

Off Depot Air Sparge/
Soil Vapor Extraction
System
Annual Operations
Report, Year Nine
(August 2019 through
July 2020)

Defense Depot Memphis, Tennessee

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Off Depot Air Sparge/ Soil Vapor Extraction System
Annual Operations Report, Year Nine (August 2019 through July 2020)
Dunn Field - Defense Depot Memphis, Tennessee

Prepared for:



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Acronyms and Abbreviations

acfm	actual cubic feet per minute
AS/SVE	air sparging and soil vapor extraction
AWS	air/water separator
bgs	below ground surface
cDCE	cis 1,2-dichloroethene
CVOC	chlorinated volatile organic compound
DDMT	Defense Depot Memphis, Tennessee
DQE	data quality evaluation
DQI	data quality indicator
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
IAQ	Intermediate Aquifer
IRACR	Interim Remedial Action Completion Report
lb	pound
lb/hr	pounds per hour
LTM	long-term monitoring
MAQ	Memphis Aquifer
MCL	maximum contaminant level
MLGW	Memphis Light, Gas and Water
MW	monitoring well
O&M	operations and maintenance
PID	photoionization detector
PLC	programmable logic controller
ppbv	parts per billion by volume
ppm	parts per million
QAPP	Quality Assurance Project Plan
QC	quality control
RA	remedial action
RL	reporting limit
ROD	Record of Decision
scfm	standard cubic feet per minute
SCHD	Shelby County Health Department
SVE	soil vapor extraction
TC	target concentration
TCE	trichloroethene
TDEC	Tennessee Department of Environment and Conservation
TeCA	1,1,2,2-tetrachloroethane
Trinity	Trinity Analysis & Development Corp.
VMP	vapor monitoring point
VOC	volatile organic compound
µg/L	micrograms per liter
%	percent

1. Introduction

This Annual Operations Report for the Off Depot air sparging and soil vapor extraction (AS/SVE) system was prepared under Contract W91278-16-D-0054, Delivery Order W9127818F0405 (0002) to the U.S. Army Corps of Engineers, Mobile District. This report summarizes the operations and maintenance (O&M) activities and the results of system monitoring for Year Nine AS/SVE operations at the Off Depot groundwater plume west of Dunn Field at the former Defense Depot Memphis, Tennessee (DDMT). The report covers operations from 1 August 2019 through 31 July 2020.

Responses to comments from Tennessee Department of Environment and Conservation (TDEC) and U.S. Environmental Protection Agency (USEPA) Region 4 and approval letters will be provided in [Appendix A](#) upon completion.

1.1 Site Description

DDMT, located in southeastern Memphis, originated as a military facility in the early 1940s for receipt, warehousing, and distribution of supplies to military services and some civil agencies. The property consists of approximately 632 acres in two adjacent areas, the Main Installation and Dunn Field. Storage and distribution of material ended in September 1997 when the facility was closed under Base Realignment and Closure.

DDMT was added to the National Priorities List in 1992; the EPA Identification Number is TN4210020570. Responsibility for environmental restoration at DDMT transferred from the Defense Logistics Agency to the Department of the Army in December 2010. The regulatory oversight agencies are EPA Region 4 and TDEC.

The geologic units of interest at DDMT are (from youngest to oldest): loess, including surface soil; fluvial deposits; Jackson Formation/Upper Claiborne Group (Jackson/Upper Claiborne); and Memphis Sand. The uppermost aquifer is the unconfined Fluvial Aquifer, consisting of saturated sands and gravelly sands in the lower portion of the deposits; the base of the Fluvial Aquifer is controlled by the surface of the uppermost clay in the Upper Claiborne. The Jackson/Upper Claiborne forms the upper confining unit for the Memphis Aquifer (MAQ) on a regional basis and separates the Fluvial Aquifer from the MAQ at DDMT. The Intermediate Aquifer (IAQ) is locally developed in the Upper Claiborne sands. Where the clay is thin or absent, a hydraulic connection or 'window' is created between the Fluvial Aquifer and the IAQ, and potentially, the MAQ. The MAQ is a regional deep, confined aquifer and is the primary source of water for the City of Memphis. The Allen Well Field, which is operated by Memphis Light, Gas & Water (MLGW), is located approximately 2 miles west of Dunn Field.

1.2 Off Depot Remedial Action

The Off Depot remedial action (RA) includes the following components:

- An AS/SVE system installed across the core of the plume near the down-gradient end.
- Monitored natural attenuation and long-term groundwater monitoring to document remedy performance as indicated by changes in chlorinated volatile organic compound (CVOC) concentrations and/or changes in the lateral or vertical extent of the CVOC plume.
- Institutional controls to prevent access to contaminated groundwater.

RA construction and Year One operations are described in the *Off Depot Groundwater Interim Remedial Action Completion Report, Revision 1* (Off Depot IRACR) (HDR, 2011a), which was approved by EPA and TDEC in November 2011.

1.3 AS/SVE System Description

AS/SVE is being conducted near the leading edge of the groundwater plume west of Dunn Field to volatilize CVOCs and prevent further plume migration. The AS/SVE system was designed to intercept the majority of the Off Depot CVOC plume and to reduce individual CVOC concentrations below 50 micrograms per liter ($\mu\text{g/L}$). AS/SVE operations began 21 December 2009. The AS/SVE system consists of 90 AS wells, 12 SVE wells, 10 pairs of vapor monitoring points (VMPs), and control buildings for the AS compressor, SVE blowers and system controls. The system layout is shown on [Figure 1](#).

AS/SVE operations were incorporated in Shelby County Health Department (SCHD) Permit #01030-01P issued in 2007 for the fluvial soil vapor extraction system on Dunn Field. Permit conditions included maintaining volatile organic compound (VOC) emissions below 5.71 pounds per hour (lb/hr) as documented in an annual emissions report. In May 2016, SCHD cancelled the permit and exempted the remediation system based on emissions consistently below the *de minimus* limit of 0.1 lb/hr.

The AS system is powered by a Kaeser CSD 100 rotary screw air compressor; air filters minimize oil particles in the air stream from the compressor. The other AS components are the receiving tank, refrigerated dryer, pressure regulator and relief valve, solenoid panel and sparge manifold, and 90 AS wells. The AS wells were installed at the base of the fluvial aquifer at depths of 82 to 115 feet below ground surface (bgs). Individual solenoid valves are used to set operating periods for each AS well.

Approximately one-third of the AS wells operate at any one time. Pulsed operation was selected to decrease the required system injection flow capacity, optimize air distribution by limiting the formation of permanent air channels, and limit groundwater flow around the AS well network due to reduction in permeability caused by air injection.

The SVE system consists of two Kaeser rotary blowers (Model 420C/53P) installed in parallel. The blowers are connected to 12 SVE wells with 30-foot screens beginning at depths of 35 to 45 feet bgs. The SVE wells were installed on roughly 50-foot centers to capture the vapors from the AS wells; the maximum separation between an AS well and the nearest SVE well is approximately 60 feet. System operations were designed for the vapor extraction rate to be at least 1.5 times the air injection rate.

The AS wells and SVE wells are connected via buried piping to two equipment buildings: one housing the compressor for the AS wells and the other housing two blowers for the SVE wells. The AS/SVE system is operated through programmable logic controllers (PLCs) in the AS and SVE control buildings. The AS PLC operates the solenoids to direct air to the individual AS wells for the programmed daily schedule, to monitor operations, and to trigger alarms or shutdowns as necessary. The AS compressor has a separate controller to monitor operations and trigger alarms or shutdowns as necessary. The SVE PLC monitors blower operations and sends alarm notifications or shuts down the system if necessary.

Extracted vapor from the individual wells combine in a single 6-inch header at the piping manifold outside the SVE building; the SVE wells can be adjusted at the manifold to balance individual flow rates. The vapor stream passes through the air/water separator (AWS) tank to remove entrained vapor and debris from the air stream. No other treatment is performed prior to discharge.

VMPs were installed to monitor the radius of influence of the SVE wells and the CVOC concentrations in the vadose zone. There are ten pairs of nested VMPs with 5-foot screens located 20 to 60 feet from the nearest SVE well; the shallow ('B') VMPs are screened at an average depth of 49 feet bgs and the deep ('A') VMPs are screened at an average depth of 64 feet bgs.

Condensate from SVE operations is collected in a 160-gallon AWS and then transferred from the AWS to a 505-gallon polyethylene tank outside the SVE building. Once the exterior tank nears capacity, water is

pumped to a trailer-mounted transfer tank and transferred to a storage tank on Dunn Field for analysis prior to discharge.

1.4 Previous Operations and Monitoring Results

1.4.1 System Operations and Monitoring

AS/SVE operations were described for Year One in the Off Depot IRACR and for later years in annual operations reports. The most recent annual report, *Off Depot AS/SVE System Annual Operations Report, Year Eight, Revision 1* (Trinity, 2019) was approved by TDEC in June 2020 and by EPA in September 2020.

System start-up and modifications to address noise issues were completed in May 2010. The AS/SVE system was then operated with both blowers for all 12 SVE wells and 1/3 of the 90 AS wells operating at all times. The AS wells were operated in three groupings (A: AS-1, AS-4, AS-7...; B: AS-2, AS-5, AS-8...; and C: AS-3, AS-6, AS-9...). Each AS group was operated for four hours before the system switched to the next group.

Groundwater monitoring results in September 2010 indicated the plume was partially diverted around the southern edge of the AS/SVE system, possibly due to decreased permeability from the air injection. Since that time, operations have been varied to restore the groundwater flow in the treatment area so that the contaminant plume would pass through the AS wells.

Year Five operations began in January 2014 but were halted in February 2014 due to extensive equipment damage from a lightning-related power surge. System repairs were completed and operations resumed in March 2015. Year Five operations continued through December 2015. Starting in March 2015, the AS/SVE system was alternated between full and standby operation on a roughly 4-week interval.

Year Six operations took place from 1 January 2016 to 30 April 2017. The AS/SVE system was generally operated in stand-by mode until 6 May 2016 while a new task order was put in place. The system was alternated between full and standby operations, as in Year Five, from May 2016 through April 2017. Year Seven continued uninterrupted from May 2017 through April 2018. The system operated in standby mode to 6 August 2018 as contract actions for Year Eight and Year Nine were finalized. Year 8 operations were conducted from 1 May 2018 through 31 July 2019.

Year Nine operations took place from 1 August 2019 through 31 July 2020. The blowers alternated between full and standby operation on a roughly 4-week interval.

1.4.2 System Monitoring and Mass Removal

Total VOC concentrations in the system effluent decreased from 1,240 parts per billion by volume (ppbv) at start-up in December 2009 to 31.8 ppbv in February 2012; total VOC concentrations have increased since February 2012 and were 76 ppbv in July 2019 at the end of Year Eight.

VOC emission rates decreased from 0.025 lb/hr at startup to 0.001 lb/hr in December 2010. The emission rate has generally been at or below 0.001 lb/hr since that time. The AS/SVE emissions have never exceeded the *de minimus* standard of 0.1 lb/hr for the SCHD operating permit.

The AS/SVE system uptime percentage (%) and the mass removal in pounds (lbs) during the first eight years of operations are shown below. The system uptime determination did not include the period required for equipment repair (February 2014 to March 2015) in Year Five or the periods in standby mode in Year Six (January to May 2016) and Year Eight (1 May 2018 to 6 August 2018).

Period	System Uptime	VOC Removal (pounds)
Year One (2010)	97%	70.5
Year Two (2011)	94%	4.1
Year Three (2012)	97%	2.3
Year Four (2013)	91%	2.9
Year Five (January 2014-December 2015)	93%	2
Year Six (January 2016-April 2017)	93%	1.7
Year Seven (May 2017-April 2018)	89%	1.7
Year Eight (May 2018-July 2019)	87%	2.0

1.4.3 Groundwater Monitoring

Long-term monitoring (LTM) results are used to assess the overall effectiveness of the AS/SVE system. The treatment goal for the AS/SVE system is to reduce groundwater concentrations down-gradient of the AS/SVE well network below 50 µg/L for individual CVOCs. The goal was met in the five performance monitoring wells (MW-241, -243, -245, -246, -247) immediately down-gradient of the AS/SVE well network in June 2010. CVOc concentrations in the Off Depot plume have met the treatment goal of 50 µg/L for individual CVOcs in all but one LTM well in the AS/SVE area, MW-159, since October 2012.

1.5 Scope of Work

O&M activities have been performed for the AS/SVE system since system startup in December 2009. The goals for O&M are to:

- Maintain system operations through regular field inspections, maintenance, and repairs; and
- Monitor system effectiveness through air injection and vapor extraction flow rates, vacuum measurements, photoionization detector (PID) measurements, and laboratory analysis of system effluent samples.

O&M activities follow procedures described in the *Dunn Field Off Depot Groundwater Air Sparge and Soil Vapor Extraction System Operations and Maintenance Manual (AS/SVE O&M Manual)* (HDR, 2011b). System monitoring is performed in accordance with the *Dunn Field Off Depot Groundwater Remedial Action Work Plan, Revision 2* (HDR, 2009).

The scope for Year Nine AS/SVE operations included the following activities:

- Weekly system inspections with measurements of operating conditions, operational adjustments and equipment maintenance checks;
- Bi-weekly readings at AS wells, SVE wells and system effluent for flow rate and vacuum pressures when the AS manifold is open and monthly readings when the AS manifold is closed;
- Monthly PID measurements at SVE wells and system effluent when the AS manifold is open;
- Quarterly PID and vacuum measurements at VMPs and collection of system effluent samples for laboratory analysis of VOCs;
- General equipment repair and modifications to include SVE well air line purging, AS wellhead repair and pad replacement; and condensate handling;
- Semiannual report to describe O&M activities, system status, performance, and monitoring results; and
- Annual operations report to summarize system operations and monitoring results with data validation and to provide recommendations for future operations.

2. System Operations

Following the system repairs and modifications conducted in July 2020 and further described below in [Section 2.4](#), the AS wells are operated in three groups of 21 to 23 AS wells with 63 AS wells operated 4 hours per day (full-time) and 6 AS wells operated 2 hours per day (half-time); the remaining 21 AS wells are closed ([Figure 1](#)). This is consistent with Year Eight operations.

During full operation, the AS wells are operated for a total of 12 hours per day to remove volatile organic compounds (VOCs) from groundwater and the SVE wells are operated 24 hours per day to remove soil vapor with VOCs from the vadose zone. During limited operations in the alternate months, the AS manifold is closed except for brief periods during site inspections and the SVE wells are operated 12 hours per day. During Year Nine through 31 July 2020, the AS manifold was open for full operation from 1 August through 27 August 2019, 22 October through 20 November 2019, 3 December through 30 December 2019, 31 January through 5 March 2020, 1 April through 13 May 2020, and 29 June through 21 July 2020.

2.1 System Performance

AS/SVE system uptime during periods of full operation (1 August 2019 through 31 July 2020) in Year Nine was approximately 74%. This is lower than in previous years, and a result of damage to the AS and SVE PLCs and internet modem which were damaged by suspected electrical surges in August 2019 and repairs which were completed in October 2019. System uptime in Years One to Eight ranged from 87% to 97%. The periods of full operation in Year Nine totaled 182 days with 2,188 hours available for system operations. The AS/SVE system was down in Year Nine due to condensate accumulation, system alarms, and other issues for a total of 1,614 hours. System maintenance and shutdowns are summarized in [Section 2.3](#).

2.2 System Flow Rates and Vacuums

Weekly measurements consist of pressure and air temperature at the AS compressor and air flow rates at the manifold, and vacuum and air temperature for each blower and the system effluent. Operating hours for each blower and the compressor were also recorded.

Flow rates and pressure/vacuum at the operating AS wells, SVE wells and the effluent were recorded at least biweekly during full operation. SVE system effluent flow rates are measured by an inline mass flow meter and flow rates at individual wells are measured by vane-type meters at the well manifold. Vacuum measurements are collected using a digital manometer. Operating conditions were recorded on standardized forms and maintained in the project files. Remote system monitoring is used to augment the site visits, although not all parameters are available remotely.

AS injection rates, listed on [Table 1](#), ranged from 103 to 233 standard cubic feet per minute (scfm) and averaged 161 scfm. Air extraction rates and vacuum measurements at SVE wells and system effluent are also shown on [Table 1](#). The system was operated with both blowers operating alternately in 12-hour blocks and all 12 SVE wells during Year Nine; average flow rates at individual SVE wells were 27 to 89 actual cubic feet per minute (acfm). Combined flow from all SVE wells during full operations averaged 511 scfm at 9.2 inches of mercury.

The combined SVE flow rate was designed at 1.5 times the AS injection rate in order to maintain partial vacuum for vapor capture throughout the treatment area. Based on the average AS injection rate of 161 scfm and the average combined SVE flow rate of 511 scfm, the SVE system extracted approximately 3.2 times the injection rate during Year Nine.

2.3 System Maintenance

System inspections were performed weekly and semi-annual and annual equipment maintenance was conducted by the AS/SVE equipment manufacturer. System inspections include checking SVE blower v-belts and oil levels, automatic drains in the AS compressor and refrigerated dryer, and air intake filters for the AS building. Semiannual maintenance includes checking the AS compressor and SVE blower oil levels and adding or replacing oil as needed, checking and cleaning air filter mats in the compressor control panel, cleaning the compressor and dryer heat exchange radiators, checking tension on blower v-belts, and other tasks per the equipment operating manual. Field notes are recorded on maintenance and inspection forms. General housekeeping at the AS and SVE buildings and equipment compound is performed as needed. Semiannual maintenance reports are included in [Appendix B](#).

Connections to AS wells have been damaged periodically due to pressure building up in the air lines and/or wells as discussed in previous annual reports. Connections at eight AS wells were repaired in September 2013 (Year Four). Connections were damaged at two wells (AS-05 and AS-09) later in Year Four and at two wells (AS-17 and AS-32) in Year Seven. Repairs and modifications performed during Year Nine are discussed in [Section 2.4](#) and [Appendix C](#).

Maintenance activities and system shutdowns during Year Nine are listed below:

- System operated with intermittent planned shutdowns between 7 July and 10 July 2020 during groundwater long-term monitoring event, AS/SVE well modifications, and system maintenance.
- On 9 October 2019, Kaeser performed scheduled maintenance (major event) while the system was down because of PLC issues (552 total hours down). The system was restarted on 22 October 2019 following PLC repairs.
- The system was down for 22 hours between 22 October and 20 November 2019 due to a low voltage alarm.
- System experienced controlled downtimes in April to facilitate LTM water level measurements, scheduled system maintenance (minor event on 8 April), and heavy rain events to minimize condensate.

System downtime during periods of full operation of the AS/SVE system and the lost operating hours from August 2019 through July 2020 equated to approximately 574 hours.

2.4 System Repairs and Modifications

During the period of 7 July to 10 July 2020, previously identified issues with the AS/SVE system were addressed through general repairs and equipment modifications. Activities are summarized below; additional details are provided in [Appendix C](#).

- AS well flow regulator replacement
 - Prior inspections noted small cracks in the “upstream” side of the micro-regulator housings (Metal Work 5207003U) used to control air flow to the existing 90 air sparge wells. While not affecting overall operation of the AS wells, the leaks added a level of inefficiency to the operation of the AS compressor and each regulator in every air sparge well for a total of 90 regulators were replaced. All wells were then reset to the operating pressures.
- SVE well air line purging
 - SVE-01, -03 through -09, and -11 were purged, and no water was observed to be present in the lines.
 - SVE-02 and -12 were purged and air lines cleared of water.

- AS wellhead repair and pad replacement
 - AS-27, AS-48, AS-75, and SVE-12 – removed and replaced damaged/cracked well pads and vaults with new materials.
 - AS-15 and AS-52 – at wells with wellheads broken beneath the tee, the well pads were removed, and the damaged riser was cut and repaired with like materials. Following pressurization and 5-minute leak testing of replacement riser, new well pads and vaults were then installed; no modifications to the air supply lines were required.
 - AS-51 – air was observed to be leaking around the top plug on the wellhead. Plug was removed and found to be cross-threaded. New plug was installed which seated properly into threaded coupler, eliminating air leak.
 - SVE-01 and SVE -02 – wellheads were previously completed in a manner which prevented the removal of the top plug and security of well vault lid (insufficient clearance beneath lid). Wellheads were cut below existing threaded couplers to lower, then fitted with new couplers and plugs.
- Condensate handling
 - Over time, biofouling has resulted in the content level markings of the external condensate holding tank to be difficult to read. To address this, the interior of the tank was cleaned by pressure washing behind the gradation markings.
- Miscellaneous Site Maintenance Activities

The following miscellaneous site maintenance activities were performed to ensure continued operation of the AS/SVE system:

 - Well pads at the 12 SVE well locations and 70 AS well locations were cleared of all vegetation for ease of access.
 - Vegetation within the system compound was removed.
 - Vegetation within the electrical enclosure of the system compound was removed.

2.5 Additional Deficiencies Identified for Future Repair

During inspection of the remaining AS and SVE wells and system operations, deficiencies were noted at the following locations which will be addressed during the installation of the additional air sparge wells (scheduled for September 2020):

- During a check of AS operating pressures after replacement of flow control valves, the solenoids at AS-01, AS-04, and AS-06 were observed to be receiving communication from the PLC but were not opening to allow for air flow. To troubleshoot and confirm issue, inlet air lines were temporarily switched to solenoids known to be operating properly and air delivery was observed. New solenoids have been procured and will be installed once upgrades to the AS well network and PLC are completed during Year 10 operations.
- AS-03 – the inside of the flush mount vault was observed to be filled with grout, and an air leak was observed to be passing through a small separation between the wellhead riser and grout column. Repairs will require removal of pad/vault and excavation to expose source of air leak.
- AS-55 and AS-57 – wellheads were observed to be broken beneath the tee, and air supply lines were observed to be broken “upstream” of tee. Repairs will require removal of pad/vault and additional excavation to expose damaged air lines.

3. System Monitoring

AS/SVE system monitoring consists of vacuum measurements at VMPs; PID readings at the system effluent, SVE wells and VMPs; and laboratory analysis of vapor samples from the system effluent. PID readings at the SVE well manifold and the system effluent are collected during months of full AS/SVE operation (AS manifold open). PID readings and vacuum measurements at VMPs, and effluent vapor samples are collected quarterly during full operation. System monitoring was performed during full operation in August, October, and December 2019 and February, May, and July 2020.

3.1 Vacuum Measurements

Vacuum measurements are collected at VMPs by connecting a digital manometer to a quick-connect fitting in the sealed cap of each VMP well casing. Vacuum measurements ranged from 0.2 to 34.9 inches of water and the average at each VMP was 0.8 to 22.8 inches of water. Measurements are shown on [Table 2](#). The measurements indicate a partial vacuum is created throughout the treatment area by the SVE wells, and therefore vapor-phase contamination generated during sparging is being captured by the SVE wells.

A chart showing the trend in vacuum readings at VMPs since start-up tests in October 2009 is provided in [Appendix D-1](#). Vacuum measurements at VMPs have generally ranged from 4 to 40 inches of water since operations began in December 2009. Two blowers were often operated in 2010 when the AS manifold was open; which resulted in slightly higher vacuum measurements during that period.

3.2 PID Measurements

VOC concentrations are estimated through field measurements at individual SVE wells, system effluent, and VMPs with a PID. Whole air samples are collected from sampling ports at each monitoring point by directly filling a dedicated Tedlar® sample bag using an air sampling pump. The sample bag is then attached to a calibrated PID and the maximum PID reading for each bag is recorded. PID readings are made for at least three sample bags at each location; the PID is re-calibrated and additional readings are made if the initial readings are not consistent.

PID measurements from SVE wells and system effluent are provided in [Table 3](#). The estimated VOC concentrations ranged from 0.0 to 0.2 parts per million (ppm) at the SVE wells and was 0.0 ppm at the system effluent in every monitoring event. PID readings could not be measured on 27 August 2019 or 04 February 2020 because of PLC issues. The first issue resulted from failure of the PLC and was resolved via replacement of the PLC on 27 September 2019. The second issue resulted from a wireless switch communications error that was corrected later on 04 February 2020. Consistent with historical trends, water in the SVE air line prevented some readings at SVE-10. It should be noted that operation and performance of the SVE wells are not impacted despite water being present in the air lines. Vacuum/air flow rates at each SVE well will be evaluated during future monitoring events and adjusted as necessary to mitigate water in the air lines.

Charts showing the trend in PID measurements at SVE wells and the system effluent since start-up tests in November 2009 are provided in [Appendix D-2](#). PID measurements at SVE wells have ranged from 0.1 to 20 ppm and were at the higher end of the range in 2012. At that time two wells, SVE-08 and -12, were closed to increase vapor extraction at SVE wells near the operating AS wells; the PID measurements decreased after the wells were re-opened later in 2012.

The VMPs are purged of at least three tubing volumes using the sampling pump prior to filling the first sample bag. The VMP PID measurements are provided in [Table 4](#). The estimated VOC concentrations were 0 ppm for approximately 62 percent of the measurements and were below 1 ppm in 100 percent of the measurements. Charts showing the trend in PID measurements at VMPs since start-up tests in October

2009 are provided in [Appendix D-3](#). PID measurements at VMPs have a pattern similar to the SVE wells, with slightly lower concentrations.

3.3 Vapor Samples

System effluent samples for laboratory analysis are collected in 6-liter Summa canisters without a flow regulator. The Summa canister is shipped from the laboratory with negative pressure; thus, a sampling pump is not required. The quarterly vapor samples were collected on 31 October 2019, 5 December 2019, 11 May 2020, and 7 July 2020. The samples were submitted for laboratory analysis of VOCs by EPA Method TO-15.

The complete tabulated analytical results are presented in [Appendix E, Table E-1](#); the complete laboratory analytical reports are provided in Appendix F (electronic copy only). [Table 5](#) provides the analytical results for the primary CVOCs historically detected at Dunn Field and for other VOCs detected above the reporting limit (RL) in one or more samples. The totals for primary CVOCs and for total VOCs (primary CVOCs and other VOCs) are also listed.

Total primary CVOCs in the system effluent ranged from 57.2 to 72.9 ppbv during Year Nine. Trichloroethene (TCE) has generally been the CVOC detected at the highest concentration since 2009, but cis-1,2-dichloroethene (cDCE) was at similar but slightly higher concentrations in Year Nine. During Year Nine, TCE was 36% to 39% of the total primary CVOC concentration, and cDCE was 45% to 49%.

Total VOCs were reported at 78.6 ppbv in October 2019 (Quarter 1), 90.7 ppbv in December 2019 (Quarter 2 duplicate sample), 160.0 ppbv in May 2020 (Quarter 3), and 113.1 ppbv in July 2020 (Quarter 4). The concentrations reported for Quarters 3 and 4 included elevated concentrations of ethanol (Quarter 3 and Quarter 4) and ethyl acetate (Quarter 3 only) which are considered anomalous based on historical reporting and are not common site contaminants. Ethanol was also detected in the Quarter 3 method blank; its presence in the Quarter 3 and Quarter 4 samples may be the result of laboratory contamination associated with increased and wide-spread use of sanitizers during the COVID-19 pandemic. Ethyl acetate is considered an impurity in hand sanitizers and its presence may be related to a lack of quality control as industry rapidly increased production of sanitizers during the spring of 2020. System effluent concentration trends from PID measurements and analytical results are shown on [Figure 2](#).

3.4 Data Quality Evaluation

Analytical results for AS/SVE effluent vapor samples collected in Year Nine were reviewed based on guidelines in the QAPP. The complete analytical results for field and quality control (QC) samples, including data quality evaluation (DQE) flags, are presented in [Appendix E, Table E-1](#).

Overall, the VOC data from the vapor samples met project data quality objectives and were determined to be sufficient to support the evaluation of AS/SVE system performance. The complete DQE for Year Nine samples is provided in [Appendix G](#).

3.5 Mass Removal Estimate

The VOC mass removed by the AS/SVE system is estimated from the average total VOC concentrations in the effluent sample (based on TCE), system operating hours, and flow rates. The molar mass of TCE is used as a surrogate for all VOCs to simplify the calculation. System operating hours are based on operation of the AS compressor and the SVE blower(s); operating hours for the SVE blower without the AS compressor are not included in the mass removal estimate. The mass emission calculations are summarized on [Table 6](#).

As noted in [Section 3.3](#), anomalous concentrations of ethanol and ethyl acetate were reported in the May and July 2020 sample results. Because these results were considered anomalous, they were omitted from the total VOC concentrations used for the mass emission calculations ([Table 6](#)).

The estimated VOC emission rate in the effluent was 0.0009 lb/hr during Year Nine. The emissions remained well below the SCHD *de minimus* standard of 0.1 lb/hr. The AS/SVE system removed approximately 2 lbs of VOCs in Year Nine and 89.2 lbs of VOCs since startup ([Table 6](#)).

4. Conclusions and Recommendations

4.1 System Operations

The AS/SVE system uptime was approximately 74% during periods of full operation in Year Nine (1 August 2019 to 31 July 2020) due to damage to PLC components in August 2019; repairs were completed in October 2020. AS/SVE system is limited to full operations in alternate 4-week periods in order to maintain northerly groundwater flow in the treatment area.

The SVE system extracted approximately 3.2 times the AS injection rate during Year Nine. Vacuum measurements at VMPs indicated vapor capture throughout the AS/SVE treatment area. 98 percent of the PID measurements taken at the SVE wells were below 1 ppm and 100 percent of the effluent PID measurements were below 1 ppm (Table 3). Similarly, 100 percent of the PID readings taken at the VMPs were below 1 ppm (Table 4). Total VOC concentrations in effluent vapor samples, excluding the anomalous ethanol and ethyl acetate concentrations reported in the May and July 2020 events, ranged from 78.6 ppbv to 91.0 ppbv. The estimated VOC emission rate in the effluent was 0.0009 lb/hr during Year Nine, well below the SCHD *de minimus* standard. Approximately 89 lbs of VOCs have been removed since startup in 2009.

PID measurements at the system effluent are generally equal to or slightly less than the highest measurements at SVE wells (Appendix D-2, Figure 1). The total VOCs in the effluent have been below 100 ppbv (0.1 ppm) since September 2010. The total VOCs (and total CVOCs) in the effluent have had a slight increasing trend since 2012; total VOCs increased from 28 ppbv in February 2012 to 89 ppbv in July 2020 (Figure 2). The July 2020 total VOC concentration (89.1 ppbv, excluding ethanol) is approximately 7 percent of the concentration at startup in December 2009 (1,240 ppbv).

Period	System Uptime	VOC Removal (pounds)
Year One (2010)	97%	70.5
Year Two (2011)	94%	4.1
Year Three (2012)	97%	2.3
Year Four (2013)	91%	2.9
Year Five (January 2014-December 2015)	93%	2
Year Six (January 2016-April 2017)	93%	1.7
Year Seven (May 2017-April 2018)	89%	1.7
Year Eight (May 2018-July 2019)	87%	2.0
Year Nine (August 2019-July 2020)	74%	2.0

4.2 System Effectiveness

CVOC concentrations in groundwater, as provided in LTM reports, are considered the most useful measure of AS/SVE remedy effectiveness. The AS/SVE system was installed to intercept the majority of the Off Depot CVOC plume and to reduce individual CVOC concentrations below 50 µg/L. Operations are to continue until the up-gradient concentrations from the Dunn Field plume do not exceed 50 µg/L for individual CVOCs. AS/SVE in combination with natural attenuation processes is expected to reduce groundwater concentrations to Safe Drinking Water Act maximum contaminant levels (MCLs) in accordance with the RA objectives in the *Dunn Field Record of Decision* (Dunn Field ROD) (CH2M HILL, 2004).

The estimated period of AS/SVE system operations was 5 years, which ended in December 2014. The system operating period has been extended due to individual CVOC concentrations above 50 µg/L in monitoring well MW-159.

Current groundwater data in the AS/SVE area is provided in the *May 2020 Long-Term Monitoring Summary Report, Revision 0* (HDR, 2020). Since April 2012, only TCE in one LTM well near the AS/SVE system, MW-159, has exceeded the 50 µg/L treatment goal. The TCE concentration in MW-159 was 93.8 µg/L in October 2019 and 91.0 µg/L in May 2020. Groundwater elevation contours and the May 2020 analytical results for TCE at LTM wells in the general area of the AS/SVE system are shown on [Figure 3](#).

There are 22 Fluvial Aquifer LTM wells in the immediate vicinity of the AS/SVE system ([Figure 3](#)). Following damage to the AS/SVE system in 2014, CVOC concentrations at six of these wells increased above MCLs or the target concentrations (TCs) from the Dunn Field ROD. In May 2020, CVOC concentrations exceeded a TC or MCL in only two of these wells, MW-159 and MW-52. Concentrations for 1,1,2,2-tetrachloroethane (TeCA) and TCE, the CVOCs most commonly detected above the TCs or MCLs in the Off Depot area, in these six wells are shown on [Table 7](#) for October 2014 through July 2020. A time-trend plot for TeCA and TCE concentrations in MW-159 is provided on [Figure 4](#).

The recent concentration trends are summarized below:

- The TCE concentration at MW-159 was reported at 93.8 µg/L in October 2019 and 91.0 µg/L in May 2020, down from 99.3 µg/L in April 2019; the concentration remains above the treatment goal for AS/SVE operations. The TeCA concentration at MW-159 was reported at 3.3 µg/L in October 2019 and 4.9 µg/L May 2020, down from 5.2 µg/L in April 2019; the concentration remains above the target concentration of 2.2 µg/L for TeCA, but below the AS/SVE operations treatment goal of 50 µg/L for any CVOC..
- TCE and TeCA concentrations at up-gradient well MW-150 have remained below the MCL and TC since October 2017 and have been undetected or detected at estimated concentrations below the quantitation limit since October 2018.
- The TCE concentration at up-gradient well MW-54 was reported at 5.5 µg/L in May 2020 and above treatment goals for the first time since October 2015. TeCA concentrations at up-gradient well MW-54 was reported at 1.4 µg/L in May 2020. Concentrations have increased since 2016 but have remained below the MCL and TC since October 2015.
- The TCE concentration in down-gradient well MW-246 has remained below treatment goals since the brief increase to 10.7 µg/L in October 2018. The TeCA concentration in MW-246 was reported below treatment criteria during both the Year Nine LTM events (October 2019 and May 2020) for the first time since monitoring began.
- TCE and TeCA concentrations at the other two wells (MW-165 and MW-243), located immediately down-gradient of the treatment area, decreased after AS/SVE operations resumed in March 2015 and have remained below treatment goals.
- TCE has generally been the CVOC detected at the highest concentration since 2009, but cis-1,2-dichloroethene (cDCE) was at similar to slightly higher concentrations in Year Nine.

The property access agreement with MLGW was executed in June 2020. To address the continued high concentration of TCE in groundwater at MW-159, five additional AS wells will be installed and incorporated into system operations in September 2020 under Year Ten contract actions.

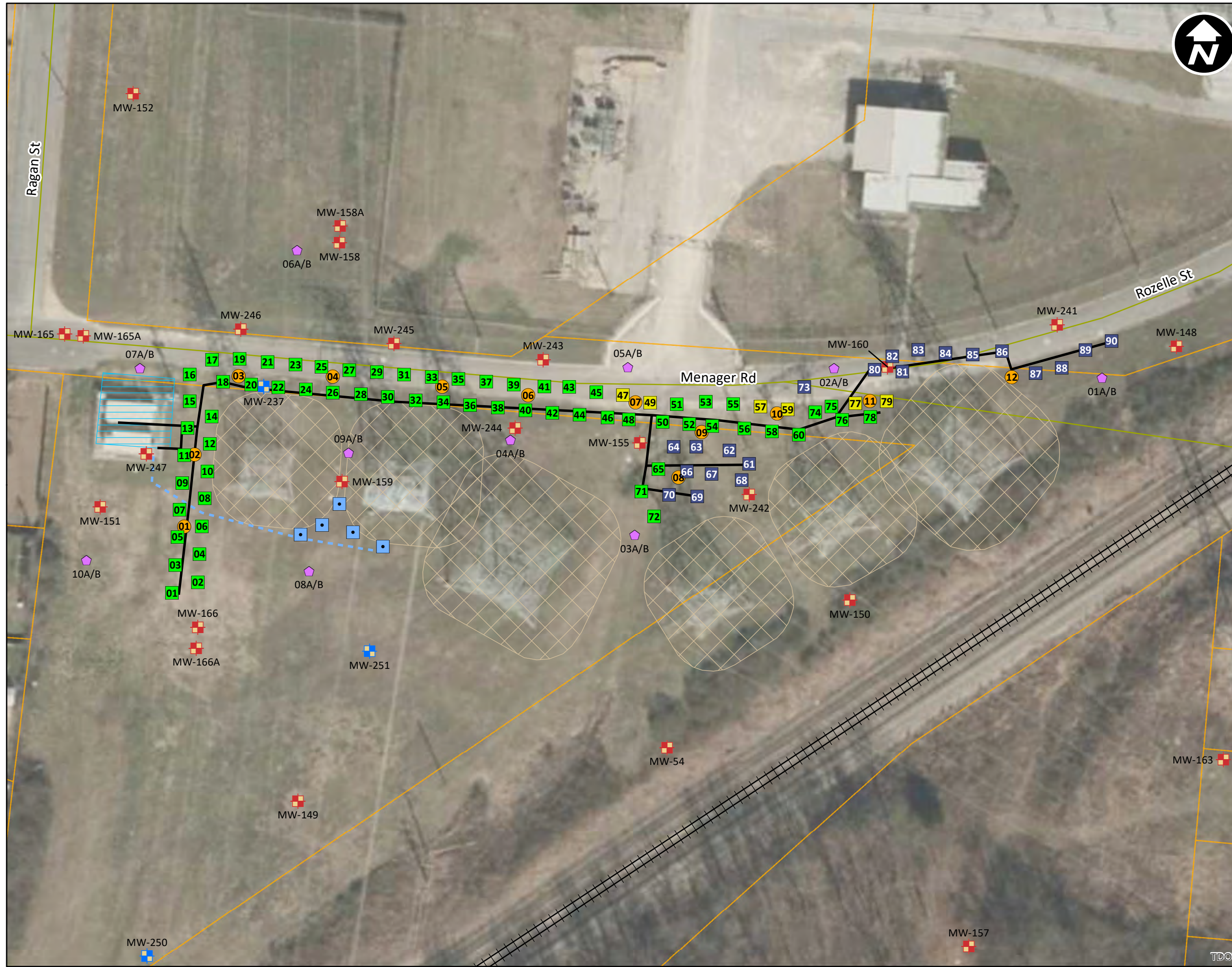
Estimated mass removals beginning with Year Three indicate that the system may be reaching or has reached asymptotic levels for VOCs while containing downgradient migration of the contaminant plume,

which is observed and consistent with groundwater contaminant concentrations. SVE effluent mass removal will be re-evaluated and system optimizations made as necessary upon conclusion of the October 2020 groundwater LTM event.

5. References

- CH2M HILL, 2004. *Memphis Depot Dunn Field Record of Decision, Defense Distribution Center (Memphis)*. Prepared for U.S. Army Corps of Engineers, Huntsville Division. March 2004.
- HDR, 2009. *Dunn Field Off Depot Groundwater Remedial Action Work Plan, Defense Depot Memphis, Tennessee, Defense Logistics Agency. Revision 2*. Prepared for the Air Force Center for Engineering and the Environment. April 2009.
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- HDR, 2011b. *Dunn Field Off Depot Groundwater Air Sparge and Soil Vapor Extraction System Operations and Maintenance Manual, Defense Depot Memphis, Tennessee, Department of the Army, Revision 0*. Prepared for the Air Force Center for Engineering and the Environment. March 2011.
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- HDR, 2018. *April 2018 Long-Term Monitoring Summary Report, Defense Depot Memphis, Tennessee, U.S. EPA I.D. Number TN4210020570, Department of the Army, Revision 0*. Prepared for U.S. Army Corps of Engineers, Mobile District. May 2017.
- HDR, 2020. *May 2020 Long-Term Monitoring Summary Report, Defense Depot Memphis, Tennessee, U.S. EPA I.D. Number TN4210020570, Department of the Army, Revision 0*. Prepared for U.S. Army Corps of Engineers, Mobile District. October 2020.
- Trinity Analysis & Development Corp, 2019. *Off Depot Air Sparge – Soil Vapor Extraction System Annual Operations Report, Year Eight (May 2018 to July 2019), Dunn Field - Defense Depot Memphis, Tennessee, Department of the Army, Revision 1*. September 2020.

Figures



Air Sparge Location (full-time)

Air Sparge Location (half-time)

Air Sparge Location (closed)

Air Sparge Location (planned)

Soil Vapor Extraction Location

Vapor Monitoring Point

Monitoring Well - Fluvial Aquifer

Monitoring Well - Intermediate Aquifer

Conveyance Line

Conveyance Line (planned)

MLGW Transmission Tower with 20 foot No Construction Buffer

AS/SVE System Enclosure

Railroad

Parcel Boundary

Notes:

Sources:
U.S. Census Bureau TIGER
<http://mapgis.memphistn.gov/arcgis/services>

02550100

Feet

Figure 1

AS/SVE System Layout

Trinity Analysis & Development Corp.

Off Depot AS/SVE System

Year Nine, Annual

Operations Report

Dunn Field -

Defense Depot Memphis, Tennessee

U.S. ARMY

Contract: W91278-16-D-0054 / W9127818F0405

Scale: AS SHOWN

Date: 10/9/2020

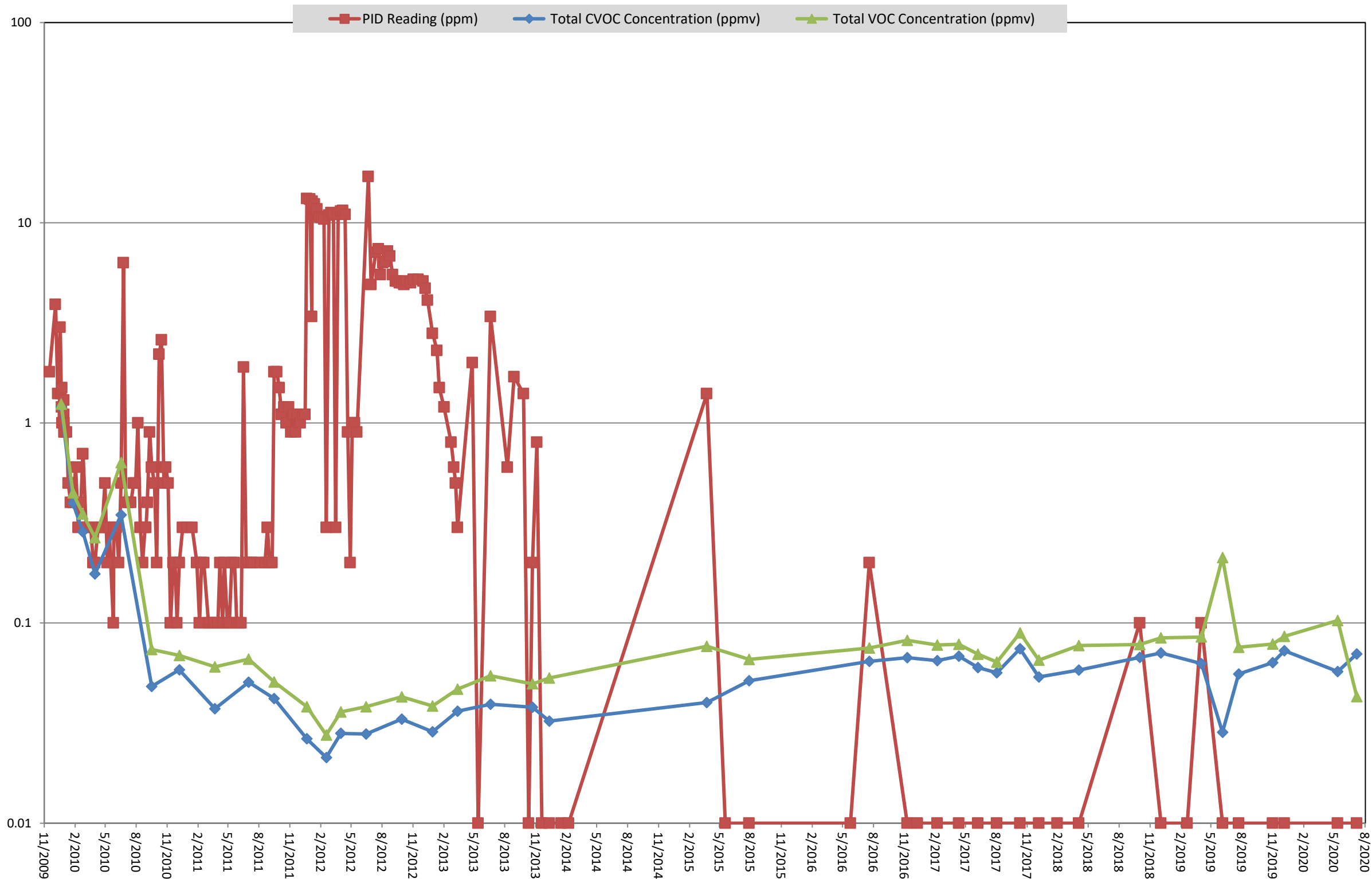


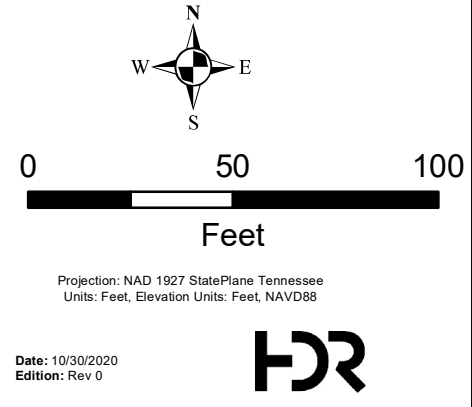
Figure 2
Effluent Concentration Trend - Analytical Results and Field PID Measurements
Off Depot AS/SVE Year Nine, Annual Operations Report
Defense Depot Memphis, Tennessee

Path: W:\ODS\VE\2020\03_DE_TCE_May_2020.mxd

Notes:
1. Color-coded wells symbols are based on the most recent analytical result at each well. Results are from the May 2020 LTM event.
2. Highest concentration at well pairs used for contour.
3. Groundwater contours are from the May 2020 LTM event.



