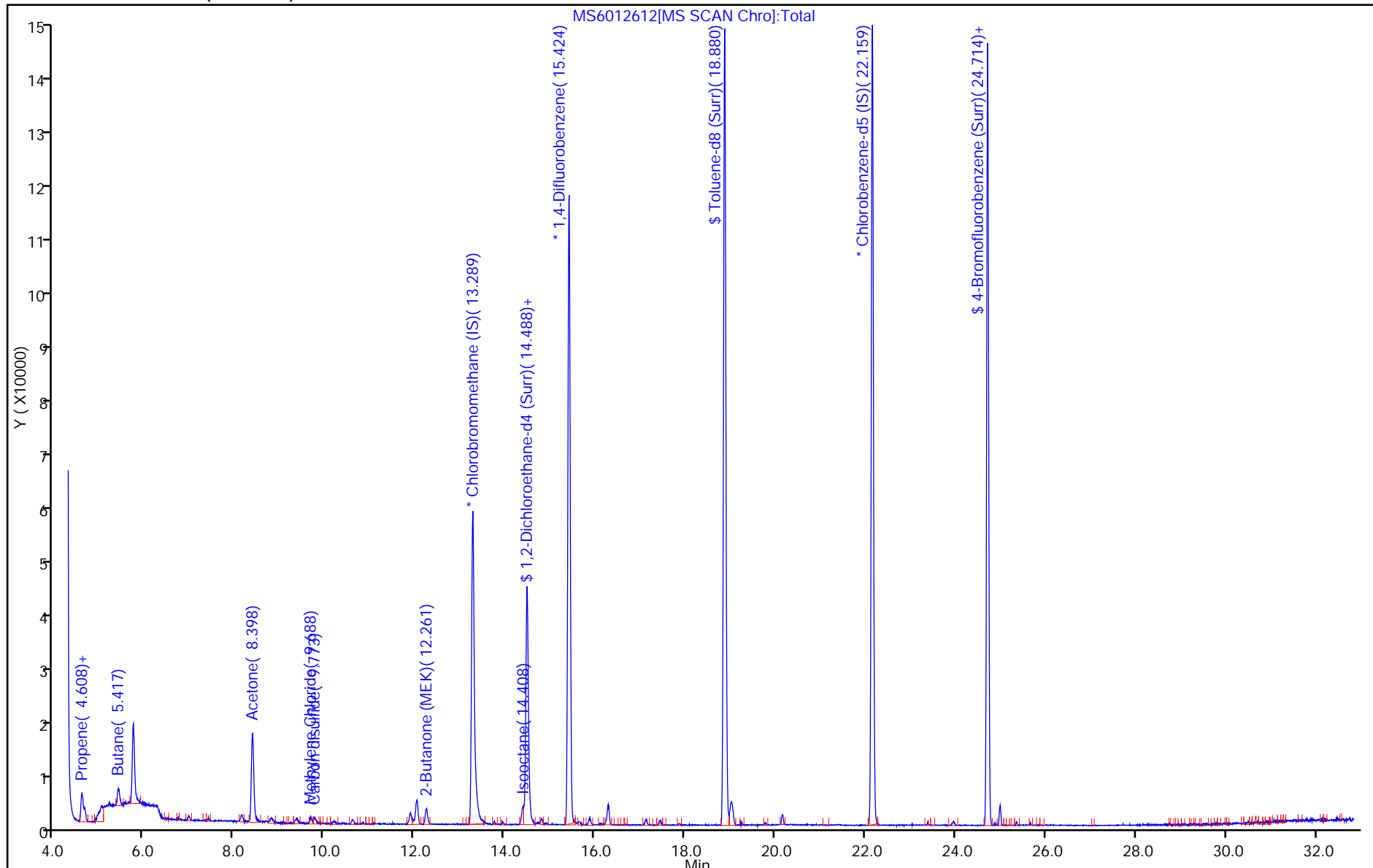
Dil. Factor: 1.0000

ALS Bottle#: 9

Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012612.D

Injection Date: 26-Jan-2018 21:59:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-7

Lab Sample ID: 320-35383-7

Client ID: 34002427

Operator ID: LHS

ALS Bottle#: 9 Worklist Smp#: 12

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

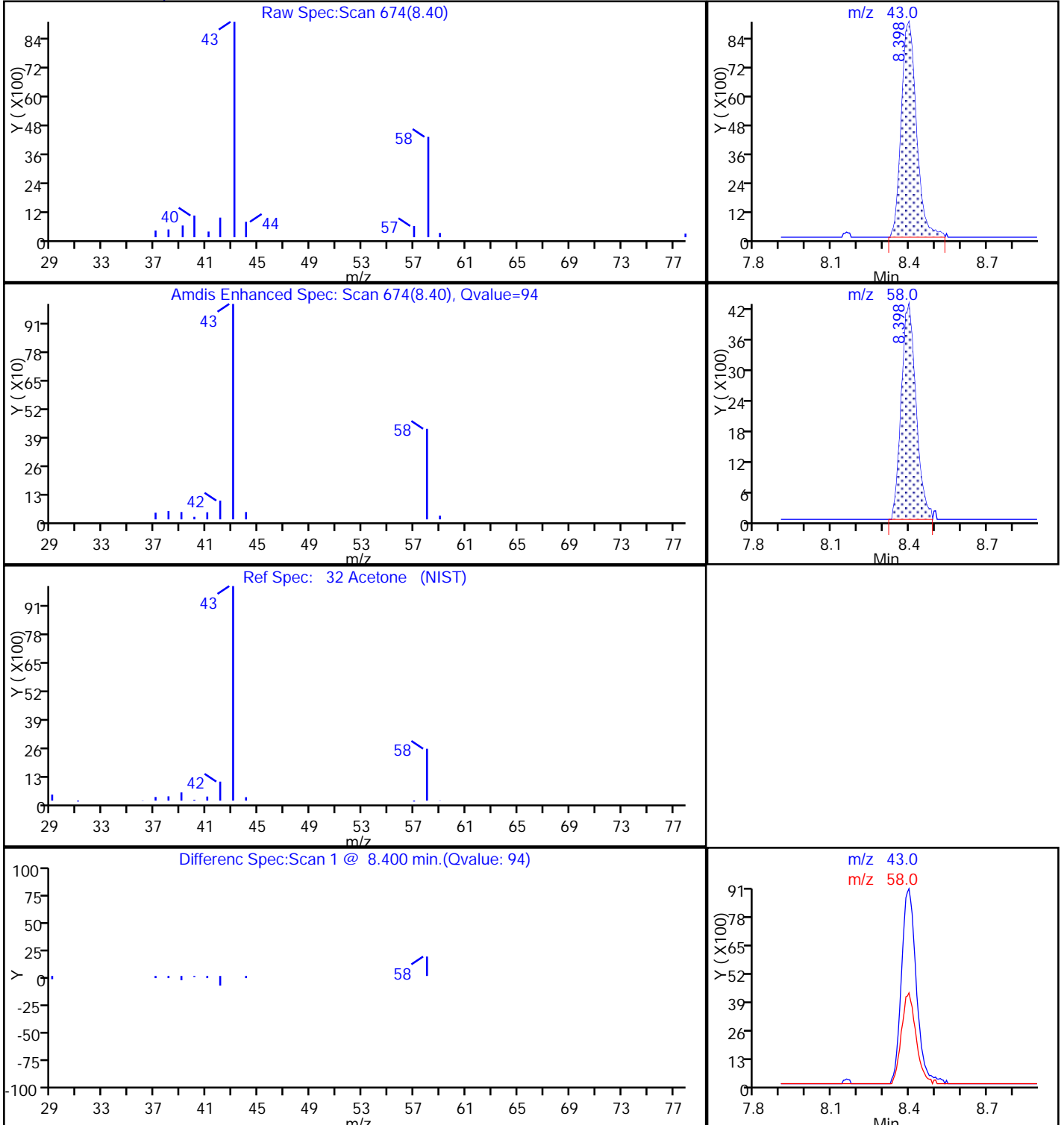
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

32 Acetone, CAS: 67-64-1



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012612.D

Injection Date: 26-Jan-2018 21:59:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-7

Lab Sample ID: 320-35383-7

Client ID: 34002427

Operator ID: LHS

ALS Bottle#: 9

Worklist Smp#: 12

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

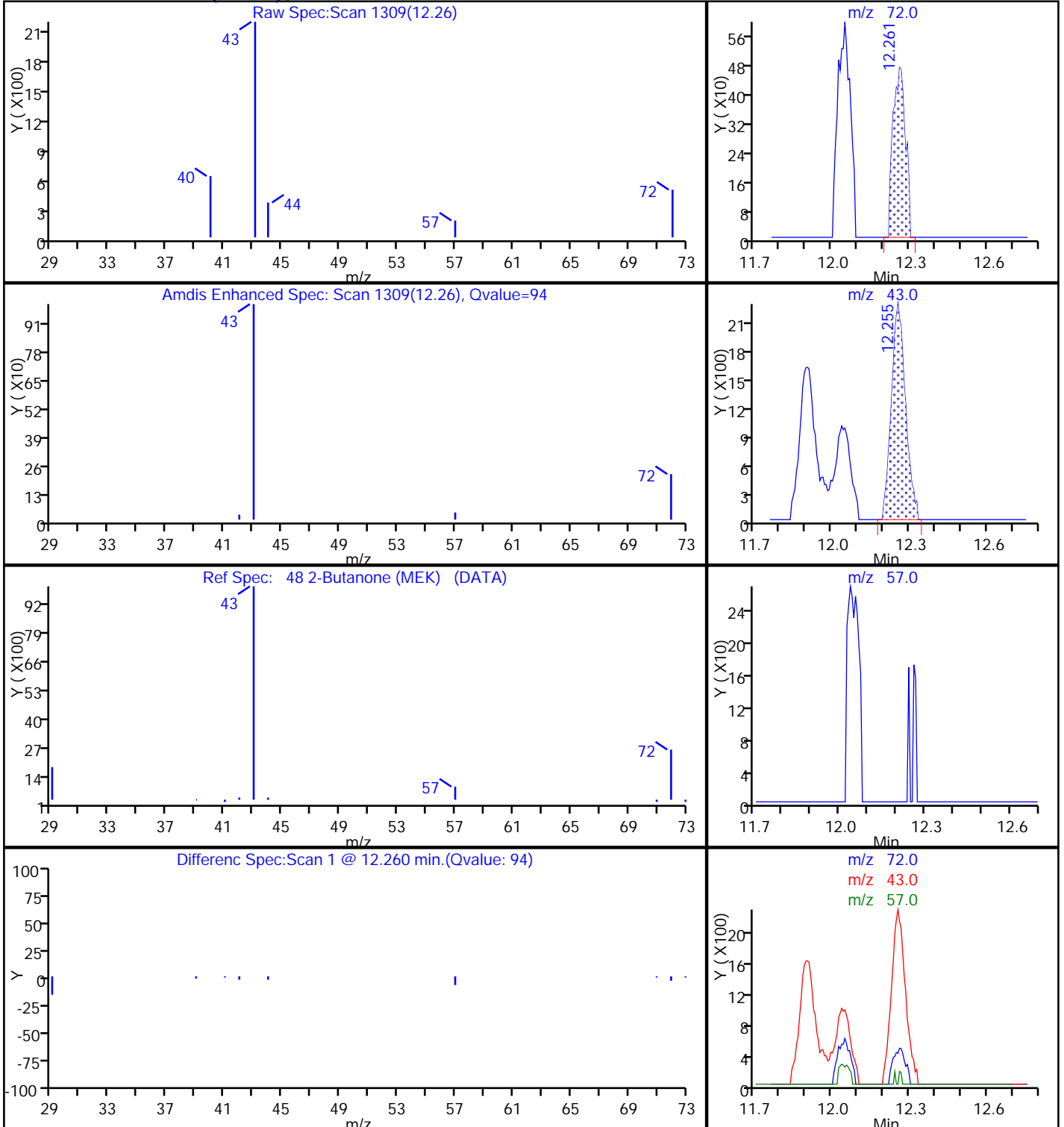
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

48 2-Butanone (MEK), CAS: 78-93-3



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012612.D

Injection Date: 26-Jan-2018 21:59:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-7

Lab Sample ID: 320-35383-7

Client ID: 34002427

Operator ID: LHS

ALS Bottle#: 9 Worklist Smp#: 12

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

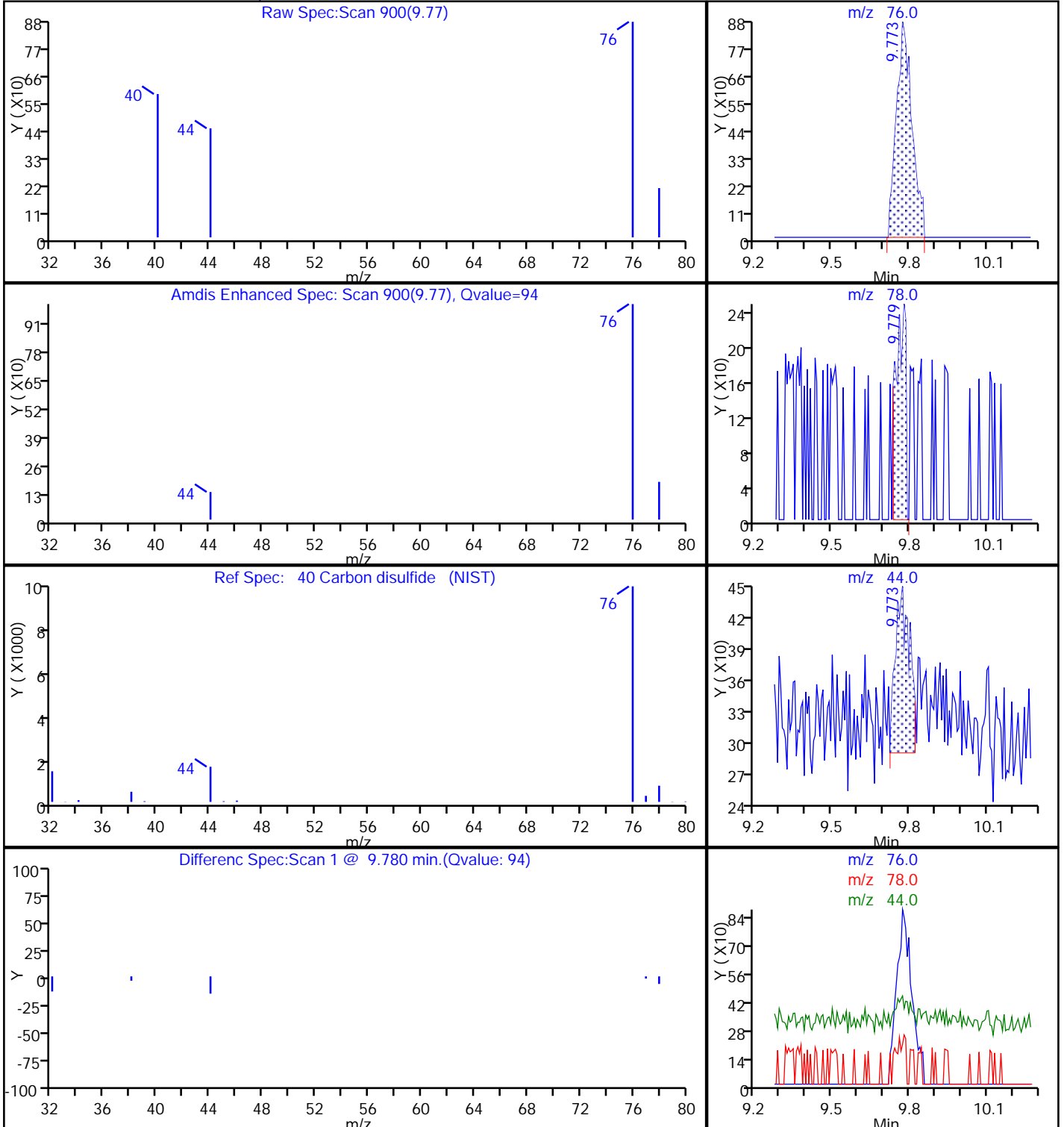
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

40 Carbon disulfide, CAS: 75-15-0



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012612.D

Injection Date: 26-Jan-2018 21:59:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-7

Lab Sample ID: 320-35383-7

Client ID: 34002427

Operator ID: LHS

ALS Bottle#: 9 Worklist Smp#: 12

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

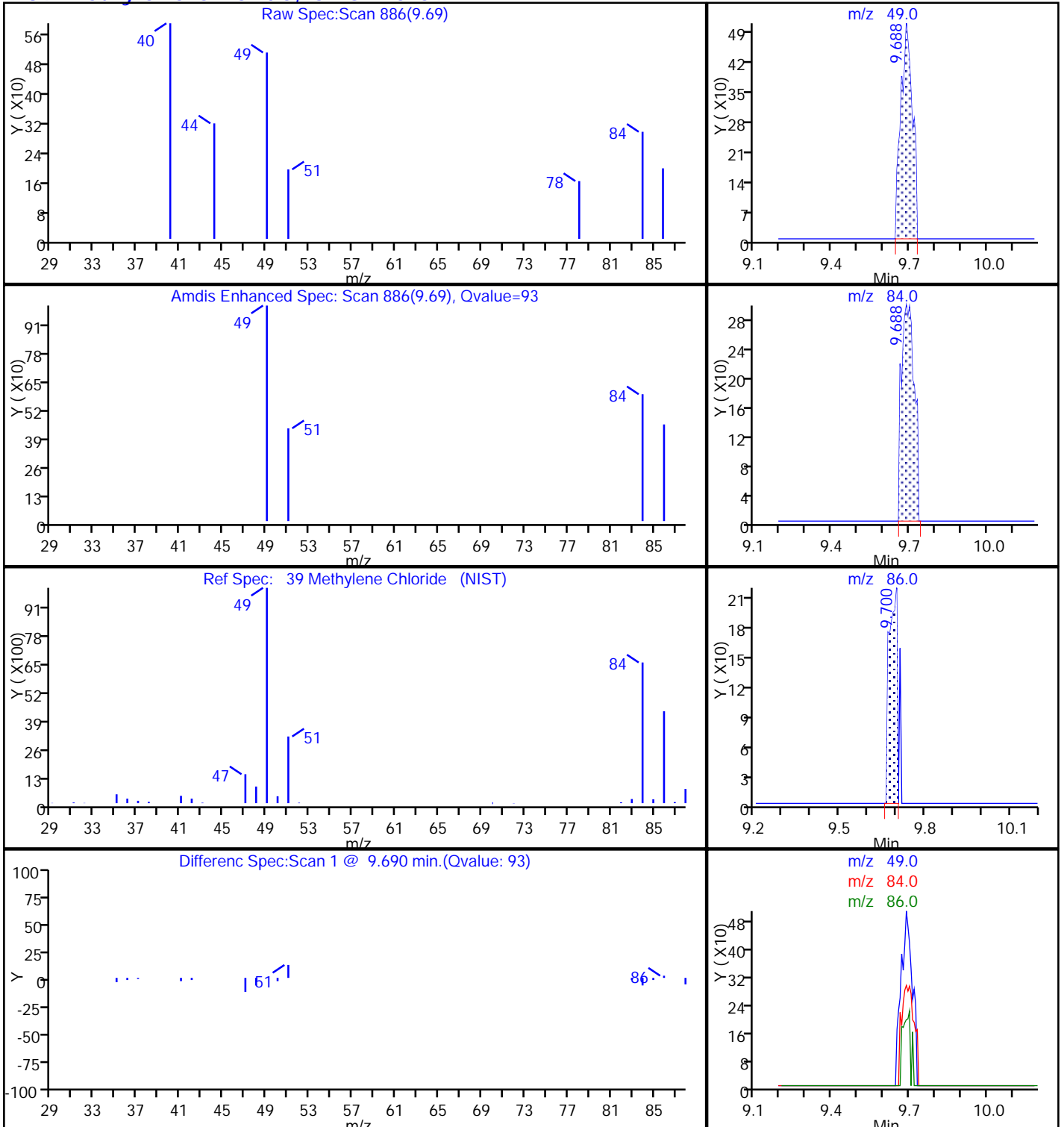
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

39 Methylene Chloride, CAS: 75-09-2



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012612.D

Injection Date: 26-Jan-2018 21:59:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-7

Lab Sample ID: 320-35383-7

Client ID: 34002427

Operator ID: LHS

ALS Bottle#: 9 Worklist Smp#: 12

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

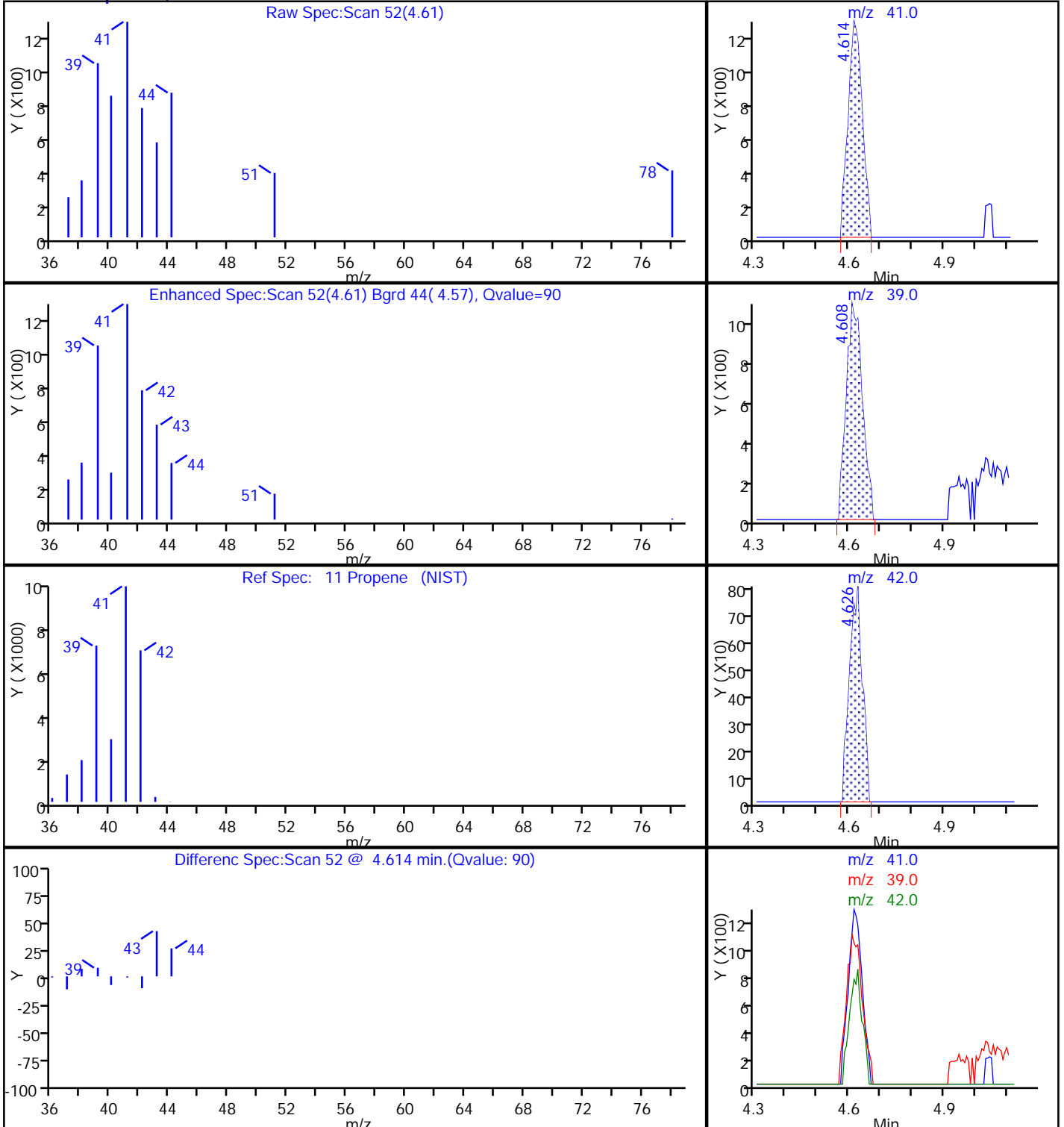
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

11 Propene, CAS: 115-07-1



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012612.D

Injection Date: 26-Jan-2018 21:59:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-7

Lab Sample ID: 320-35383-7

Client ID: 34002427

Operator ID: LHS

ALS Bottle#: 9 Worklist Smp#: 12

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

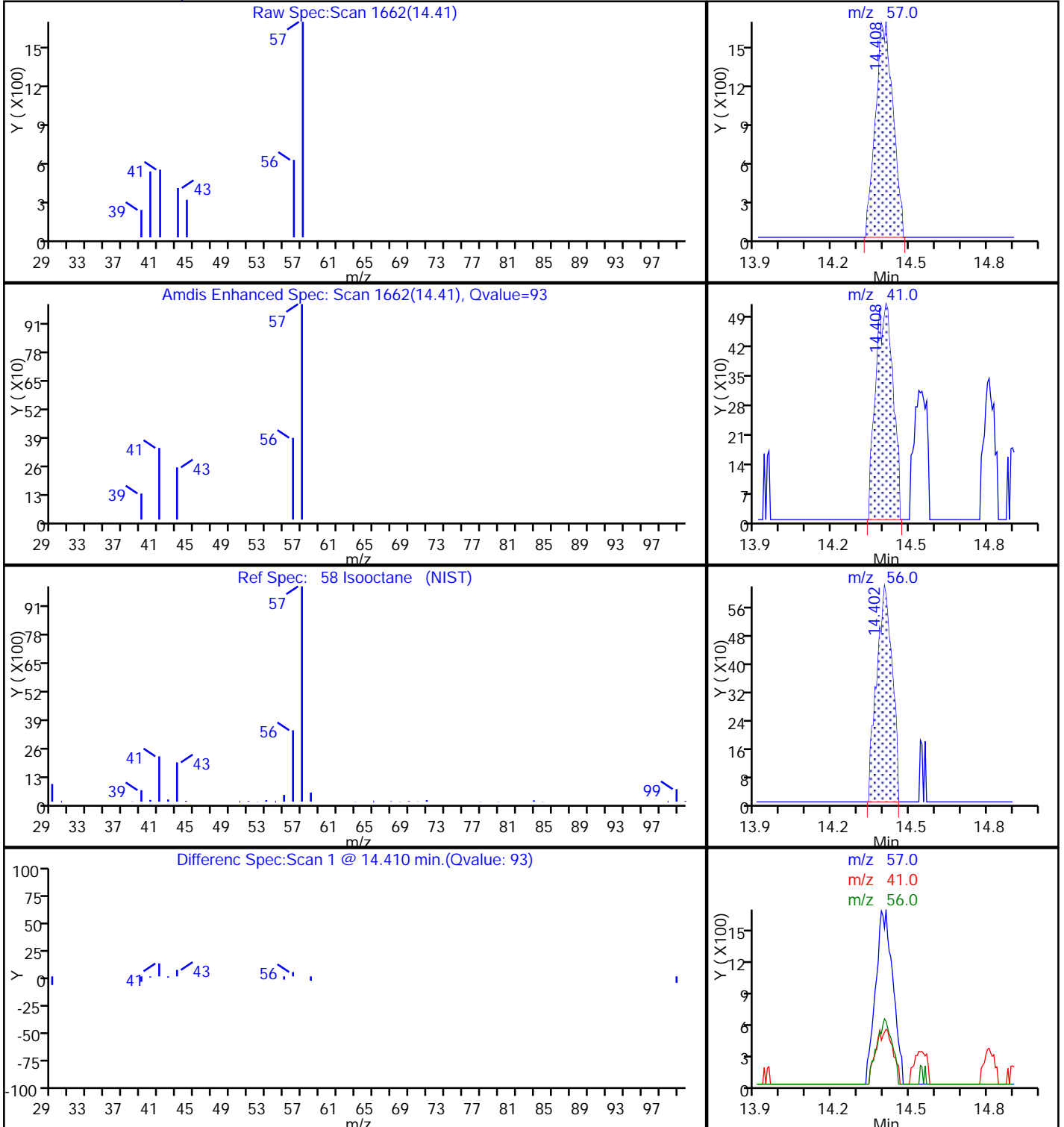
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

58 Isooctane, CAS: 540-84-1

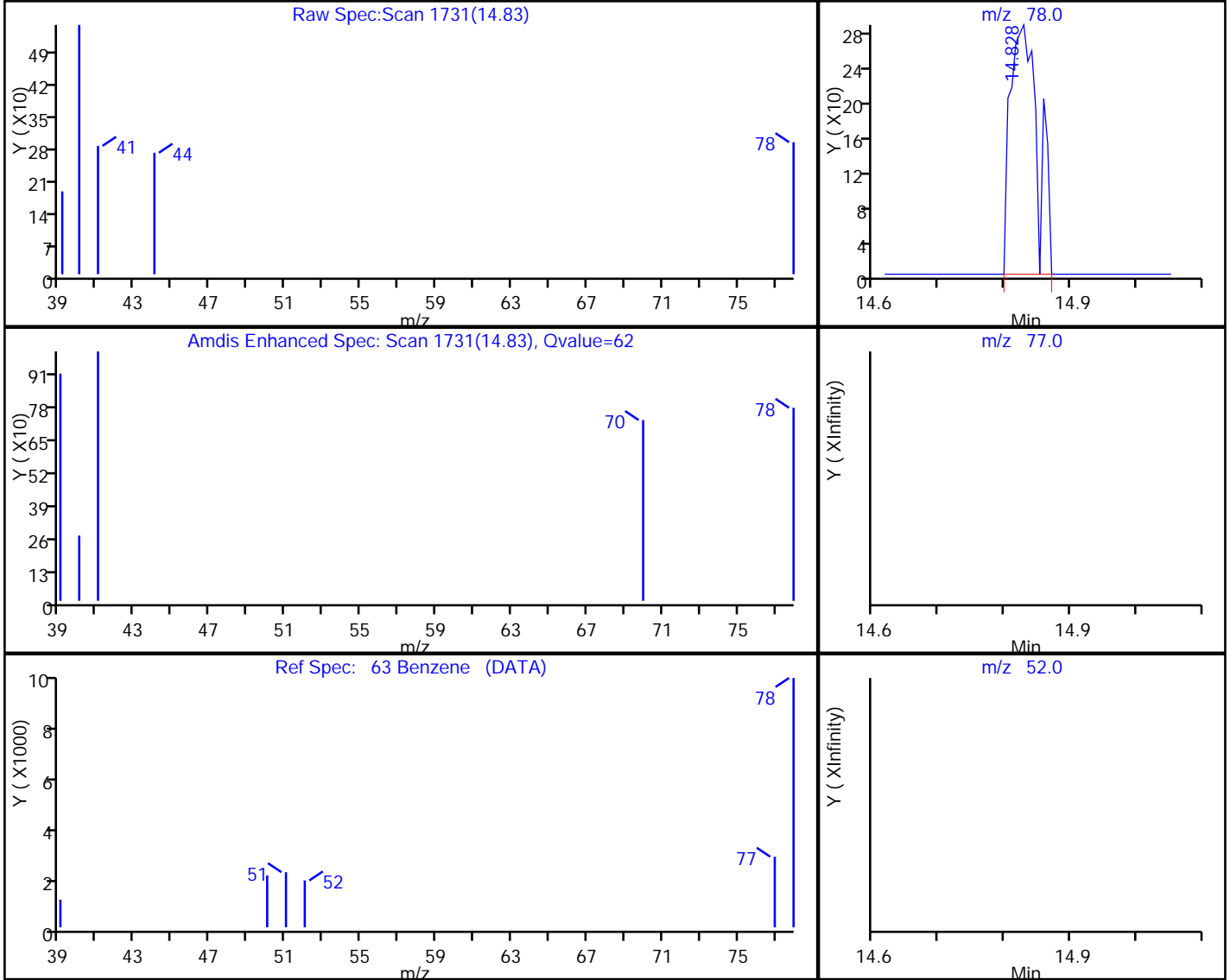


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012612.D  
 Injection Date: 26-Jan-2018 21:59:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-7 Lab Sample ID: 320-35383-7  
 Client ID: 34002427  
 Operator ID: LHS ALS Bottle#: 9 Worklist Smp#: 12  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

63 Benzene, CAS: 71-43-2

Processing Results



RT	Mass	Response	Amount
14.83	78.00	837	0.022120
14.83	77.00	0	
14.83	52.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:30:02

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

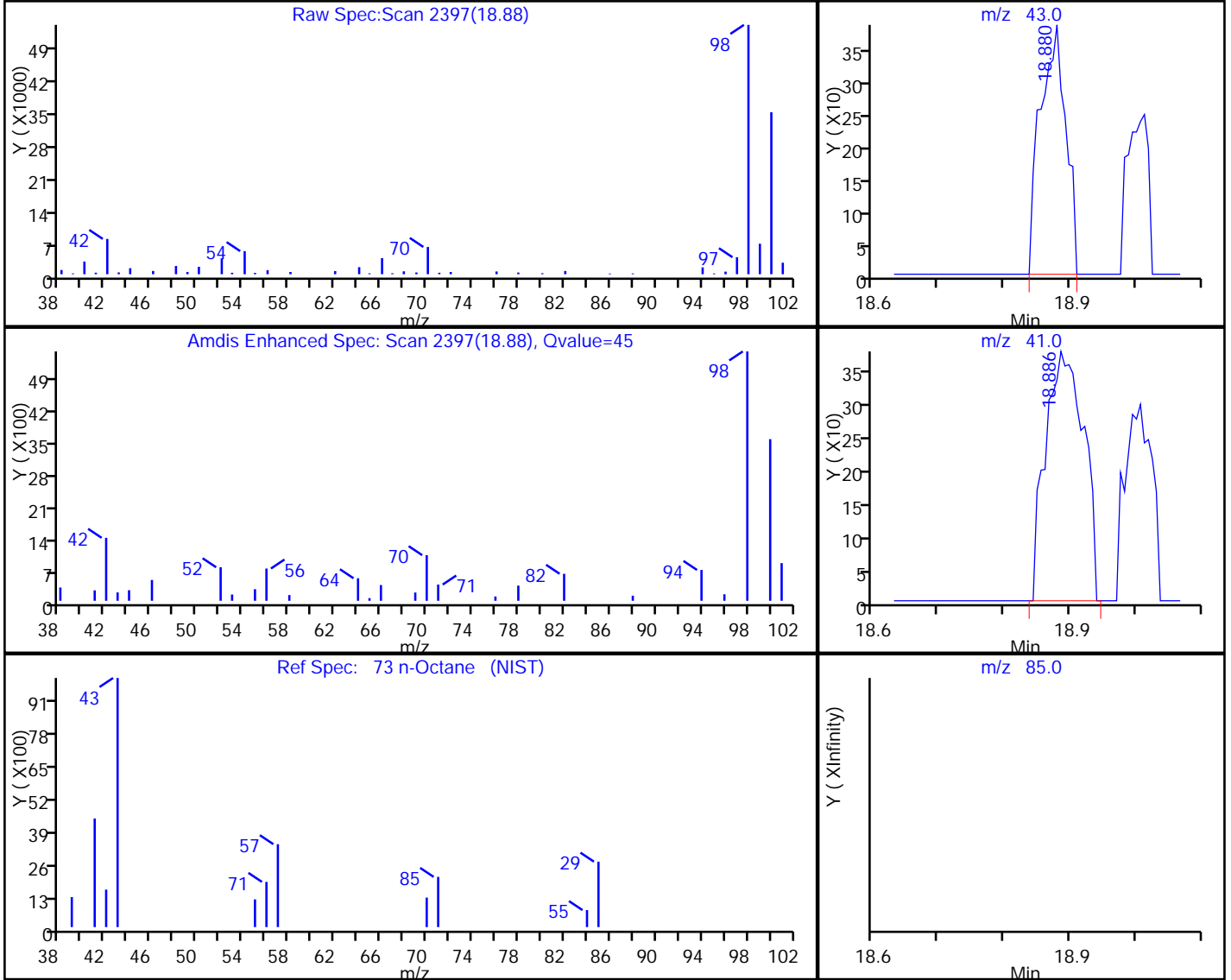


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012612.D  
 Injection Date: 26-Jan-2018 21:59:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-7 Lab Sample ID: 320-35383-7  
 Client ID: 34002427  
 Operator ID: LHS ALS Bottle#: 9 Worklist Smp#: 12  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

73 n-Octane, CAS: 111-65-9

Processing Results



RT	Mass	Response	Amount
18.88	43.00	1037	0.030577
18.89	41.00	1515	
18.85	85.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:30:02

Audit Action: Marked Compound Undetected

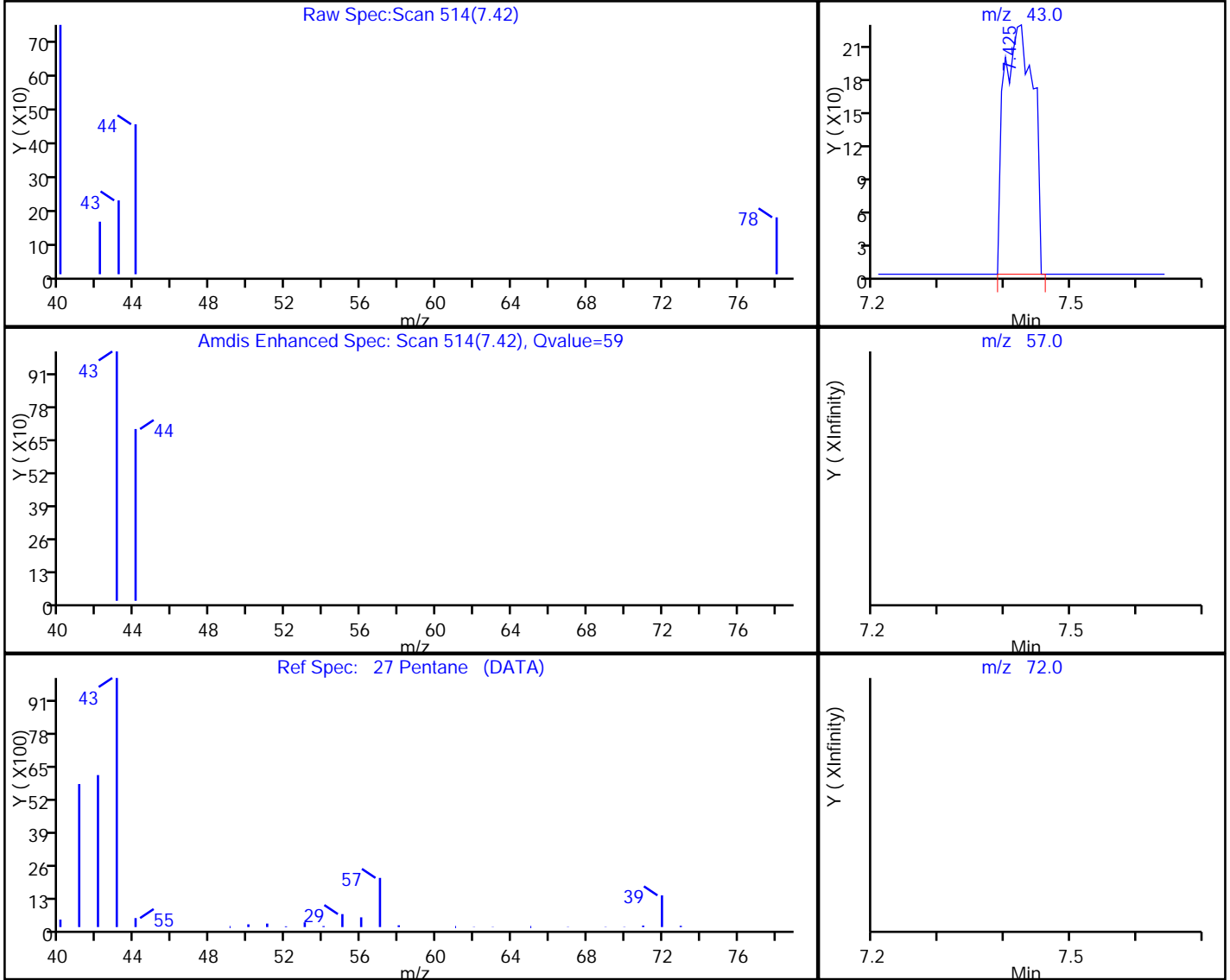
Audit Reason: Invalid Compound ID

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012612.D  
 Injection Date: 26-Jan-2018 21:59:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-7 Lab Sample ID: 320-35383-7  
 Client ID: 34002427  
 Operator ID: LHS ALS Bottle#: 9 Worklist Smp#: 12  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

27 Pentane, CAS: 109-66-0

Processing Results



RT	Mass	Response	Amount
7.42	43.00	680	0.029059
7.42	57.00	0	
7.42	72.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:30:02

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002428 Lab Sample ID: 320-35383-8  
 Matrix: Air Lab File ID: MS6012613.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 23:00  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	1.3	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	0.24	J	0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	ND		0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.27
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002428 Lab Sample ID: 320-35383-8  
 Matrix: Air Lab File ID: MS6012613.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 23:00  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.12
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	0.11	J	0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	0.20	J	0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.21
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002428 Lab Sample ID: 320-35383-8  
 Matrix: Air Lab File ID: MS6012613.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/26/2018 23:00  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	ND		0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054
1330-20-7	Xylenes, Total	ND		1.2	0.074

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	89		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	102		70-130
2037-26-5	Toluene-d8 (Surr)	99		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012613.D  
 Lims ID: 320-35383-A-8  
 Client ID: 34002428  
 Sample Type: Client  
 Inject. Date: 26-Jan-2018 23:00:30 ALS Bottle#: 10 Worklist Smp#: 13  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35383-A-8  
 Misc. Info.: 500mL  
 Operator ID: LHS Instrument ID: ATMS6  
 Method: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\TO15\_ATMS6.m  
 Limit Group: MSA - TO15 - ICAL  
 Last Update: 29-Jan-2018 12:33:48 Calib Date: 23-Jan-2018 18:39:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS6\20180123-53204.b\MS6012311.D  
 Column 1 : RTX Volatiles ( 0.32 mm) Det: MS SCAN  
 Process Host: XAWRK028

First Level Reviewer: phanthasena

Date: 29-Jan-2018 12:33:48

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	13.296	13.289	0.007	98	48210	4.00	
* 2 1,4-Difluorobenzene	114	15.425	15.431	-0.006	95	188972	4.00	
* 3 Chlorobenzene-d5 (IS)	117	22.159	22.153	0.006	87	165276	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	14.494	14.500	-0.006	34	61372	4.07	
\$ 5 Toluene-d8 (Surr)	100	18.880	18.880	0.000	99	125462	3.95	
\$ 6 4-Bromofluorobenzene (Surr	95	24.715	24.714	0.001	92	90959	3.56	
11 Propene	41	4.645	4.614	0.031	90	2144	0.2031	
32 Acetone	43	8.404	8.323	0.085	91	26011	1.33	
39 Methylene Chloride	49	9.706	9.694	0.012	89	1582	0.1082	
48 2-Butanone (MEK)	72	12.268	12.212	0.068	94	1389	0.2414	

**Reagents:**

VAMSIS20\_00098

Amount Added: 50.00

Units: mL

Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012613.D

Injection Date: 26-Jan-2018 23:00:30

Instrument ID: ATMS6

Operator ID: LHS

Lims ID: 320-35383-A-8

Lab Sample ID: 320-35383-8

Worklist Smp#: 13

Client ID: 34002428

Purge Vol: 25.000 mL

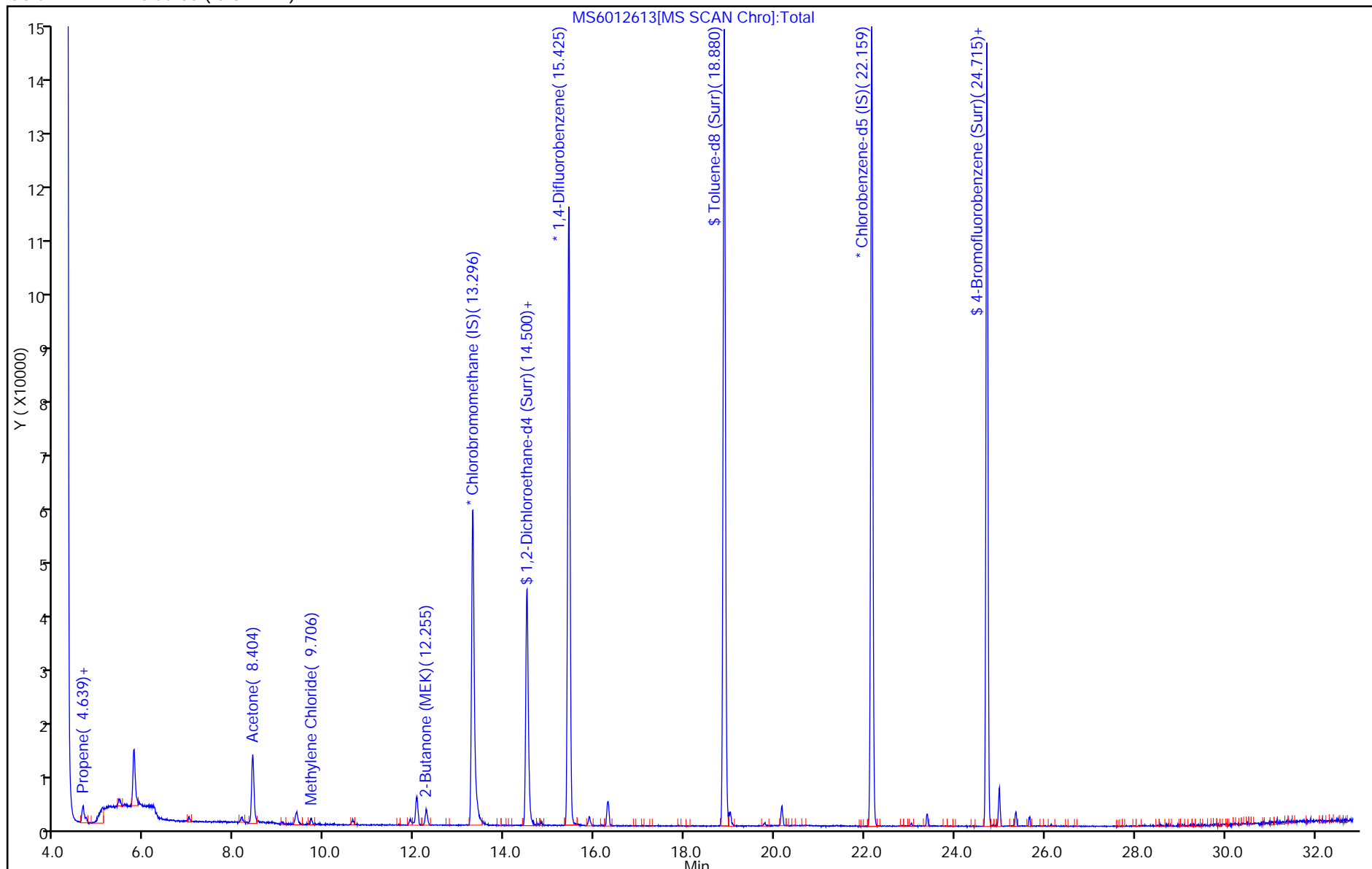
Dil. Factor: 1.0000

ALS Bottle#: 10

Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012613.D

Injection Date: 26-Jan-2018 23:00:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-8