Figure 3
Fluvial Aquifer TCE Concentrations, May 2020
Off Depot AS/SVE System
Annual Operations Report,
Year Nine
Defense Depot
Memphis, Tennessee



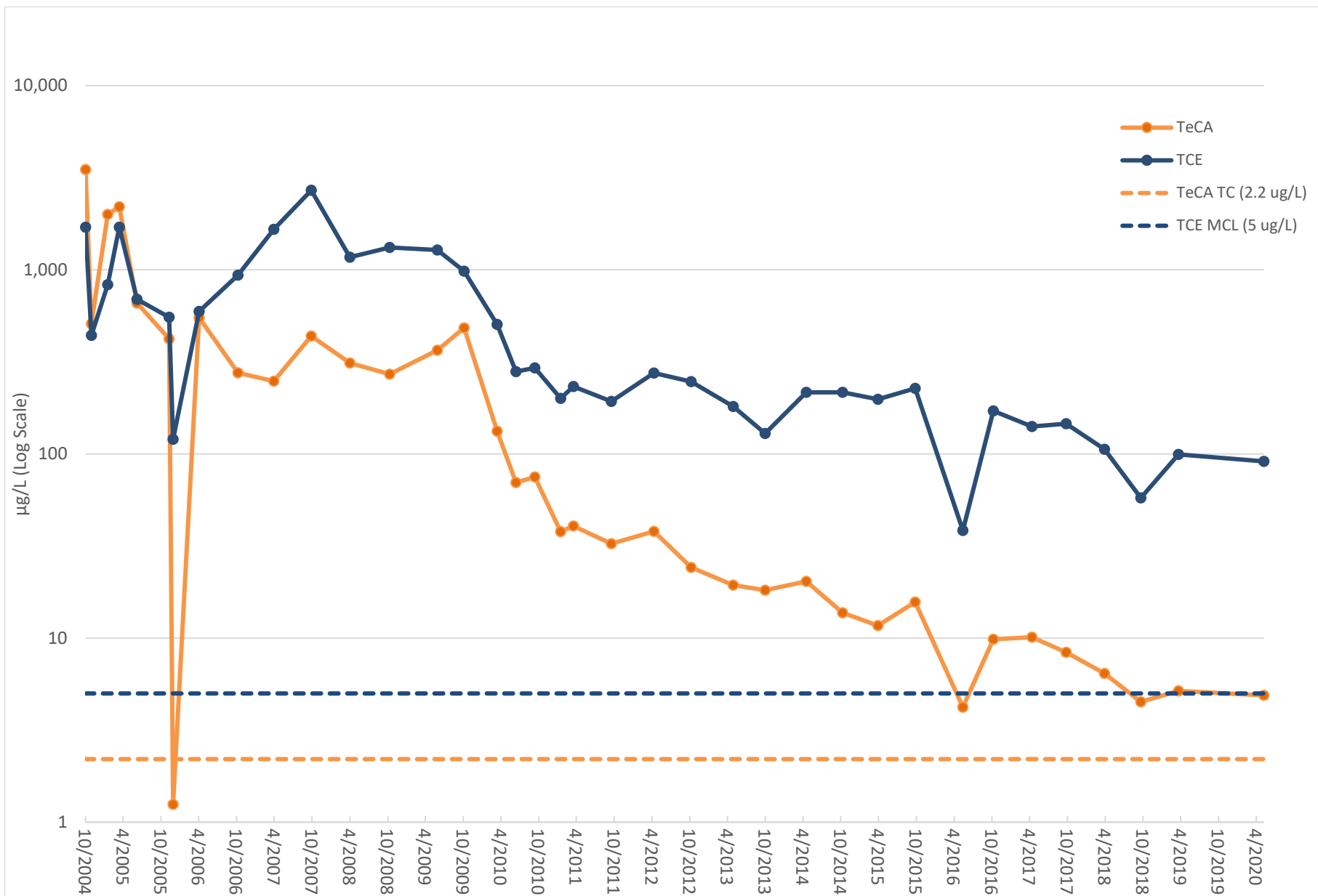


Figure 4
TeCA and TCE Concentration Trends at MW-159
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee

Tables

Table 1
Flow Rate and Vacuum Readings at SVE Wells and Effluent
Off Depot AS/SVE Year Nine, Annual Operations Report
Dunn Field - Defense Depot Memphis, Tennessee

Date	Number of Blowers in Operation	AS Compressor Flow rate (scfm)	SVE Effluent		SVE-01		SVE-02		SVE-03		SVE-04		SVE-05		SVE-06		SVE-07		SVE-08		SVE-09		SVE-10		SVE-11		SVE-12	
			Flow rate (scfm)	Vacuum (in. Hg.)	Flow rate (acfm)	Vacuum (in. H ₂ O)	Flow rate (acfm)	Vacuum (in. H ₂ O)	Flow rate (acfm)	Vacuum (in. H ₂ O)	Flow rate (acfm)	Vacuum (in. H ₂ O)	Flow rate (acfm)	Vacuum (in. H ₂ O)	Flow rate (acfm)	Vacuum (in. H ₂ O)	Flow rate (acfm)	Vacuum (in. H ₂ O)	Flow rate (acfm)	Vacuum (in. H ₂ O)	Flow rate (acfm)	Vacuum (in. H ₂ O)	Flow rate (acfm)	Vacuum (in. H ₂ O)	Flow rate (acfm)	Vacuum (in. H ₂ O)	Flow rate (acfm)	Vacuum (in. H ₂ O)
8/6/2019	1	180	500	9.6	50	58.3	NR-1	50.5	20	50.2	50	53.6	50	79.2	90	62.2	50	81.2	70	62.1	90	87	NR-1	72.5	50	52.9	60	44.1
8/20/2019	1	170	490	9.9	50	65.1	NR-1	54.5	40	54	60	56.8	50	84.2	80	67.1	50	86.6	70	66.8	70	89.5	NR-1	77.4	50	53.9	70	44.6
9/27/2019	1	143	540	8.8	50	34.8	NR-1	34	30	32.6	60	35.6	50	64.4	90	46.2	50	68.2	70	46.7	90	74.3	NR-1	71	60	34.8	60	31.2
10/22/2019	1	103	530	9.7	50	50.8	NR-1	49.9	20	47.5	60	49.5	50	76.4	90	59.1	50	77.4	60	58.8	70	81.8	30	68.1	50	47.8	60	40.6
10/31/2019	1	146	530	9.9	60	58.1	NR-1	57.3	50	51.4	60	54.9	60	79.5	100	62.7	50	82.2	70	62.2	90	84.9	40	72.2	60	52.7	70	42.9
11/14/2019	1	233	530	10.7	50	57.9	NR-1	57.2	30	51.1	60	56.2	50	79.7	90	64.6	50	80.6	60	63.2	90	85.6	NR-1	71.7	60	51.1	80	45.8
11/20/2019	1	223	520	10.5	50	62.6	NR-1	56.1	20	52.5	50	55.4	50	80.5	90	63.3	50	83.2	70	62.2	80	89	20	75.4	60	54.6	80	46.9
12/5/2019	1	203	530	10.5	60	64.3	NR-1	58.4	30	53.8	60	57.1	50	81.3	90	65.1	50	85.8	70	68.6	80	87.5	20	74.9	60	52.6	70	48.2
12/17/2019 ^A	1	171.97 ^A	500 ^A	10.5 ^A	50	66.4	NR-1	61.1	30	55.2	60	58.8	60	84.2	90	68.2	50	85.3	60	66.4	90	88.5	20	75.3	60	52.7	80	49.5
12/30/2019	1	221	530	10.0	60	63.2	NR-1	54.4	50	52.5	60	56.7	60	80.1	90	66	50	82.8	70	64.6	80	87.7	NR-1	71.6	60	53.5	80	47.7
1/14/2020	1	202	520	10.1	50	59.2	NR-1	61.7	30	50.1	60	56.8	50	80.8	90	63.1	50	84.9	80	64.5	80	88	NR-1	72.4	60	51.1	70	45.8
1/28/2020	1	148	540	9.9	60	56.9	NR-1	55.6	30	46.9	60	52.1	50	78.2	90	61.7	50	79.5	70	62.9	80	84.1	NR-1	72.9	60	48.4	70	51.5
2/4/2020	1	155	530	9.9	50	65.8	NR-2	59.1	30	55.7	60	58.8	50	83.7	90	66.8	50	89.6	60	67.9	90	88.6	30	74.1	50	56.7	70	47.7
2/19/2020	1	196	530	10.6	50	68.9	NR-2	65.8	40	57.9	60	63.2	50	86.9	90	72.3	50	88.9	70	72.3	80	93.1	NR-1	77.5	60	62.7	70	54.2
3/5/2020	1	147	530	10	60	61.6	NR-2	56.1	40	49.8	70	54.6	60	83.9	90	64.9	50	85.9	70	69.5	80	87.3	NR-1	73.1	50	63.6	70	47.6
3/18/2020	1	168	510	10.3	50	69.7	NR-2	66	30	56.5	60	62.8	50	88.8	90	70.3	50	90.7	70	71.6	90	93.9	NR-1	79.9	60	62.9	70	49.6
4/1/2020	1	139	510	10.4	50	68.7	NR-2	64.7	20	54.8	60	58.5	50	88.3	90	69.5	50	91.6	60	72.9	90	95.9	NR-2	78.5	50	72.9	60	52.6
4/14/2020	1	159	500	10.8	50	76.4	NR-2	62.4	30	60.6	60	63.8	50	92.6	90	74.2	50	97.4	70	77.7	80	98.1	NR-2	84.6	50	82.4	80	53.4
5/5/2020	1	161	470	10.9	50	82.8	NR-2	67.4	20	63.4	60	67.7	50	96.6	80	80.7	50	100.6	70	79.9	90	102.7	NR-2	86.6	50	88.6	80	53.9
5/11/2020	1	156	480	11.6	50	83	NR-2	67.2	30	64.8	60	68.8	50	98	90	79.3	50	102.2	60	86.6	90	105.4	NR-2	87.4	40	92.2	80	55.5
5/25/2020	1	134	510	9.8	50	62.4	NR-2	49.5	20	48.1	60	51.1	50	85.9	90	63.1	50	90.1	60	71.5	80	93.7	NR-2	74.4	50	73.4	70	44.3
6/10/2020	1	135	500	10.1	50	70.7	NR-2	53.8	30	53.4	60	56.7	50	90.7	90	67.9	40	96	60	72.1	80	99.1	NR-2	80.5	40	78.6	70	47.4
6/29/2020	1	107	510	9.8	50	66.1	NR-2	48.1	30	48.4	60	52.1	50	85.2	90	62.3	50	90.1	50	71.7	70	95.7	NR-2	78.7	50	73.7	70	45.2
7/7/2020	1	121	470	10.8	50	81.5	NR-2	62.5	20	62.1	60	66.7	50	96	80	75.4	50	99.9	60	77.6	90	104.9	NR-2	88.1	50	79	80	52.1
7/21/2020	1	113	460	11	50	77.1	NR-2	53.5	20	57.9	60	63.4	60	94.2	90	72.9	50	97.8	60	72.6	90	105.1	NR-2	18.9	50	71.4	70	49.8

Notes:

---	System operating in standby mode	C:	AS manifold closed
scfm:	standard cubic feet per minute	NR - #:	No reading collected due to:
acfm:	actual cubic feet per minute	- 1	Needle stuck, not visible
in. Hg:	inches of mercury	- 2	Water in gauge; needle fluctuating
in. H ₂ O:	inches of water	12/17/2019 ^A	Computer not receiving accurate data from system due to modem failure.

Table 2
Vacuum Readings at VMPs
Off Depot AS/SVE Year Nine, Annual Operations Report
Dunn Field - Defense Depot Memphis, Tennessee

	Date	8/27/2019	10/31/2019	12/5/2019	2/4/2020	5/11/2020	7/7/2020
Number of Blowers in Operation		1	1	1	1	1	1
Air Sparge Manifold Open		Yes	Yes	Yes	Yes	Yes	Yes
VMP-1A		NM(C)	0.3	0.6	5.1	0.9	1.2
VMP-1B		NM(C)	8.9	11.7	11.8	16.5	7.3
VMP-2A		NM(C)	10.1	13.1	NM(W)	5.3	7.6
VMP-2B		NM(C)	8.9	15.9	0.7	19.3	10.8
VMP-3A		NM(C)	1.2	NM(W)	1.2	0.5	0.2
VMP-3B		NM(C)	8.9	17.3	17.9	23.6	13.2
VMP-4A		NM(C)	9.9	18.1	30.1	NM(W)	2.9
VMP-4B		NM(C)	9.6	23.6	23	29.4	18.1
VMP-5A		NM(C)	10.0	15.6	1	14.5	2.5
VMP-5B		NM(C)	8.7	20.2	11.6	28.4	20.3
VMP-6A		NM(C)	8.7	20.4	5.7	3.4	3.7
VMP-6B		NM(C)	8.7	21.1	18.8	30.3	13.6
VMP-7A		NM(C)	8.2	15.0	6.2	8.2	2
VMP-7B		NM(C)	8.9	23.7	NM(W)	10.8	1.6
VMP-8A		NM(C)	8.9	9.3	7.8	2.4	3.3
VMP-8B		NM(C)	8.9	23.4	22.7	29.5	15.8
VMP-9A		NM(C)	10.0	24.9	18.8	1.7	2.6
VMP-9B		NM(C)	8.9	26.0	26.1	33.8	19
VMP-10A		NM(C)	7.2	4.9	3.5	16.8	2.2
VMP-10B		NM(C)	8.9	24.3	24.2	34.9	15.9

Notes:

1) Vacuum measurements made with a digital manometer; units are in inches of water.

NM(C): No measurements for the August 27, 2019 event due to system communication issue disrupting SVE operations.

NM(W): No measurement, water in line.

Table 3
PID Measurements at SVE Wells and Effluent
Off Depot AS/SVE Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee

Date	Number of Blowers in Operation	Air Sparge Manifold Open	SVE-01	SVE-02	SVE-03	SVE-04	SVE-05	SVE-06	SVE-07	SVE-08	SVE-09	SVE-10	SVE-11	SVE-12	Effluent
6/7/2017	1	Yes	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	NM	0.0	0.0	0.0
8/2/2017	1	Yes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NM	0.0	0.0	0.0
10/10/2017	1	Yes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NM	0.0	0.0	0.0
12/5/2017	1	Yes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NM	0.0	0.0	0.0
1/29/2018	1	Yes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NM	NM	0.0	0.0	0.0
4/3/2018	1	Yes	0.0	0.0	0.0	0.0	0.0	NM	0.0	0.0	NM	NM	0.0	0.0	0.0
8/20/2018	1	Yes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	NM	10.9	5.9	0.0
10/1/2018	1	Yes	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	NM	0.0	0.0	0.1
12/3/2018	1	Yes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NM	0.0	0.0	0.0
2/19/2019	1	Yes	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	NM	0.0	0.0	0.0
4/2/2019	1	Yes	0.1	0.8	0.9	0.0	0.0	0.0	0.4	0.5	0.6	0.1	0.5	0.2	0.1
6/4/2019	1	Yes	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8/27/2019	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
10/31/2019	1	Yes	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.2	NM	0.0	0.0	0.0
12/5/2019	1	Yes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2/4/2020	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
5/11/2020	1	Yes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7/7/2020	1	Yes	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	NM	0.0	0.0	0.0

Notes:

- 1) PID measurements made with a MiniRae 2000 (10.6 electron volt lamp); units are in parts per million.
- Yes: Sparge system was operating during measurements.
- NM: No measurements at SVE-10 due to water in piping.
- NP: No measurements due to PLC issues.

Table 4
PID Measurements at VMPs
Off Depot AS/SVE Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee

	Date	8/25/2019	10/31/2019	12/4/2019	2/4/2020	5/11/2020	7/7/2020
Number of Blowers in Operation		---	1	1	---	1	1
Air Sparge Manifold Open		---	Yes	Yes	---	Yes	Yes
VMP-1A		---	NM	0.0	---	0.0	NM
VMP-1B		---	0.0	0.0	---	0.0	0.0
VMP-2A		---	NM	0.0	---	0.0	0.1
VMP-2B		---	0.0	0.0	---	0.1	0.1
VMP-3A		---	NM	0.0	---	0.1	0.0
VMP-3B		---	0.0	0.6	---	0.1	0.0
VMP-4A		---	NM	0.0	---	0.1	0.0
VMP-4B		---	0.2	0.0	---	0.2	0.0
VMP-5A		---	0.2	0.1	---	0.1	NM
VMP-5B		---	0.3	0.1	---	0.0	0.0
VMP-6A		---	NM	0.5	---	0.0	NM
VMP-6B		---	0.2	0.3	---	0.0	0.0
VMP-7A		---	0.0	0.0	---	0.1	0.9
VMP-7B		---	0.1	0.0	---	NM	0.0
VMP-8A		---	NM	0.0	---	0.0	NM
VMP-8B		---	0.0	0.0	---	0.0	0.0
VMP-9A		---	0.0	0.4	---	0.1	0.2
VMP-9B		---	0.1	0.0	---	0.1	0.0
VMP-10A		---	NM	0.0	---	0.0	NM
VMP-10B		---	0.0	0.0	---	0.0	0.0

Notes:

1) PID measurements made with a MiniRae 2000 (10.6 electron volt lamp); units are in parts per million.

--- No readings because of PLC error.

NM: No measurement, water in line.

Table 5
Analytical Results Summary - SVE Effluent
Off Depot AS/SVE Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee

	SampleID	ODSVE-EFF-Y9Q1	ODSVE-EFF-Y9Q2	ODSVE-DUP1-Y9Q2	ODSVE-EFF-Y9Q3	ODSVE-EFF-Y9Q4
	Lab ID	P1906722-001	P1907461-001	P1907461-002	P2002631-001	P2003839-001
	Date	10/31/2019	12/5/2019	12/5/2019	5/11/2020	7/7/2020
Primary CVOCs	Units					
1,1,2,2-Tetrachloroethane	ppbv	0.41	0.33	0.32	0.19	0.17
1,1,2-Trichloroethane	ppbv	0.044 J	0.043 J	0.045 J	0.024 J	0.025 J
1,1-Dichloroethene	ppbv	0.70	0.62	0.62	0.5	0.68
1,2-Dichloroethane	ppbv	0.050 U	0.065 U	0.082 U	0.054 U	0.052 J
Carbon Tetrachloride	ppbv	0.50	0.41	0.41	0.48	0.48
Chloroform	ppbv	6.4	6.4	6.5	5	6.3
cis-1,2-Dichloroethene	ppbv	29	36	36	26	34
Methylene Chloride	ppbv	0.11 U	0.14 U	0.18 U	0.078 J	0.064 J
Tetrachloroethene	ppbv	2.8	2.4	2.4	2.5	2.6
trans-1,2-Dichloroethene	ppbv	0.42	0.46	0.45	0.27	0.43
Trichloroethene	ppbv	23	26	26	22	25
Vinyl Chloride	ppbv	0.13 J	0.14 J	0.14 J	0.14 J	0.37
Total Primary CVOCs	ppbv	63.4	72.8	72.9	57.2	70.2
Other VOCs						
1,1,1-Trichloroethane	ppbv	0.31	0.29	0.30	0.22	0.29
1,1,2-Trichlorotrifluoroethane	ppbv	3.1	2.8	2.9	3.7	5.4
1,1-Dichloroethane	ppbv	0.4	0.42	0.42	0.26	0.44
1,2,4-Trimethylbenzene	ppbv	0.041 U	0.054 U	0.068 U	0.12 J	0.046 U
1,3,5-Trimethylbenzene	ppbv	0.041 U	0.054 U	0.068 U	0.031 J	0.046 U
2-Butanone	ppbv	0.49	0.42 J	0.48 J	0.55	0.51
2-Propanol	ppbv	0.30 U	0.17 J	0.49 U	2.8	0.29 J
Acetone	ppbv	3.4	2.9 J	2.3 J	11	4.6
Benzene	ppbv	0.052 U	0.087 J	0.085 J	0.17 J	0.076 J
Bromodichloromethane	ppbv	0.017 J	0.039 U	0.050 U	0.032 U	0.034 U
Carbon Disulfide	ppbv	1.1	2.0 J	4.3 J	4.8	4.2
Cyclohexane	ppbv	0.11 U	0.15 U	0.19 U	0.092 J	0.14 J
Dichlorodifluoromethane	ppbv	4.3	4.0	4.1	2	1.2
Ethanol	ppbv	0.89 J	0.67 U	0.85 U	35 B	24
Ethyl Acetate	ppbv	0.21 U	0.28 U	0.35 U	34	0.24 U
Ethylbenzene	ppbv	0.021 J	0.061 U	0.077 U	0.045 J	0.052 U
m,p-Xylenes	ppbv	0.092 U	0.065 U	0.072 U	0.16 J	0.048 J
n-Butyl Acetate	ppbv	0.042 U	0.049 J	0.040 J	0.089 J	0.048 U
n-Heptane	ppbv	0.092 U	0.067 J	0.051 J	0.1 J	0.10 U
n-Hexane	ppbv	0.043 J	0.12 J	0.10 J	0.15 J	0.072 J
o-Xylene	ppbv	0.046 U	0.061 U	0.077 U	0.069 J	0.052 U
Propene	ppbv	0.15 J	0.35 J	0.32 J	1.7 B	0.32 J
Styrene	ppbv	0.089 U	0.12 U	0.15 U	0.038 J	0.10 U
Toluene	ppbv	0.090 J	0.14 J	0.16 J	1.9	0.18 J
Trichlorofluoromethane	ppbv	0.33	0.31	0.31	0.27	0.28
Vinyl Acetate	ppbv	0.60 J	0.81 J	1.9 J	3.6	0.85 J
Total VOCs		78.6	87.7	90.7	160.0	113.1

DQE Flags:

U: Analyte not detected above Reporting Limit

J: Estimated

J+: Estimated with possible high bias

B: Analyte detected in both the sample and associated method blank

Table 6
Mass Removal Calculations
Off Depot AS/SVE Year Nine, 1st Semiannual Operations Report
Dunn Field - Defense Depot Memphis, Tennessee

Period	Start Date	End Date	Hours Operating Between Dates	Average Flow rate (scfm)	Laboratory Total VOC Effluent Concentration (ppbv)	Average Effluent VOC Concentration (ppbv)	Effluent Emission Rate (lb/hr)	Estimated VOC Mass Removal During Period (lbs)	Cumulative Mass Removed From Fluvial Subsurface (lbs)
Year 1	11/12/2009	12/11/2009	92	977	1240	1240	0.025	2.3	2.3
	12/11/2009	1/25/2010	1074	1054	447	844	0.018	19.9	22.2
	1/25/2010	2/23/2010	665	926	351	399	0.008	5.1	27.3
	2/23/2010	3/31/2010	890	916	267	309	0.006	5.2	32.5
	3/31/2010	6/17/2010	1854	1119	633	450	0.010	19.4	51.9
	6/17/2010	9/16/2010	1958	1114	73.8	353	0.008	16.0	68.0
	9/16/2010	12/7/2010	1695	1006	68.9	71.4	0.001	2.5	70.5
Year 2	12/7/2010	3/24/2011	872	965	60.4	64.7	0.001	1.1	71.6
	3/24/2011	6/17/2011	783	974	66.0	63.2	0.001	1.0	72.6
	6/17/2011	9/16/2011	1042	958	50.8	58.4	0.001	1.2	73.8
	9/16/2011	12/22/2011	1148	724	38.2	44.5	0.0007	0.8	74.6
Year 3	12/22/2011	2/16/2012	759	719	27.6	32.9	0.0005	0.4	75.0
	2/16/2012	3/31/2012	437	660	36.0	31.8	0.0004	0.2	75.2
	3/31/2012	6/30/2012	969	834	38.1	37.1	0.0006	0.6	75.8
	6/30/2012	9/30/2012	1124	612	42.8	40.5	0.0005	0.6	76.4
	9/30/2012	12/31/2012	1061	628	38.5	40.7	0.0005	0.6	76.9
Year 4	12/31/2012	3/31/2013	1070	628	46.7	42.6	0.0006	0.6	77.5
	3/31/2013	6/30/2013	1070	760	54.5	50.6	0.0008	0.9	78.4
	6/30/2013	9/30/2013	730	662	49.2	51.9	0.0007	0.5	78.9
	9/30/2013	12/31/2013	1104	763	53.2	51.2	0.0008	0.9	79.8
Year 5	12/31/2013	3/30/2014	465	810	-	53.2	0.0009	0.4	80.2
	3/6/2015	6/30/2015	525	615	86.2	86.2	0.0011	0.6	80.8
	6/30/2015	9/30/2015	667	555	65.9	76.1	0.0009	0.6	81.4
	9/30/2015	12/31/2015	507	566	72.2	69.1	0.0008	0.4	81.8
Year 6	12/31/2015	7/31/2016	518	565	75.1	73.7	0.0009	0.4	82.3
	7/31/2016	11/30/2016	540	574	82.4	78.8	0.0009	0.5	82.8
	11/30/2016	2/28/2017	442	598	77.7	80.1	0.0010	0.4	83.2
	2/28/2017	5/5/2017	292	595	78.3	78.0	0.0010	0.3	83.5
Year 7	5/5/2017	7/31/2017	349	582	69.8	74.1	0.0009	0.3	83.8
	7/31/2017	10/31/2017	555	558	89.4	79.6	0.0009	0.5	84.3
	10/31/2017	1/31/2018	329	584	65.2	77.3	0.0009	0.3	84.6
	1/31/2018	4/30/2018	715	574	77.3	71.3	0.0009	0.6	85.2
Year 8	8/6/2018	10/31/2018	692	560	78.2	77.8	0.0009	0.6	85.8
	10/31/2018	1/31/2019	386	583	81.0	79.6	0.0010	0.4	86.2
	1/31/2019	4/30/2019	585	547	85.2	83.1	0.0009	0.6	86.8
	4/30/2019	7/30/2019	505	510	75.7	80.5	0.0009	0.4	87.2
Year 9	7/30/2019	10/31/2019	335	518	78.6	77.2	0.0008	0.3	87.5
	10/31/2019	1/28/2020	653	522	87.7	83.2	0.0009	0.6	88.1
	1/28/2020	5/13/2020	914	511	91.0	89.4	0.0010	0.9	88.9
	5/13/2020	8/4/2020	264	490	89.1	90.1	0.0009	0.2	89.2

Notes:

lbs pounds
lb/hr pounds per hour
ppbv parts per billion by volume
scfm standard cubic feet per minute

Constants:

Mass of TCE: 131.4 lb/lb-mol
Molar Vol Air 379 ft³/lb-mol (@ 60° F)

Table 7
Adjacent LTM Wells Exceeding TC or MCL
Off Depot AS/SVE Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee

1,1,2,2-Tetrachloroethane (TeCA) Concentration (µg/L)

Date	TC: 2.2 µg/L			MCL: NA		
	MW-54	MW-150	MW-159	MW-165	MW-243	MW-246
Oct 2014	2.5	0.8	13.7	0.7	2.6	9.6
Apr 2015	2.2	1.8	11.7	0.4	1.7	5.4
Oct 2015	1.1	3.1	15.7	0.5	1.3	3.3
Apr 2016	<0.5	<0.5	4.2	0.2 J	1.3	0.4 J
Oct 2016	<0.5	<0.5	9.9	<0.5	1.2	4.3
Apr 2017	0.4	0.2	10.1	<0.5	1.7	4.8
Oct 2017	–	2.6	8.4	<0.5	–	3.6
Apr 2018	0.5	1.0	6.4	<0.5	1.3	3.8
Oct 2018	–	<0.5	4.5	<0.5	–	3.1
Apr 2019	0.6	<0.5	5.2	<0.5	1.6	2.8
Oct 2019	–	–	3.3	–	–	0.7 J
May 2020	1.4	<0.8	4.9	<0.8	0.4 J	1.2

Trichloroethene (TCE) Concentration (µg/L)

Date	TC: 5 µg/L			MCL: 5 µg/L		
	MW-54	MW-150	MW-159	MW-165	MW-243	MW-246
Oct 2014	10.0	2.3	216	6.3	5.0	28.5
Apr 2015	10.4	7.4	198	6.2	1.7	1.0
Oct 2015	5.3	9.5	227	3.6	1.5	0.7
Apr 2016	<1.0	<1.0	38.4	1.9	2.6	3.6
Oct 2016	<1.0	<1.0	171	1.1	2.4	0.4 J
Apr 2017	1.7	0.9	141	1.2	3.2	0.8
Oct 2017	–	7.7	146	1.0	–	0.6
Apr 2018	2.6	3.1	106	0.9 J	3.4	1.7
Oct 2018	–	<1.0	57.7	1.0	–	10.7
Apr 2019	3.6	0.6 J	99.3	0.9 J	2.6	2.4
Oct 2019	–	–	93.8	–	–	2.8
May 2020	5.5	<1.0	91.0	0.5 J	1.2	<1.0

Notes:

MCL : Maximum Contaminant Level

TC : Target Concentration

NA : not applicable

µg/L : micrograms per liter

< : compound undetected at the specified quantitation limit

– : no sample collected

1) Results above MCL or TC shown in **bold**

Appendices

Appendix A Responses to EPA and TDEC Comments and Approval Letters

**RESPONSES to EPA COMMENTS on the
OFF DEPOT AIR SPARGE-SOIL VAPOR EXTRACTION SYSTEM**

**YEAR NINE (AUGUST 2019 – JULY 2020),
ANNUAL OPERATIONS REPORT**

**DUNN FIELD, REVISION 0
DATED DECEMBER, 2020**

**DEFENSE DEPOT
MEMPHIS, TENNESSEE**

EPA Comments:

1. Section 2.2, System Flow Rates and Vacuums, Page 2-1:

The third paragraph indicates the average flow rates at individual soil vapor extraction (SVE) wells were 27 to 89 actual cubic feet per minute (acfm). However, according to Table 1, Flow Rate and Vacuum reading at SVE Wells and Effluent, the average flow rates at individual SVE wells were 20 to 100 acfm. Please revise the text to address this discrepancy.

Response: Table 1 does not list average flow rates, but rather the actual flow rates on the date that they were measured. The text discusses average flow rates over the six month period. These were calculated by summing the actual flow rates and dividing by the number of readings collected over the six month period. No changes to the text or table are proposed.

2. Section 3.2, PID Measurements, Page 3-1:

The second paragraph indicates photoionization detector (PID) readings could not be measured in two events because of programmable logic controller (PLC) issues. According to Table 3, PID Measurements at SVE Wells and Effluent, PLC issues were encountered on 8/27/2019 and 2/4/2020. However, the text does not discuss the nature of the PLC issues or what actions were taken, if any, to address the issues. Please revise the text to address the noted PLC deficiencies to ensure PID readings can be measured during all future monitoring events.

Response: The relevant portion of the text was revised as follows: “PID readings could not be measured on 27 August 2019 or 04 February 2020 because of PLC issues. The first issue resulted from failure of the PLC and was resolved via replacement of the PLC on 27 September 2019. The second issue resulted from a wireless switch communications error that was corrected later on 04 February 2020.”

3. Section 3.3, Vapor Samples, Page 3-2:

The text states system effluent samples for laboratory analysis are collected in 6-liter Summa canisters without a flow regulator. The text further indicates the concentrations reported for Quarter 3 and Quarter 4 vapor samples included elevated concentrations of ethanol and ethyl acetate, which are considered anomalous based on historical reporting and are not common site contaminants. The text does not further discuss the nature of the ethanol or ethyl acetate contaminants. As such, it is uncertain whether the sample canister and/or other sampling equipment was potentially contaminated and not properly cleaned, ambient air was introduced into the sample, or the sample

was contaminated in the laboratory. Please revise the text to discuss the potential nature of the ethanol and ethyl acetate contaminants and whether vapor sampling methodology or laboratory contamination may have impacted vapor sample results.

Response: The relevant portion of the text was revised as follows: “The concentrations reported for Quarters 3 and 4 included elevated concentrations of ethanol (Quarter 3 and Quarter 4) and ethyl acetate (Quarter 3 only) which are considered anomalous based on historical reporting and are not common site contaminants. Ethanol was also detected in the Quarter 3 method blank; its presence in the Quarter 3 and Quarter 4 samples may be the result of laboratory contamination associated with increased and wide-spread use of sanitizers during the COVID-19 pandemic. Ethyl acetate is considered an impurity in hand sanitizers and its presence may be related to a lack of quality control as industry rapidly increased production of sanitizers during the spring of 2020.”

4. **Section 4.2, System Effectiveness, Page 4-2:**

The text in the first bullet states 1,1,2,2-tetrachloroethane (TeCA) concentration at MW-159 was reported at 3.3 micrograms per liter (µg/L) in October 2019 and 4.9 µg/L May 2020, down from 5.2 µg/L in April 2019, and the concentration remains above the treatment goal for air sparge/soil vapor extraction (AS/SVE) operations. However, it was previously stated that the treatment goal for AS/SVE operations is 50 µg/L for individual chlorinated volatile organic compound (CVOC) concentrations. Please revise the text to clarify whether the AS/SVE treatment goal for TeCA is also 50 µg/L or is less than as indicated in the text.

Response: The treatment goal for the AS/SVE system is 50 µg/L for any individual CVOC; however, groundwater concentrations measured at the individual wells are compared against target concentrations that are typically MCL-based (i.e. much lower than 50 µg/L). The relevant portion of the text was revised as follows: “The TeCA concentration at MW-159 was reported at 3.3 µg/L in October 2019 and 4.9 µg/L May 2020, down from 5.2 µg/L in April 2019; the concentration remains above the target concentration of 2.2 µg/L for TeCA, but below the AS/SVE operations treatment goal of 50 µg/L for any CVOC.”

5. **Table 5, Analytical Results Summary – SVE Effluent:**

The ethanol result in the table is listed at 35 parts per billion vapor (ppbv) and is “B” qualified. According to the Data Quality Evaluation (DQE) Flags footnote in the table, the “B” flag indicates the analyte was detected in both the sample and associated method blank. However, in Appendix E, Results of Laboratory Analysis, Table E-1, Analytical Results – SVE Effluent, the ethanol result is listed as 35 U. According to the DQE Flag notes, the “U” qualifier/flag indicates the analyte was not detected above the reporting limit. Please revise the respective table to address this discrepancy in the qualified result for ethanol.

Response: The correct qualifier is “B”. Table E-1 was corrected to replace “U” with “B”.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

August 04, 2021

Mr. James Foster
Base Realignment and Closure Division (ACSIM-ODB)
2530 Crystal Drive (Taylor Building), Room 5000
Arlington, VA 22202-3940

Dear Mr. Foster:

The U.S. Environmental Protection Agency (EPA) reviewed the U.S. Army's responses to EPA Comments for the Defense Depot of Memphis, Tennessee, Off Depot Air Sparge-Soil Vapor Extraction System (AS/SVE) Annual Operations Report, Year 9 (August 2019 – July 2020), dated December 2020.

EPA approves the above mentioned report. Should you have any questions or concerns, please feel free to call me at on my cell number 404-229-9500.

Sincerely,

A handwritten signature in cursive script that reads "Diedre Lloyd".

Diedre Lloyd
Remedial Project Manager
Restoration & Sustainability Branch
Superfund & Emergency Management Division

cc: Mr. James Foster, (Signed Original), via email: james.c.foster10.civ@mail.mil
Mr. Jamie A. Woods, PG, Tennessee, Department of Environment and Conservation, Memphis Environmental Field Office, via email: jamie.woods@tn.gov
Ms. Joan Hutton, CALIBRE, via email: Joan.Hutton@calibresys.com
Mr. Thomas Holmes, HDR Environmental, via email: Thomas.Holmes@hdrinc.com

Above Letter was also emailed to list below and can be found at the e-file location noted below.

ec: james.c.foster10.civ@mail.mil; jamie.woods@tn.gov; joan.hutton@calibresys.com;
thomas.holmes@hdrinc.com;

e-bbc: Terrell.tina@epa.gov

C:\DDMT\DDMT_SMP\...

D. Lloyd (EPA-PM)

TDoR NCO: file 79-736

TDoR MEFO: file 79-736



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Remediation
Memphis Environmental Field Office
8383 Wolf Lake Drive
Bartlett, TN 38133-4119

March 5, 2021

James C. Foster
BRAC Program Manager
Headquarters Department of the Army,
Assistant Chief of Staff for
Installation Management (DAIM-ODB)
Army Pentagon,
2530 Crystal Drive,
Arlington, VA 22202-3934

Subject: Off-Depot AS/SVE Annual Operations Report, Year 9
Defense Depot Memphis, Tennessee
TDoR ID # 79-736
TN4210020570

Mr. Foster,

TDEC-DoR has reviewed the **Off-Depot AS/SVE Annual Operations Year 9 Report** (December 2020) as submitted by Trinity Analysis and Development Corp and approves the document. Please contact me at (901) 371-3041 or at jamie.woods@tn.gov, if there are additional questions or concerns regarding this review.

Regards,

A handwritten signature in blue ink that reads "J A Woods".

Jamie A. Woods, P.G.
Project Manager
Division of Remediation
Memphis Environmental Field Office

cc: Joan Hutton (CALIBRE)
T. Holmes (HDR Inc)

D. Lloyd (EPA-PM)

TDoR NCO: file 79-736

TDoR MEFO: file 79-736

Appendix B Semiannual Maintenance Reports

Location	Trinity Analysis and Development	Customer	Trinity Analysis and Development
10049408	1605 Menager Rd		1605 Menager Rd
	Memphis TN 38106-7012		Memphis TN 38106-7012
Responsible	Mr. Todd Calhoun	Order	S352- See contract notes
	850-613-6800	Service point	Memphis
Start (approx.)	Wednesday, 10/9/19 / 12:00 AM	Pers.in charge	Sam Coats
Service techn.	Terry Linkous		877-882-8376

Attachments

Add attachment

Periodical maintenance

Contract No: Maintenance Agreement/Signe
 Maintenance by agreement, without

Parts to Memphis Branch
 Pkg B x2 Blower EB 420 C. 05/02 ksh

Scheduled 10/9 with Todd -adm 9/12
 Contact: Todd Calhoun 850-613-6800

Label all returned goods!

Reason for return	Returned goods	to oper.	Pc	Material No.	Serial No.	Returned by		
						☐ Customer ☐ Technician ☐ Waste contractor		

Set up time					Wrap up time				
Date	Duration	Service technician			Date	Duration	Service technician		
			+	-				+	

Start of work	End of work	Breaks	Date / Weekday	Service technician		
12:45 PM	5:15 PM	0 Min	Thursday, 10/17/19	Terry Linkous		

Additional work(not included in contract)	Duration	to Oper	Description		

Minimum charge for any invoice is \$50.00. Invoiced goods remain the property of Kaeser Compressors, Inc. until payment is received. No returns without authorization. Approved returns must be shipped pre-paid and are subject to restocking charges up to 25%. Past due accounts subject to 1½% interest per month (annual rate 18%)

Shorten service interval due to environment or operating conditions?

☒ No ☐ Yes

Work performed acc. to work plan.

Any outstanding deficiencies?

☒ Yes ☐ No

If yes, these discussed with customer?

☒ Yes ☐ No

E-mail service manager(for confirmation)

sam.coats@kaeser.com

Work accepted.

Confirmed work and material of work plan.

Outstanding deficiencies acknowledged.

Customer e-mail(for confirmation)

tcalhoun@trinityadc.com

Service
technician's
signatureKaeser Field
Service:PNDigitally signed by
Kaeser Field Service:PN
Date: 2019.10.17
17:08:48 -05'00'Customer's
signatureElectronically signed by: [Signature]
Date: 2019/10/17 - 17:12:33 - UTC-06:00
Digital Signature created with: StepOver PDF Plugin 8-5-463☐ Signature unavailable

Remark:

Minimum charge for any invoice is \$50.00. Invoiced goods remain the property of Kaeser Compressors, Inc. until payment is received. No returns without authorization. Approved returns must be shipped pre-paid and are subject to restocking charges up to 25%. Past due accounts subject to 1½% interest per month (annual rate 18%)

Oper. 0020 **Maintain blower - package B** 1.5
Type EB 420 C VAC 40,0 hp 2.460 rpm **1007060557**
Material No. EBC **Year** 2009
Serial No. 2138 **EMR** 3605958 **ID No.** BLOWER #2

Previous service hours

6 h

Current service hours

7 h

Work to be done	Comment
>Tasks to be completed and current condition recorded: OK	
☒ -Ensure safe working conditions as described in the manual	Ok
☒ -Clean surface of airend and motor	Ok
☒ -Check that the block mechanism turns freely	Ok
☒ -Check the block drive shaft seal	Ok
☒ -Check V-belts and change or re-tension as necessary	Changed
☒ -Check guard	Ok
☒ -Check extractor blade (enclosure)	Ok
☒ -Change air filter	Changed, cover needs new gasket
☒ -Check oil and change if necessary	Changed
☒ -Check the oil drain lines and connections	Ok
☒ -Check pipe connections	Ok
☐ -Check compensator(s) and change if necessary	Na
☐ -Open and check unloaded start valve	Na
☒ -Open and check the check valve	Ok
☒ -Check electrical cables and cable inlets	Ok
☒ -Tighten mains terminals and check for oxidation	Ok
☒ -Check overcurrent relays and motor protection switches	Ok
☒ -Check motor bearings, re-grease (Unirex N3 only) as needed/change	greased
-Check control voltage: L1 24 V	
☐ -Check power consumption: Line U1 26 A V1 26 A W1 28 A	
☒ -Check overheating shutdown function (option)	Ok
☒ -Check pressure relief valve(s)	Ok
☒ -Test run, check conditions: start, load and shut-down	Ok
☒ -Check display functions	Ok
☒ -Check oil level and check for leaks	Ok
☒ -Register service: stick label/service manual/controller	
Operating hours: NA h Oil type: SB220	
Existing safety deficiencies? ☒ No ☐ Yes:	
Cause(s):	
Arising danger:	
Safety deficiency rectified? ☐ Yes ☐ No; reason:	
>>>> Equipment not released for use!	

Work to be done		Comment
☐	Rectified deficiencies:	
☒	Tasks fully completed	
☐	Follow-up assignment necessary for:	
☐	Follow-up order issued for:	
☐	Supply spares:	
☐		
Additional comments:		
Upon arrival coordinated with the customer to gain access to the facility. Completed PKG B service on this unit changing the oil, air filter and belts. Found the air filter housing extremely rusted compared to the other unit. This unit also need new seal on the AF cover. Test ran, checked running amperage and greased the motor bearings. Unit running satisfactory.		

Consumed material	Material No.	Pc	Serial No.	Part ID/batch	Stock

Material delivered in advance	Material No.	Pc	Serial No.	Return	Returned by
Filter non-woven DN150	893606.0	1		0	☐ Tech. ☐ Customer
Omega Blower 220 Synthetic C	ANSB-220	2		0	☐ Tech. ☐ Customer
V-belt kit 5 XPZ 2000	893437.0	1		0	☐ Tech. ☐ Customer

Oper. 0040 **Maintain blower - package B** 1.5
Type EB 420 C VAC 40,0 hp 2.460 rpm **1007060569**
Material No. EBC **Year** 2009
Serial No. 2140 **EMR** 3605982 **ID No.** BLOWER #1

Previous service hours

8 h

Current service hours

9 h

Work to be done	Comment
>Tasks to be completed and current condition recorded: OK	
☒ -Ensure safe working conditions as described in the manual	LOTO
☒ -Clean surface of airend and motor	Ok
☒ -Check that the block mechanism turns freely	Ok
☒ -Check the block drive shaft seal	Ok
☒ -Check V-belts and change or re-tension as necessary	Changed
☒ -Check guard	Ok
☒ -Check extractor blade (enclosure)	Ok
☒ -Change air filter	Changed, cover needs new gasket
☒ -Check oil and change if necessary	Changed
☒ -Check the oil drain lines and connections	Ok
☒ -Check pipe connections	Ok
☐ -Check compensator(s) and change if necessary	Na
☐ -Open and check unloaded start valve	Na
☒ -Open and check the check valve	Ok
☒ -Check electrical cables and cable inlets	Ok
☒ -Tighten mains terminals and check for oxidation	Ok
☒ -Check overcurrent relays and motor protection switches	Ok
☒ -Check motor bearings, re-grease (Unirex N3 only) as needed/change	Greased
-Check control voltage: L1 24 V	
☒ -Check power consumption: Line U1 25 A V1 27 A W1 26 A	
☒ -Check overheating shutdown function (option)	
☒ -Check pressure relief valve(s)	
☒ -Test run, check conditions: start, load and shut-down	
☒ -Check display functions	
☒ -Check oil level and check for leaks	
☒ -Register service: stick label/service manual/controller	
Operating hours: NA h Oil type: SB220	
Existing safety deficiencies? ☒ No ☐ Yes:	
Cause(s):	
Arising danger:	
Safety deficiency rectified? ☐ Yes ☐ No; reason:	
>>>> Equipment not released for use!	

Work to be done		Comment
☐	Rectified deficiencies:	
☒	Tasks fully completed	
☐	Follow-up assignment necessary for:	
☐	Follow-up order issued for:	
☐	Supply spares:	
☐		
Additional comments:		
Completed PKG B service on this unit changing the oil, air filter and belts. Vacuumed unit out and wiped down. Test ran unit, greased motor bearings and checked running amperages. The air filter housing cover needs new seal. Other wise unit running satisfactory.		

Consumed material	Material No.	Pc	Serial No.	Part ID/batch	Stock

Material delivered in advance	Material No.	Pc	Serial No.	Return	Returned by
Filter non-woven DN150	893606.0	1		0	☐ Tech. ☐ Customer
Omega Blower 220 Synthetic C	ANSB-220	2		0	☐ Tech. ☐ Customer
V-belt kit 5 XPZ 2000	893437.0	1		0	☐ Tech. ☐ Customer

SERVICE ORDER

KAESER COMPRESSORS

Equipment at customer location 10049408 Trinity Analysis and Development, Memphis

Registered machines

- Please enter or correct missing or incorrect years of manufacture, material numbers or serial numbers
- As far as air receivers, ZK, filters and dryers are concerned, please complete information applicable to the condensate drain (if not yet registered) -**ED**= ECO-Drain,**FV**= Float valve,**SV**= Solenoid valve
- If the customer has more than one compressed air station in different locations at the same address, please enter the exact location of each station (e.g. paint shop, number 1 works) etc.

Type	S. Hr.	Year	Material No.	Serial No.		Station	
Refrig. dryer TE 141 460/3/60		2009	1.8039.00010	1343	reg.		-
CSD 100 125 psi 460/60 US		2009	100818.1	1234	reg.		-
200 Gal Tank w/ AMD 6550		2009	9.9999.9	41588	reg.		-
KCF-100 Condensate Treatment System		2009	ANKCF100	2144292	-----		-
Separator - KFS-485.2 AMD 1550		2018	USKFS485.2	20150824	-----		-
Oil Removal KOR-485.2 w/ AMD1550		2009	USKOR485.2	1055	-----		-
Particulate KPF-485.2 w/ AMD1550		2009	USKPF485.2	1025	-----		-
EB 420 C VAC 40,0 hp 2.460 rpm		2009	EBC	2140	reg.	BLOWER #1	-
EB 420 C VAC 40,0 hp 2.460 rpm		2009	EBC	2138	reg.	BLOWER #2	-

Non-registered machines

Type	S. Hr.	Year	Material No.	Serial No.		Station	
							+
							-

Location	Trinity Analysis and Development	Customer	Trinity Analysis and Development
10049408	1605 Menager Rd		1605 Menager Rd
	Memphis TN 38106-7012		Memphis TN 38106-7012
Responsible	Mr. Todd Calhoun	Order	S352- See contract notes
	850-613-6800	Service point	Memphis
Start (approx.)	Wednesday, 10/9/19 / 12:00 AM	Pers.in charge	Sam Coats
Service techn.	Terry Linkous		877-882-8376

Attachments

Add attachment

Periodical maintenance

Contract No: Maintenance Agreement- Sign
 Maintenance Contract

Maintenance agreement
 Major PM of CSD 100 plus filtration

Scheduled 10/9 with Todd -adm 9/24
 Contact: Todd Calhoun 850-613-6800

Label all returned goods!

Reason for return	Returned goods	to oper.	Pc	Material No.	Serial No.	Returned by		
Disposal	As consumed	0030	3	As consumed		☐ Customer ☒ Technician ☐ Waste contractor		

Set up time					Wrap up time				
Date	Duration	Service technician			Date	Duration	Service technician		
			+	-				+	-

Start of work	End of work	Breaks	Date / Weekday	Service technician
8:00 AM	1:15 PM	0 Min	Wednesday, 10/9/19	Terry Linkous
1:45 PM	5:00 PM	0 Min	Wednesday, 10/9/19	Terry Linkous

Additional work(not included in contract)	Duration	to Oper	Description

Minimum charge for any invoice is \$50.00. Invoiced goods remain the property of Kaeser Compressors, Inc. until payment is received. No returns without authorization. Approved returns must be shipped pre-paid and are subject to restocking charges up to 25%. Past due accounts subject to 1½% interest per month (annual rate 18%)

Shorten service interval due to environment or operating conditions?

☒ No ☐ Yes

Work performed acc. to work plan.

Any outstanding deficiencies?

☐ Yes ☒ No

Work accepted.

Confirmed work and material of work plan.

E-mail service manager(for confirmation)

sam.coats@kaeser.com

Customer e-mail(for confirmation)

tcalhoun@trinityadc.com

Service
technician's
signatureKaeser Field
Service:PNDigitally signed by
Kaeser Field Service:PN
Date: 2019.10.09
16:30:25 -05'00'Customer's
signatureElectronically signed by: 
Date: 2019/10/09 - 17:06:15 - UTC-06:00
Digital Signature created with: StepOver PDF Plugin 6-3-463☐ Signature unavailable

Remark:

Minimum charge for any invoice is \$50.00. Invoiced goods remain the property of Kaeser Compressors, Inc. until payment is received. No returns without authorization. Approved returns must be shipped pre-paid and are subject to restocking charges up to 25%. Past due accounts subject to 1½% interest per month (annual rate 18%)

Oper. 0030 **Maintain screw compressor - package C** 6.0
Type CSD 100 125 psi 460/60 US **1007146470**
Material No. 100818.1 **Year** **2009**
Serial No. 1234 **EMR** **3498678**

Previous service hours 46,444 h **Current service hours** 47,141 h

Work to be done	Comment
>Tasks to be completed and current condition recorded: OK	
☒ -Ensure safe working conditions as described in the manual	Ok
☒ -Check motor-airend coupling	Inspected
☒ -Change filter mat(s) in compressor/control cabinet/SFC cabinet	Changed
☒ -Change air filter	Changed
☒ -Check oil filter and change if necessary	Ok
☒ -Maintain valves and proportional regulator	Ok
☐ -Change motor bearings (drive motor and/or fan motor)	Na
☒ -Check cooler and clean if necessary/check fan blades and guarding	Ok
☐ -Maintain condensate drain	Na
☒ -Check hose lines and change as necessary	Ok
☒ -Check electrical cables and cable inlets	Ok
☒ -Tighten mains terminals and check for oxidation	Ok
☐ -Check shutdown function when separator air outlet temp. too high	Na
☒ -Check overcurrent relays and motor protection switches	Ok
☒ -Check door and guard interlocks and emergency stop function	Ok
☒ -Check oil and change if necessary	Changed (CS partial)
☒ -Check oil separator cartridge difference pressure psi/bar,	Changed
change as needed	
☒ Check fan motor bearings ☒ Re-greased	Greased
☒ Check compressor motor bearings ☒ Re-greased	Greased
☐ -Check nominal pressure shutdown function,	
shutdown at psi/bar	Na
☒ -Check shutdown function when airend discharge temp. too high	Ok
☒ -Check control voltage: L1 V	Ok
☒ -Check power consumption: Line U1 A V1 A W1 A	Ok
☒ -Check pressure relief valve(s)	Ok
☒ -Check airend discharge temperature °F/°C	Ok
☒ -Test run, check conditions: start, idle, load and shut-down	Ok
☒ -Check oil level, for leaks (compr.air./oil/water), idling press.	Ok
☒ -Register service: stick label/service manual/controller	
Total h Load h Ambient temp. °F/°C	
Oil type Control mode	

Work to be done	Comment
Existing safety deficiencies? ☒ No ☐ Yes:	
Cause(s):	
Arising danger:	
Safety deficiency rectified? ☐ Yes ☐ No; reason:	
>>>> Equipment not released for use!	
Rectified deficiencies:	
☒ Tasks fully completed	
☐ Follow-up assignment necessary for:	
☐ Follow-up order issued for:	
☐ Supply spares:	
☐	
Additional comments:	
Upon arrival at the Trinity office inventoried parts shipped and loaded parts up in the van for use out at the jobsite. Travel to the jobsite then began work. Test ran unit prior to beginning service to pressurize the sump. Unable to isolate compressor due to no valves installed. De-pressurized system then LOTO unit. Drained oil and took oil sample then changed the separator, oil filter, air filter, filter mats the charged with oil. While testing unit found that the pneumatic booster valve was bleeding air constantly to atmosphere which is the beginning stages of failure. Replaced booster valve, installed maintenance kit on the CAVV. Test ran unit again verified operation of the controls, voltages and amperages. Unit is up and runnings satisfactory. Please modify EMR for auxiliary vent valve kit 400905.0 (for a total of 2 kits) to be added annually along with a maintenance kit for the booster valve listed below.	

Consumed material	Material No.	Pc	Serial No.	Part ID/batch	Stock

Pneumatic booster valve	7.4801E3	1			1004

Material delivered in advance	Material No.	Pc	Serial No.	Return	Returned by

Maintenance kit Com.aux.v	400905.0	1		0	☐ Tech. ☐ Customer
Oil filter 16bar	6.3465.0	1		0	☐ Tech. ☐ Customer
Filter mat 112x112x10	6.3572.0	2		0	☐ Tech. ☐ Customer
KIT Oil separator cartridge Ø28	6.3623.0	1		0	☐ Tech. ☐ Customer
Air filter cartridge Ø420x130	6.4148.1	1		0	☐ Tech. ☐ Customer
M-460 Semi-Synthetic Oil \$(/5	ANM460-5	3		1	☒ Tech. ☐ Customer
Oil Analysis Kit (red)	ANKCPIND2BR	1		0	☐ Tech. ☐ Customer ☐ Tech. ☐ Customer

Oper. 0050 **Maintain compr. air receiver - package B** 0.5
Type 200 Gal Tank w/ AMD 6550 **1007146805**
Material No. 9.9999.9 **Year** **2009**
Serial No. 1251 **EMR** **4403267**

Work to be done	Comment
>Tasks to be completed and current condition recorded: OK	
☒ -Ensure safe working conditions as described in the manual	Ok
☒ -Visually check air receiver exterior condition	Ok
☒ -Maintain condensate drain	Ok
☒ -Check pressure indicator	Ok
☒ -Check pressure relief valve(s) for visible damage/contamination	Ok
☒ -Check for leaks	Ok
☒ -Register service: stick label/service manual	
Existing safety deficiencies? ☒ No ☐ Yes:	
Cause(s):	
Arising danger:	
Safety deficiency rectified? ☐ Yes ☐ No; reason:	
>>>>> Equipment not released for use!	
Rectified deficiencies:	
☒ Tasks fully completed	
☐ Follow-up assignment necessary for:	
☐ Follow-up order issued for:	
☐ Supply spares:	
☐	
Additional comments:	
Completed service on receiver tank	

Consumed material Material No. Pc Serial No. Part ID/batch Stock

Material delivered in advance Material No. Pc Serial No. Return Returned by

Rebuild Kit for AMD 6550 US50180 1 0

☐ Tech.
☐ Customer
☐ Tech.
☐ Customer

Oper. 0070 **Maintain refrigeration dryer** 2.0
Type Refrig. dryer TE 141 460/3/60 **1007146471**
Material No. 1.8039.00010 **Year** **2009**
Serial No. 1343 **EMR** **3575706**

Work to be done	Comment
>Tasks to be completed and current condition recorded: OK	
☒ -Ensure safe working conditions as described in the manual	Ok
☒ -Check for condensate in air network	Ok
☒ -Clean refrigerant condenser and straighten laminations	Ok
☒ -Maintain condensate drain	Serviced both ECO31 drains
☒ -Repair any damage to the refrigerant circuit thermal insulation	Ok
☒ -Check fan motor, blades and guarding	Ok
☒ -Check electrical cables and cable inlets	Ok
☐ -Check cut-out pressure: high psi/bar low psi/bar	Na
☒ -Check compressed air temp.: Inlet °F/°C Outlet °F/°C	
☒ -Check dew point: ☐ blue ☒ green ☐ red °F/°C	
Refilled/disposed refrigerant quantity: / kg/lb	
Refrigerant type and total quantity*: / kg/lb	
☒ -Check refrigerant circuit for leaks	
☒ -Check setting and function of the compressed air bypass/diversion	
☒ -Test run	
☒ -Register service: stick label/service manual	
Refrigerant type R134a Ambient temperature 75 °F/°C	
Existing safety deficiencies? ☒ No ☐ Yes:	
Cause(s):	
Arising danger:	
Safety deficiency rectified? ☐ Yes ☐ No; reason:	
>>>>> Equipment not released for use!	
Rectified deficiencies:	
☒ Tasks fully completed	
☐ Follow-up assignment necessary for:	
☐ Follow-up order issued for:	
☐ Supply spares:	
☐	
Additional comments:	
Completed service on dryer replacing both ECO31 drain service modules.	

Consumed material	Material No.	Pc	Serial No.	Part ID/batch	Stock
Kaeser ECO-drain 31 Service u	AN8247400370	1			1002

Material delivered in advance	Material No.	Pc	Serial No.	Return	Returned by
Kaeser Eco-Drain 31 Service U	AN8247400370	1		0	☐ Tech. ☐ Customer ☐ Tech. ☐ Customer

Oper. 0080	Maintain oil-water sep. - package A	0.5
Type	KCF-100 Condensate Treatment System	1007146472
Material No.	ANKCF100	Year 2009
Serial No.	10900584	EMR 3486488

Work to be done	Comment
>Tasks to be completed and current condition recorded: OK	
☒ -Ensure safe working conditions as described in the manual	Ok
☐ -Empty oil catcher	Na
☒ -Check activated carbon filter and prefilter, change if necessary	Changed
☒ -Change expansion chamber filter	Changed
☒ -Check settling tank for contamination and clean if necessary	Ok
☐ -Check oil drain and clean if necessary	Na
☒ -Check water drain, clean if necessary	Ok
☒ -Check for leaks in hoses, connections and air receiver	Ok
☐ -Check heating (option)	
☒ -Register service: stick label/service manual/controller	
Existing safety deficiencies? ☒ No ☐ Yes:	
Cause(s):	
Arising danger:	
Safety deficiency rectified? ☐ Yes ☐ No; reason:	
>>>>> Equipment not released for use!	
Rectified deficiencies:	
☒ Tasks fully completed	
☐ Follow-up assignment necessary for:	
☐ Follow-up order issued for:	
☐ Supply spares:	
☐	
Additional comments:	
Completed service on the KCF100 changed the cartridge and the carbon vent filter.	

Consumed material	Material No.	Pc	Serial No.	Part ID/batch	Stock

Material delivered in advance	Material No.	Pc	Serial No.	Return	Returned by

Filter-SET Aquamat KCF100	ANKCF100CAR	1		0	☐ Tech. ☐ Customer ☐ Tech. ☐ Customer

Oper. 0100 **Maintain compr. air filter - package B** 1.0
Type Oil Removal KOR-485.2 w/ AMD1550 **1007146473**
Material No. USKOR485.2 **Year** 2009
Serial No. * **EMR** 3742806

Work to be done	Comment
>Tasks to be completed and current condition recorded: OK	
☒ -Ensure safe working conditions as described in the manual	Ok
☒ -Change filter element(s)	Changed
☒ -Clean filter housing and control bores in the filter head	Cleaned
☒ -Maintain condensate drain	Installed maint. kit
☒ -Check pressure differential indicator (option)	Ok
☐ -Check optional shutdown function, only with user's permission	Na
☒ -Check for leaks	
☒ -Register service: stick label/service manual/controller	
Existing safety deficiencies? ☒ No ☐ Yes:	
Cause(s):	
Arising danger:	
Safety deficiency rectified? ☐ Yes ☐ No; reason:	
>>>> Equipment not released for use!	
Rectified deficiencies:	
☒ Tasks fully completed	
☐ Follow-up assignment necessary for:	
☐ Follow-up order issued for:	
☐ Supply spares:	
☐	
Additional comments:	
Completed service on this filter changing the element and installed maintenance kit on the AMD1550.	
Please return and remove the internal float drain from future orders.	

Consumed material	Material No.	Pc	Serial No.	Part ID/batch	Stock
Service Kit for AMD 1550	AN55800	1			1004

Material delivered in advance	Material No.	Pc	Serial No.	Return	Returned by
Std 485 KOR Element (RED)	USOR-485	1		0	☐ Tech. ☐ Customer
Internal Automatic Drain	US4170-08	4		1	☒ Tech. ☐ Customer

☐ Tech.
☐ Customer

Oper. 0120	Maintain compr. air filter - package B	1.0
Type	Particulate KPF-485.2 w/ AMD1550	1007146811
Material No.	USKPF485.2	Year 2009
Serial No.	*	EMR 3742805

Work to be done	Comment
>Tasks to be completed and current condition recorded: OK	
☒ -Ensure safe working conditions as described in the manual	Ok
☒ -Change filter element(s)	Changed
☒ -Clean filter housing and control bores in the filter head	Cleaned
☒ -Maintain condensate drain	Serviced AMD1550
☒ -Check pressure differential indicator (option)	Ok
☐ -Check optional shutdown function, only with user's permission	Na
☒ -Check for leaks	Ok
☒ -Register service: stick label/service manual/controller	
Existing safety deficiencies? ☒ No ☐ Yes:	
Cause(s):	
Arising danger:	
Safety deficiency rectified? ☐ Yes ☐ No; reason:	
>>>> Equipment not released for use!	
Rectified deficiencies:	
☒ Tasks fully completed	
☐ Follow-up assignment necessary for:	
☐ Follow-up order issued for:	
☐ Supply spares:	
☐	
Additional comments:	
Completed service on this filter replacing the Element and servicing the AMD1550.	

<u>Consumed material</u>	<u>Material No.</u>	<u>Pc</u>	<u>Serial No.</u>	<u>Part ID/batch</u>	<u>Stock</u>
Service Kit for AMD 1550	AN55800	1			1004

<u>Material delivered in advance</u>	<u>Material No.</u>	<u>Pc</u>	<u>Serial No.</u>	<u>Return</u>	<u>Returned by</u>
Std 485 KPF Element	USPF-485	1		0	☐ Tech. ☐ Customer ☐ Tech. ☐ Customer

Oper. 0130	Maintain filter - package A	1.0
Type	Separator - KFS-485.2 AMD 1550	1007146768
Material No.	USKFS485.2	Year
Serial No.	****	EMR 6348333

Work to be done	Comment
>Tasks to be completed and current condition recorded: OK	
☒ -Ensure safe working conditions as described in the manual	Ok
☒ -Check filter element(s)	Changed
☒ -Check / maintain condensate drain	Serviced AMD 1550
☐ -Check optional shutdown function, only with user's permission	Na
☒ -Check for leaks	Ok
☒ -Register service: stick label/service manual/controller	
Existing safety deficiencies? ☒ No ☐ Yes:	
Cause(s):	
Arising danger:	
Safety deficiency rectified? ☐ Yes ☐ No; reason:	
>>>> Equipment not released for use!	
Rectified deficiencies:	
☒ Tasks fully completed	
☐ Follow-up assignment necessary for:	
☐ Follow-up order issued for:	
☐ Supply spares:	
☐	
Additional comments:	
Completed service on this filter replacing the element and servicing the AMD1550	

<u>Consumed material</u>	<u>Material No.</u>	<u>Pc</u>	<u>Serial No.</u>	<u>Part ID/batch</u>	<u>Stock</u>

<u>Material delivered in advance</u>	<u>Material No.</u>	<u>Pc</u>	<u>Serial No.</u>	<u>Return</u>	<u>Returned by</u>
Service Kit for AMD 1550	AN55800	1		0	☐ Tech. ☐ Customer
Std 485 KFS Element	USFS-485	1		0	☐ Tech. ☐ Customer
					☐ Tech. ☐ Customer

SERVICE ORDER

KAESER COMPRESSORS

Equipment at customer location 10049408 Trinity Analysis and Development, Memphis

Registered machines

- Please enter or correct missing or incorrect years of manufacture, material numbers or serial numbers
- As far as air receivers, ZK, filters and dryers are concerned, please complete information applicable to the condensate drain (if not yet registered) -**ED**= ECO-Drain,**FV**= Float valve,**SV**= Solenoid valve
- If the customer has more than one compressed air station in different locations at the same address, please enter the exact location of each station (e.g. paint shop, number 1 works) etc.

Type	S. Hr.	Year	Material No.	Serial No.		Station	
Refrig. dryer TE 141 460/3/60		2009	1.8039.00010	1343	reg.		-
CSD 100 125 psi 460/60 US		2009	100818.1	1234	reg.		-
200 Gal Tank w/ AMD 6550		2009	9.9999.9	41588	reg.		-
KCF-100 Condensate Treatment System		2009	ANKCF100	2144292	-----		-
Separator - KFS-485.2 AMD 1550		2018	USKFS485.2	20150824	-----		-
Oil Removal KOR-485.2 w/ AMD1550		2009	USKOR485.2	1055	-----		-
Particulate KPF-485.2 w/ AMD1550		2009	USKPF485.2	1025	-----		-
EB 420 C VAC 40,0 hp 2.460 rpm		2009	EBC	2140	reg.	BLOWER #1	-
EB 420 C VAC 40,0 hp 2.460 rpm		2009	EBC	2138	reg.	BLOWER #2	-

Non-registered machines

Type	S. Hr.	Year	Material No.	Serial No.		Station	
							+
							-

Location	Trinity Analysis and Development	Customer	Trinity Analysis and Development
10049408	1605 Menager Rd		1605 Menager Rd
	Memphis TN 38106-7012		Memphis TN 38106-7012
Responsible	Mr. Todd Calhoun	Order	S352- See contract notes
	850-613-6800	Service point	Memphis
Start (approx.)	Wednesday, 4/8/20 / 12:00 AM	Pers.in charge	Richard Montgomery
Service techn.	Daniel Keyes		(877)882-8376

Attachments

Add attachment

Periodical maintenance

Contract No: Maintenance Agreement- Sign
 Maintenance Contract

Sched 4/8-9 w Todd Calhoun RG 4/3

1Z2002910300835722 DELV 4/7 AT 1142AM SIGNED FOR: MONTGOMERY - 4/7 LCS
 ADV ship ground to branch - 4/3 LCS
 Parts applied per quote: 86163033 for CSD 100 - 4/3 LCS

Label all returned goods!

Reason for return	Returned goods	to oper.	Pc	Material No.	Serial No.	Returned by		
						☐ Customer ☐ Technician ☐ Waste contractor		

Set up time					Wrap up time				
Date	Duration	Service technician			Date	Duration	Service technician		
			+	-				+	-

Start of work	End of work	Breaks	Date / Weekday	Service technician		
1:30 PM	3:00 PM	0 Min	Wednesday, 4/8/20	Daniel Keyes		

Additional work(not included in contract)	Duration	to Oper	Description		

Minimum charge for any invoice is \$50.00. Invoiced goods remain the property of Kaeser Compressors, Inc. until payment is received. No returns without authorization. Approved returns must be shipped pre-paid and are subject to restocking charges up to 25%. Past due accounts subject to 1½% interest per month (annual rate 18%)

Shorten service interval due to environment or operating conditions?

☒ No ☐ Yes

Work performed acc. to work plan.

Any outstanding deficiencies?

☐ Yes ☒ No

Work accepted.

Confirmed work and material of work plan.

E-mail service manager(for confirmation)

richard.montgomery@kaeser.com

Customer e-mail(for confirmation)

tcalhoun@trinityadc.com

Service
technician's
signature**Kaeser Field
Service PN**Digitally signed by
Kaeser Field Service PN
Date: 2020.04.08
14:59:29 -05'00'☒ Signature unavailable

Remark:

Remark:

Todd Calhoun

Minimum charge for any invoice is \$50.00. Invoiced goods remain the property of Kaeser Compressors, Inc. until payment is received. No returns without authorization. Approved returns must be shipped pre-paid and are subject to restocking charges up to 25%. Past due accounts subject to 1½% interest per month (annual rate 18%)

Oper. 0010 **Maintain screw compressor - package A** 1.5
Type CSD 100 125 psi 460/60 US **1007599665**
Material No. 100818.1 **Year** **2009**
Serial No. 1234 **EMR** **3498678**

Previous service hours 47,141 h **Current service hours** 50,366 h

Work to be done	Comment
>Tasks to be completed and current condition recorded: OK	OK
☒ -Ensure safe working conditions as described in the manual	OK
☒ -Check motor-airend coupling	OK
☒ -Change filter mat(s) in compressor/control cabinet/SFC cabinet	OK
☒ -Change air filter	OK
☒ -Check oil filter and change if necessary	OK
☒ -Check cooler and clean if necessary/check fan blades and guarding	OK
☐ -Maintain condensate drain	N/A
☒ -Check electrical cables and cable inlets	OK
☒ -Tighten mains terminals and check for oxidation	OK
☐ -Check shutdown function when separator air outlet temp. too high	N/A
☒ -Check overcurrent relays and motor protection switches	OK
☒ -Check door and guard interlocks and emergency stop function	OK
☒ -Check oil and change if necessary	OK
☒ -Check oil separator cartridge difference pressure 1 psi/bar,	OK
change as needed	N/A
☐ Check fan motor bearings ☐ Re-greased	N/A
☐ Check compressor motor bearings ☐ Re-greased	N/A
☒ -Check nominal pressure shutdown function,	OK
shutdown at psi/bar	OK
☐ -Check shutdown function when airend discharge temp. too high	N/A
☒ -Check control voltage: L1 V	OK
☒ -Check power consumption: Line U1 A V1 A W1 A	OK
☒ -Check pressure relief valve(s)	OK
☒ -Check airend discharge temperature 189 °F/°C	OK
☒ -Test run, check conditions: start, idle, load and shut-down	OK
☒ -Check oil level, for leaks (compr.air./oil/water), idling press.	OK
☒ -Register service: stick label/service manual/controller	OK
Total h Load h Ambient temp. °F/°C	OK
Oil type Control mode	OK
Existing safety deficiencies? ☒ No ☐ Yes:	OK
Cause(s):	N/A
Arising danger:	N/A

Work to be done		Comment
☐	Safety deficiency rectified? ☐ Yes ☐ No; reason:	N/A
☐	>>>> Equipment not released for use!	N/A
☐	Rectified deficiencies:	N/A
☒	Tasks fully completed	OK
☐	Follow-up assignment necessary for:	N/A
☐	Follow-up order issued for:	N/A
☐	Supply spares:	N/A
☐		N/A
Additional comments:		
Arrived at site and coordinated with costumer. Followed all LOTO procedures. Took oil sample, changed air filter, oil filter, and air mats. Cleaned compressor. Took lock off and started compressor. Checked for oil and air leaks, and found none. Everything is running good at this time. I didn't reset the maint. hours on the controller and before I realized it the customer already locked the gate and left the site.		

Consumed materialMaterial No.PcSerial No.Part ID/batchStock

Material delivered in advance	Material No.	Pc	Serial No.	Return	Returned by
Filter mat 112x112x10	6.3572.0	2		0	☐ Tech. ☐ Customer
Air filter cartridge Ø420x135	6.4148.1	1		0	☐ Tech. ☐ Customer
Oil filter 16bar	6.3465.0	1		0	☐ Tech. ☐ Customer
Oil Analysis Kit (red)	ANKCPIND2BR	1		0	☐ Tech. ☐ Customer

Oper. 0020	Maintain compr. air receiver - package A	0.5
Type	200 Gal Tank w/ AMD 6550	1007600073
Material No.	9.9999.9	Year 2009
Serial No.	1251	EMR 4403267

Work to be done	Comment
>Tasks to be completed and current condition recorded: OK	OK
☒ -Ensure safe working conditions as described in the manual	OK
☒ -Visually check air receiver exterior condition	OK
☐ -Maintain condensate drain	N/A
☒ -Check pressure indicator	OK
☒ -Check pressure relief valve(s) for visible damage - contamination	OK
☒ -Check for leaks	OK
☒ -Register service: stick label/service manual	OK
Existing safety deficiencies? ☒ No ☐ Yes:	OK
Cause(s):	N/A
Arising danger:	N/A
Safety deficiency rectified? ☐ Yes ☐ No; reason:	N/A
>>>> Equipment not released for use!	N/A
Rectified deficiencies:	N/A
☒ Tasks fully completed	OK
☐ Follow-up assignment necessary for:	N/A
☐ Follow-up order issued for:	N/A
☐ Supply spares:	N/A
☐	N/A
Additional comments:	
Checked for damage. Checked air gauge, PRV, and for leaks.	

Consumed material	Material No.	Pc	Serial No.	Part ID/batch	Stock

<u>Material delivered in advance</u>	<u>Material No.</u>	<u>Pc</u>	<u>Serial No.</u>	<u>Return</u>	<u>Returned by</u>

- ☐ Tech.
- ☐ Customer

Oper. 0030 **Maintain refrigeration dryer** 2.0
Type Refrig. dryer TE 141 460/3/60 **1007599666**
Material No. 1.8039.00010 **Year** **2009**
Serial No. 1343 **EMR** **3575706**

Work to be done	Comment
>Tasks to be completed and current condition recorded: OK	OK
☒ -Ensure safe working conditions as described in the manual	OK
☒ -Check for condensate in air network	OK
☒ -Clean refrigerant condenser and straighten laminations	OK
☒ -Check condensate drain	OK
☐ -Repair any damage to the refrigerant circuit thermal insulation	N/A
☒ -Check fan motor, blades and guarding	OK
☒ -Check electrical cables and cable inlets	OK
☐ -Check safety shutdown, switch-point °F/°C psi/bar	N/A
☒ -Check compressed air temp.: Inlet °F/°C Outlet °F/°C	OK
☒ -Check dew point: ☐ blue ☒ green ☐ red 36 °F/°C	OK
☐ -Check refrigerant circuit for leaks	N/A
Refilled/disposed refrigerant quantity: / kg/lb	N/A
Refrigerant type and total quantity*: / kg/lb	N/A
☒ -Check setting and function of the compressed air bypass/diversion	OK
☒ -Test run	OK
☒ -Register service: stick label/service manual/controller	OK
Refrigerant type Ambient temperature 80 °F/°C	OK
Existing safety deficiencies? ☒ No ☐ Yes:	OK
Cause(s):	N/A
Arising danger:	N/A
Safety deficiency rectified? ☐ Yes ☐ No; reason:	N/A
>>>>> Equipment not released for use!	N/A
Rectified deficiencies:	N/A
☒ Tasks fully completed	OK
☐ Follow-up assignment necessary for:	N/A
☐ Follow-up order issued for:	N/A
☐ Supply spares:	N/A
☐	N/A
Additional comments:	
Looked over dryer and cleaned condenser.	

<u>Consumed material</u>	<u>Material No.</u>	<u>Pc</u>	<u>Serial No.</u>	<u>Part ID/batch</u>	<u>Stock</u>

<u>Material delivered in advance</u>	<u>Material No.</u>	<u>Pc</u>	<u>Serial No.</u>	<u>Return</u>	<u>Returned by</u>

- ☐ Tech.
- ☐ Customer

Oper. 0040 **Maintain oil-water sep. - package A** 0.5
Type KCF-100 Condensate Treatment System **1007599667**
Material No. ANKCF100 **Year** 2009
Serial No. 10900584 **EMR** 3486488

Work to be done	Comment
>Tasks to be completed and current condition recorded: OK	OK
☒ -Ensure safe working conditions as described in the manual	OK
☐ -Empty oil catcher	N/A
☒ -Check activated carbon filter and prefilter, change if necessary	OK
☐ -Change expansion chamber filter	N/A
☐ -Check settling tank for contamination and clean if necessary	N/A
☐ -Check oil drain and clean if necessary	N/A
☒ -Check water drain, clean if necessary	OK
☒ -Check for leaks in hoses, connections and air receiver	OK
☐ -Check heating (option)	N/A
☒ -Register service: stick label/service manual/controller	OK
Existing safety deficiencies? ☒ No ☐ Yes:	N/A
Cause(s):	N/A
Arising danger:	N/A
Safety deficiency rectified? ☐ Yes ☐ No; reason:	N/A
>>>>> Equipment not released for use!	N/A
Rectified deficiencies:	N/A
☒ Tasks fully completed	OK
☐ Follow-up assignment necessary for:	N/A
☐ Follow-up order issued for:	N/A
☐ Supply spares:	N/A
☐	N/A
Additional comments:	
Checked KCF.	

Consumed material Material No. Pc Serial No. Part ID/batch Stock

Material delivered in advance Material No. Pc Serial No. Return Returned by

☐ Tech.
☐ Customer

Oper. 0050 **Maintain compr. air filter - package A** 1.0
Type Oil Removal KOR-485.2 w/ AMD1550 **1007599668**
Material No. USKOR485.2 **Year** **2009**
Serial No. * **EMR** **3742806**

Work to be done	Comment
>Tasks to be completed and current condition recorded: OK	OK
☒ -Ensure safe working conditions as described in the manual	OK
☐ -Change filter element(s)	N/A
☒ -Clean filter housing and control bores in the filter head	OK
☐ -Maintain condensate drain	N/A
☐ -Check pressure differential indicator (option)	N/A
☐ -Check optional shutdown function, only with user's permission	N/A
☒ -Check for leaks	OK
☒ -Register service: stick label/service manual/controller	OK
Existing safety deficiencies? ☒ No ☐ Yes:	N/A
Cause(s):	N/A
Arising danger:	N/A
Safety deficiency rectified? ☐ Yes ☐ No; reason:	N/A
>>>>> Equipment not released for use!	N/A
Rectified deficiencies:	N/A
☒ Tasks fully completed	OK
☐ Follow-up assignment necessary for:	N/A
☐ Follow-up order issued for:	N/A
☐ Supply spares:	N/A
☐	N/A
Additional comments:	
Cleaned filter housing. Checked for leaks.	

Consumed material Material No. Pc Serial No. Part ID/batch Stock

Material delivered in advance Material No. Pc Serial No. Return Returned by

☐ Tech.
☐ Customer

Oper. 0060 **Maintain compr. air filter - package A** 1.0
Type Particulate KPF-485.2 w/ AMD1550 **1007600084**
Material No. USKPF485.2 **Year** **2009**
Serial No. * **EMR** **3742805**

Work to be done	Comment
>Tasks to be completed and current condition recorded: OK	OK
☒ -Ensure safe working conditions as described in the manual	OK
☐ -Change filter element(s)	N/A
☒ -Clean filter housing and control bores in the filter head	OK
☐ -Maintain condensate drain	N/A
☐ -Check pressure differential indicator (option)	N/A
☐ -Check optional shutdown function, only with user's permission	N/A
☒ -Check for leaks	OK
☒ -Register service: stick label/service manual/controller	OK
Existing safety deficiencies? ☒ No ☐ Yes:	OK
Cause(s):	N/A
Arising danger:	N/A
Safety deficiency rectified? ☐ Yes ☐ No; reason:	N/A
>>>> Equipment not released for use!	N/A
Rectified deficiencies:	N/A
☒ Tasks fully completed	OK
☐ Follow-up assignment necessary for:	N/A
☐ Follow-up order issued for:	N/A
☐ Supply spares:	N/A
☐	N/A
Additional comments:	
Cleaned filter housing. Checked for leaks.	

Consumed material Material No. Pc Serial No. Part ID/batch Stock

Material delivered in advance Material No. Pc Serial No. Return Returned by

☐ Tech.
☐ Customer

Oper. 0080 **Maintain filter - package B** 1.0
Type Separator - KFS-485.2 AMD 1550 **1007599985**
Material No. USKFS485.2 **Year**
Serial No. **** **EMR** **6348333**

Work to be done	Comment
>Tasks to be completed and current condition recorded: OK	OK
☒ -Ensure safe working conditions as described in the manual	OK
☐ -Change filter element(s)	N/A
☒ -Clean filter housing and control bores in the filter head	OK
☒ -Check/maintain condensate drain	CHECKED
☐ -Check optional shutdown function, only with user's permission	N/A
☒ -Check for leaks	OK
☒ -Register service: stick label/service manual/controller	OK
Existing safety deficiencies? ☒ No ☐ Yes:	OK
Cause(s):	N/A
Arising danger:	N/A
Safety deficiency rectified? ☐ Yes ☐ No; reason:	N/A
>>>> Equipment not released for use!	N/A
Rectified deficiencies:	N/A
☒ Tasks fully completed	OK
☐ Follow-up assignment necessary for:	N/A
☐ Follow-up order issued for:	N/A
☐ Supply spares:	N/A
☐	N/A
Additional comments:	
Cleaned filter housing. Checked for leaks.	

Consumed material Material No. Pc Serial No. Part ID/batch Stock

Material delivered in advance Material No. Pc Serial No. Return Returned by

☐ Tech.
☐ Customer

SERVICE ORDER

KAESER COMPRESSORS

Equipment at customer location 10049408 Trinity Analysis and Development, Memphis

Registered machines

- Please enter or correct missing or incorrect years of manufacture, material numbers or serial numbers
- As far as air receivers, ZK, filters and dryers are concerned, please complete information applicable to the condensate drain (if not yet registered) -**ED**= ECO-Drain,**FV**= Float valve,**SV**= Solenoid valve
- If the customer has more than one compressed air station in different locations at the same address, please enter the exact location of each station (e.g. paint shop, number 1 works) etc.

Type	S. Hr.	Year	Material No.	Serial No.		Station	
Refrig. dryer TE 141 460/3/60		2009	1.8039.00010	1343	reg.		-
CSD 100 125 psi 460/60 US		2009	100818.1	1234	reg.		-
200 Gal Tank w/ AMD 6550		2009	9.9999.9	41588	reg.		-
KCF-100 Condensate Treatment System		2009	ANKCF100	2144292	-----		-
Separator - KFS-485.2 AMD 1550		2018	USKFS485.2	20150824	-----		-
Oil Removal KOR-485.2 w/ AMD1550		2009	USKOR485.2	1055	-----		-
Particulate KPF-485.2 w/ AMD1550		2009	USKPF485.2	1025	-----		-
EB 420 C VAC 40,0 hp 2.460 rpm		2009	EBC	2140	reg.	BLOWER #1	-
EB 420 C VAC 40,0 hp 2.460 rpm		2009	EBC	2138	reg.	BLOWER #2	-

Non-registered machines

Type	S. Hr.	Year	Material No.	Serial No.		Station	
							+
							-

Location	Trinity Analysis and Development	Customer	Trinity Analysis and Development
10049408	1605 Menager Rd		1605 Menager Rd
	Memphis TN 38106-7012		Memphis TN 38106-7012
Responsible	Ms. Denise Cooper	Order	S352- See contract notes
	901-268-2478	Service point	Memphis
Start (approx.)	Wednesday, 4/8/20 / 12:00 AM	Pers.in charge	Richard Montgomery
Service techn.	Terry Linkous		(877)882-8376

Attachments

Add attachment

Periodical maintenance

Contract No: Maintenance Agreement/Signe
 Maintenance by agreement, without

Sched 4/14 w/ Denise Cooper RG 4/9
 901-268-2478

Minor on CSD100 Q86163033
 Sched 4/8 and tent 4/14 w Todd Calhoun RG 4/3

Label all returned goods!

Reason for return	Returned goods	to oper.	Pc	Material No.	Serial No.	Returned by		
						☐ Customer ☐ Technician ☐ Waste contractor		

Set up time					Wrap up time				
Date	Duration	Service technician			Date	Duration	Service technician		
			+	-				+	-

Start of work	End of work	Breaks	Date / Weekday	Service technician		
9:00 AM	10:30 AM	0 Min	Tuesday, 4/14/20	Terry Linkous		

Additional work(not included in contract)	Duration	to Oper	Description		

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Shorten service interval due to environment or operating conditions?

☒ No ☐ Yes

Work performed acc. to work plan.

Any outstanding deficiencies?

☒ Yes ☐ No

If yes, these discussed with customer?

☒ Yes ☐ No

E-mail service manager(for confirmation)

richard.montgomery@kaeser.com

Work accepted.

Confirmed work and material of work plan.

Outstanding deficiencies acknowledged.

Customer e-mail(for confirmation)

denise.cooper@hdrinc.com

Service
technician's
signatureKaeser Field
Service PNDigitally signed by
Kaeser Field Service PN
Date: 2020.04.14
10:14:16 -05'00'☒ Signature unavailable

Remark:

Remark:

Denise Cooper

Minimum charge for any invoice is \$50.00. Invoiced goods remain the property of Kaeser Compressors, Inc. until payment is received. No returns without authorization. Approved returns must be shipped pre-paid and are subject to restocking charges up to 25%. Past due accounts subject to 1½% interest per month (annual rate 18%)

Oper. 0010 **Maintain blower - package A** 1.0
Type EB 420 C VAC 40,0 hp 2.460 rpm **1007620715**
Material No. EBC **Year** 2009
Serial No. 2138 **EMR** 3605958 **ID No. BLOWER #2**

Previous service hours

7 h

Current service hours

8 h

Work to be done	Comment
>Tasks to be completed and current condition recorded: OK	
☒ -Ensure safe working conditions as described in the manual	Isolated and LOTO
☒ -Clean surface of airend and motor	Ok
☒ -Check that the block mechanism turns freely	Ok
☒ -Check the block drive shaft seal	Ok
☒ -Check V-belts and change or re-tension as necessary	Adjusted
☒ -Check guard	Ok
☒ -Check extractor blade (enclosure)	Ok
☒ -Change air filter	Changed
☒ -Check oil and change if necessary	Ok
☒ -Check the oil drain lines and connections	Ok
☒ -Check pipe connections	Ok
☒ -Check compensator(s) and change if necessary	Ok
☒ -Open and check unloaded start valve	Ok
☒ -Open and check the check valve	Ok
☒ -Check electrical cables and cable inlets	OK
☒ -Tighten mains terminals and check for oxidation	Ok
☒ -Check overcurrent relays and motor protection switches	Ok
☒ -Check motor bearings, re-grease (Unirex N3 only) as needed/change	Ok
☒ -Check control voltage: L1 24 V	Ok
☒ -Check power consumption: Line U1 28 A V1 30 A W1 27 A	Ok
☐ -Check overheating shutdown function (option)	Na
☒ -Check pressure relief valve(s)	Ok
☒ -Test run, check conditions: start, load and shut-down	Ok
☒ -Check display functions	Ok
☒ -Check oil level and check for leaks	Ok
☒ -Register service: stick label/service manual/controller	
Operating hours: Na h Oil type: SB220	
Existing safety deficiencies? ☒ No ☐ Yes:	
Cause(s):	
Arising danger:	
Safety deficiency rectified? ☐ Yes ☐ No; reason:	
>>>>> Equipment not released for use!	

Work to be done		Comment
☐	Rectified deficiencies:	
☒	Tasks fully completed	
☒	Follow-up assignment necessary for:	Replace air filter cover gasket and band clamp
☒	Follow-up order issued for:	1hr
☐	Supply spares:	
☐		
Additional comments:		
Completed minor PM on this unit changing the air filter and adjusting the belts. Checked the motor and blower block. Test ran unit, verified operation satisfactory at this time.		
Oil samples quoted and ordered in error, transfer to truck stock per conversation with Lucky.		

Consumed materialMaterial No.PcSerial No.Part ID/batchStock

Material delivered in advance	Material No.	Pc	Serial No.	Return	Returned by
Filter non-woven DN150	893606.0	1		0	☐ Tech. ☐ Customer
Oil Analysis Kit (red)	ANKCPIND2BR	4		1	☒ Tech. ☐ Customer

Oper. 0020 **Maintain blower - package A** 1.0
Type EB 420 C VAC 40,0 hp 2.460 rpm **1007620716**
Material No. EBC **Year** 2009
Serial No. 2140 **EMR** 3605982 **ID No.** BLOWER #1

Previous service hours

8 h

Current service hours

9 h

Work to be done	Comment
>Tasks to be completed and current condition recorded: OK	
☒ -Ensure safe working conditions as described in the manual	Isolated and LOTO
☒ -Clean surface of airend and motor	Ok
☒ -Check that the block mechanism turns freely	Ok
☒ -Check the block drive shaft seal	Ok
☒ -Check V-belts and change or re-tension as necessary	Adjusted
☒ -Check guard	Ok
☒ -Check extractor blade (enclosure)	Ok
☒ -Change air filter	Changed
☒ -Check oil and change if necessary	Ok
☒ -Check the oil drain lines and connections	Ok
☒ -Check pipe connections	Ok
☒ -Check compensator(s) and change if necessary	Ok
☐ -Open and check unloaded start valve	Na
☒ -Open and check the check valve	Ok
☒ -Check electrical cables and cable inlets	Ok
☒ -Tighten mains terminals and check for oxidation	Ok
☒ -Check overcurrent relays and motor protection switches	Ok
☒ -Check motor bearings, re-grease (Unirex N3 only) as needed/change	Ok
☒ -Check control voltage: L1 24 V	Ok
☒ -Check power consumption: Line U1 27 A V1 26 A W1 28 A	Ok
☐ -Check overheating shutdown function (option)	Na
☒ -Check pressure relief valve(s)	Ok
☒ -Test run, check conditions: start, load and shut-down	Ok
☒ -Check display functions	Ok
☒ -Check oil level and check for leaks	Ok
☒ -Register service: stick label/service manual/controller	
Operating hours: Na h Oil type: SB220	
Existing safety deficiencies? ☒ No ☐ Yes:	
Cause(s):	
Arising danger:	
Safety deficiency rectified? ☐ Yes ☐ No; reason:	
>>>>> Equipment not released for use!	

Work to be done		Comment
☐	Rectified deficiencies:	
☒	Tasks fully completed	
☒	Follow-up assignment necessary for:	Replace air filter cover seal and band clamp
☒	Follow-up order issued for:	1hr
☐	Supply spares:	
☐		
Additional comments:		
Upon arrival coordinated with the customer to gain site access. Completed minor PM on this unit changing the air filter, adjusted the belts. Inspected the motor and block, unit has substantial leak around the air filter cover causing abnormal noise. Other wise unit running satisfactory.		
Oil samples quoted and ordered in error, transfer to truck stock per conversation with Lucky.		

Consumed material	Material No.	Pc	Serial No.	Part ID/batch	Stock

Material delivered in advance	Material No.	Pc	Serial No.	Return	Returned by
Filter non-woven DN150	893606.0	1		0	☐ Tech. ☐ Customer
Oil Analysis Kit (red)	ANKCPIND2BR	4		1	☒ Tech. ☐ Customer

SERVICE ORDER

KAESER COMPRESSORS

Equipment at customer location 10049408 Trinity Analysis and Development, Memphis

Registered machines

- Please enter or correct missing or incorrect years of manufacture, material numbers or serial numbers
- As far as air receivers, ZK, filters and dryers are concerned, please complete information applicable to the condensate drain (if not yet registered) -**ED**= ECO-Drain,**FV**= Float valve,**SV**= Solenoid valve
- If the customer has more than one compressed air station in different locations at the same address, please enter the exact location of each station (e.g. paint shop, number 1 works) etc.

Type	S. Hr.	Year	Material No.	Serial No.		Station	
Refrig. dryer TE 141 460/3/60		2009	1.8039.00010	1343	reg.		-
CSD 100 125 psi 460/60 US		2009	100818.1	1234	reg.		-
200 Gal Tank w/ AMD 6550		2009	9.9999.9	41588	reg.		-
KCF-100 Condensate Treatment System		2009	ANKCF100	2144292	-----		-
Separator - KFS-485.2 AMD 1550		2018	USKFS485.2	20150824	-----		-
Oil Removal KOR-485.2 w/ AMD1550		2009	USKOR485.2	1055	-----		-
Particulate KPF-485.2 w/ AMD1550		2009	USKPF485.2	1025	-----		-
EB 420 C VAC 40,0 hp 2.460 rpm		2009	EBC	2140	reg.	BLOWER #1	-
EB 420 C VAC 40,0 hp 2.460 rpm		2009	EBC	2138	reg.	BLOWER #2	-

Non-registered machines

Type	S. Hr.	Year	Material No.	Serial No.		Station	
							+
							-

Appendix C Off Depot Air Sparge/Soil Vapor Extraction System Well Repair, Modification, and Maintenance Memorandum

MEMORANDUM
OFF DEPOT AIR SPARGE/SOIL VAPOR EXTRACTION SYSTEM WELL
REPAIR, MODIFICATION, and MAINTENANCE – JULY 2020
DEFENSE DEPOT MEMPHIS, TENNESSEE

PREPARED FOR: Joan Hutton, CALIBRE
Laura Roebuck, U.S. Army Corps of Engineers, Mobile District
PREPARED BY: Trinity Analysis & Development Corp.
DATE: 17 August 2020

This memorandum provides details pertaining to the July 2020 repair, modification and maintenance of air sparge (AS) and soil vapor extraction (SVE) wells and components associated with the Off Depot AS/SVE system, Dunn Field - Defense Depot Memphis, Tennessee (DDMT). The work was performed for the Department of the Army, Office of the Assistant Chief of Staff for Installation Management, Base Realignment and Closure Division by Trinity Analysis & Development Corp. (Trinity) under Contract W91278-16-D-0005/W9127818F0405 with the U.S. Army Corps of Engineers, Mobile District.

Repair and maintenance activities were performed between 7 July and 10 July 2020. Tasks directly associated with the wells were conducted by McCray Drilling, LLC (Tennessee Well Drillers License Number 769) under subcontract to Trinity; all other tasks were performed by Trinity.

For reference in the following discussions, all AS and SVE wellheads are completed with a 2-inch schedule 40 polyvinyl chloride (PVC) tee with slip connection glued directly to the well riser. The top of the tee is fitted with a PVC blank, 2-inch PVC slip/female threaded coupler, and male threaded plug. The lateral connection is reduced to allow for connection of the air supply line. Surface protection consists of 2-foot by 2-foot concrete pads with 12-inch diameter flush mount well vaults, no bollards are present.

AS Well Flow Regulator Replacement

Prior inspections had noted small cracks in the “upstream” side of the micro-regulator housings (Metal Work 5207003U) used to control air flow to the existing 90 air sparge wells. While not affecting overall operation of the AS wells, the leaks added a level of inefficiency to the operation of the AS compressor and each regulator in every air sparge well for a total of 90 regulators were replaced. All wells were then reset to the operating pressures.

SVE Well Air Line Purging

Routine inspections have noted the occasional presence of water in the SVE air lines between the manifold and wellheads. This task included the removal of any accumulated water in the air lines that may adversely affect the overall performance and operation of the remediation system.

To remove the water, both SVE blowers were turned off and wellhead plugs removed. A vacuum truck equipped with a 125 cubic foot/minute (cfm) air compressor was attached individually to each of the air lines at the manifold and fluids were then blown back to the wellhead. The following describes the activities performed/observed at each SVE well.

- ODSVE-01, -03 through -09, and -11 were purged and no water was observed to be present in the lines.
- ODSVE-2 and -12 were purged and air lines cleared of water.

SVE Condensate Holding Tank Cleaning

Over time, biofouling has resulted in the content level markings of the external condensate holding tank to be difficult to read. To address this, the interior of the tank was cleaned by pressure washing behind the gradation markings.

Well Pad/Vault Replacement

This task included the removal and replacement of damaged/cracked well pads and vaults with new materials. Pads/vaults were removed in their entirety by lifting with a skid-steer and transported off site for disposal as construction/demolition debris; no modifications to the wells were required. Work was performed at the following locations:

- ODAS-27
- ODAS-48
- ODAS-75
- ODSVE-12

Well Pad/Vault Replacement and Wellhead Repair

This task included the removal/replacement of well pads/vaults as described above followed by the inspection, troubleshooting, and repair of noted AS air line/wellhead deficiencies. Inspections identified that the wellheads were broken beneath the tee. Pads and vaults were removed and the area around the wellhead hand-dug to allow for the necessary clearance to cut the damaged riser and repair with like materials. After repairs, wells were pressurized and no leaks observed over 5 minutes. New well pads and vaults were then installed; no modifications to the air supply lines were required. Work was performed at the following locations:

- ODAS-15
- ODAS-52

Wellhead Repair/Modification

This task included the repair and/or modification to wellheads without the required removal of well pads/vaults. Work was performed at the following locations:

- ODAS-51 – air was observed to be leaking around the top plug on the wellhead. Plug was removed and found to be cross-threaded. New plug was installed which seated properly into threaded coupler eliminating air leak.
- ODSVE-01 and -02 – wellheads were previously completed in a manner which prevented the removal the top plug and security of well vault lid (insufficient clearance beneath lid). Wellheads were cut below existing threaded couplers to lower and fitted with new couplers and plugs.

Miscellaneous Site Maintenance Activities

The following miscellaneous site maintenance activities were performed to ensure continued operation of the AS/SVE system.

- Well pads at the 12 SVE well locations and 70 AS well locations were cleared of all vegetation for ease of access.
- Vegetation within the system compound was removed.
- Vegetation within the electrical enclosure of the system compound was removed.

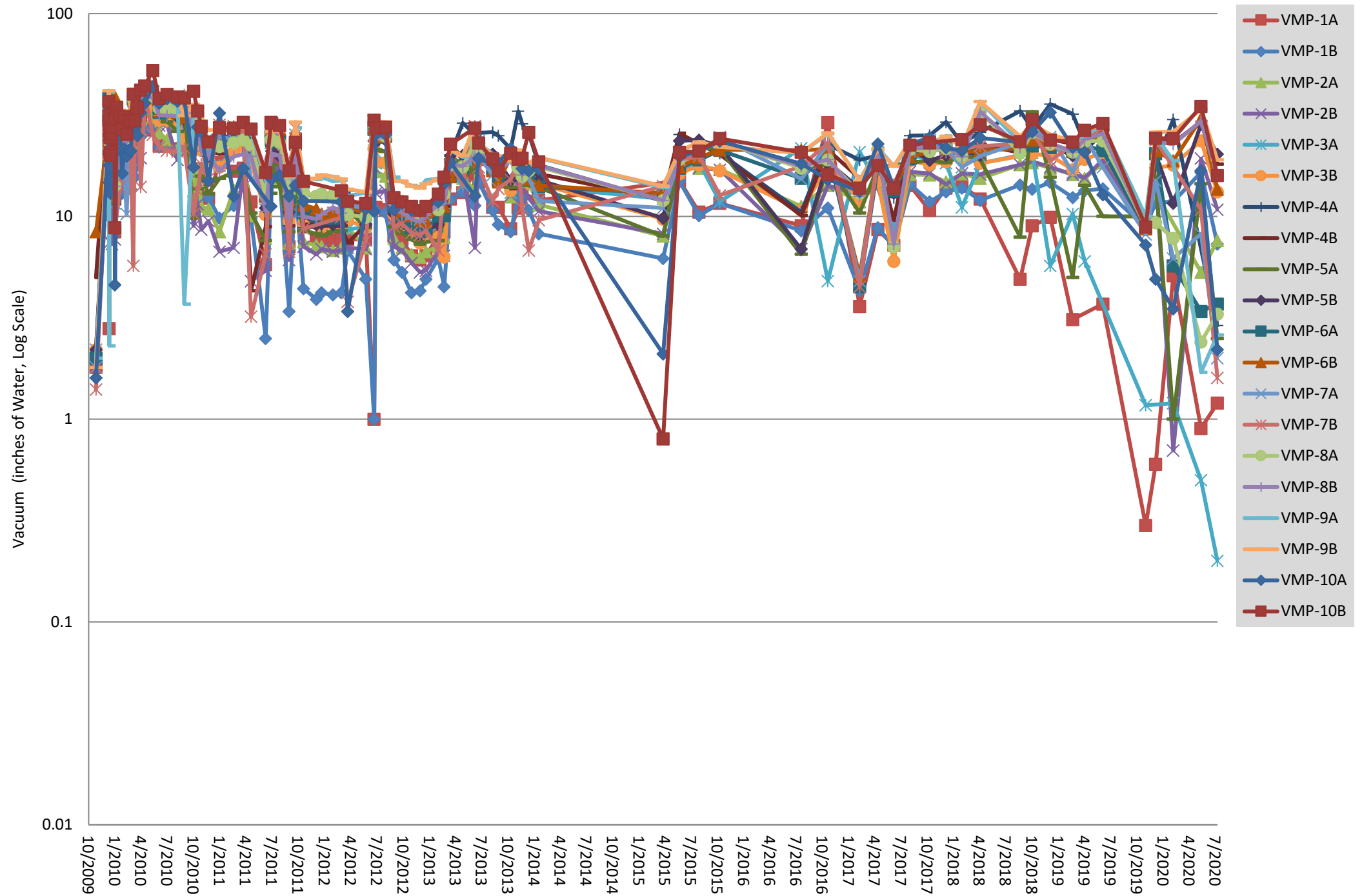
Additional Deficiencies Identified for Future Repair

During inspection of the remaining AS and SVE wells and system operations, deficiencies were noted at the following locations which will be addressed during the installation of the additional air sparge wells:

- During check of AS operating pressures after replacement of flow control valves, it was observed that the solenoids at ODAS-01, ODAS-04, and ODAS-06 were receiving communication from the PLC but were not opening to allow for air flow. To troubleshoot and confirm issue, inlet air lines were temporarily switched to solenoids known to be operating properly and air delivery was observed. New solenoids will be procured and installed.
- ODAS-03 – inside of flush mount vault filled with grout and an air leak was observed to be passing through a small separation between the wellhead riser and grout column. Repairs will require removal of pad/vault and excavation to expose source of air leak.
- ODAS-55 and -57 – wellheads were observed to be broken beneath tee and air supply lines broken “upstream” of tee. Repairs will require removal of pad/vault and additional excavation to expose damaged air lines.
- SVE exhaust piping on the exterior of the enclosure has slightly settled over the years resulting in cracked or torn couplers connecting the outside exhaust pipe to the exhaust exiting the enclosure. Repairs will require disconnection of external exhaust piping, removal and replacement of damaged couplers, and reconnection of exhaust piping.