Lab Sample ID: 320-35383-8

Client ID: 34002428

Operator ID: LHS

ALS Bottle#: 10

Worklist Smp#: 13

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

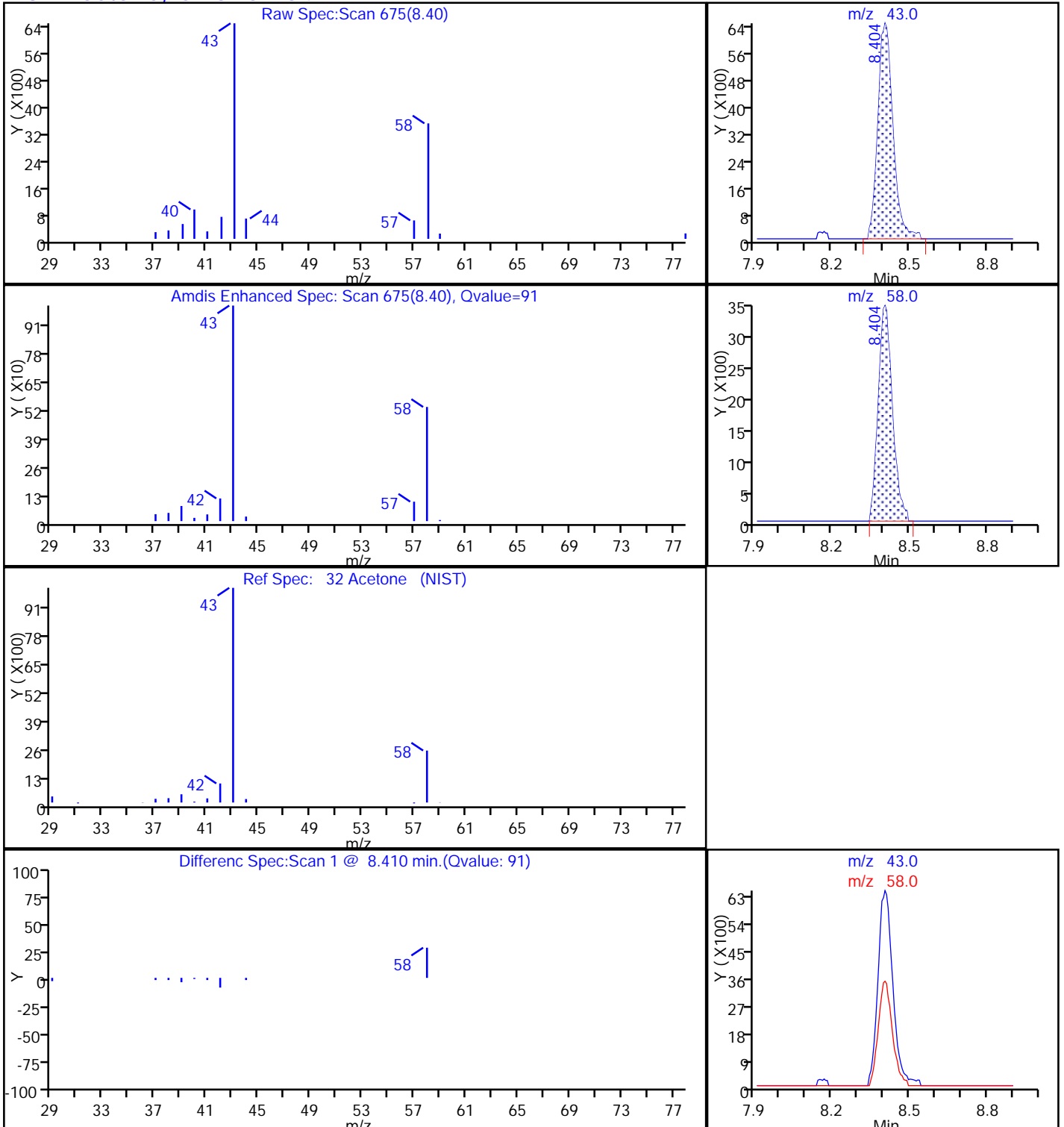
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

32 Acetone, CAS: 67-64-1





TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012613.D

Injection Date: 26-Jan-2018 23:00:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-8

Lab Sample ID: 320-35383-8

Client ID: 34002428

Operator ID: LHS

ALS Bottle#: 10

Worklist Smp#: 13

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

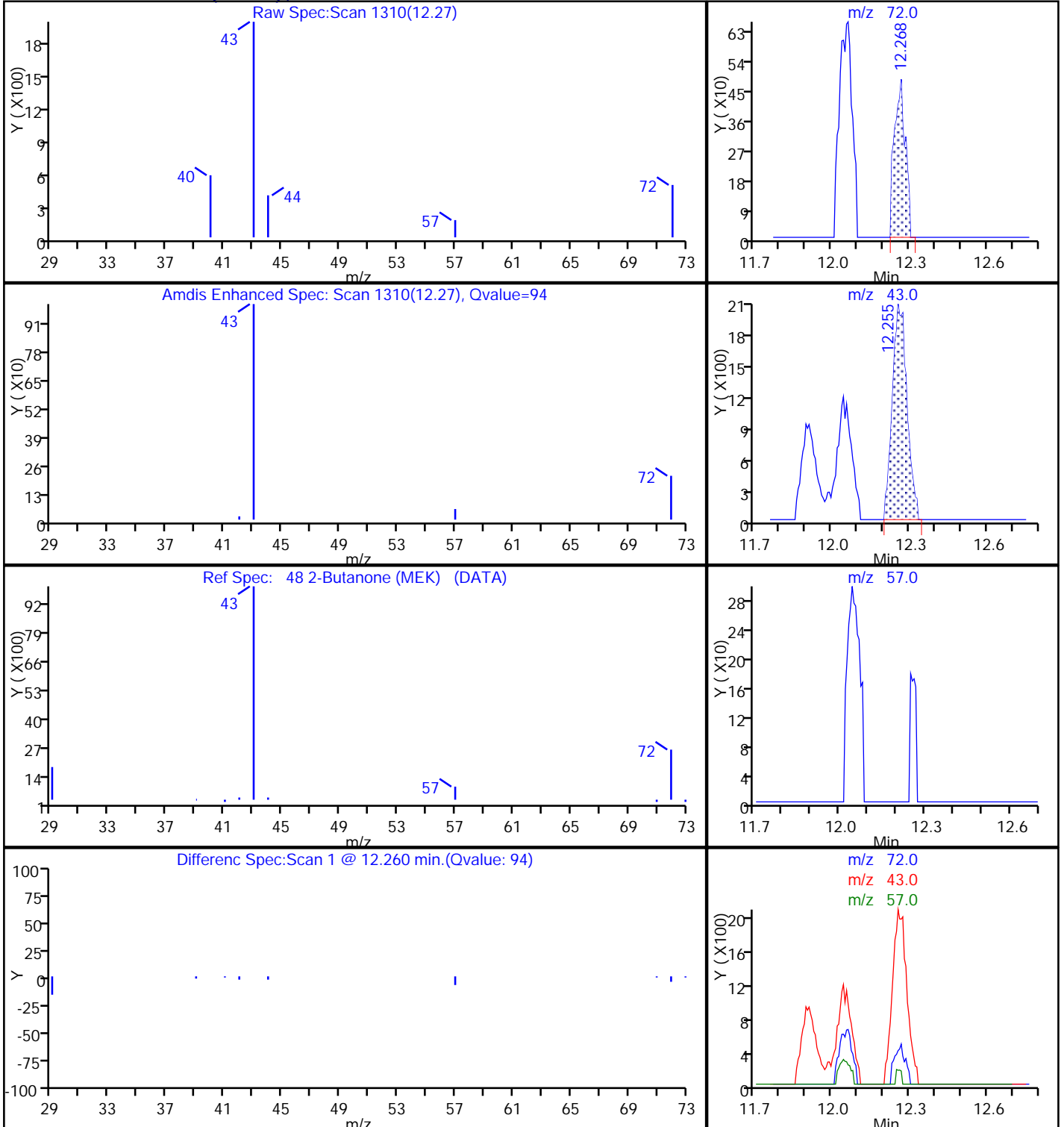
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

48 2-Butanone (MEK), CAS: 78-93-3



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012613.D

Injection Date: 26-Jan-2018 23:00:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-8

Lab Sample ID: 320-35383-8

Client ID: 34002428

Operator ID: LHS

ALS Bottle#: 10 Worklist Smp#: 13

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

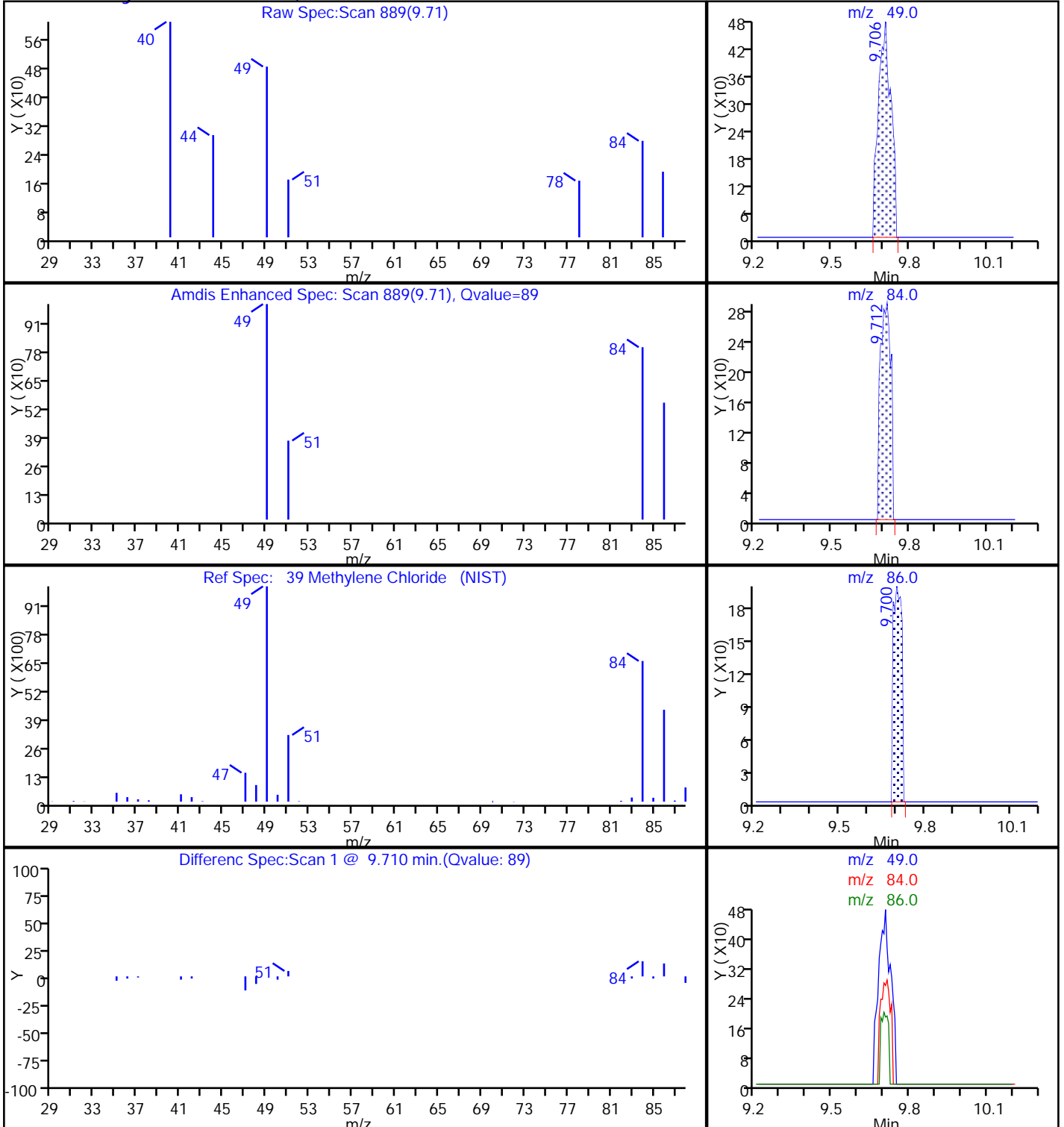
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

39 Methylene Chloride, CAS: 75-09-2



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012613.D

Injection Date: 26-Jan-2018 23:00:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-8

Lab Sample ID: 320-35383-8

Client ID: 34002428

Operator ID: LHS

ALS Bottle#: 10 Worklist Smp#: 13

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

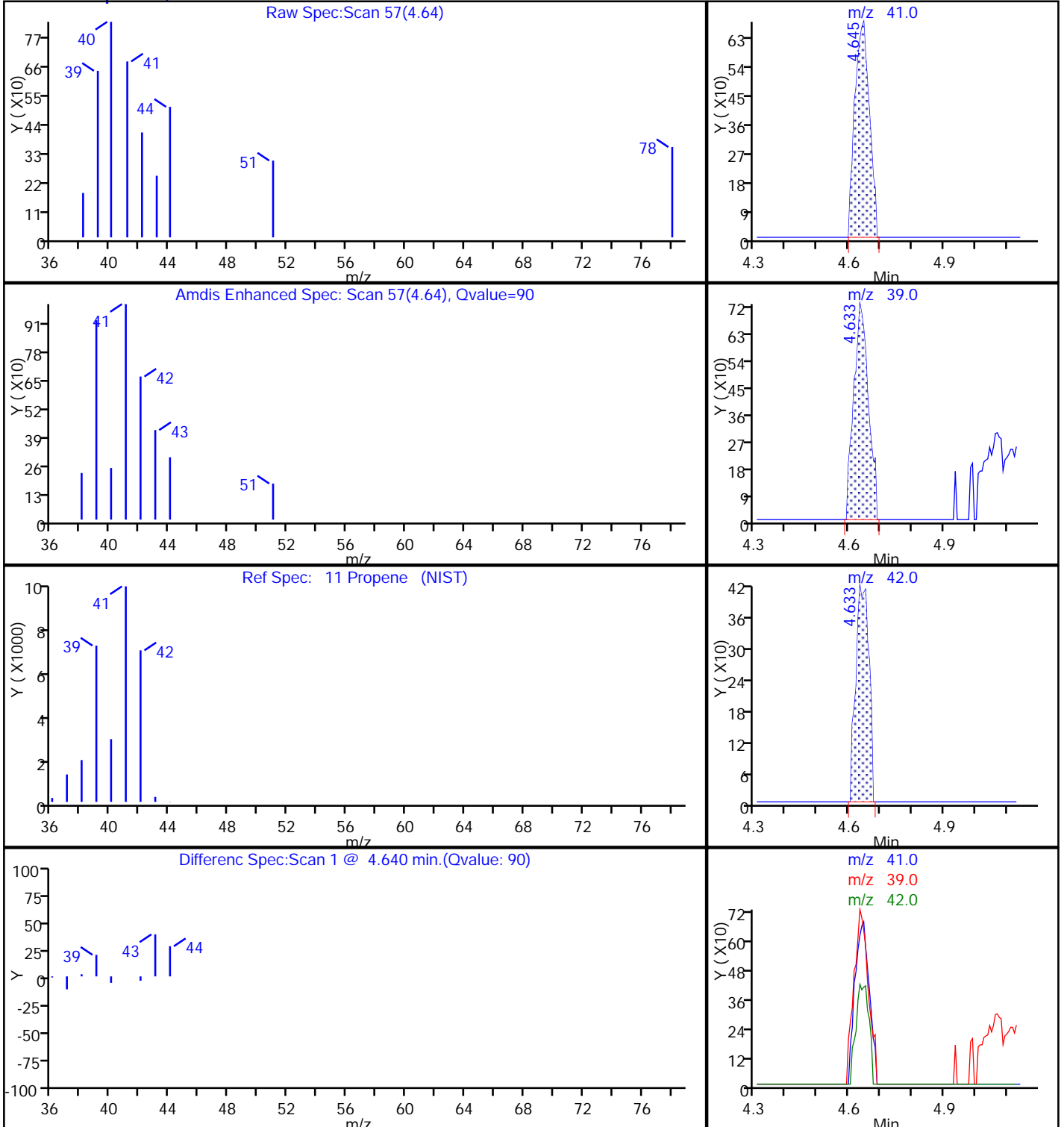
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

11 Propene, CAS: 115-07-1

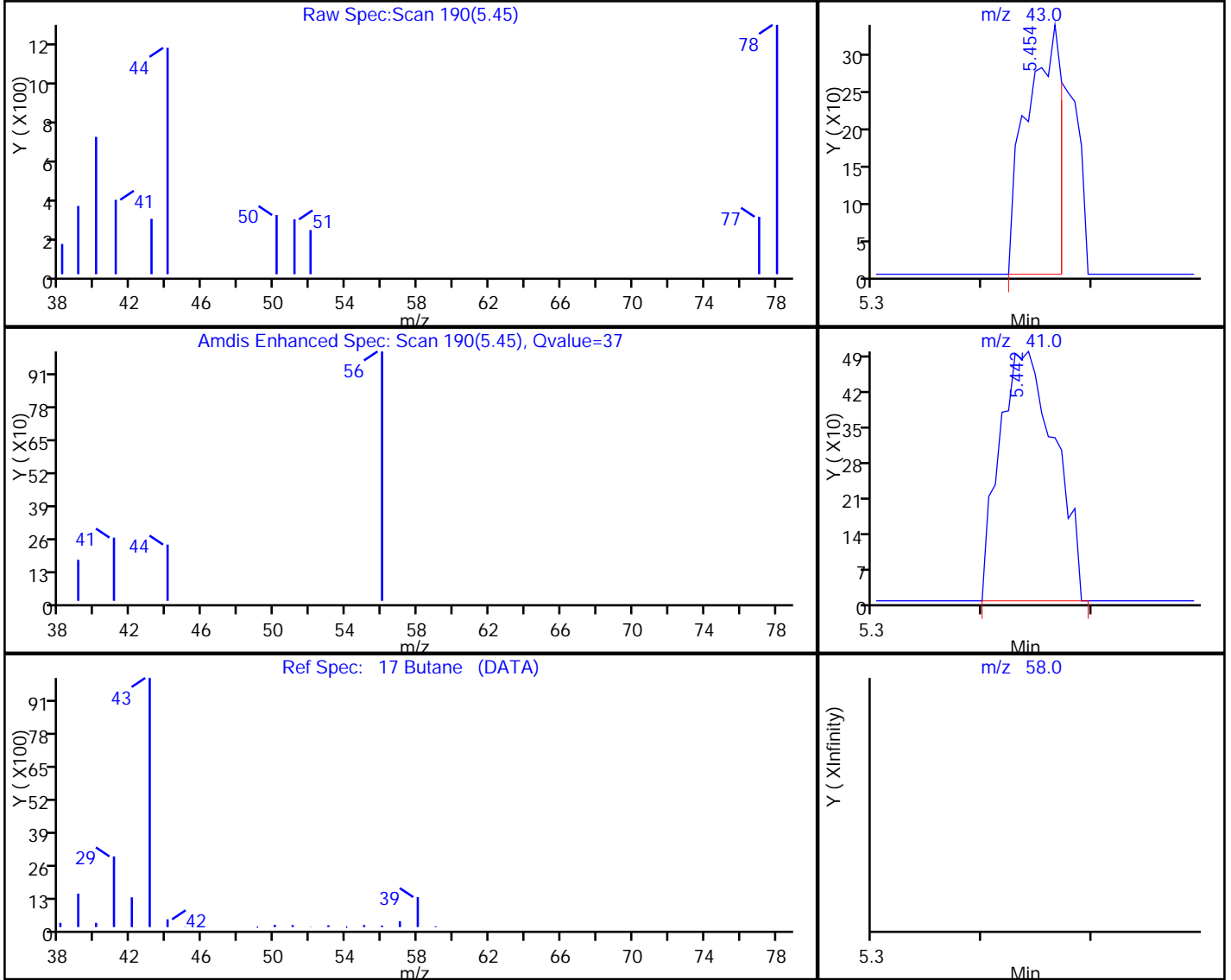


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012613.D  
 Injection Date: 26-Jan-2018 23:00:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-8 Lab Sample ID: 320-35383-8  
 Client ID: 34002428  
 Operator ID: LHS ALS Bottle#: 10 Worklist Smp#: 13  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

17 Butane, CAS: 106-97-8

Processing Results



RT	Mass	Response	Amount
5.45	43.00	736	0.029770
5.44	41.00	1760	
5.45	58.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:33:48

Audit Action: Marked Compound Undetected

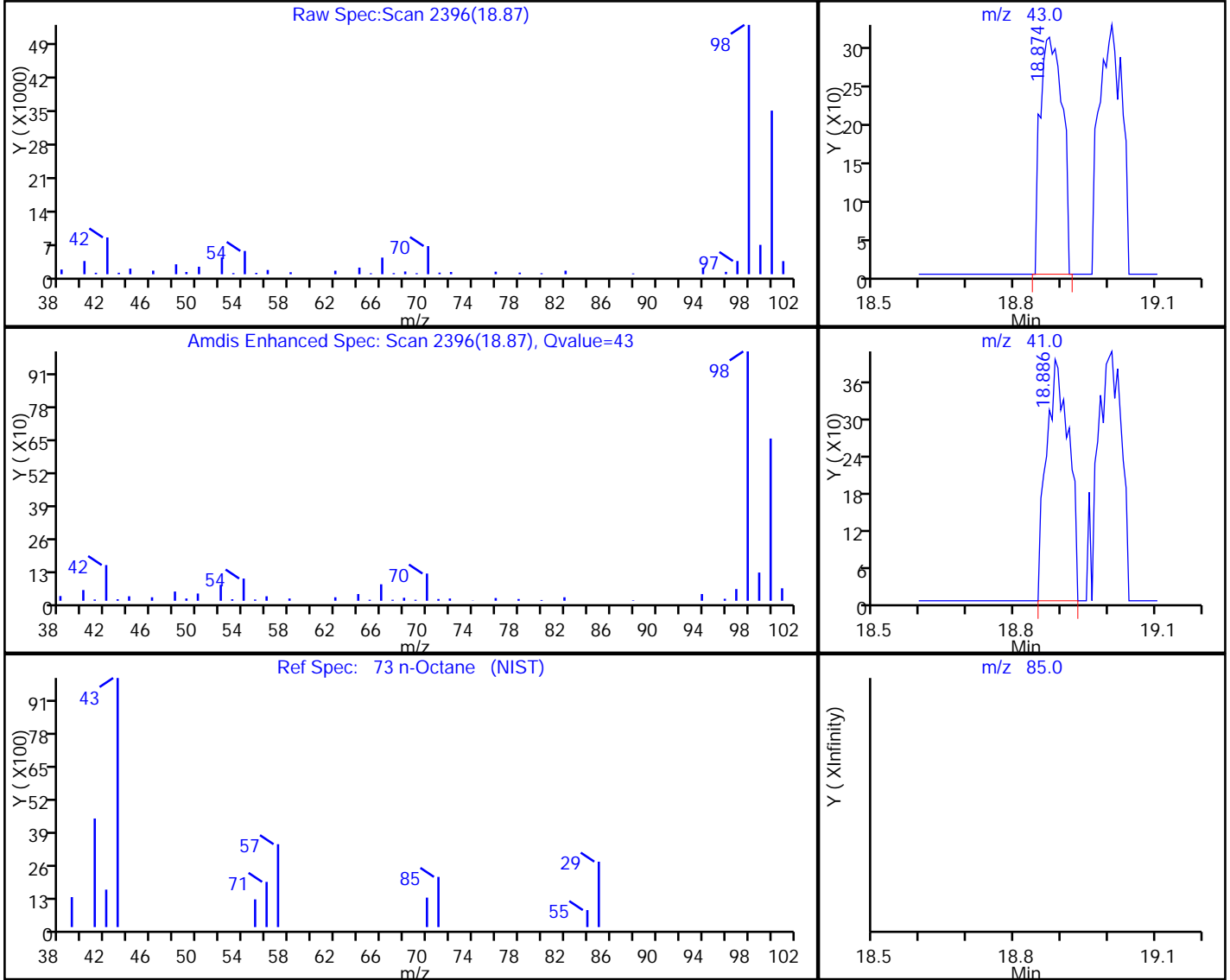
Audit Reason: Invalid Compound ID

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012613.D  
 Injection Date: 26-Jan-2018 23:00:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-8 Lab Sample ID: 320-35383-8  
 Client ID: 34002428  
 Operator ID: LHS ALS Bottle#: 10 Worklist Smp#: 13  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

73 n-Octane, CAS: 111-65-9

Processing Results



RT	Mass	Response	Amount
18.87	43.00	1013	0.030084
18.89	41.00	1299	
18.85	85.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:33:48

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002429 Lab Sample ID: 320-35383-9  
 Matrix: Air Lab File ID: MS6012615.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/27/2018 00:57  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	1.8	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	0.25	J	0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	ND		0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.27
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002429 Lab Sample ID: 320-35383-9  
 Matrix: Air Lab File ID: MS6012615.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/27/2018 00:57  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.12
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	0.11	J	0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	0.27	J	0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.21
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002429 Lab Sample ID: 320-35383-9  
 Matrix: Air Lab File ID: MS6012615.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/27/2018 00:57  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	ND		0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054
1330-20-7	Xylenes, Total	ND		1.2	0.074

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	91		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		70-130
2037-26-5	Toluene-d8 (Surr)	100		70-130



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012615.D  
 Lims ID: 320-35383-A-9  
 Client ID: 34002429  
 Sample Type: Client  
 Inject. Date: 27-Jan-2018 00:57:30 ALS Bottle#: 11 Worklist Smp#: 15  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35383-A-9  
 Misc. Info.: 500mL  
 Operator ID: LHS Instrument ID: ATMS6  
 Method: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\TO15\_ATMS6.m  
 Limit Group: MSA - TO15 - ICAL  
 Last Update: 29-Jan-2018 12:36:00 Calib Date: 23-Jan-2018 18:39:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS6\20180123-53204.b\MS6012311.D  
 Column 1 : RTX Volatiles ( 0.32 mm) Det: MS SCAN  
 Process Host: XAWRK028

First Level Reviewer: phanthasena

Date: 29-Jan-2018 12:36:00

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	13.289	13.289	0.000	98	47706	4.00	
* 2 1,4-Difluorobenzene	114	15.424	15.431	-0.007	95	189968	4.00	
* 3 Chlorobenzene-d5 (IS)	117	22.159	22.153	0.006	87	166666	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	14.494	14.500	-0.006	34	61302	4.05	
\$ 5 Toluene-d8 (Surr)	100	18.874	18.880	-0.006	99	127083	3.98	
\$ 6 4-Bromofluorobenzene (Surr	95	24.714	24.714	0.000	91	93887	3.64	
11 Propene	41	4.632	4.614	0.018	95	2817	0.2697	
17 Butane	43	5.460	5.450	0.012	72	1183	0.0484	
32 Acetone	43	8.398	8.323	0.079	93	35099	1.82	
39 Methylene Chloride	49	9.694	9.694	0.000	47	1597	0.1104	
48 2-Butanone (MEK)	72	12.267	12.212	0.067	94	1402	0.2462	

**Reagents:**

VAMSIS20\_00098

Amount Added: 50.00

Units: mL

Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012615.D

Injection Date: 27-Jan-2018 00:57:30

Instrument ID: ATMS6

Operator ID: LHS

Lims ID: 320-35383-A-9

Lab Sample ID: 320-35383-9

Worklist Smp#: 15

Client ID: 34002429

Purge Vol: 25.000 mL

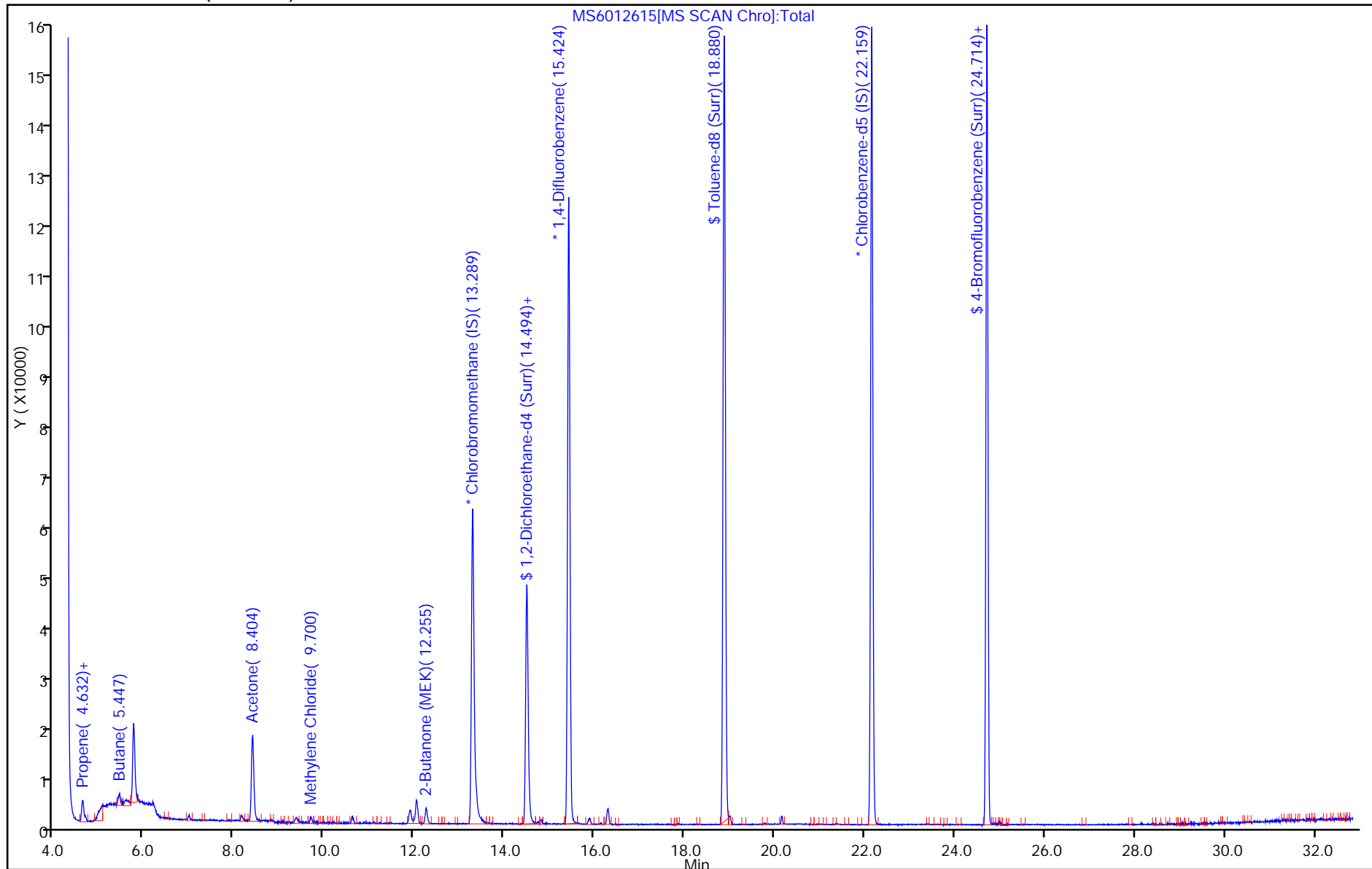
Dil. Factor: 1.0000

ALS Bottle#: 11

Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012615.D

Injection Date: 27-Jan-2018 00:57:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-9

Lab Sample ID: 320-35383-9

Client ID: 34002429

Operator ID: LHS

ALS Bottle#: 11 Worklist Smp#: 15

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

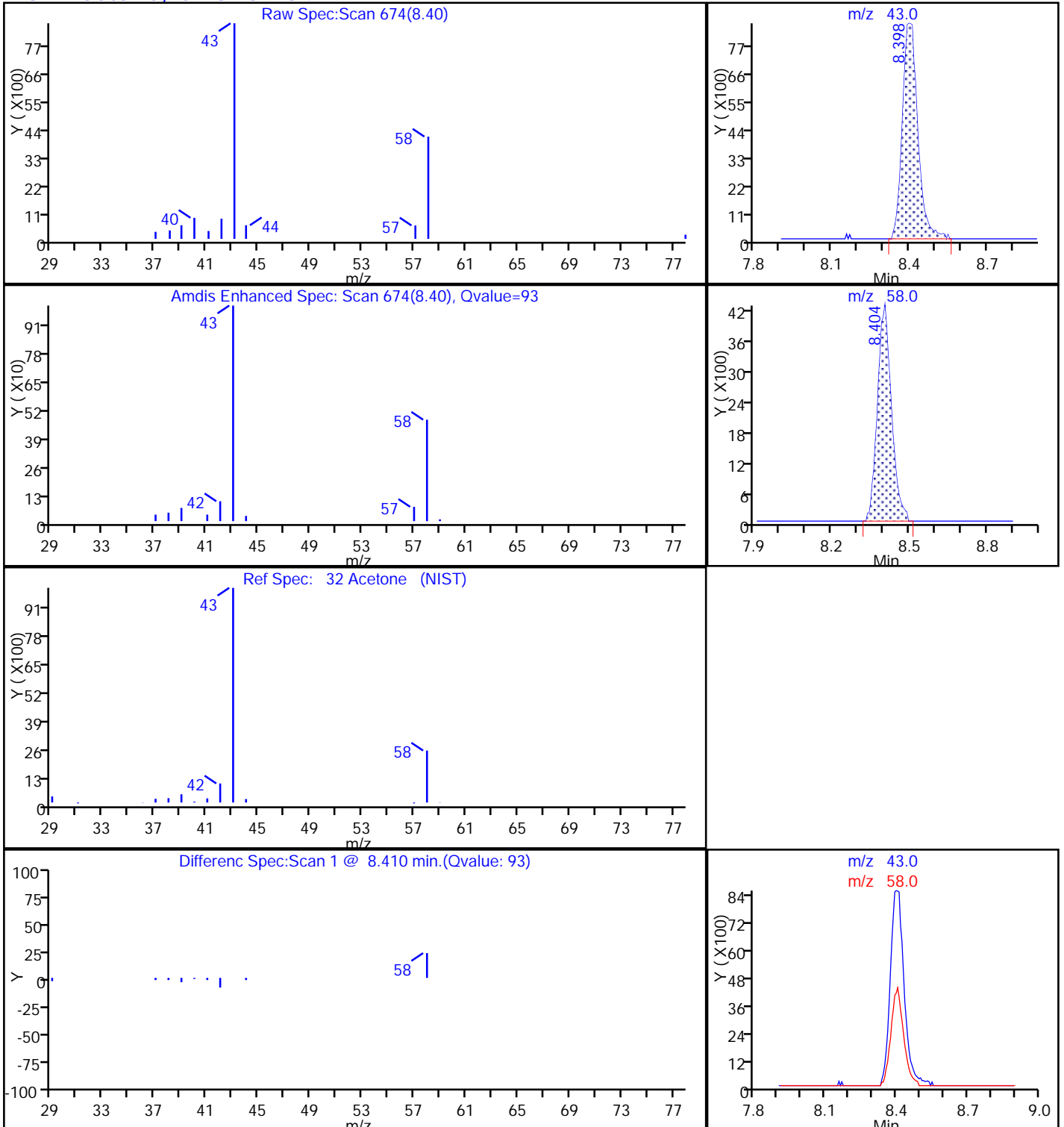
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

32 Acetone, CAS: 67-64-1



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012615.D

Injection Date: 27-Jan-2018 00:57:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-9

Lab Sample ID: 320-35383-9

Client ID: 34002429

Operator ID: LHS

ALS Bottle#: 11

Worklist Smp#: 15

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

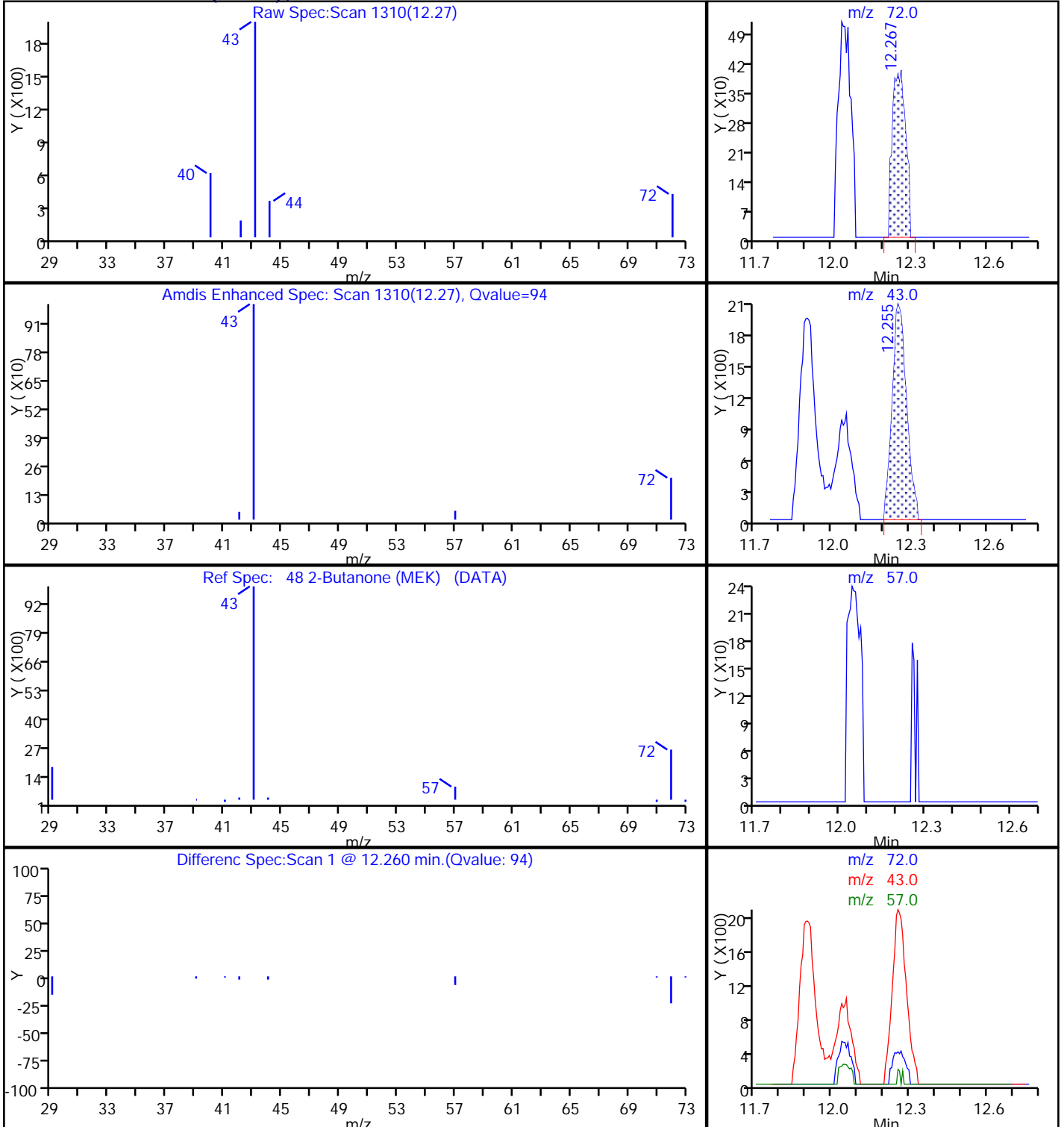
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

48 2-Butanone (MEK), CAS: 78-93-3



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012615.D

Injection Date: 27-Jan-2018 00:57:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-9

Lab Sample ID: 320-35383-9

Client ID: 34002429

Operator ID: LHS

ALS Bottle#: 11 Worklist Smp#: 15

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

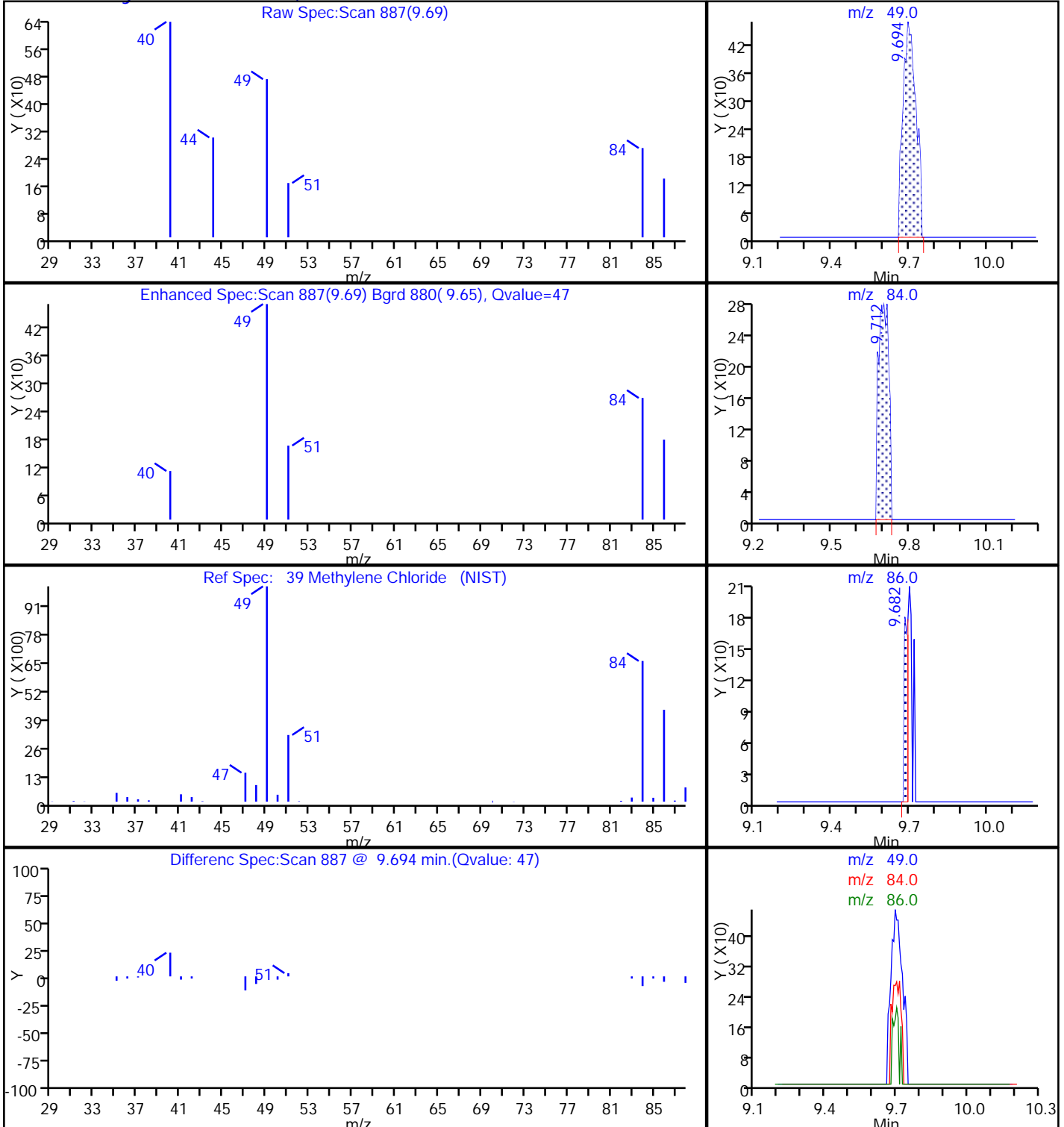
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

39 Methylene Chloride, CAS: 75-09-2



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012615.D

Injection Date: 27-Jan-2018 00:57:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-9

Lab Sample ID: 320-35383-9

Client ID: 34002429

Operator ID: LHS

ALS Bottle#: 11 Worklist Smp#: 15

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

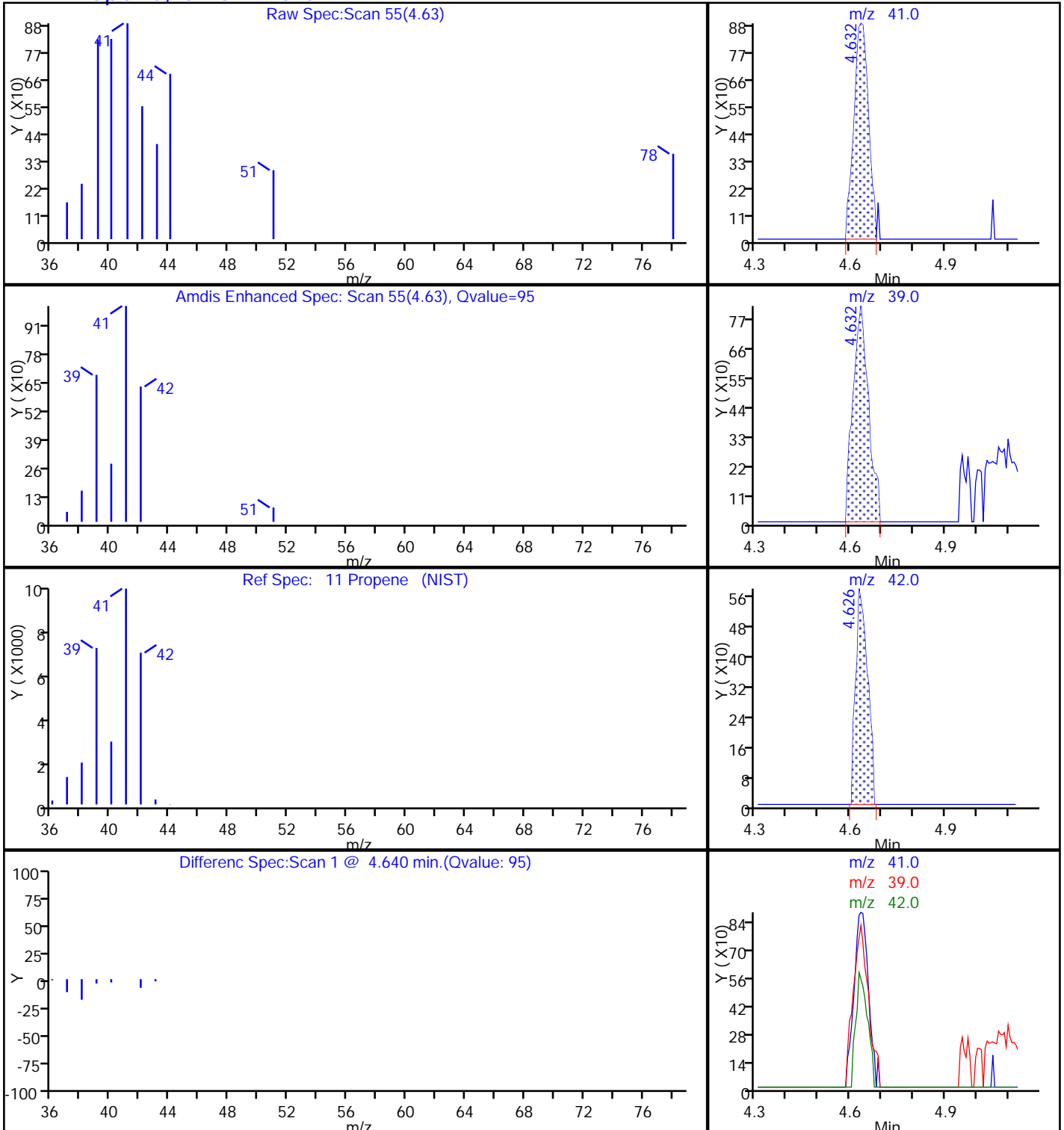
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