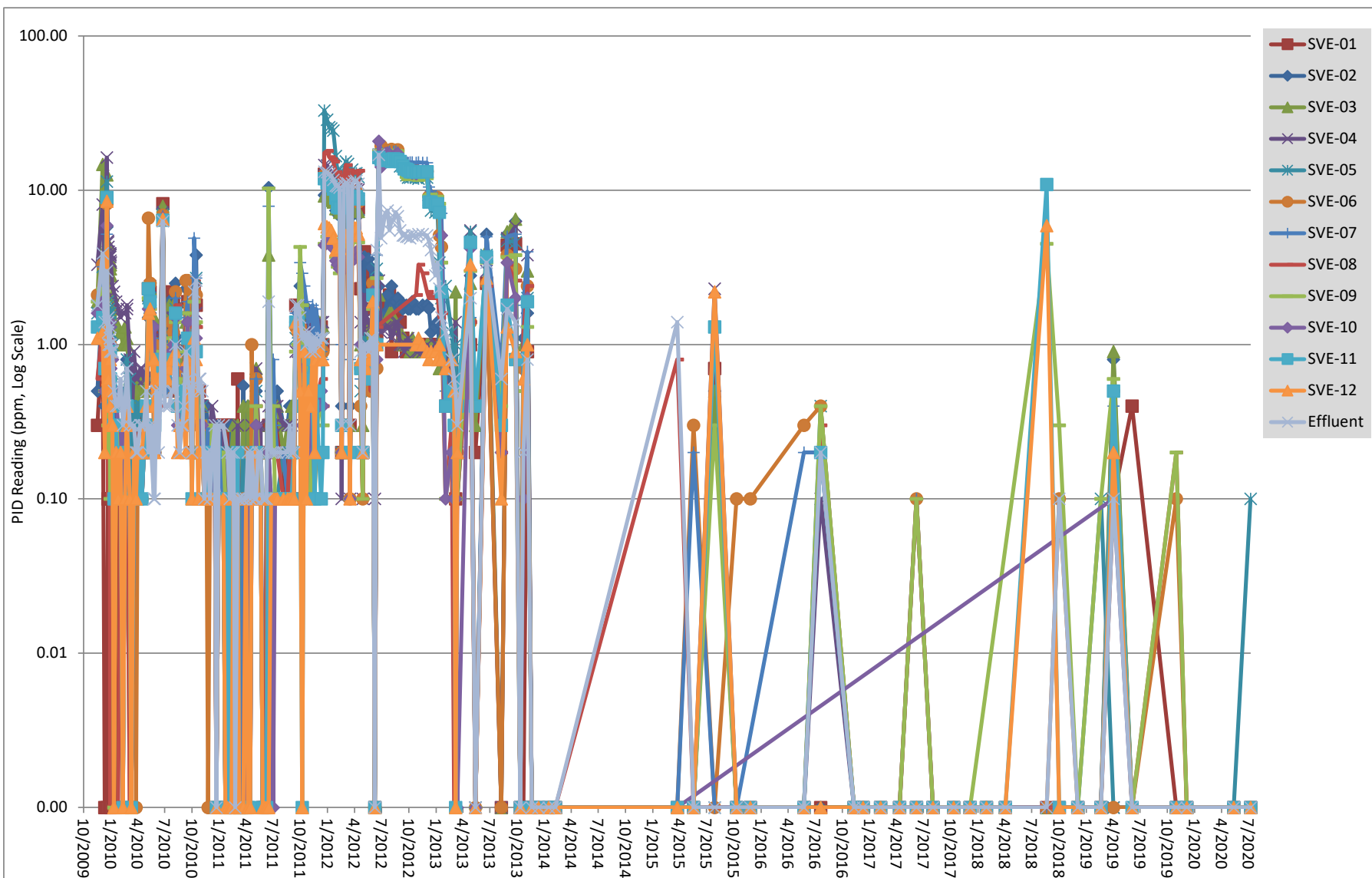
Appendix D Trend Charts for Vacuum and PID Measurements

Appendix D-1 VMP Trends – Vacuum Readings



Appendix D-1
Figure 1
VMP Trends - Vacuum Readings
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee

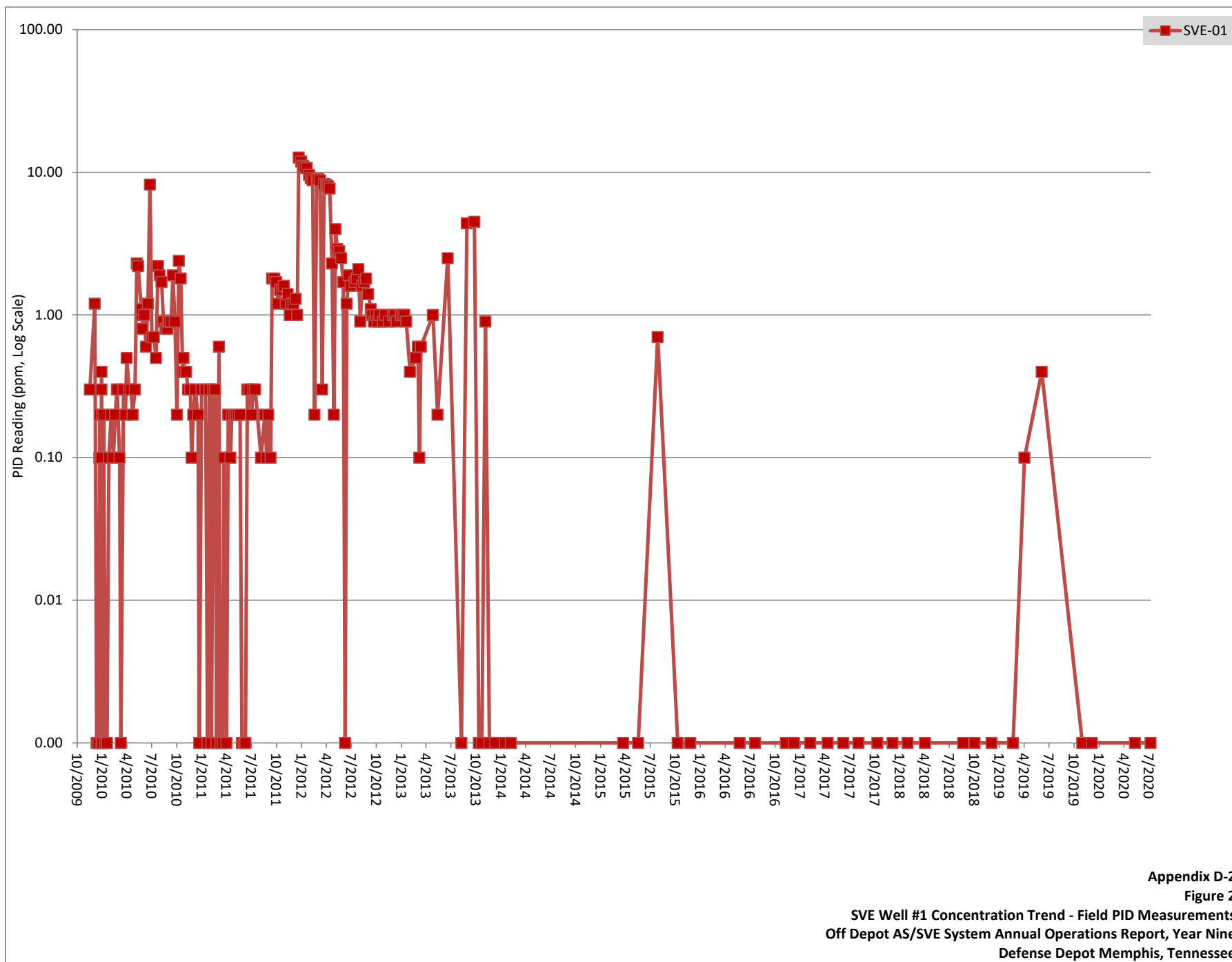
Appendix D-2 SVE Wells and Effluent Concentration Trends – Field PID Measurements



Appendix D-2

Figure 1

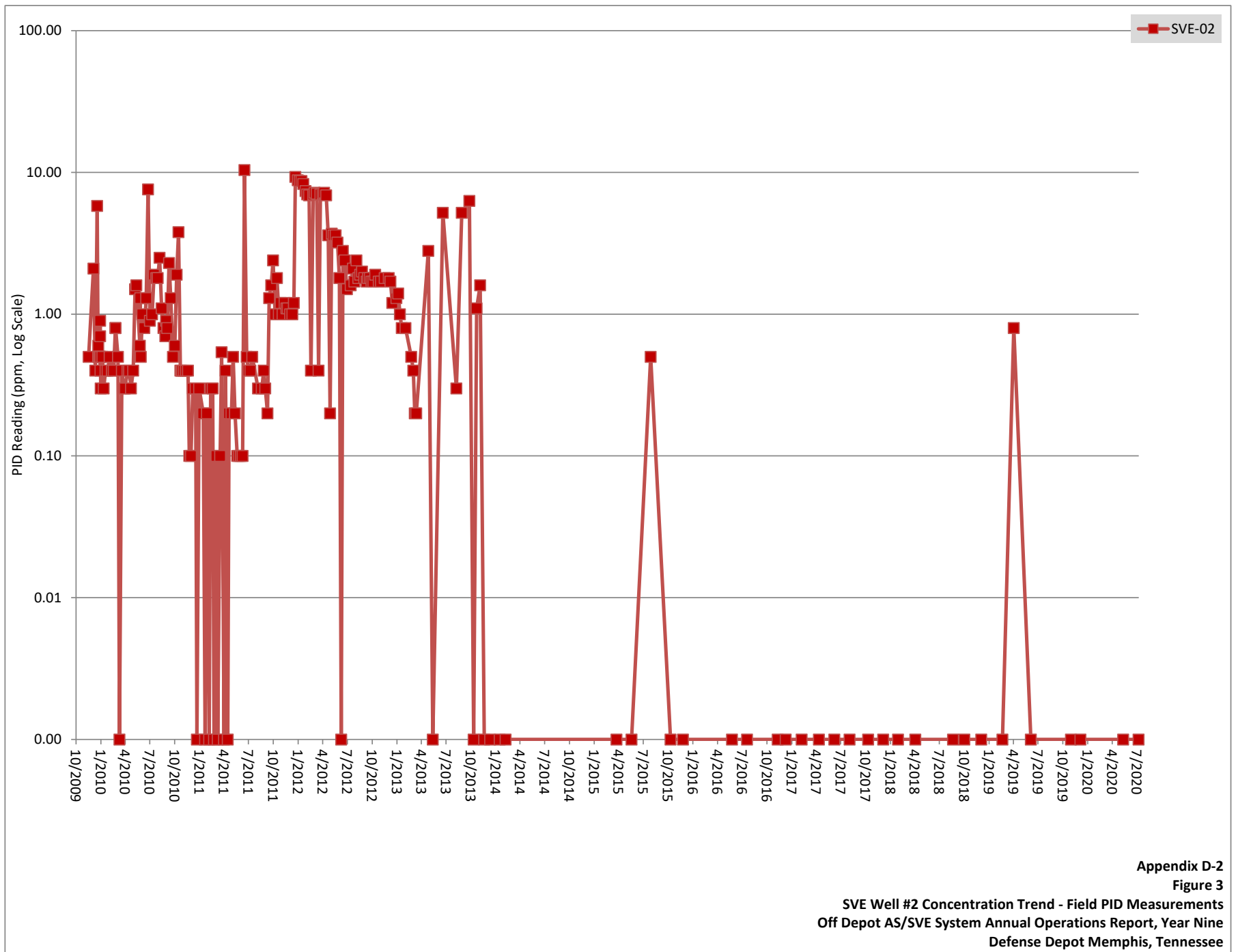
SVE Wells and Effluent Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee



Appendix D-2

Figure 2

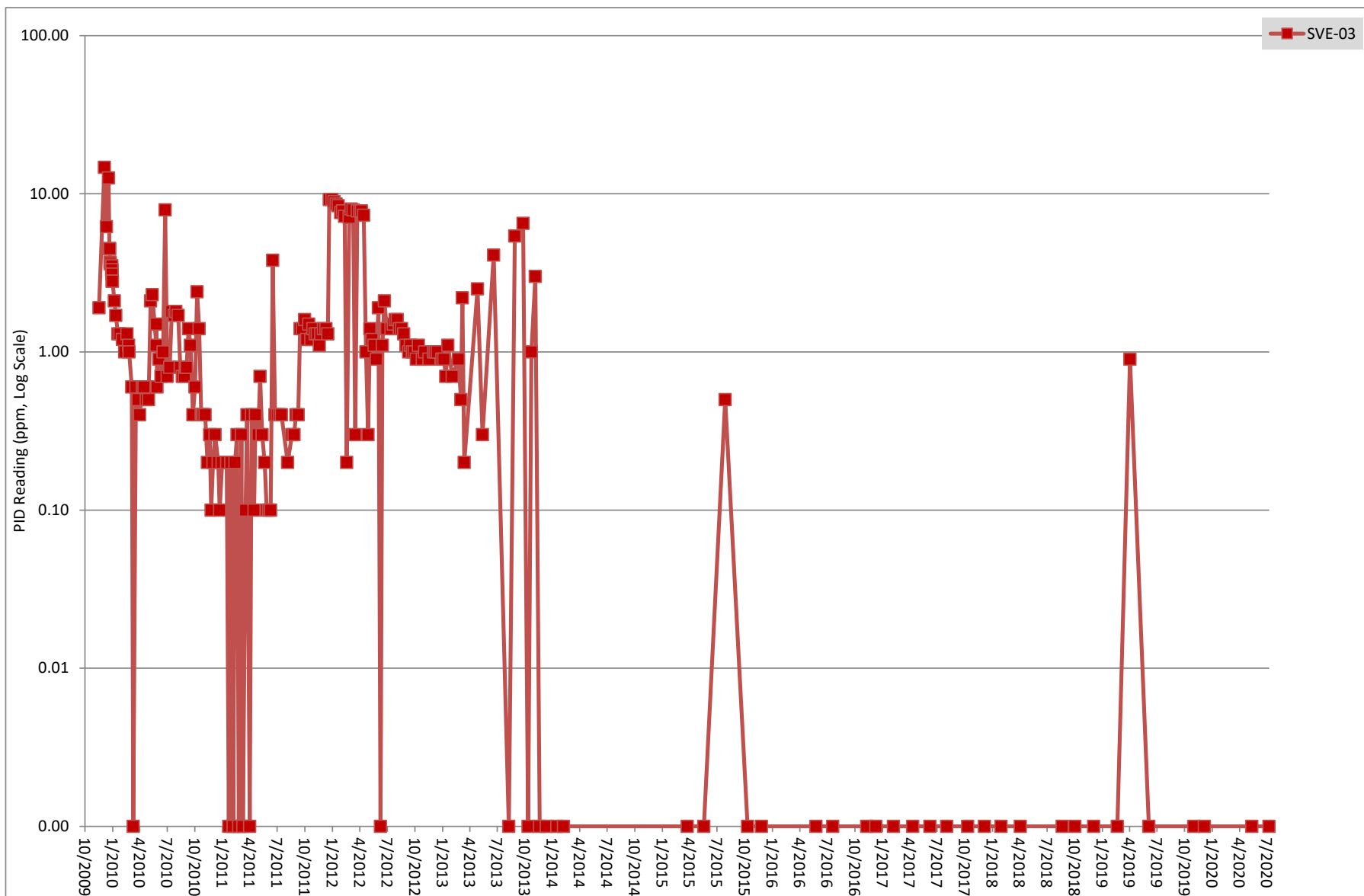
SVE Well #1 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee



Appendix D-2

Figure 3

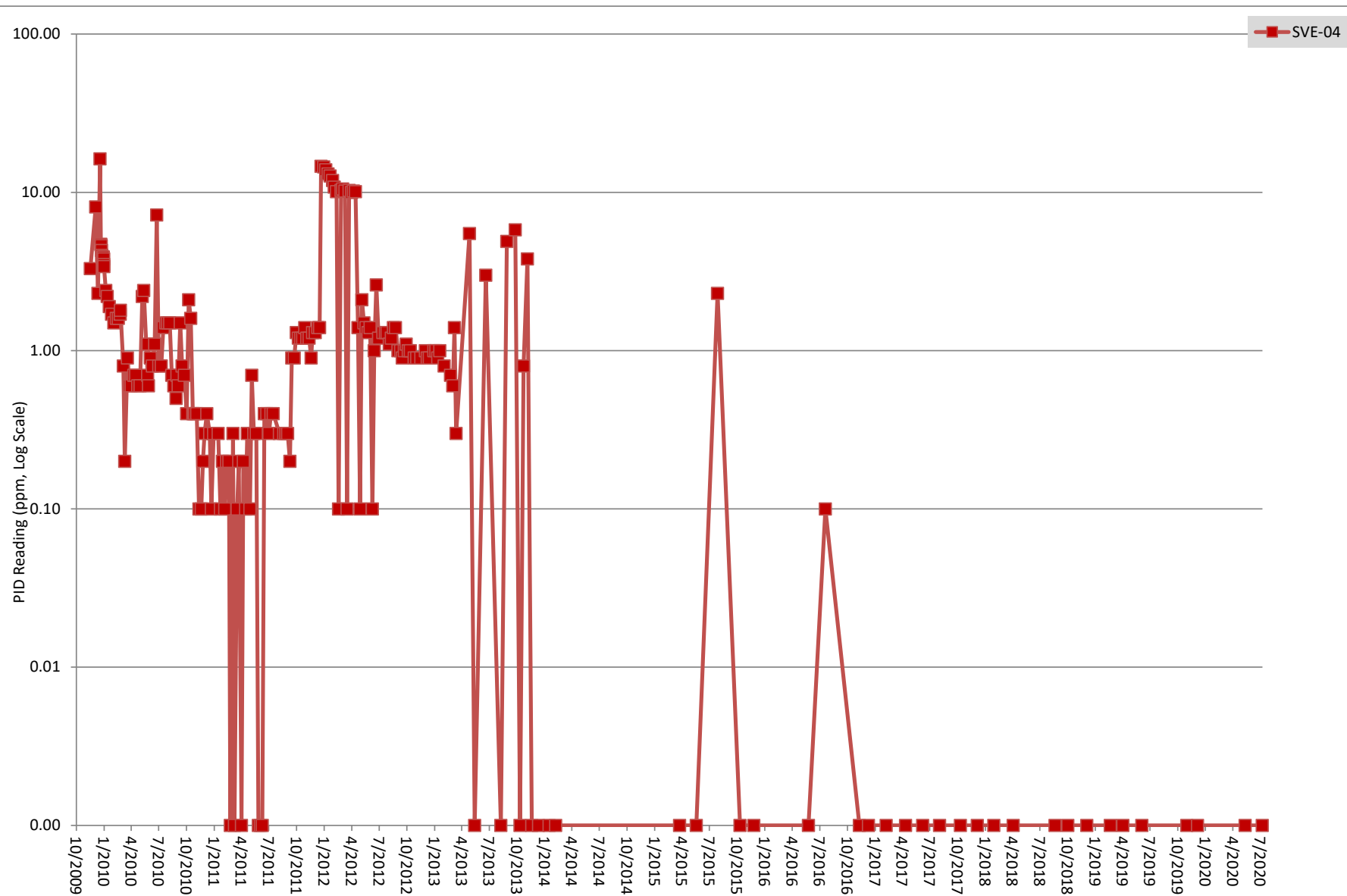
SVE Well #2 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee



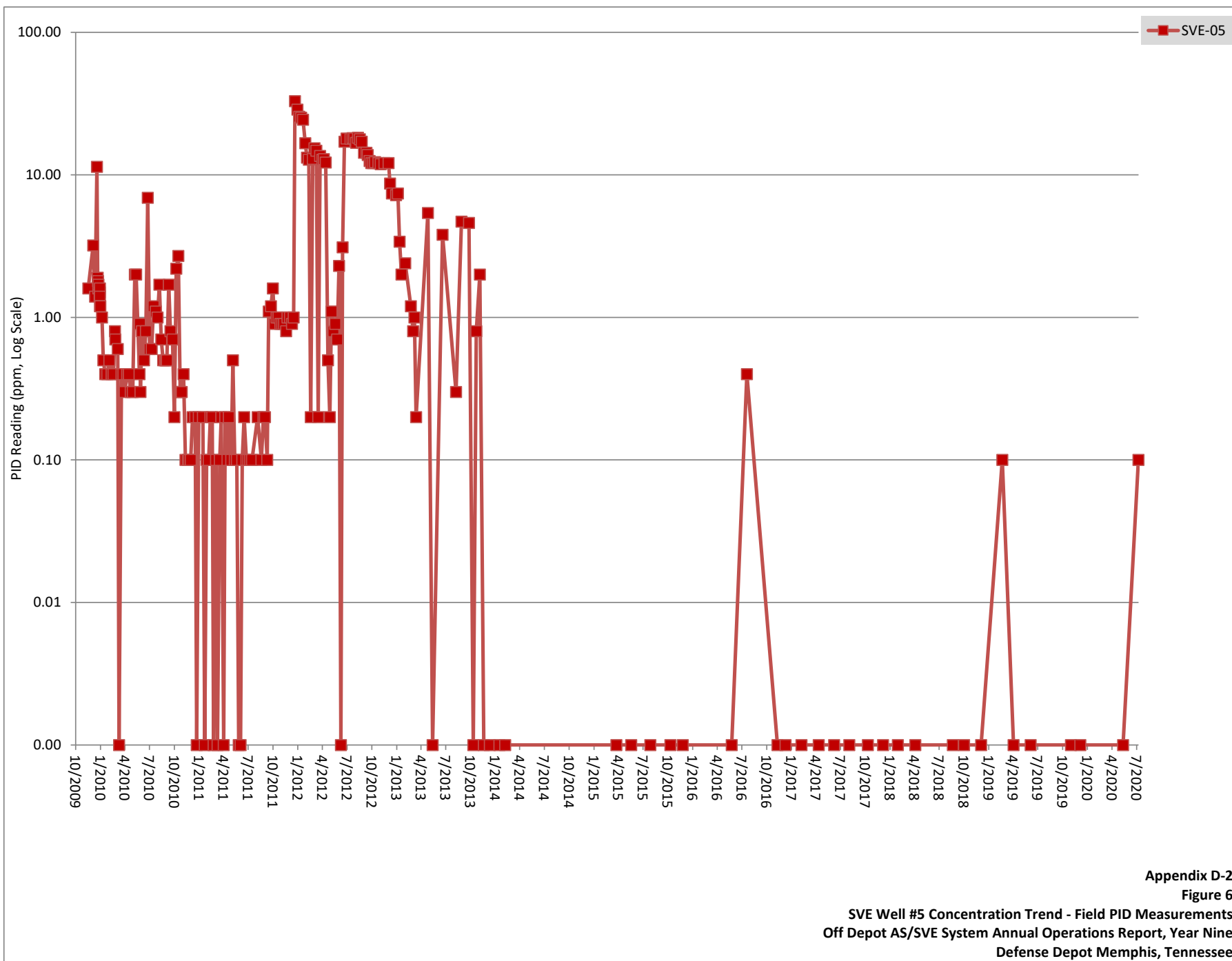
Appendix D-2

Figure 4

SVE Well # 3 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee



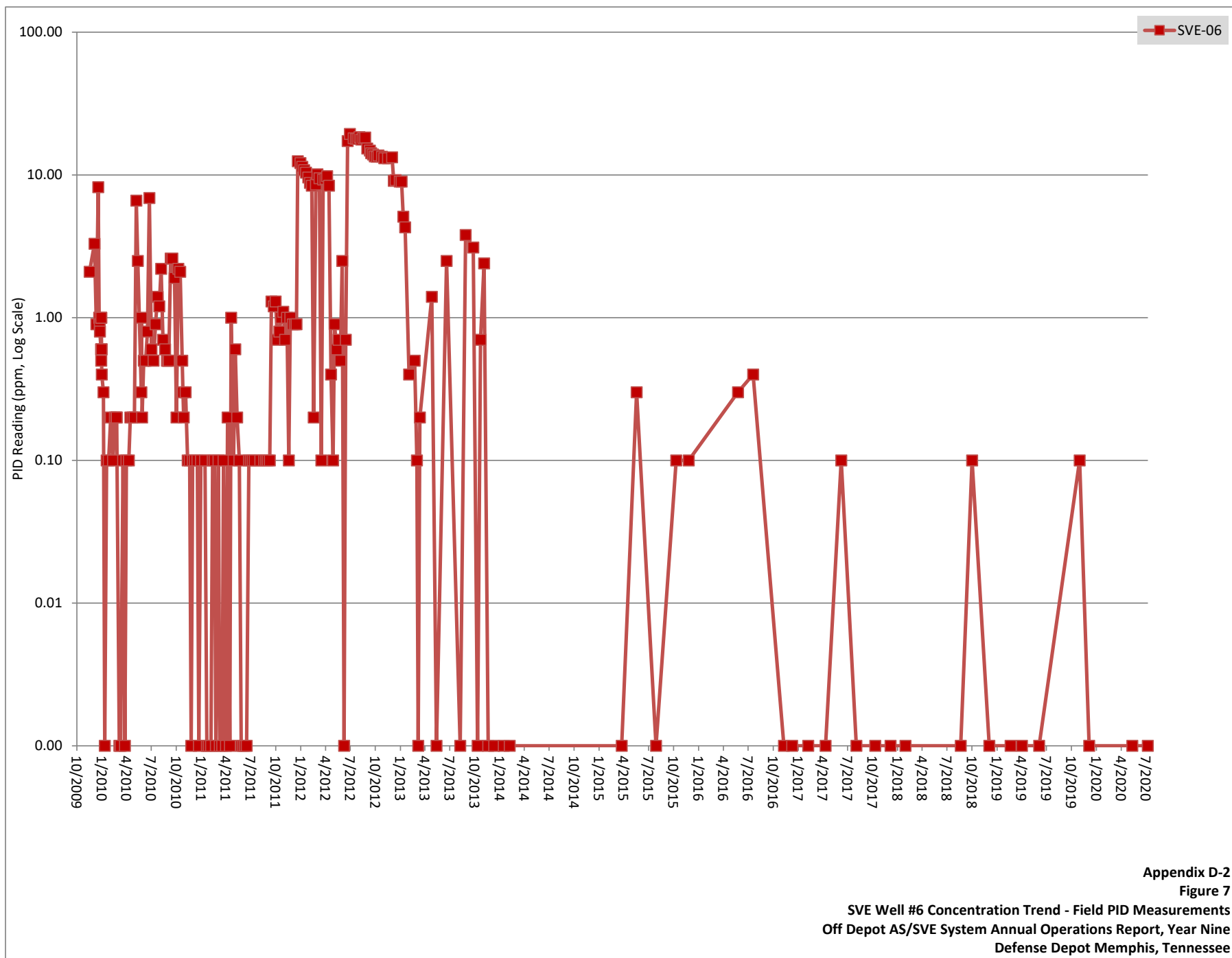
Appendix D-2
Figure 5
SVE Well #4 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee



Appendix D-2

Figure 6

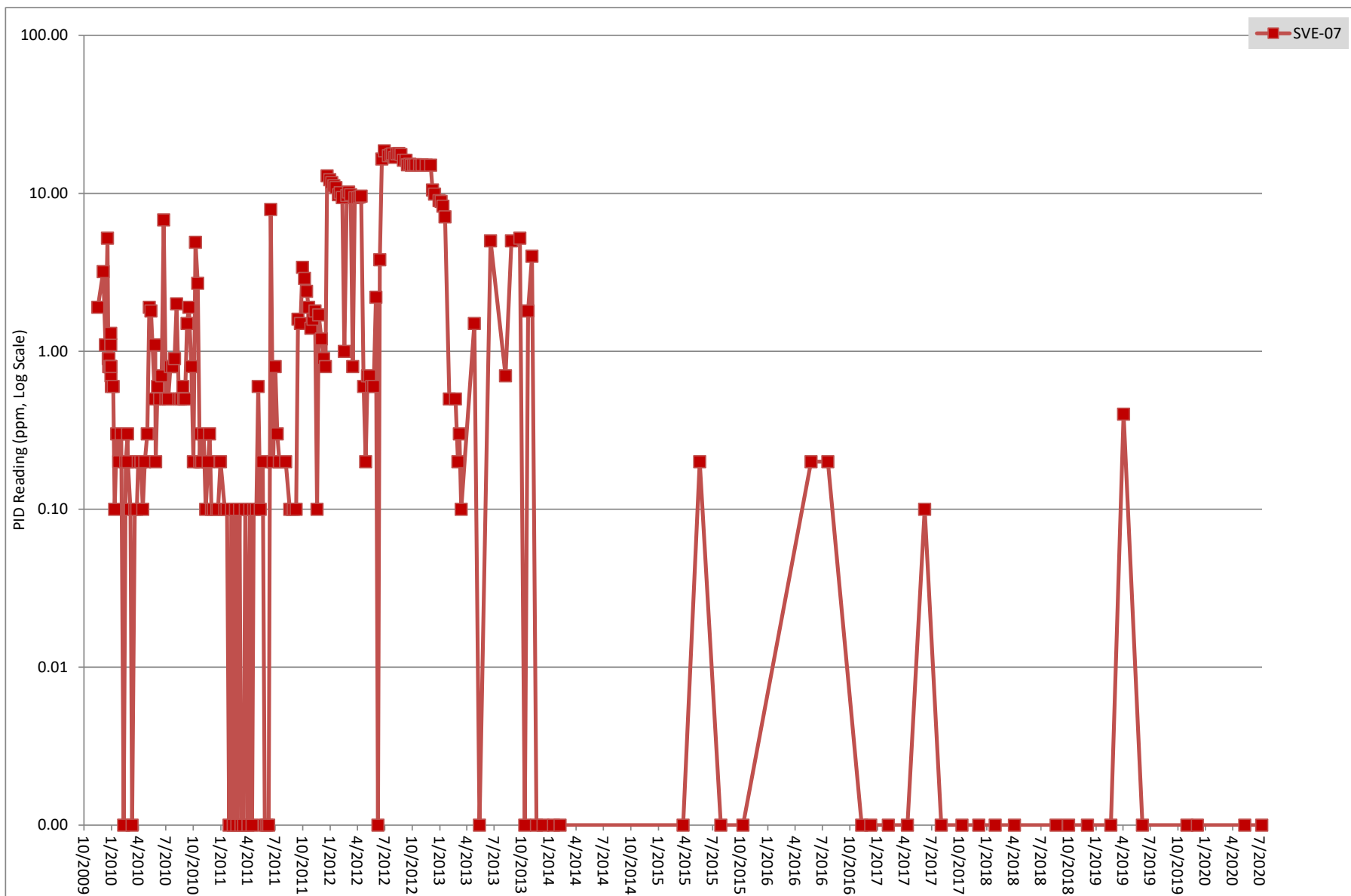
SVE Well #5 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee



Appendix D-2

Figure 7

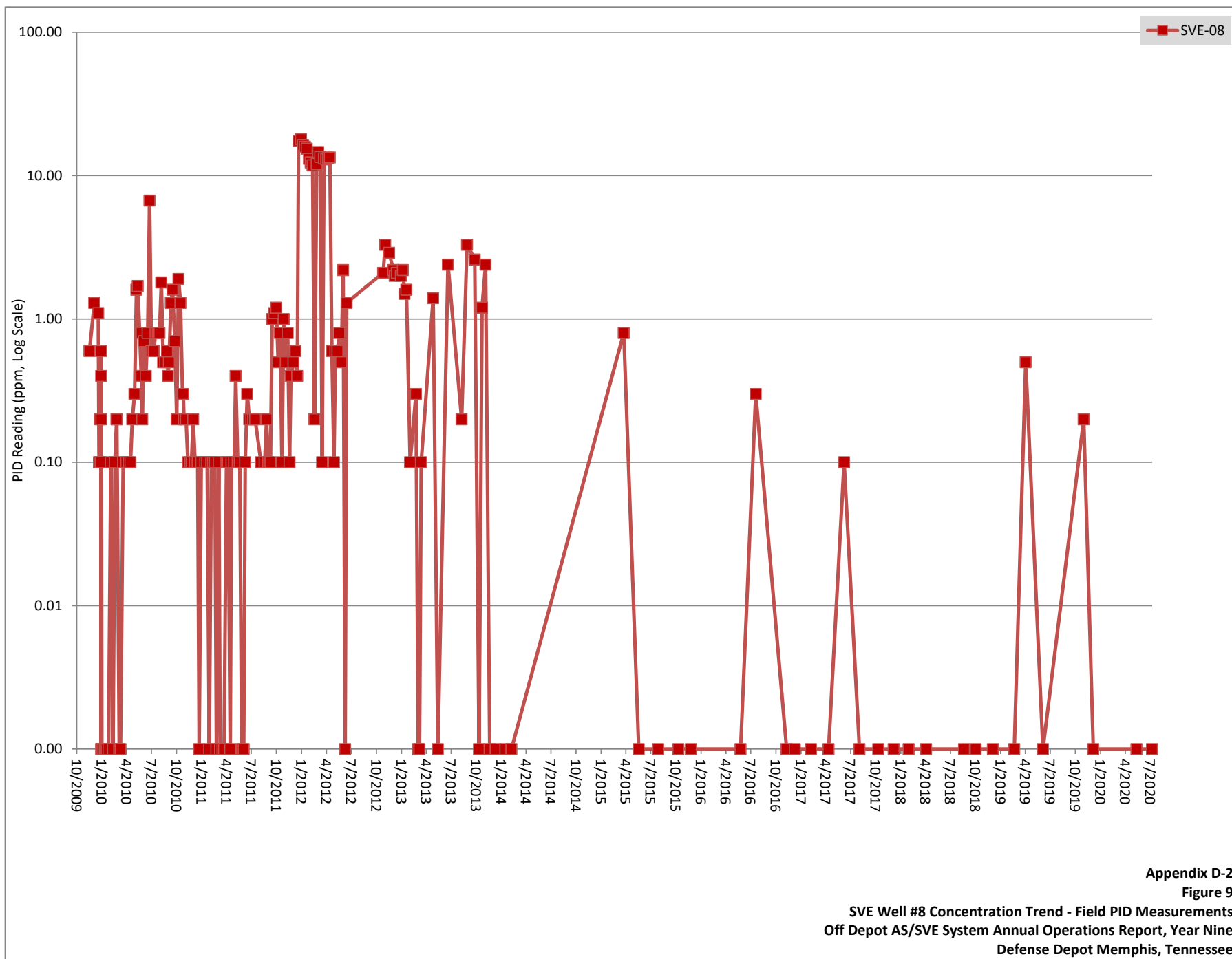
SVE Well #6 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee



Appendix D-2

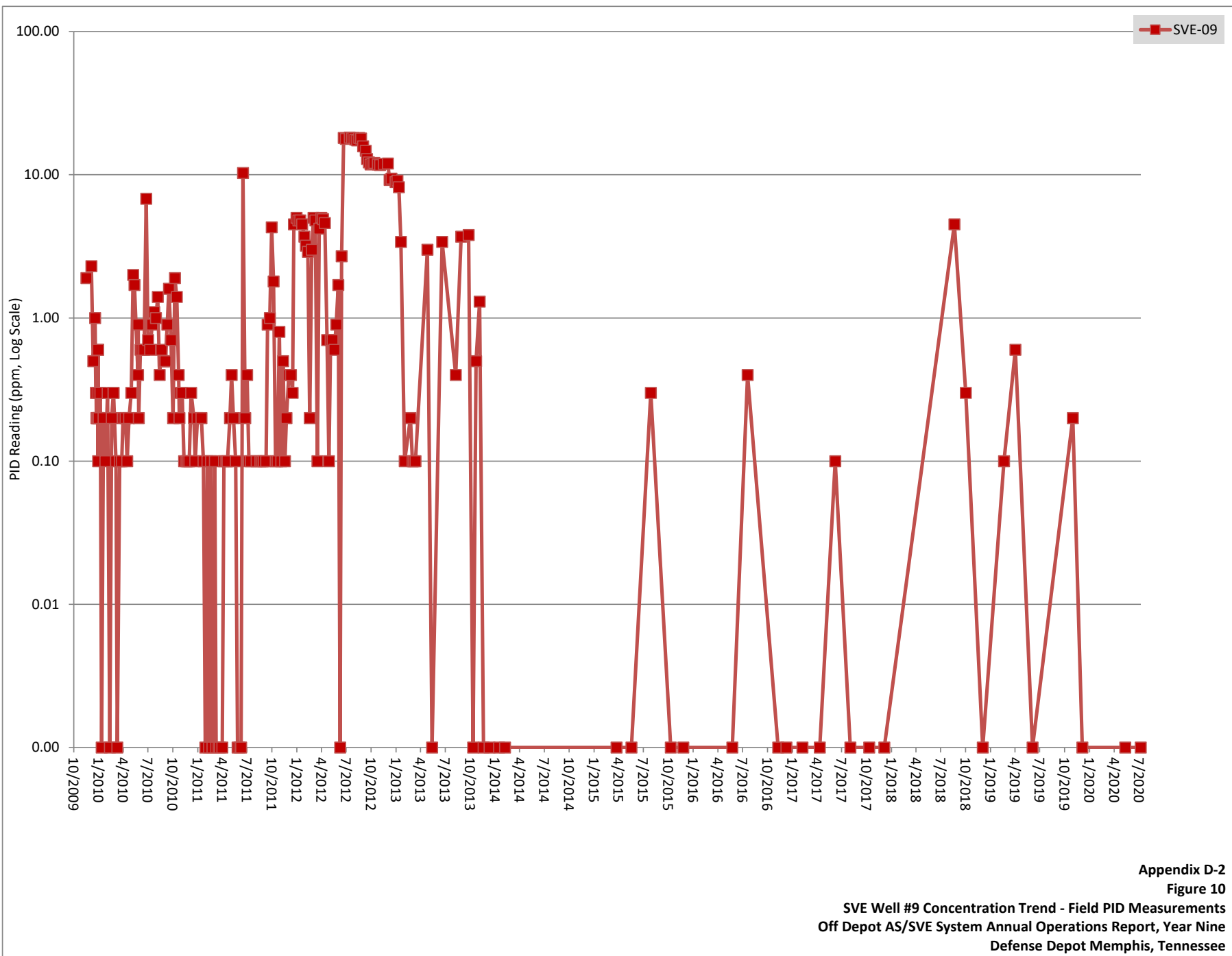
Figure 8

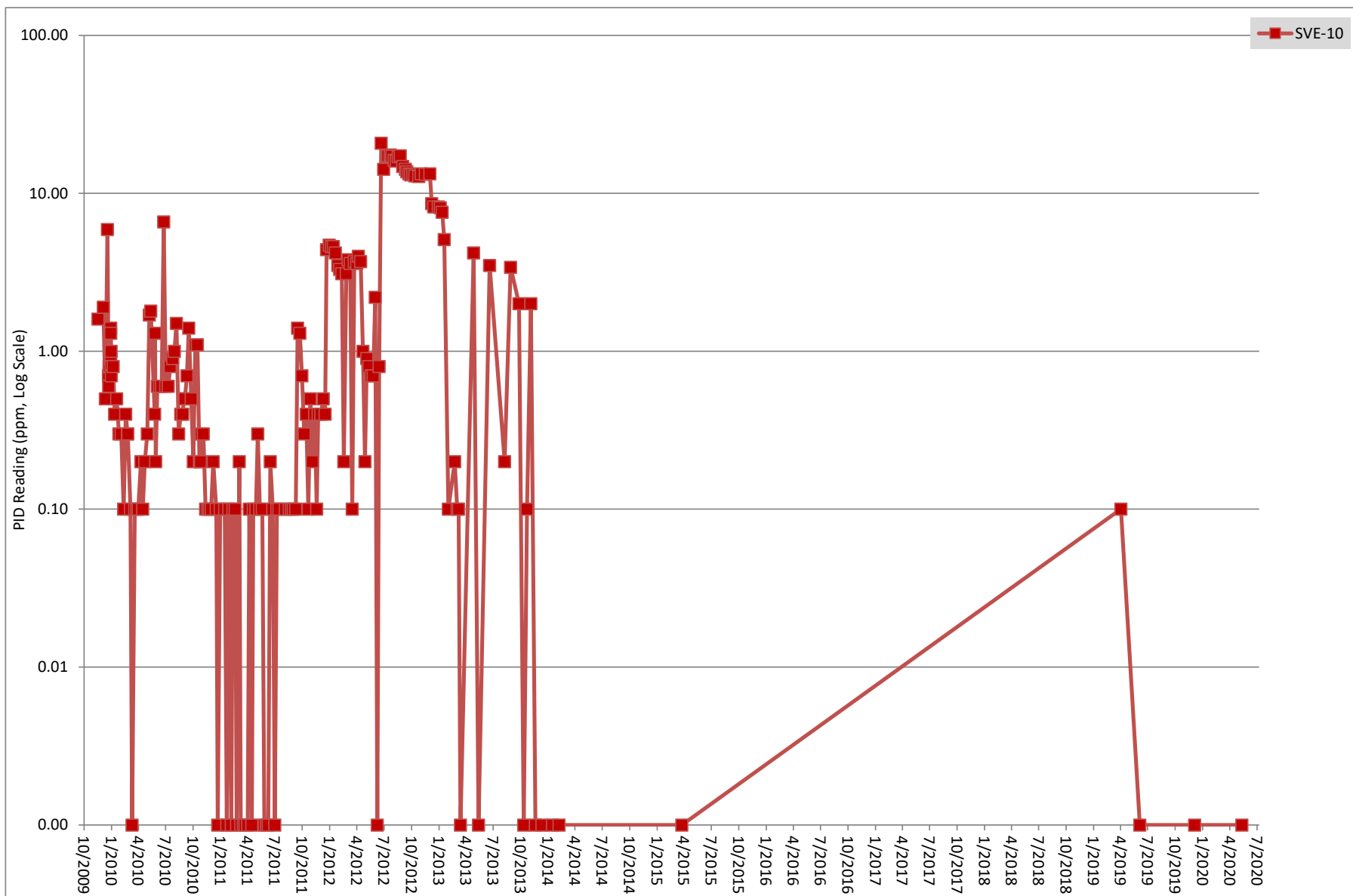
SVE Well #7 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee



Appendix D-2
Figure 9

SVE Well #8 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee

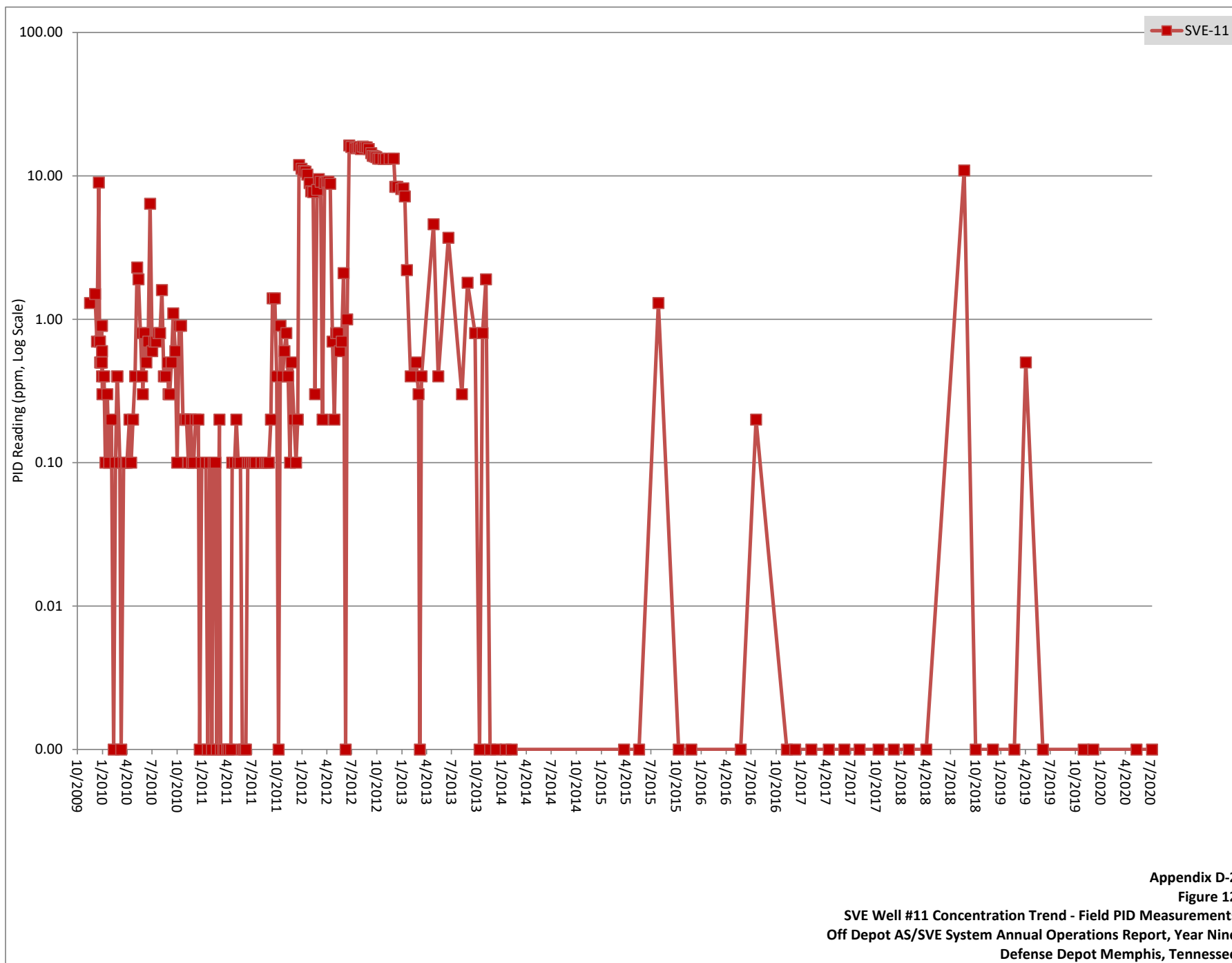




Appendix D-2

Figure 11

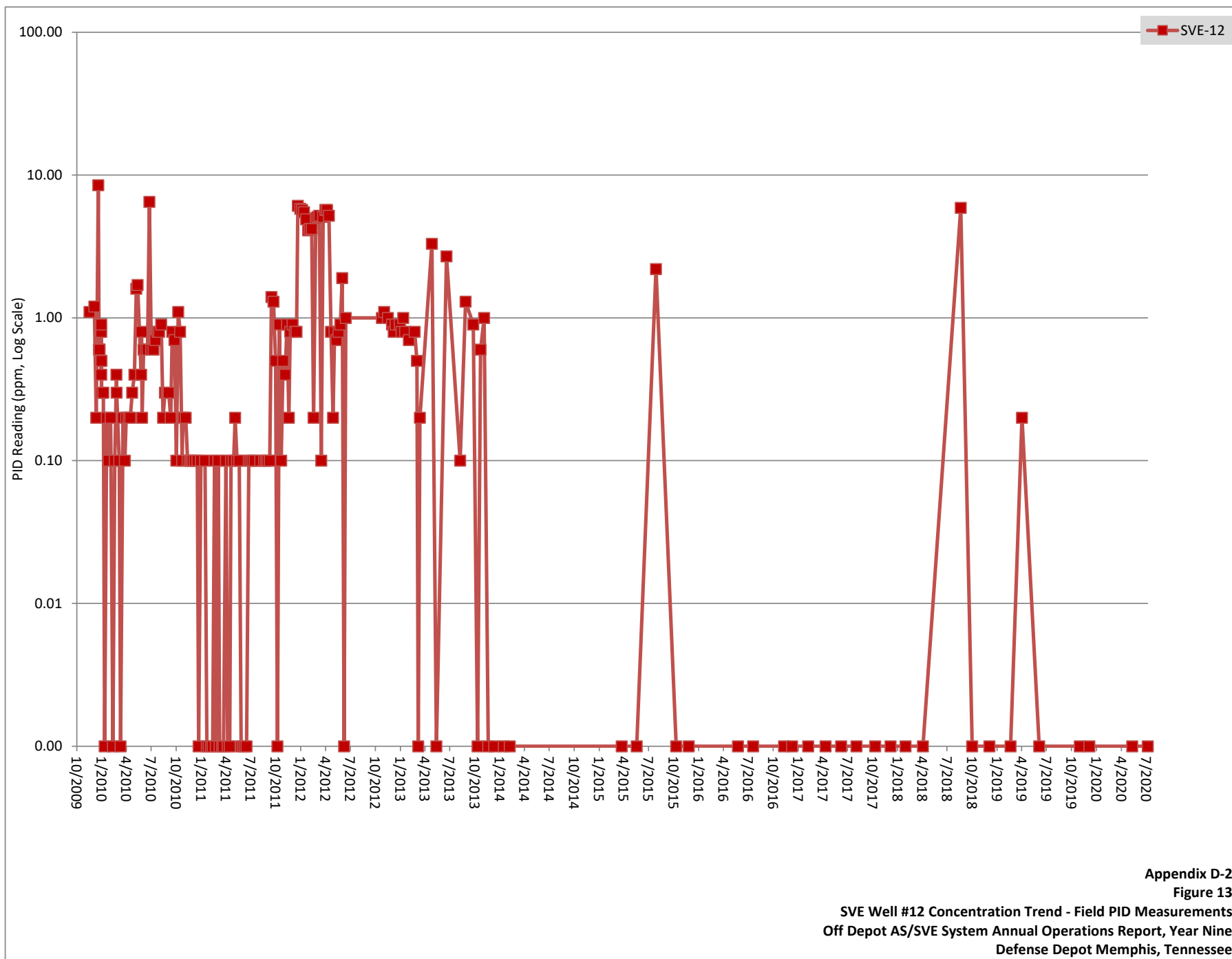
SVE Well #10 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee



Appendix D-2

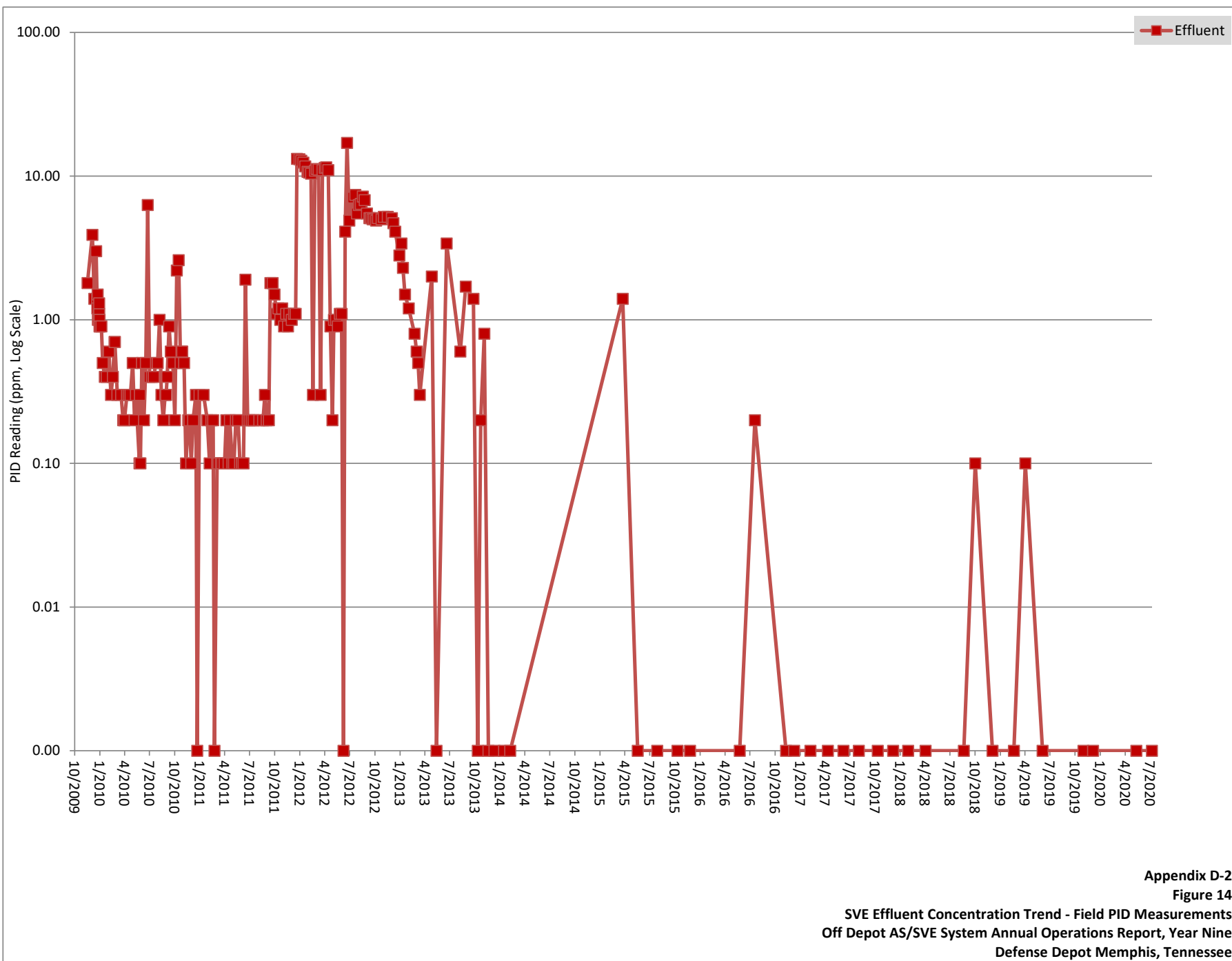
Figure 12

SVE Well #11 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee



Appendix D-2
Figure 13

SVE Well #12 Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee

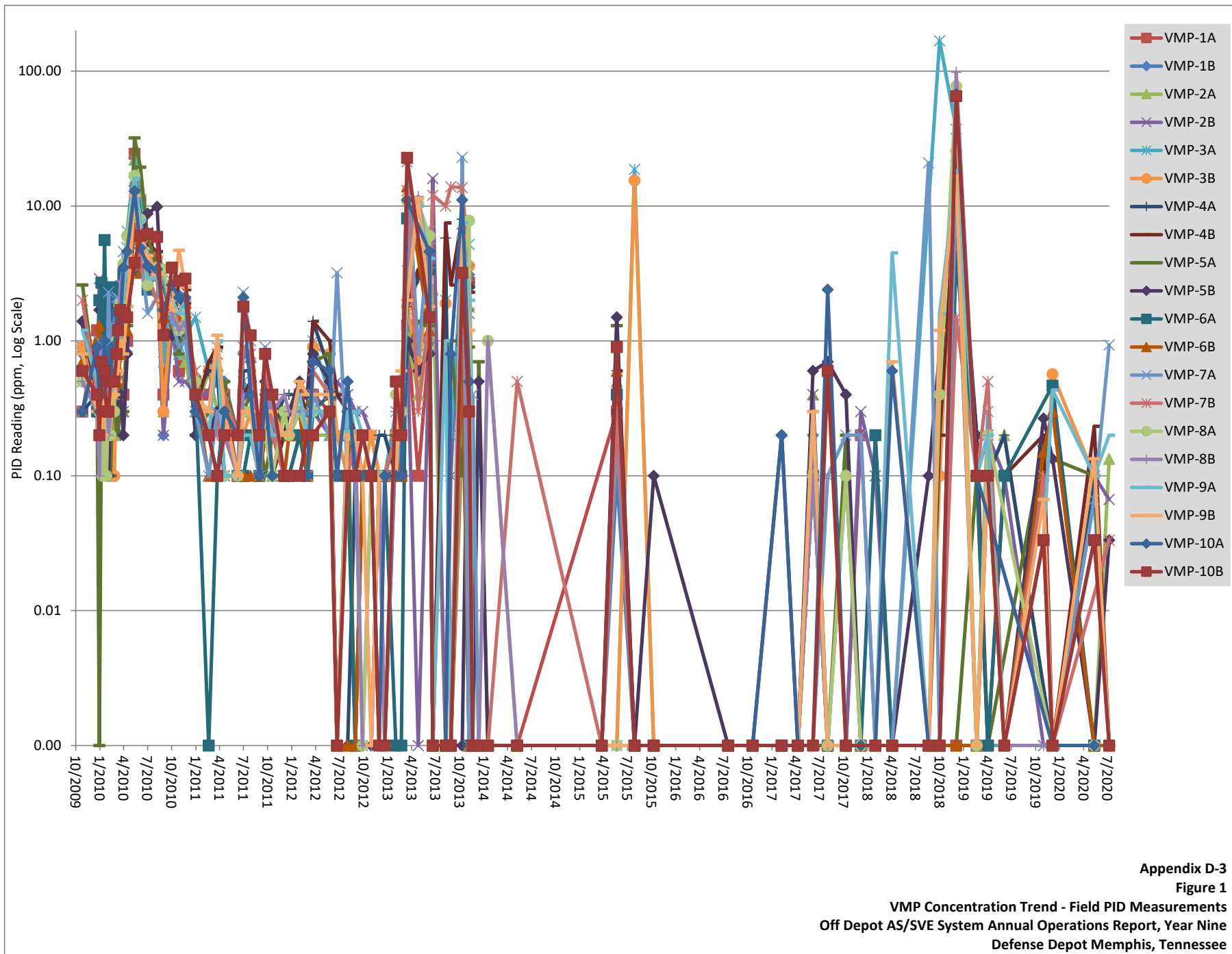


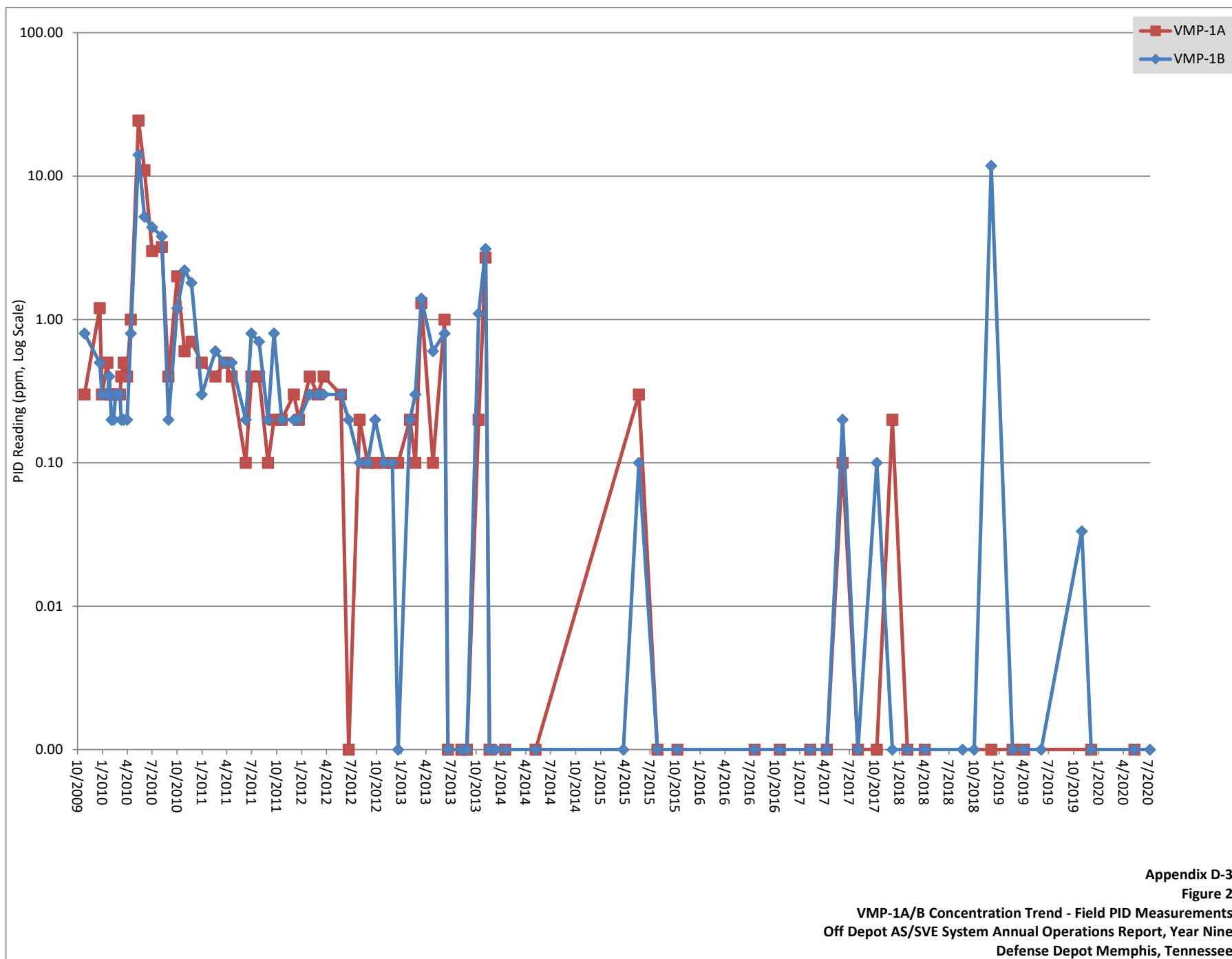
Appendix D-2

Figure 14

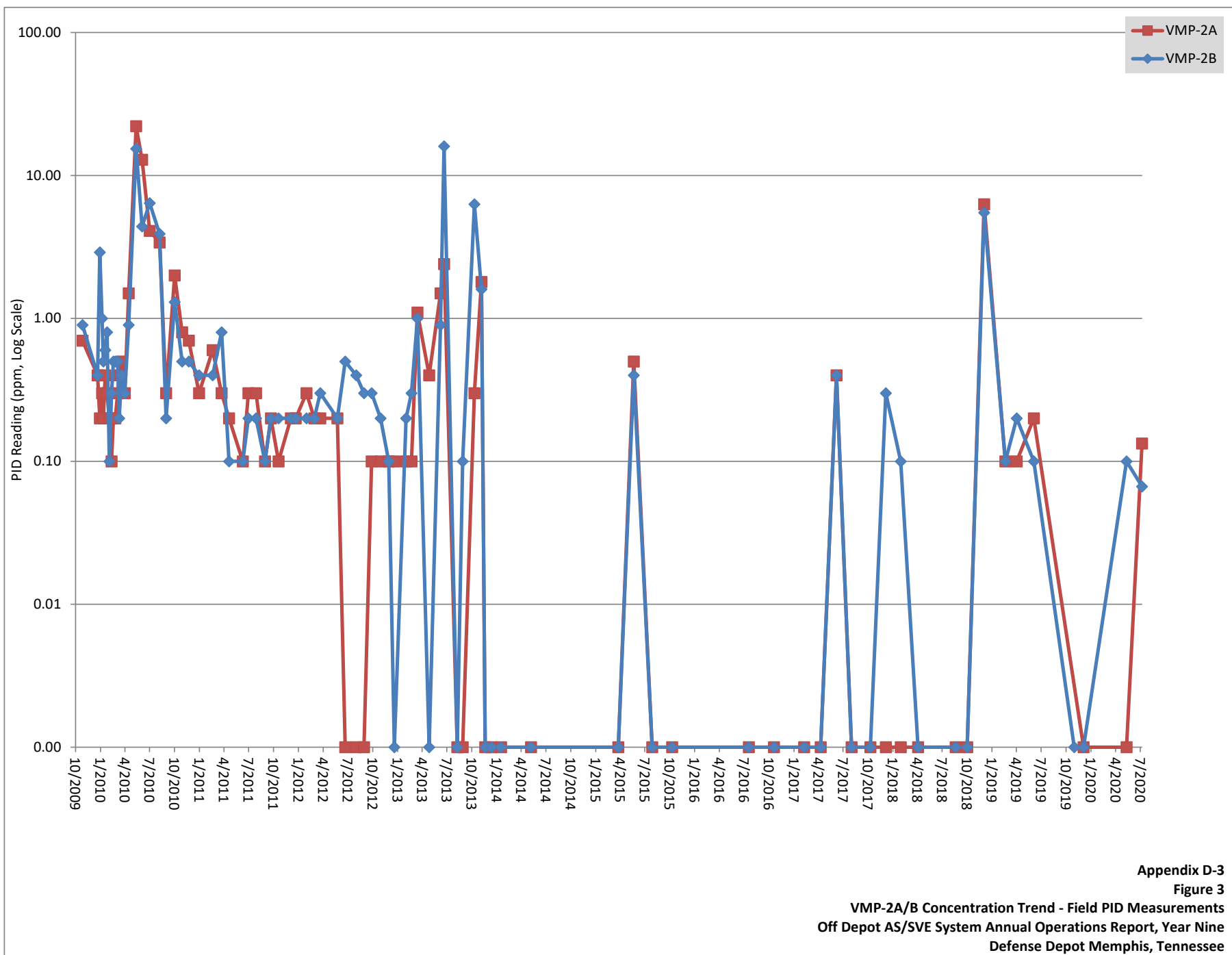
SVE Effluent Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee

Appendix D-3 VMP Concentration Trends – Field PID Measurements





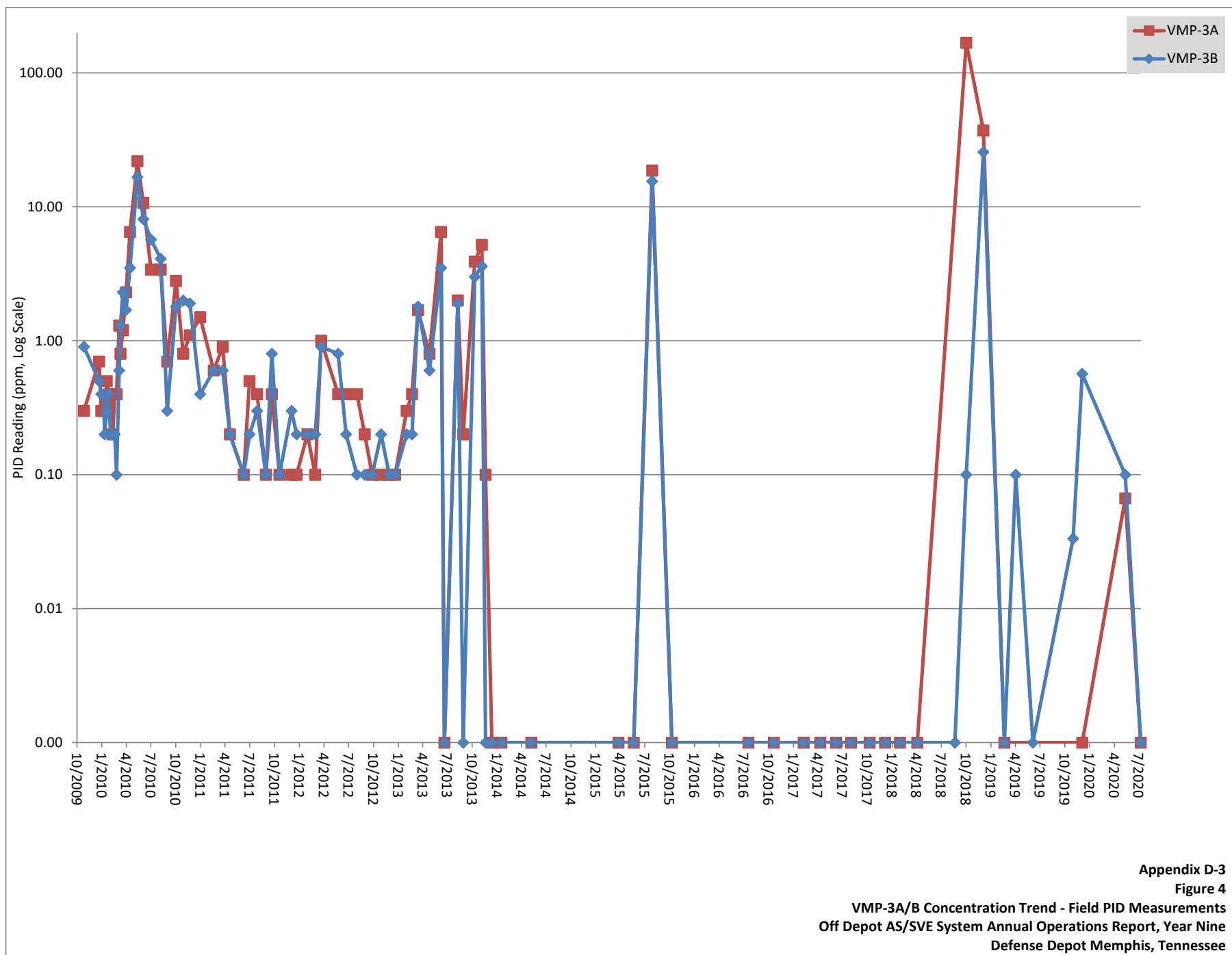
Appendix D-3
Figure 2
VMP-1A/B Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee



Appendix D-3

Figure 3

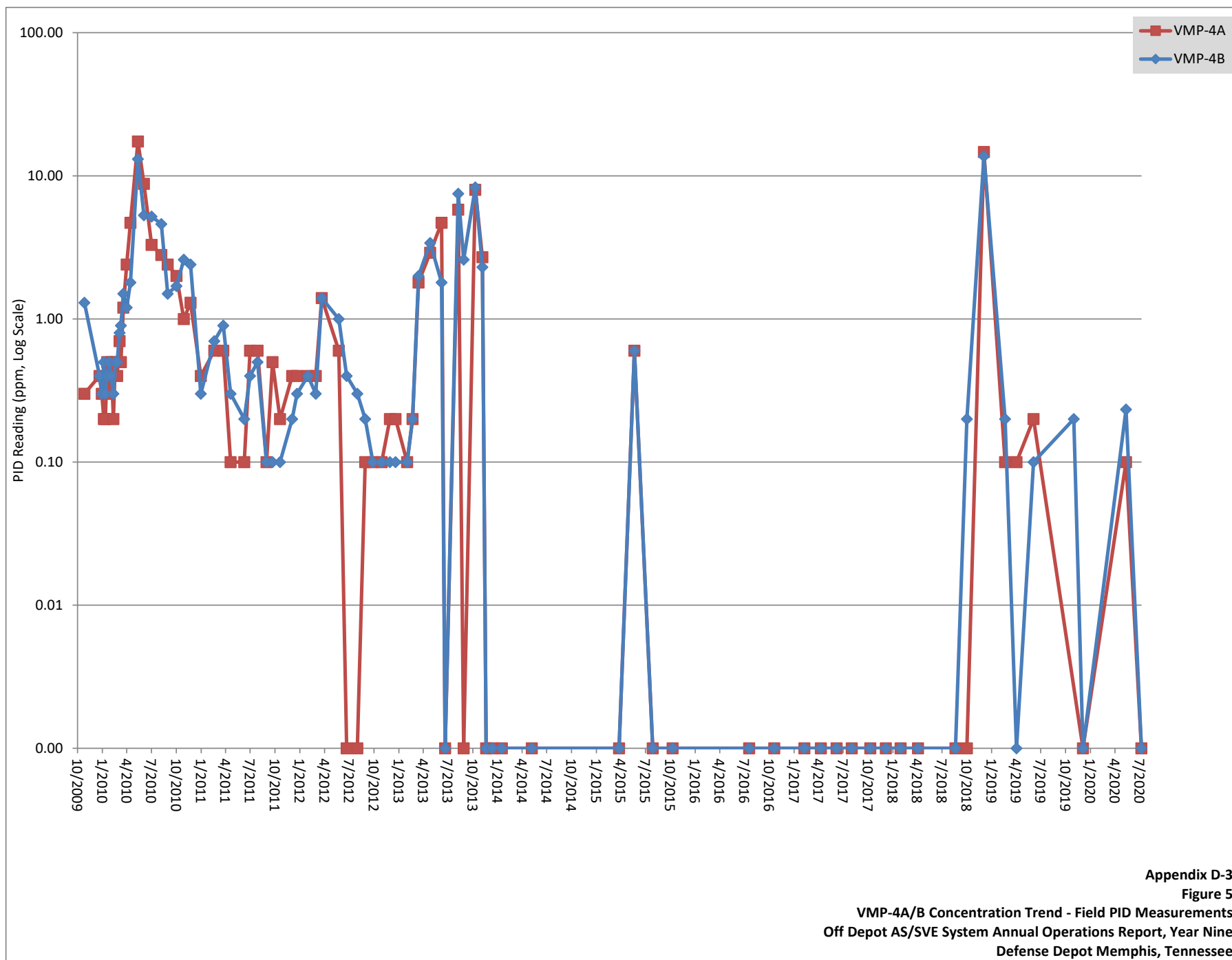
VMP-2A/B Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee

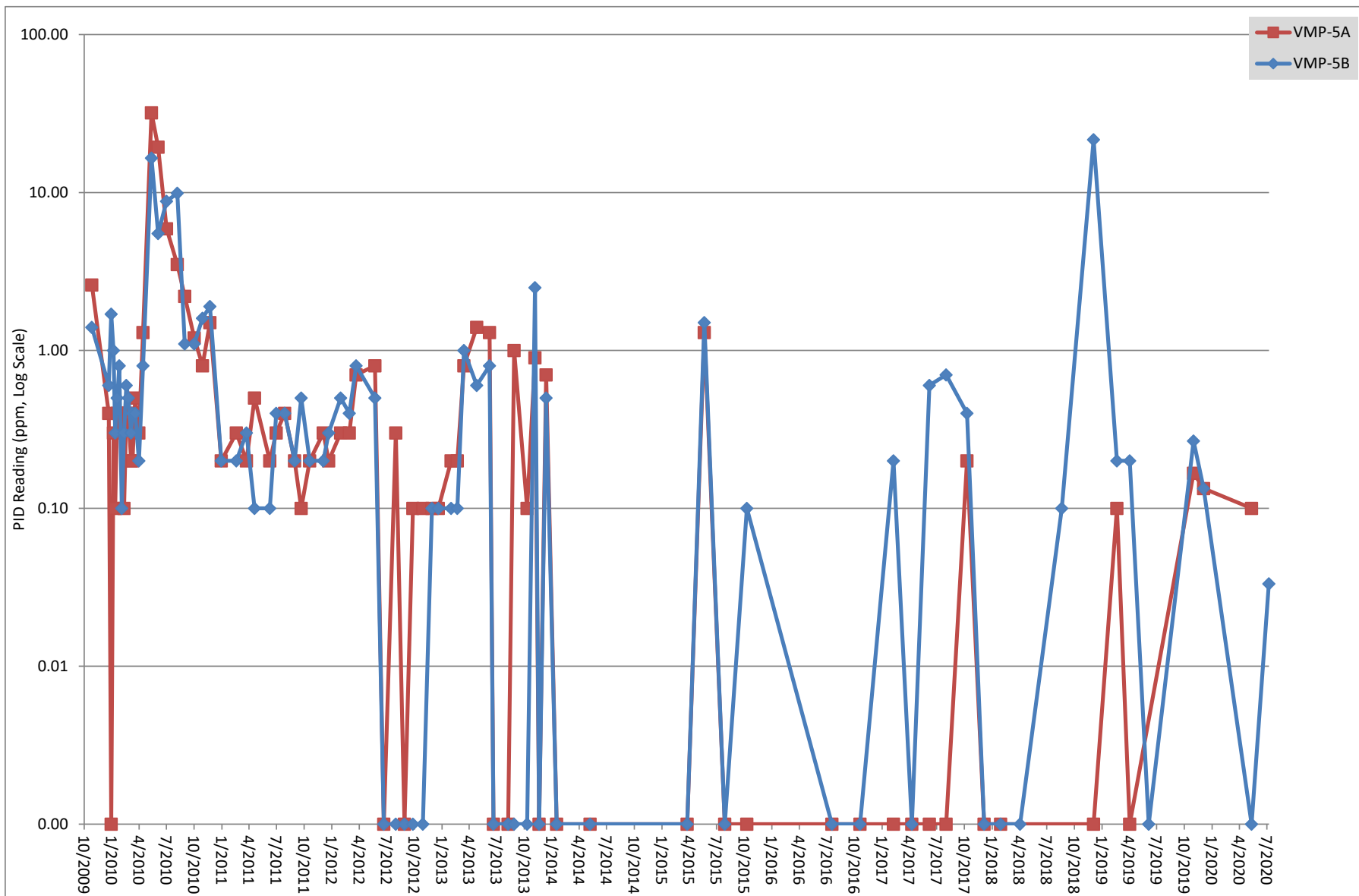


Appendix D-3

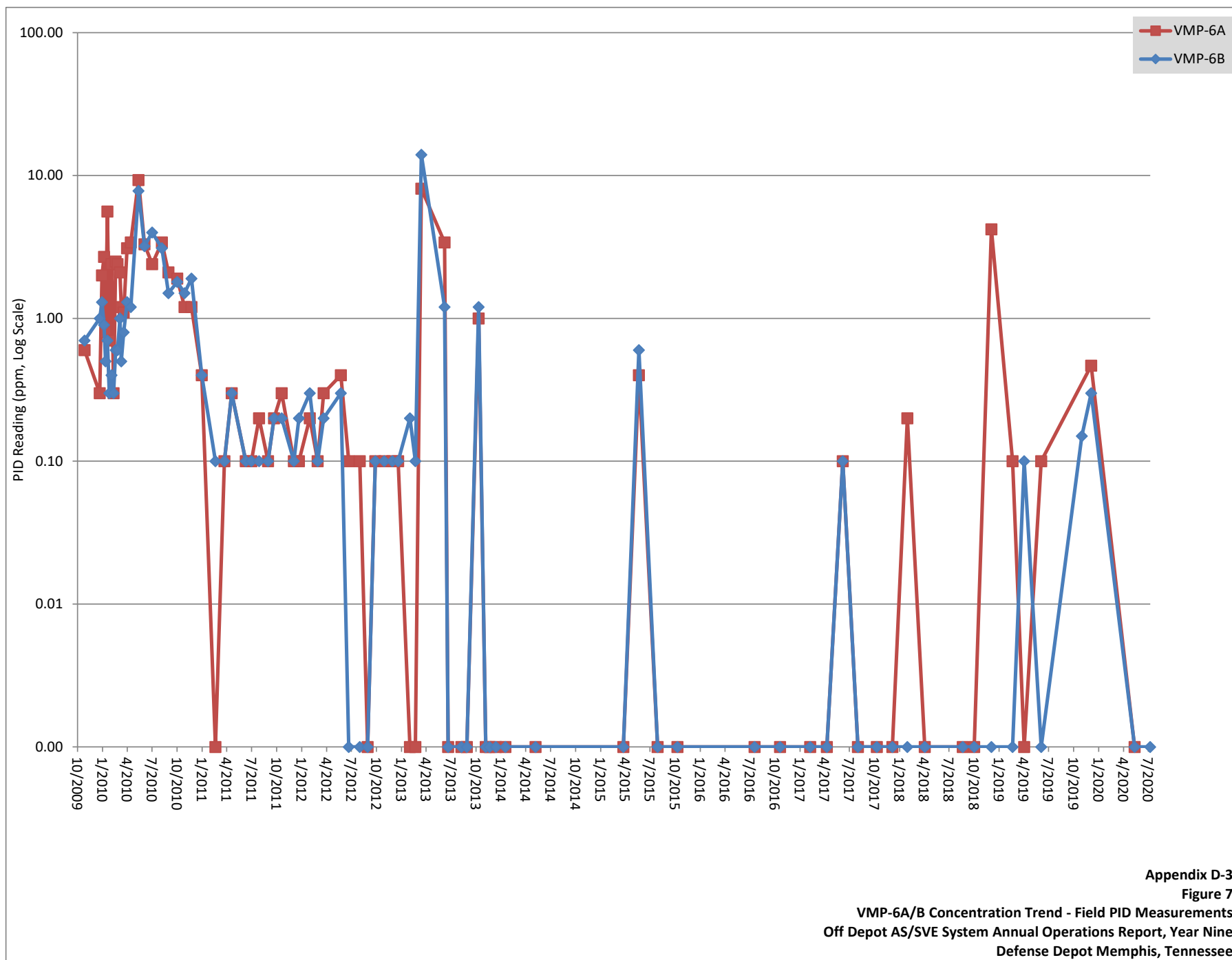
Figure 4

VMP-3A/B Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee





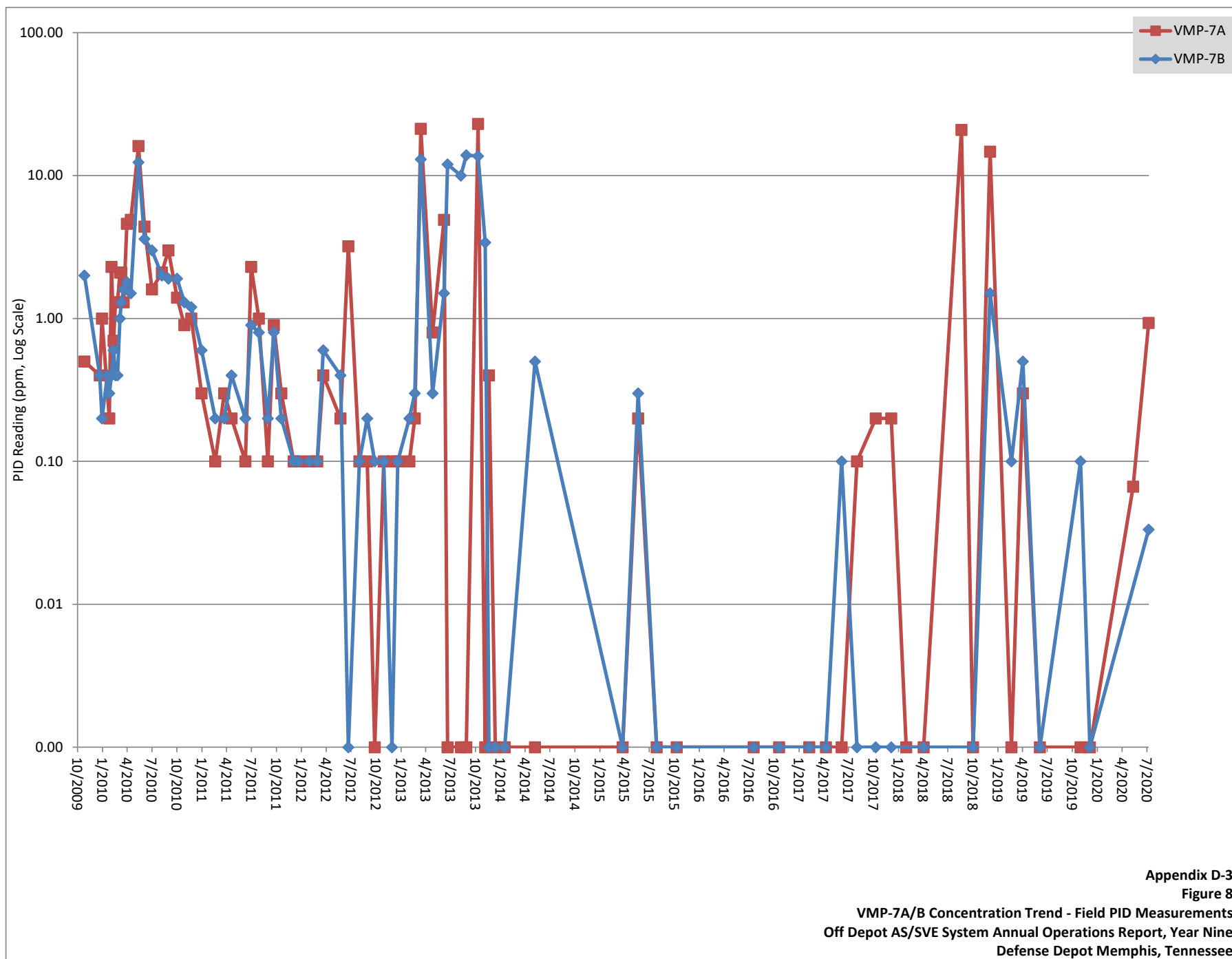
Appendix D-3
 Figure 6
 VMP-5A/B Concentration Trend - Field PID Measurements
 Off Depot AS/SVE System Annual Operations Report, Year Nine
 Defense Depot Memphis, Tennessee

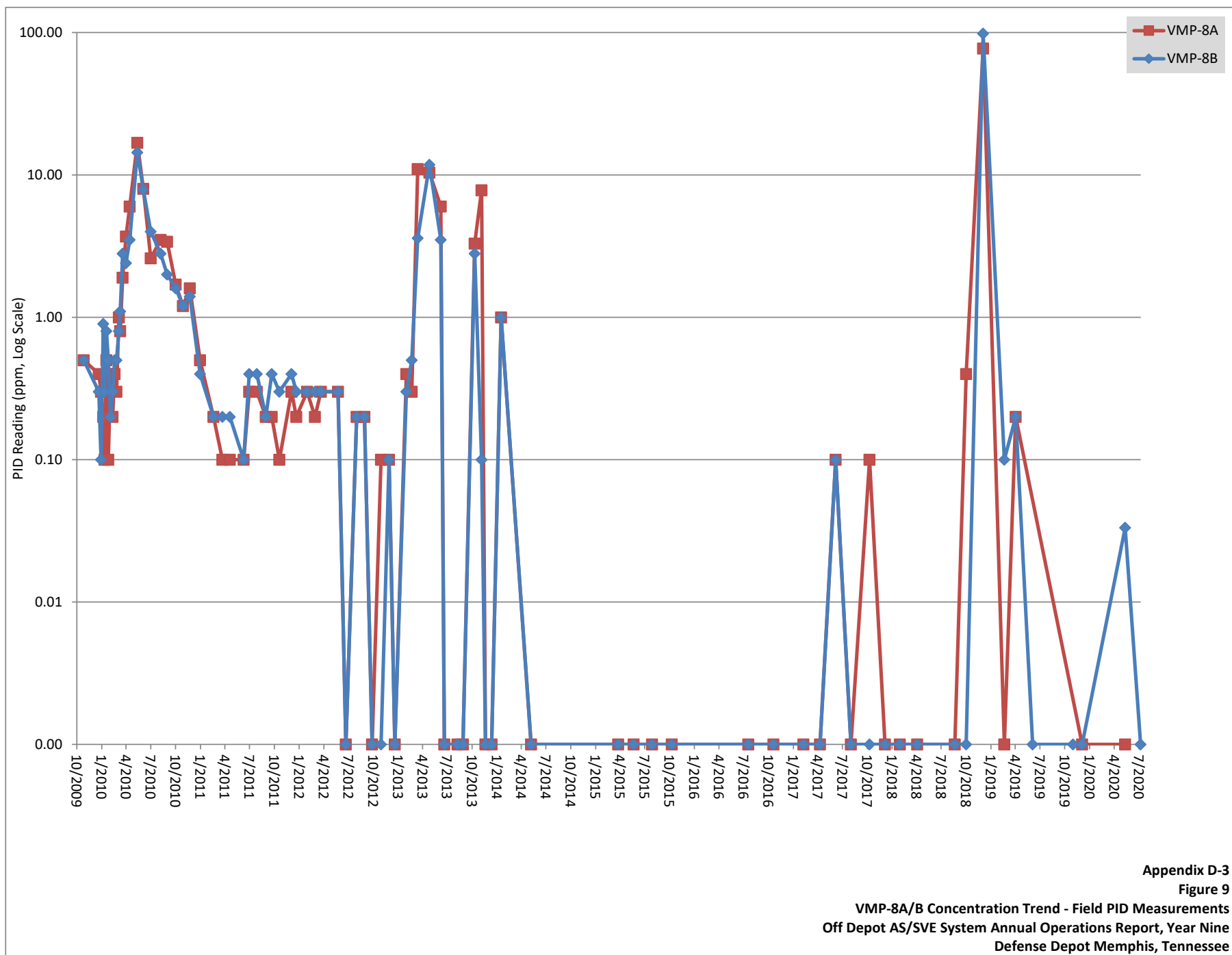


Appendix D-3

Figure 7

VMP-6A/B Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee

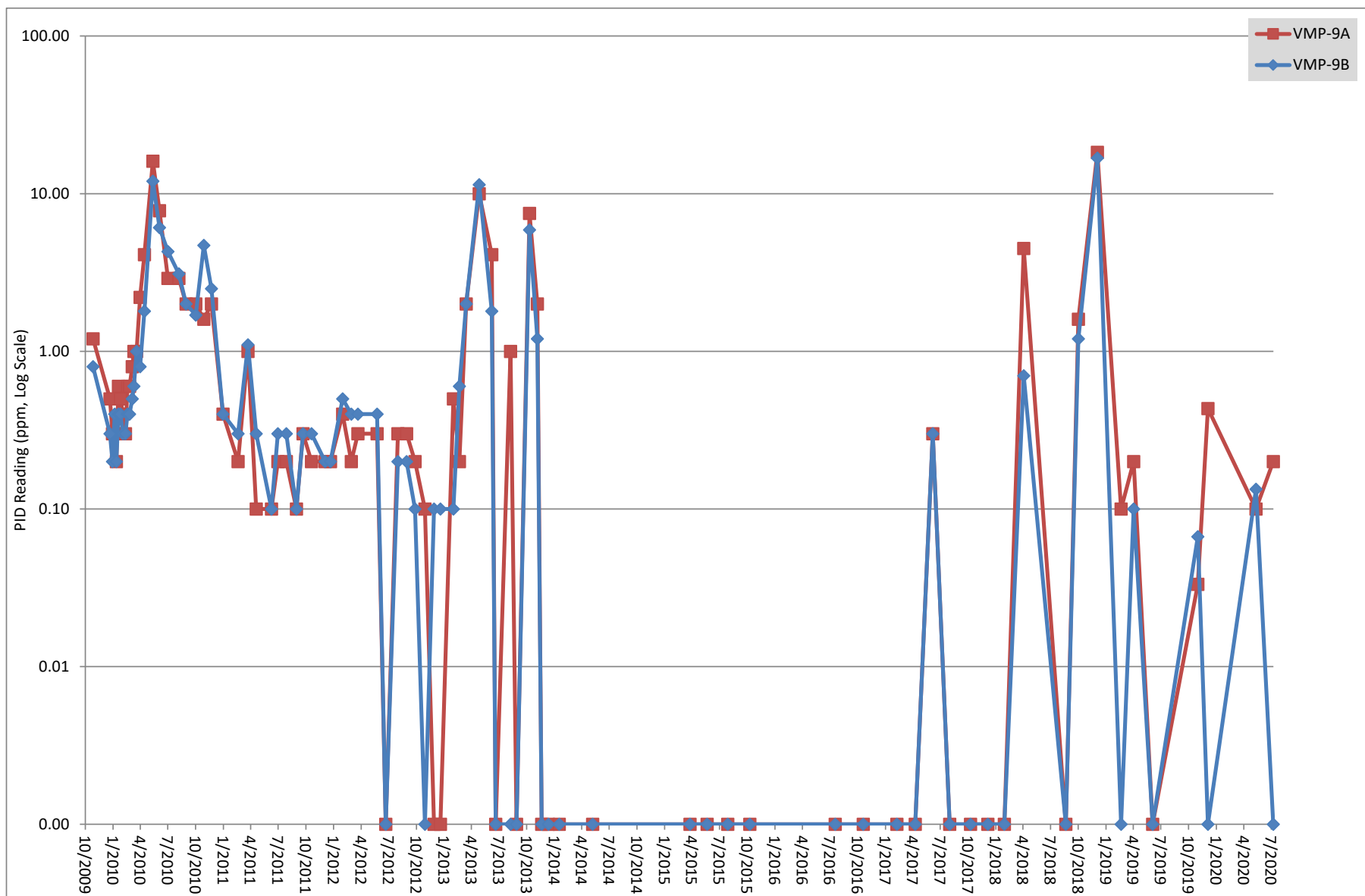




Appendix D-3

Figure 9

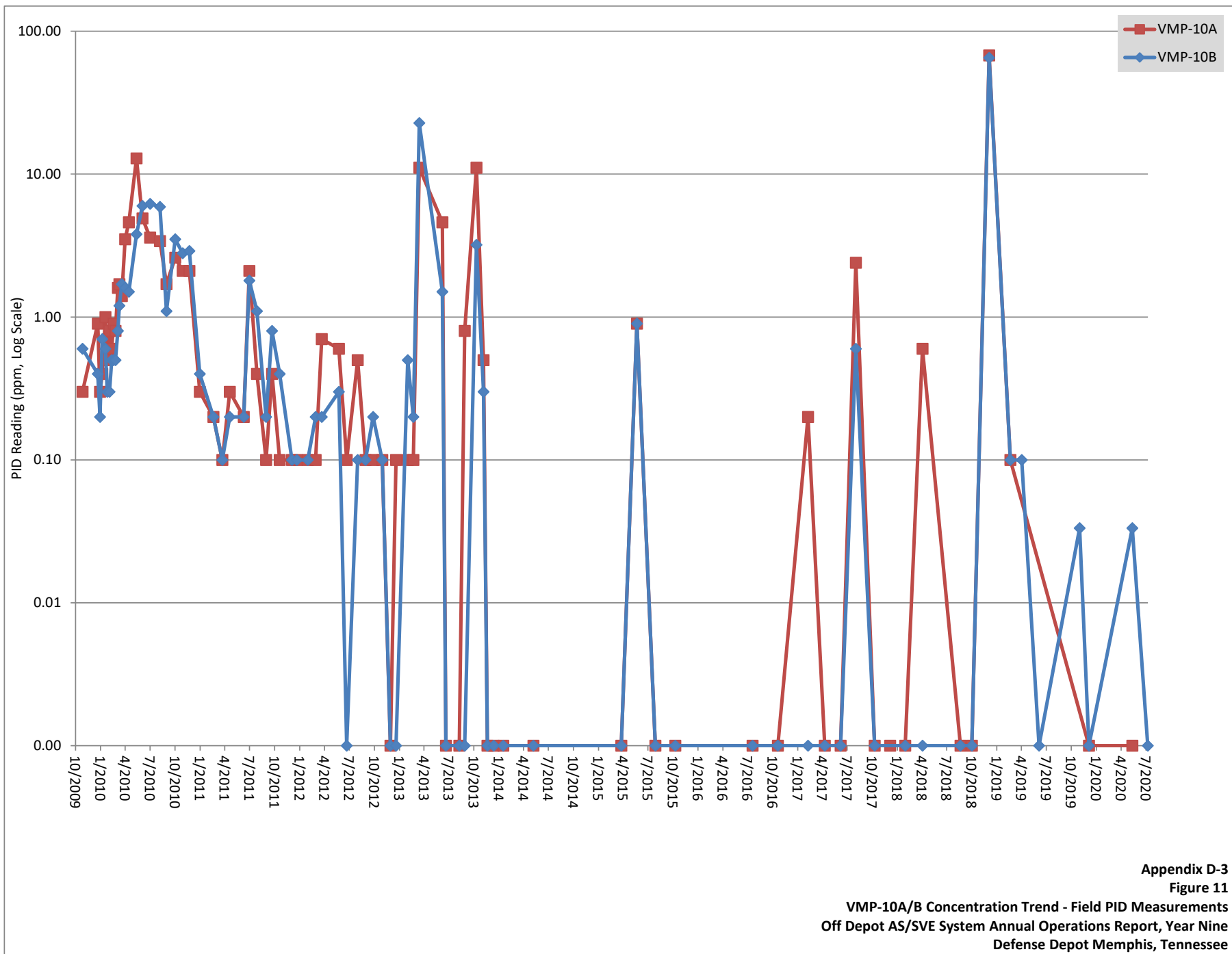
VMP-8A/B Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee



Appendix D-3

Figure 10

VMP-9A/B Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee



Appendix D-3

Figure 11

VMP-10A/B Concentration Trend - Field PID Measurements
Off Depot AS/SVE System Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee

Appendix E Results of Laboratory Analyses

Table E-1
Analytical Results - SVE Effluent
Off Depot AS/SVE Annual Operations Report, Year Nine
Defense Depot Memphis, Tennessee

CAS Number	Analyte	SampleID Lab ID Date Event Units	ODSVE-EFF-Y9Q1	ODSVE-EFF-Y9Q2	ODSVE-DUP1-Y9Q2	ODSVE-EFF-Y9Q3	ODSVE-EFF-Y9Q4
			P1906722-001	P1907461-001	P1907461-002	P2002631-001	P2003839-001
			10/31/2019	12/5/2019	12/5/2019	5/11/2020	7/7/2020
			October 2019	December 2019	December 2019	May 2020	July 2020
79-34-5	1,1,2,2-Tetrachloroethane	ppbv	0.41	0.33	0.32	0.19	0.17
79-00-5	1,1,2-Trichloroethane	ppbv	0.044J	0.043J	0.045J	0.024J	0.025J
75-35-4	1,1-Dichloroethene	ppbv	0.70	0.62	0.62	0.50	0.68
107-06-2	1,2-Dichloroethane	ppbv	0.050U	0.065U	0.082U	0.054U	0.052J
56-23-5	Carbon Tetrachloride	ppbv	0.50	0.41	0.41	0.48	0.48
67-66-3	Chloroform	ppbv	6.4	6.4	6.5	5.0	6.3
156-59-2	cis-1,2-Dichloroethene	ppbv	29	36	36	26	34
124-48-1	Dibromochloromethane	ppbv	0.024U	0.031U	0.039U	0.026U	0.027U
127-18-4	Tetrachloroethene	ppbv	2.8	2.4	2.4	2.5	2.6
156-60-5	trans-1,2-Dichloroethene	ppbv	0.42	0.46	0.45	0.27	0.43
79-01-6	Trichloroethene	ppbv	23	26	26	22	25
75-01-4	Vinyl Chloride	ppbv	0.13J	0.14J	0.14J	0.14J	0.37
71-55-6	1,1,1-Trichloroethane	ppbv	0.31	0.29	0.30	0.22	0.29
76-13-1	1,1,2-Trichlorotrifluoroethane	ppbv	3.1	2.8	2.9	3.7	5.4
75-34-3	1,1-Dichloroethane	ppbv	0.40	0.42	0.42	0.26	0.44
95-63-6	1,2,4-Trimethylbenzene	ppbv	0.041U	0.054U	0.068U	0.12J	0.046U
108-67-8	1,3,5-Trimethylbenzene	ppbv	0.041U	0.054U	0.068U	0.031J	0.046U
78-93-3	2-Butanone (MEK)	ppbv	0.49	0.42J	0.48J	0.55	0.51
591-78-6	2-Hexanone	ppbv	0.061J	0.058J	0.081U	0.054J	0.045J
67-63-0	2-Propanol (Isopropyl Alcohol)	ppbv	0.30U	0.17J	0.49U	2.8	0.29J
622-96-8	4-Ethyltoluene	ppbv	0.077U	0.10U	0.13U	0.083U	0.087U
108-10-1	4-Methyl-2-pentanone	ppbv	0.049U	0.064U	0.081U	0.071J	0.056U
67-64-1	Acetone	ppbv	3.4	2.9J	2.3J	11	4.6
75-05-8	Acetonitrile	ppbv	0.22U	0.29U	0.16J	0.53	1.2
107-02-8	Acrolein	ppbv	0.30J	0.37J	0.48J	0.73	0.34J
80-56-8	alpha-Pinene	ppbv	0.066U	0.086U	0.11U	0.024J	0.077U
71-43-2	Benzene	ppbv	0.063U	0.087J	0.085J	0.17J	0.076J
75-15-0	Carbon Disulfide	ppbv	1.1	2.0J	4.3J	4.8	4.2
98-82-8	Cumene	ppbv	0.041U	0.054U	0.068U	0.044U	0.046U
110-82-7	Cyclohexane	ppbv	0.11U	0.15U	0.19U	0.092J	0.14J
75-71-8	Dichlorodifluoromethane (CFC 12)	ppbv	4.3	4.0	4.1	2.0	1.2
75-09-2	Dichloromethane (Methylene Chloride)	ppbv	0.11U	0.14U	0.18U	0.078J	0.064J
5989-27-5	d-Limonene	ppbv	0.064U	0.083U	0.11U	0.046J	0.033J
64-17-5	Ethanol	ppbv	0.89J	0.67U	0.85U	35B	24
141-78-6	Ethyl Acetate	ppbv	0.21U	0.28U	0.35U	34	0.24U
100-41-4	Ethylbenzene	ppbv	0.021J	0.061U	0.077U	0.045J	0.052U
179601-23-1	m,p-Xylenes	ppbv	0.092U	0.065J	0.072J	0.16J	0.048J
91-20-3	Naphthalene	ppbv	0.070U	0.092U	0.074J	0.064J	0.079U
123-86-4	n-Butyl Acetate	ppbv	0.042U	0.049J	0.040J	0.089J	0.048U
142-82-5	n-Heptane	ppbv	0.092U	0.067J	0.051J	0.10J	0.10U
110-54-3	n-Hexane	ppbv	0.043J	0.12J	0.10J	0.15J	0.072J
111-84-2	n-Nonane	ppbv	0.072U	0.095U	0.12U	0.078U	0.082U
111-65-9	n-Octane	ppbv	0.081U	0.11U	0.13U	0.054J	0.092U
95-47-6	o-Xylene	ppbv	0.046U	0.061U	0.077U	0.069J	0.052U
115-07-1	Propene	ppbv	0.15J	0.35J	0.32J	1.7U	0.32J
100-42-5	Styrene	ppbv	0.089U	0.12U	0.15U	0.038J	0.10U
109-99-9	Tetrahydrofuran (THF)	ppbv	0.033J	0.089U	0.11U	0.040J	0.040J
108-88-3	Toluene	ppbv	0.090J	0.14J	0.16J	1.9	0.18J
75-69-4	Trichlorofluoromethane	ppbv	0.33	0.31	0.31	0.27	0.28
108-05-4	Vinyl Acetate	ppbv	0.60J	0.81J	1.9J	3.6	0.85J

DQE Flags:

U: Analyte not detected above Reporting Limit

J: Estimated

J+: Estimated with possible high bias

B: Analyte detected in both the sample and associated method blank

D: Reported result is from a dilution

Appendix F Laboratory Analytical Reports



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

LABORATORY REPORT

December 5, 2019

Todd Calhoun
Trinity Analysis & Development Corp.
1002 N. Eglin Pkwy.
Shalimar, FL 32579

RE: Defense Depot Memphis Tennessee / 10A023

Dear Todd:

Enclosed are the results of the sample submitted to our laboratory on November 5, 2019. For your reference, this analysis has been assigned our service request number P1906722.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Hayden Akers at 4:10 pm, Dec 05, 2019

For Kate Kaneko
Project Manager



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: Trinity Analysis & Development Corp.
Project: Defense Depot Memphis Tennessee / 10A023

Service Request No: P1906722

CASE NARRATIVE

The sample was received intact under chain of custody on November 5, 2019 and was stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample at the time of sample receipt.

Volatile Organic Compound Analysis

The sample was analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

Manual integrations were performed on the following sample(s) and analyte(s). Refer to the raw data for additional information.