11 Propene, CAS: 115-07-1

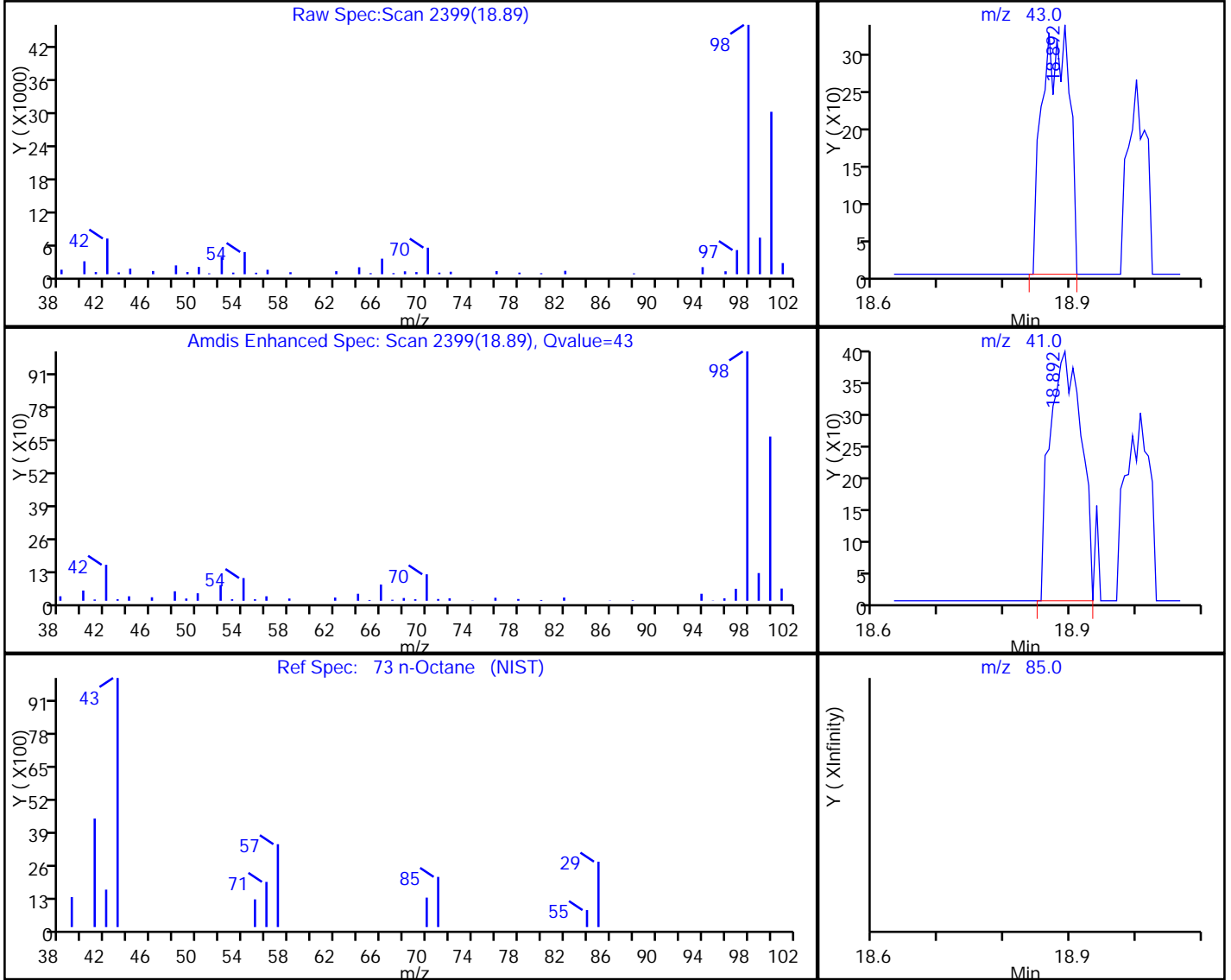


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012615.D  
Injection Date: 27-Jan-2018 00:57:30 Instrument ID: ATMS6  
Lims ID: 320-35383-A-9 Lab Sample ID: 320-35383-9  
Client ID: 34002429  
Operator ID: LHS ALS Bottle#: 11 Worklist Smp#: 15  
Purge Vol: 25.000 mL Dil. Factor: 1.0000  
Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

73 n-Octane, CAS: 111-65-9

Processing Results



RT	Mass	Response	Amount
18.89	43.00	945	0.027830
18.89	41.00	1300	
18.85	85.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:36:00

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002431 Lab Sample ID: 320-35383-11  
 Matrix: Air Lab File ID: MS6012617.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/27/2018 02:58  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	2.5	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	0.40	J	0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	0.091	J	0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.27
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088



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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002431 Lab Sample ID: 320-35383-11  
 Matrix: Air Lab File ID: MS6012617.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/27/2018 02:58  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.12
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	0.13	J	0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	0.32	J	0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.21
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002431 Lab Sample ID: 320-35383-11  
 Matrix: Air Lab File ID: MS6012617.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/27/2018 02:58  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	0.16	J	0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054
1330-20-7	Xylenes, Total	ND		1.2	0.074

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	88		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	103		70-130
2037-26-5	Toluene-d8 (Surr)	100		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012617.D  
 Lims ID: 320-35383-A-11  
 Client ID: 34002431  
 Sample Type: Client  
 Inject. Date: 27-Jan-2018 02:58:30 ALS Bottle#: 13 Worklist Smp#: 17  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35383-A-11  
 Misc. Info.: 500mL  
 Operator ID: LHS Instrument ID: ATMS6  
 Method: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\TO15\_ATMS6.m  
 Limit Group: MSA - TO15 - ICAL  
 Last Update: 29-Jan-2018 12:40:18 Calib Date: 23-Jan-2018 18:39:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS6\20180123-53204.b\MS6012311.D  
 Column 1 : RTX Volatiles ( 0.32 mm) Det: MS SCAN  
 Process Host: XAWRK028

First Level Reviewer: phanthasena

Date: 29-Jan-2018 12:40:18

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	13.295	13.289	0.006	98	46414	4.00	
* 2 1,4-Difluorobenzene	114	15.425	15.431	-0.006	95	186190	4.00	
* 3 Chlorobenzene-d5 (IS)	117	22.159	22.153	0.006	89	166220	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	14.500	14.500	0.000	57	61198	4.12	
\$ 5 Toluene-d8 (Surr)	100	18.880	18.880	0.000	99	125418	4.01	
\$ 6 4-Bromofluorobenzene (Surr	95	24.714	24.714	0.000	91	90730	3.53	
11 Propene	41	4.632	4.614	0.018	94	3234	0.3182	
17 Butane	43	5.454	5.450	0.006	38	1589	0.0668	
32 Acetone	43	8.392	8.323	0.073	93	46068	2.45	
39 Methylene Chloride	49	9.694	9.694	0.000	87	1821	0.1294	
40 Carbon disulfide	76	9.785	9.773	0.012	92	1968	0.0910	
48 2-Butanone (MEK)	72	12.255	12.206	0.055	95	2201	0.3973	
58 Isooctane	57	14.415	14.403	0.006	94	9814	0.1588	

**Reagents:**

VAMSIS20\_00098

Amount Added: 50.00

Units: mL

Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012617.D

Injection Date: 27-Jan-2018 02:58:30

Instrument ID: ATMS6

Operator ID: LHS

Lims ID: 320-35383-A-11

Lab Sample ID: 320-35383-11

Worklist Smp#: 17

Client ID: 34002431

Purge Vol: 25.000 mL

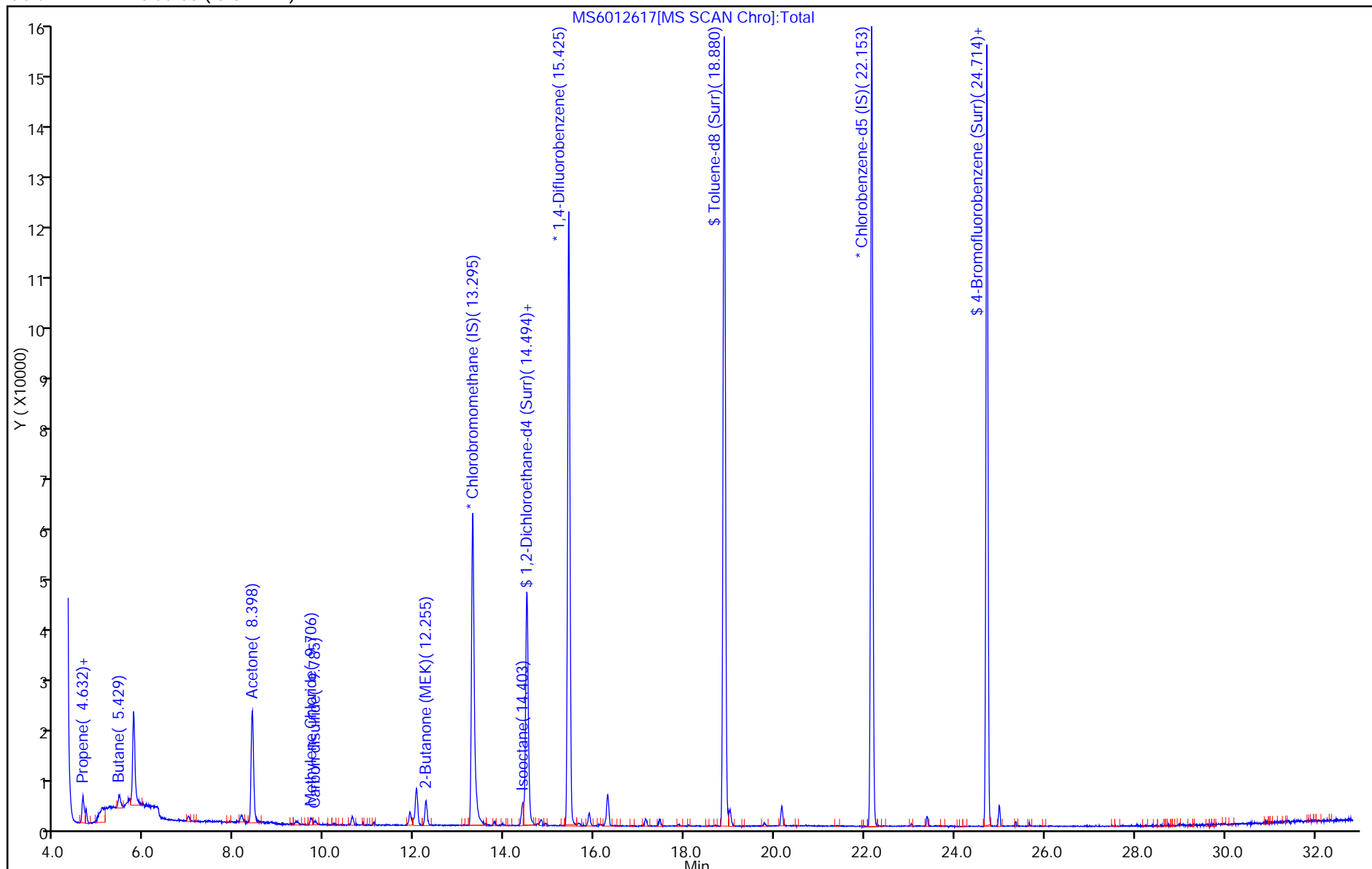
Dil. Factor: 1.0000

ALS Bottle#: 13

Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012617.D

Injection Date: 27-Jan-2018 02:58:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-11

Lab Sample ID: 320-35383-11

Client ID: 34002431

Operator ID: LHS

ALS Bottle#: 13

Worklist Smp#: 17

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

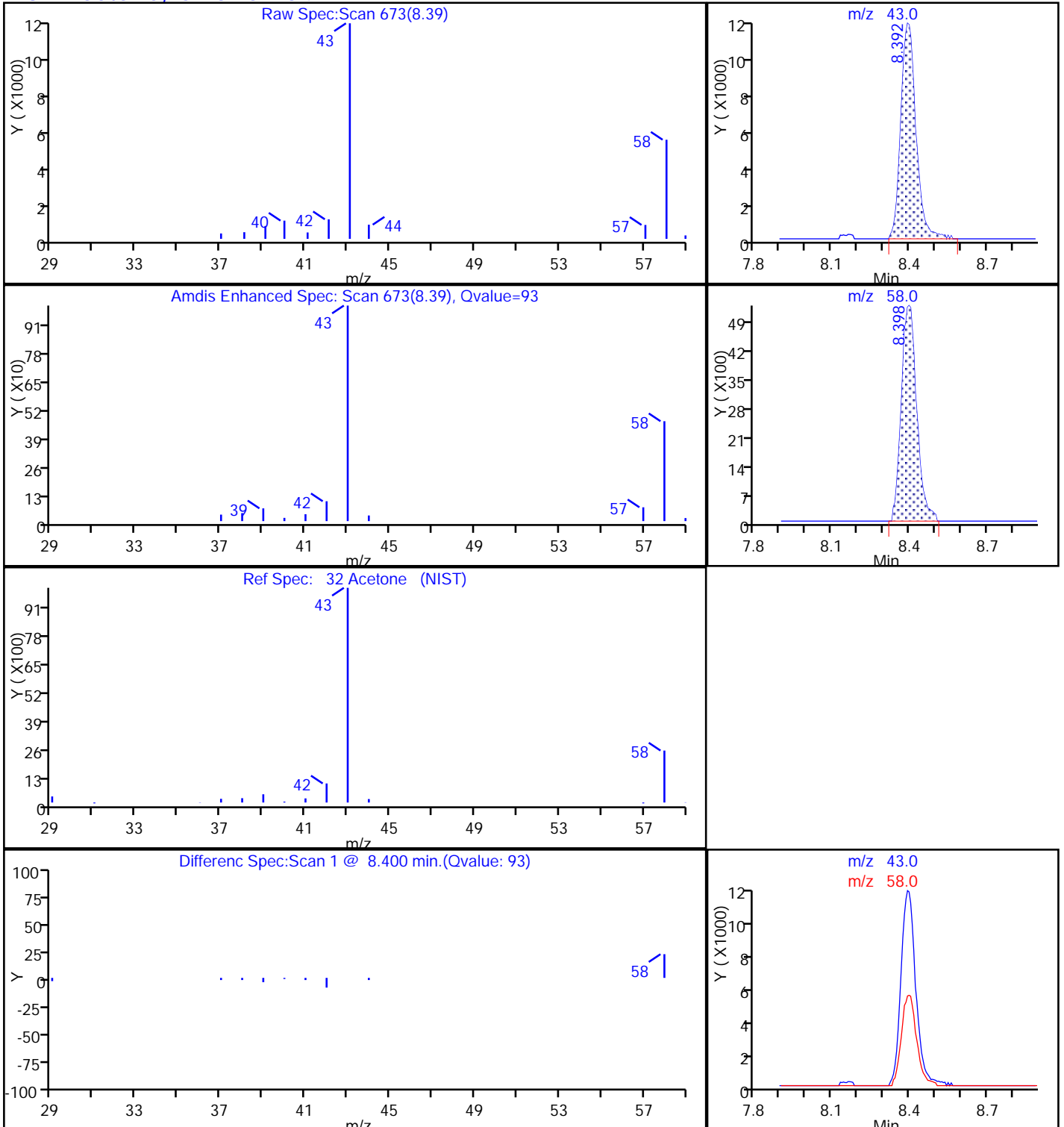
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

32 Acetone, CAS: 67-64-1



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012617.D

Injection Date: 27-Jan-2018 02:58:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-11

Lab Sample ID: 320-35383-11

Client ID: 34002431

Operator ID: LHS

ALS Bottle#: 13

Worklist Smp#: 17

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

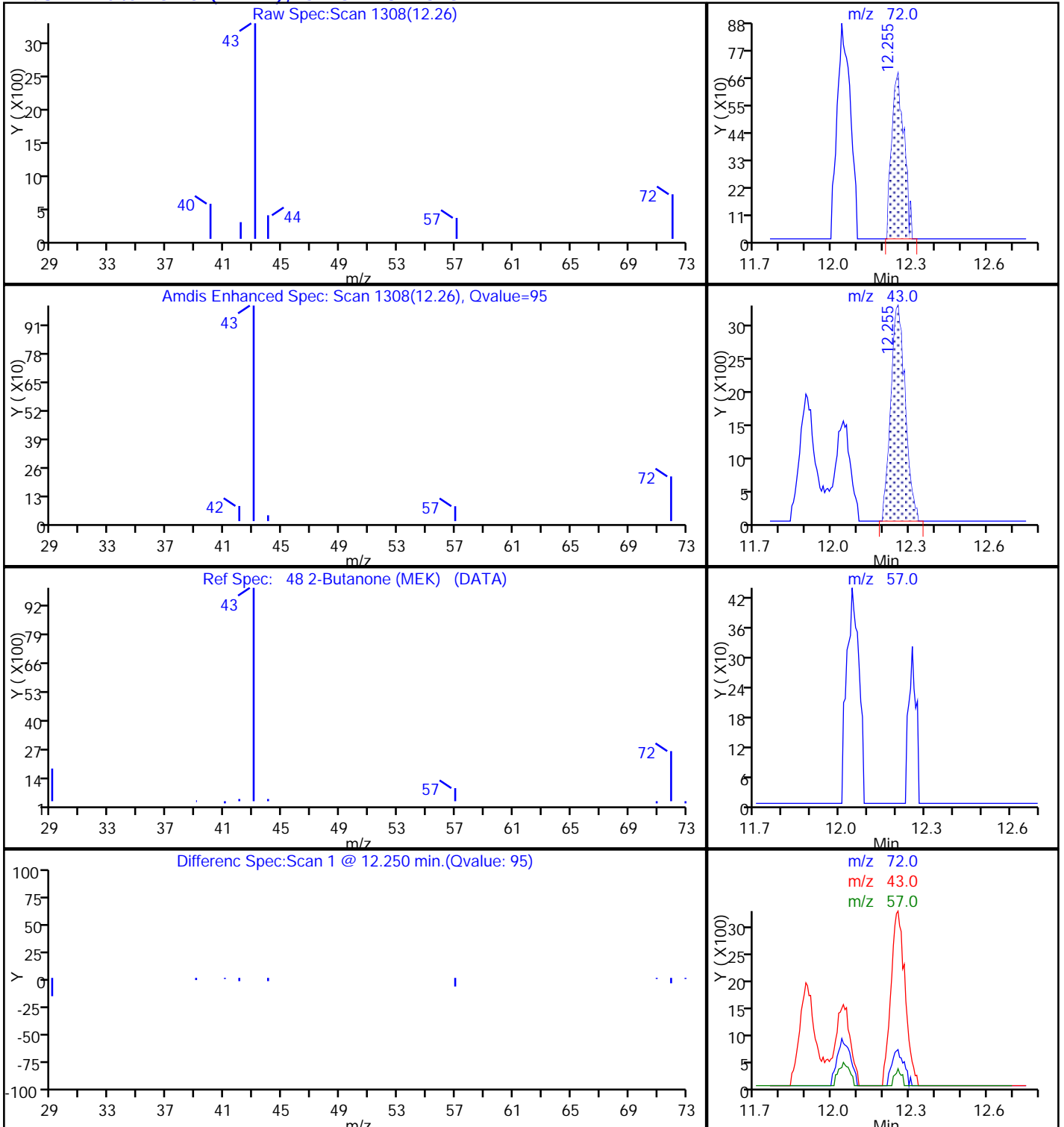
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

48 2-Butanone (MEK), CAS: 78-93-3



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012617.D

Injection Date: 27-Jan-2018 02:58:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-11

Lab Sample ID: 320-35383-11

Client ID: 34002431

Operator ID: LHS

ALS Bottle#: 13

Worklist Smp#: 17

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

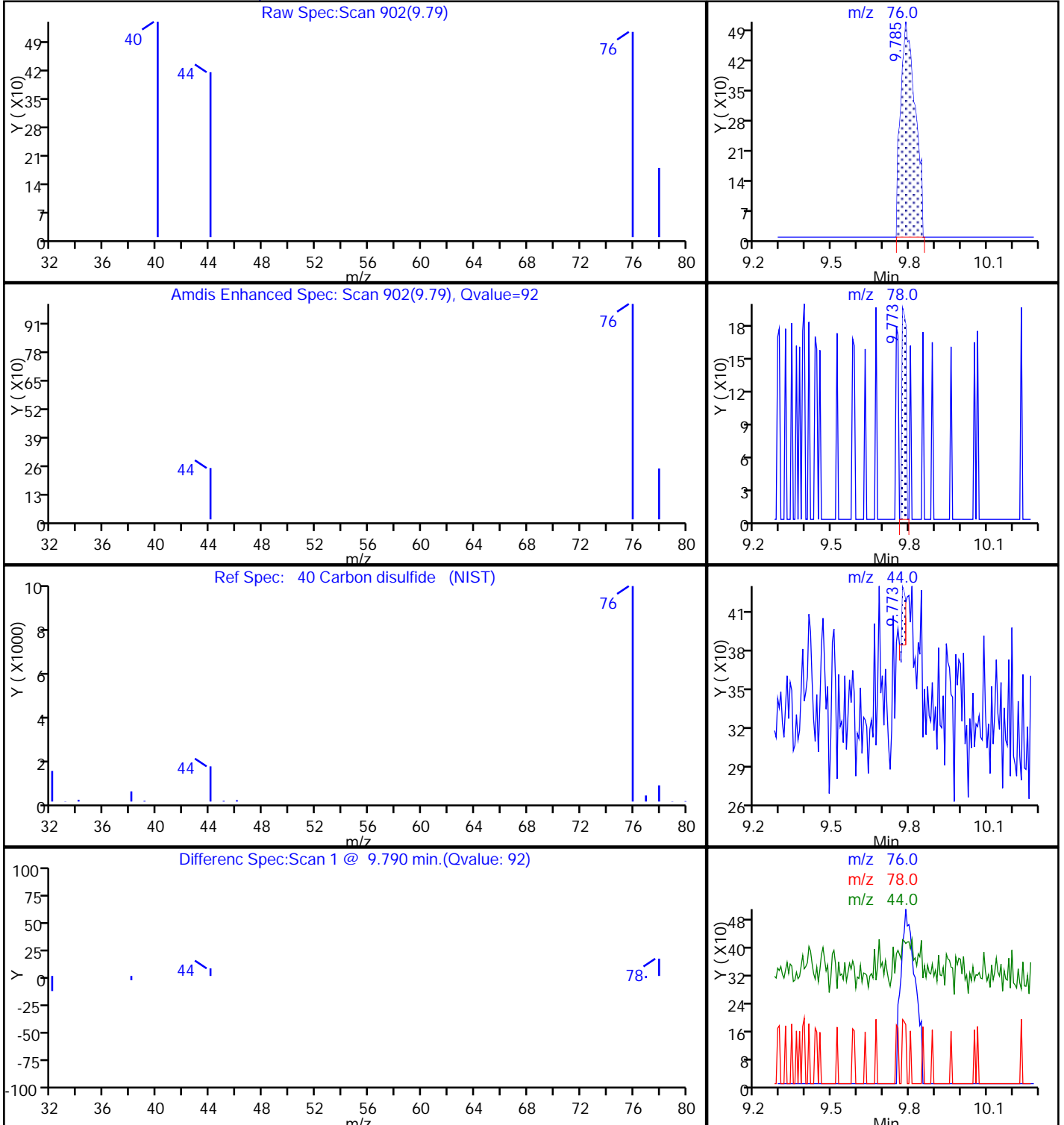
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

40 Carbon disulfide, CAS: 75-15-0



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012617.D

Injection Date: 27-Jan-2018 02:58:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-11

Lab Sample ID: 320-35383-11

Client ID: 34002431

Operator ID: LHS

ALS Bottle#: 13

Worklist Smp#: 17

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

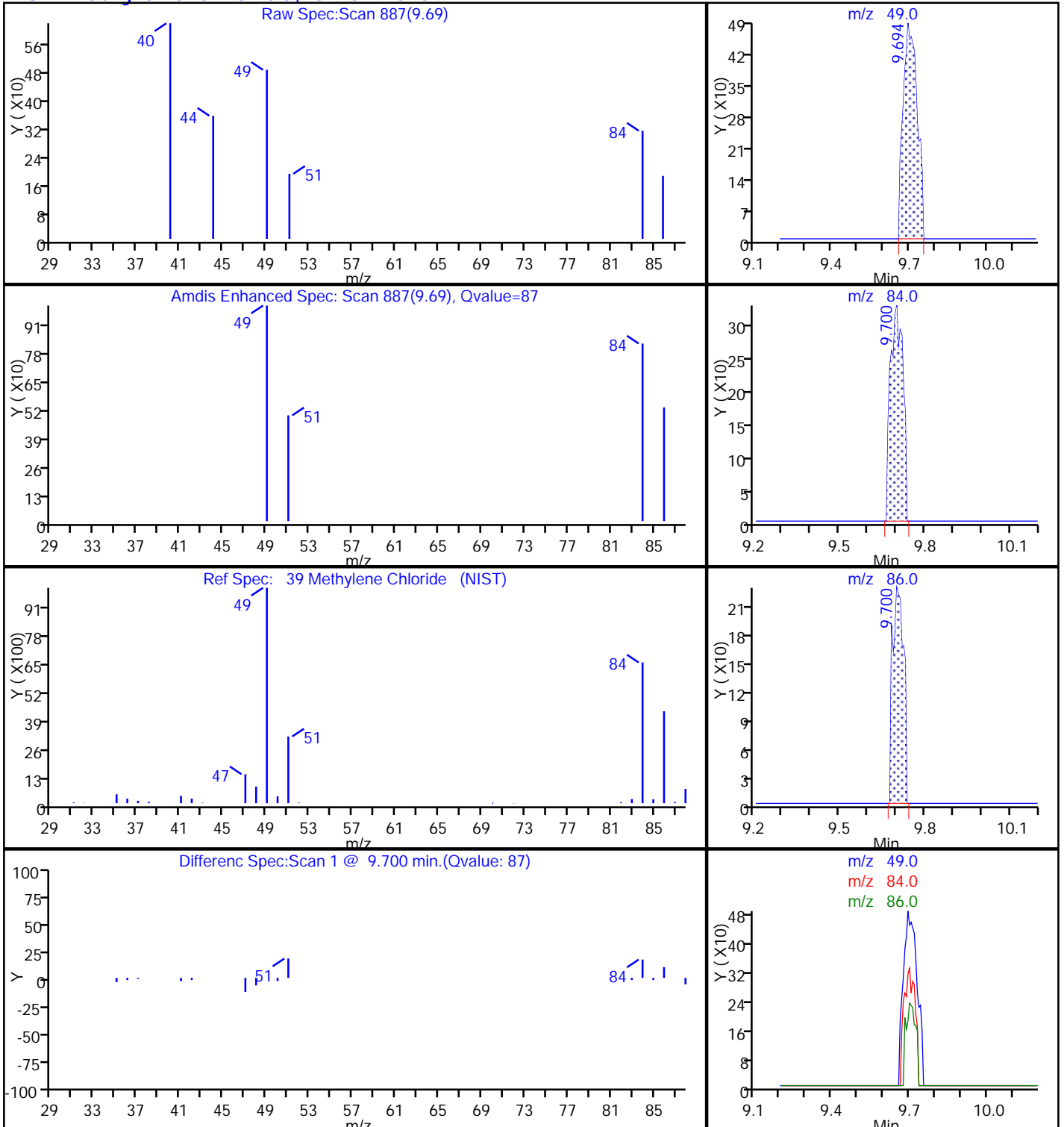
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

39 Methylene Chloride, CAS: 75-09-2





TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012617.D

Injection Date: 27-Jan-2018 02:58:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-11

Lab Sample ID: 320-35383-11

Client ID: 34002431

Operator ID: LHS

ALS Bottle#: 13

Worklist Smp#: 17

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

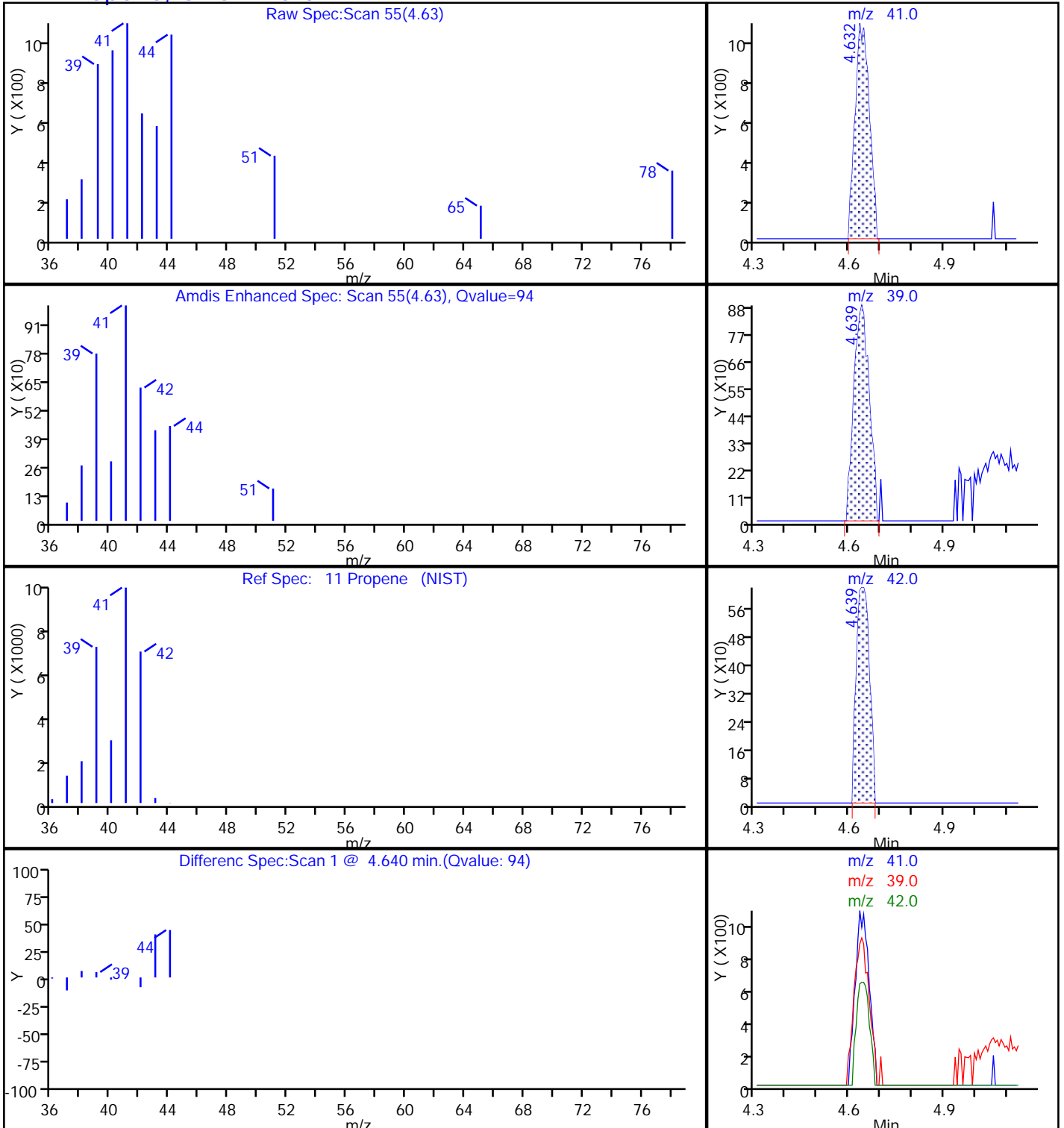
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

11 Propene, CAS: 115-07-1



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012617.D

Injection Date: 27-Jan-2018 02:58:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-11

Lab Sample ID: 320-35383-11

Client ID: 34002431

Operator ID: LHS

ALS Bottle#: 13

Worklist Smp#: 17

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

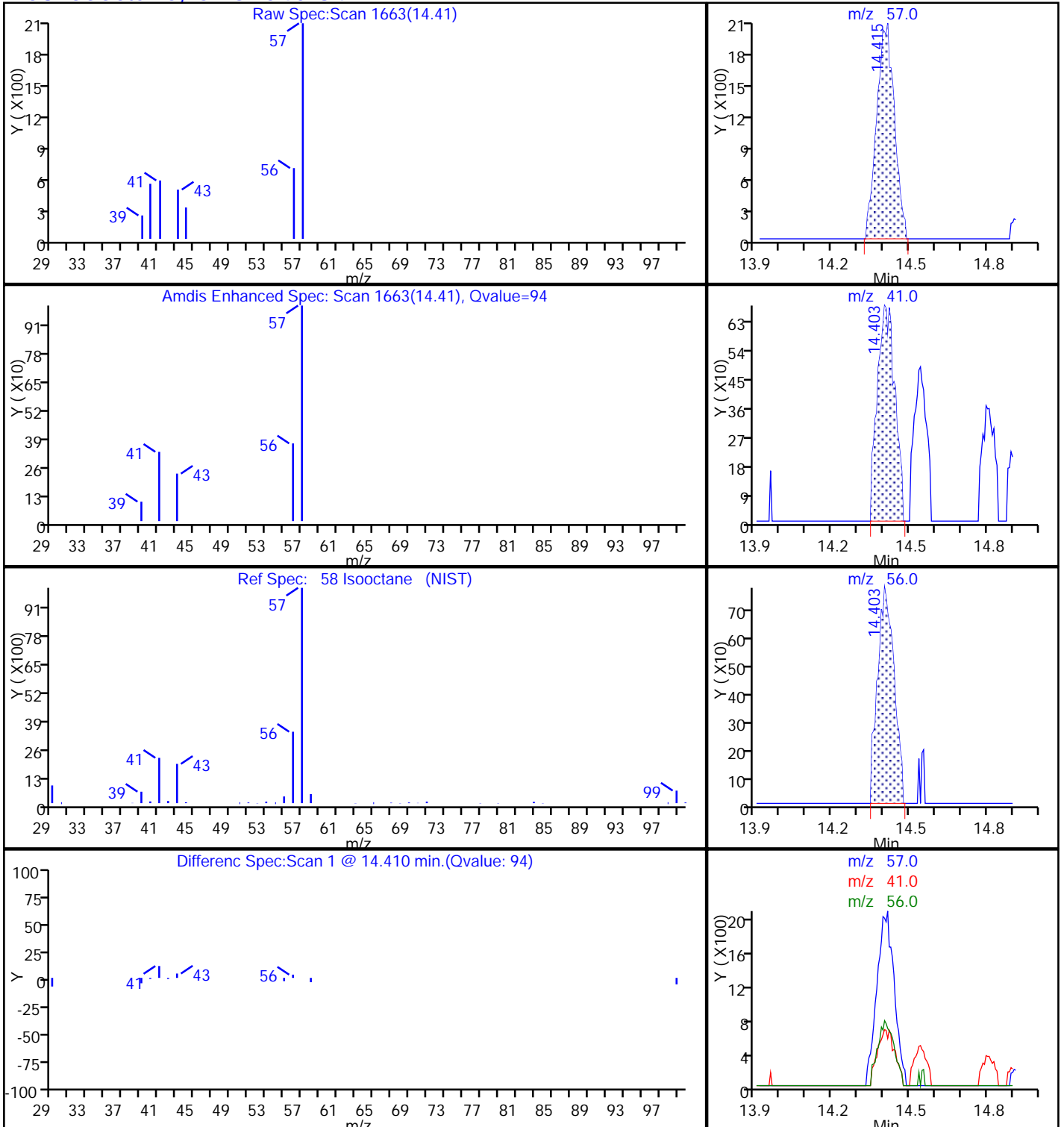
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

58 Isooctane, CAS: 540-84-1

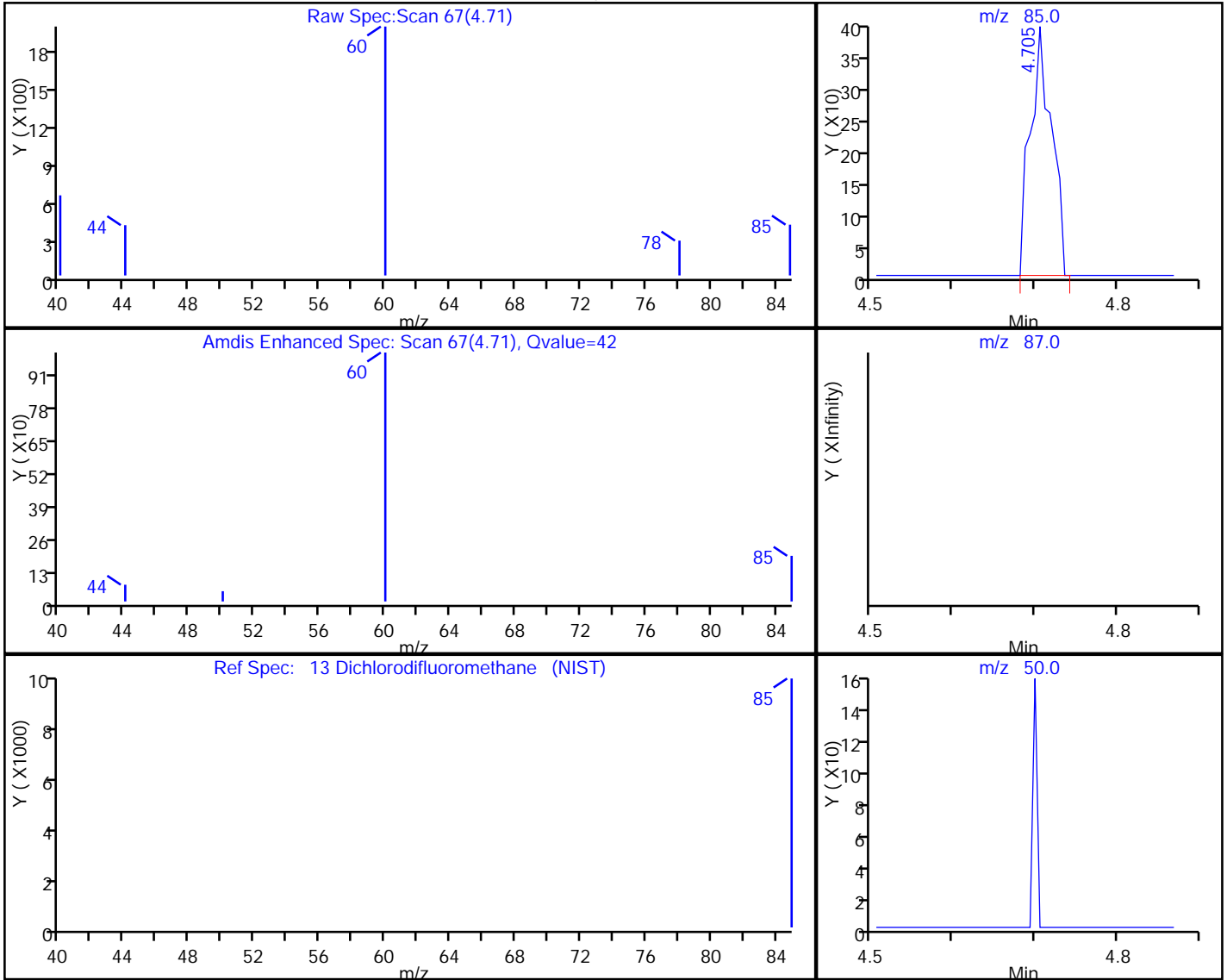


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012617.D  
Injection Date: 27-Jan-2018 02:58:30 Instrument ID: ATMS6  
Lims ID: 320-35383-A-11 Lab Sample ID: 320-35383-11  
Client ID: 34002431  
Operator ID: LHS ALS Bottle#: 13 Worklist Smp#: 17  
Purge Vol: 25.000 mL Dil. Factor: 1.0000  
Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

13 Dichlorodifluoromethane, CAS: 75-71-8

Processing Results



RT	Mass	Response	Amount
4.71	85.00	715	0.026317
4.69	87.00	0	
4.69	50.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:40:18

Audit Action: Marked Compound Undetected

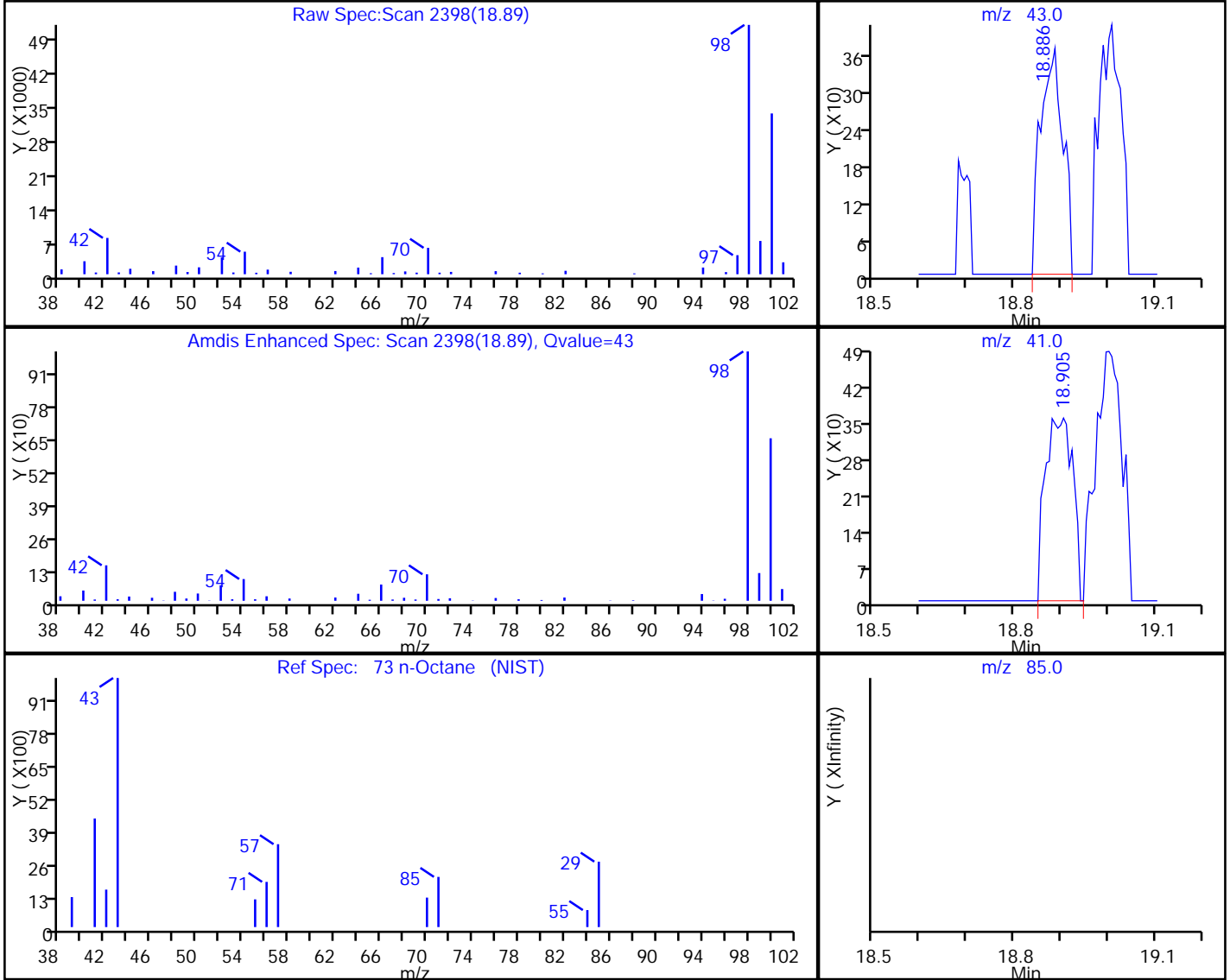
Audit Reason: Invalid Compound ID

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012617.D  
 Injection Date: 27-Jan-2018 02:58:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-11 Lab Sample ID: 320-35383-11  
 Client ID: 34002431  
 Operator ID: LHS ALS Bottle#: 13 Worklist Smp#: 17  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

73 n-Octane, CAS: 111-65-9

Processing Results



RT	Mass	Response	Amount
18.89	43.00	1214	0.035848
18.90	41.00	1465	
18.85	85.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:40:18

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002432 Lab Sample ID: 320-35383-12  
 Matrix: Air Lab File ID: MS6012618.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/27/2018 03:58  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	1.4	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	ND		0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	ND		0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.27
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002432 Lab Sample ID: 320-35383-12  
 Matrix: Air Lab File ID: MS6012618.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/27/2018 03:58  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.12
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	0.093	J	0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	0.16	J	0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.21
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002432 Lab Sample ID: 320-35383-12  
 Matrix: Air Lab File ID: MS6012618.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/27/2018 03:58  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	ND		0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054
1330-20-7	Xylenes, Total	ND		1.2	0.074

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	87		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	102		70-130
2037-26-5	Toluene-d8 (Surr)	100		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012618.D  
 Lims ID: 320-35383-A-12  
 Client ID: 34002432  
 Sample Type: Client  
 Inject. Date: 27-Jan-2018 03:58:30 ALS Bottle#: 14 Worklist Smp#: 18  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35383-A-12  
 Misc. Info.: 500mL  
 Operator ID: LHS Instrument ID: ATMS6  
 Method: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\TO15\_ATMS6.m  
 Limit Group: MSA - TO15 - ICAL  
 Last Update: 29-Jan-2018 12:41:53 Calib Date: 23-Jan-2018 18:39:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS6\20180123-53204.b\MS6012311.D  
 Column 1 : RTX Volatiles ( 0.32 mm) Det: MS SCAN  
 Process Host: XAWRK028