Sample Identification(s)	Analyte(s)
P1906722-001	acetone

The container was cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1521096
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-006
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Trinity Analysis & Development Corp.
Project ID: Defense Depot Memphis Tennessee / 10A023

Service Request: P1906722

Date Received: 11/5/2019
Time Received: 09:15

TO-15 - VOC Cans

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)
ODSVE-EFF-Y9Q1	P1906722-001	Air	10/31/2019	11:20	SC02066	0.86	3.72

X



Air - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161

Page 1 of 1

Company Name & Address (Reporting Information)		Requested Turnaround Time in Business Days (Surcharges) please circle 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard				ALS Project No. P1906722	
Trinity ADC 1002 NE Glen View Chalima, FL 32579		Project Name Defense Depot Memphis Tennessee				ALS Contact:	
Project Manager TODD Calhoun		Project Number 104023				Analysis Method	
Phone 810-613-6800		P.O. # / Billing Information PO # 8516				Comments e.g. Actual Preservative or specific instructions	
Fax		Sampler (Print & Sign) Cody Miller Cym					
Email Address for Result Reporting TCalhoun@TrinityADC.com		Flow Controller ID (Bar code # - FC #)		Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	
Client Sample ID 0DSV-EFF-49Q1	Laboratory ID Number	Date Collected 10/31/19	Time Collected 1120	Canister ID (Bar code # - AC, SC, etc.) 5C02066	-30	-1	62 TO-15
5 of 106							
Report Tier Levels - please select							
Tier I - Results (Default if not specified)		Tier III (Results + QC & Calibration Summaries)		Tier IV (Data Validation Package) 10% Surcharge		Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT	
Relinquished by: (Signature) Cym		Date 10/31/19		Time 1200		Date 11/5/19	
Relinquished by: (Signature)		Date		Time		Date	
Cooler / Blank		Temperature		°C			

ALS Environmental
Sample Acceptance Check Form

Client: Trinity Analysis & Development Corp. Work order: P1906722
Project: Defense Depot Memphis Tennessee / 10A023
Sample(s) received on: 11/05/19 Date opened: 11/05/19 by: DENISE.POSADA

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

	<u>Yes</u>	<u>No</u>	<u>N/A</u>
1 Were sample containers properly marked with client sample ID?	☒	☐	☐
2 Did sample containers arrive in good condition?	☒	☐	☐
3 Were chain-of-custody papers used and filled out?	☒	☐	☐
4 Did sample container labels and/or tags agree with custody papers?	☒	☐	☐
5 Was sample volume received adequate for analysis?	☒	☐	☐
6 Are samples within specified holding times?	☒	☐	☐
7 Was proper temperature (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8 Were custody seals on outside of cooler/Box/Container?	☐	☐	☒
Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
Were signature and date included?	☐	☐	☒
Were seals intact?	☐	☐	☒
9 Do containers have appropriate preservation , according to method/SOP or Client specified information?	☐	☐	☒
Is there a client indication that the submitted samples are pH preserved?	☐	☐	☒
Were VOA vials checked for presence/absence of air bubbles?	☐	☐	☒
Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it?	☐	☐	☒
10 Tubes: Are the tubes capped and intact?	☐	☐	☒
11 Badges: Are the badges properly capped and intact?	☐	☐	☒
Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1906722-001.01	6.0 L Source Can					
P1906722-002.01	6.0 L Source Can					

Explain any discrepancies: (include lab sample ID numbers): _____

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: ODSVE-EFF-Y9Q1
Client Project ID: Defense Depot Memphis Tennessee / 10A023

ALS Project ID: P1906722
 ALS Sample ID: P1906722-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: SC02066

Date Collected: 10/31/19
Date Received: 11/5/19
Date Analyzed: 11/26/19
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 0.86 **Final Pressure (psig):** 3.72

Container Dilution Factor: 1.18

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.15	0.36	0.21	0.089	J
75-71-8	Dichlorodifluoromethane (CFC 12)	4.3	0.13	0.074	0.021	
74-87-3	Chloromethane	0.17	0.30	0.17	0.049	U
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.015	0.090	0.052	0.014	J
75-01-4	Vinyl Chloride	0.13	0.25	0.079	0.026	J
106-99-0	1,3-Butadiene	0.17	0.28	0.17	0.047	U
74-83-9	Bromomethane	0.049	0.16	0.049	0.022	U
75-00-3	Chloroethane	0.14	0.24	0.14	0.030	U
64-17-5	Ethanol	0.89	3.3	0.51	0.23	J
75-05-8	Acetonitrile	0.22	0.37	0.22	0.091	U
107-02-8	Acrolein	0.30	0.51	0.16	0.077	J
67-64-1	Acetone	3.4	2.6	1.3	0.60	
75-69-4	Trichlorofluoromethane	0.33	0.11	0.067	0.017	
67-63-0	2-Propanol (Isopropyl Alcohol)	0.30	1.0	0.30	0.11	U
107-13-1	Acrylonitrile	0.17	0.29	0.17	0.060	U
75-35-4	1,1-Dichloroethene	0.70	0.16	0.051	0.022	
75-09-2	Methylene Chloride	0.11	0.18	0.11	0.051	U
107-05-1	3-Chloro-1-propene (Allyl Chloride)	0.064	0.20	0.064	0.027	U
76-13-1	Trichlorotrifluoroethane	3.1	0.083	0.026	0.012	
75-15-0	Carbon Disulfide	1.1	0.42	0.20	0.061	
156-60-5	trans-1,2-Dichloroethene	0.42	0.16	0.051	0.022	
75-34-3	1,1-Dichloroethane	0.40	0.16	0.090	0.023	
1634-04-4	Methyl tert-Butyl Ether	0.056	0.18	0.056	0.021	U
108-05-4	Vinyl Acetate	0.60	1.8	0.87	0.40	J
78-93-3	2-Butanone (MEK)	0.49	0.44	0.12	0.044	

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.
 LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
 J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: ODSVE-EFF-Y9Q1
Client Project ID: Defense Depot Memphis Tennessee / 10A023

ALS Project ID: P1906722
 ALS Sample ID: P1906722-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: SC02066

Date Collected: 10/31/19
Date Received: 11/5/19
Date Analyzed: 11/26/19
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 0.86 Final Pressure (psig): 3.72

Container Dilution Factor: 1.18

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	29	0.16	0.051	0.022	
141-78-6	Ethyl Acetate	0.21	0.36	0.21	0.092	U
110-54-3	n-Hexane	0.043	0.18	0.11	0.037	J
67-66-3	Chloroform	6.4	0.13	0.041	0.017	
109-99-9	Tetrahydrofuran (THF)	0.033	0.22	0.068	0.027	J
107-06-2	1,2-Dichloroethane	0.050	0.16	0.050	0.017	U
71-55-6	1,1,1-Trichloroethane	0.31	0.12	0.037	0.014	
71-43-2	Benzene	0.052	0.20	0.063	0.028	J
56-23-5	Carbon Tetrachloride	0.50	0.099	0.032	0.014	
110-82-7	Cyclohexane	0.11	0.38	0.11	0.051	U
78-87-5	1,2-Dichloropropane	0.043	0.14	0.043	0.017	U
75-27-4	Bromodichloromethane	0.017	0.095	0.030	0.014	J
79-01-6	Trichloroethene	23	0.12	0.037	0.016	
123-91-1	1,4-Dioxane	0.056	0.18	0.056	0.021	U
80-62-6	Methyl Methacrylate	0.18	0.32	0.18	0.055	U
142-82-5	n-Heptane	0.092	0.16	0.092	0.024	U
10061-01-5	cis-1,3-Dichloropropene	0.047	0.14	0.047	0.022	U
108-10-1	4-Methyl-2-pentanone	0.049	0.15	0.049	0.021	U
10061-02-6	trans-1,3-Dichloropropene	0.083	0.14	0.083	0.029	U
79-00-5	1,1,2-Trichloroethane	0.044	0.12	0.037	0.012	J
108-88-3	Toluene	0.090	0.17	0.053	0.020	J
591-78-6	2-Hexanone	0.061	0.16	0.049	0.019	J
124-48-1	Dibromochloromethane	0.024	0.075	0.024	0.0097	U
106-93-4	1,2-Dibromoethane	0.026	0.083	0.026	0.0095	U
123-86-4	n-Butyl Acetate	0.042	0.14	0.042	0.018	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

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ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: ODSVE-EFF-Y9Q1
Client Project ID: Defense Depot Memphis Tennessee / 10A023

ALS Project ID: P1906722
 ALS Sample ID: P1906722-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: SC02066

Date Collected: 10/31/19
Date Received: 11/5/19
Date Analyzed: 11/26/19
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 0.86 Final Pressure (psig): 3.72

Container Dilution Factor: 1.18

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	0.081	0.14	0.081	0.030	U
127-18-4	Tetrachloroethene	2.8	0.091	0.030	0.012	
108-90-7	Chlorobenzene	0.044	0.14	0.044	0.018	U
100-41-4	Ethylbenzene	0.021	0.15	0.046	0.020	J
179601-23-1	m,p-Xylenes	0.092	0.30	0.092	0.038	U
75-25-2	Bromoform	0.037	0.062	0.037	0.013	U
100-42-5	Styrene	0.089	0.15	0.089	0.024	U
95-47-6	o-Xylene	0.046	0.15	0.046	0.021	U
111-84-2	n-Nonane	0.072	0.12	0.072	0.020	U
79-34-5	1,1,2,2-Tetrachloroethane	0.41	0.093	0.029	0.013	
98-82-8	Cumene	0.041	0.13	0.041	0.018	U
80-56-8	alpha-Pinene	0.066	0.11	0.066	0.017	U
103-65-1	n-Propylbenzene	0.041	0.13	0.041	0.018	U
622-96-8	4-Ethyltoluene	0.077	0.13	0.077	0.020	U
108-67-8	1,3,5-Trimethylbenzene	0.041	0.13	0.041	0.018	U
95-63-6	1,2,4-Trimethylbenzene	0.041	0.13	0.041	0.018	U
100-44-7	Benzyl Chloride	0.073	0.25	0.073	0.027	U
541-73-1	1,3-Dichlorobenzene	0.033	0.11	0.033	0.016	U
106-46-7	1,4-Dichlorobenzene	0.063	0.11	0.063	0.016	U
95-50-1	1,2-Dichlorobenzene	0.033	0.11	0.033	0.016	U
5989-27-5	d-Limonene	0.064	0.11	0.064	0.023	U
96-12-8	1,2-Dibromo-3-chloropropane	0.038	0.065	0.038	0.012	U
120-82-1	1,2,4-Trichlorobenzene	0.051	0.086	0.051	0.021	U
91-20-3	Naphthalene	0.070	0.12	0.070	0.029	U
87-68-3	Hexachlorobutadiene	0.035	0.059	0.035	0.012	U

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ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: Method Blank
Client Project ID: Defense Depot Memphis Tennessee / 10A023

ALS Project ID: P1906722
 ALS Sample ID: P191126-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sampling Media: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/26/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.18	0.31	0.18	0.076	U
75-71-8	Dichlorodifluoromethane (CFC 12)	0.063	0.11	0.063	0.018	U
74-87-3	Chloromethane	0.15	0.26	0.15	0.042	U
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.044	0.076	0.044	0.012	U
75-01-4	Vinyl Chloride	0.067	0.21	0.067	0.022	U
106-99-0	1,3-Butadiene	0.14	0.24	0.14	0.040	U
74-83-9	Bromomethane	0.041	0.14	0.041	0.019	U
75-00-3	Chloroethane	0.12	0.20	0.12	0.025	U
64-17-5	Ethanol	0.44	2.8	0.44	0.20	U
75-05-8	Acetonitrile	0.18	0.32	0.18	0.077	U
107-02-8	Acrolein	0.14	0.44	0.14	0.065	U
67-64-1	Acetone	1.1	2.2	1.1	0.51	U
75-69-4	Trichlorofluoromethane	0.057	0.094	0.057	0.014	U
67-63-0	2-Propanol (Isopropyl Alcohol)	0.25	0.85	0.25	0.090	U
107-13-1	Acrylonitrile	0.14	0.24	0.14	0.051	U
75-35-4	1,1-Dichloroethene	0.043	0.14	0.043	0.019	U
75-09-2	Methylene Chloride	0.092	0.15	0.092	0.043	U
107-05-1	3-Chloro-1-propene (Allyl Chloride)	0.054	0.17	0.054	0.023	U
76-13-1	Trichlorotrifluoroethane	0.022	0.070	0.022	0.0099	U
75-15-0	Carbon Disulfide	0.17	0.35	0.17	0.051	U
156-60-5	trans-1,2-Dichloroethene	0.043	0.14	0.043	0.019	U
75-34-3	1,1-Dichloroethane	0.077	0.14	0.077	0.019	U
1634-04-4	Methyl tert-Butyl Ether	0.047	0.15	0.047	0.017	U
108-05-4	Vinyl Acetate	0.74	1.5	0.74	0.34	U
78-93-3	2-Butanone (MEK)	0.11	0.37	0.11	0.037	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.
 LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: Method Blank
Client Project ID: Defense Depot Memphis Tennessee / 10A023

ALS Project ID: P1906722
 ALS Sample ID: P191126-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sampling Media: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/26/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	0.043	0.13	0.043	0.019	U
141-78-6	Ethyl Acetate	0.18	0.31	0.18	0.078	U
110-54-3	n-Hexane	0.091	0.15	0.091	0.031	U
67-66-3	Chloroform	0.035	0.11	0.035	0.015	U
109-99-9	Tetrahydrofuran (THF)	0.058	0.19	0.058	0.023	U
107-06-2	1,2-Dichloroethane	0.042	0.13	0.042	0.015	U
71-55-6	1,1,1-Trichloroethane	0.031	0.099	0.031	0.012	U
71-43-2	Benzene	0.031	0.17	0.053	0.024	J
56-23-5	Carbon Tetrachloride	0.027	0.084	0.027	0.012	U
110-82-7	Cyclohexane	0.096	0.32	0.096	0.044	U
78-87-5	1,2-Dichloropropane	0.037	0.12	0.037	0.014	U
75-27-4	Bromodichloromethane	0.025	0.081	0.025	0.011	U
79-01-6	Trichloroethene	0.032	0.10	0.032	0.013	U
123-91-1	1,4-Dioxane	0.047	0.15	0.047	0.017	U
80-62-6	Methyl Methacrylate	0.16	0.27	0.16	0.046	U
142-82-5	n-Heptane	0.078	0.13	0.078	0.021	U
10061-01-5	cis-1,3-Dichloropropene	0.040	0.11	0.040	0.018	U
108-10-1	4-Methyl-2-pentanone	0.041	0.13	0.041	0.018	U
10061-02-6	trans-1,3-Dichloropropene	0.071	0.12	0.071	0.024	U
79-00-5	1,1,2-Trichloroethane	0.031	0.099	0.031	0.0099	U
108-88-3	Toluene	0.045	0.14	0.045	0.017	U
591-78-6	2-Hexanone	0.042	0.13	0.042	0.016	U
124-48-1	Dibromochloromethane	0.020	0.063	0.020	0.0082	U
106-93-4	1,2-Dibromoethane	0.022	0.070	0.022	0.0081	U
123-86-4	n-Butyl Acetate	0.036	0.12	0.036	0.015	U

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 LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: Method Blank
Client Project ID: Defense Depot Memphis Tennessee / 10A023

ALS Project ID: P1906722
 ALS Sample ID: P191126-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sampling Media: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/26/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	0.069	0.12	0.069	0.026	U
127-18-4	Tetrachloroethene	0.025	0.077	0.025	0.010	U
108-90-7	Chlorobenzene	0.037	0.12	0.037	0.015	U
100-41-4	Ethylbenzene	0.039	0.12	0.039	0.017	U
179601-23-1	m,p-Xylenes	0.078	0.25	0.078	0.032	U
75-25-2	Bromoform	0.031	0.052	0.031	0.011	U
100-42-5	Styrene	0.075	0.12	0.075	0.020	U
95-47-6	o-Xylene	0.039	0.12	0.039	0.018	U
111-84-2	n-Nonane	0.061	0.10	0.061	0.017	U
79-34-5	1,1,2,2-Tetrachloroethane	0.025	0.079	0.025	0.011	U
98-82-8	Cumene	0.035	0.11	0.035	0.016	U
80-56-8	alpha-Pinene	0.056	0.097	0.056	0.015	U
103-65-1	n-Propylbenzene	0.035	0.11	0.035	0.016	U
622-96-8	4-Ethyltoluene	0.065	0.11	0.065	0.017	U
108-67-8	1,3,5-Trimethylbenzene	0.035	0.11	0.035	0.016	U
95-63-6	1,2,4-Trimethylbenzene	0.035	0.11	0.035	0.015	U
100-44-7	Benzyl Chloride	0.062	0.21	0.062	0.023	U
541-73-1	1,3-Dichlorobenzene	0.028	0.090	0.028	0.013	U
106-46-7	1,4-Dichlorobenzene	0.053	0.090	0.053	0.014	U
95-50-1	1,2-Dichlorobenzene	0.028	0.090	0.028	0.013	U
5989-27-5	d-Limonene	0.054	0.097	0.054	0.020	U
96-12-8	1,2-Dibromo-3-chloropropane	0.032	0.055	0.032	0.010	U
120-82-1	1,2,4-Trichlorobenzene	0.043	0.073	0.043	0.018	U
91-20-3	Naphthalene	0.059	0.099	0.059	0.025	U
87-68-3	Hexachlorobutadiene	0.030	0.050	0.030	0.010	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.
 LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

Client: Trinity Analysis & Development Corp.
Client Project ID: Defense Depot Memphis Tennessee / 10A023

ALS Project ID: P1906722

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sampling Media: 6.0 L Summa Canister(s)
Test Notes:

Date(s) Collected: 10/31/19

Date(s) Received: 11/5/19

Date(s) Analyzed: 11/26/19

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4	Toluene-d8	Bromofluorobenzene	Acceptance Limits	Data Qualifier
		Percent Recovered	Percent Recovered	Percent Recovered		
Method Blank	P191126-MB	102	98	97	70-130	
Lab Control Sample	P191126-LCS	102	99	96	70-130	
ODSVE-EFF-Y9Q1	P1906722-001	103	99	99	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: Lab Control Sample
Client Project ID: Defense Depot Memphis Tennessee / 10A023

ALS Project ID: P1906722
 ALS Sample ID: P191126-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sampling Media: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/26/19
Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	DOD Acceptance Limits	Data Qualifier
115-07-1	Propene	122	106	87	57-136	
75-71-8	Dichlorodifluoromethane (CFC 12)	42.5	37.4	88	59-128	
74-87-3	Chloromethane	103	75.3	73	59-132	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	29.5	24.5	83	63-121	
75-01-4	Vinyl Chloride	83.0	73.0	88	64-127	
106-99-0	1,3-Butadiene	95.9	101	105	66-134	
74-83-9	Bromomethane	54.6	49.0	90	63-134	
75-00-3	Chloroethane	81.1	73.1	90	63-127	
64-17-5	Ethanol	563	496	88	59-125	
75-05-8	Acetonitrile	128	120	94	63-132	
107-02-8	Acrolein	89.9	87.7	98	62-126	
67-64-1	Acetone	450	384	85	58-128	
75-69-4	Trichlorofluoromethane	37.7	33.7	89	62-126	
67-63-0	2-Propanol (Isopropyl Alcohol)	172	170	99	52-125	
107-13-1	Acrylonitrile	97.7	93.6	96	71-137	
75-35-4	1,1-Dichloroethene	54.0	50.1	93	61-133	
75-09-2	Methylene Chloride	60.5	53.9	89	62-115	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	68.4	62.7	92	71-131	
76-13-1	Trichlorotrifluoroethane	28.2	25.0	89	66-126	
75-15-0	Carbon Disulfide	68.1	64.4	95	57-134	
156-60-5	trans-1,2-Dichloroethene	54.0	51.8	96	67-124	
75-34-3	1,1-Dichloroethane	52.4	47.0	90	68-126	
1634-04-4	Methyl tert-Butyl Ether	59.4	70.9	119	66-126	
108-05-4	Vinyl Acetate	303	369	122	56-139	
78-93-3	2-Butanone (MEK)	71.9	67.7	94	67-130	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: Lab Control Sample
Client Project ID: Defense Depot Memphis Tennessee / 10A023

ALS Project ID: P1906722
 ALS Sample ID: P191126-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sampling Media: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/26/19
Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	DOD Acceptance Limits	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	53.5	49.5	93	70-121	
141-78-6	Ethyl Acetate	120	114	95	65-128	
110-54-3	n-Hexane	61.3	53.9	88	63-120	
67-66-3	Chloroform	43.8	38.4	88	68-123	
109-99-9	Tetrahydrofuran (THF)	74.6	69.7	93	64-123	
107-06-2	1,2-Dichloroethane	52.9	48.9	92	65-128	
71-55-6	1,1,1-Trichloroethane	39.2	36.8	94	68-125	
71-43-2	Benzene	65.8	55.8	85	69-119	
56-23-5	Carbon Tetrachloride	33.1	32.8	99	68-132	
110-82-7	Cyclohexane	123	111	90	70-117	
78-87-5	1,2-Dichloropropane	46.3	43.0	93	69-123	
75-27-4	Bromodichloromethane	32.6	30.7	94	72-128	
79-01-6	Trichloroethene	40.2	35.3	88	71-123	
123-91-1	1,4-Dioxane	60.0	58.9	98	71-122	
80-62-6	Methyl Methacrylate	105	103	98	70-128	
142-82-5	n-Heptane	52.2	48.9	94	69-123	
10061-01-5	cis-1,3-Dichloropropene	47.2	50.1	106	70-128	
108-10-1	4-Methyl-2-pentanone	51.8	51.1	99	67-130	
10061-02-6	trans-1,3-Dichloropropene	46.7	50.3	108	75-133	
79-00-5	1,1,2-Trichloroethane	39.2	36.6	93	73-119	
108-88-3	Toluene	56.3	53.8	96	66-119	
591-78-6	2-Hexanone	52.7	53.4	101	62-128	
124-48-1	Dibromochloromethane	25.1	24.7	98	70-130	
106-93-4	1,2-Dibromoethane	27.9	26.7	96	74-122	
123-86-4	n-Butyl Acetate	45.9	46.9	102	64-128	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: Lab Control Sample
Client Project ID: Defense Depot Memphis Tennessee / 10A023

ALS Project ID: P1906722
ALS Sample ID: P191126-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sampling Media: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 11/26/19
Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount ppbV	Result ppbV	% Recovery	DOD Acceptance Limits	Data Qualifier
111-65-9	n-Octane	46.3	42.0	91	69-121	
127-18-4	Tetrachloroethene	30.7	27.1	88	66-124	
108-90-7	Chlorobenzene	46.5	40.6	87	70-119	
100-41-4	Ethylbenzene	48.8	44.7	92	70-124	
179601-23-1	m,p-Xylenes	98.1	85.3	87	61-134	
75-25-2	Bromoform	20.7	20.7	100	66-139	
100-42-5	Styrene	49.8	47.8	96	73-127	
95-47-6	o-Xylene	49.3	42.7	87	67-125	
111-84-2	n-Nonane	40.8	36.1	88	63-128	
79-34-5	1,1,2,2-Tetrachloroethane	31.2	27.9	89	65-127	
98-82-8	Cumene	43.5	39.4	91	68-124	
80-56-8	alpha-Pinene	38.1	36.6	96	65-120	
103-65-1	n-Propylbenzene	43.6	38.1	87	69-123	
622-96-8	4-Ethyltoluene	42.7	37.0	87	67-129	
108-67-8	1,3,5-Trimethylbenzene	43.1	36.0	84	67-130	
95-63-6	1,2,4-Trimethylbenzene	43.1	35.6	83	66-132	
100-44-7	Benzyl Chloride	41.3	48.7	118	50-147	
541-73-1	1,3-Dichlorobenzene	35.6	28.7	81	65-130	
106-46-7	1,4-Dichlorobenzene	35.6	29.3	82	60-131	
95-50-1	1,2-Dichlorobenzene	35.6	29.6	83	63-129	
5989-27-5	d-Limonene	38.1	31.9	84	66-124	
96-12-8	1,2-Dibromo-3-chloropropane	22.1	22.1	100	67-138	
120-82-1	1,2,4-Trichlorobenzene	29.1	28.2	97	55-142	
91-20-3	Naphthalene	40.5	39.1	97	57-138	
87-68-3	Hexachlorobutadiene	20.1	17.6	88	56-138	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Trinity Analysis & Development Corp.
Client Project ID: Defense Depot Memphis Tennessee / 10A023

ALS Project ID: P1906722

Internal Standard Area and RT Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sampling Media: 6.0 L Summa Canister(s)
Test Notes:

Lab File ID: 11261901.D
Date Analyzed: 11/26/19
Time Analyzed: 00:51

	IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
	AREA	#	RT	#	AREA	#
24 Hour Standard	266090	11.17	1112883	13.30	551254	17.61
Upper Limit	372526	11.50	1558036	13.63	771756	17.94
Lower Limit	159654	10.84	667730	12.97	330752	17.28
Client Sample ID						
01	Method Blank	259036	11.16	1094351	13.29	530060
02	Lab Control Sample	260065	11.17	1096698	13.30	546753
03	ODSVE-EFF-Y9Q1	256847	11.16	1113099	13.29	520747
04						
05						
06						
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

IS1 (BCM) = Bromochloromethane

IS2 (DFB) = 1,4-Difluorobenzene

IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area

AREA LOWER LIMIT = 60% of internal standard area

RT UPPER LIMIT = 0.33 minutes of internal standard RT

RT LOWER LIMIT = 0.33 minutes of internal standard RT

Column used to flag values outside QC limits with an I.

I = Internal standard not within the specified limits.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Trinity Analysis & Development Corp.
Client Project ID: Defense Depot Memphis Tennessee / 10A023

ALS Project ID: P1906722

Method Blank Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sampling Media: 6.0 L Summa Canister(s)
Test Notes:

Lab File ID: 11261904.D
Date Analyzed: 11/26/19
Time Analyzed: 02:31

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P191126-LCS	11261905.D	03:04
ODSVE-EFF-Y9Q1	P1906722-001	11261914.D	10:56

Data File: I:\MS16\DATA\2019_11\26\11261914.D

Acq On : 26 Nov 2019 10:56

Operator: LH

Sample : P1906722-001 (1000mL)

Misc : S31-10161904

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 27 08:28:34 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 11/27/19

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	256847	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.29	114	1113099	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.61	82	520747	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.02	65	426501	12.975	ng	-0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	103.84%	
57) Toluene-d8 (SS2)	15.74	98	1125966	12.356	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.88%	
73) Bromofluorobenzene (SS3)	19.00	174	402548	12.366	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.96%	

Target Compounds

						Qvalue
2) Propene	4.12	42	9641	0.222	ng	97
3) Dichlorodifluoromethan...	4.27	85	970632	18.202	ng	100
4) Chloromethane	4.56	50	1437	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	4.83	135	2380	0.090	ng	98
6) Vinyl Chloride	4.98	62	12049	0.286	ng	98
7) 1,3-Butadiene	5.25	54	179	N.D.		
8) Bromomethane	5.68	94	388	N.D.		
9) Chloroethane	6.01	64	339	N.D.		
10) Ethanol	6.34	45	35373	1.427	ng	100
11) Acetonitrile	6.63	41	6426	0.104	ng	78
12) Acrolein	6.83	56	11462	0.583	ng	100
13) Acetone	7.03	58	156401m	6.778	ng	
14) Trichlorofluoromethane	7.26	101	71201	1.562	ng	99
15) 2-Propanol (Isopropanol)	7.53	45	13952	0.212	ng	56
16) Acrylonitrile	7.85	53	232	N.D.		
17) 1,1-Dichloroethene	8.22	96	61324	2.362	ng	96
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.44	84	2998	0.105	ng	94
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d	
21) Trichlorotrifluoroethane	8.86	151	466446	19.938	ng	98
22) Carbon Disulfide	8.71	76	304908	3.015	ng	99
23) trans-1,2-Dichloroethene	9.71	61	56629	1.400	ng	96
24) 1,1-Dichloroethane	9.97	63	71171	1.371	ng	99
25) Methyl tert-Butyl Ether	10.11	73	1766	N.D.		
26) Vinyl Acetate	10.20	86	7641	1.782	ng	# 37
27) 2-Butanone (MEK)	10.49	72	22512	1.225	ng	97
28) cis-1,2-Dichloroethene	10.98	61	3904532	97.274	ng	100
29) Diisopropyl Ether	0.00	87	0	N.D.	d	
30) Ethyl Acetate	11.37	61	320	N.D.		
31) n-Hexane	11.28	57	5956	0.128	ng	# 1
32) Chloroform	11.33	83	1203138	26.598	ng	99
34) Tetrahydrofuran (THF)	11.78	72	1567	0.082	ng	# 30
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.14	62	1861	0.053	ng	90
38) 1,1,1-Trichloroethane	12.42	97	57864	1.437	ng	99
39) Isopropyl Acetate	0.00	61	0	N.D.	d	
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	12.90	78	16028	0.142	ng	100
42) Carbon Tetrachloride	13.06	117	86712	2.647	ng	99
43) Cyclohexane	13.19	84	2794	0.067	ng	89
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	13.75	63	992	N.D.		
46) Bromodichloromethane	13.93	83	3402	0.094	ng	99
47) Trichloroethene	13.99	130	2896722	105.295	ng	100
48) 1,4-Dioxane	0.00	88	0	N.D.	d	
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

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Data File: I:\MS16\DATA\2019_11\26\11261914.D

Acq On : 26 Nov 2019 10:56

Operator: LH

Sample : P1906722-001 (1000mL)

Misc : S31-10161904

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 27 08:28:34 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.14	100	118	N.D.		
51) n-Heptane	14.34	71	2201	0.078	ng	96
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	14.90	58	1826	0.069	ng	# 8
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	15.55	97	5369	0.202	ng	98
58) Toluene	15.84	91	27599	0.287	ng	100
59) 2-Hexanone	16.10	43	13346	0.211	ng	94
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.73	43	2629	N.D.		
63) n-Octane	16.85	57	1528	0.062	ng	87
64) Tetrachloroethene	16.99	166	463307	16.130	ng	100
65) Chlorobenzene	17.65	112	804	N.D.		
66) Ethylbenzene	18.01	91	9196	0.079	ng	97
67) m- & p-Xylenes	18.16	91	9243	0.106	ng	97
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.50	104	1088	N.D.		
70) o-Xylene	18.60	91	3042	N.D.		
71) n-Nonane	18.80	43	3676	0.062	ng	88
72) 1,1,2,2-Tetrachloroethane	18.58	83	106343	2.404	ng	100
74) Cumene	19.13	105	3231	N.D.		
75) alpha-Pinene	19.48	93	354	N.D.		
76) n-Propylbenzene	19.58	91	7091	0.052	ng	# 60
77) 3-Ethyltoluene	19.67	105	1869	N.D.		
78) 4-Ethyltoluene	19.71	105	2678	N.D.		
79) 1,3,5-Trimethylbenzene	19.77	105	1841	N.D.		
80) alpha-Methylstyrene	19.91	118	1874	N.D.		
81) 2-Ethyltoluene	19.94	105	4074	N.D.		
82) 1,2,4-Trimethylbenzene	20.14	105	5672	0.065	ng	88
83) n-Decane	20.23	57	2710	N.D.		
84) Benzyl Chloride	20.25	91	241	N.D.		
85) 1,3-Dichlorobenzene	20.28	146	397	N.D.		
86) 1,4-Dichlorobenzene	20.33	146	871	N.D.		
87) sec-Butylbenzene	20.37	105	771	N.D.		
88) 4-Isopropyltoluene (p-...	20.51	119	2168	N.D.		
89) 1,2,3-Trimethylbenzene	20.51	105	4344	N.D.		
90) 1,2-Dichlorobenzene	20.63	146	363	N.D.		
91) d-Limonene	20.64	68	1053	N.D.		
92) 1,2-Dibromo-3-Chloropr...	20.94	157	477	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.24	128	3636	N.D.		
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	22.57	225	604	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	20.87	91	2725	N.D.		

(#)=qualifier out of range (m)=manual integration (+)=signals summed

Data File: I:\MS16\DATA\2019_11\26\11261914.D

Acq On : 26 Nov 2019 10:56

Operator: LH

Sample : P1906722-001 (1000mL)

Misc : S31-10161904

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 27 08:28:34 2019

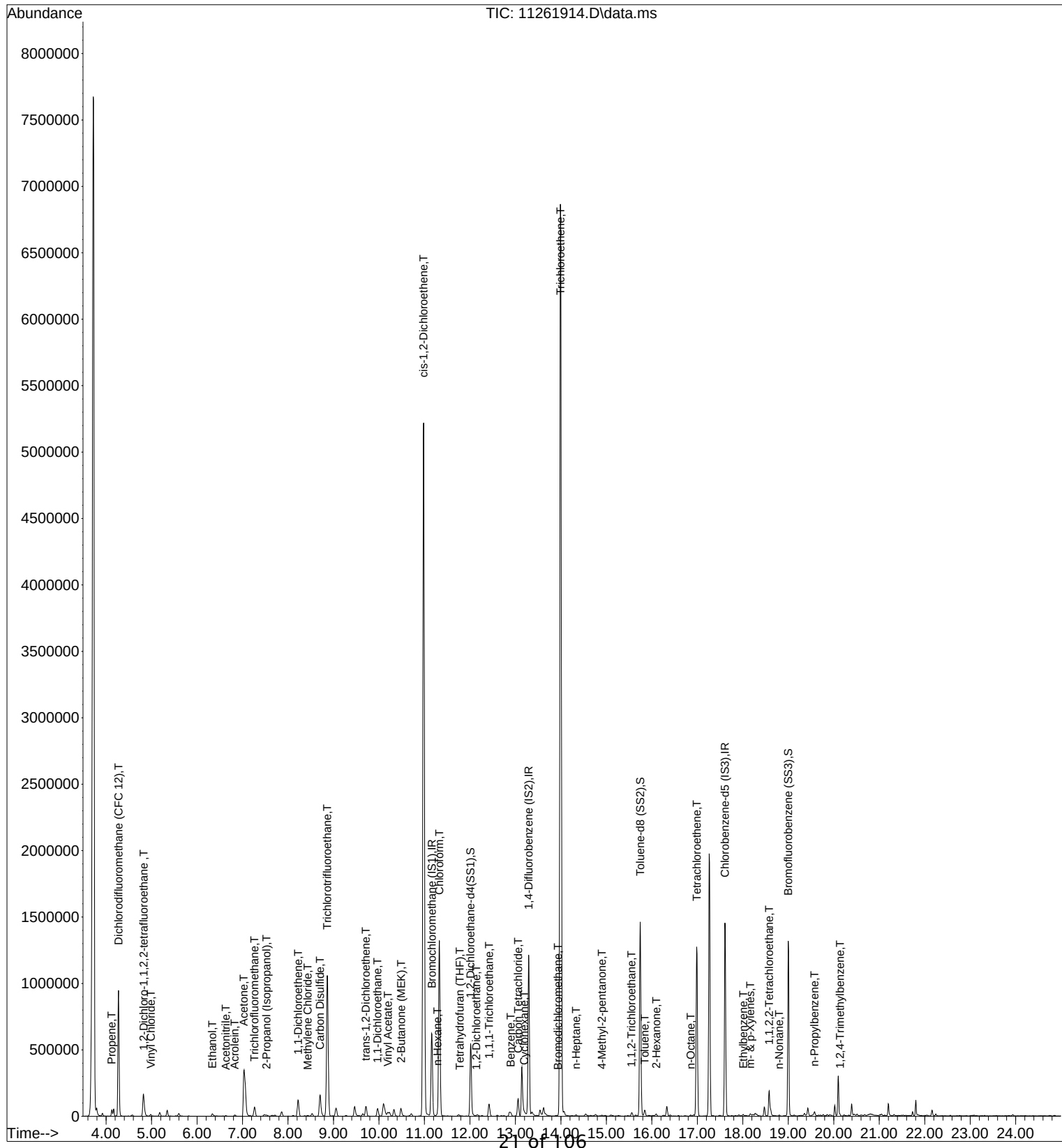
Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_11\26\11261914.D

Acq On : 26 Nov 2019 10:56
 Sample : P1906722-001 (1000mL)
 Misc : S31-10161904
 ALS Vial : 5 Sample Multiplier: 1

Operator: LH

Quant Time: Nov 27 08:28:34 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

LH 11/27/19

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	256847	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.29	114	1113099	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.61	82	520747	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.02	65	426501	12.975	ng	-0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	103.84%	
57) Toluene-d8 (SS2)	15.74	98	1125966	12.356	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.88%	
73) Bromofluorobenzene (SS3)	19.00	174	402548	12.366	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.96%	

Target Compounds

						Qvalue
2) Propene	4.12	42	9641	0.222	ng	97
3) Dichlorodifluoromethan...	4.27	85	970632	18.202	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.83	135	2380	0.090	ng	98
6) Vinyl Chloride	4.98	62	12049	0.286	ng	98
10) Ethanol	6.34	45	35373	1.427	ng	100
11) Acetonitrile	6.63	41	6426	0.104	ng	78
12) Acrolein	6.83	56	11462	0.583	ng	100
13) Acetone	7.03	58	156401m	6.778	ng	
14) Trichlorofluoromethane	7.26	101	71201	1.562	ng	99
15) 2-Propanol (Isopropanol)	7.53	45	13952	0.212	ng	56
17) 1,1-Dichloroethene	8.22	96	61324	2.362	ng	96
19) Methylene Chloride	8.44	84	2998	0.105	ng	94
21) Trichlorotrifluoroethane	8.86	151	466446	19.938	ng	98
22) Carbon Disulfide	8.71	76	304908	3.015	ng	99
23) trans-1,2-Dichloroethene	9.71	61	56629	1.400	ng	96
24) 1,1-Dichloroethane	9.97	63	71171	1.371	ng	99
26) Vinyl Acetate	10.20	86	7641	1.782	ng	# 37
27) 2-Butanone (MEK)	10.49	72	22512	1.225	ng	97
28) cis-1,2-Dichloroethene	10.98	61	3904532	97.274	ng	100
31) n-Hexane	11.28	57	5956	0.128	ng	# 1
32) Chloroform	11.33	83	1203138	26.598	ng	99
34) Tetrahydrofuran (THF)	11.78	72	1567	0.082	ng	# 30
36) 1,2-Dichloroethane	12.14	62	1861	0.053	ng	90
38) 1,1,1-Trichloroethane	12.42	97	57864	1.437	ng	99
41) Benzene	12.90	78	16028	0.142	ng	100
42) Carbon Tetrachloride	13.06	117	86712	2.647	ng	99
43) Cyclohexane	13.19	84	2794	0.067	ng	89
46) Bromodichloromethane	13.93	83	3402	0.094	ng	99
47) Trichloroethene	13.99	130	2896722	105.295	ng	100
51) n-Heptane	14.34	71	2201	0.078	ng	96
53) 4-Methyl-2-pentanone	14.90	58	1826	0.069	ng	# 8
55) 1,1,2-Trichloroethane	15.55	97	5369	0.202	ng	98
58) Toluene	15.84	91	27599	0.287	ng	100
59) 2-Hexanone	16.10	43	13346	0.211	ng	94
63) n-Octane	16.85	57	1528	0.062	ng	87
64) Tetrachloroethene	16.99	166	463307	16.130	ng	100
66) Ethylbenzene	18.01	91	9196	0.079	ng	97
67) m- & p-Xylenes	18.16	91	9243	0.106	ng	97
71) n-Nonane	18.80	43	3676	0.062	ng	88
72) 1,1,2,2-Tetrachloroethane	18.58	83	106343	2.404	ng	100
76) n-Propylbenzene	19.58	91	7091	0.052	ng	# 60
82) 1,2,4-Trimethylbenzene	20.14	105	5672	0.065	ng	88

(#)=qualifier out of range (m)=manual integration (+)=signals summed

Data File: I:\MS16\DATA\2019_11\26\11261914.D

Acq On : 26 Nov 2019 10:56

Operator: LH

Sample : P1906722-001 (1000mL)

Misc : S31-10161904

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 27 08:28:34 2019

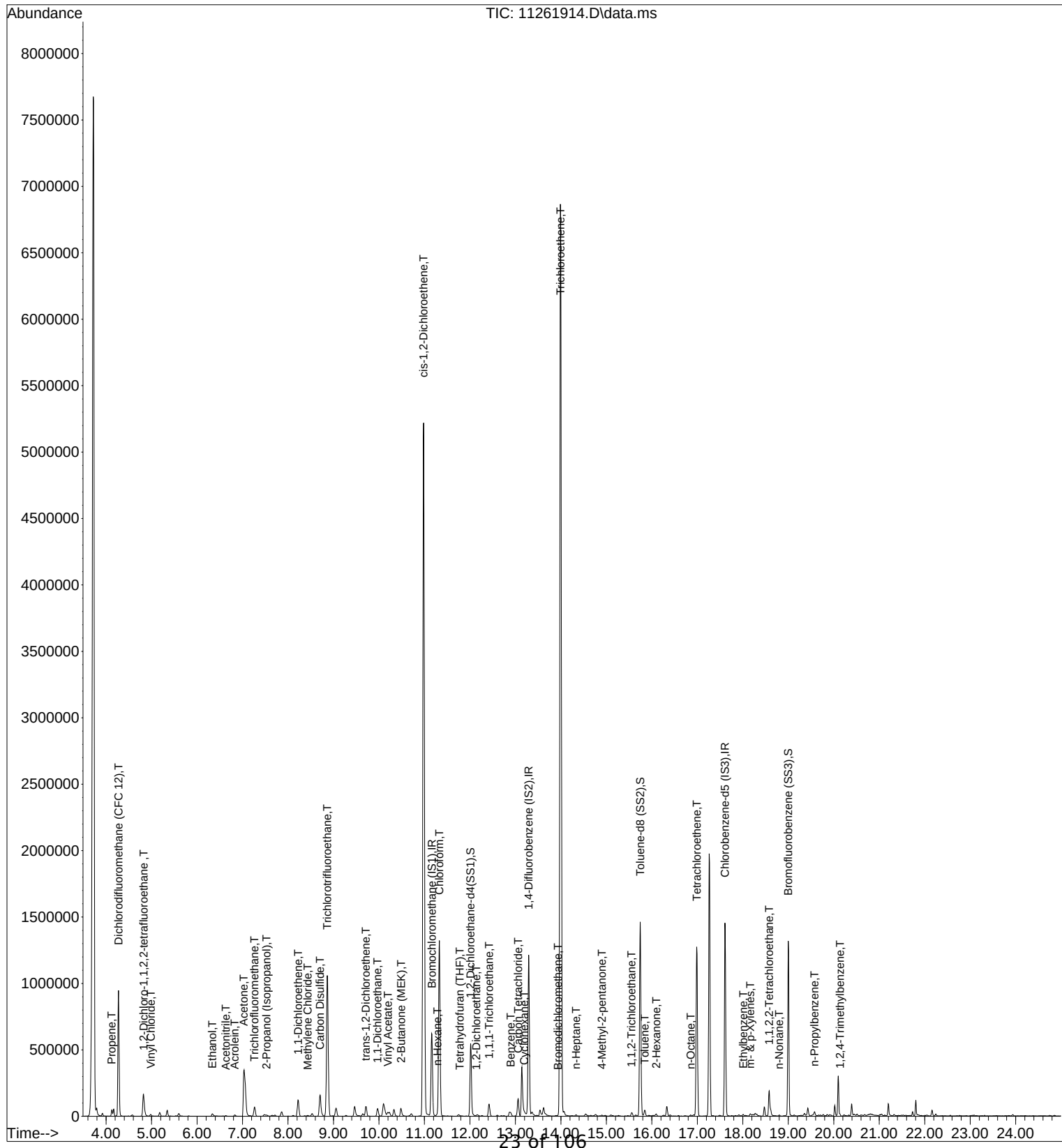
Quant Method : I:\MS16\METHODS\R16110719.M

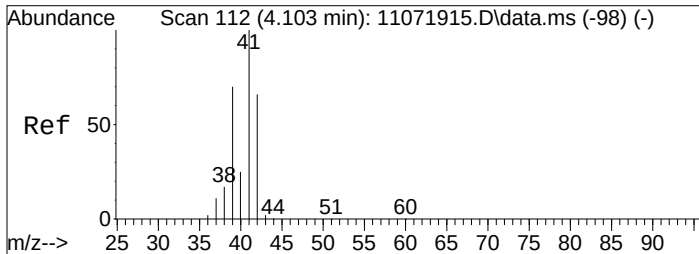
Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

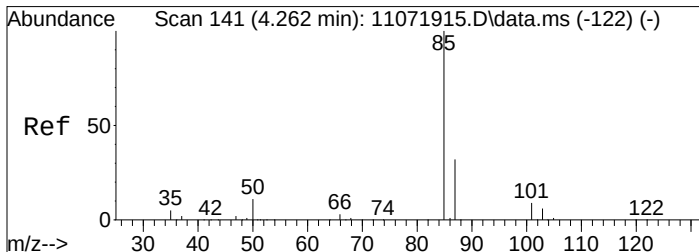
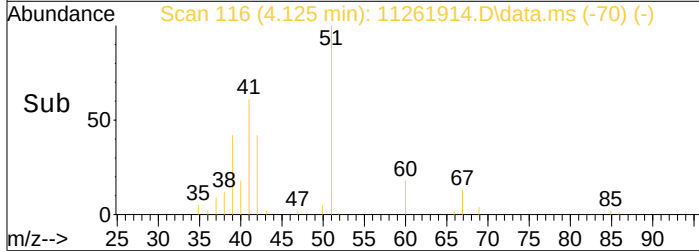
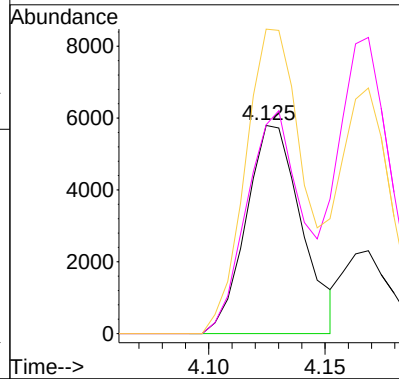
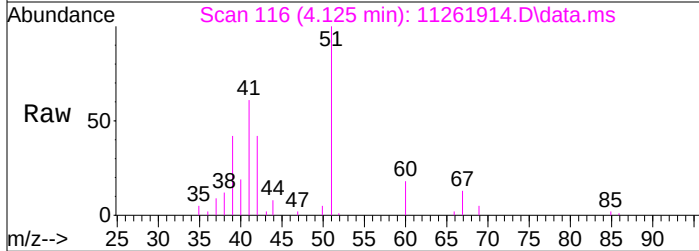
DataAcq Meth:T015.M





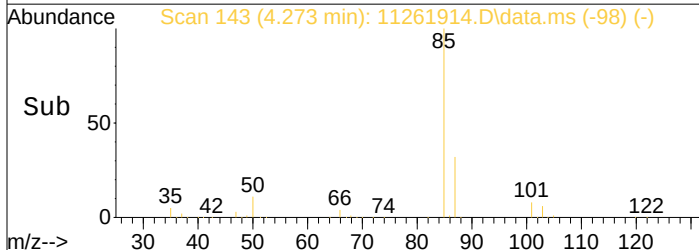
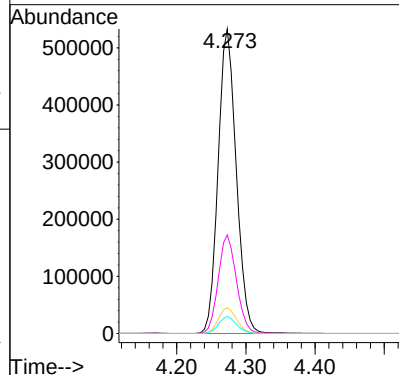
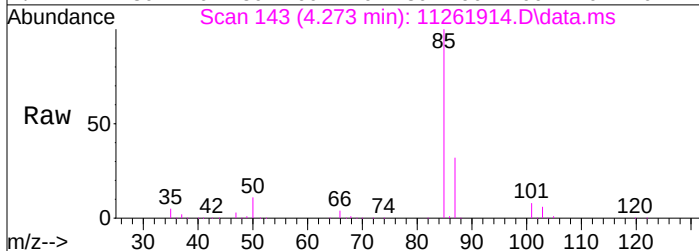
#2
 Propene
 Concen: 0.22 ng
 RT: 4.12 min Scan# 116
 Delta R.T. 0.005 min
 Lab File: 11261914.D
 Acq: 26 Nov 2019 10:56

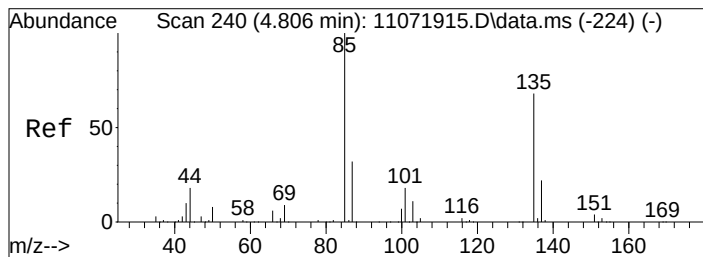
Tgt Ion: 42 Resp: 9641
 Ion Ratio Lower Upper
 42 100
 39 105.7 87.0 127.0
 41 147.6 132.2 172.2



#3
 Dichlorodifluoromethane (CFC 12)
 Concen: 18.20 ng
 RT: 4.27 min Scan# 143
 Delta R.T. -0.000 min
 Lab File: 11261914.D
 Acq: 26 Nov 2019 10:56

Tgt Ion: 85 Resp: 970632
 Ion Ratio Lower Upper
 85 100
 87 32.4 12.3 52.3
 101 8.5 0.0 28.6
 103 5.5 0.0 25.6





#5

1,2-Dichloro-1,1,2,2-tetrafluoroethane

Concen: 0.09 ng

RT: 4.83 min Scan# 244

Delta R.T. -0.000 min

Lab File: 11261914.D

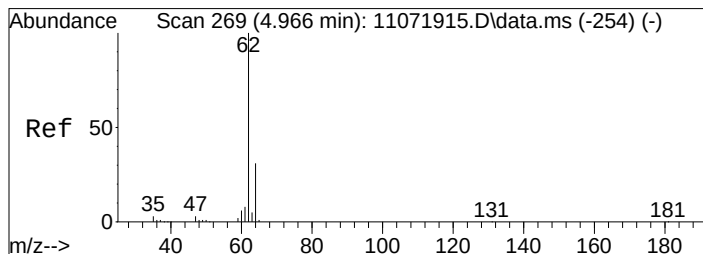
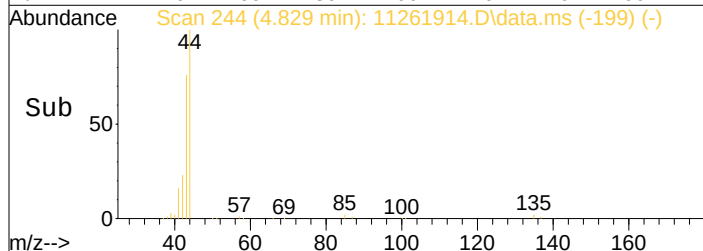
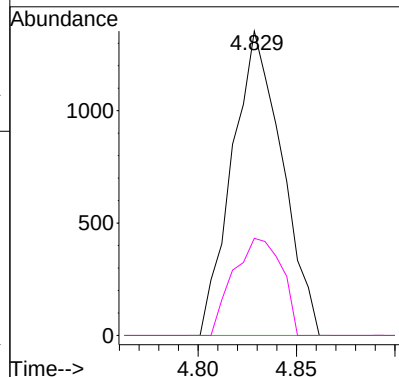
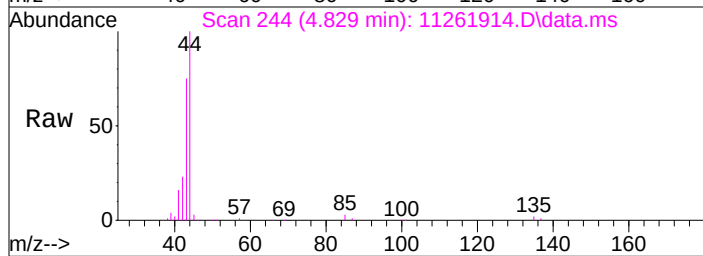
Acq: 26 Nov 2019 10:56

Tgt Ion: 135 Resp: 2380

Ion Ratio Lower Upper

135 100

137 31.1 12.0 52.0



#6

Vinyl Chloride

Concen: 0.29 ng

RT: 4.98 min Scan# 272

Delta R.T. -0.006 min

Lab File: 11261914.D

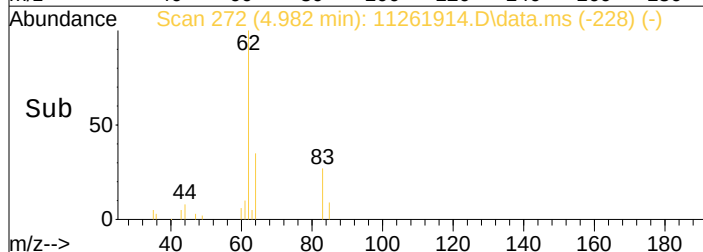
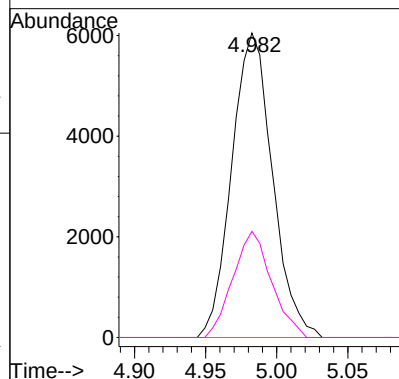
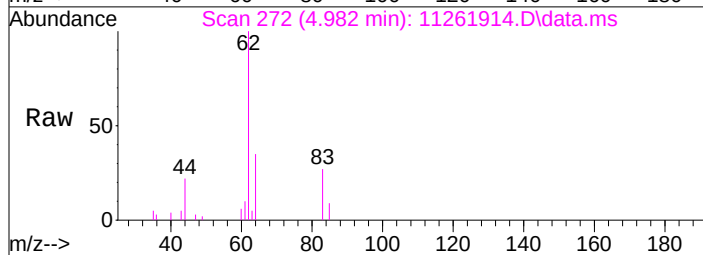
Acq: 26 Nov 2019 10:56