First Level Reviewer: phanthasena

Date: 29-Jan-2018 12:41:53

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	13.295	13.289	0.006	98	47197	4.00	
* 2 1,4-Difluorobenzene	114	15.431	15.431	0.000	95	185910	4.00	
* 3 Chlorobenzene-d5 (IS)	117	22.159	22.153	0.006	87	165556	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	14.500	14.500	0.000	39	60247	4.06	
\$ 5 Toluene-d8 (Surr)	100	18.880	18.880	0.000	99	125091	4.01	
\$ 6 4-Bromofluorobenzene (Surr	95	24.714	24.714	0.000	92	89268	3.49	
11 Propene	41	4.638	4.614	0.024	88	1665	0.1611	
17 Butane	43	5.460	5.450	0.012	46	664	0.0274	
32 Acetone	43	8.416	8.323	0.097	92	26733	1.40	
39 Methylene Chloride	49	9.706	9.694	0.012	93	1336	0.0934	
48 2-Butanone (MEK)	72	12.261	12.206	0.061	94	1089	0.1933	

**Reagents:**

VAMSIS20\_00098

Amount Added: 50.00

Units: mL

Run Reagent



Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012618.D

Injection Date: 27-Jan-2018 03:58:30

Instrument ID: ATMS6

Operator ID: LHS

Lims ID: 320-35383-A-12

Lab Sample ID: 320-35383-12

Worklist Smp#: 18

Client ID: 34002432

Purge Vol: 25.000 mL

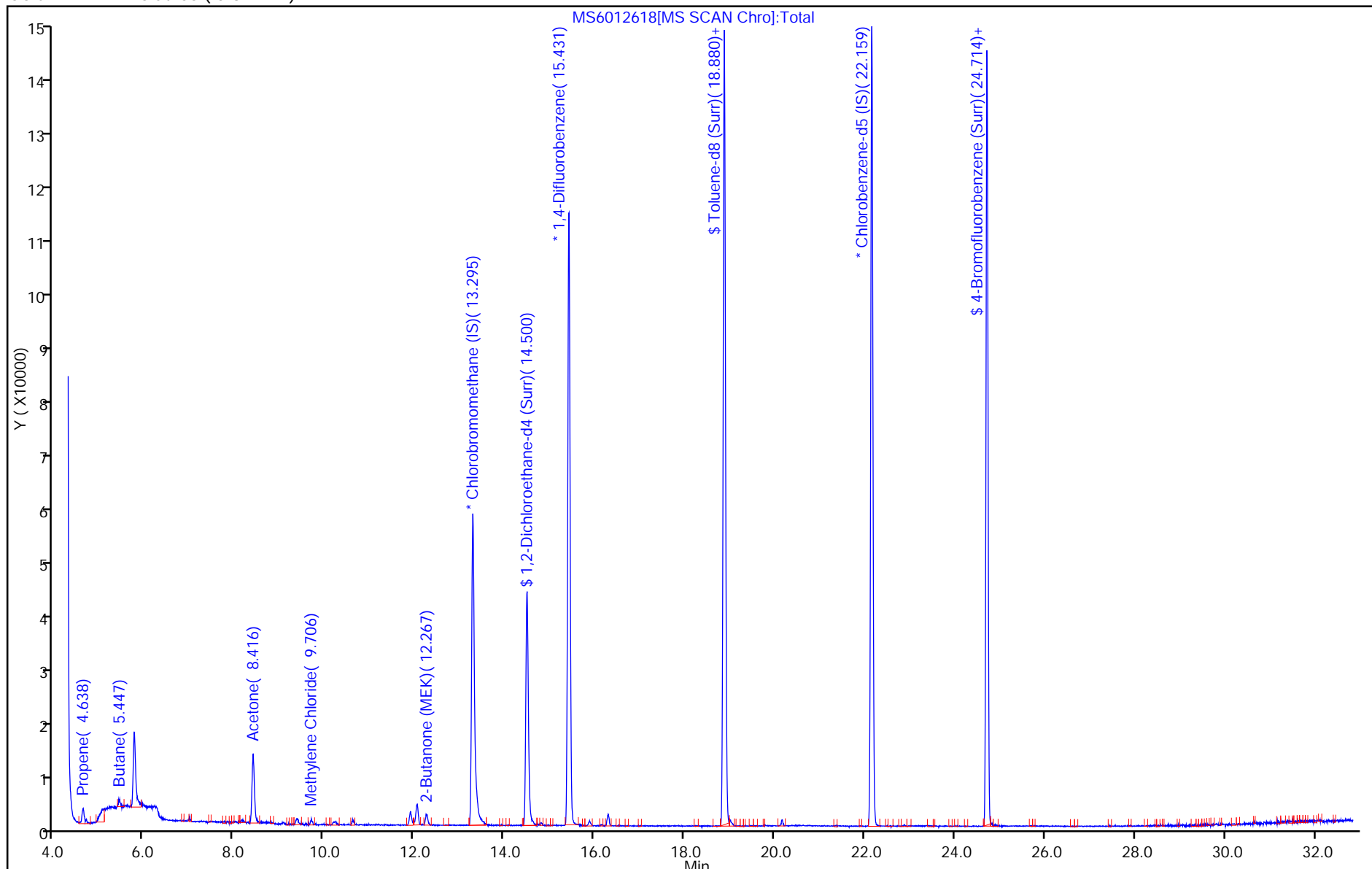
Dil. Factor: 1.0000

ALS Bottle#: 14

Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012618.D

Injection Date: 27-Jan-2018 03:58:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-12

Lab Sample ID: 320-35383-12

Client ID: 34002432

Operator ID: LHS

ALS Bottle#: 14 Worklist Smp#: 18

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

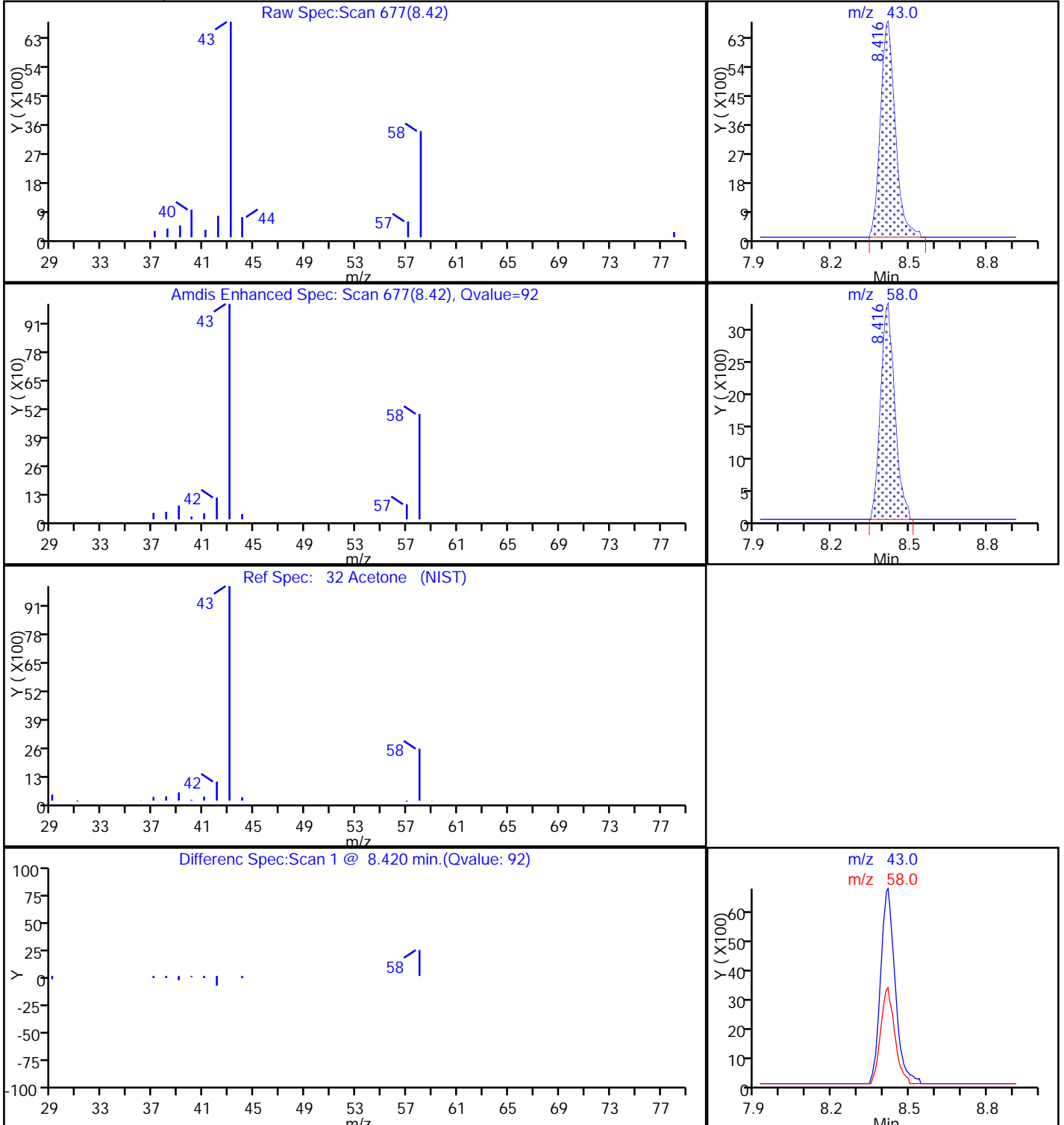
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

32 Acetone, CAS: 67-64-1



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012618.D

Injection Date: 27-Jan-2018 03:58:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-12

Lab Sample ID: 320-35383-12

Client ID: 34002432

Operator ID: LHS

ALS Bottle#: 14 Worklist Smp#: 18

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

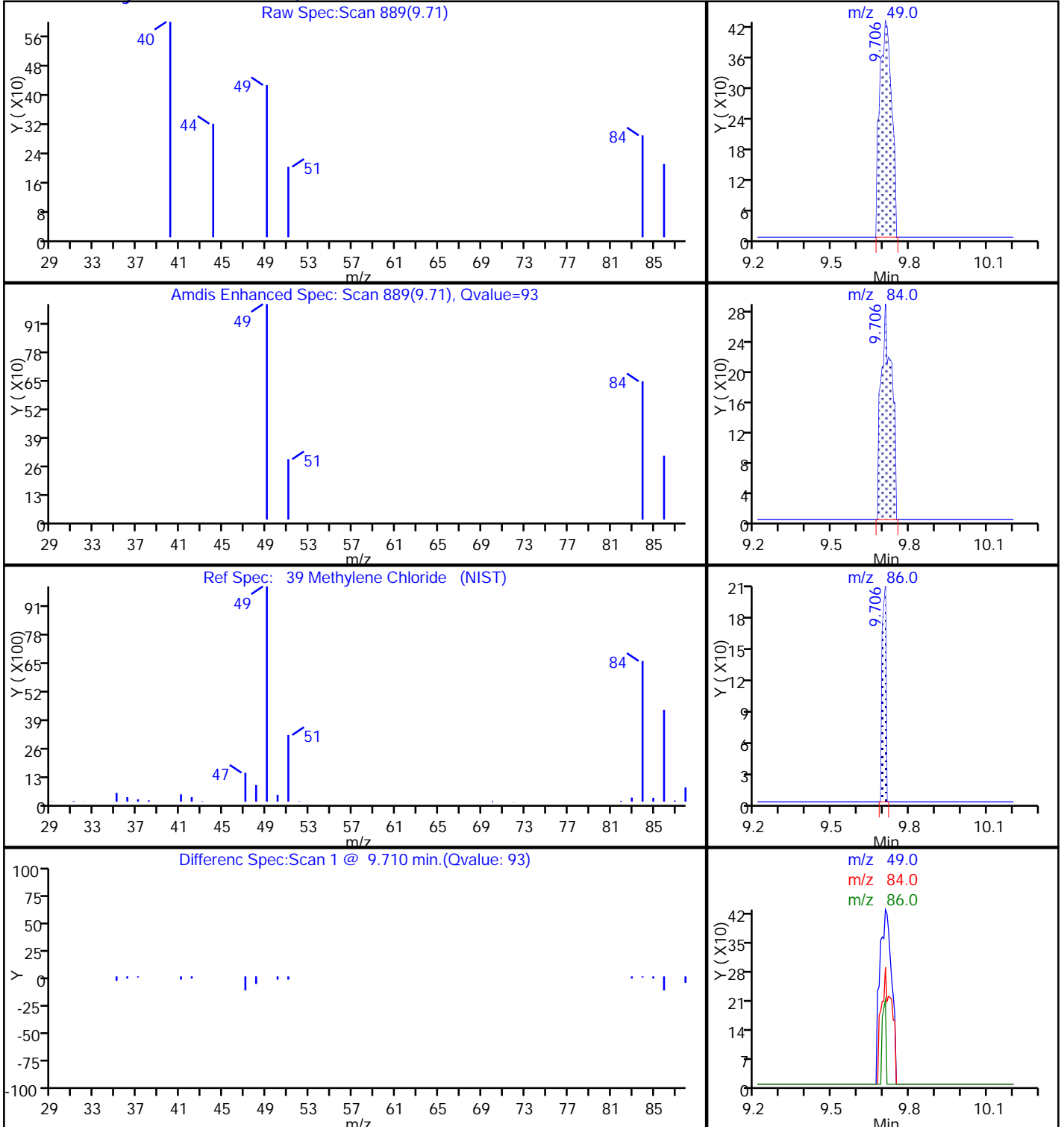
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)

Detector: MS SCAN

39 Methylene Chloride, CAS: 75-09-2



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012618.D

Injection Date: 27-Jan-2018 03:58:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-12

Lab Sample ID: 320-35383-12

Client ID: 34002432

Operator ID: LHS

ALS Bottle#: 14 Worklist Smp#: 18

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

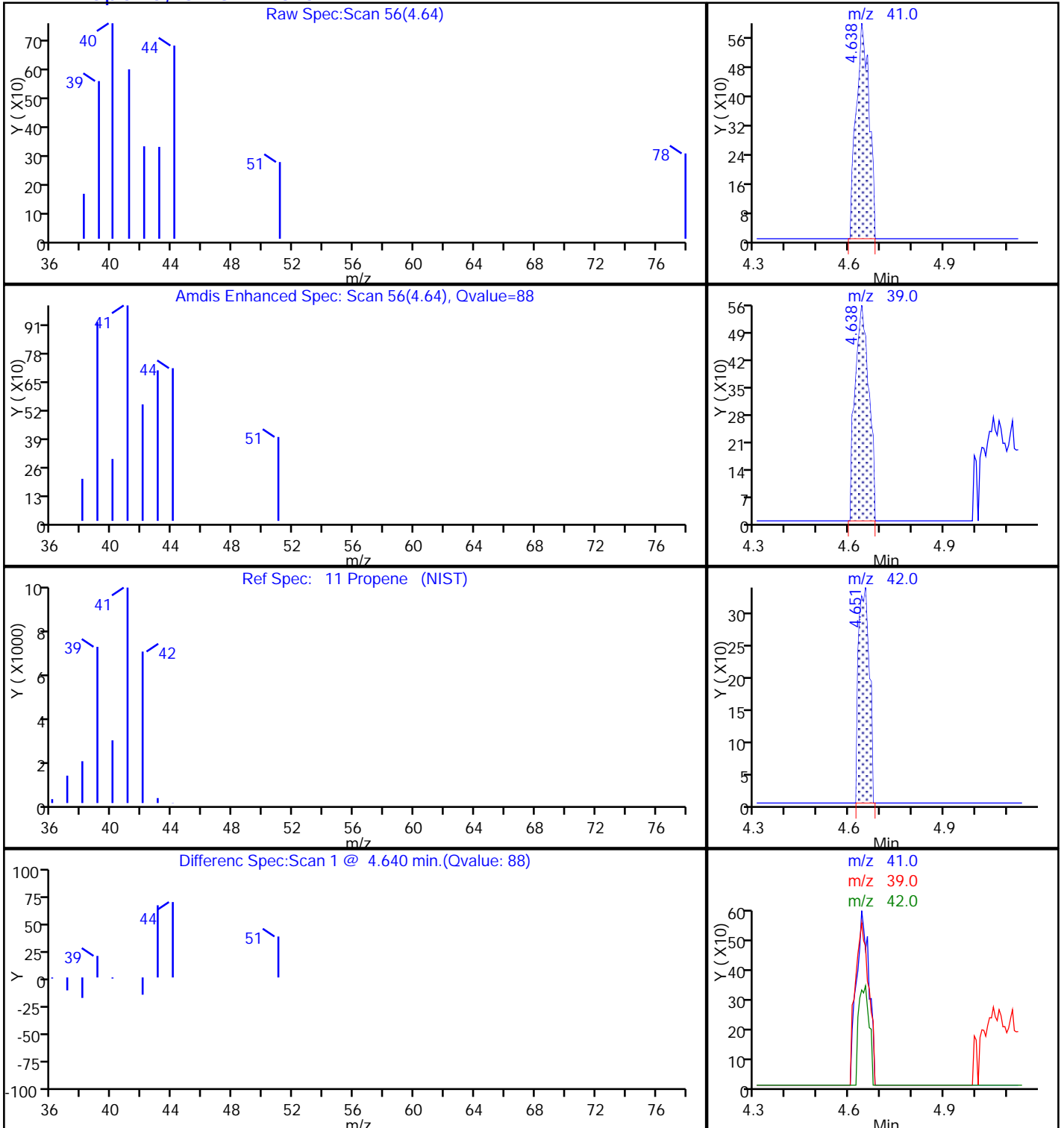
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

11 Propene, CAS: 115-07-1

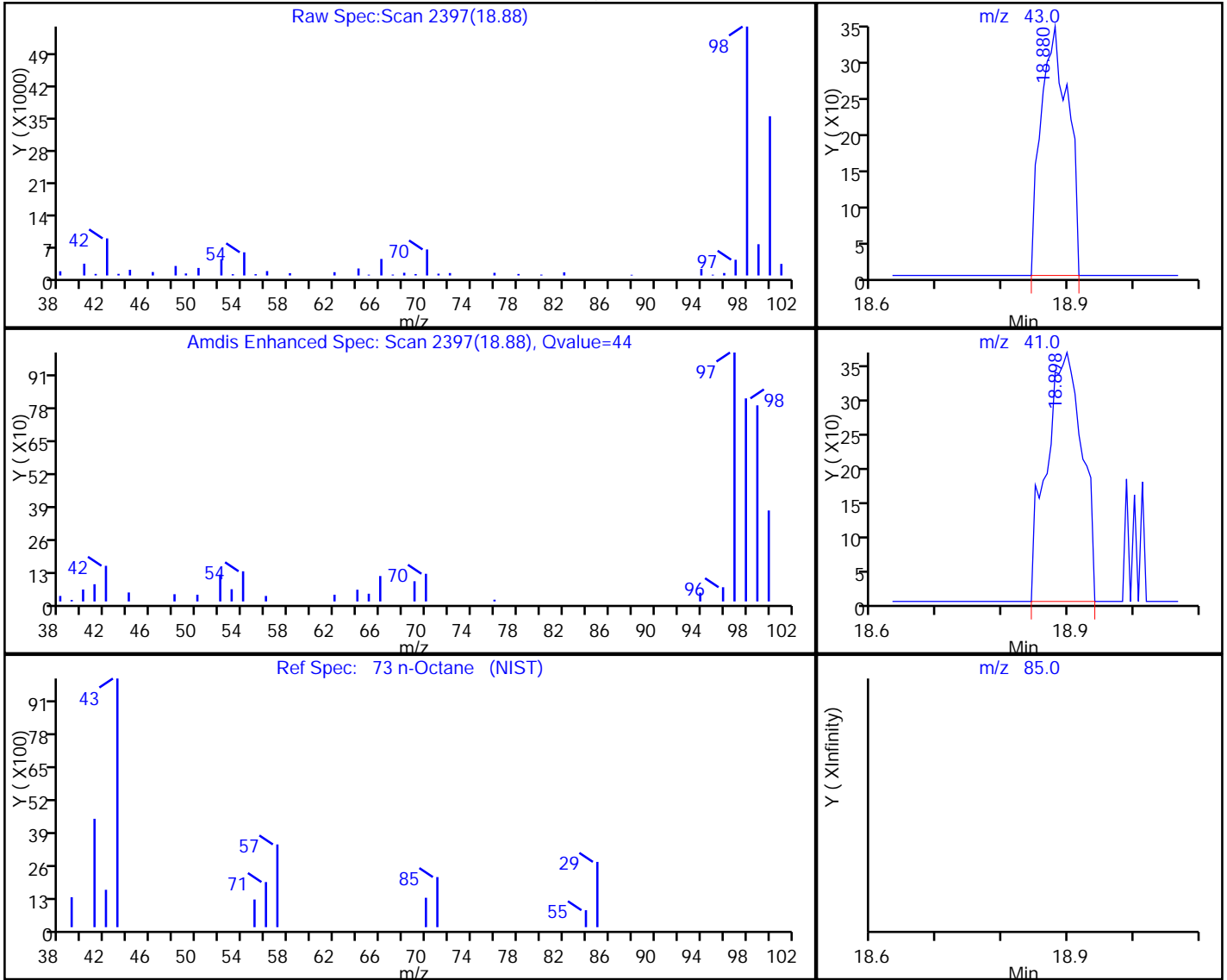


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012618.D  
 Injection Date: 27-Jan-2018 03:58:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-12 Lab Sample ID: 320-35383-12  
 Client ID: 34002432  
 Operator ID: LHS ALS Bottle#: 14 Worklist Smp#: 18  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

73 n-Octane, CAS: 111-65-9

Processing Results



RT	Mass	Response	Amount
18.88	43.00	1004	0.029766
18.90	41.00	1374	
18.85	85.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:41:53

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002433 Lab Sample ID: 320-35383-13  
 Matrix: Air Lab File ID: MS6012620.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/27/2018 05:55  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	1.9	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	0.30	J	0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	0.084	J	0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.27
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002433 Lab Sample ID: 320-35383-13  
 Matrix: Air Lab File ID: MS6012620.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/27/2018 05:55  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.12
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	0.11	J	0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	0.26	J	0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.21
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002433 Lab Sample ID: 320-35383-13  
 Matrix: Air Lab File ID: MS6012620.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/27/2018 05:55  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205758 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	ND		0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054
1330-20-7	Xylenes, Total	ND		1.2	0.074

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	89		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	102		70-130
2037-26-5	Toluene-d8 (Surr)	99		70-130



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012620.D  
 Lims ID: 320-35383-A-13  
 Client ID: 34002433  
 Sample Type: Client  
 Inject. Date: 27-Jan-2018 05:55:30 ALS Bottle#: 2 Worklist Smp#: 20  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35383-A-13  
 Misc. Info.: 500mL  
 Operator ID: LHS Instrument ID: ATMS6  
 Method: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\TO15\_ATMS6.m  
 Limit Group: MSA - TO15 - ICAL  
 Last Update: 29-Jan-2018 12:43:42 Calib Date: 23-Jan-2018 18:39:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS6\20180123-53204.b\MS6012311.D  
 Column 1 : RTX Volatiles ( 0.32 mm) Det: MS SCAN  
 Process Host: XAWRK028

First Level Reviewer: phanthasena

Date: 29-Jan-2018 12:43:42

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	13.289	13.289	0.000	98	46486	4.00	
* 2 1,4-Difluorobenzene	114	15.431	15.431	0.000	94	185363	4.00	
* 3 Chlorobenzene-d5 (IS)	117	22.159	22.153	0.006	87	165810	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	14.494	14.500	-0.006	39	60450	4.09	
\$ 5 Toluene-d8 (Surr)	100	18.880	18.880	0.000	99	123853	3.98	
\$ 6 4-Bromofluorobenzene (Surr	95	24.714	24.714	0.000	92	91601	3.57	
11 Propene	41	4.639	4.614	0.025	88	2605	0.2559	
16 Chloromethane	50	5.235	5.207	0.031	94	527	0.0447	
17 Butane	43	5.460	5.450	0.012	74	873	0.0366	
32 Acetone	43	8.404	8.323	0.085	92	36167	1.92	
39 Methylene Chloride	49	9.706	9.694	0.012	26	1507	0.1069	
40 Carbon disulfide	76	9.804	9.777	0.031	93	1829	0.0844	
48 2-Butanone (MEK)	72	12.255	12.206	0.055	95	1669	0.3008	

**Reagents:**

VAMISIS20\_00098 Amount Added: 50.00 Units: mL Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012620.D

Injection Date: 27-Jan-2018 05:55:30

Instrument ID: ATMS6

Operator ID: LHS

Lims ID: 320-35383-A-13

Lab Sample ID: 320-35383-13

Worklist Smp#: 20

Client ID: 34002433

Purge Vol: 25.000 mL

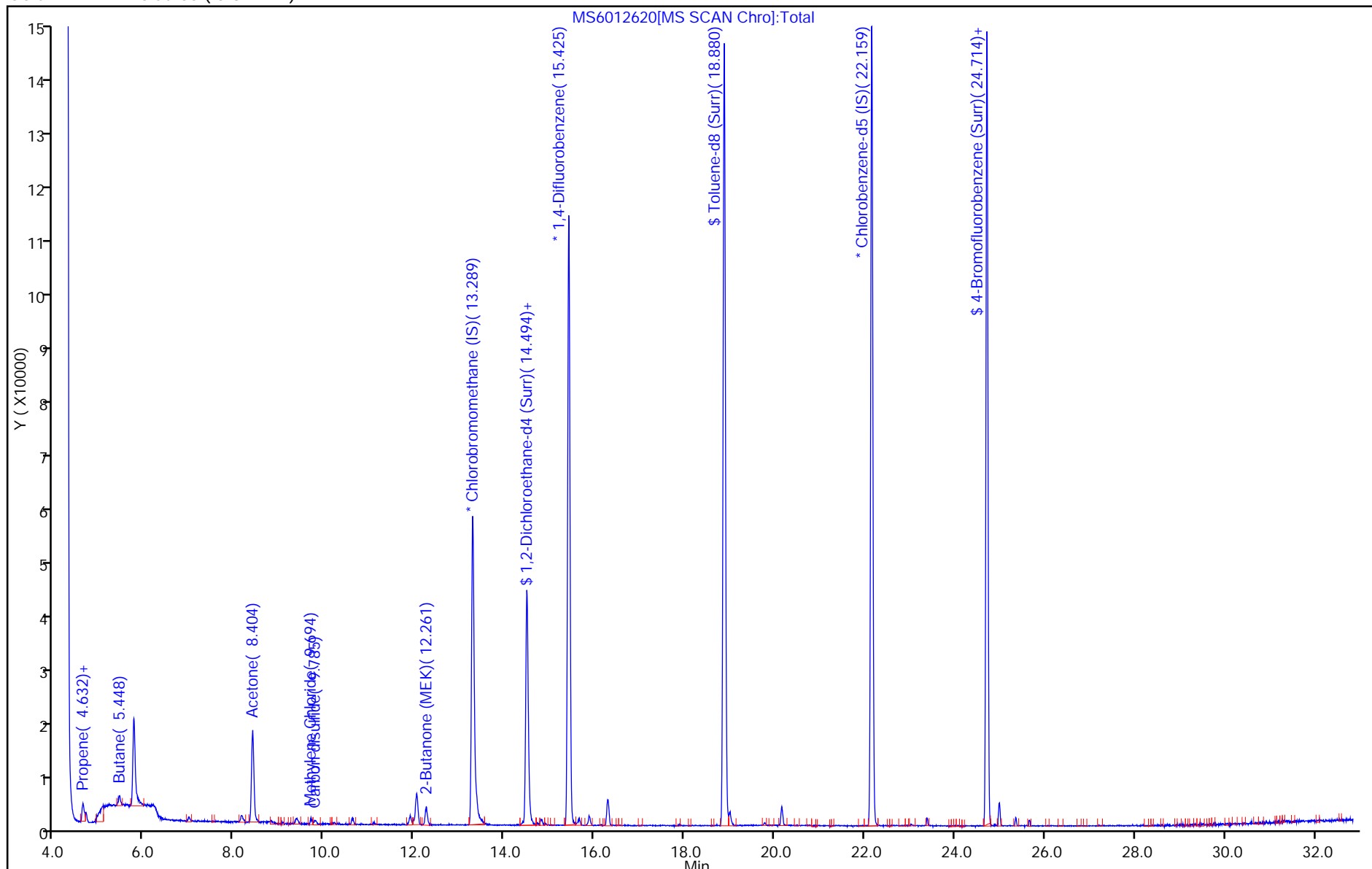
Dil. Factor: 1.0000

ALS Bottle#: 2

Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012620.D

Injection Date: 27-Jan-2018 05:55:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-13

Lab Sample ID: 320-35383-13

Client ID: 34002433

Operator ID: LHS

ALS Bottle#: 2 Worklist Smp#: 20

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

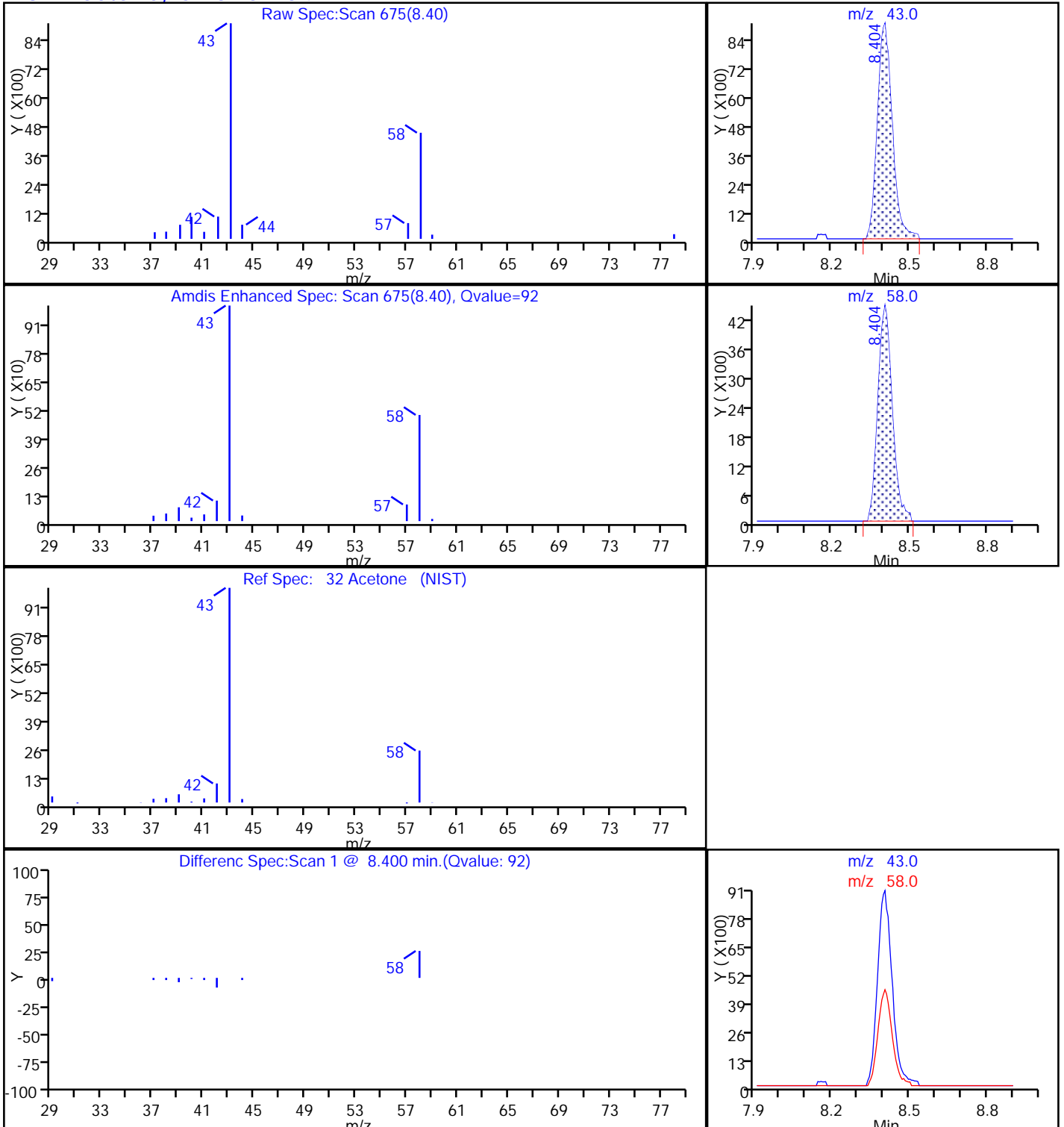
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

32 Acetone, CAS: 67-64-1



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012620.D

Injection Date: 27-Jan-2018 05:55:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-13

Lab Sample ID: 320-35383-13

Client ID: 34002433

Operator ID: LHS

ALS Bottle#: 2 Worklist Smp#: 20

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

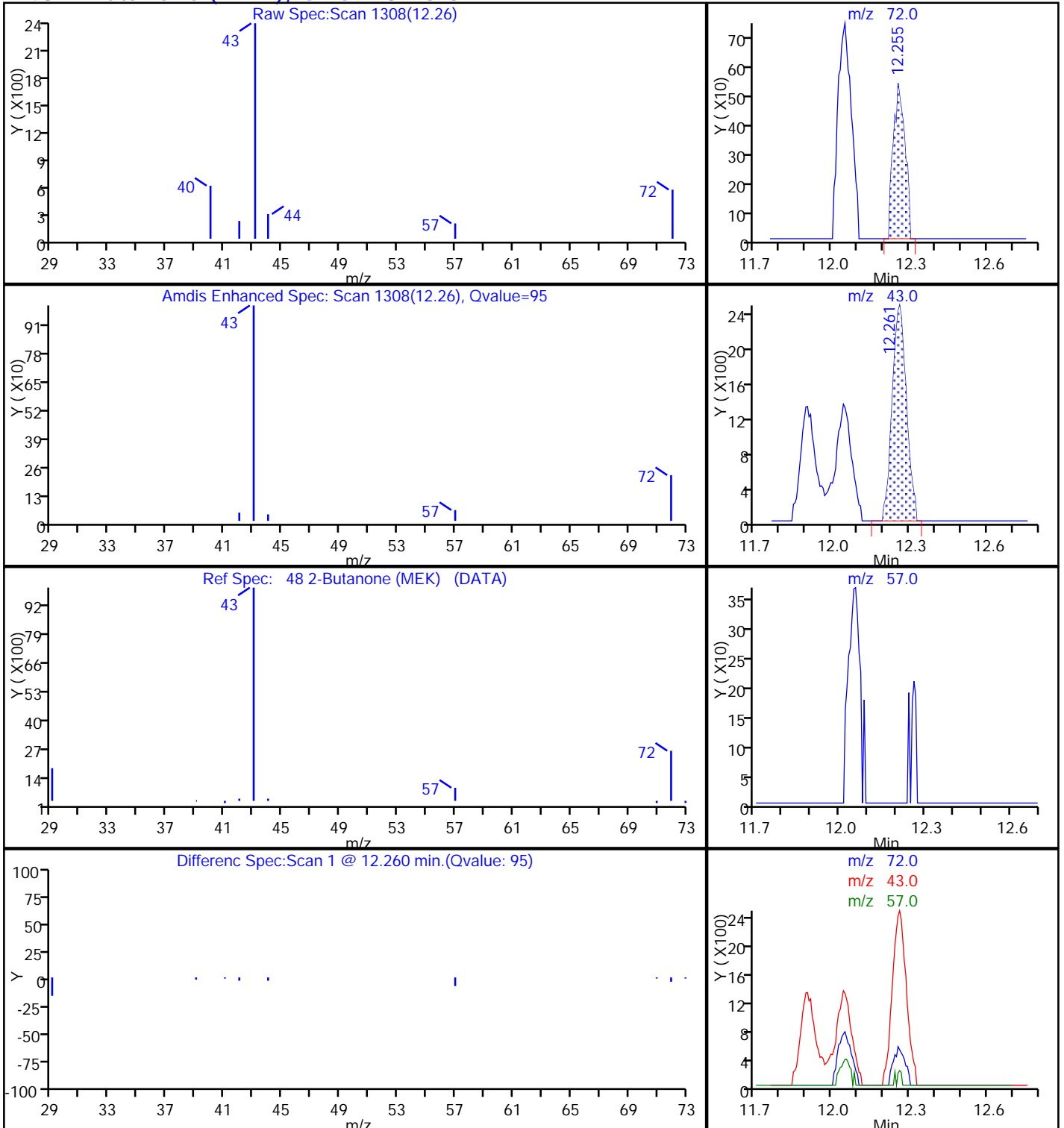
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

48 2-Butanone (MEK), CAS: 78-93-3



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012620.D

Injection Date: 27-Jan-2018 05:55:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-13

Lab Sample ID: 320-35383-13

Client ID: 34002433

Operator ID: LHS

ALS Bottle#: 2 Worklist Smp#: 20

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

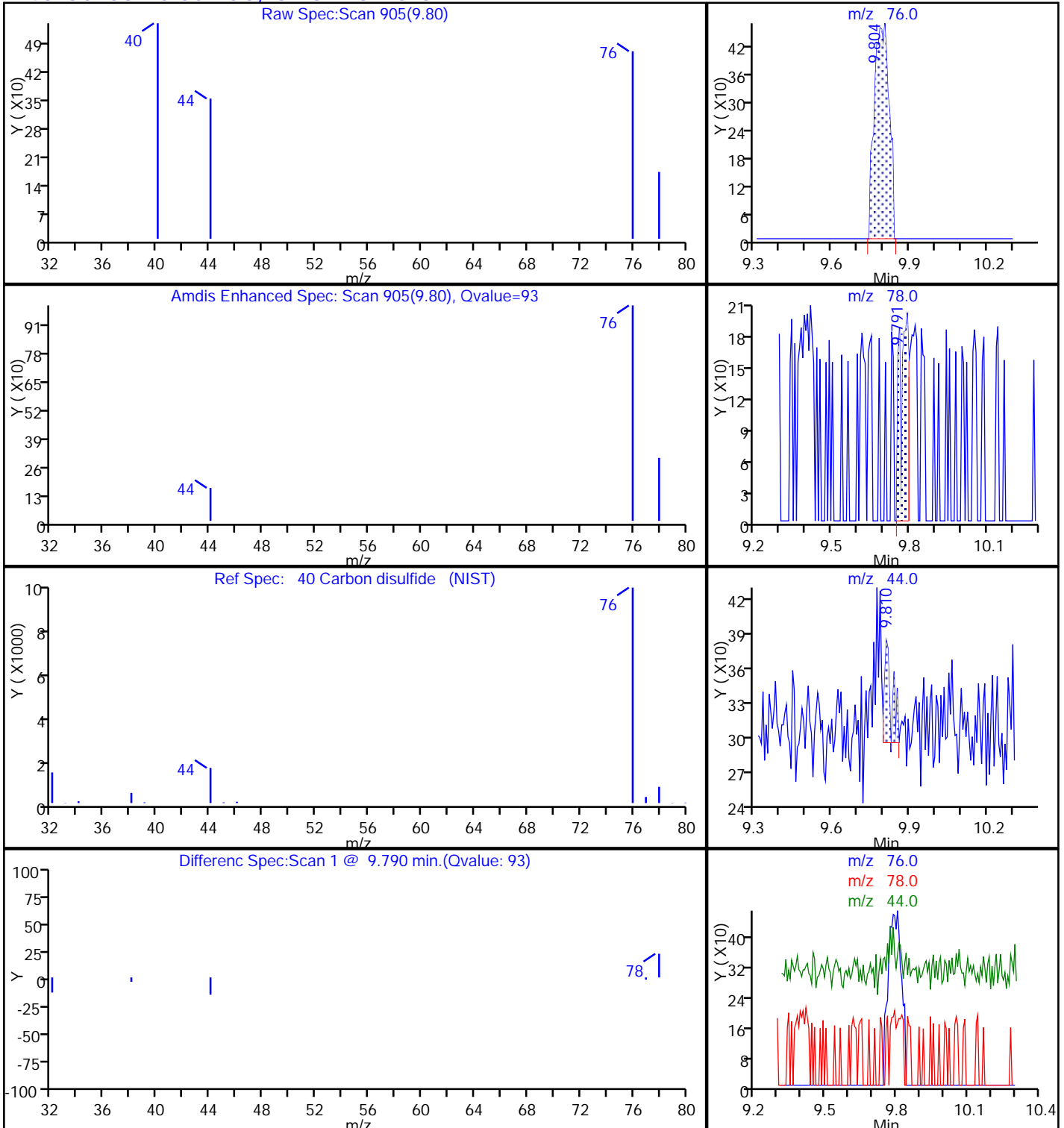
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

40 Carbon disulfide, CAS: 75-15-0



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012620.D

Injection Date: 27-Jan-2018 05:55:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-13

Lab Sample ID: 320-35383-13

Client ID: 34002433

Operator ID: LHS

ALS Bottle#: 2 Worklist Smp#: 20

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

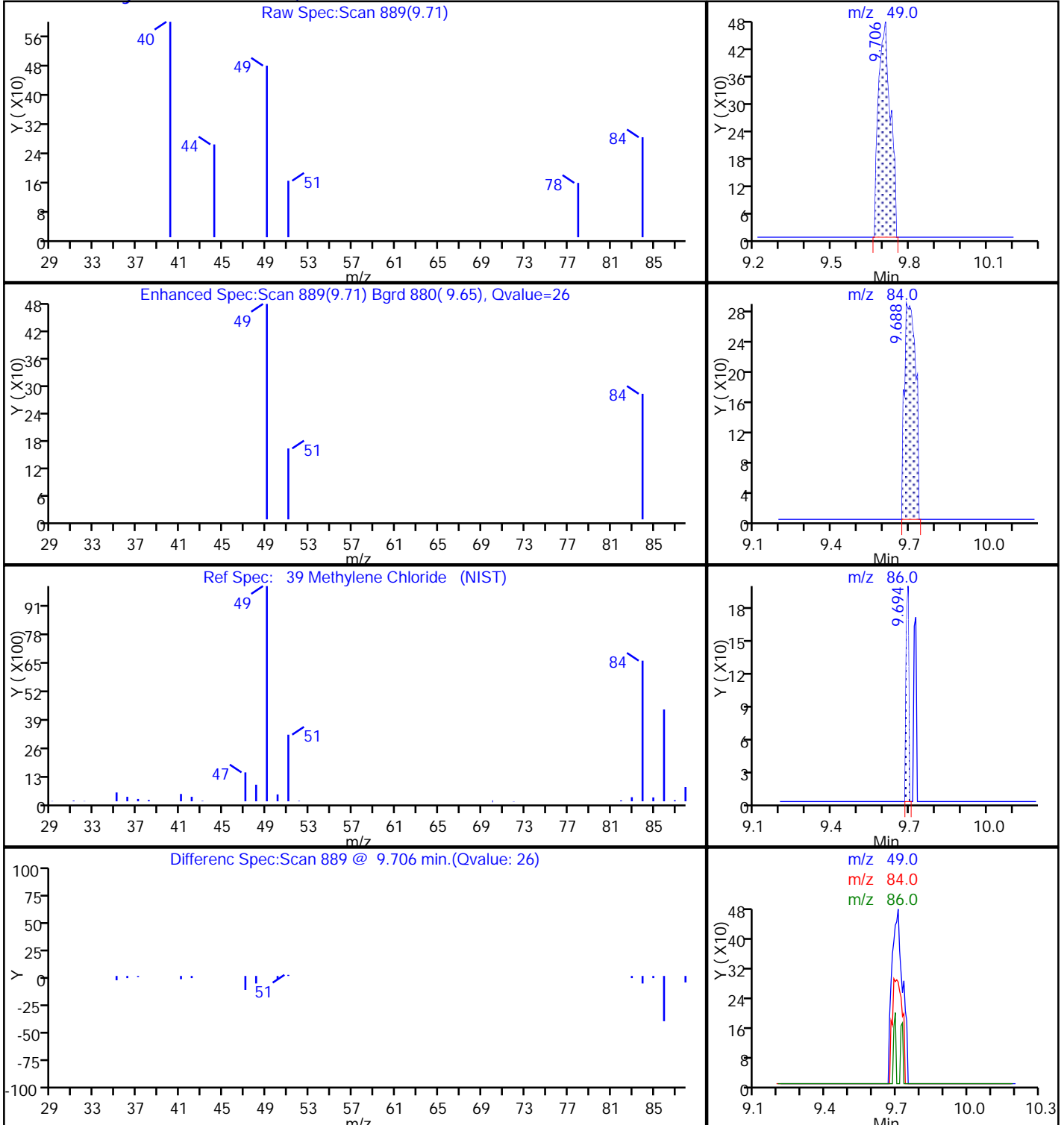
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

39 Methylene Chloride, CAS: 75-09-2



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012620.D

Injection Date: 27-Jan-2018 05:55:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-13

Lab Sample ID: 320-35383-13

Client ID: 34002433

Operator ID: LHS

ALS Bottle#: 2 Worklist Smp#: 20

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

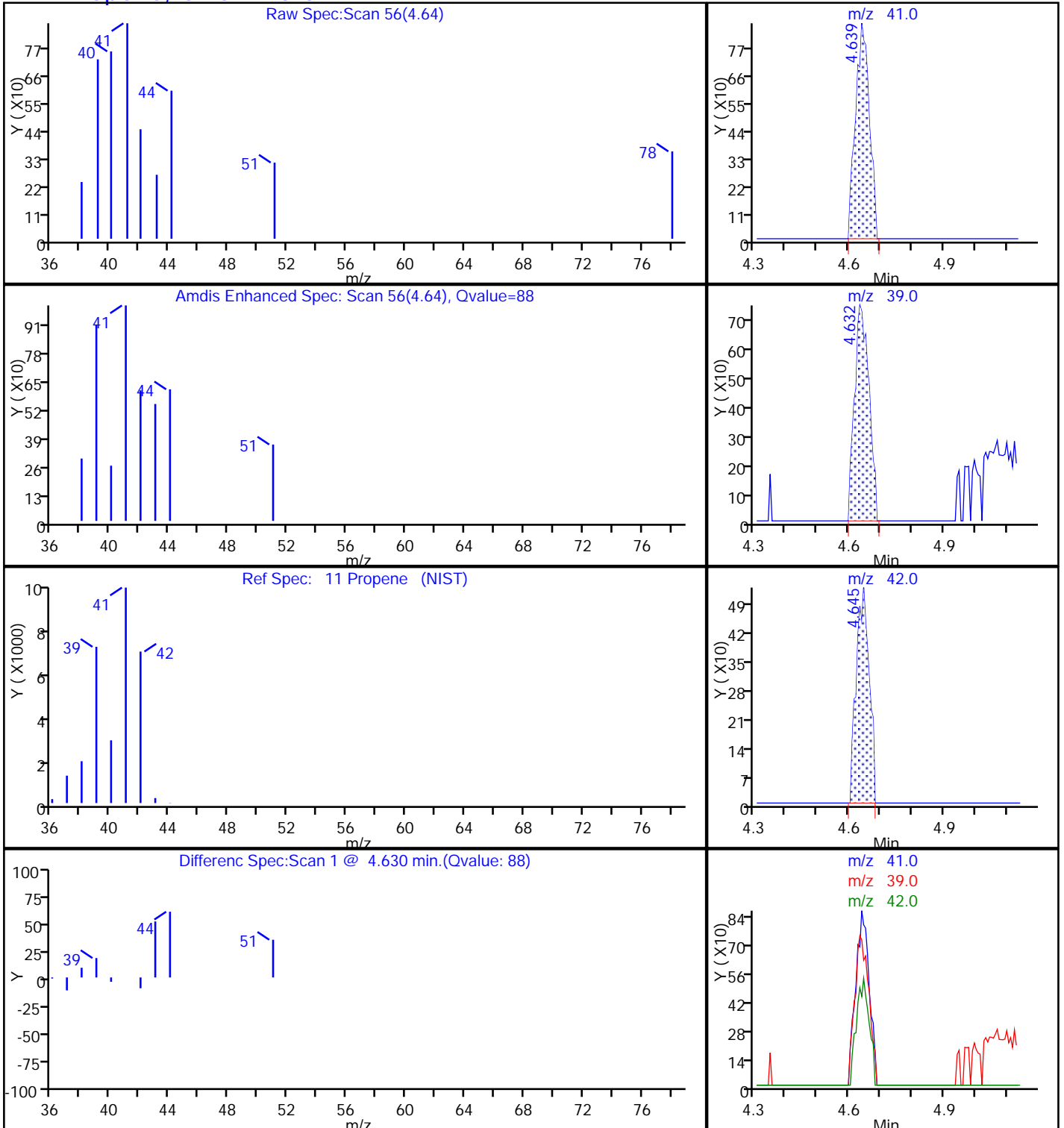
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