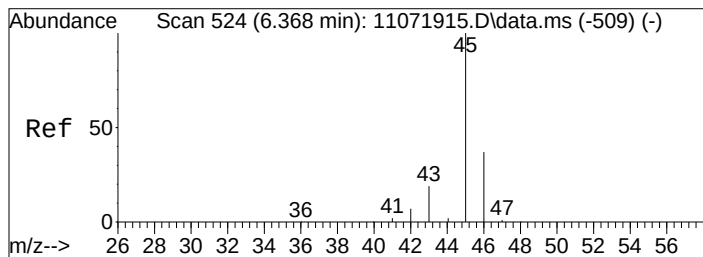
Tgt Ion: 62 Resp: 12049

Ion Ratio Lower Upper

62 100

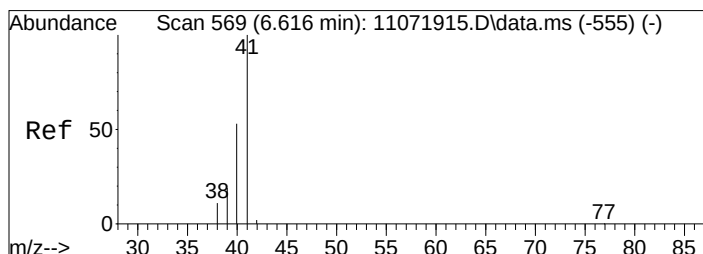
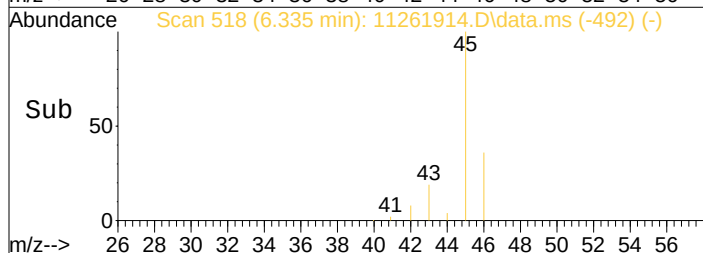
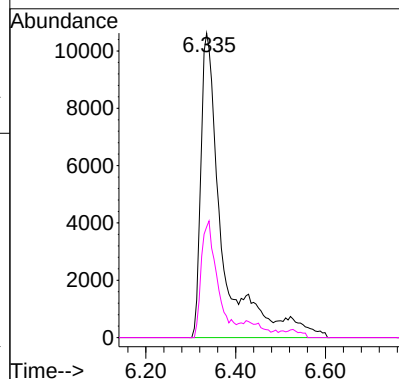
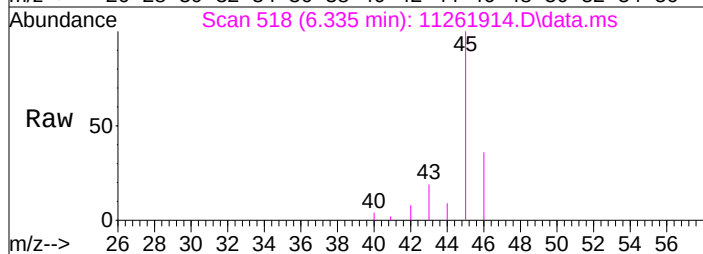
64 33.0 11.9 51.9





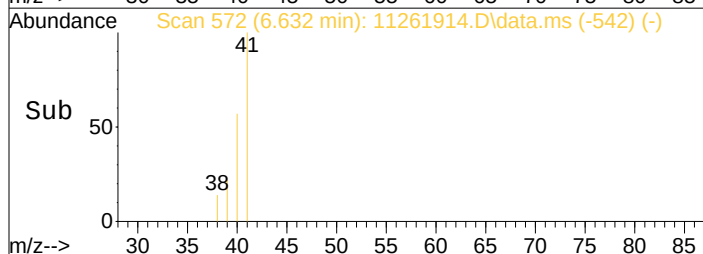
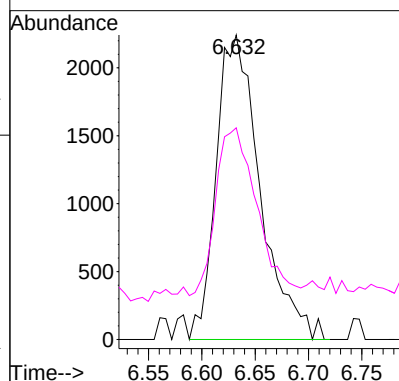
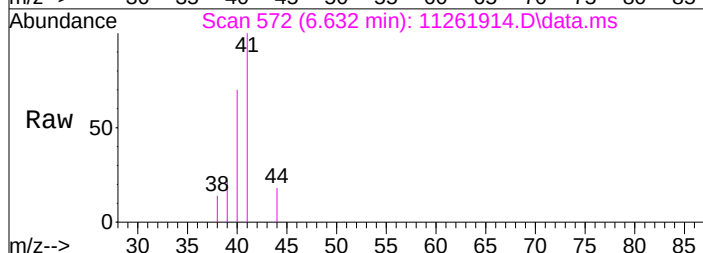
#10
Ethanol
Concen: 1.43 ng
RT: 6.34 min Scan# 518
Delta R.T. -0.105 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

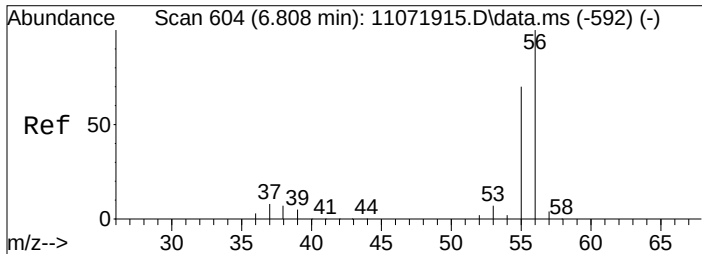
Tgt Ion: 45 Resp: 35373
Ion Ratio Lower Upper
45 100
46 37.1 17.3 57.3



#11
Acetonitrile
Concen: 0.10 ng
RT: 6.63 min Scan# 572
Delta R.T. -0.033 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

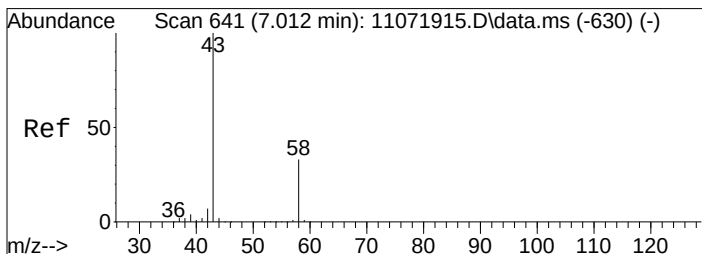
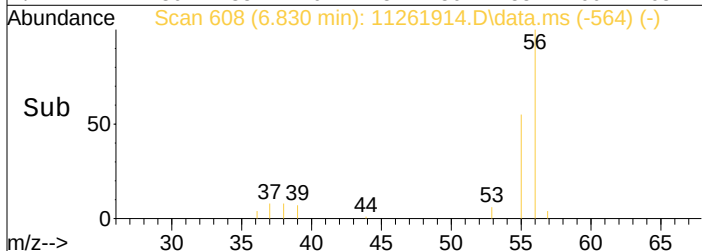
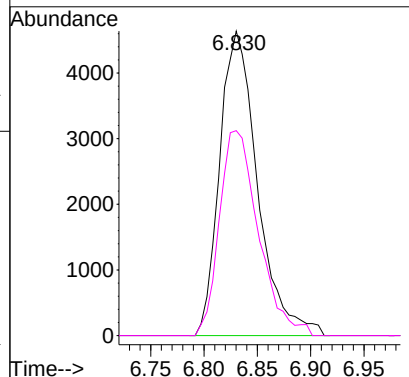
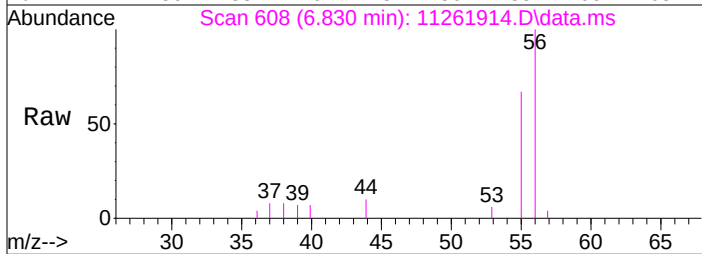
Tgt Ion: 41 Resp: 6426
Ion Ratio Lower Upper
41 100
40 68.3 32.8 72.8





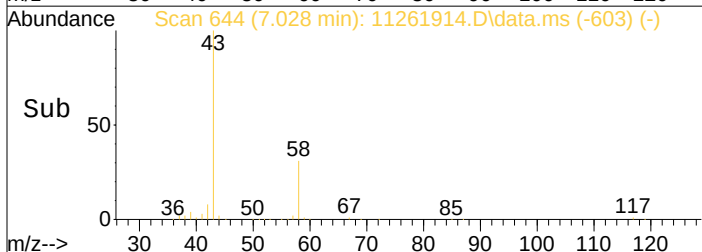
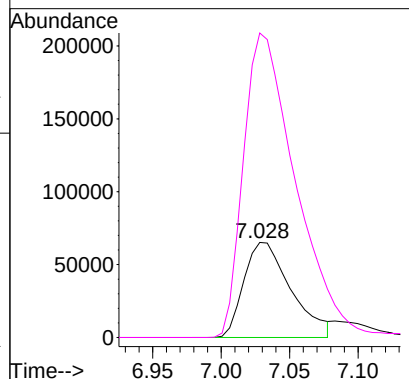
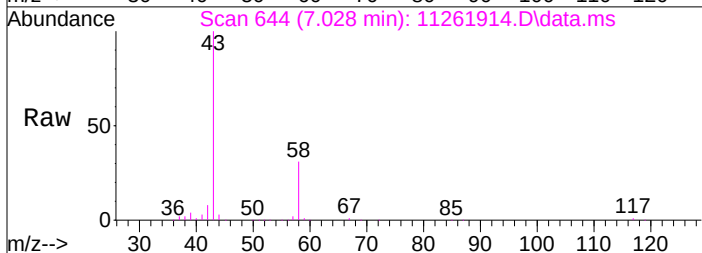
#12
 Acrolein
 Concen: 0.58 ng
 RT: 6.83 min Scan# 608
 Delta R.T. -0.006 min
 Lab File: 11261914.D
 Acq: 26 Nov 2019 10:56

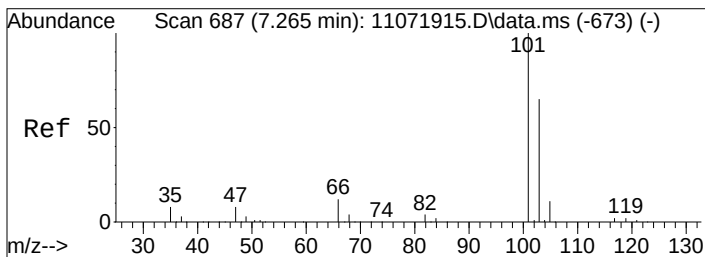
Tgt Ion	Ratio	Lower	Upper
56	100		
55	69.3	49.7	89.7



#13
 Acetone
 Concen: 6.78 ng m
 RT: 7.03 min Scan# 644
 Delta R.T. -0.022 min
 Lab File: 11261914.D
 Acq: 26 Nov 2019 10:56

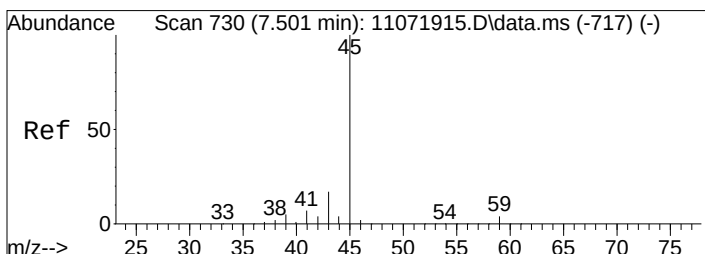
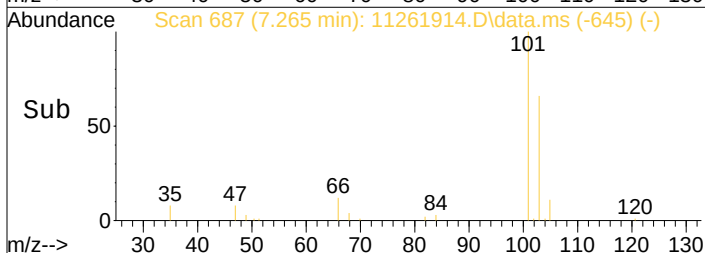
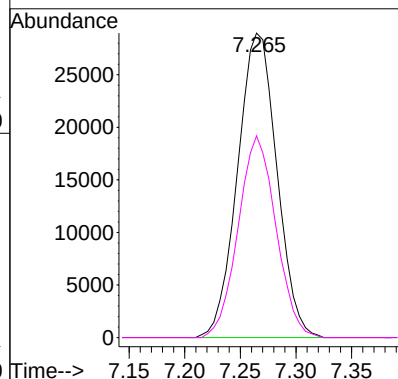
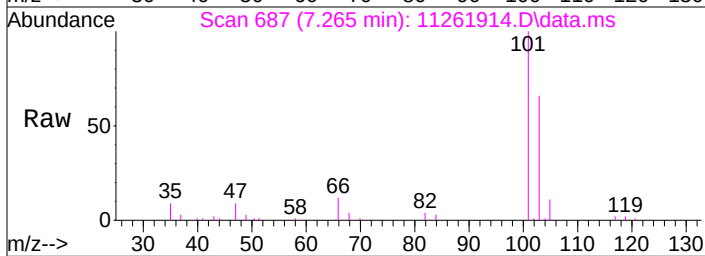
Tgt Ion	Ratio	Lower	Upper
58	100		
43	364.6	276.0	336.0#





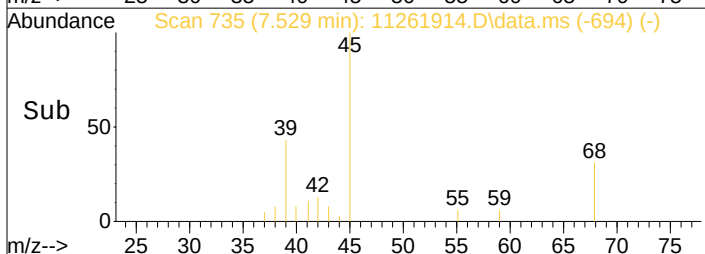
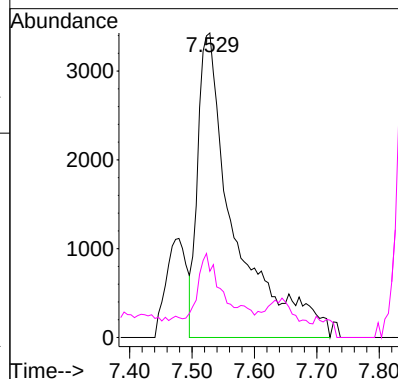
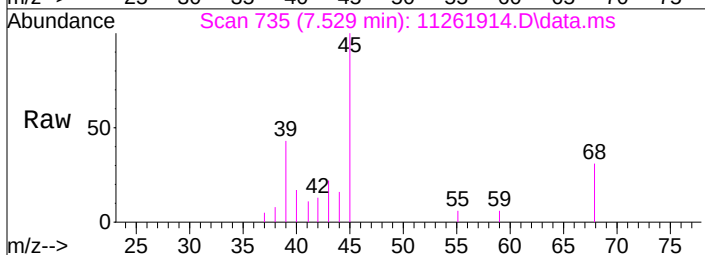
#14
 Trichlorofluoromethane
 Concen: 1.56 ng
 RT: 7.26 min Scan# 687
 Delta R.T. -0.017 min
 Lab File: 11261914.D
 Acq: 26 Nov 2019 10:56

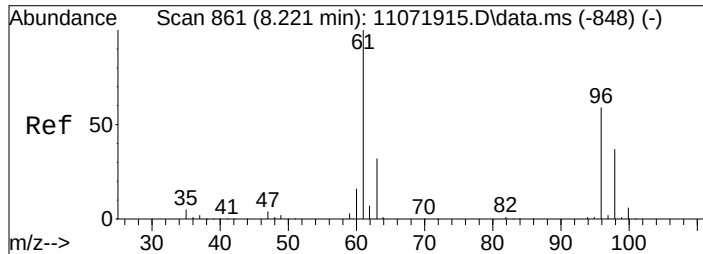
Tgt Ion: 101 Resp: 71201
 Ion Ratio Lower Upper
 101 100
 103 63.6 44.8 84.8



#15
 2-Propanol (Isopropanol)
 Concen: 0.21 ng
 RT: 7.53 min Scan# 735
 Delta R.T. -0.022 min
 Lab File: 11261914.D
 Acq: 26 Nov 2019 10:56

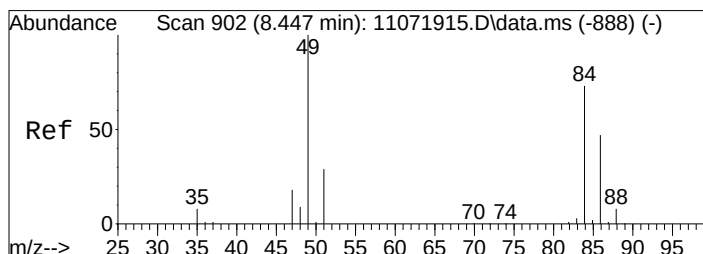
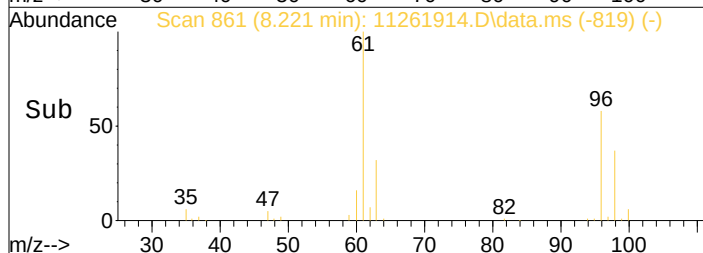
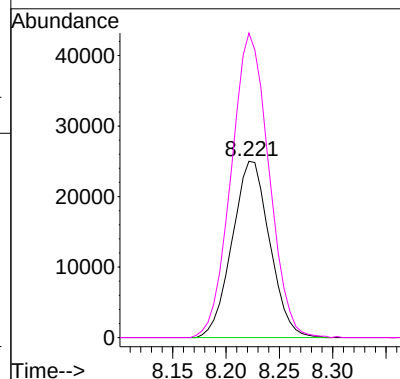
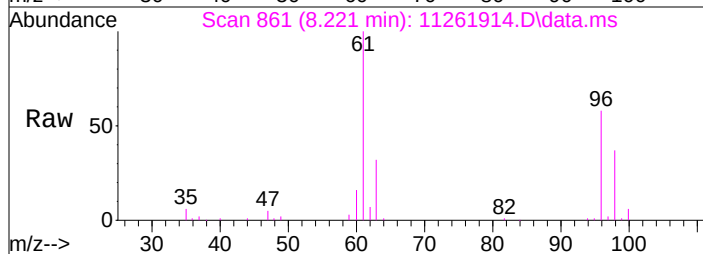
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 Ion Ratio Lower Upper
 45 100
 43 36.3 0.0 37.3





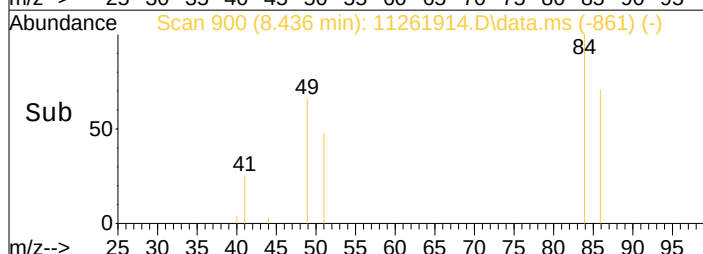
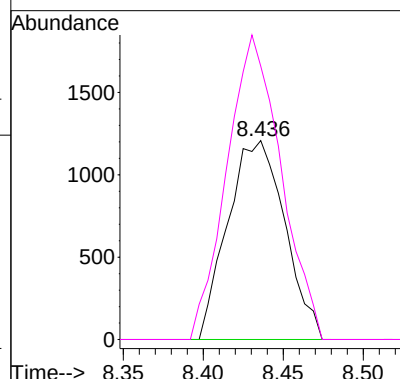
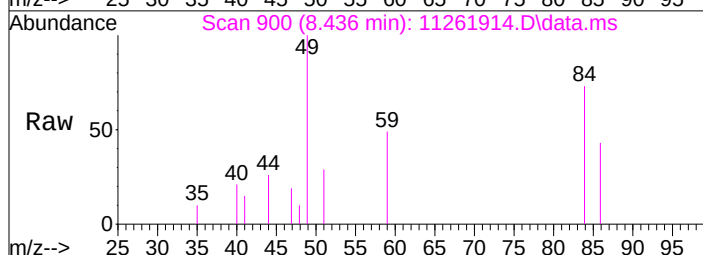
#17
1,1-Dichloroethene
Concen: 2.36 ng
RT: 8.22 min Scan# 861
Delta R.T. -0.017 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

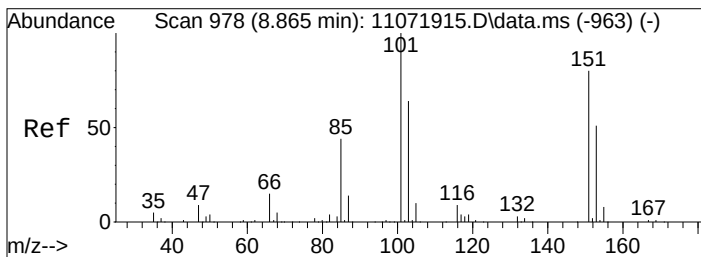
Tgt Ion: 96 Resp: 61324
Ion Ratio Lower Upper
96 100
61 173.3 147.7 187.7



#19
Methylene Chloride
Concen: 0.11 ng
RT: 8.44 min Scan# 900
Delta R.T. -0.033 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

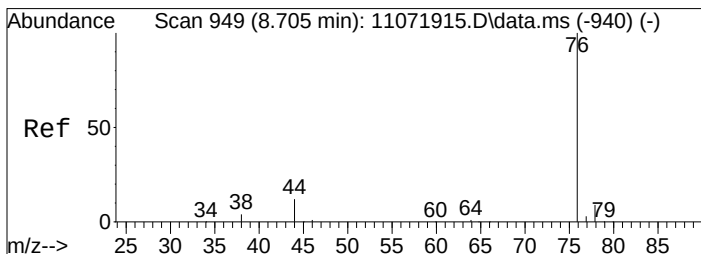
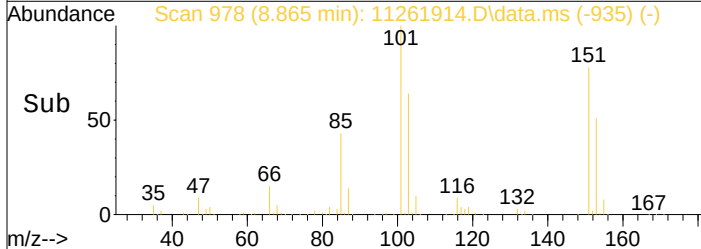
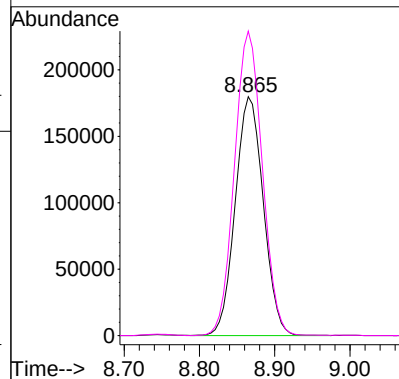
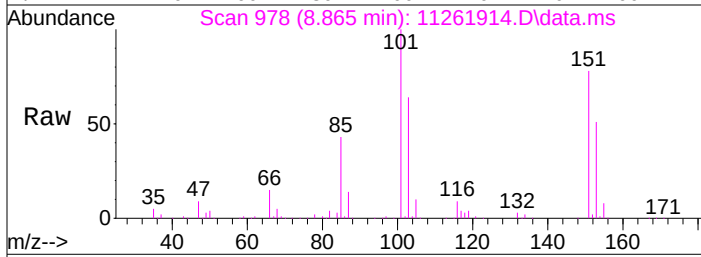
Tgt Ion: 84 Resp: 2998
Ion Ratio Lower Upper
84 100
49 145.4 113.7 163.7





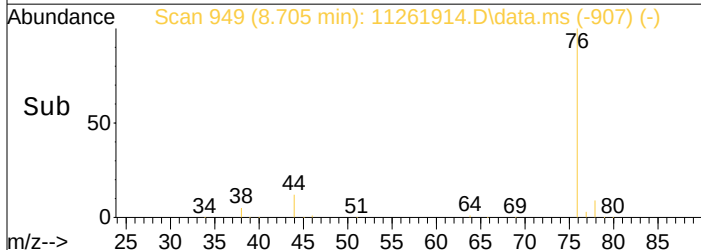
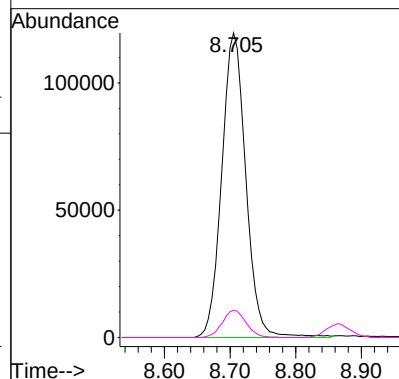
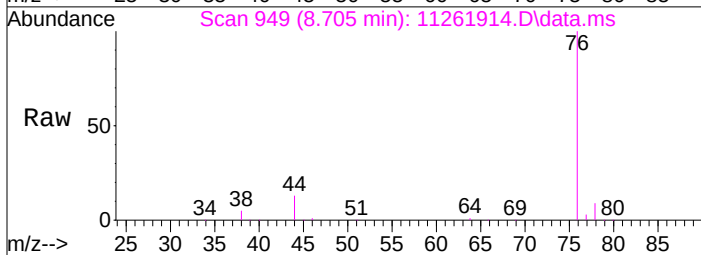
#21
 Trichlorotrifluoroethane
 Concen: 19.94 ng
 RT: 8.86 min Scan# 978
 Delta R.T. -0.011 min
 Lab File: 11261914.D
 Acq: 26 Nov 2019 10:56

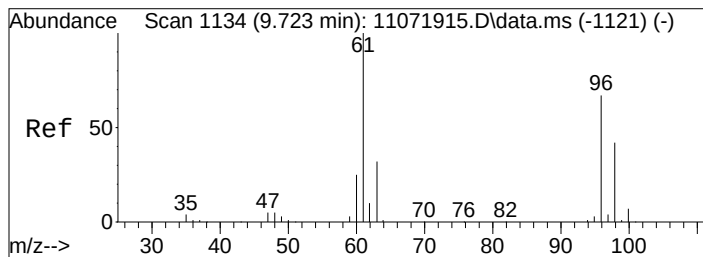
Tgt Ion	Ratio	Lower	Upper
151	100		
101	126.5	104.6	144.6



#22
 Carbon Disulfide
 Concen: 3.01 ng
 RT: 8.71 min Scan# 949
 Delta R.T. -0.017 min
 Lab File: 11261914.D
 Acq: 26 Nov 2019 10:56

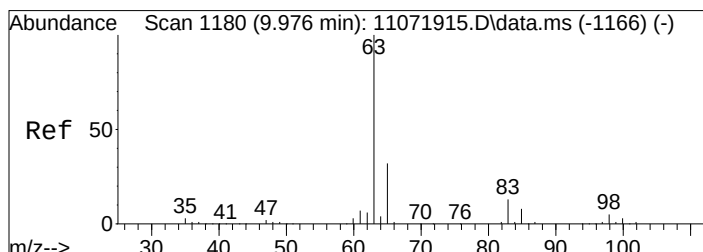
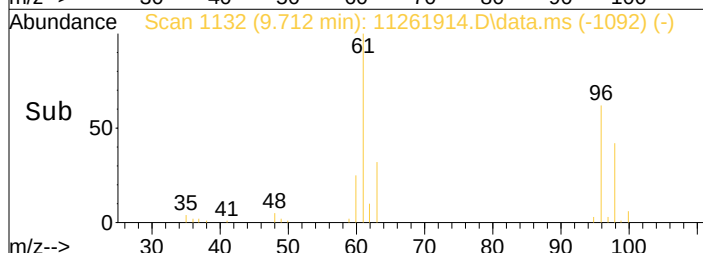
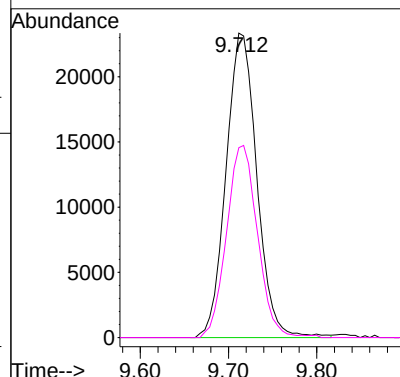
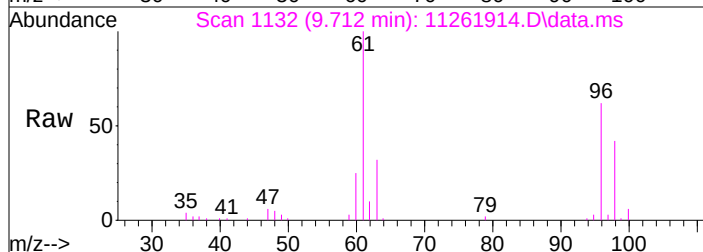
Tgt Ion	Ratio	Lower	Upper
76	100		
78	8.9	0.0	29.1





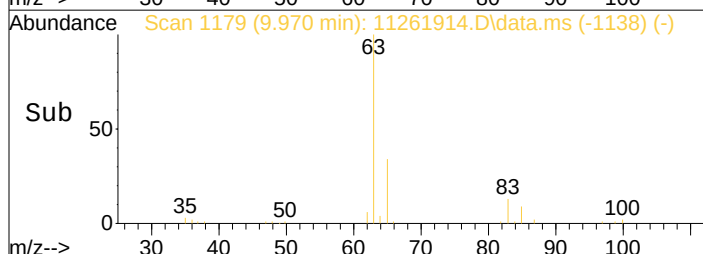
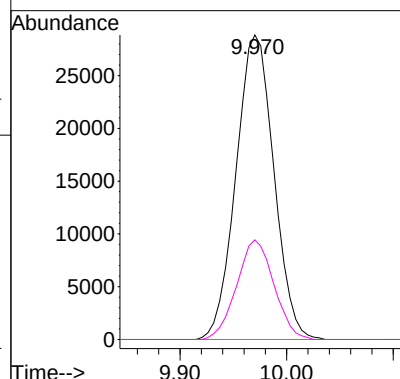
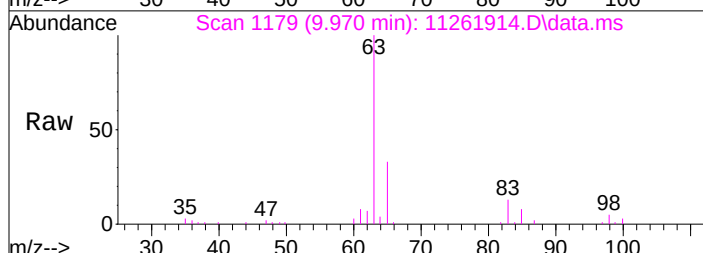
#23
trans-1,2-Dichloroethene
Concen: 1.40 ng
RT: 9.71 min Scan# 1132
Delta R.T. -0.028 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

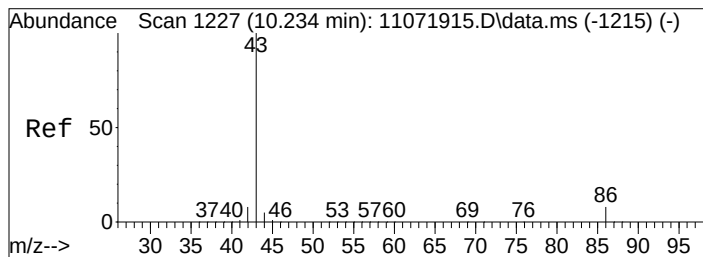
Tgt Ion: 61 Resp: 56629
Ion Ratio Lower Upper
61 100
96 63.5 46.5 86.5



#24
1,1-Dichloroethane
Concen: 1.37 ng
RT: 9.97 min Scan# 1179
Delta R.T. -0.022 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

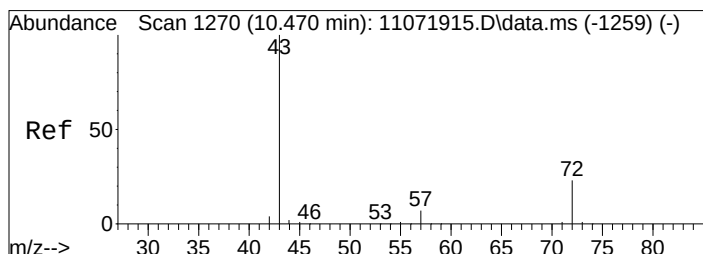
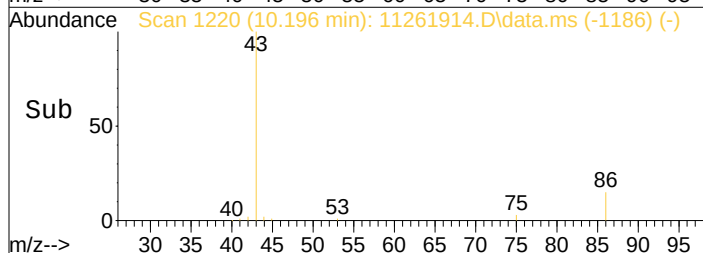
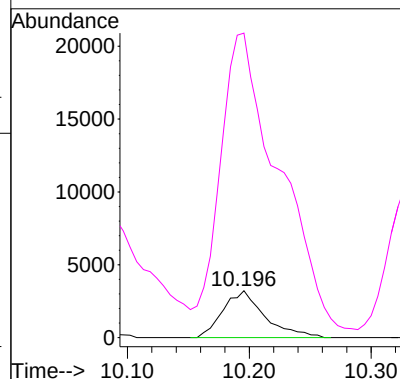
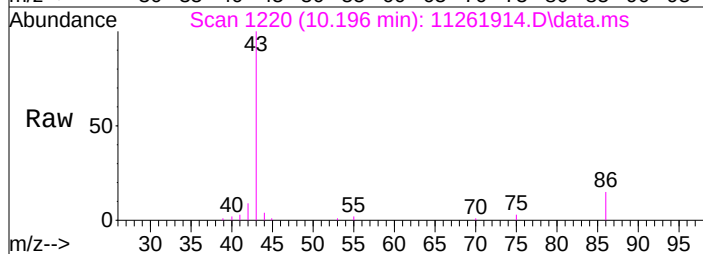
Tgt Ion: 63 Resp: 71171
Ion Ratio Lower Upper
63 100
65 32.2 11.7 51.7





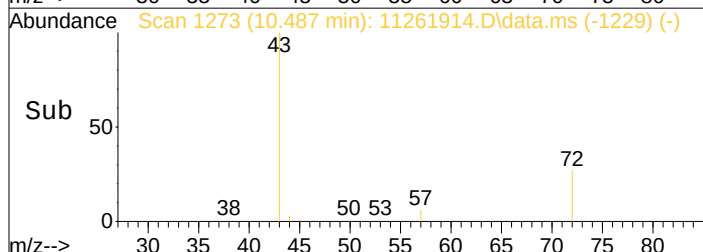
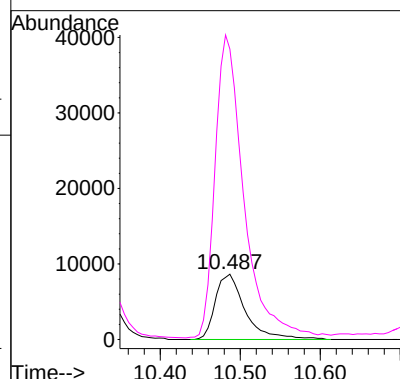
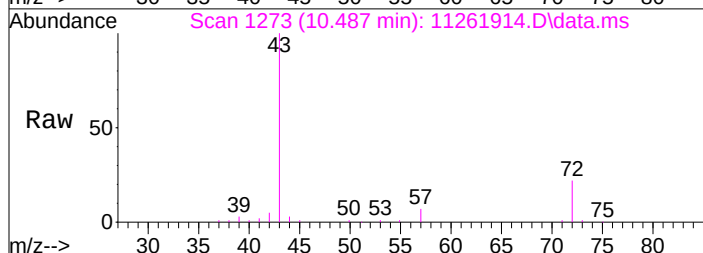
#26
 Vinyl Acetate
 Concen: 1.78 ng
 RT: 10.20 min Scan# 1220
 Delta R.T. -0.061 min
 Lab File: 11261914.D
 Acq: 26 Nov 2019 10:56

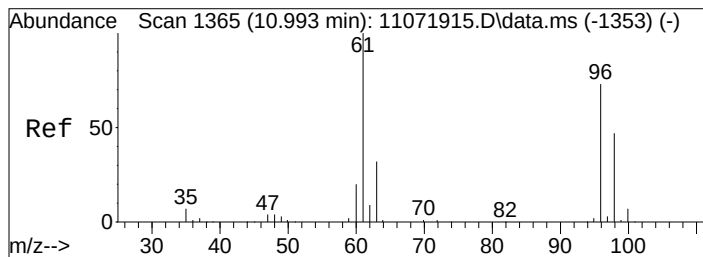
Tgt Ion: 86 Resp: 7641
 Ion Ratio Lower Upper
 86 100
 43 930.5 1242.5 1282.5#



#27
 2-Butanone (MEK)
 Concen: 1.23 ng
 RT: 10.49 min Scan# 1273
 Delta R.T. -0.006 min
 Lab File: 11261914.D
 Acq: 26 Nov 2019 10:56

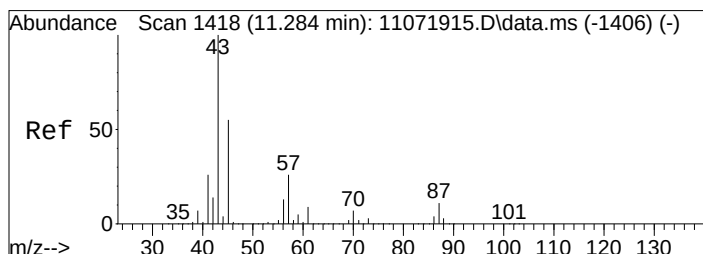
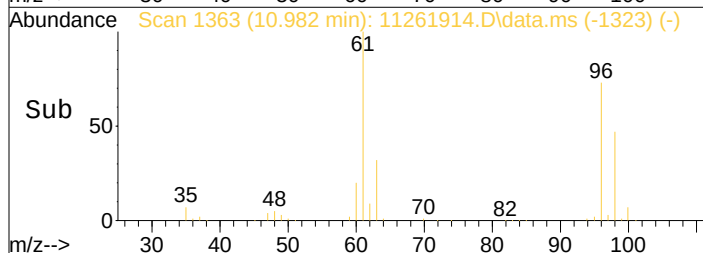
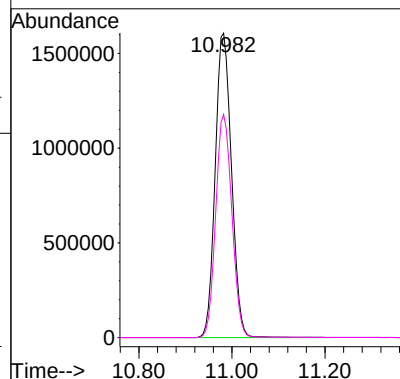
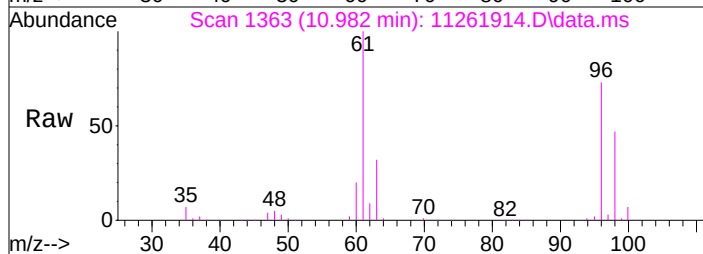
Tgt Ion: 72 Resp: 22512
 Ion Ratio Lower Upper
 72 100
 43 447.2 419.6 459.6





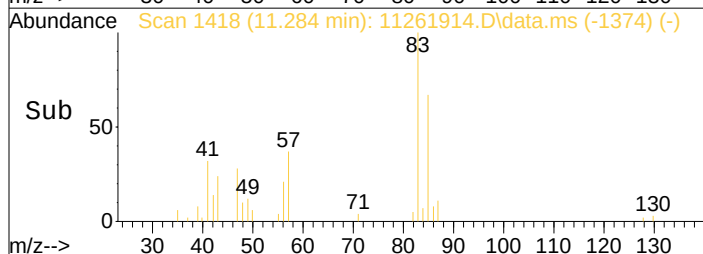
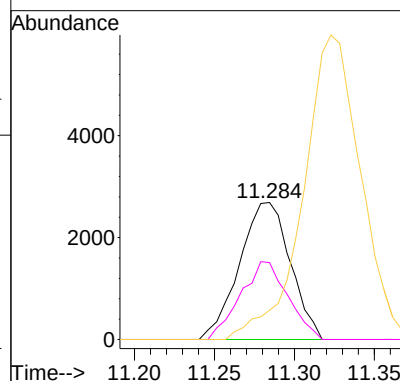
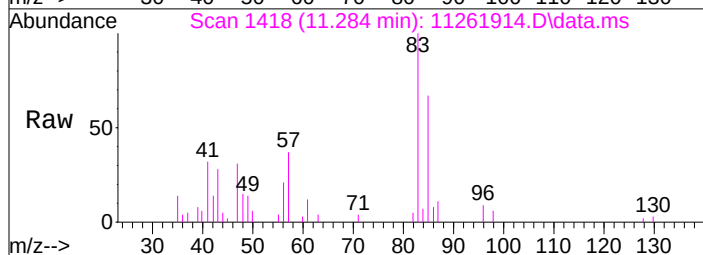
#28
 cis-1,2-Dichloroethene
 Concen: 97.27 ng
 RT: 10.98 min Scan# 1363
 Delta R.T. -0.028 min
 Lab File: 11261914.D
 Acq: 26 Nov 2019 10:56

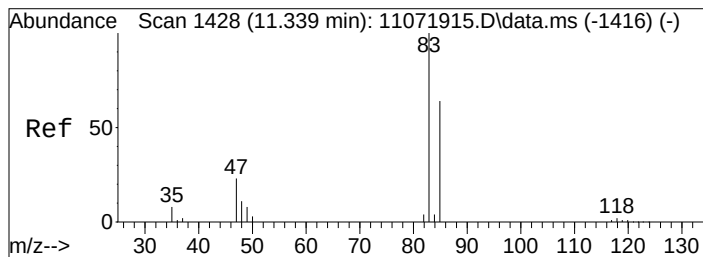
Tgt Ion: 61 Resp: 3904532
 Ion Ratio Lower Upper
 61 100
 96 73.1 53.2 93.2



#31
 n-Hexane
 Concen: 0.13 ng
 RT: 11.28 min Scan# 1418
 Delta R.T. -0.006 min
 Lab File: 11261914.D
 Acq: 26 Nov 2019 10:56

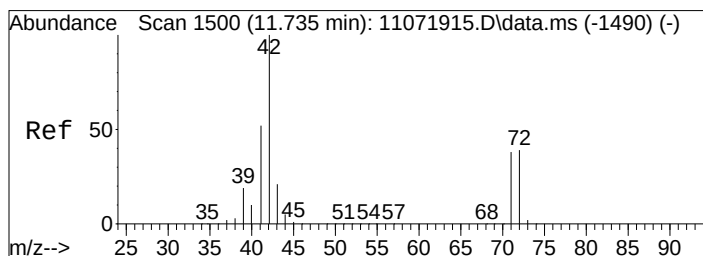
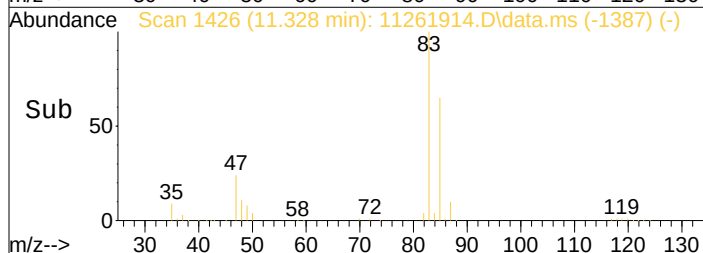
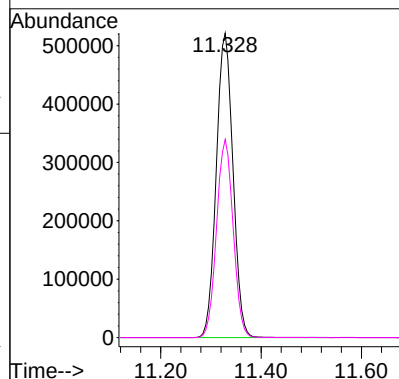
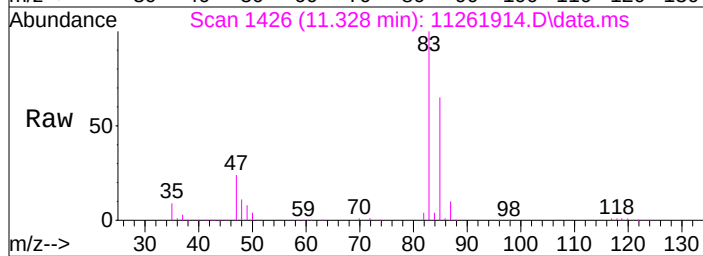
Tgt Ion: 57 Resp: 5956
 Ion Ratio Lower Upper
 57 100
 56 53.0 40.7 61.1
 86 247.8 12.0 18.0#





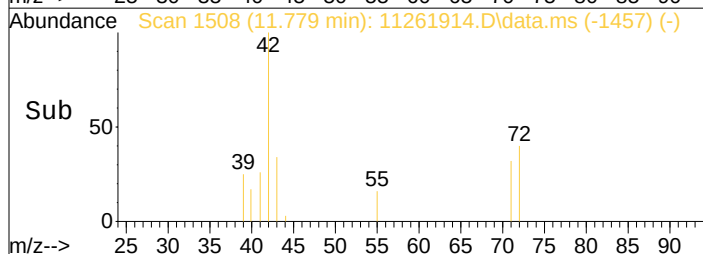
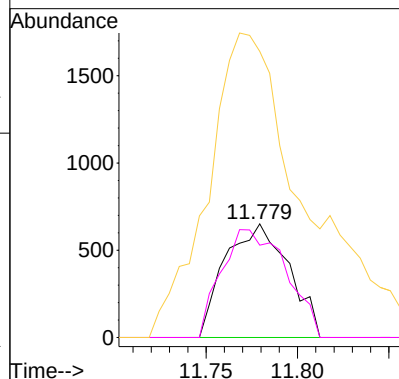
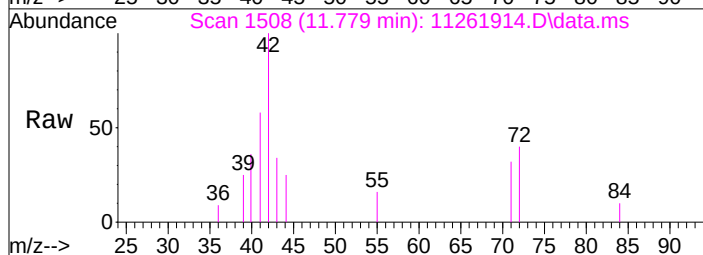
#32
Chloroform
Concen: 26.60 ng
RT: 11.33 min Scan# 1426
Delta R.T. -0.033 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

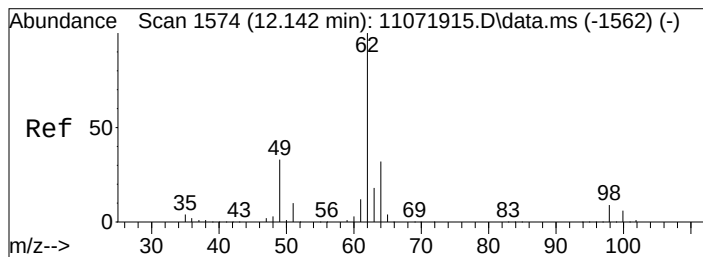
Tgt Ion: 83 Resp: 1203138
Ion Ratio Lower Upper
83 100
85 64.8 45.3 85.3



#34
Tetrahydrofuran (THF)
Concen: 0.08 ng
RT: 11.78 min Scan# 1508
Delta R.T. 0.033 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

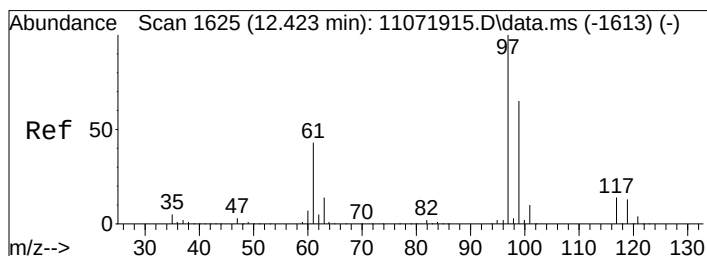
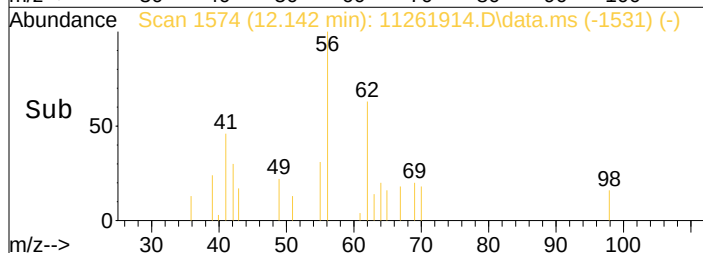
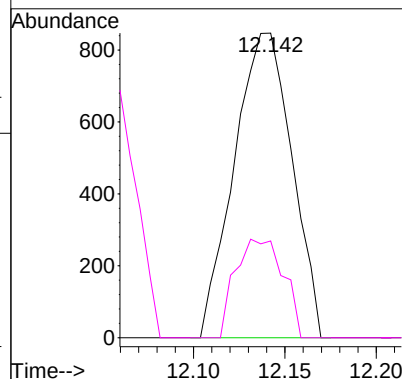
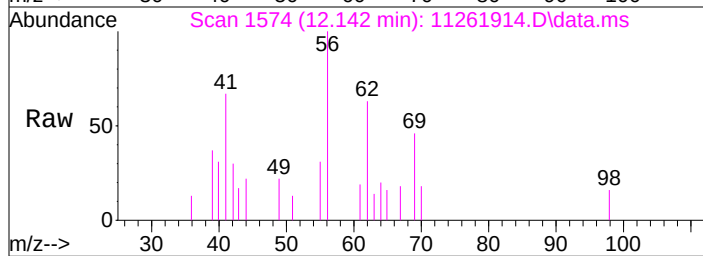
Tgt Ion: 72 Resp: 1567
Ion Ratio Lower Upper
72 100
71 97.3 76.9 116.9
42 423.0 233.1 273.1#