11 Propene, CAS: 115-07-1

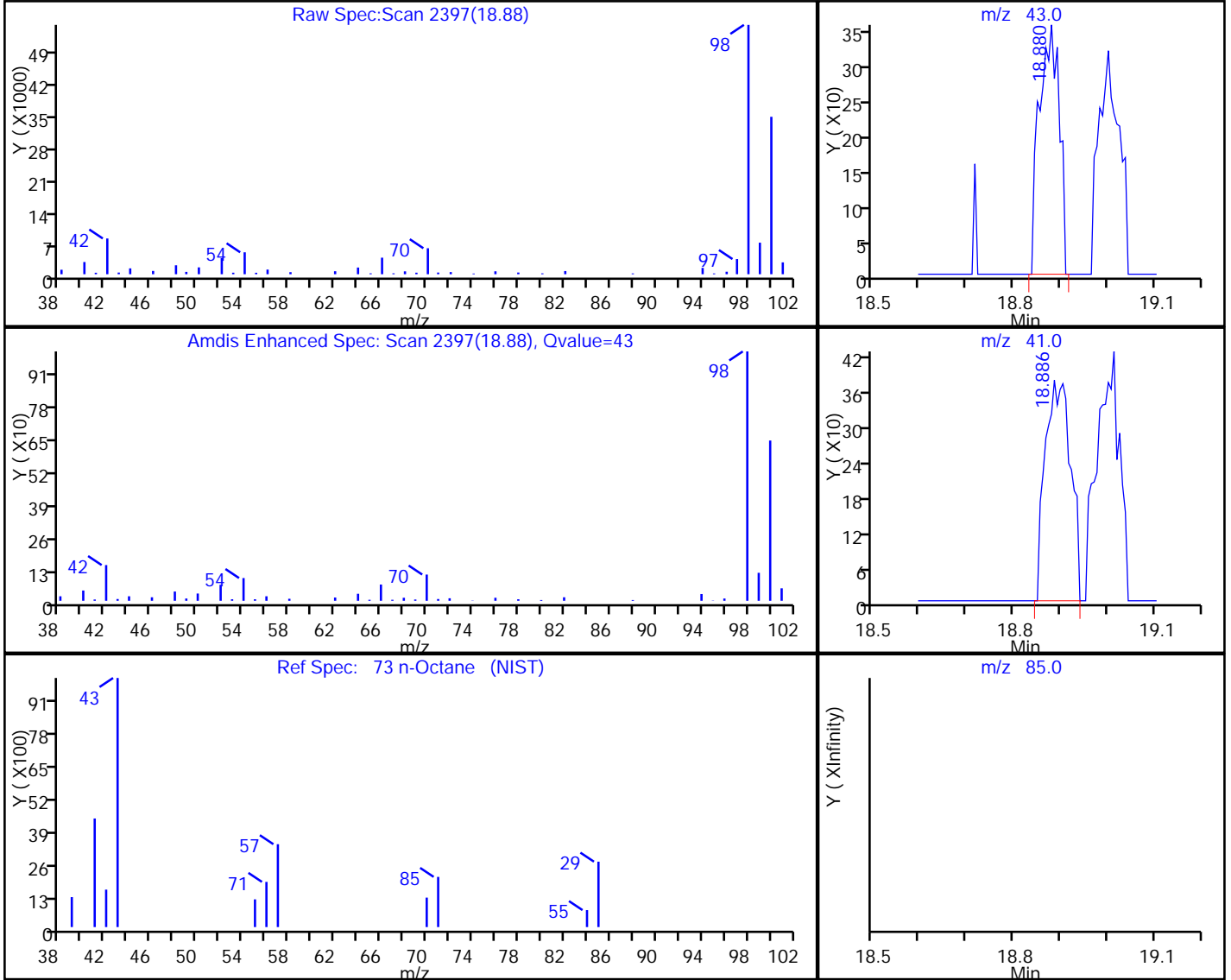


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012620.D  
Injection Date: 27-Jan-2018 05:55:30 Instrument ID: ATMS6  
Lims ID: 320-35383-A-13 Lab Sample ID: 320-35383-13  
Client ID: 34002433  
Operator ID: LHS ALS Bottle#: 2 Worklist Smp#: 20  
Purge Vol: 25.000 mL Dil. Factor: 1.0000  
Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

73 n-Octane, CAS: 111-65-9

Processing Results



RT	Mass	Response	Amount
18.88	43.00	1058	0.031319
18.89	41.00	1416	
18.85	85.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:43:42

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

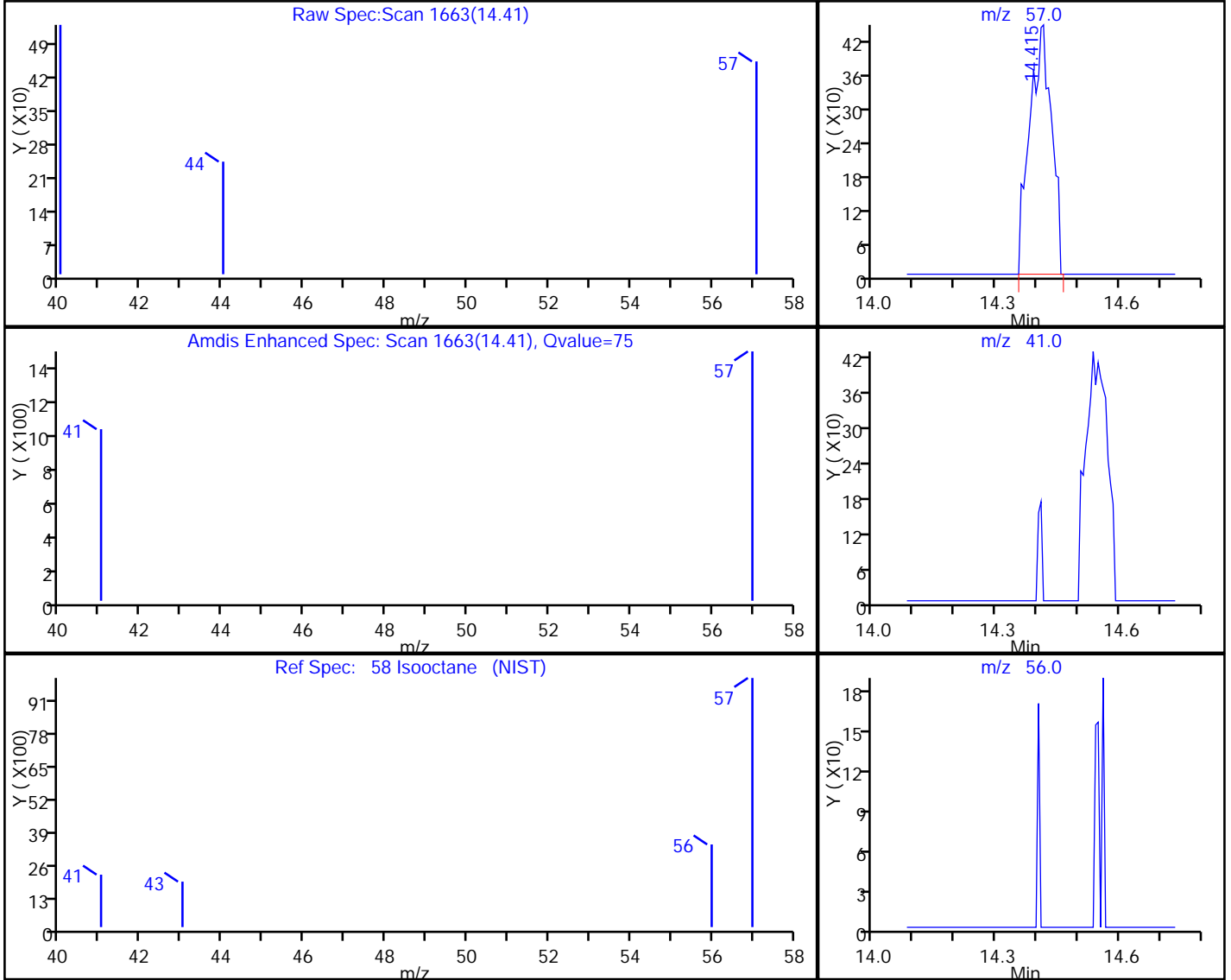


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180126-53380.b\MS6012620.D  
Injection Date: 27-Jan-2018 05:55:30 Instrument ID: ATMS6  
Lims ID: 320-35383-A-13 Lab Sample ID: 320-35383-13  
Client ID: 34002433  
Operator ID: LHS ALS Bottle#: 2 Worklist Smp#: 20  
Purge Vol: 25.000 mL Dil. Factor: 1.0000  
Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

58 Isooctane, CAS: 540-84-1

Processing Results



RT	Mass	Response	Amount
14.41	57.00	1658	0.026939
14.41	41.00	0	
14.41	56.00	0	

Reviewer: phanhasena, 29-Jan-2018 12:43:42

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002435 Lab Sample ID: 320-35383-15  
 Matrix: Air Lab File ID: MS6012908.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/29/2018 13:43  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205880 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
67-64-1	Acetone	1.7	J	5.0	0.18
107-02-8	Acrolein	ND		2.0	0.22
107-13-1	Acrylonitrile	ND		2.0	0.19
107-05-1	Allyl chloride	ND		0.80	0.11
71-43-2	Benzene	ND		0.40	0.079
100-44-7	Benzyl chloride	ND		0.80	0.16
75-27-4	Bromodichloromethane	ND		0.30	0.066
75-25-2	Bromoform	ND		0.40	0.070
74-83-9	Bromomethane	ND		0.80	0.34
106-99-0	1,3-Butadiene	ND		0.80	0.15
106-97-8	n-Butane	ND		0.40	0.15
78-93-3	2-Butanone (MEK)	0.27	J	0.80	0.20
75-65-0	tert-Butyl alcohol (TBA)	ND		2.0	0.11
104-51-8	n-Butylbenzene	ND		0.40	0.18
135-98-8	sec-Butylbenzene	ND		0.40	0.070
98-06-6	tert-Butylbenzene	ND		0.80	0.068
75-15-0	Carbon disulfide	ND		0.80	0.078
56-23-5	Carbon tetrachloride	ND		0.80	0.064
108-90-7	Chlorobenzene	ND		0.30	0.064
75-45-6	Chlorodifluoromethane	ND		0.80	0.27
75-00-3	Chloroethane	ND		0.80	0.31
67-66-3	Chloroform	ND		0.30	0.095
74-87-3	Chloromethane	ND		0.80	0.20
95-49-8	2-Chlorotoluene	ND		0.40	0.080
110-82-7	Cyclohexane	ND		0.40	0.084
124-48-1	Dibromochloromethane	ND		0.40	0.079
106-93-4	1,2-Dibromoethane (EDB)	ND		0.80	0.075
74-95-3	Dibromomethane	ND		0.40	0.057
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND		0.40	0.16
95-50-1	1,2-Dichlorobenzene	ND		0.40	0.13
541-73-1	1,3-Dichlorobenzene	ND		0.40	0.11
106-46-7	1,4-Dichlorobenzene	ND		0.40	0.15
75-71-8	Dichlorodifluoromethane	ND		0.40	0.15
75-34-3	1,1-Dichloroethane	ND		0.30	0.072
107-06-2	1,2-Dichloroethane	ND		0.80	0.088

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002435 Lab Sample ID: 320-35383-15  
 Matrix: Air Lab File ID: MS6012908.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/29/2018 13:43  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205880 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-35-4	1,1-Dichloroethene	ND		0.80	0.13
156-59-2	cis-1,2-Dichloroethene	ND		0.40	0.089
156-60-5	trans-1,2-Dichloroethene	ND		0.40	0.10
78-87-5	1,2-Dichloropropane	ND		0.40	0.24
10061-01-5	cis-1,3-Dichloropropene	ND		0.40	0.10
10061-02-6	trans-1,3-Dichloropropene	ND		0.40	0.088
123-91-1	1,4-Dioxane	ND		0.80	0.10
141-78-6	Ethyl acetate	ND		0.30	0.18
100-41-4	Ethylbenzene	ND		0.40	0.063
622-96-8	4-Ethyltoluene	ND		0.40	0.19
142-82-5	n-Heptane	ND		0.80	0.063
87-68-3	Hexachlorobutadiene	ND		2.0	0.43
110-54-3	n-Hexane	ND		0.80	0.075
591-78-6	2-Hexanone	ND		0.40	0.087
98-82-8	Isopropylbenzene	ND		0.80	0.10
99-87-6	4-Isopropyltoluene	ND		0.80	0.12
1634-04-4	Methyl-t-Butyl Ether (MTBE)	ND		0.80	0.12
80-62-6	Methyl methacrylate	ND		0.80	0.16
108-10-1	4-Methyl-2-pentanone (MIBK)	ND		0.40	0.14
75-09-2	Methylene Chloride	0.10	J	0.40	0.072
98-83-9	alpha-Methylstyrene	ND		0.40	0.065
91-20-3	Naphthalene	ND		0.80	0.56
111-65-9	n-Octane	ND		0.40	0.055
109-66-0	n-Pentane	ND		0.80	0.26
115-07-1	Propylene	0.17	J	0.40	0.099
103-65-1	N-Propylbenzene	ND		0.40	0.059
100-42-5	Styrene	ND		0.40	0.059
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.40	0.069
127-18-4	Tetrachloroethene	ND		0.40	0.051
109-99-9	Tetrahydrofuran	ND		0.80	0.21
108-88-3	Toluene	ND		0.40	0.051
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.40	0.16
120-82-1	1,2,4-Trichlorobenzene	ND		2.0	0.43
71-55-6	1,1,1-Trichloroethane	ND		0.30	0.065
79-00-5	1,1,2-Trichloroethane	ND		0.40	0.067

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

Lab Name: TestAmerica Sacramento Job No.: 320-35383-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34002435 Lab Sample ID: 320-35383-15  
 Matrix: Air Lab File ID: MS6012908.D  
 Analysis Method: TO-15 Date Collected: 01/24/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 01/29/2018 13:43  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 205880 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.40	0.11
75-69-4	Trichlorofluoromethane	ND		0.40	0.20
96-18-4	1,2,3-Trichloropropane	ND		0.40	0.17
95-63-6	1,2,4-Trimethylbenzene	ND		0.80	0.16
108-67-8	1,3,5-Trimethylbenzene	ND		0.40	0.13
540-84-1	2,2,4-Trimethylpentane	ND		0.40	0.071
108-05-4	Vinyl acetate	ND		0.80	0.15
593-60-2	Vinyl bromide	ND		0.80	0.26
75-01-4	Vinyl chloride	ND		0.40	0.12
179601-23-1	m,p-Xylene	ND		0.80	0.10
95-47-6	o-Xylene	ND		0.40	0.054
1330-20-7	Xylenes, Total	ND		1.2	0.074

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	92		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	101		70-130
2037-26-5	Toluene-d8 (Surr)	99		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180129-53404.b\MS6012908.D  
 Lims ID: 320-35383-A-15  
 Client ID: 34002435  
 Sample Type: Client  
 Inject. Date: 29-Jan-2018 13:43:30 ALS Bottle#: 4 Worklist Smp#: 8  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35383-A-15  
 Misc. Info.: 500 mL CAN CERT  
 Operator ID: LHS Instrument ID: ATMS6  
 Method: \\ChromNA\Sacramento\ChromData\ATMS6\20180129-53404.b\TO15\_ATMS6.m  
 Limit Group: MSA - TO15 - ICAL  
 Last Update: 30-Jan-2018 10:22:42 Calib Date: 23-Jan-2018 18:39:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS6\20180123-53204.b\MS6012311.D  
 Column 1 : RTX Volatiles ( 0.32 mm) Det: MS SCAN  
 Process Host: XAWRK030

First Level Reviewer: phanthasena Date: 30-Jan-2018 10:22:42

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	13.307	13.296	0.011	97	51599	4.00	
* 2 1,4-Difluorobenzene	114	15.437	15.431	0.006	94	206528	4.00	
* 3 Chlorobenzene-d5 (IS)	117	22.159	22.159	0.000	87	180695	4.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	14.506	14.500	0.006	42	66286	4.02	
\$ 5 Toluene-d8 (Surr)	100	18.886	18.880	0.006	99	137179	3.95	
\$ 6 4-Bromofluorobenzene (Surr	95	24.714	24.714	0.000	92	102253	3.66	
11 Propene	41	4.675	4.639	0.036	86	1896	0.1678	
17 Butane	43	5.496	5.466	0.030	36	1172	0.0443	
32 Acetone	43	8.447	8.447	0.110	82	36322	1.74	a
39 Methylene Chloride	49	9.743	9.706	0.036	92	1609	0.1029	
48 2-Butanone (MEK)	72	12.292	12.207	0.085	94	1665	0.2704	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

VAMSIS20\_00098 Amount Added: 50.00 Units: mL Run Reagent

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180129-53404.b\MS6012908.D

Injection Date: 29-Jan-2018 13:43:30

Instrument ID: ATMS6

Operator ID: LHS

Lims ID: 320-35383-A-15

Lab Sample ID: 320-35383-15

Worklist Smp#: 8

Client ID: 34002435

Purge Vol: 25.000 mL

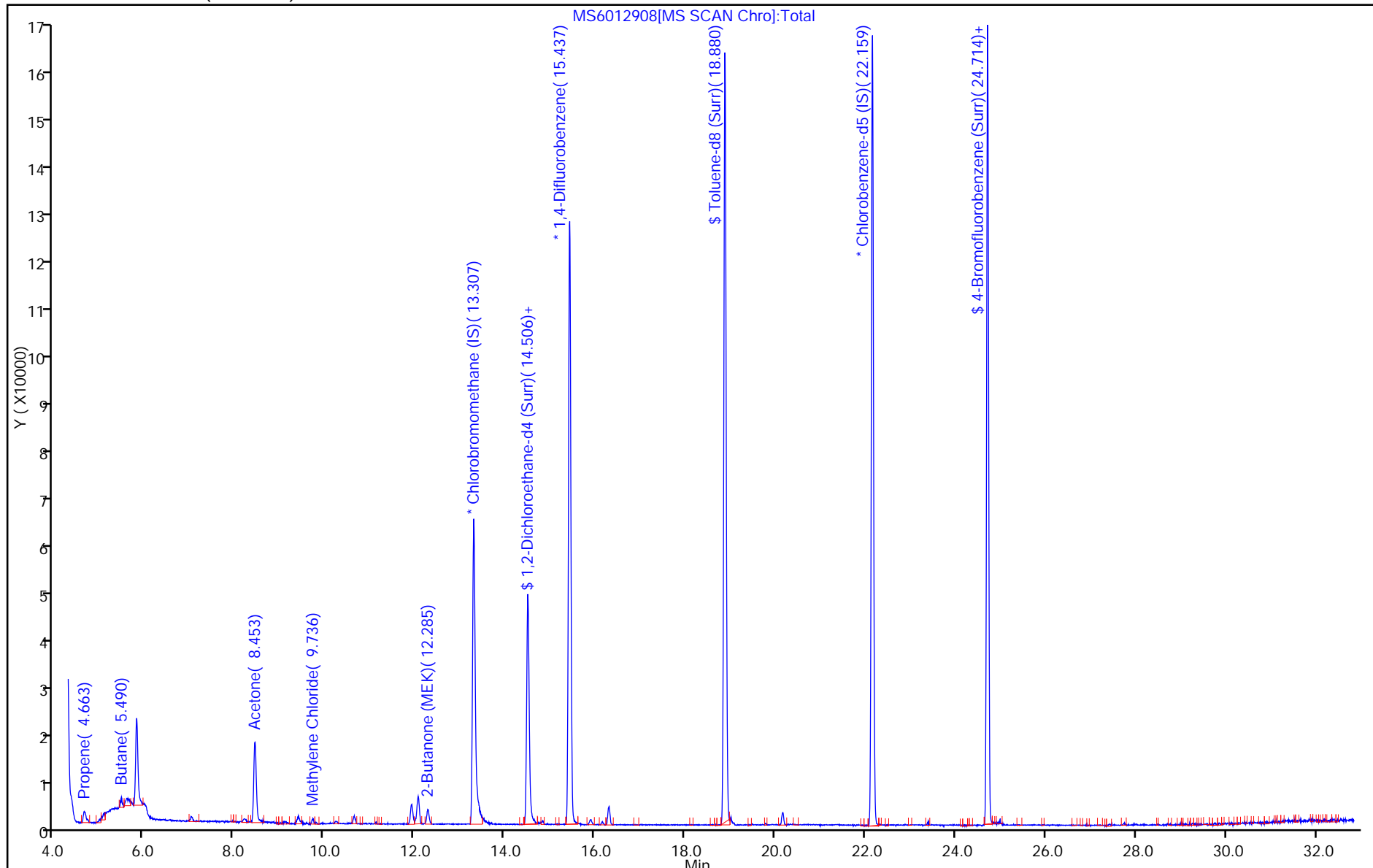
Dil. Factor: 1.0000

ALS Bottle#: 4

Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles (0.32 mm)



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180129-53404.b\MS6012908.D

Injection Date: 29-Jan-2018 13:43:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-15

Lab Sample ID: 320-35383-15

Client ID: 34002435

Operator ID: LHS

ALS Bottle#: 4 Worklist Smp#: 8

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

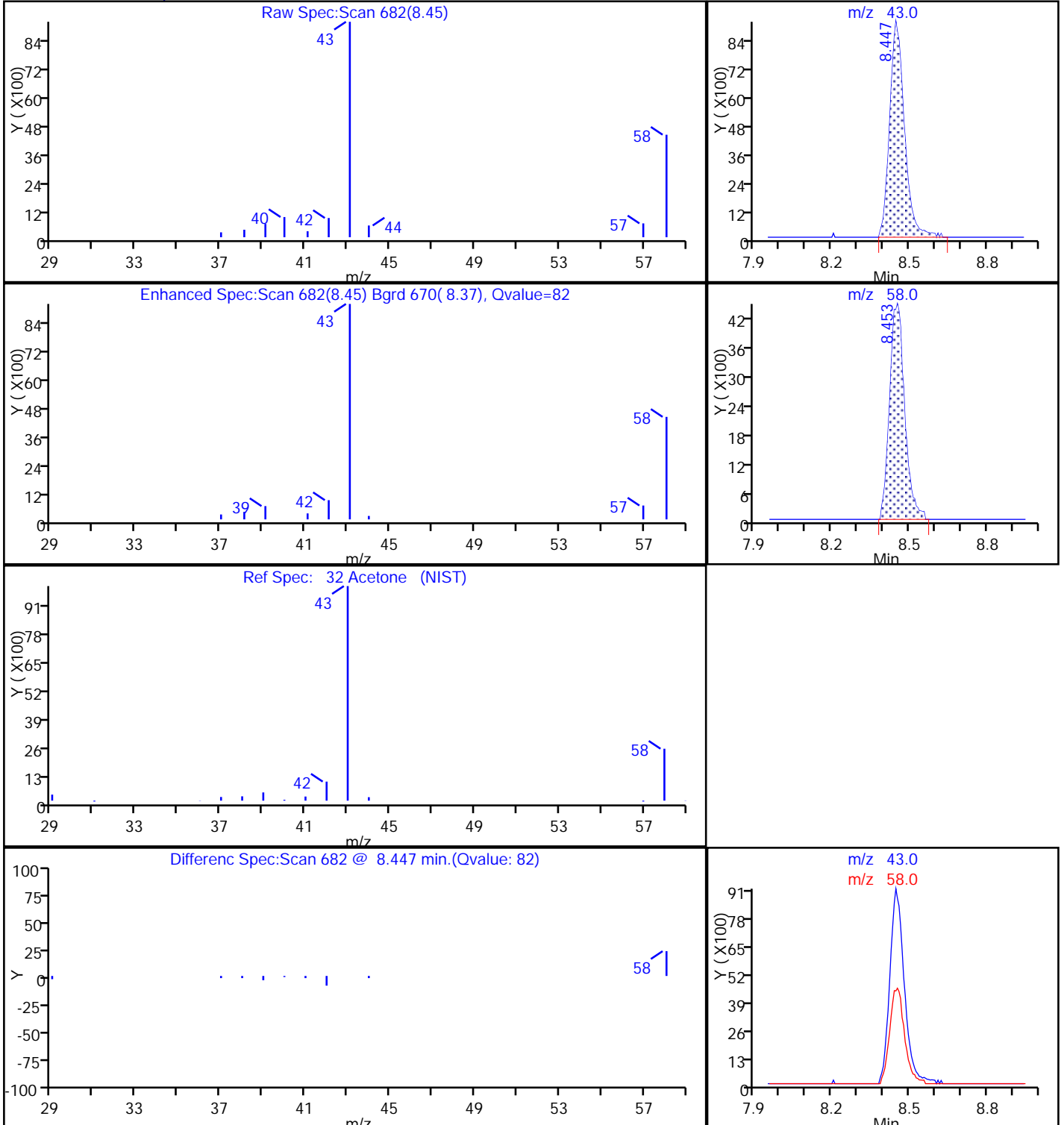
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

32 Acetone, CAS: 67-64-1



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180129-53404.b\MS6012908.D

Injection Date: 29-Jan-2018 13:43:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-15

Lab Sample ID: 320-35383-15

Client ID: 34002435

Operator ID: LHS

ALS Bottle#: 4 Worklist Smp#: 8

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

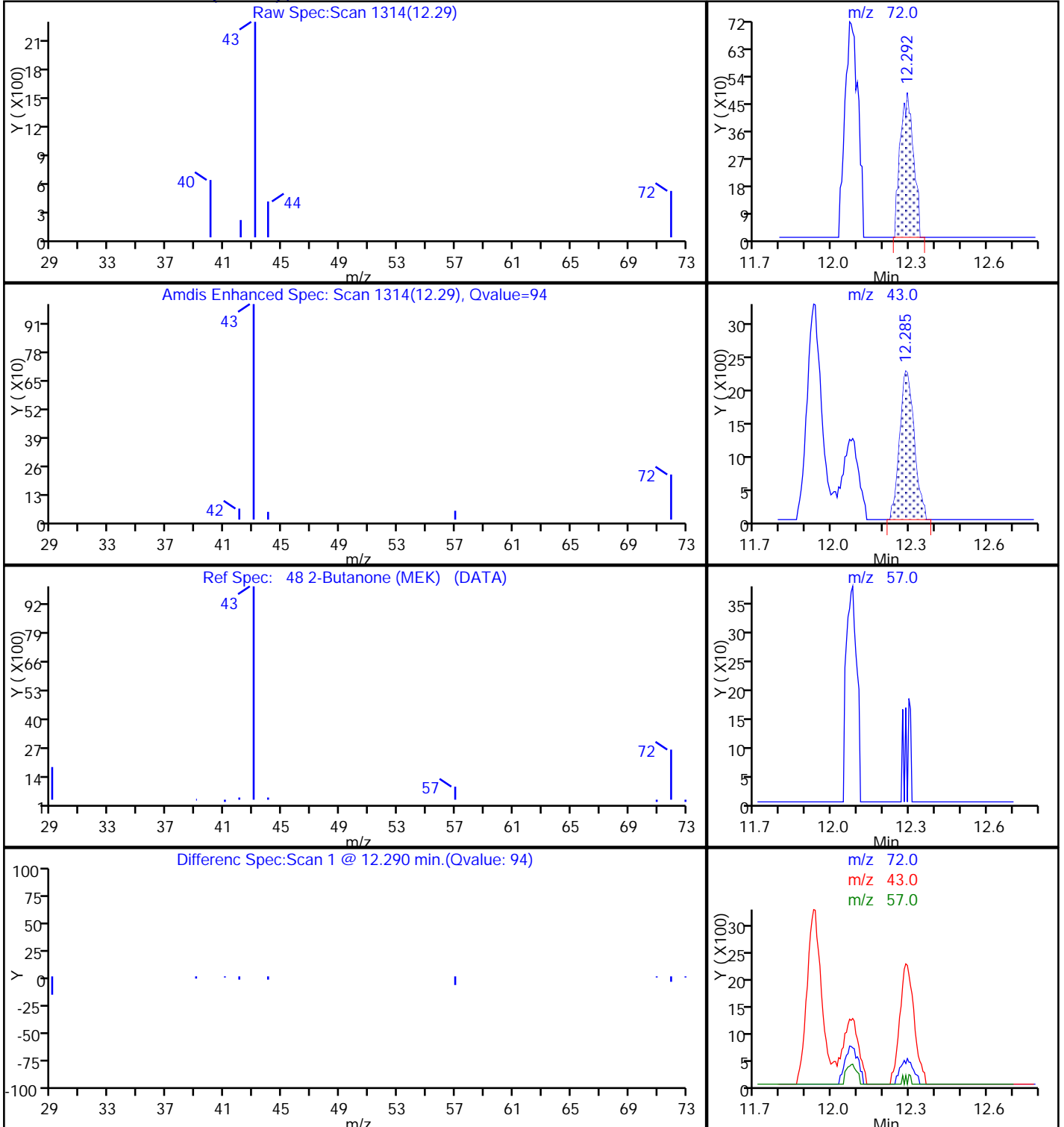
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

48 2-Butanone (MEK), CAS: 78-93-3





TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180129-53404.b\MS6012908.D

Injection Date: 29-Jan-2018 13:43:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-15

Lab Sample ID: 320-35383-15

Client ID: 34002435

Operator ID: LHS

ALS Bottle#: 4 Worklist Smp#: 8

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

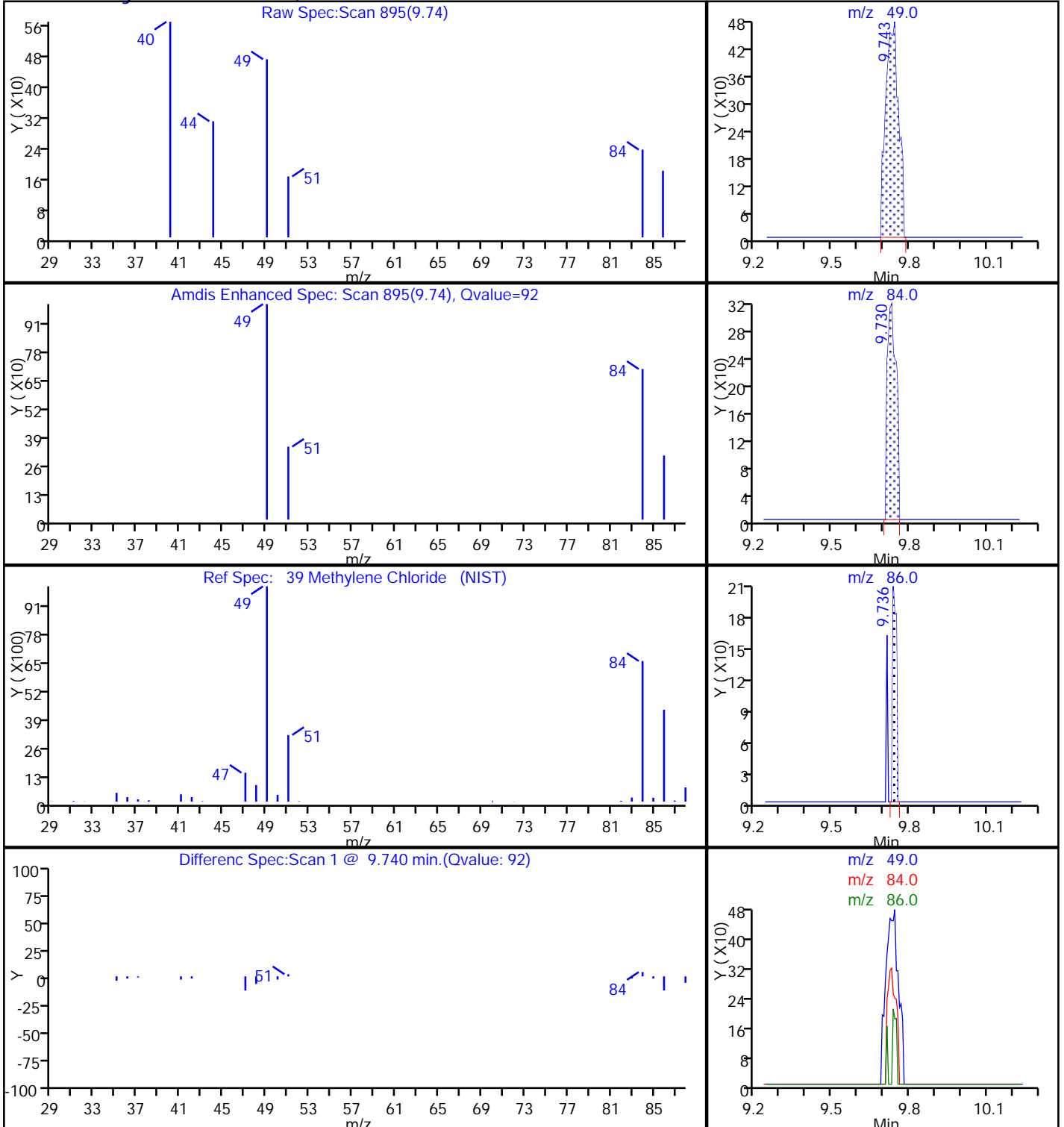
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

39 Methylene Chloride, CAS: 75-09-2



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180129-53404.b\MS6012908.D

Injection Date: 29-Jan-2018 13:43:30

Instrument ID: ATMS6

Lims ID: 320-35383-A-15

Lab Sample ID: 320-35383-15

Client ID: 34002435

Operator ID: LHS

ALS Bottle#: 4 Worklist Smp#: 8

Purge Vol: 25.000 mL

Dil. Factor: 1.0000

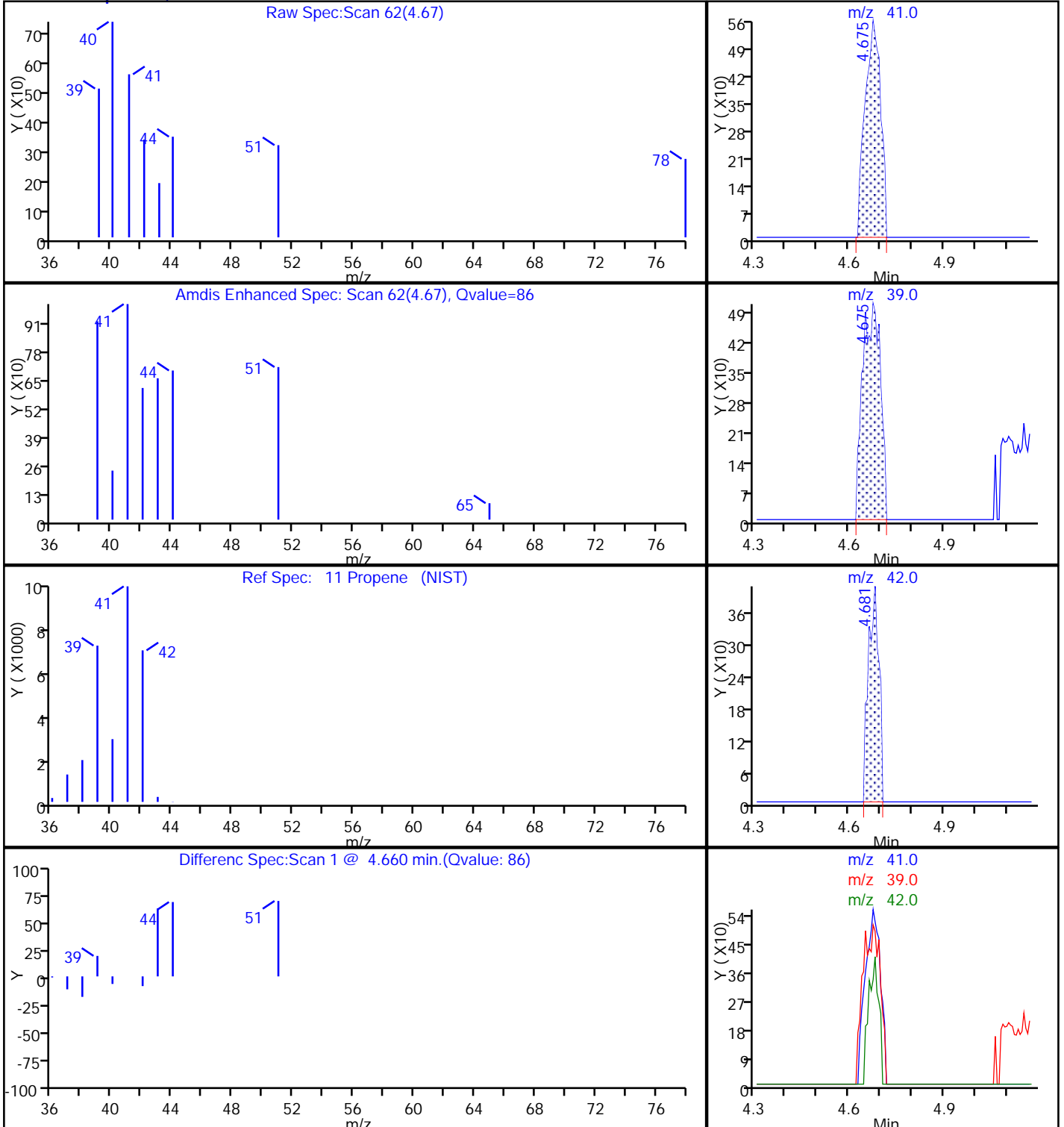
Method: TO15\_ATMS6

Limit Group: MSA - TO15 - ICAL

Column: RTX Volatiles ( 0.32 mm)

Detector: MS SCAN

11 Propene, CAS: 115-07-1



TestAmerica Sacramento

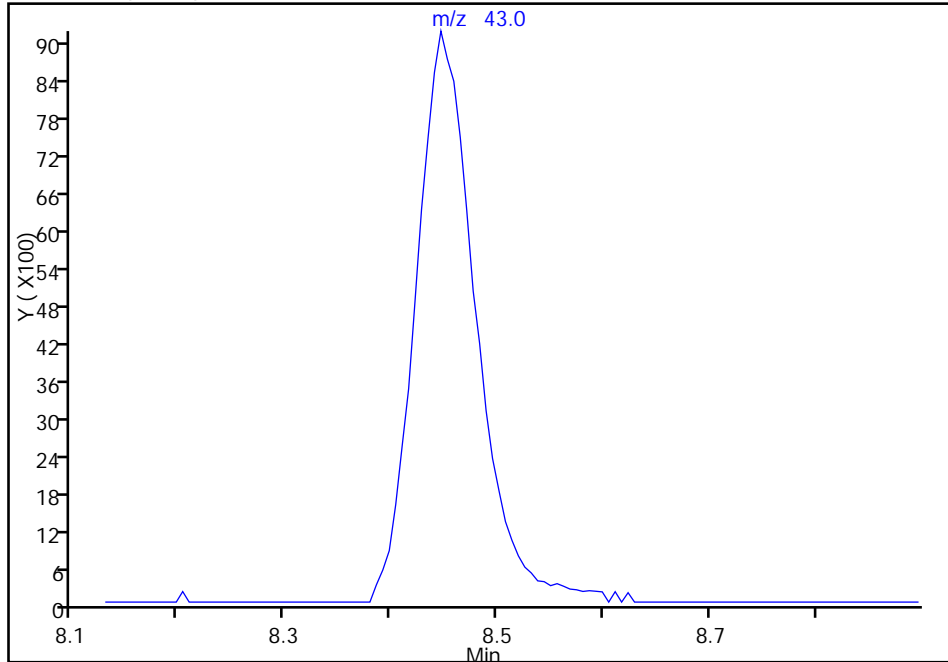
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Injection Date: 29-Jan-2018 13:43:30 Instrument ID: ATMS6  
Lims ID: 320-35383-A-15 Lab Sample ID: 320-35383-15  
Client ID: 34002435  
Operator ID: LHS ALS Bottle#: 4 Worklist Smp#: 8  
Purge Vol: 25.000 mL Dil. Factor: 1.0000  
Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

32 Acetone, CAS: 67-64-1

Signal: 1

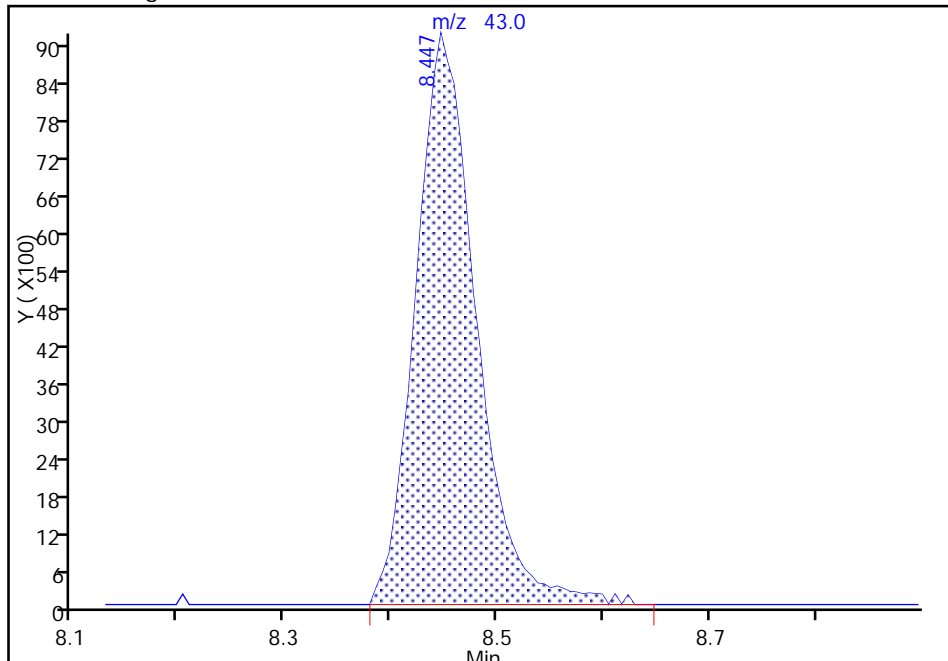
Not Detected  
Expected RT: 8.34

Processing Integration Results



RT: 8.45  
Area: 36322  
Amount: 1.739252  
Amount Units: ppb v/v

Manual Integration Results



Reviewer: phanthasena, 30-Jan-2018 10:21:54

Audit Action: Assigned Compound ID

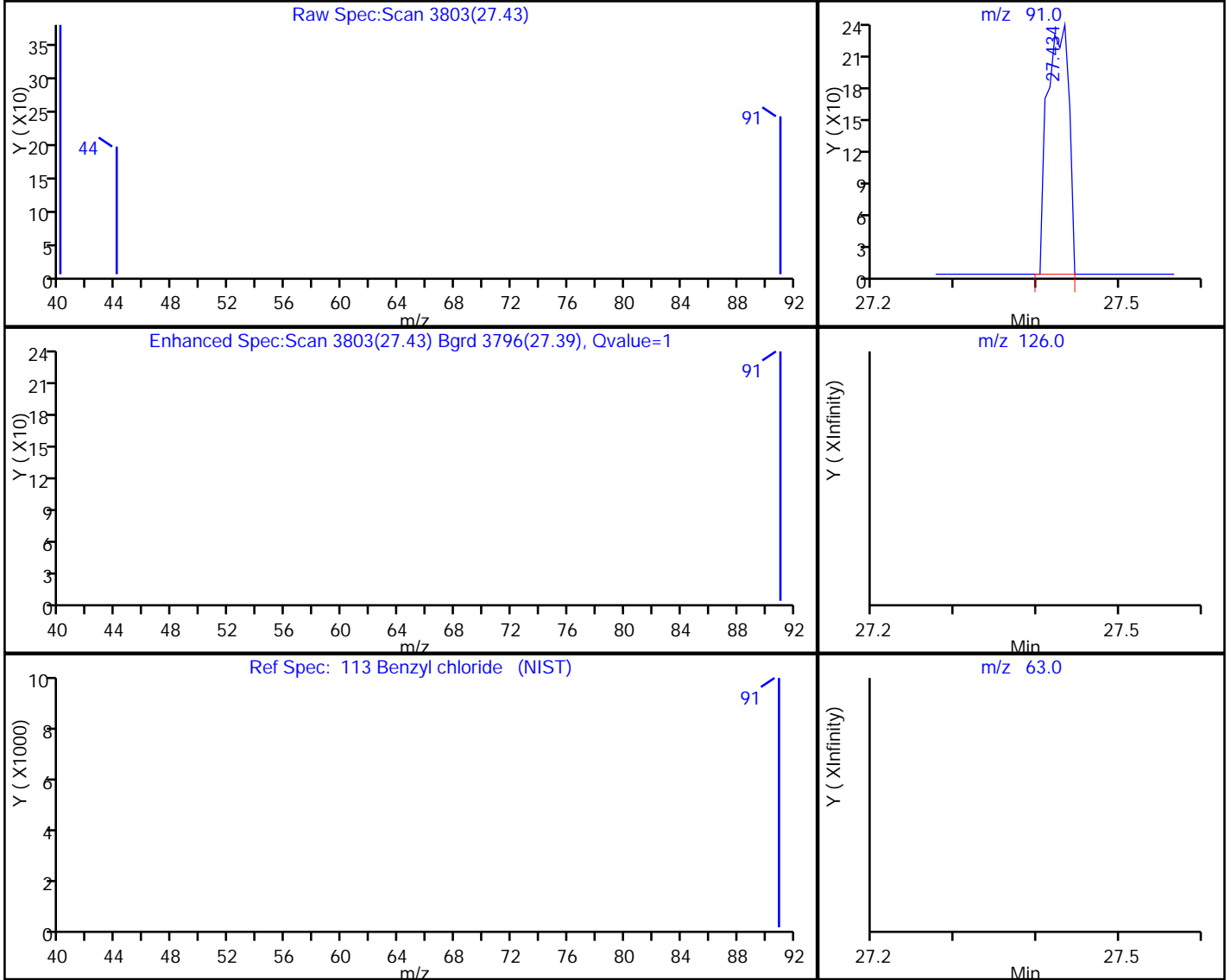
Audit Reason: User Assigned

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180129-53404.b\MS6012908.D  
 Injection Date: 29-Jan-2018 13:43:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-15 Lab Sample ID: 320-35383-15  
 Client ID: 34002435  
 Operator ID: LHS ALS Bottle#: 4 Worklist Smp#: 8  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

113 Benzyl chloride, CAS: 100-44-7

Processing Results



RT	Mass	Response	Amount
27.43	91.00	437	0.250046
27.42	126.00	0	
27.42	63.00	0	

Reviewer: phanhasena, 30-Jan-2018 10:22:42

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

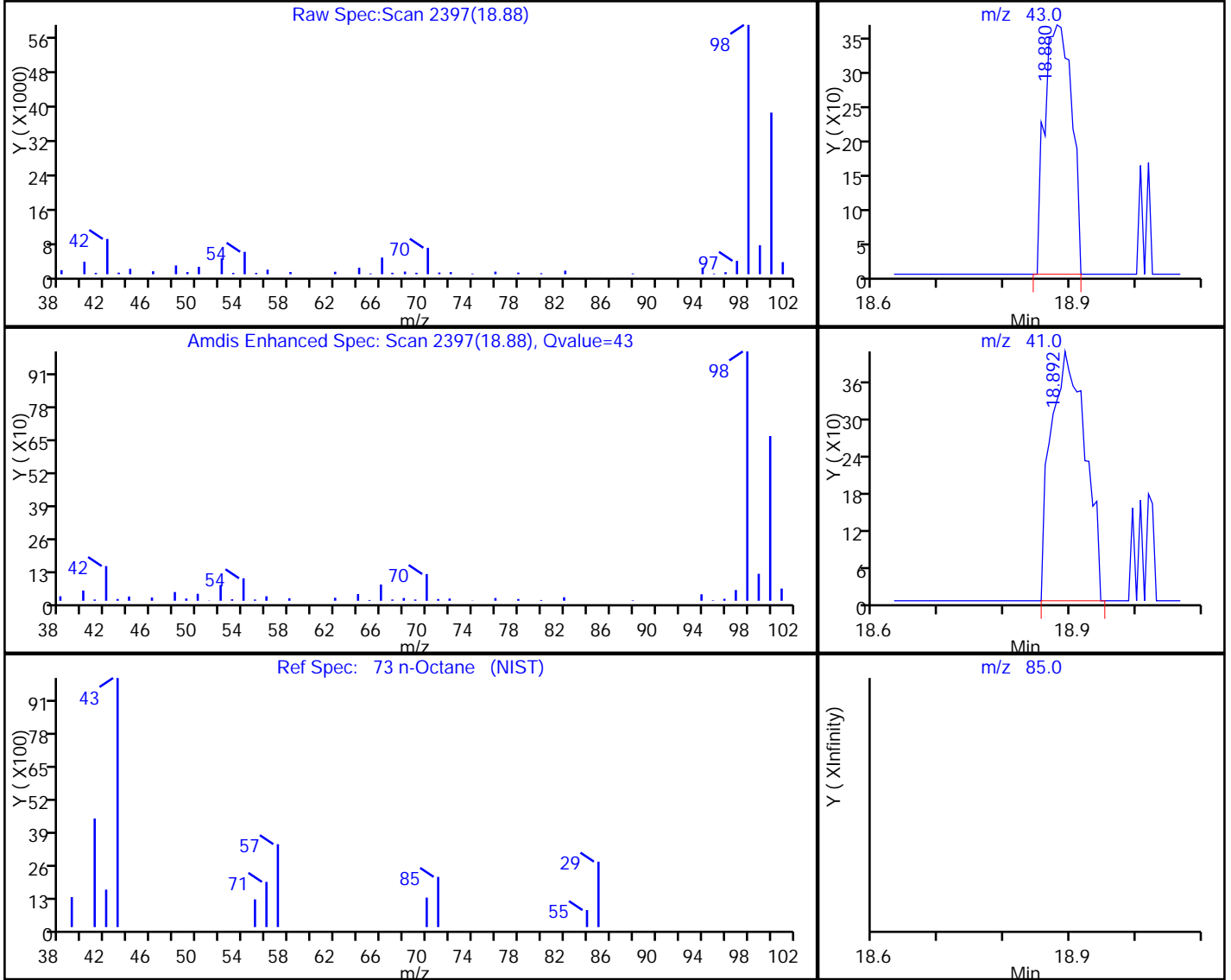


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS6\20180129-53404.b\MS6012908.D  
 Injection Date: 29-Jan-2018 13:43:30 Instrument ID: ATMS6  
 Lims ID: 320-35383-A-15 Lab Sample ID: 320-35383-15  
 Client ID: 34002435  
 Operator ID: LHS ALS Bottle#: 4 Worklist Smp#: 8  
 Purge Vol: 25.000 mL Dil. Factor: 1.0000  
 Method: TO15\_ATMS6 Limit Group: MSA - TO15 - ICAL  
 Column: RTX Volatiles ( 0.32 mm) Detector MS SCAN

73 n-Octane, CAS: 111-65-9

Processing Results



RT	Mass	Response	Amount
18.88	43.00	1060	0.028793
18.89	41.00	1474	
18.85	85.00	0	

Reviewer: phanhasena, 30-Jan-2018 10:22:42

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34001552 Lab Sample ID: 320-35681-1  
 Matrix: Air Lab File ID: MS1020307.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/03/2018 16:27  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	ND		0.020	0.010
100-44-7	Benzyl chloride	ND		0.10	0.010
75-27-4	Bromodichloromethane	ND		0.012	0.0050
56-23-5	Carbon tetrachloride	ND		0.010	0.0050
108-90-7	Chlorobenzene	ND		0.020	0.010
75-00-3	Chloroethane	ND		0.045	0.010
67-66-3	Chloroform	ND		0.020	0.0050
74-87-3	Chloromethane	ND		0.20	0.010
124-48-1	Dibromochloromethane	ND		0.010	0.0050
106-93-4	1,2-Dibromoethane (EDB)	ND		0.0070	0.0028
95-50-1	1,2-Dichlorobenzene	ND		0.050	0.010
541-73-1	1,3-Dichlorobenzene	ND		0.10	0.010
106-46-7	1,4-Dichlorobenzene	ND		0.10	0.010
75-71-8	Dichlorodifluoromethane	ND		0.020	0.0050
75-34-3	1,1-Dichloroethane	ND		0.020	0.0050
107-06-2	1,2-Dichloroethane	ND		0.020	0.0050
75-35-4	1,1-Dichloroethene	ND		0.020	0.0050
156-59-2	cis-1,2-Dichloroethene	ND		0.020	0.0050
156-60-5	trans-1,2-Dichloroethene	ND		0.020	0.0050
78-87-5	1,2-Dichloropropane	ND		0.040	0.0050
10061-01-5	cis-1,3-Dichloropropene	ND		0.020	0.0050
10061-02-6	trans-1,3-Dichloropropene	ND		0.020	0.0050
123-91-1	1,4-Dioxane	ND		0.10	0.010
100-41-4	Ethylbenzene	ND		0.020	0.010
87-68-3	Hexachlorobutadiene	ND		0.020	0.010
75-09-2	Methylene Chloride	ND		0.20	0.10
91-20-3	Naphthalene	ND		0.013	0.010
100-42-5	Styrene	ND		0.030	0.010
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.020	0.010
127-18-4	Tetrachloroethene	ND		0.020	0.010
108-88-3	Toluene	ND		0.020	0.010
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030	0.0050
120-82-1	1,2,4-Trichlorobenzene	ND		0.050	0.010
71-55-6	1,1,1-Trichloroethane	ND		0.020	0.0050
79-00-5	1,1,2-Trichloroethane	ND		0.050	0.0050

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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34001552 Lab Sample ID: 320-35681-1  
 Matrix: Air Lab File ID: MS1020307.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/03/2018 16:27  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.020	0.0050
75-69-4	Trichlorofluoromethane	ND		0.045	0.010
75-01-4	Vinyl chloride	ND		0.020	0.010
179601-23-1	m,p-Xylene	ND		0.040	0.020
95-47-6	o-Xylene	ND		0.020	0.010
96-18-4	1,2,3-Trichloropropane	ND		0.040	0.010

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	98		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	103		70-130
2037-26-5	Toluene-d8 (Surr)	104		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020307.D  
 Lims ID: 320-35681-A-1  
 Client ID: 34001552  
 Sample Type: Client  
 Inject. Date: 03-Feb-2018 16:27:30 ALS Bottle#: 7 Worklist Smp#: 7  
 Purge Vol: 500.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35681-A-1  
 Operator ID: AZ Instrument ID: ATMS1  
 Method: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\TO-15 SIM SIM.m  
 Limit Group: MSA - TO15\_SIM - ICAL  
 Last Update: 05-Feb-2018 07:29:34 Calib Date: 27-Jan-2018 19:56:30  
 Integrator: RTE ID Type: RT Order ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS1\20180127-53396.b\MS1012714.D  
 Column 1 : Det: MS SCAN  
 Process Host: XAWRK031

First Level Reviewer: jamese Date: 05-Feb-2018 10:11:06

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.584	11.589	-0.005	100	26608	2.00	
* 2 1,4-Difluorobenzene	114	13.755	13.762	-0.007	100	127899	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.462	20.461	0.001	100	92873	2.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	12.783	12.787	-0.007	85	80565	2.06	
\$ 5 Toluene-d8 (Surr)	100	17.169	17.165	0.000	100	64495	2.07	
\$ 6 4-Bromofluorobenzene (Surr	174	23.031	23.031	0.001	96	59414	1.96	
18 Acetone	43	6.838	6.808	0.024	0	653	0.0844	

Reagents:

VAMSIS20\_00102 Amount Added: 50.00 Units: mL Run Reagent



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020307.D

Injection Date: 03-Feb-2018 16:27:30

Instrument ID: ATMS1

Lims ID: 320-35681-A-1

Lab Sample ID: 320-35681-1

Client ID: 34001552

Operator ID: AZ

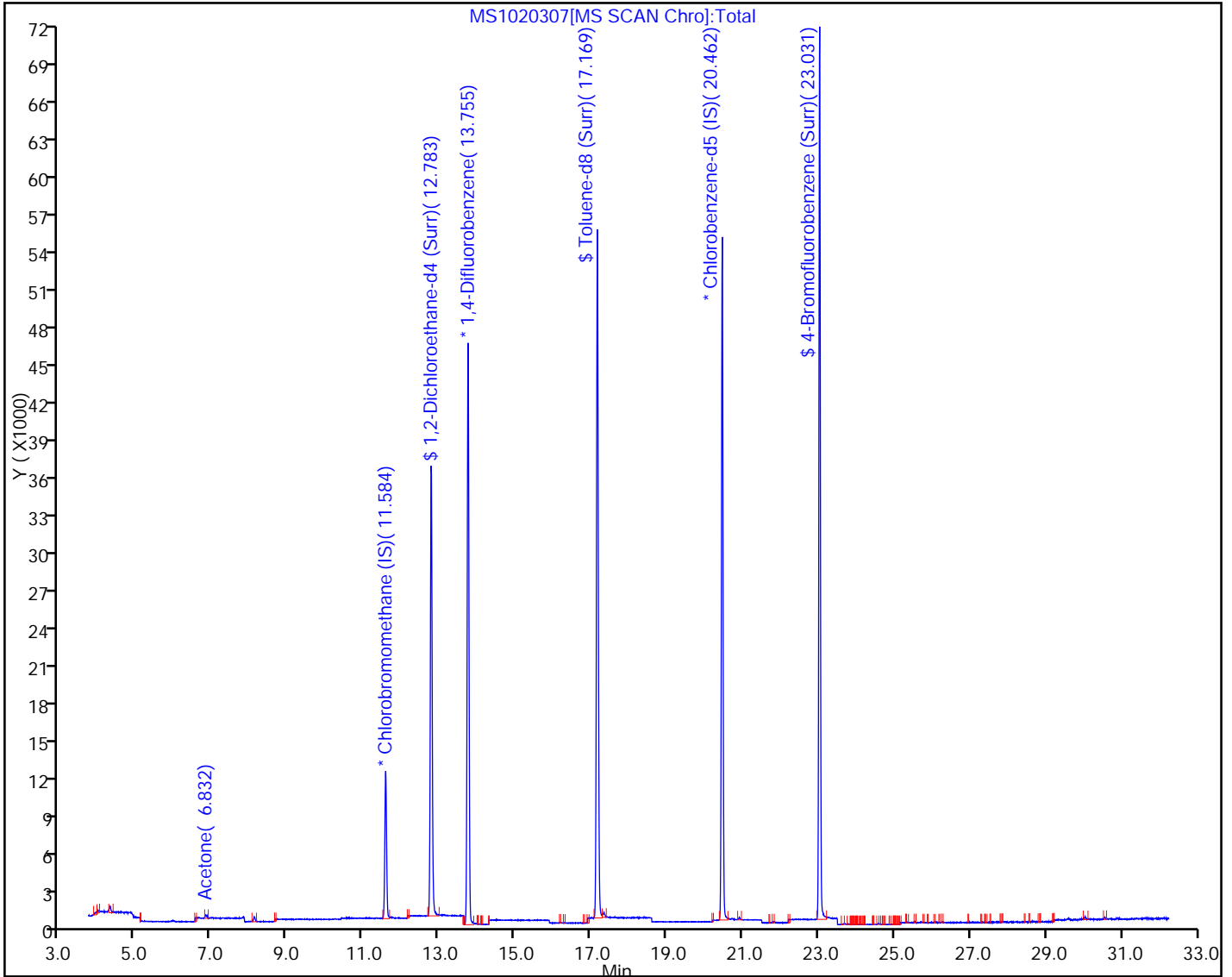
ALS Bottle#: 7 Worklist Smp#: 7

Purge Vol: 500.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO15\_SIM - ICAL



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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 8046 Lab Sample ID: 320-35681-2  
 Matrix: Air Lab File ID: MS1020308.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/03/2018 17:27  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	ND		0.020	0.010
100-44-7	Benzyl chloride	ND		0.10	0.010
75-27-4	Bromodichloromethane	ND		0.012	0.0050
56-23-5	Carbon tetrachloride	ND		0.010	0.0050
108-90-7	Chlorobenzene	ND		0.020	0.010
75-00-3	Chloroethane	ND		0.045	0.010
67-66-3	Chloroform	ND		0.020	0.0050
74-87-3	Chloromethane	ND		0.20	0.010
124-48-1	Dibromochloromethane	ND		0.010	0.0050
106-93-4	1,2-Dibromoethane (EDB)	ND		0.0070	0.0028
95-50-1	1,2-Dichlorobenzene	ND		0.050	0.010
541-73-1	1,3-Dichlorobenzene	ND		0.10	0.010
106-46-7	1,4-Dichlorobenzene	ND		0.10	0.010
75-71-8	Dichlorodifluoromethane	ND		0.020	0.0050
75-34-3	1,1-Dichloroethane	ND		0.020	0.0050
107-06-2	1,2-Dichloroethane	ND		0.020	0.0050
75-35-4	1,1-Dichloroethene	ND		0.020	0.0050
156-59-2	cis-1,2-Dichloroethene	ND		0.020	0.0050
78-87-5	1,2-Dichloropropane	ND		0.040	0.0050
10061-01-5	cis-1,3-Dichloropropene	ND		0.020	0.0050
10061-02-6	trans-1,3-Dichloropropene	ND		0.020	0.0050
123-91-1	1,4-Dioxane	ND		0.10	0.010
100-41-4	Ethylbenzene	ND		0.020	0.010
87-68-3	Hexachlorobutadiene	ND		0.020	0.010
75-09-2	Methylene Chloride	ND		0.20	0.10
91-20-3	Naphthalene	ND		0.013	0.010
100-42-5	Styrene	ND		0.030	0.010
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.020	0.010
127-18-4	Tetrachloroethene	ND		0.020	0.010
108-88-3	Toluene	ND		0.020	0.010
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030	0.0050
120-82-1	1,2,4-Trichlorobenzene	ND		0.050	0.010
71-55-6	1,1,1-Trichloroethane	ND		0.020	0.0050
79-00-5	1,1,2-Trichloroethane	ND		0.050	0.0050
79-01-6	Trichloroethene	ND		0.020	0.0050

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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 8046 Lab Sample ID: 320-35681-2  
 Matrix: Air Lab File ID: MS1020308.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/03/2018 17:27  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-69-4	Trichlorofluoromethane	ND		0.045	0.010
75-01-4	Vinyl chloride	ND		0.020	0.010
179601-23-1	m,p-Xylene	ND		0.040	0.020
95-47-6	o-Xylene	ND		0.020	0.010
96-18-4	1,2,3-Trichloropropane	ND		0.040	0.010

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	97		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	103		70-130
2037-26-5	Toluene-d8 (Surr)	106		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020308.D  
 Lims ID: 320-35681-A-2  
 Client ID: 8046  
 Sample Type: Client  
 Inject. Date: 03-Feb-2018 17:27:30 ALS Bottle#: 8 Worklist Smp#: 8  
 Purge Vol: 500.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35681-A-2  
 Operator ID: AZ Instrument ID: ATMS1  
 Method: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\TO-15 SIM SIM.m  
 Limit Group: MSA - TO15\_SIM - ICAL  
 Last Update: 05-Feb-2018 07:29:34 Calib Date: 27-Jan-2018 19:56:30  
 Integrator: RTE ID Type: RT Order ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS1\20180127-53396.b\MS1012714.D  
 Column 1 : Det: MS SCAN  
 Process Host: XAWRK031

First Level Reviewer: jamese

Date: 05-Feb-2018 10:11:34

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.578	11.589	-0.011	98	25538	2.00	
* 2 1,4-Difluorobenzene	114	13.754	13.762	-0.008	100	123112	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.461	20.461	0.000	100	90378	2.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	12.782	12.787	-0.008	84	77299	2.06	
\$ 5 Toluene-d8 (Surr)	100	17.169	17.165	0.000	100	63258	2.11	
\$ 6 4-Bromofluorobenzene (Surr	174	23.031	23.031	0.001	96	57605	1.95	
18 Acetone	43	6.844	6.808	0.030	0	612	0.0824	
25 trans-1,2-Dichloroethene	96	8.863	8.848	0.007	0	79	0.005423	

**Reagents:**

VAMSIS20\_00102

Amount Added: 50.00

Units: mL

Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020308.D

Injection Date: 03-Feb-2018 17:27:30

Instrument ID: ATMS1

Lims ID: 320-35681-A-2

Lab Sample ID: 320-35681-2

Client ID: 8046

Operator ID: AZ

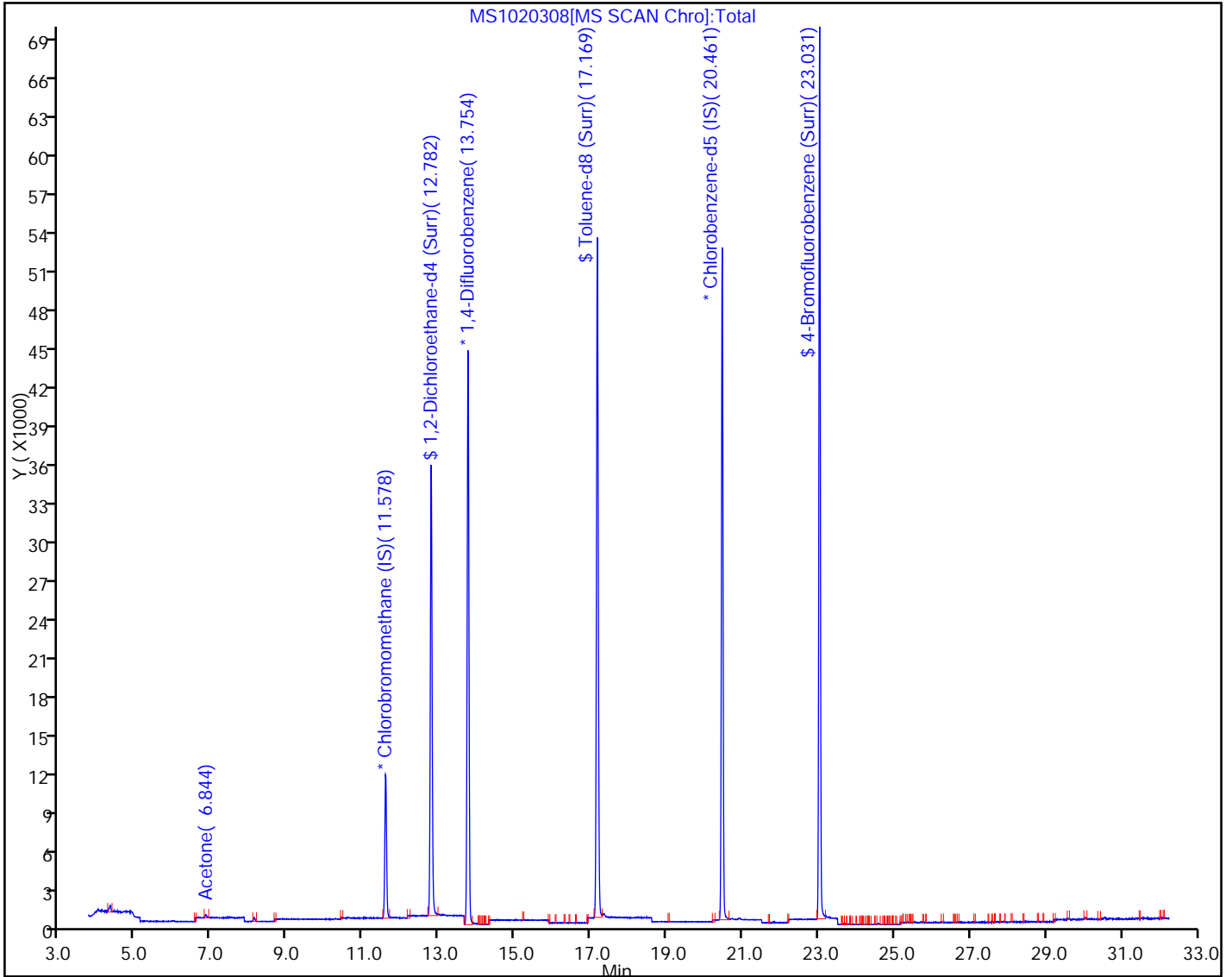
ALS Bottle#: 8 Worklist Smp#: 8

Purge Vol: 500.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO15\_SIM - ICAL



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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34000262 Lab Sample ID: 320-35681-3  
 Matrix: Air Lab File ID: MS1020309.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/03/2018 18:26  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	ND		0.020	0.010
100-44-7	Benzyl chloride	ND		0.10	0.010
75-27-4	Bromodichloromethane	ND		0.012	0.0050
56-23-5	Carbon tetrachloride	ND		0.010	0.0050
108-90-7	Chlorobenzene	ND		0.020	0.010
75-00-3	Chloroethane	ND		0.045	0.010
67-66-3	Chloroform	ND		0.020	0.0050
74-87-3	Chloromethane	ND		0.20	0.010
124-48-1	Dibromochloromethane	ND		0.010	0.0050
106-93-4	1,2-Dibromoethane (EDB)	ND		0.0070	0.0028
95-50-1	1,2-Dichlorobenzene	ND		0.050	0.010
541-73-1	1,3-Dichlorobenzene	ND		0.10	0.010
106-46-7	1,4-Dichlorobenzene	ND		0.10	0.010
75-71-8	Dichlorodifluoromethane	ND		0.020	0.0050
75-34-3	1,1-Dichloroethane	ND		0.020	0.0050
107-06-2	1,2-Dichloroethane	ND		0.020	0.0050
75-35-4	1,1-Dichloroethene	ND		0.020	0.0050
156-59-2	cis-1,2-Dichloroethene	ND		0.020	0.0050
156-60-5	trans-1,2-Dichloroethene	ND		0.020	0.0050
78-87-5	1,2-Dichloropropane	ND		0.040	0.0050
10061-01-5	cis-1,3-Dichloropropene	ND		0.020	0.0050
10061-02-6	trans-1,3-Dichloropropene	ND		0.020	0.0050
123-91-1	1,4-Dioxane	ND		0.10	0.010
100-41-4	Ethylbenzene	ND		0.020	0.010
87-68-3	Hexachlorobutadiene	ND		0.020	0.010
75-09-2	Methylene Chloride	ND		0.20	0.10
91-20-3	Naphthalene	ND		0.013	0.010
100-42-5	Styrene	ND		0.030	0.010
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.020	0.010
127-18-4	Tetrachloroethene	ND		0.020	0.010
108-88-3	Toluene	ND		0.020	0.010
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030	0.0050
120-82-1	1,2,4-Trichlorobenzene	ND		0.050	0.010
71-55-6	1,1,1-Trichloroethane	ND		0.020	0.0050
79-00-5	1,1,2-Trichloroethane	ND		0.050	0.0050

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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34000262 Lab Sample ID: 320-35681-3  
 Matrix: Air Lab File ID: MS1020309.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/03/2018 18:26  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.020	0.0050
75-69-4	Trichlorofluoromethane	ND		0.045	0.010
75-01-4	Vinyl chloride	ND		0.020	0.010
179601-23-1	m,p-Xylene	ND		0.040	0.020
95-47-6	o-Xylene	ND		0.020	0.010
96-18-4	1,2,3-Trichloropropane	ND		0.040	0.010

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	95		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	105		70-130
2037-26-5	Toluene-d8 (Surr)	104		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020309.D  
 Lims ID: 320-35681-A-3  
 Client ID: 34000262  
 Sample Type: Client  
 Inject. Date: 03-Feb-2018 18:26:30 ALS Bottle#: 9 Worklist Smp#: 9  
 Purge Vol: 500.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35681-A-3  
 Operator ID: AZ Instrument ID: ATMS1  
 Method: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\TO-15 SIM SIM.m  
 Limit Group: MSA - TO15\_SIM - ICAL  
 Last Update: 05-Feb-2018 07:29:34 Calib Date: 27-Jan-2018 19:56:30  
 Integrator: RTE ID Type: RT Order ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS1\20180127-53396.b\MS1012714.D  
 Column 1 : Det: MS SCAN  
 Process Host: XAWRK031

First Level Reviewer: jamese

Date: 05-Feb-2018 10:14:28

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.589	11.589	0.000	99	26370	2.00	
* 2 1,4-Difluorobenzene	114	13.762	13.762	0.000	100	124075	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.462	20.461	0.001	99	89562	2.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	12.790	12.787	0.000	72	79472	2.10	
\$ 5 Toluene-d8 (Surr)	100	17.169	17.165	0.000	100	63022	2.09	
\$ 6 4-Bromofluorobenzene (Surr	174	23.031	23.031	0.001	94	55634	1.90	
18 Acetone	43	6.850	6.808	0.036	0	420	0.0548	

**Reagents:**

VAMSIS20\_00102 Amount Added: 50.00 Units: mL Run Reagent



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020309.D

Injection Date: 03-Feb-2018 18:26:30

Instrument ID: ATMS1

Lims ID: 320-35681-A-3

Lab Sample ID: 320-35681-3

Client ID: 34000262

Operator ID: AZ

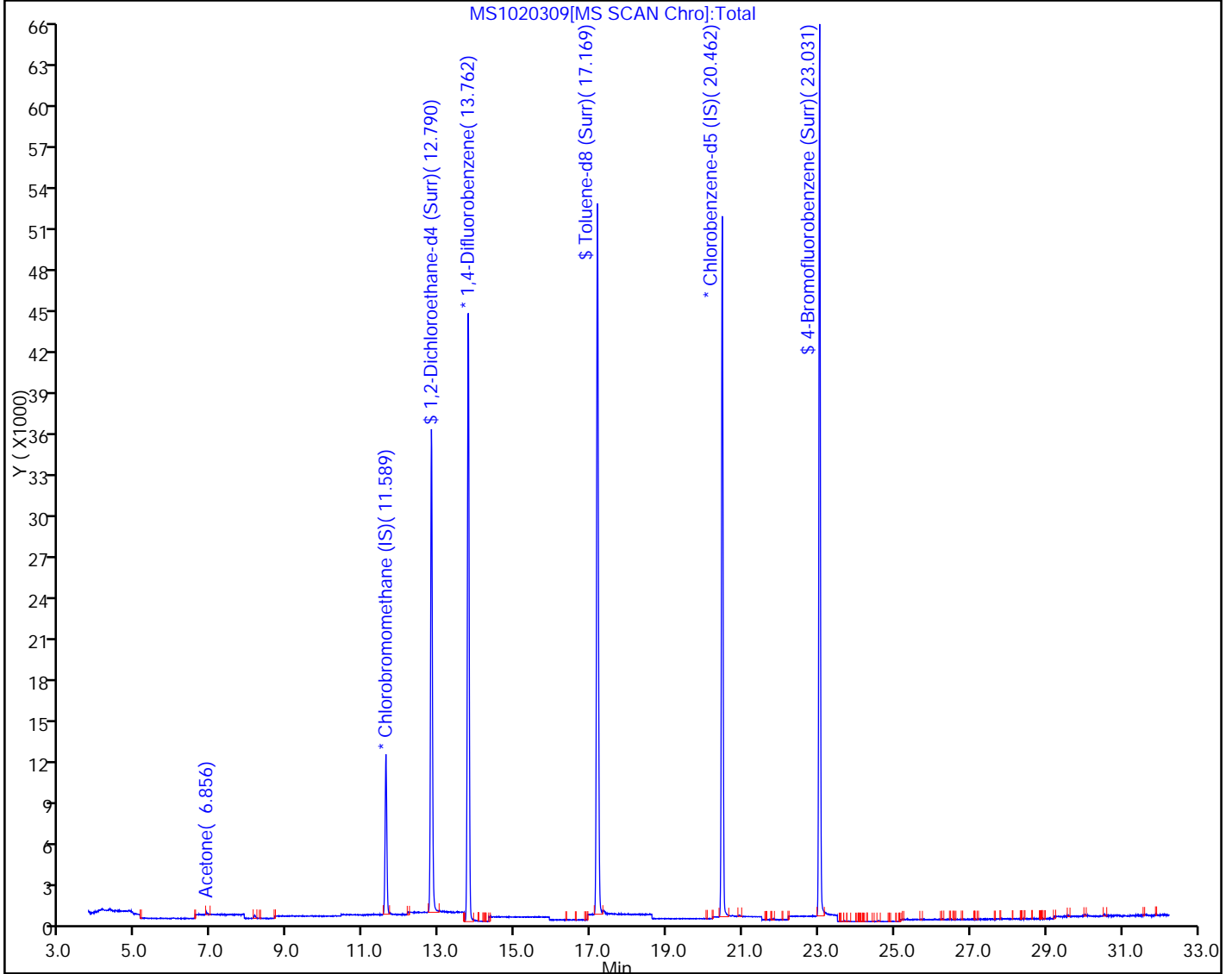
ALS Bottle#: 9 Worklist Smp#: 9

Purge Vol: 500.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO15\_SIM - ICAL



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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34000464 Lab Sample ID: 320-35681-4  
 Matrix: Air Lab File ID: MS1020310.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/03/2018 19:25  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	ND		0.020	0.010
100-44-7	Benzyl chloride	ND		0.10	0.010
75-27-4	Bromodichloromethane	ND		0.012	0.0050
56-23-5	Carbon tetrachloride	ND		0.010	0.0050
108-90-7	Chlorobenzene	ND		0.020	0.010
75-00-3	Chloroethane	ND		0.045	0.010
67-66-3	Chloroform	ND		0.020	0.0050
74-87-3	Chloromethane	ND		0.20	0.010
124-48-1	Dibromochloromethane	ND		0.010	0.0050
106-93-4	1,2-Dibromoethane (EDB)	ND		0.0070	0.0028
95-50-1	1,2-Dichlorobenzene	ND		0.050	0.010
541-73-1	1,3-Dichlorobenzene	ND		0.10	0.010
106-46-7	1,4-Dichlorobenzene	ND		0.10	0.010
75-71-8	Dichlorodifluoromethane	ND		0.020	0.0050
75-34-3	1,1-Dichloroethane	ND		0.020	0.0050
107-06-2	1,2-Dichloroethane	ND		0.020	0.0050
75-35-4	1,1-Dichloroethene	ND		0.020	0.0050
156-59-2	cis-1,2-Dichloroethene	ND		0.020	0.0050
156-60-5	trans-1,2-Dichloroethene	ND		0.020	0.0050
78-87-5	1,2-Dichloropropane	ND		0.040	0.0050
10061-01-5	cis-1,3-Dichloropropene	ND		0.020	0.0050
10061-02-6	trans-1,3-Dichloropropene	ND		0.020	0.0050
123-91-1	1,4-Dioxane	ND		0.10	0.010
100-41-4	Ethylbenzene	ND		0.020	0.010
87-68-3	Hexachlorobutadiene	ND		0.020	0.010
75-09-2	Methylene Chloride	ND		0.20	0.10
91-20-3	Naphthalene	ND		0.013	0.010
100-42-5	Styrene	ND		0.030	0.010
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.020	0.010
127-18-4	Tetrachloroethene	ND		0.020	0.010
108-88-3	Toluene	ND		0.020	0.010
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030	0.0050
120-82-1	1,2,4-Trichlorobenzene	ND		0.050	0.010
71-55-6	1,1,1-Trichloroethane	ND		0.020	0.0050
79-00-5	1,1,2-Trichloroethane	ND		0.050	0.0050

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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34000464 Lab Sample ID: 320-35681-4  
 Matrix: Air Lab File ID: MS1020310.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/03/2018 19:25  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.020	0.0050
75-69-4	Trichlorofluoromethane	ND		0.045	0.010
75-01-4	Vinyl chloride	ND		0.020	0.010
179601-23-1	m,p-Xylene	ND		0.040	0.020
95-47-6	o-Xylene	ND		0.020	0.010
96-18-4	1,2,3-Trichloropropane	ND		0.040	0.010

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	95		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	105		70-130
2037-26-5	Toluene-d8 (Surr)	104		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020310.D  
 Lims ID: 320-35681-A-4  
 Client ID: 34000464  
 Sample Type: Client  
 Inject. Date: 03-Feb-2018 19:25:30 ALS Bottle#: 10 Worklist Smp#: 10  
 Purge Vol: 500.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35681-A-4  
 Operator ID: AZ Instrument ID: ATMS1  
 Method: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\TO-15 SIM SIM.m  
 Limit Group: MSA - TO15\_SIM - ICAL  
 Last Update: 05-Feb-2018 07:29:34 Calib Date: 27-Jan-2018 19:56:30  
 Integrator: RTE ID Type: RT Order ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS1\20180127-53396.b\MS1012714.D  
 Column 1 : Det: MS SCAN  
 Process Host: XAWRK031

First Level Reviewer: jamese Date: 05-Feb-2018 10:14:45

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.595	11.589	0.006	99	24785	2.00	
* 2 1,4-Difluorobenzene	114	13.762	13.762	0.000	100	119094	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.461	20.461	0.000	100	85211	2.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	12.790	12.787	0.000	72	76018	2.09	
\$ 5 Toluene-d8 (Surr)	100	17.175	17.165	0.006	100	60283	2.08	
\$ 6 4-Bromofluorobenzene (Surr	174	23.030	23.031	0.000	95	53039	1.90	
18 Acetone	43	6.862	6.808	0.048	0	625	0.0867	

Reagents:

VAMIS20\_00102 Amount Added: 50.00 Units: mL Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020310.D

Injection Date: 03-Feb-2018 19:25:30

Instrument ID: ATMS1

Lims ID: 320-35681-A-4

Lab Sample ID: 320-35681-4

Client ID: 34000464

Operator ID: AZ

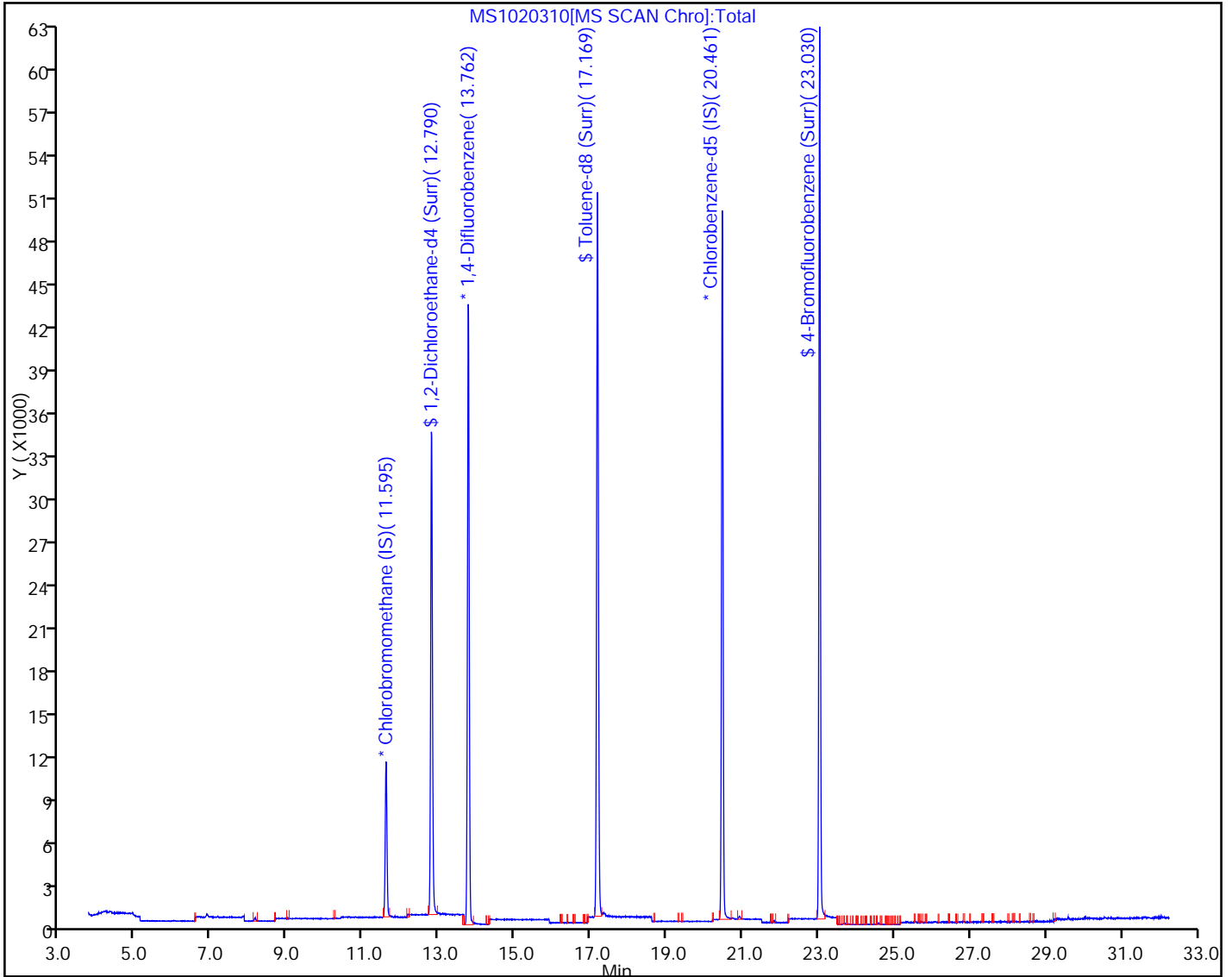
ALS Bottle#: 10 Worklist Smp#: 10

Purge Vol: 500.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO15\_SIM - ICAL



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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 8275 Lab Sample ID: 320-35681-5  
 Matrix: Air Lab File ID: MS1020312.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/03/2018 21:15  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	ND		0.020	0.010
100-44-7	Benzyl chloride	ND		0.10	0.010
75-27-4	Bromodichloromethane	ND		0.012	0.0050
56-23-5	Carbon tetrachloride	ND		0.010	0.0050
108-90-7	Chlorobenzene	ND		0.020	0.010
75-00-3	Chloroethane	ND		0.045	0.010
67-66-3	Chloroform	ND		0.020	0.0050
74-87-3	Chloromethane	ND		0.20	0.010
124-48-1	Dibromochloromethane	ND		0.010	0.0050
106-93-4	1,2-Dibromoethane (EDB)	ND		0.0070	0.0028
95-50-1	1,2-Dichlorobenzene	ND		0.050	0.010
541-73-1	1,3-Dichlorobenzene	ND		0.10	0.010
106-46-7	1,4-Dichlorobenzene	ND		0.10	0.010
75-71-8	Dichlorodifluoromethane	ND		0.020	0.0050
75-34-3	1,1-Dichloroethane	ND		0.020	0.0050
107-06-2	1,2-Dichloroethane	ND		0.020	0.0050
75-35-4	1,1-Dichloroethene	ND		0.020	0.0050
156-59-2	cis-1,2-Dichloroethene	ND		0.020	0.0050
156-60-5	trans-1,2-Dichloroethene	ND		0.020	0.0050
78-87-5	1,2-Dichloropropane	ND		0.040	0.0050
10061-01-5	cis-1,3-Dichloropropene	ND		0.020	0.0050
10061-02-6	trans-1,3-Dichloropropene	ND		0.020	0.0050
123-91-1	1,4-Dioxane	ND		0.10	0.010
100-41-4	Ethylbenzene	ND		0.020	0.010
87-68-3	Hexachlorobutadiene	ND		0.020	0.010
75-09-2	Methylene Chloride	ND		0.20	0.10
91-20-3	Naphthalene	ND		0.013	0.010
100-42-5	Styrene	ND		0.030	0.010
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.020	0.010
127-18-4	Tetrachloroethene	ND		0.020	0.010
108-88-3	Toluene	ND		0.020	0.010
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030	0.0050
120-82-1	1,2,4-Trichlorobenzene	ND		0.050	0.010
71-55-6	1,1,1-Trichloroethane	ND		0.020	0.0050
79-00-5	1,1,2-Trichloroethane	ND		0.050	0.0050

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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 8275 Lab Sample ID: 320-35681-5  
 Matrix: Air Lab File ID: MS1020312.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/03/2018 21:15  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.020	0.0050
75-69-4	Trichlorofluoromethane	ND		0.045	0.010
75-01-4	Vinyl chloride	ND		0.020	0.010
179601-23-1	m,p-Xylene	ND		0.040	0.020
95-47-6	o-Xylene	ND		0.020	0.010
96-18-4	1,2,3-Trichloropropane	ND		0.040	0.010

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	95		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	104		70-130
2037-26-5	Toluene-d8 (Surr)	104		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020312.D  
 Lims ID: 320-35681-A-5  
 Client ID: 8275  
 Sample Type: Client  
 Inject. Date: 03-Feb-2018 21:15:30 ALS Bottle#: 12 Worklist Smp#: 12  
 Purge Vol: 500.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35681-A-5  
 Operator ID: AZ Instrument ID: ATMS1  
 Method: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\TO-15 SIM SIM.m  
 Limit Group: MSA - TO15\_SIM - ICAL  
 Last Update: 05-Feb-2018 10:15:05 Calib Date: 27-Jan-2018 19:56:30  
 Integrator: RTE ID Type: RT Order ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS1\20180127-53396.b\MS1012714.D  
 Column 1 : Det: MS SCAN  
 Process Host: XAWRK031

First Level Reviewer: jamese Date: 05-Feb-2018 10:15:05

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.590	11.589	0.001	99	26004	2.00	
* 2 1,4-Difluorobenzene	114	13.762	13.762	0.000	100	120966	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.462	20.461	0.001	99	85880	2.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	12.790	12.787	0.000	57	76812	2.08	
\$ 5 Toluene-d8 (Surr)	100	17.169	17.165	0.000	100	61122	2.08	
\$ 6 4-Bromofluorobenzene (Surr	174	23.031	23.031	0.001	95	53539	1.91	
18 Acetone	43	6.862	6.808	0.048	0	847	0.1120	

Reagents:

VAMSIS20\_00102 Amount Added: 50.00 Units: mL Run Reagent



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020312.D

Injection Date: 03-Feb-2018 21:15:30

Instrument ID: ATMS1

Lims ID: 320-35681-A-5

Lab Sample ID: 320-35681-5

Client ID: 8275

Operator ID: AZ

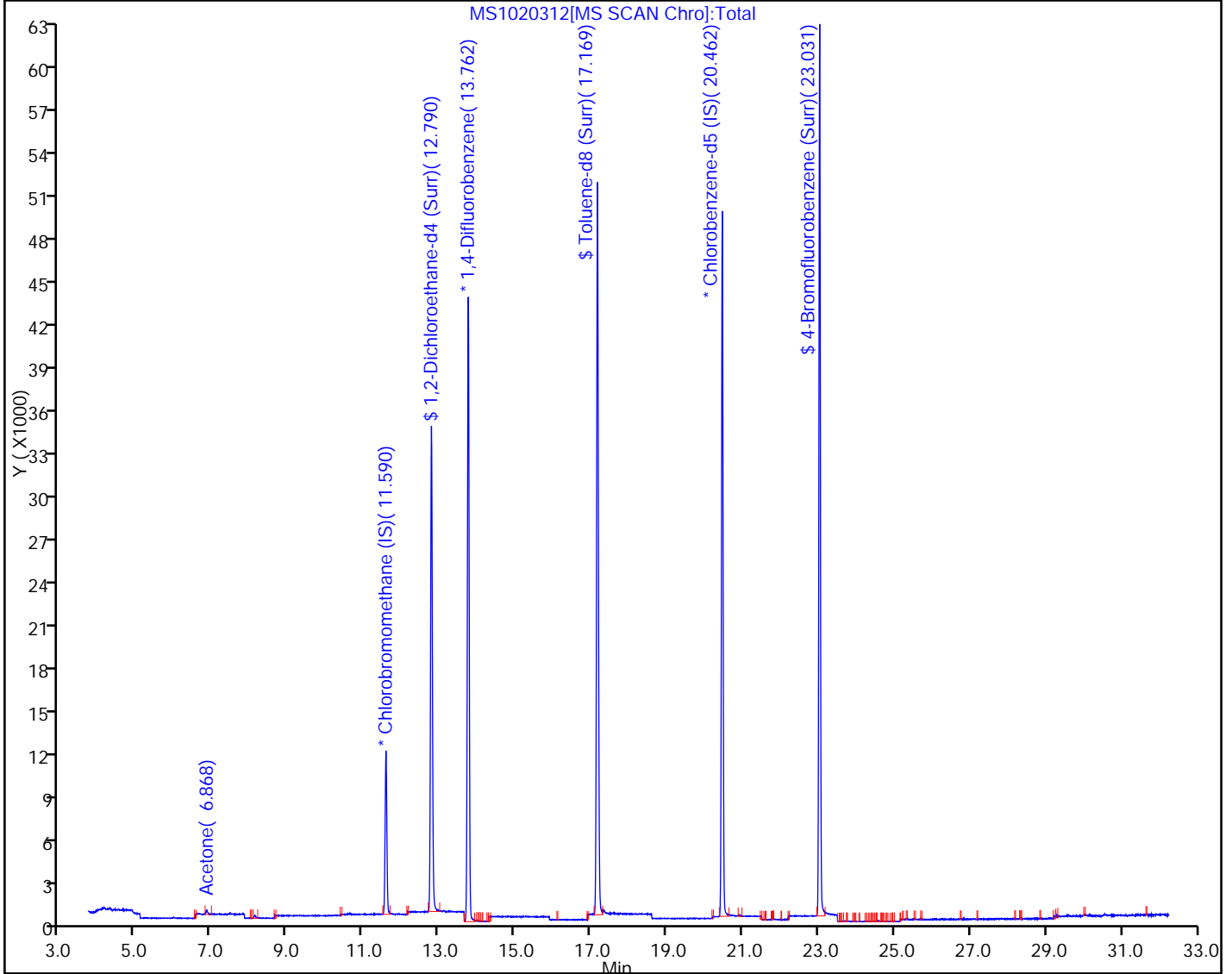
ALS Bottle#: 12 Worklist Smp#: 12

Purge Vol: 500.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO15\_SIM - ICAL