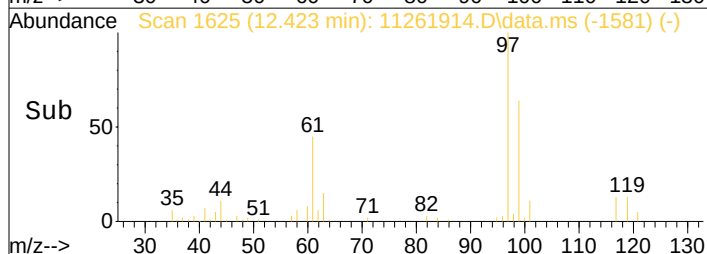
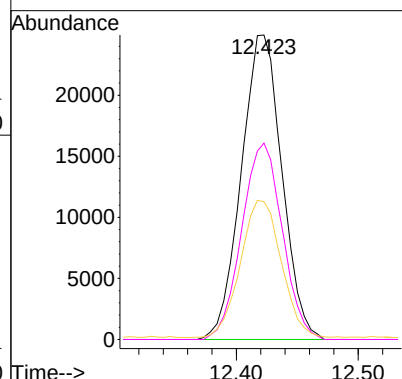
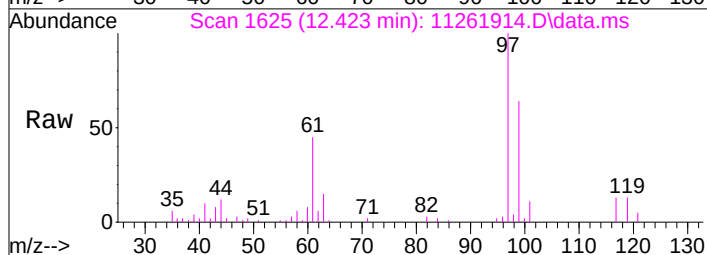
#36
 1,2-Dichloroethane
 Concen: 0.05 ng
 RT: 12.14 min Scan# 1574
 Delta R.T. -0.011 min
 Lab File: 11261914.D
 Acq: 26 Nov 2019 10:56

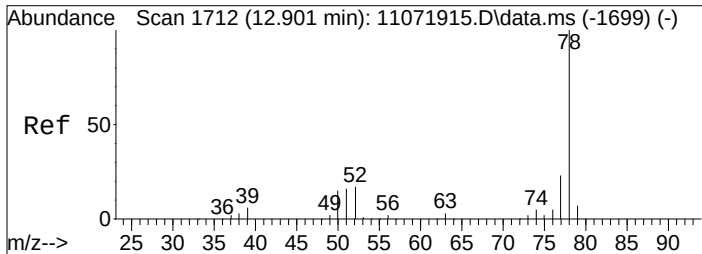
Tgt Ion: 62 Resp: 1861
 Ion Ratio Lower Upper
 62 100
 64 26.9 12.7 52.7



#38
 1,1,1-Trichloroethane
 Concen: 1.44 ng
 RT: 12.42 min Scan# 1625
 Delta R.T. -0.006 min
 Lab File: 11261914.D
 Acq: 26 Nov 2019 10:56

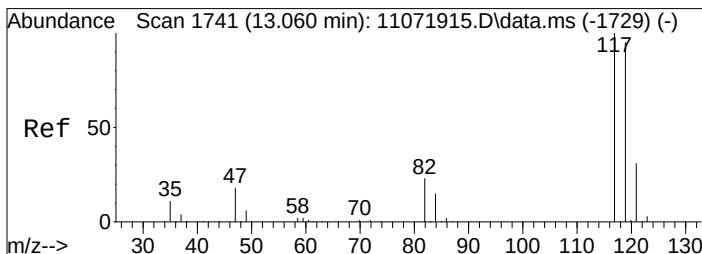
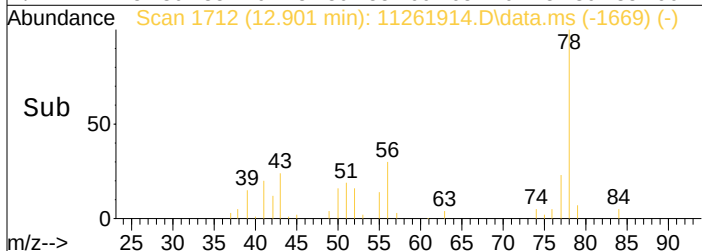
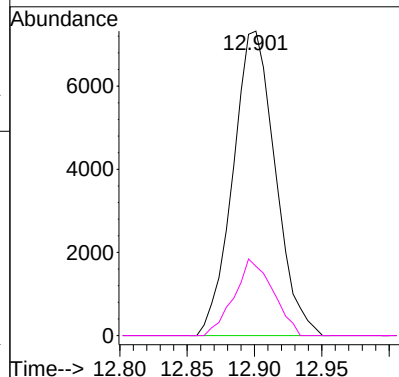
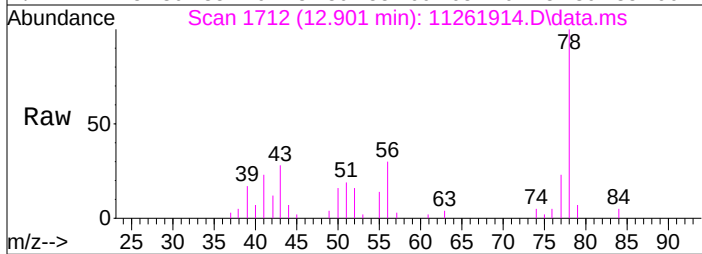
Tgt Ion: 97 Resp: 57864
 Ion Ratio Lower Upper
 97 100
 99 64.3 44.6 84.6
 61 45.4 23.4 63.4





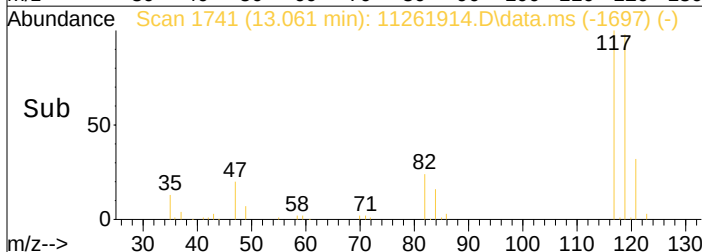
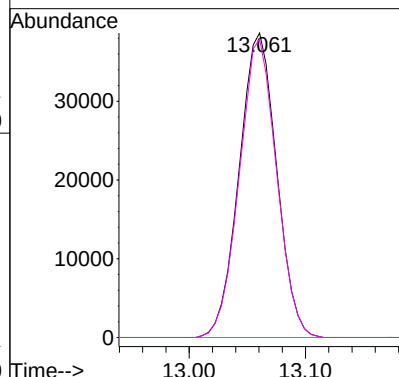
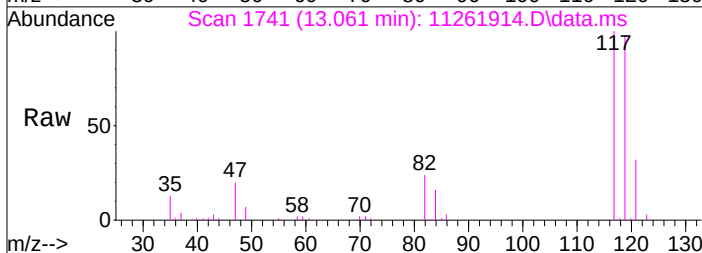
#41
Benzene
Concen: 0.14 ng
RT: 12.90 min Scan# 1712
Delta R.T. -0.011 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

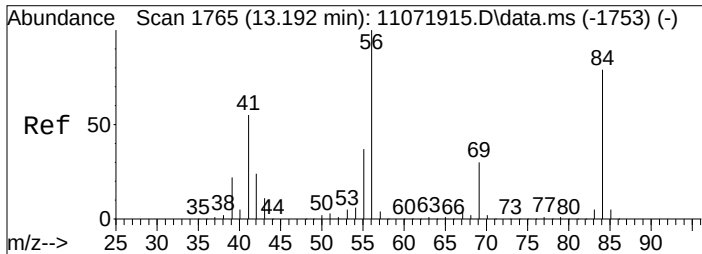
Tgt Ion: 78 Resp: 16028
Ion Ratio Lower Upper
78 100
77 23.0 3.2 43.2



#42
Carbon Tetrachloride
Concen: 2.65 ng
RT: 13.06 min Scan# 1741
Delta R.T. -0.006 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

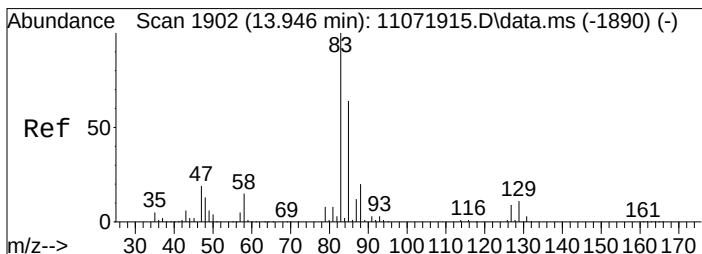
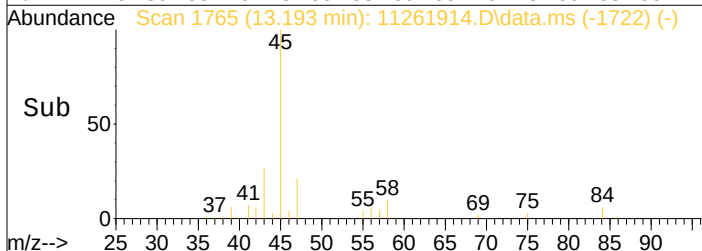
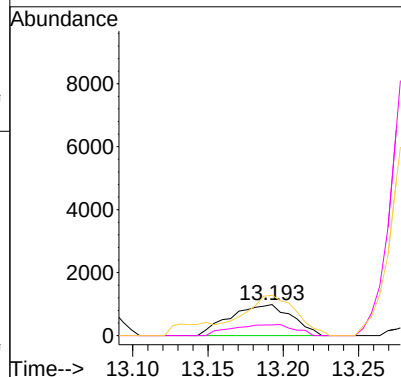
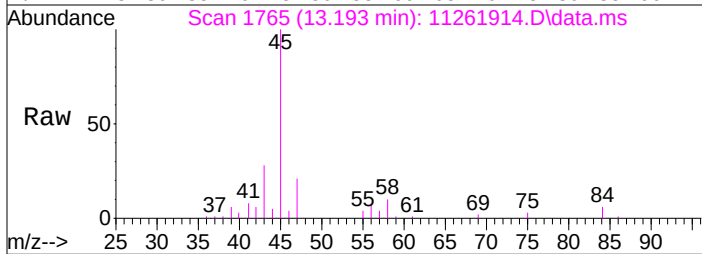
Tgt Ion: 117 Resp: 86712
Ion Ratio Lower Upper
117 100
119 97.2 75.8 115.8





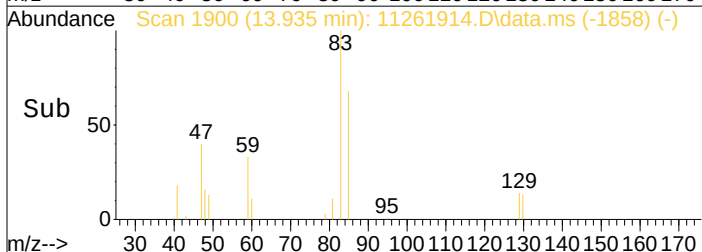
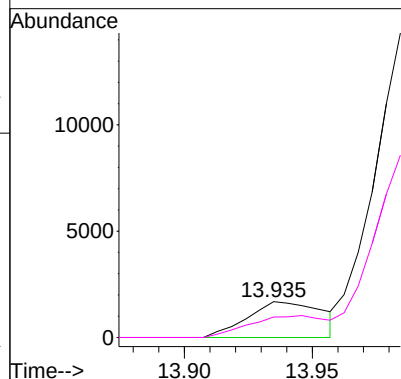
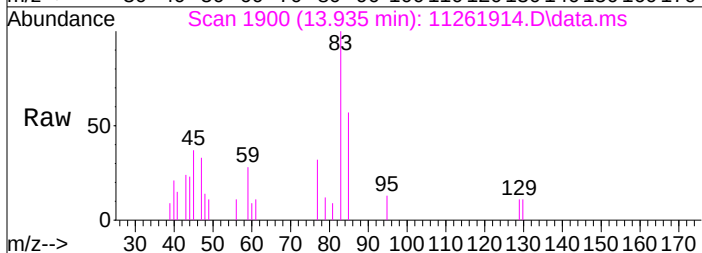
#43
Cyclohexane
Concen: 0.07 ng
RT: 13.19 min Scan# 1765
Delta R.T. -0.011 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

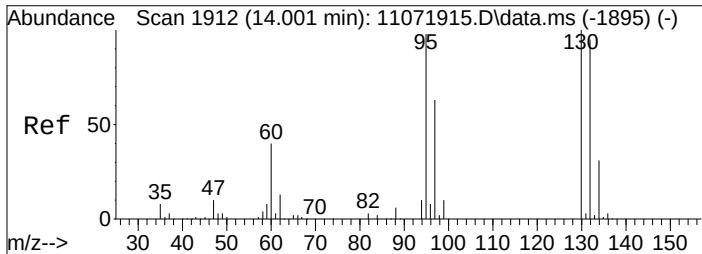
Tgt Ion:	84	Resp:	2794
Ion Ratio	Lower	Upper	
84	100		
69	35.8	17.6	57.6
56	111.3	106.5	146.5



#46
Bromodichloromethane
Concen: 0.09 ng
RT: 13.93 min Scan# 1900
Delta R.T. -0.017 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

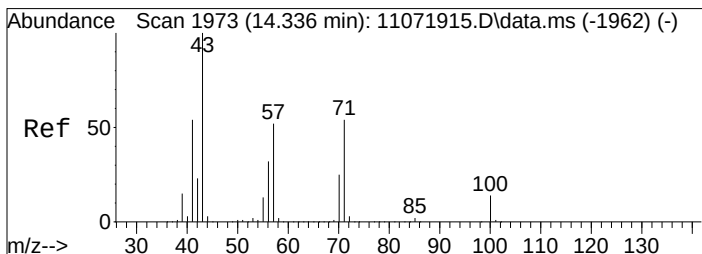
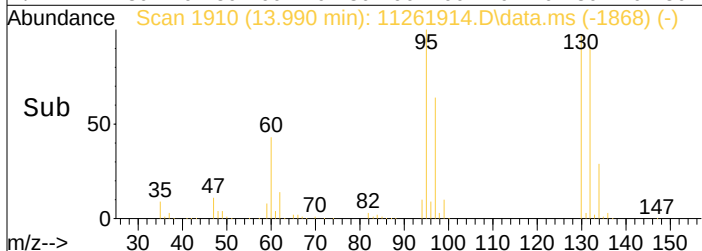
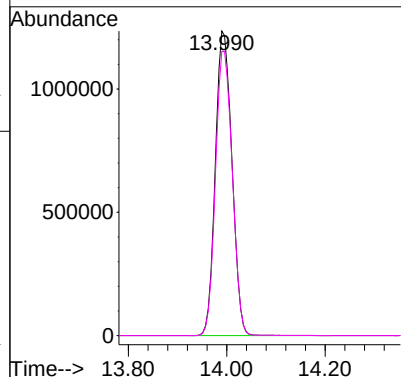
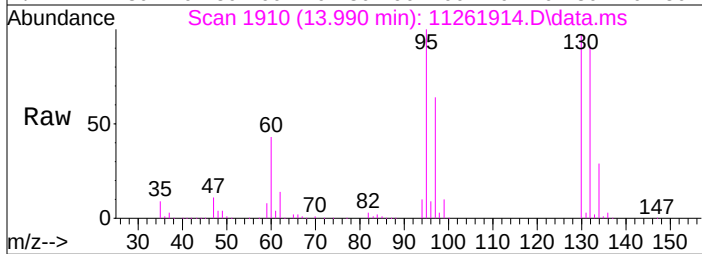
Tgt Ion:	83	Resp:	3402
Ion Ratio	Lower	Upper	
83	100		
85	63.1	44.1	84.1





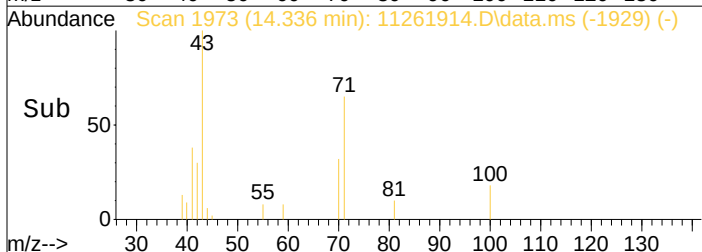
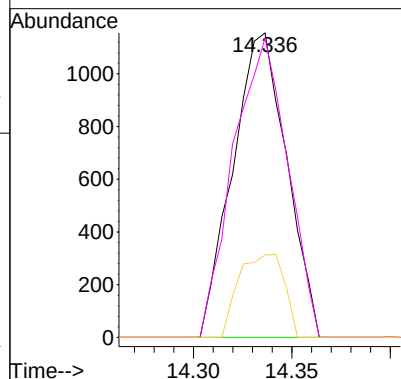
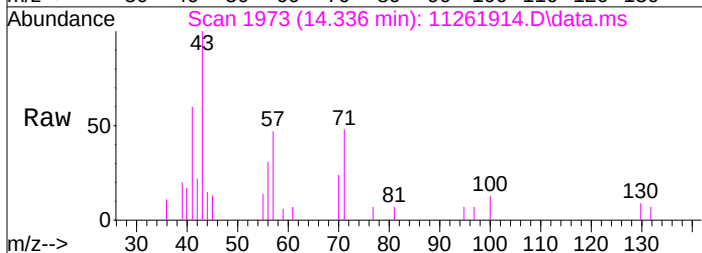
#47
 Trichloroethene
 Concen: 105.30 ng
 RT: 13.99 min Scan# 1910
 Delta R.T. -0.017 min
 Lab File: 11261914.D
 Acq: 26 Nov 2019 10:56

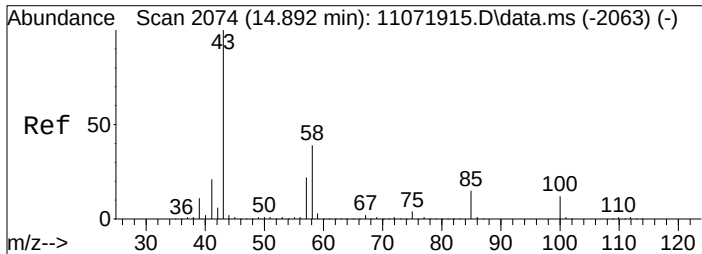
Tgt Ion: 130 Resp: 2896722
 Ion Ratio Lower Upper
 130 100
 132 94.9 75.1 115.1



#51
 n-Heptane
 Concen: 0.08 ng
 RT: 14.34 min Scan# 1973
 Delta R.T. -0.006 min
 Lab File: 11261914.D
 Acq: 26 Nov 2019 10:56

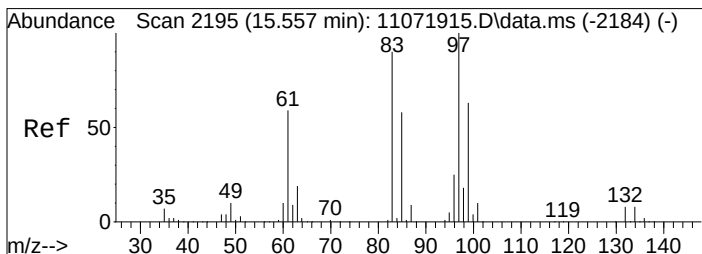
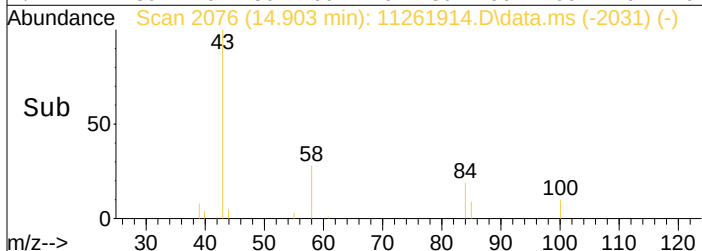
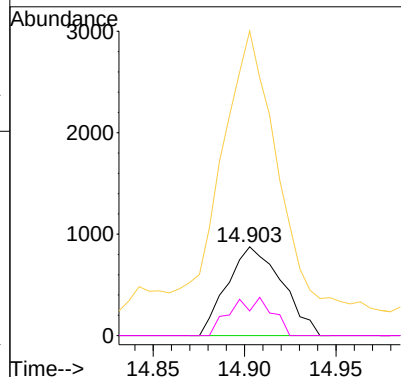
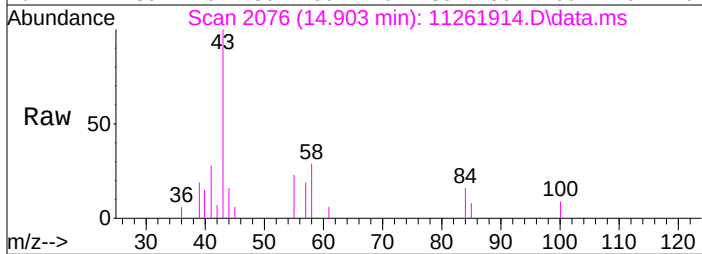
Tgt Ion: 71 Resp: 2201
 Ion Ratio Lower Upper
 71 100
 57 98.8 75.9 115.9
 100 22.9 6.0 46.0





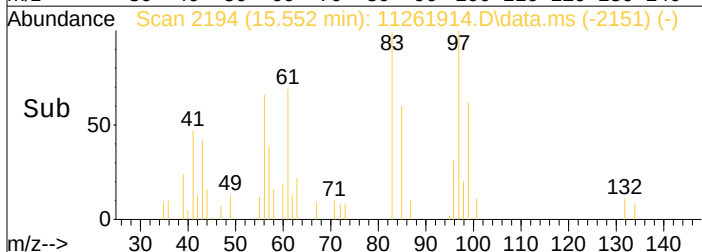
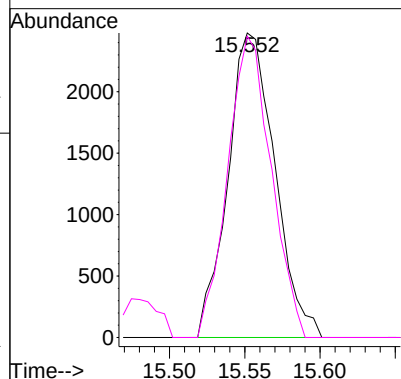
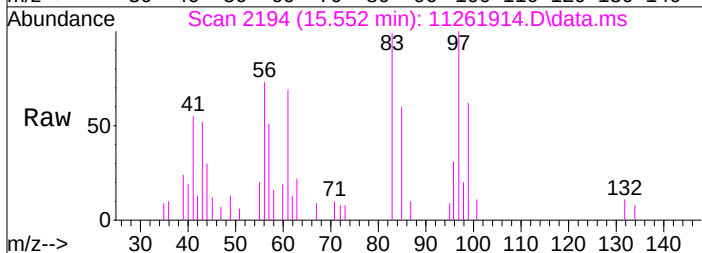
#53
 4-Methyl-2-pentanone
 Concen: 0.07 ng
 RT: 14.90 min Scan# 2076
 Delta R.T. -0.000 min
 Lab File: 11261914.D
 Acq: 26 Nov 2019 10:56

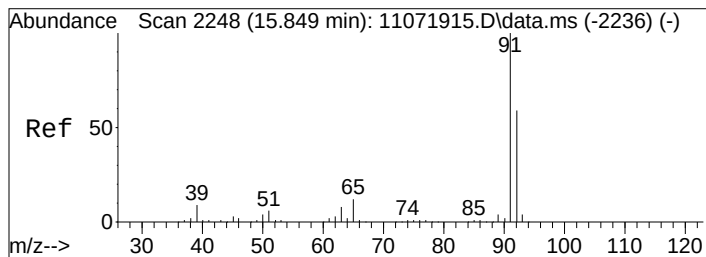
Tgt Ion: 58 Resp: 1826
 Ion Ratio Lower Upper
 58 100
 85 32.5 32.8 49.2#
 43 442.1 205.2 307.8#



#55
 1,1,2-Trichloroethane
 Concen: 0.20 ng
 RT: 15.55 min Scan# 2194
 Delta R.T. -0.011 min
 Lab File: 11261914.D
 Acq: 26 Nov 2019 10:56

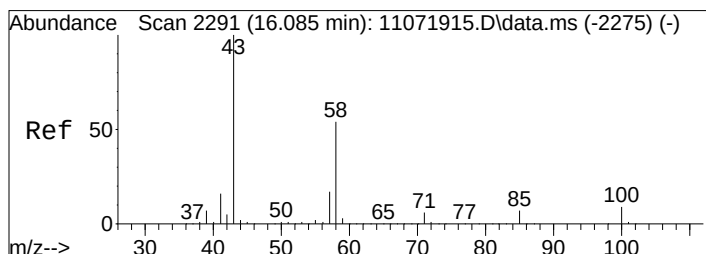
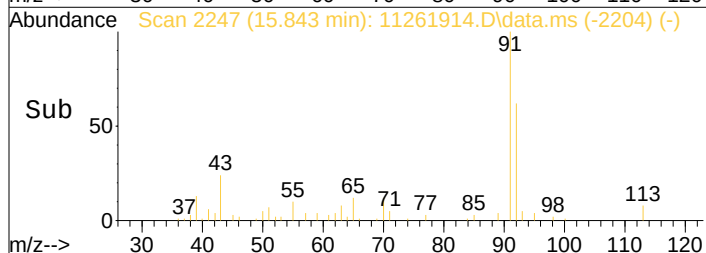
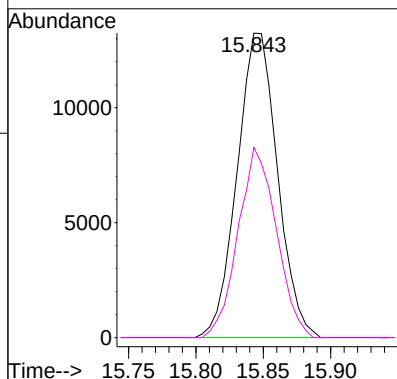
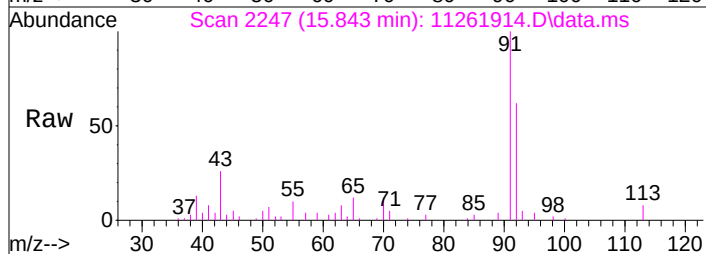
Tgt Ion: 97 Resp: 5369
 Ion Ratio Lower Upper
 97 100
 83 91.7 69.5 109.5





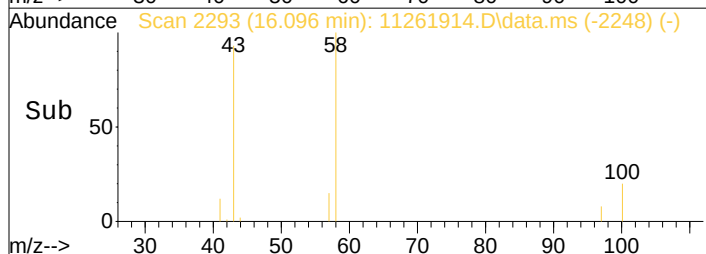
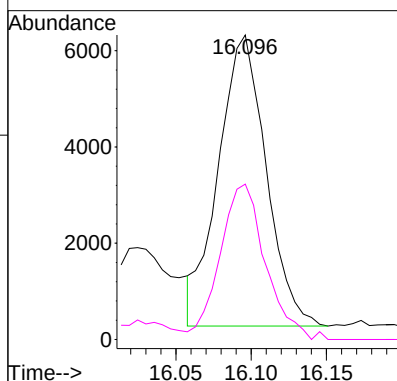
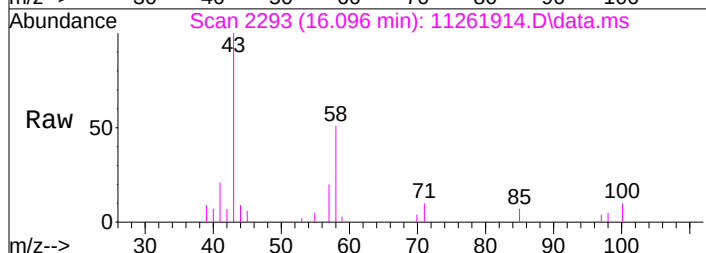
#58
Toluene
Concen: 0.29 ng
RT: 15.84 min Scan# 2247
Delta R.T. -0.011 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

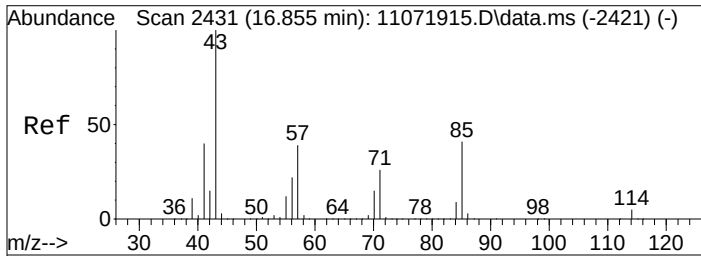
Tgt Ion: 91 Resp: 27599
Ion Ratio Lower Upper
91 100
92 59.3 39.4 79.4



#59
2-Hexanone
Concen: 0.21 ng
RT: 16.10 min Scan# 2293
Delta R.T. -0.000 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

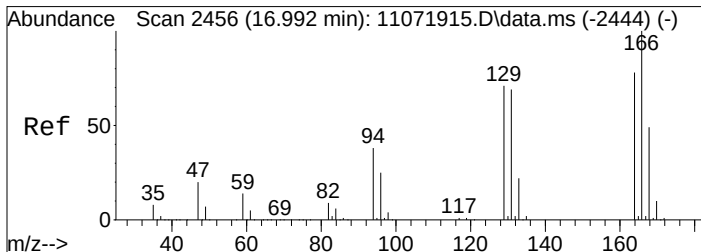
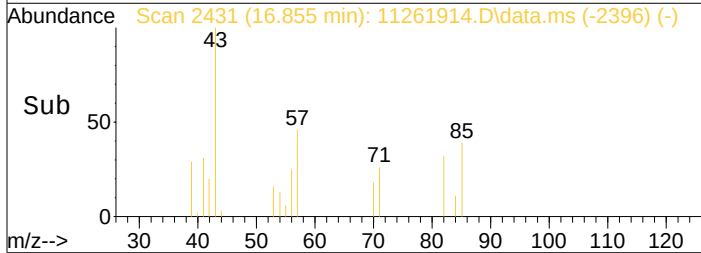
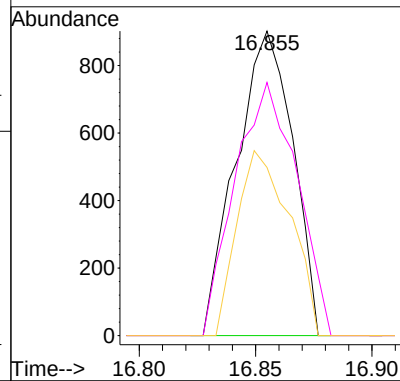
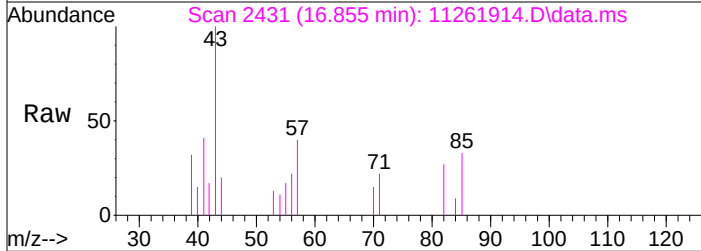
Tgt Ion: 43 Resp: 13346
Ion Ratio Lower Upper
43 100
58 50.6 34.8 74.8





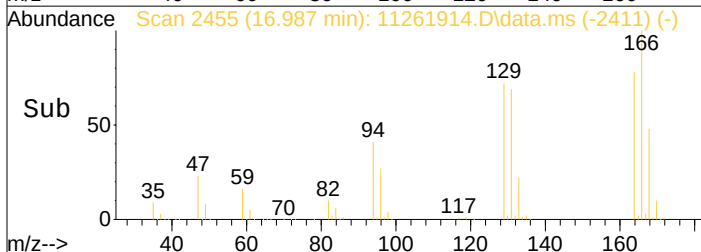
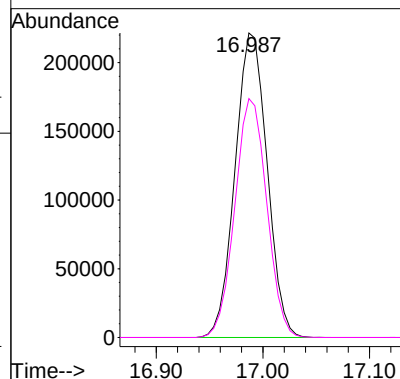
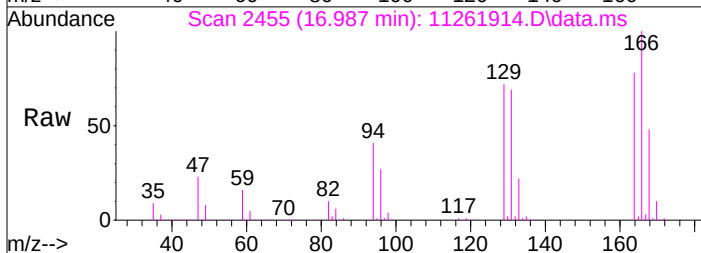
#63
n-Octane
Concen: 0.06 ng
RT: 16.85 min Scan# 2431
Delta R.T. -0.006 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

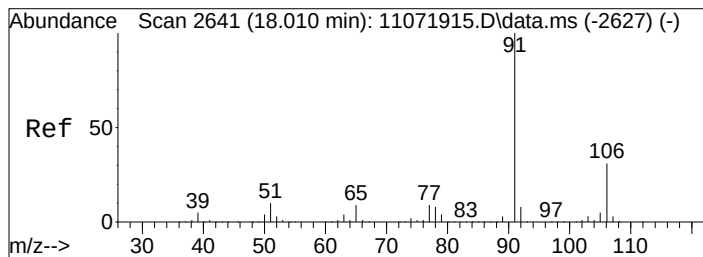
Tgt Ion: 57 Resp: 1528
Ion Ratio Lower Upper
57 100
85 91.2 83.7 125.5
71 56.7 53.8 80.8



#64
Tetrachloroethene
Concen: 16.13 ng
RT: 16.99 min Scan# 2455
Delta R.T. -0.006 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

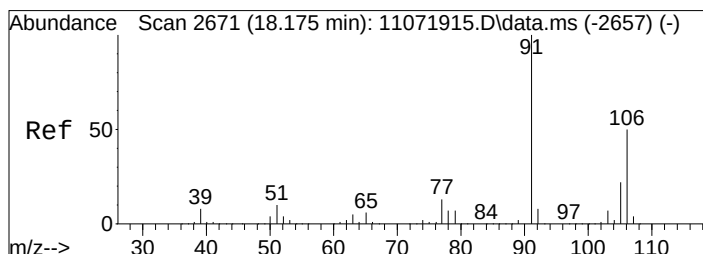
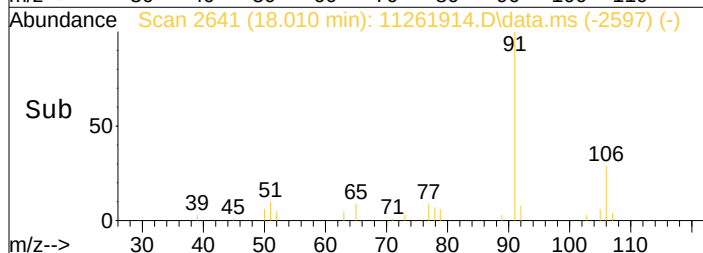
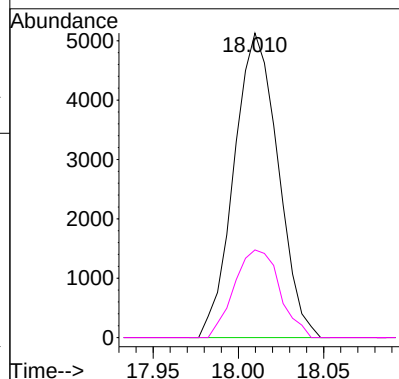
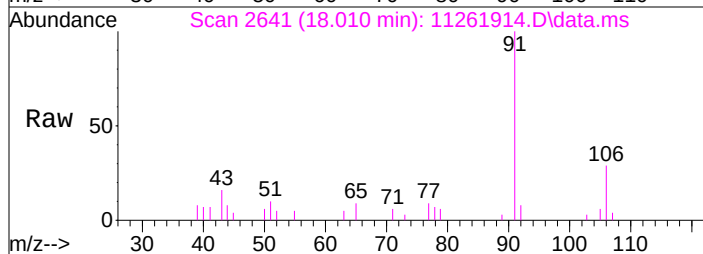
Tgt Ion: 166 Resp: 463307
Ion Ratio Lower Upper
166 100
164 78.1 58.3 98.3





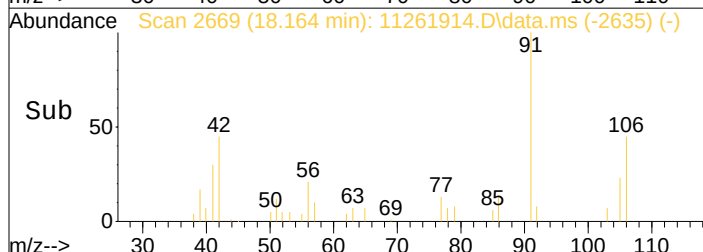
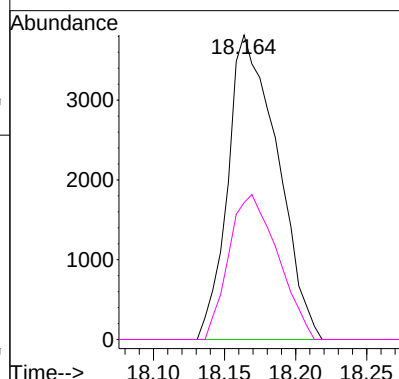
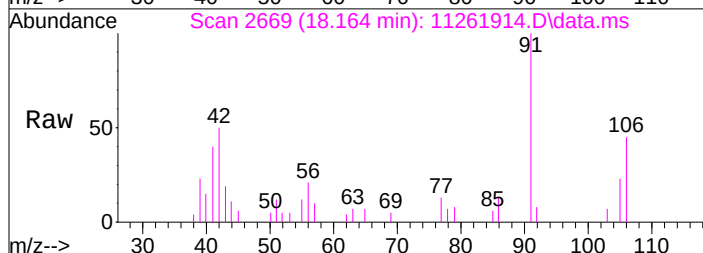
#66
Ethylbenzene
Concen: 0.08 ng
RT: 18.01 min Scan# 2641
Delta R.T. -0.006 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

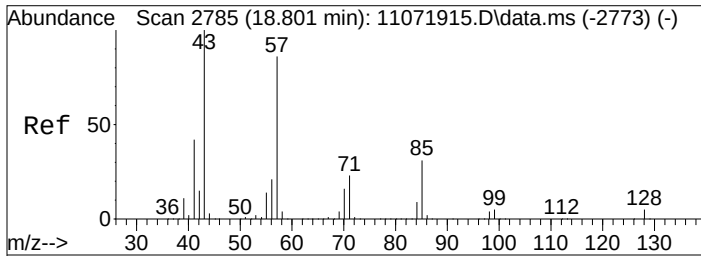
Tgt Ion: 91 Resp: 9196
Ion Ratio Lower Upper
91 100
106 29.7 11.2 51.2



#67
m- & p-Xylenes
Concen: 0.11 ng
RT: 18.16 min Scan# 2669
Delta R.T. -0.011 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

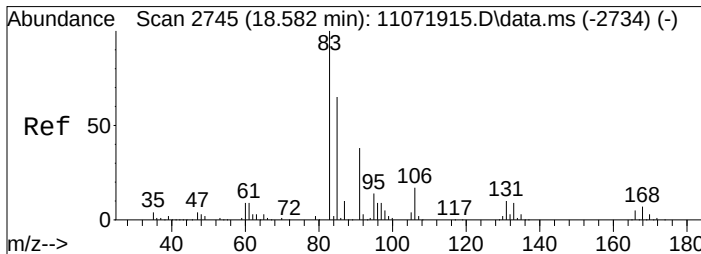
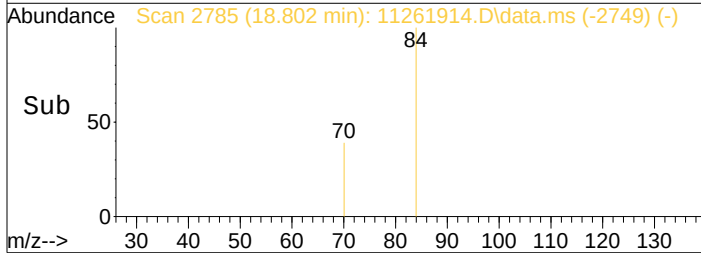
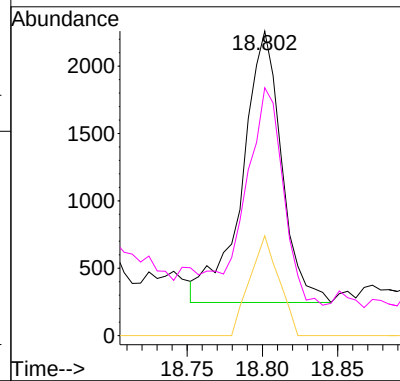
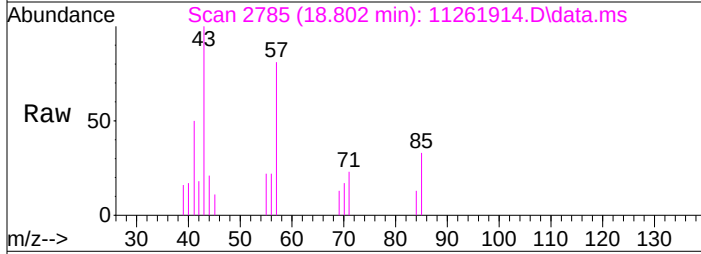
Tgt Ion: 91 Resp: 9243
Ion Ratio Lower Upper
91 100
106 47.1 29.0 69.0





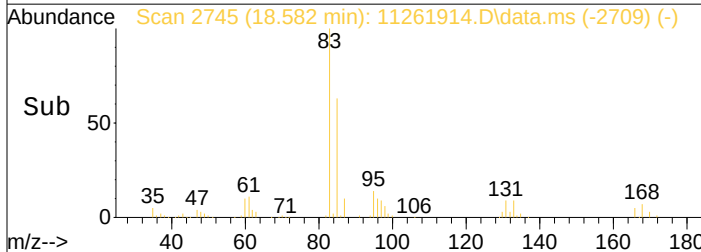
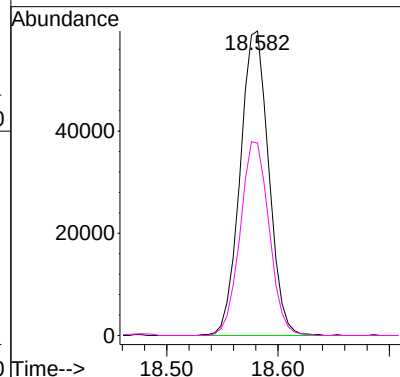
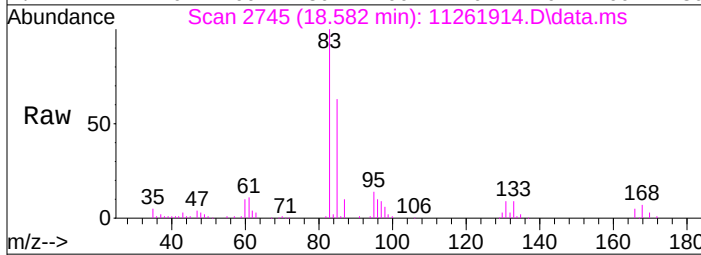
#71
n-Nonane
Concen: 0.06 ng
RT: 18.80 min Scan# 2785
Delta R.T. -0.000 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

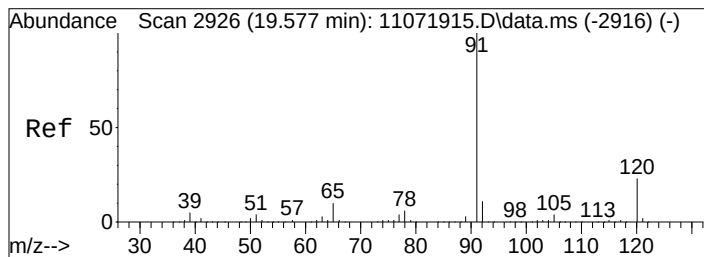
Tgt Ion: 43 Resp: 3676
Ion Ratio Lower Upper
43 100
57 72.8 65.8 105.8
85 27.1 10.4 50.4



#72
1,1,2,2-Tetrachloroethane
Concen: 2.40 ng
RT: 18.58 min Scan# 2745
Delta R.T. -0.000 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

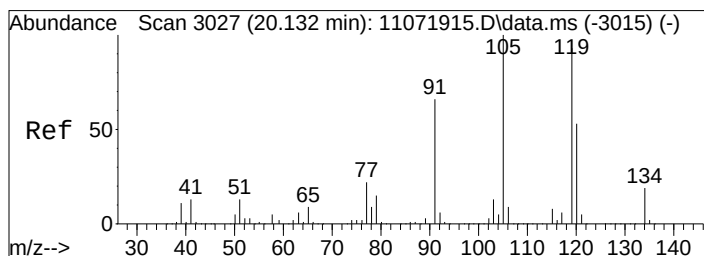
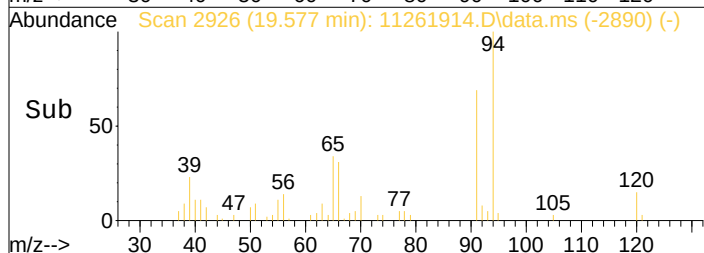
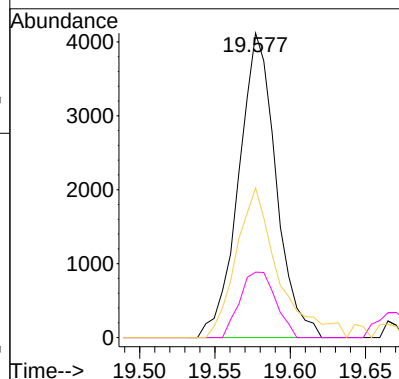
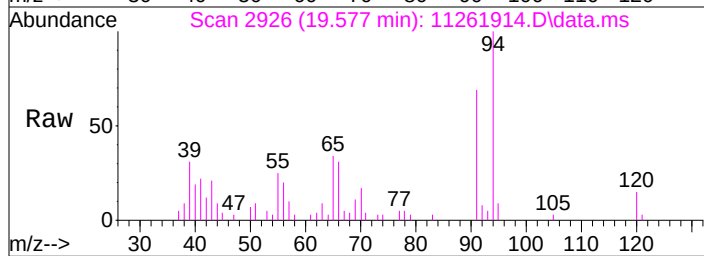
Tgt Ion: 83 Resp: 106343
Ion Ratio Lower Upper
83 100
85 64.5 44.5 84.5





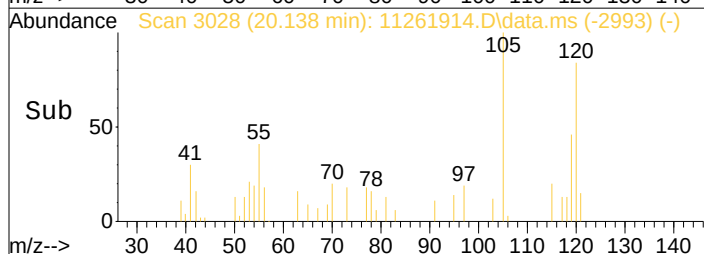
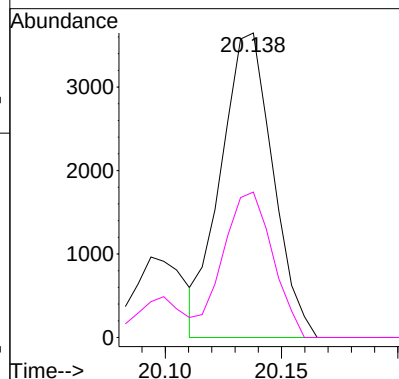
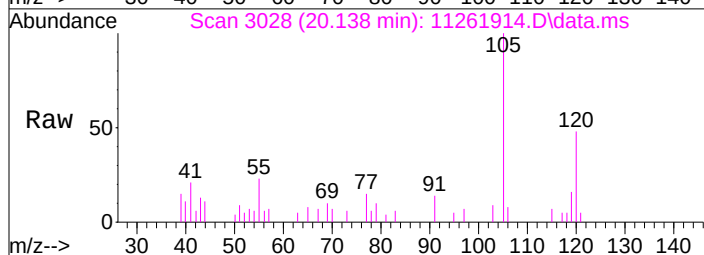
#76
n-Propylbenzene
Concen: 0.05 ng
RT: 19.58 min Scan# 2926
Delta R.T. -0.000 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

Tgt Ion:	91	Resp:	7091
Ion Ratio	Lower	Upper	
91	100		
120	20.6	3.0	43.0
65	55.2	0.0	30.0#



#82
1,2,4-Trimethylbenzene
Concen: 0.07 ng
RT: 20.14 min Scan# 3028
Delta R.T. -0.006 min
Lab File: 11261914.D
Acq: 26 Nov 2019 10:56

Tgt Ion:	105	Resp:	5672
Ion Ratio	Lower	Upper	
105	100		
120	45.9	34.3	74.3



Data File: I:\MS16\DATA\2019_11\26\11261914.D

Acq On : 26 Nov 2019 10:56

Operator: LH

Sample : P1906722-001 (1000mL)

Misc : S31-10161904

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 26 15:51:19 2019