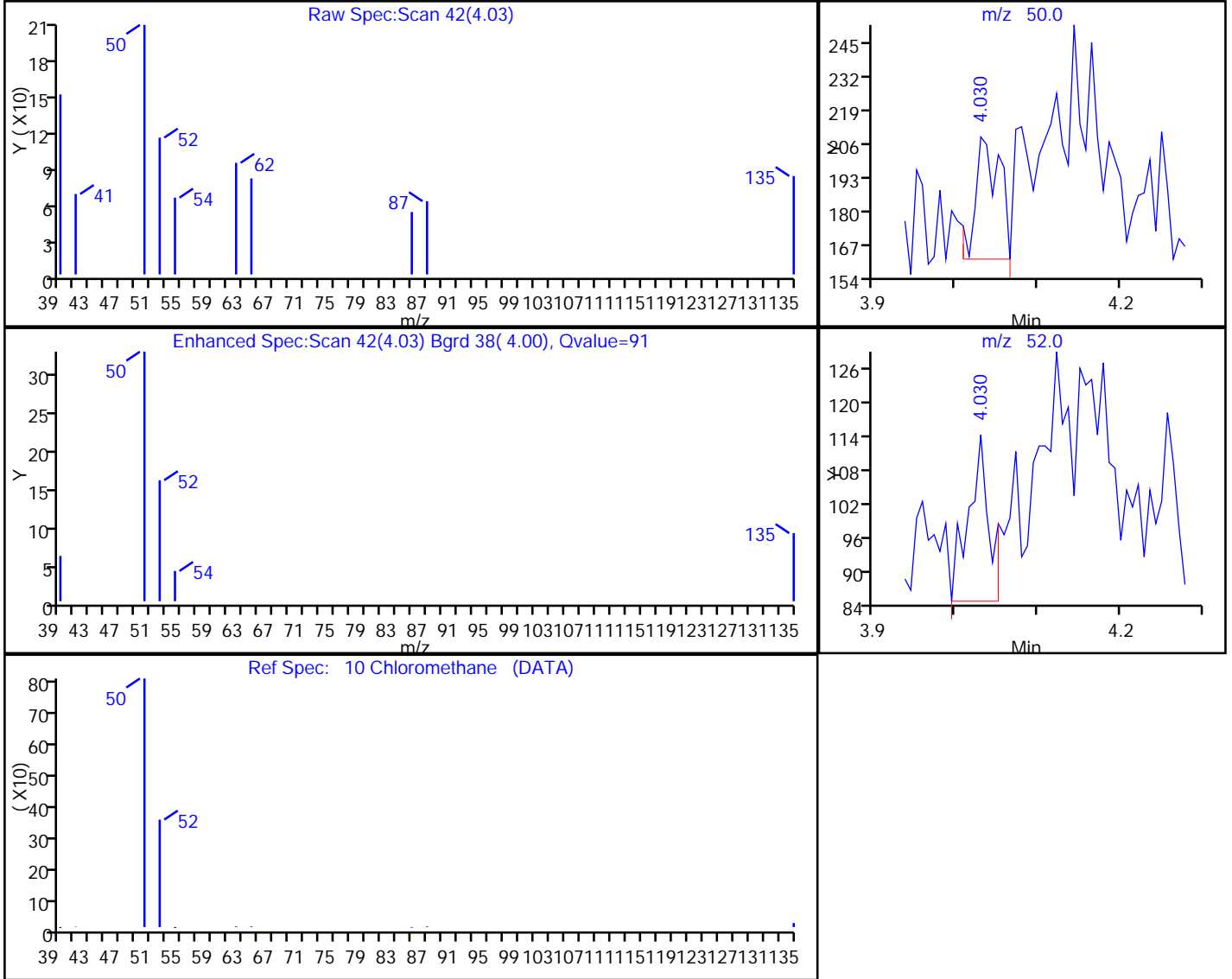


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020312.D  
 Injection Date: 03-Feb-2018 21:15:30 Instrument ID: ATMS1  
 Lims ID: 320-35681-A-5 Lab Sample ID: 320-35681-5  
 Client ID: 8275  
 Operator ID: AZ ALS Bottle#: 12 Worklist Smp#: 12  
 Purge Vol: 500.000 mL Dil. Factor: 1.0000  
 Method: TO-15 SIM SIM Limit Group: MSA - TO15\_SIM - ICAL  
 Column: Detector MS SCAN

10 Chloromethane, CAS: 74-87-3

Processing Results



RT	Mass	Response	Amount
4.03	50.00	98	0.064862
4.03	52.00	53	

Reviewer: jamese, 05-Feb-2018 10:15:05

Audit Action: Marked Compound Undetected

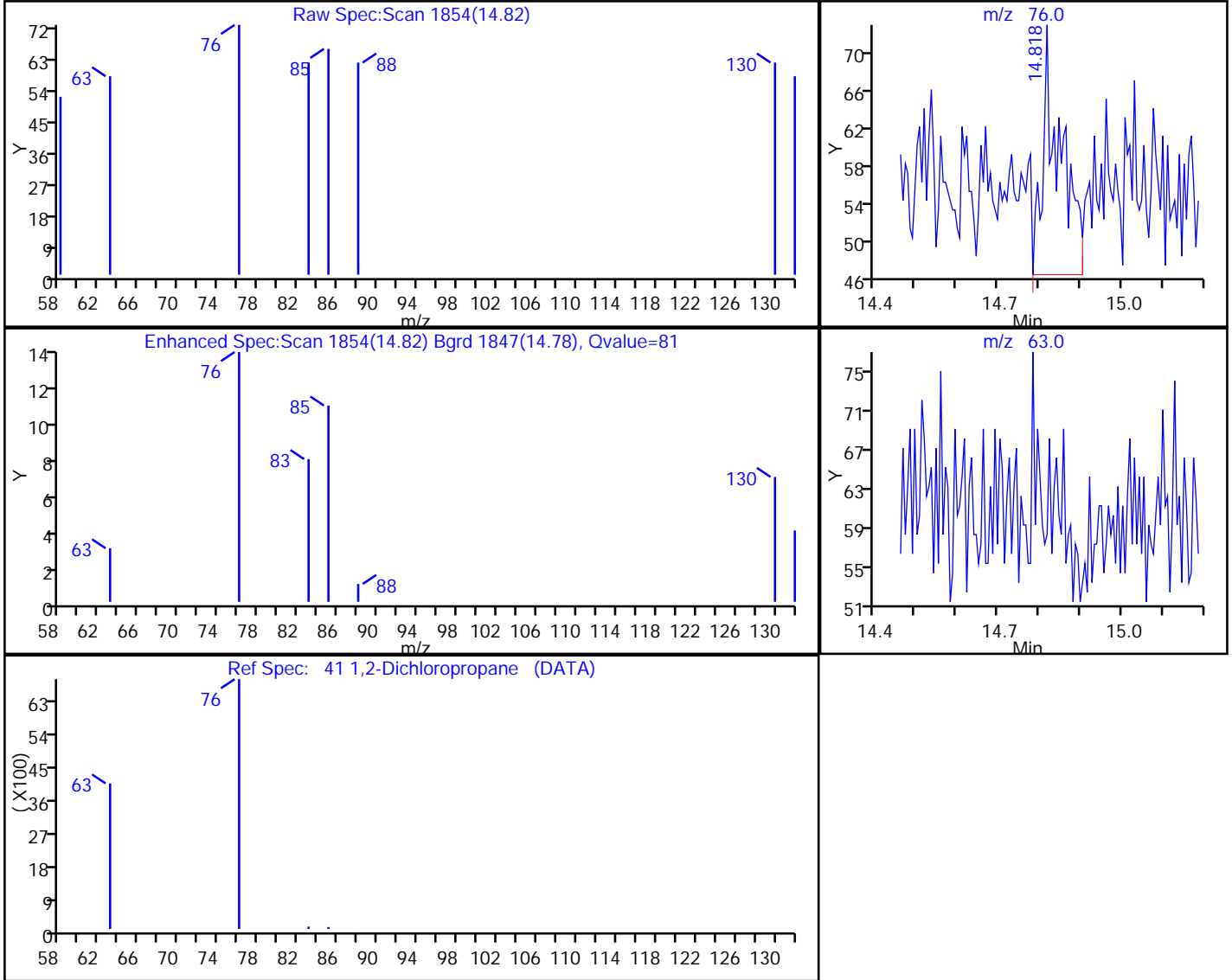
Audit Reason: Invalid Compound ID

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020312.D  
 Injection Date: 03-Feb-2018 21:15:30 Instrument ID: ATMS1  
 Lims ID: 320-35681-A-5 Lab Sample ID: 320-35681-5  
 Client ID: 8275  
 Operator ID: AZ ALS Bottle#: 12 Worklist Smp#: 12  
 Purge Vol: 500.000 mL Dil. Factor: 1.0000  
 Method: TO-15 SIM SIM Limit Group: MSA - TO15\_SIM - ICAL  
 Column: Detector MS SCAN

41 1,2-Dichloropropane, CAS: 78-87-5

Processing Results



RT	Mass	Response	Amount
14.82	76.00	82	0.005556
14.82	63.00	0	

Reviewer: jamese, 05-Feb-2018 10:15:05

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34000609 Lab Sample ID: 320-35681-6  
 Matrix: Air Lab File ID: MS1020313.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/03/2018 22:13  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	ND		0.020	0.010
100-44-7	Benzyl chloride	ND		0.10	0.010
75-27-4	Bromodichloromethane	ND		0.012	0.0050
56-23-5	Carbon tetrachloride	ND		0.010	0.0050
108-90-7	Chlorobenzene	ND		0.020	0.010
75-00-3	Chloroethane	ND		0.045	0.010
67-66-3	Chloroform	ND		0.020	0.0050
74-87-3	Chloromethane	ND		0.20	0.010
124-48-1	Dibromochloromethane	ND		0.010	0.0050
106-93-4	1,2-Dibromoethane (EDB)	ND		0.0070	0.0028
95-50-1	1,2-Dichlorobenzene	ND		0.050	0.010
541-73-1	1,3-Dichlorobenzene	ND		0.10	0.010
106-46-7	1,4-Dichlorobenzene	ND		0.10	0.010
75-71-8	Dichlorodifluoromethane	ND		0.020	0.0050
75-34-3	1,1-Dichloroethane	ND		0.020	0.0050
107-06-2	1,2-Dichloroethane	ND		0.020	0.0050
75-35-4	1,1-Dichloroethene	ND		0.020	0.0050
156-59-2	cis-1,2-Dichloroethene	ND		0.020	0.0050
156-60-5	trans-1,2-Dichloroethene	ND		0.020	0.0050
78-87-5	1,2-Dichloropropane	ND		0.040	0.0050
10061-01-5	cis-1,3-Dichloropropene	ND		0.020	0.0050
10061-02-6	trans-1,3-Dichloropropene	ND		0.020	0.0050
123-91-1	1,4-Dioxane	ND		0.10	0.010
100-41-4	Ethylbenzene	ND		0.020	0.010
87-68-3	Hexachlorobutadiene	ND		0.020	0.010
75-09-2	Methylene Chloride	ND		0.20	0.10
91-20-3	Naphthalene	ND		0.013	0.010
100-42-5	Styrene	ND		0.030	0.010
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.020	0.010
127-18-4	Tetrachloroethene	ND		0.020	0.010
108-88-3	Toluene	ND		0.020	0.010
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030	0.0050
120-82-1	1,2,4-Trichlorobenzene	ND		0.050	0.010
71-55-6	1,1,1-Trichloroethane	ND		0.020	0.0050
79-00-5	1,1,2-Trichloroethane	ND		0.050	0.0050

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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34000609 Lab Sample ID: 320-35681-6  
 Matrix: Air Lab File ID: MS1020313.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/03/2018 22:13  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.020	0.0050
75-69-4	Trichlorofluoromethane	ND		0.045	0.010
75-01-4	Vinyl chloride	ND		0.020	0.010
179601-23-1	m,p-Xylene	ND		0.040	0.020
95-47-6	o-Xylene	ND		0.020	0.010
96-18-4	1,2,3-Trichloropropane	ND		0.040	0.010

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	94		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	103		70-130
2037-26-5	Toluene-d8 (Surr)	106		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020313.D  
 Lims ID: 320-35681-A-6  
 Client ID: 34000609  
 Sample Type: Client  
 Inject. Date: 03-Feb-2018 22:13:30 ALS Bottle#: 13 Worklist Smp#: 13  
 Purge Vol: 500.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35681-A-6  
 Operator ID: AZ Instrument ID: ATMS1  
 Method: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\TO-15 SIM SIM.m  
 Limit Group: MSA - TO15\_SIM - ICAL  
 Last Update: 05-Feb-2018 10:15:20 Calib Date: 27-Jan-2018 19:56:30  
 Integrator: RTE ID Type: RT Order ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS1\20180127-53396.b\MS1012714.D  
 Column 1 : Det: MS SCAN  
 Process Host: XAWRK031

First Level Reviewer: jamese Date: 05-Feb-2018 10:15:20

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.584	11.589	-0.005	99	25234	2.00	
* 2 1,4-Difluorobenzene	114	13.754	13.762	-0.008	100	119927	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.461	20.461	0.000	99	85640	2.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	12.782	12.787	-0.008	69	75641	2.07	
\$ 5 Toluene-d8 (Surr)	100	17.169	17.165	0.000	100	61651	2.11	
\$ 6 4-Bromofluorobenzene (Surr	174	23.030	23.031	0.000	93	52933	1.89	
18 Acetone	43	6.850	6.808	0.036	0	433	0.0590	

Reagents:

VAMIS20\_00102 Amount Added: 50.00 Units: mL Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020313.D

Injection Date: 03-Feb-2018 22:13:30

Instrument ID: ATMS1

Lims ID: 320-35681-A-6

Lab Sample ID: 320-35681-6

Client ID: 34000609

Operator ID: AZ

ALS Bottle#: 13

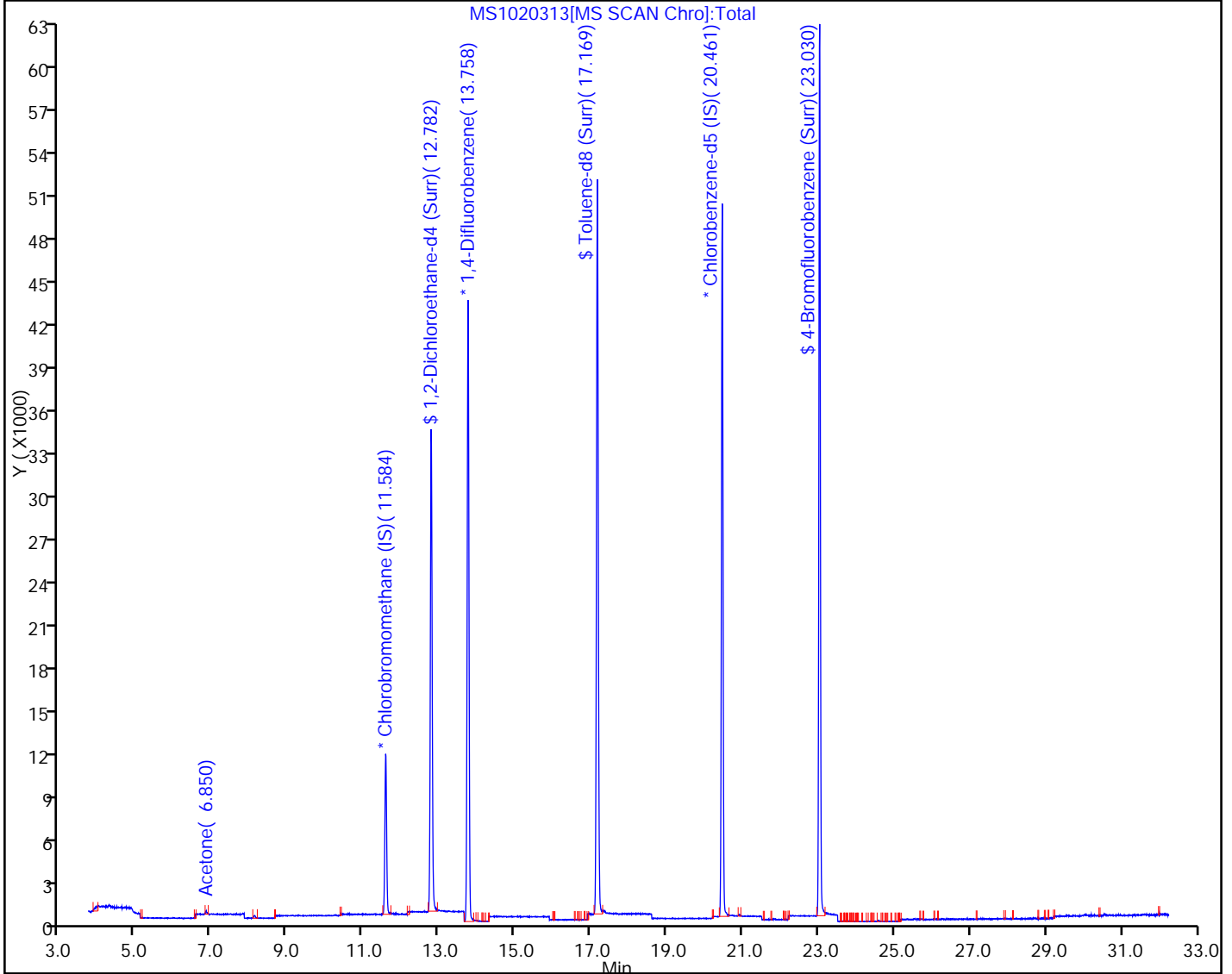
Worklist Smp#: 13

Purge Vol: 500.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO15\_SIM - ICAL

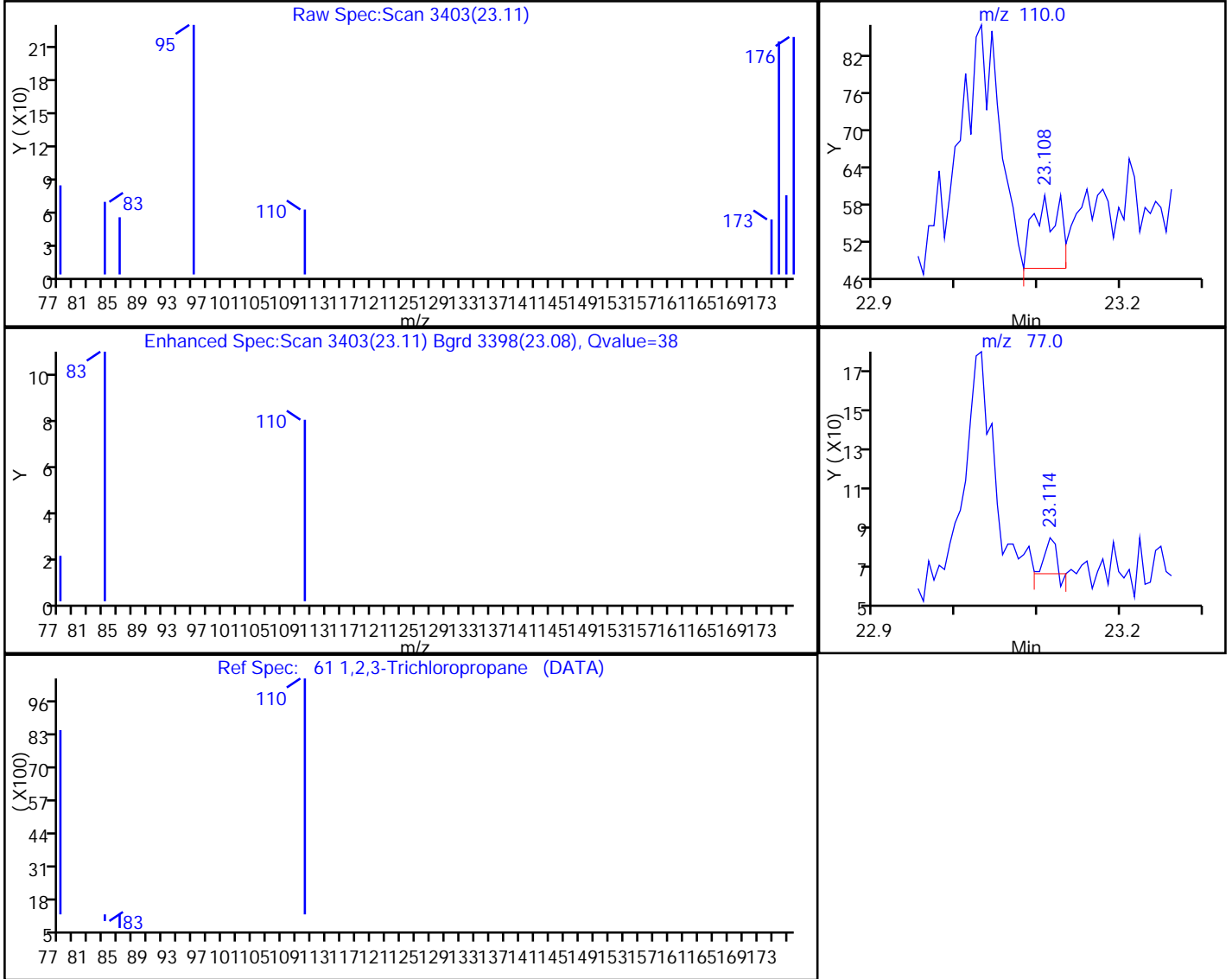


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020313.D  
 Injection Date: 03-Feb-2018 22:13:30 Instrument ID: ATMS1  
 Lims ID: 320-35681-A-6 Lab Sample ID: 320-35681-6  
 Client ID: 34000609  
 Operator ID: AZ ALS Bottle#: 13 Worklist Smp#: 13  
 Purge Vol: 500.000 mL Dil. Factor: 1.0000  
 Method: TO-15 SIM SIM Limit Group: MSA - TO15\_SIM - ICAL  
 Column: Detector MS SCAN

61 1,2,3-Trichloropropane, CAS: 96-18-4

Processing Results



RT	Mass	Response	Amount
23.11	110.00	25	0.001220
23.11	77.00	14	

Reviewer: jamese, 05-Feb-2018 10:15:20

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID



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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34000188 Lab Sample ID: 320-35681-7  
 Matrix: Air Lab File ID: MS1020314.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/03/2018 23:12  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	ND		0.020	0.010
100-44-7	Benzyl chloride	ND		0.10	0.010
75-27-4	Bromodichloromethane	ND		0.012	0.0050
56-23-5	Carbon tetrachloride	ND		0.010	0.0050
108-90-7	Chlorobenzene	ND		0.020	0.010
75-00-3	Chloroethane	ND		0.045	0.010
67-66-3	Chloroform	ND		0.020	0.0050
74-87-3	Chloromethane	ND		0.20	0.010
124-48-1	Dibromochloromethane	ND		0.010	0.0050
106-93-4	1,2-Dibromoethane (EDB)	ND		0.0070	0.0028
95-50-1	1,2-Dichlorobenzene	ND		0.050	0.010
541-73-1	1,3-Dichlorobenzene	ND		0.10	0.010
106-46-7	1,4-Dichlorobenzene	ND		0.10	0.010
75-71-8	Dichlorodifluoromethane	ND		0.020	0.0050
75-34-3	1,1-Dichloroethane	ND		0.020	0.0050
107-06-2	1,2-Dichloroethane	ND		0.020	0.0050
75-35-4	1,1-Dichloroethene	ND		0.020	0.0050
156-59-2	cis-1,2-Dichloroethene	ND		0.020	0.0050
156-60-5	trans-1,2-Dichloroethene	ND		0.020	0.0050
78-87-5	1,2-Dichloropropane	ND		0.040	0.0050
10061-01-5	cis-1,3-Dichloropropene	ND		0.020	0.0050
10061-02-6	trans-1,3-Dichloropropene	ND		0.020	0.0050
123-91-1	1,4-Dioxane	ND		0.10	0.010
100-41-4	Ethylbenzene	ND		0.020	0.010
87-68-3	Hexachlorobutadiene	ND		0.020	0.010
75-09-2	Methylene Chloride	ND		0.20	0.10
91-20-3	Naphthalene	ND		0.013	0.010
100-42-5	Styrene	ND		0.030	0.010
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.020	0.010
127-18-4	Tetrachloroethene	ND		0.020	0.010
108-88-3	Toluene	ND		0.020	0.010
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030	0.0050
120-82-1	1,2,4-Trichlorobenzene	ND		0.050	0.010
71-55-6	1,1,1-Trichloroethane	ND		0.020	0.0050
79-00-5	1,1,2-Trichloroethane	ND		0.050	0.0050

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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34000188 Lab Sample ID: 320-35681-7  
 Matrix: Air Lab File ID: MS1020314.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/03/2018 23:12  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.020	0.0050
75-69-4	Trichlorofluoromethane	ND		0.045	0.010
75-01-4	Vinyl chloride	ND		0.020	0.010
179601-23-1	m,p-Xylene	ND		0.040	0.020
95-47-6	o-Xylene	ND		0.020	0.010
96-18-4	1,2,3-Trichloropropane	ND		0.040	0.010

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	99		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	105		70-130
2037-26-5	Toluene-d8 (Surr)	101		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020314.D  
 Lims ID: 320-35681-A-7  
 Client ID: 34000188  
 Sample Type: Client  
 Inject. Date: 03-Feb-2018 23:12:30 ALS Bottle#: 14 Worklist Smp#: 14  
 Purge Vol: 500.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35681-A-7  
 Operator ID: AZ Instrument ID: ATMS1  
 Method: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\TO-15 SIM SIM.m  
 Limit Group: MSA - TO15\_SIM - ICAL  
 Last Update: 05-Feb-2018 10:15:20 Calib Date: 27-Jan-2018 19:56:30  
 Integrator: RTE ID Type: RT Order ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS1\20180127-53396.b\MS1012714.D  
 Column 1 : Det: MS SCAN  
 Process Host: XAWRK031

First Level Reviewer: jamese Date: 05-Feb-2018 10:15:32

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.583	11.589	-0.006	100	26358	2.00	
* 2 1,4-Difluorobenzene	114	13.754	13.762	-0.008	100	126507	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.461	20.461	0.000	99	87229	2.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	12.782	12.787	-0.008	58	81050	2.10	
\$ 5 Toluene-d8 (Surr)	100	17.169	17.165	0.000	100	62040	2.02	
\$ 6 4-Bromofluorobenzene (Surr	174	23.030	23.031	0.000	95	56287	1.97	
18 Acetone	43	6.838	6.808	0.024	0	380	0.0496	

Reagents:

VAMIS20\_00102 Amount Added: 50.00 Units: mL Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020314.D

Injection Date: 03-Feb-2018 23:12:30

Instrument ID: ATMS1

Lims ID: 320-35681-A-7

Lab Sample ID: 320-35681-7

Client ID: 34000188

Operator ID: AZ

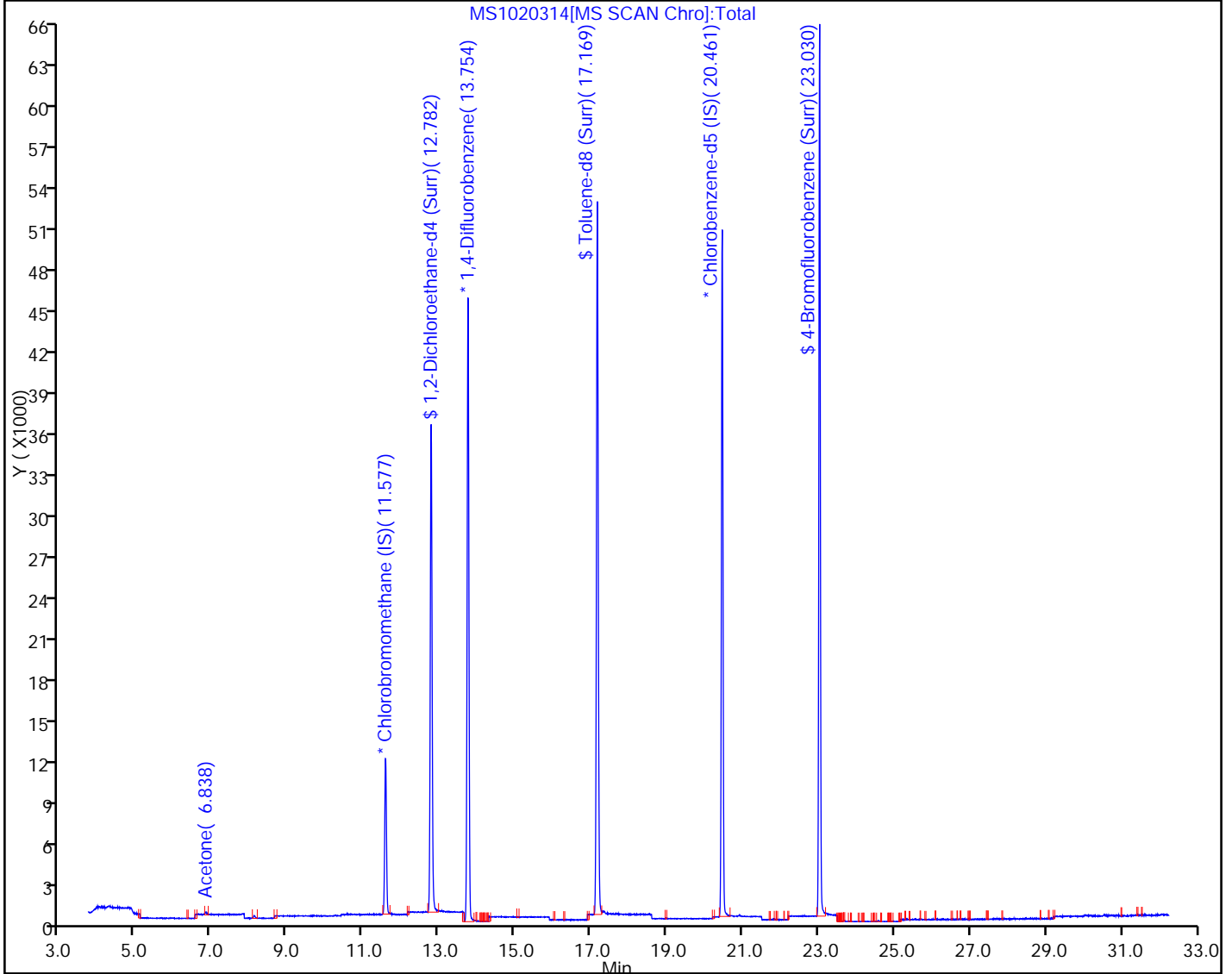
ALS Bottle#: 14 Worklist Smp#: 14

Purge Vol: 500.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO15\_SIM - ICAL



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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34001527 Lab Sample ID: 320-35681-8  
 Matrix: Air Lab File ID: MS1020315.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/04/2018 00:11  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	ND		0.020	0.010
100-44-7	Benzyl chloride	ND		0.10	0.010
75-27-4	Bromodichloromethane	ND		0.012	0.0050
56-23-5	Carbon tetrachloride	ND		0.010	0.0050
108-90-7	Chlorobenzene	ND		0.020	0.010
75-00-3	Chloroethane	ND		0.045	0.010
67-66-3	Chloroform	ND		0.020	0.0050
74-87-3	Chloromethane	ND		0.20	0.010
124-48-1	Dibromochloromethane	ND		0.010	0.0050
106-93-4	1,2-Dibromoethane (EDB)	ND		0.0070	0.0028
95-50-1	1,2-Dichlorobenzene	ND		0.050	0.010
541-73-1	1,3-Dichlorobenzene	ND		0.10	0.010
106-46-7	1,4-Dichlorobenzene	ND		0.10	0.010
75-71-8	Dichlorodifluoromethane	ND		0.020	0.0050
75-34-3	1,1-Dichloroethane	ND		0.020	0.0050
107-06-2	1,2-Dichloroethane	ND		0.020	0.0050
75-35-4	1,1-Dichloroethene	ND		0.020	0.0050
156-59-2	cis-1,2-Dichloroethene	ND		0.020	0.0050
156-60-5	trans-1,2-Dichloroethene	ND		0.020	0.0050
78-87-5	1,2-Dichloropropane	ND		0.040	0.0050
10061-01-5	cis-1,3-Dichloropropene	ND		0.020	0.0050
10061-02-6	trans-1,3-Dichloropropene	ND		0.020	0.0050
123-91-1	1,4-Dioxane	ND		0.10	0.010
100-41-4	Ethylbenzene	ND		0.020	0.010
87-68-3	Hexachlorobutadiene	ND		0.020	0.010
75-09-2	Methylene Chloride	ND		0.20	0.10
91-20-3	Naphthalene	ND		0.013	0.010
100-42-5	Styrene	ND		0.030	0.010
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.020	0.010
127-18-4	Tetrachloroethene	ND		0.020	0.010
108-88-3	Toluene	ND		0.020	0.010
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030	0.0050
120-82-1	1,2,4-Trichlorobenzene	ND		0.050	0.010
71-55-6	1,1,1-Trichloroethane	ND		0.020	0.0050
79-00-5	1,1,2-Trichloroethane	ND		0.050	0.0050

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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34001527 Lab Sample ID: 320-35681-8  
 Matrix: Air Lab File ID: MS1020315.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/04/2018 00:11  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.020	0.0050
75-69-4	Trichlorofluoromethane	ND		0.045	0.010
75-01-4	Vinyl chloride	ND		0.020	0.010
179601-23-1	m,p-Xylene	ND		0.040	0.020
95-47-6	o-Xylene	ND		0.020	0.010
96-18-4	1,2,3-Trichloropropane	ND		0.040	0.010

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	93		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	108		70-130
2037-26-5	Toluene-d8 (Surr)	102		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020315.D  
 Lims ID: 320-35681-A-8  
 Client ID: 34001527  
 Sample Type: Client  
 Inject. Date: 04-Feb-2018 00:11:30 ALS Bottle#: 15 Worklist Smp#: 15  
 Purge Vol: 500.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35681-A-8  
 Operator ID: AZ Instrument ID: ATMS1  
 Method: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\TO-15 SIM SIM.m  
 Limit Group: MSA - TO15\_SIM - ICAL  
 Last Update: 05-Feb-2018 10:15:45 Calib Date: 27-Jan-2018 19:56:30  
 Integrator: RTE ID Type: RT Order ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS1\20180127-53396.b\MS1012714.D  
 Column 1 : Det: MS SCAN  
 Process Host: XAWRK031

First Level Reviewer: jamese Date: 05-Feb-2018 10:15:45

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.590	11.589	0.001	100	24553	2.00	
* 2 1,4-Difluorobenzene	114	13.762	13.762	0.000	100	115012	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.462	20.461	0.001	99	79701	2.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	12.790	12.787	0.000	85	75492	2.15	
\$ 5 Toluene-d8 (Surr)	100	17.169	17.165	0.000	100	56931	2.03	
\$ 6 4-Bromofluorobenzene (Surr	174	23.031	23.031	0.001	93	48702	1.87	
18 Acetone	43	6.880	6.808	0.066	0	435	0.0609	

Reagents:

VAMIS20\_00102 Amount Added: 50.00 Units: mL Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020315.D

Injection Date: 04-Feb-2018 00:11:30

Instrument ID: ATMS1

Lims ID: 320-35681-A-8

Lab Sample ID: 320-35681-8

Client ID: 34001527

Operator ID: AZ

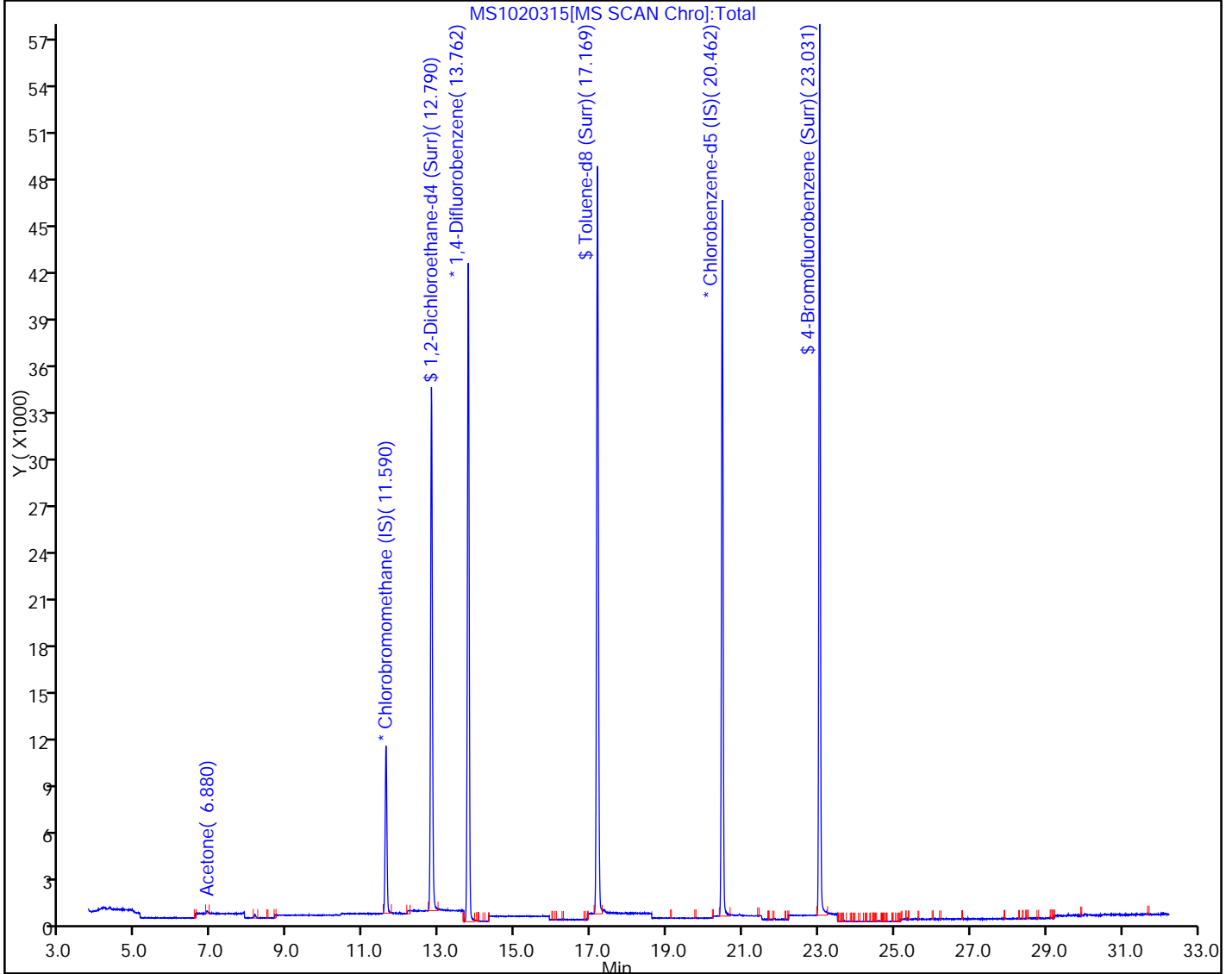
ALS Bottle#: 15 Worklist Smp#: 15

Purge Vol: 500.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO15\_SIM - ICAL



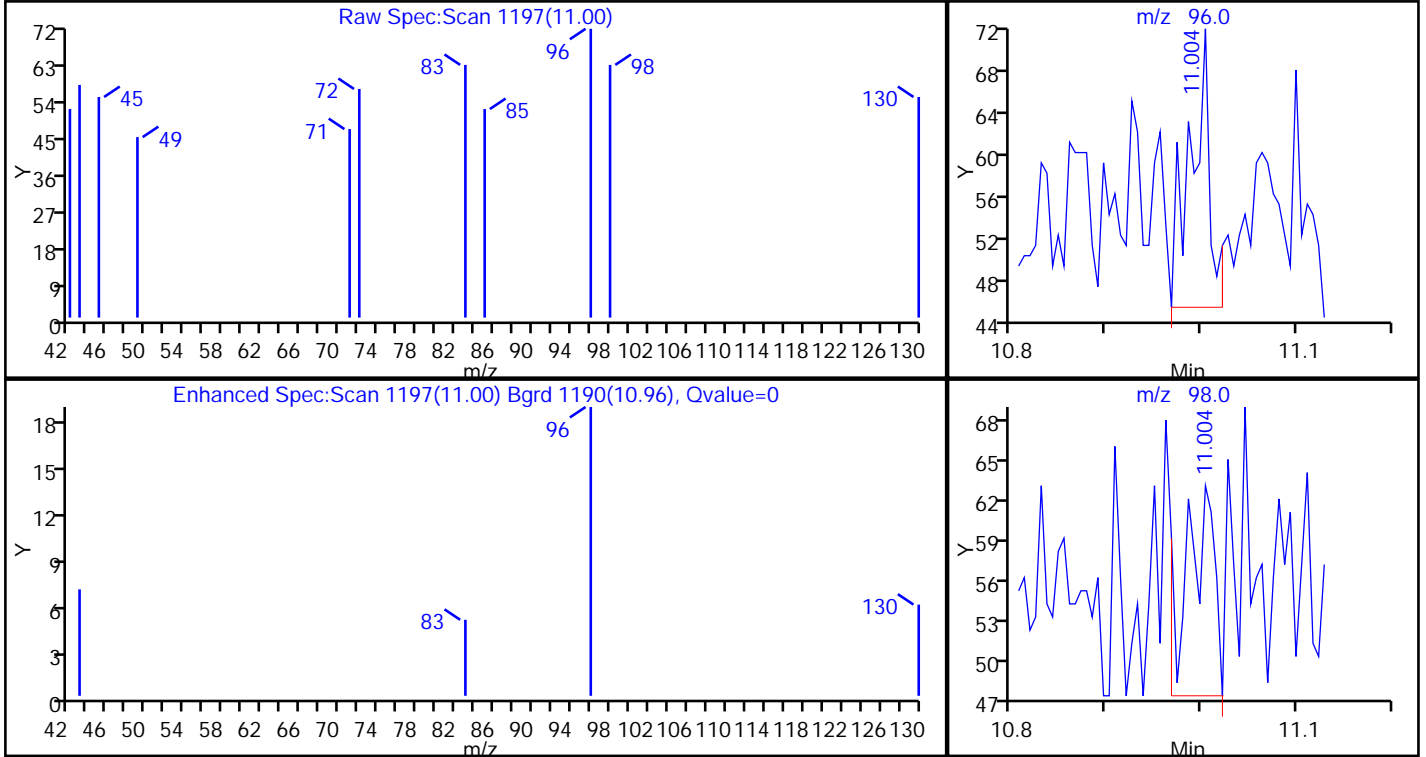


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020315.D  
Injection Date: 04-Feb-2018 00:11:30 Instrument ID: ATMS1  
Lims ID: 320-35681-A-8 Lab Sample ID: 320-35681-8  
Client ID: 34001527  
Operator ID: AZ ALS Bottle#: 15 Worklist Smp#: 15  
Purge Vol: 500.000 mL Dil. Factor: 1.0000  
Method: TO-15 SIM SIM Limit Group: MSA - TO15\_SIM - ICAL  
Column: Detector MS SCAN

30 cis-1,2-Dichloroethene, CAS: 156-59-2

Processing Results



RT	Mass	Response	Amount
11.00	96.00	39	0.002579
11.00	98.00	33	

Reviewer: jamese, 05-Feb-2018 10:15:45

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34001588 Lab Sample ID: 320-35681-9  
 Matrix: Air Lab File ID: MS1020317.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/04/2018 02:03  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	ND		0.020	0.010
100-44-7	Benzyl chloride	ND		0.10	0.010
75-27-4	Bromodichloromethane	ND		0.012	0.0050
56-23-5	Carbon tetrachloride	ND		0.010	0.0050
108-90-7	Chlorobenzene	ND		0.020	0.010
75-00-3	Chloroethane	ND		0.045	0.010
67-66-3	Chloroform	ND		0.020	0.0050
74-87-3	Chloromethane	ND		0.20	0.010
124-48-1	Dibromochloromethane	ND		0.010	0.0050
106-93-4	1,2-Dibromoethane (EDB)	ND		0.0070	0.0028
95-50-1	1,2-Dichlorobenzene	ND		0.050	0.010
541-73-1	1,3-Dichlorobenzene	ND		0.10	0.010
106-46-7	1,4-Dichlorobenzene	ND		0.10	0.010
75-71-8	Dichlorodifluoromethane	ND		0.020	0.0050
75-34-3	1,1-Dichloroethane	ND		0.020	0.0050
107-06-2	1,2-Dichloroethane	ND		0.020	0.0050
75-35-4	1,1-Dichloroethene	ND		0.020	0.0050
156-59-2	cis-1,2-Dichloroethene	ND		0.020	0.0050
156-60-5	trans-1,2-Dichloroethene	ND		0.020	0.0050
78-87-5	1,2-Dichloropropane	ND		0.040	0.0050
10061-01-5	cis-1,3-Dichloropropene	ND		0.020	0.0050
10061-02-6	trans-1,3-Dichloropropene	ND		0.020	0.0050
123-91-1	1,4-Dioxane	ND		0.10	0.010
100-41-4	Ethylbenzene	ND		0.020	0.010
87-68-3	Hexachlorobutadiene	ND		0.020	0.010
75-09-2	Methylene Chloride	ND		0.20	0.10
91-20-3	Naphthalene	ND		0.013	0.010
100-42-5	Styrene	ND		0.030	0.010
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.020	0.010
127-18-4	Tetrachloroethene	ND		0.020	0.010
108-88-3	Toluene	ND		0.020	0.010
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030	0.0050
120-82-1	1,2,4-Trichlorobenzene	ND		0.050	0.010
71-55-6	1,1,1-Trichloroethane	ND		0.020	0.0050
79-00-5	1,1,2-Trichloroethane	ND		0.050	0.0050

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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34001588 Lab Sample ID: 320-35681-9  
 Matrix: Air Lab File ID: MS1020317.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/04/2018 02:03  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.020	0.0050
75-69-4	Trichlorofluoromethane	ND		0.045	0.010
75-01-4	Vinyl chloride	ND		0.020	0.010
179601-23-1	m,p-Xylene	ND		0.040	0.020
95-47-6	o-Xylene	ND		0.020	0.010
96-18-4	1,2,3-Trichloropropane	ND		0.040	0.010

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	95		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	103		70-130
2037-26-5	Toluene-d8 (Surr)	101		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020317.D  
 Lims ID: 320-35681-A-9  
 Client ID: 34001588  
 Sample Type: Client  
 Inject. Date: 04-Feb-2018 02:03:30 ALS Bottle#: 17 Worklist Smp#: 17  
 Purge Vol: 500.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35681-A-9  
 Operator ID: AZ Instrument ID: ATMS1  
 Method: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\TO-15 SIM SIM.m  
 Limit Group: MSA - TO15\_SIM - ICAL  
 Last Update: 05-Feb-2018 10:15:45 Calib Date: 27-Jan-2018 19:56:30  
 Integrator: RTE ID Type: RT Order ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS1\20180127-53396.b\MS1012714.D  
 Column 1 : Det: MS SCAN  
 Process Host: XAWRK031

First Level Reviewer: jamese

Date: 05-Feb-2018 10:15:57

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.583	11.589	-0.006	99	25770	2.00	
* 2 1,4-Difluorobenzene	114	13.758	13.762	-0.004	100	121389	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.461	20.461	0.000	99	83495	2.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	12.782	12.787	-0.008	73	76059	2.05	
\$ 5 Toluene-d8 (Surr)	100	17.169	17.165	0.000	100	59367	2.01	
\$ 6 4-Bromofluorobenzene (Surr	174	23.030	23.031	0.000	94	51918	1.90	
18 Acetone	43	6.826	6.808	0.012	0	1972	0.2632	

**Reagents:**

VAMIS20\_00102 Amount Added: 50.00 Units: mL Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020317.D

Injection Date: 04-Feb-2018 02:03:30

Instrument ID: ATMS1

Lims ID: 320-35681-A-9

Lab Sample ID: 320-35681-9

Client ID: 34001588

Operator ID: AZ

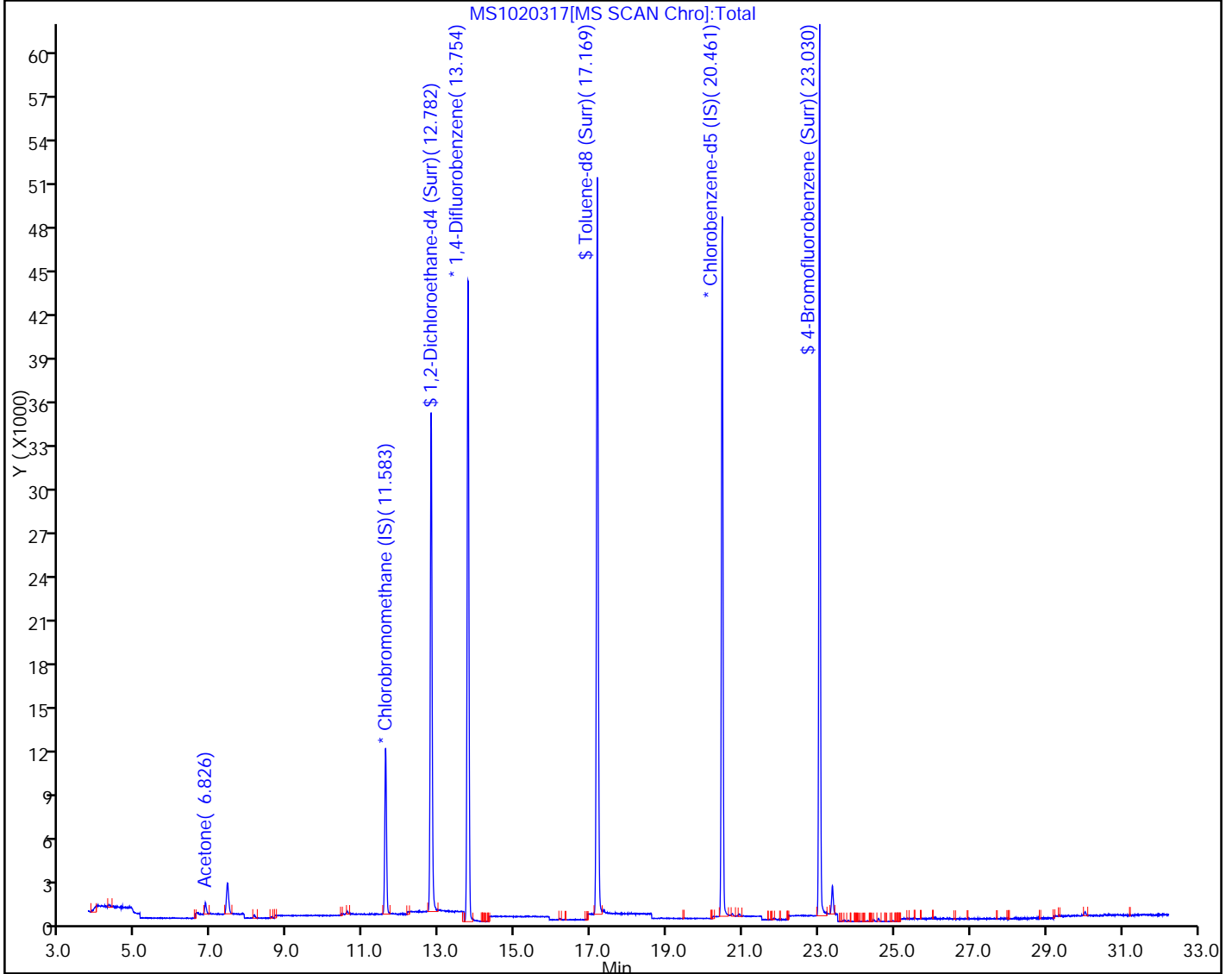
ALS Bottle#: 17 Worklist Smp#: 17

Purge Vol: 500.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO15\_SIM - ICAL



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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 7866 Lab Sample ID: 320-35681-10  
 Matrix: Air Lab File ID: MS1020318.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/04/2018 03:02  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	ND		0.020	0.010
100-44-7	Benzyl chloride	ND		0.10	0.010
75-27-4	Bromodichloromethane	ND		0.012	0.0050
56-23-5	Carbon tetrachloride	ND		0.010	0.0050
108-90-7	Chlorobenzene	ND		0.020	0.010
75-00-3	Chloroethane	ND		0.045	0.010
67-66-3	Chloroform	ND		0.020	0.0050
74-87-3	Chloromethane	ND		0.20	0.010
124-48-1	Dibromochloromethane	ND		0.010	0.0050
106-93-4	1,2-Dibromoethane (EDB)	ND		0.0070	0.0028
95-50-1	1,2-Dichlorobenzene	ND		0.050	0.010
541-73-1	1,3-Dichlorobenzene	ND		0.10	0.010
106-46-7	1,4-Dichlorobenzene	ND		0.10	0.010
75-71-8	Dichlorodifluoromethane	ND		0.020	0.0050
75-34-3	1,1-Dichloroethane	ND		0.020	0.0050
107-06-2	1,2-Dichloroethane	ND		0.020	0.0050
75-35-4	1,1-Dichloroethene	ND		0.020	0.0050
156-59-2	cis-1,2-Dichloroethene	ND		0.020	0.0050
156-60-5	trans-1,2-Dichloroethene	ND		0.020	0.0050
78-87-5	1,2-Dichloropropane	ND		0.040	0.0050
10061-01-5	cis-1,3-Dichloropropene	ND		0.020	0.0050
10061-02-6	trans-1,3-Dichloropropene	ND		0.020	0.0050
123-91-1	1,4-Dioxane	ND		0.10	0.010
100-41-4	Ethylbenzene	ND		0.020	0.010
87-68-3	Hexachlorobutadiene	ND		0.020	0.010
75-09-2	Methylene Chloride	ND		0.20	0.10
91-20-3	Naphthalene	ND		0.013	0.010
100-42-5	Styrene	ND		0.030	0.010
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.020	0.010
108-88-3	Toluene	0.012	J	0.020	0.010
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030	0.0050
120-82-1	1,2,4-Trichlorobenzene	ND		0.050	0.010
71-55-6	1,1,1-Trichloroethane	ND		0.020	0.0050
79-00-5	1,1,2-Trichloroethane	ND		0.050	0.0050
79-01-6	Trichloroethene	ND		0.020	0.0050

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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 7866 Lab Sample ID: 320-35681-10  
 Matrix: Air Lab File ID: MS1020318.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/04/2018 03:02  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-69-4	Trichlorofluoromethane	ND		0.045	0.010
75-01-4	Vinyl chloride	ND		0.020	0.010
179601-23-1	m,p-Xylene	ND		0.040	0.020
95-47-6	o-Xylene	ND		0.020	0.010
96-18-4	1,2,3-Trichloropropane	ND		0.040	0.010

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	94		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	105		70-130
2037-26-5	Toluene-d8 (Surr)	103		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020318.D  
 Lims ID: 320-35681-A-10  
 Client ID: 7866  
 Sample Type: Client  
 Inject. Date: 04-Feb-2018 03:02:30 ALS Bottle#: 18 Worklist Smp#: 18  
 Purge Vol: 500.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35681-A-10  
 Operator ID: AZ Instrument ID: ATMS1  
 Method: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\TO-15 SIM SIM.m  
 Limit Group: MSA - TO15\_SIM - ICAL  
 Last Update: 05-Feb-2018 10:15:45 Calib Date: 27-Jan-2018 19:56:30  
 Integrator: RTE ID Type: RT Order ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS1\20180127-53396.b\MS1012714.D  
 Column 1 : Det: MS SCAN  
 Process Host: XAWRK031

First Level Reviewer: jamese Date: 05-Feb-2018 10:16:10

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.583	11.589	-0.006	100	26196	2.00	
* 2 1,4-Difluorobenzene	114	13.754	13.762	-0.008	100	124270	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.461	20.461	0.000	99	84159	2.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	12.782	12.787	-0.008	92	79517	2.10	
\$ 5 Toluene-d8 (Surr)	100	17.163	17.165	-0.006	100	62348	2.06	
\$ 6 4-Bromofluorobenzene (Surr	174	23.030	23.031	0.000	93	51507	1.87	
18 Acetone	43	6.838	6.808	0.024	0	488	0.0641	
46 Toluene	91	17.336	17.338	-0.006	92	831	0.0119	
50 Tetrachloroethene	166	18.863	18.864	0.000	100	1315	0.0354	

Reagents:

VAMIS20\_00102 Amount Added: 50.00 Units: mL Run Reagent



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020318.D

Injection Date: 04-Feb-2018 03:02:30

Instrument ID: ATMS1

Lims ID: 320-35681-A-10

Lab Sample ID: 320-35681-10

Client ID: 7866

Operator ID: AZ

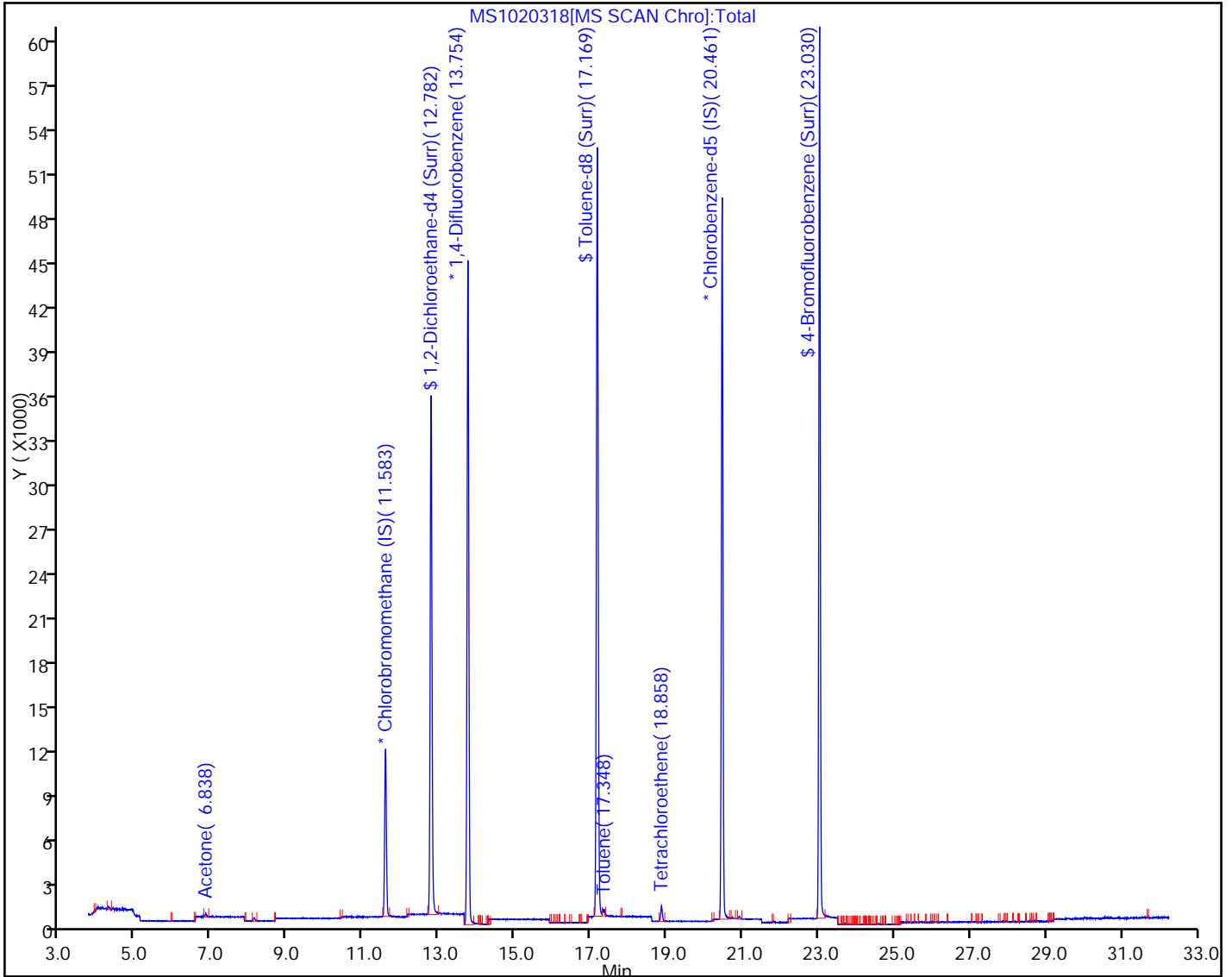
ALS Bottle#: 18 Worklist Smp#: 18

Purge Vol: 500.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO15\_SIM - ICAL



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020318.D

Injection Date: 04-Feb-2018 03:02:30

Instrument ID: ATMS1

Lims ID: 320-35681-A-10

Lab Sample ID: 320-35681-10

Client ID: 7866

Operator ID: AZ

ALS Bottle#: 18

Worklist Smp#: 18

Purge Vol: 500.000 mL

Dil. Factor: 1.0000

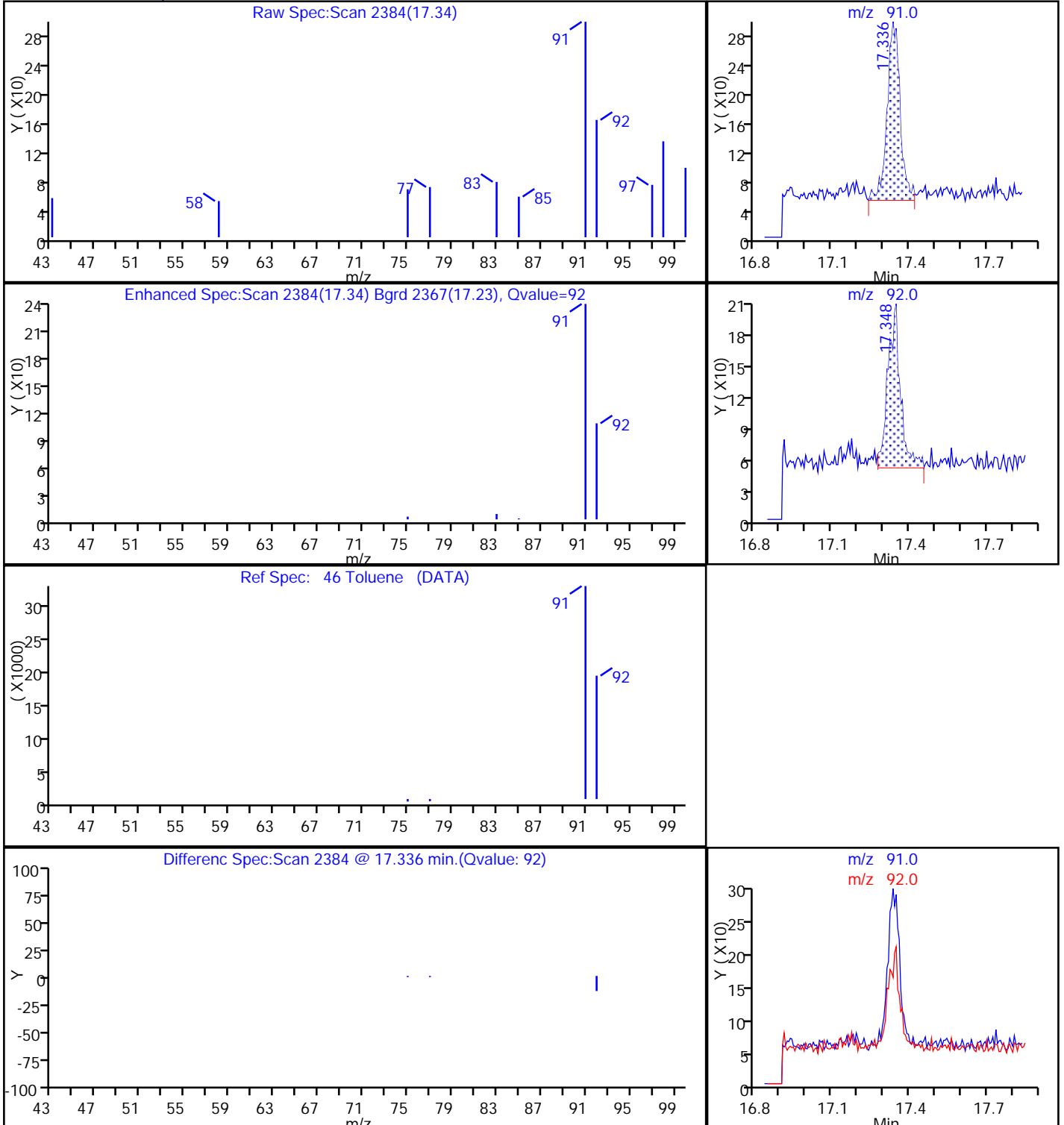
Method: TO-15 SIM SIM

Limit Group: MSA - TO15\_SIM - ICAL

Column:

Detector: MS SCAN

46 Toluene, CAS: 108-88-3



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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34000429 Lab Sample ID: 320-35681-11  
 Matrix: Air Lab File ID: MS1020319.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/04/2018 04:08  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	ND		0.020	0.010
100-44-7	Benzyl chloride	ND		0.10	0.010
75-27-4	Bromodichloromethane	ND		0.012	0.0050
56-23-5	Carbon tetrachloride	ND		0.010	0.0050
108-90-7	Chlorobenzene	ND		0.020	0.010
75-00-3	Chloroethane	ND		0.045	0.010
67-66-3	Chloroform	ND		0.020	0.0050
124-48-1	Dibromochloromethane	ND		0.010	0.0050
106-93-4	1,2-Dibromoethane (EDB)	ND		0.0070	0.0028
95-50-1	1,2-Dichlorobenzene	ND		0.050	0.010
541-73-1	1,3-Dichlorobenzene	ND		0.10	0.010
106-46-7	1,4-Dichlorobenzene	ND		0.10	0.010
75-71-8	Dichlorodifluoromethane	ND		0.020	0.0050
75-34-3	1,1-Dichloroethane	ND		0.020	0.0050
107-06-2	1,2-Dichloroethane	ND		0.020	0.0050
75-35-4	1,1-Dichloroethene	ND		0.020	0.0050
156-59-2	cis-1,2-Dichloroethene	ND		0.020	0.0050
156-60-5	trans-1,2-Dichloroethene	ND		0.020	0.0050
78-87-5	1,2-Dichloropropane	ND		0.040	0.0050
10061-01-5	cis-1,3-Dichloropropene	ND		0.020	0.0050
10061-02-6	trans-1,3-Dichloropropene	ND		0.020	0.0050
123-91-1	1,4-Dioxane	ND		0.10	0.010
100-41-4	Ethylbenzene	ND		0.020	0.010
87-68-3	Hexachlorobutadiene	ND		0.020	0.010
75-09-2	Methylene Chloride	ND		0.20	0.10
91-20-3	Naphthalene	ND		0.013	0.010
100-42-5	Styrene	ND		0.030	0.010
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.020	0.010
127-18-4	Tetrachloroethene	ND		0.020	0.010
108-88-3	Toluene	ND		0.020	0.010
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030	0.0050
120-82-1	1,2,4-Trichlorobenzene	ND		0.050	0.010
71-55-6	1,1,1-Trichloroethane	ND		0.020	0.0050
79-00-5	1,1,2-Trichloroethane	ND		0.050	0.0050
79-01-6	Trichloroethene	ND		0.020	0.0050

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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34000429 Lab Sample ID: 320-35681-11  
 Matrix: Air Lab File ID: MS1020319.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/04/2018 04:08  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
75-69-4	Trichlorofluoromethane	ND		0.045	0.010
75-01-4	Vinyl chloride	ND		0.020	0.010
179601-23-1	m,p-Xylene	ND		0.040	0.020
95-47-6	o-Xylene	ND		0.020	0.010
96-18-4	1,2,3-Trichloropropane	ND		0.040	0.010

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	91		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	105		70-130
2037-26-5	Toluene-d8 (Surr)	100		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020319.D  
 Lims ID: 320-35681-A-11  
 Client ID: 34000429  
 Sample Type: Client  
 Inject. Date: 04-Feb-2018 04:08:30 ALS Bottle#: 19 Worklist Smp#: 19  
 Purge Vol: 500.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35681-A-11  
 Operator ID: AZ Instrument ID: ATMS1  
 Method: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\TO-15 SIM SIM.m  
 Limit Group: MSA - TO15\_SIM - ICAL  
 Last Update: 05-Feb-2018 10:16:25 Calib Date: 27-Jan-2018 19:56:30  
 Integrator: RTE ID Type: RT Order ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS1\20180127-53396.b\MS1012714.D  
 Column 1 : Det: MS SCAN  
 Process Host: XAWRK031

First Level Reviewer: jamese

Date: 05-Feb-2018 10:16:25

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.596	11.589	0.007	100	24644	2.00	
* 2 1,4-Difluorobenzene	114	13.762	13.762	0.000	100	112323	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.461	20.461	0.000	99	76440	2.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	12.790	12.787	0.000	95	72302	2.11	
\$ 5 Toluene-d8 (Surr)	100	17.169	17.165	0.000	100	54604	2.00	
\$ 6 4-Bromofluorobenzene (Surr	174	23.031	23.031	0.000	91	45719	1.83	
10 Chloromethane	50	4.122	4.104	0.014	86	85	0.0594	
18 Acetone	43	6.862	6.808	0.048	0	630	0.0879	

**Reagents:**

VAMSIS20\_00102

Amount Added: 50.00

Units: mL

Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020319.D

Injection Date: 04-Feb-2018 04:08:30

Instrument ID: ATMS1

Lims ID: 320-35681-A-11

Lab Sample ID: 320-35681-11

Client ID: 34000429

Operator ID: AZ

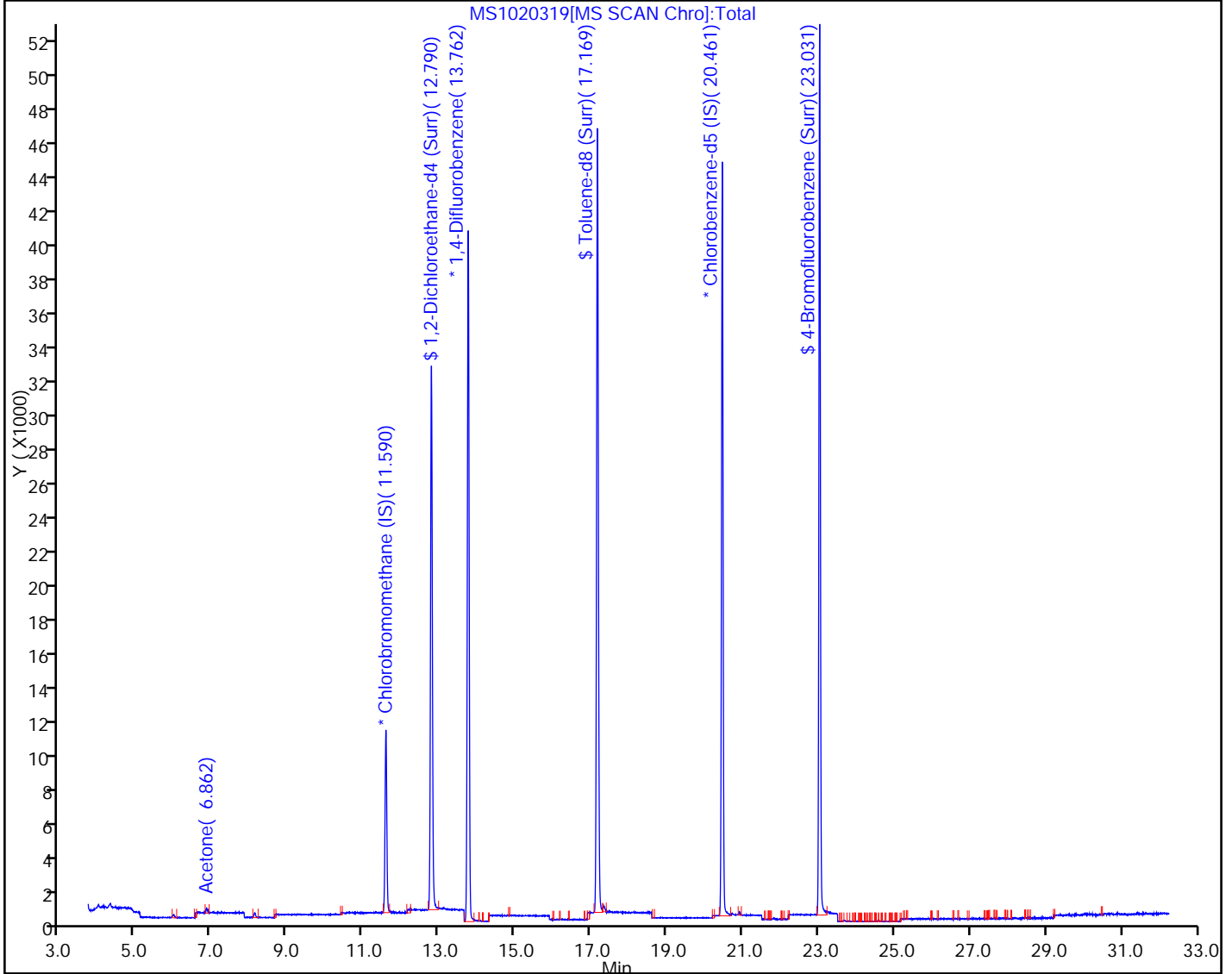
ALS Bottle#: 19 Worklist Smp#: 19

Purge Vol: 500.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO15\_SIM - ICAL

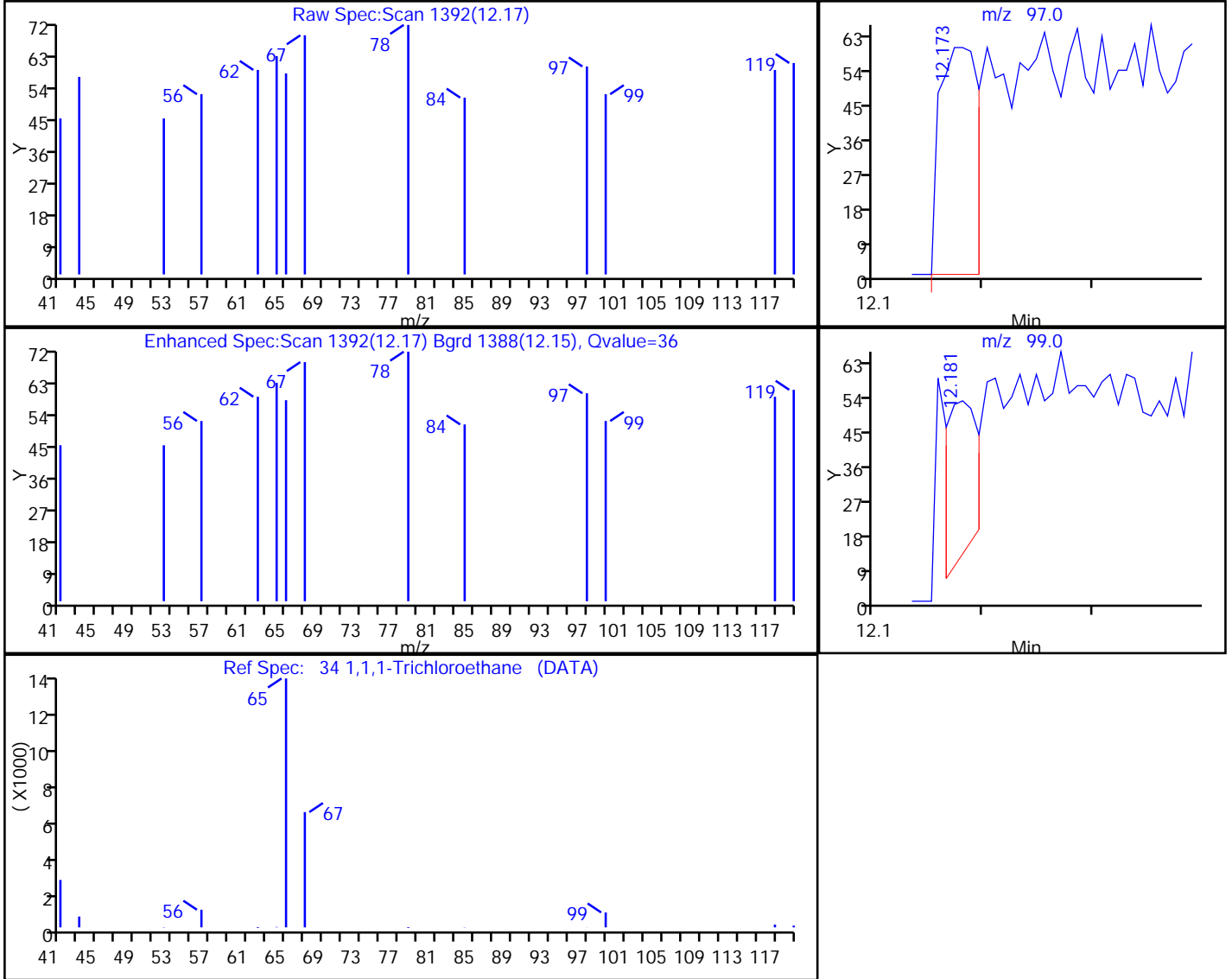


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020319.D  
 Injection Date: 04-Feb-2018 04:08:30 Instrument ID: ATMS1  
 Lims ID: 320-35681-A-11 Lab Sample ID: 320-35681-11  
 Client ID: 34000429  
 Operator ID: AZ ALS Bottle#: 19 Worklist Smp#: 19  
 Purge Vol: 500.000 mL Dil. Factor: 1.0000  
 Method: TO-15 SIM SIM Limit Group: MSA - TO15\_SIM - ICAL  
 Column: Detector MS SCAN

34 1,1,1-Trichloroethane, CAS: 71-55-6

Processing Results



RT	Mass	Response	Amount
12.17	97.00	143	0.002209
12.18	99.00	83	

Reviewer: jamese, 05-Feb-2018 10:16:25

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34000175 Lab Sample ID: 320-35681-12  
 Matrix: Air Lab File ID: MS1020320.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/04/2018 05:07  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
71-43-2	Benzene	ND		0.020	0.010
100-44-7	Benzyl chloride	ND		0.10	0.010
75-27-4	Bromodichloromethane	ND		0.012	0.0050
56-23-5	Carbon tetrachloride	ND		0.010	0.0050
108-90-7	Chlorobenzene	ND		0.020	0.010
75-00-3	Chloroethane	ND		0.045	0.010
67-66-3	Chloroform	ND		0.020	0.0050
74-87-3	Chloromethane	ND		0.20	0.010
124-48-1	Dibromochloromethane	ND		0.010	0.0050
106-93-4	1,2-Dibromoethane (EDB)	ND		0.0070	0.0028
95-50-1	1,2-Dichlorobenzene	ND		0.050	0.010
541-73-1	1,3-Dichlorobenzene	ND		0.10	0.010
106-46-7	1,4-Dichlorobenzene	ND		0.10	0.010
75-71-8	Dichlorodifluoromethane	ND		0.020	0.0050
75-34-3	1,1-Dichloroethane	ND		0.020	0.0050
107-06-2	1,2-Dichloroethane	ND		0.020	0.0050
75-35-4	1,1-Dichloroethene	ND		0.020	0.0050
156-59-2	cis-1,2-Dichloroethene	ND		0.020	0.0050
156-60-5	trans-1,2-Dichloroethene	ND		0.020	0.0050
78-87-5	1,2-Dichloropropane	ND		0.040	0.0050
10061-01-5	cis-1,3-Dichloropropene	ND		0.020	0.0050
10061-02-6	trans-1,3-Dichloropropene	ND		0.020	0.0050
123-91-1	1,4-Dioxane	ND		0.10	0.010
100-41-4	Ethylbenzene	ND		0.020	0.010
87-68-3	Hexachlorobutadiene	ND		0.020	0.010
75-09-2	Methylene Chloride	ND		0.20	0.10
91-20-3	Naphthalene	ND		0.013	0.010
100-42-5	Styrene	ND		0.030	0.010
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.020	0.010
127-18-4	Tetrachloroethene	ND		0.020	0.010
108-88-3	Toluene	ND		0.020	0.010
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.030	0.0050
120-82-1	1,2,4-Trichlorobenzene	ND		0.050	0.010
71-55-6	1,1,1-Trichloroethane	ND		0.020	0.0050
79-00-5	1,1,2-Trichloroethane	ND		0.050	0.0050



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

Lab Name: TestAmerica Sacramento Job No.: 320-35681-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: 34000175 Lab Sample ID: 320-35681-12  
 Matrix: Air Lab File ID: MS1020320.D  
 Analysis Method: TO-15 SIM Date Collected: 02/01/2018 00:00  
 Sample wt/vol: 500 (mL) Date Analyzed: 02/04/2018 05:07  
 Soil Aliquot Vol: \_\_\_\_\_ Dilution Factor: 1  
 Soil Extract Vol.: \_\_\_\_\_ GC Column: RTX-Volatiles ID: 0.32 (mm)  
 % Moisture: \_\_\_\_\_ Level: (low/med) Low  
 Analysis Batch No.: 206816 Units: ppb v/v

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
79-01-6	Trichloroethene	ND		0.020	0.0050
75-69-4	Trichlorofluoromethane	ND		0.045	0.010
75-01-4	Vinyl chloride	ND		0.020	0.010
179601-23-1	m,p-Xylene	ND		0.040	0.020
95-47-6	o-Xylene	ND		0.020	0.010
96-18-4	1,2,3-Trichloropropane	ND		0.040	0.010

CAS NO.	SURROGATE	%REC	Q	LIMITS
460-00-4	4-Bromofluorobenzene (Surr)	93		70-130
17060-07-0	1,2-Dichloroethane-d4 (Surr)	103		70-130
2037-26-5	Toluene-d8 (Surr)	100		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020320.D  
 Lims ID: 320-35681-A-12  
 Client ID: 34000175  
 Sample Type: Client  
 Inject. Date: 04-Feb-2018 05:07:30 ALS Bottle#: 20 Worklist Smp#: 20  
 Purge Vol: 500.000 mL Dil. Factor: 1.0000  
 Sample Info: 320-35681-A-12  
 Operator ID: AZ Instrument ID: ATMS1  
 Method: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\TO-15 SIM SIM.m  
 Limit Group: MSA - TO15\_SIM - ICAL  
 Last Update: 05-Feb-2018 10:16:40 Calib Date: 27-Jan-2018 19:56:30  
 Integrator: RTE ID Type: RT Order ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\ATMS1\20180127-53396.b\MS1012714.D  
 Column 1 : Det: MS SCAN  
 Process Host: XAWRK031

First Level Reviewer: jamese

Date: 05-Feb-2018 10:16:40

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
* 1 Chlorobromomethane (IS)	130	11.584	11.589	-0.005	99	25388	2.00	
* 2 1,4-Difluorobenzene	114	13.759	13.762	-0.003	100	119451	2.00	
* 3 Chlorobenzene-d5 (IS)	117	20.462	20.461	0.001	99	81120	2.00	
\$ 4 1,2-Dichloroethane-d4 (Sur	65	12.783	12.787	-0.007	84	75413	2.07	
\$ 5 Toluene-d8 (Surr)	100	17.169	17.165	0.000	100	58280	2.01	
\$ 6 4-Bromofluorobenzene (Surr	174	23.031	23.031	0.001	94	49378	1.86	
18 Acetone	43	6.838	6.808	0.024	0	866	0.1173	
58 Styrene	104	21.855	21.848	0.008	60	257	0.005018	

**Reagents:**

VAMSIS20\_00102

Amount Added: 50.00

Units: mL

Run Reagent

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020320.D

Injection Date: 04-Feb-2018 05:07:30

Instrument ID: ATMS1

Lims ID: 320-35681-A-12

Lab Sample ID: 320-35681-12

Client ID: 34000175

Operator ID: AZ

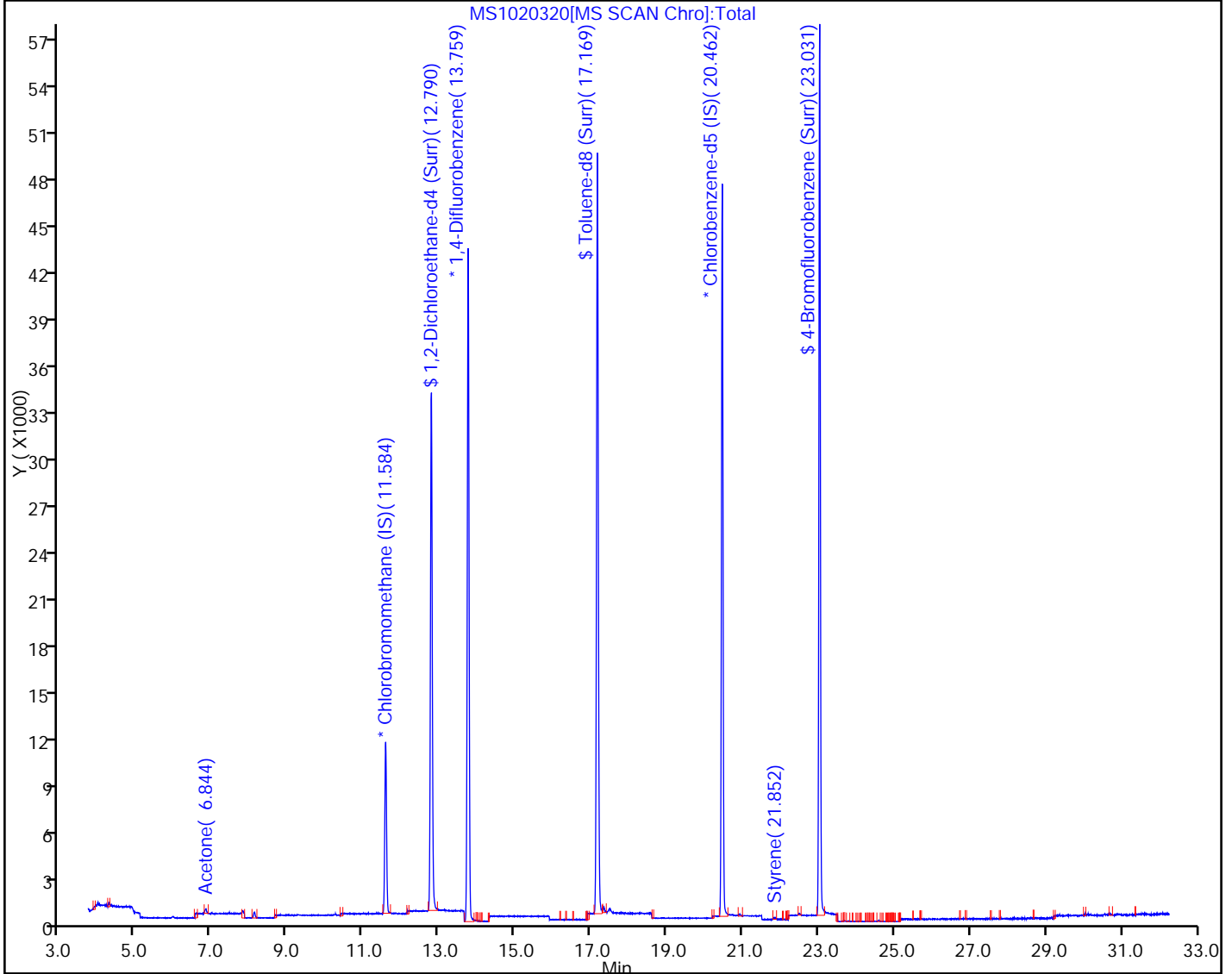
ALS Bottle#: 20 Worklist Smp#: 20

Purge Vol: 500.000 mL

Dil. Factor: 1.0000

Method: TO-15 SIM SIM

Limit Group: MSA - TO15\_SIM - ICAL

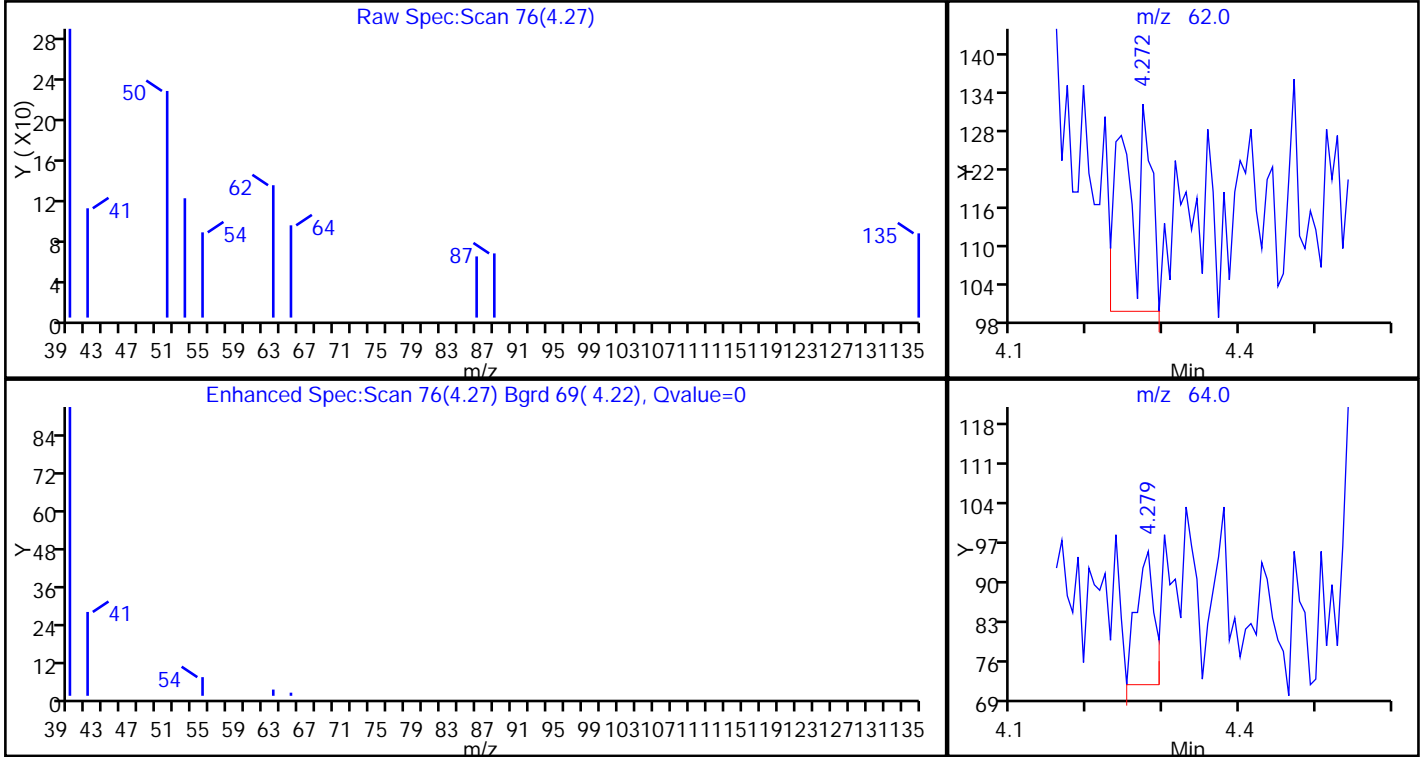


TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\ATMS1\20180203-53655.b\MS1020320.D  
 Injection Date: 04-Feb-2018 05:07:30 Instrument ID: ATMS1  
 Lims ID: 320-35681-A-12 Lab Sample ID: 320-35681-12  
 Client ID: 34000175  
 Operator ID: AZ ALS Bottle#: 20 Worklist Smp#: 20  
 Purge Vol: 500.000 mL Dil. Factor: 1.0000  
 Method: TO-15 SIM SIM Limit Group: MSA - TO15\_SIM - ICAL  
 Column: Detector MS SCAN

11 Vinyl chloride, CAS: 75-01-4

Processing Results



RT	Mass	Response	Amount
4.27	62.00	81	0.005912
4.28	64.00	39	

Reviewer: jamese, 05-Feb-2018 10:16:40

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID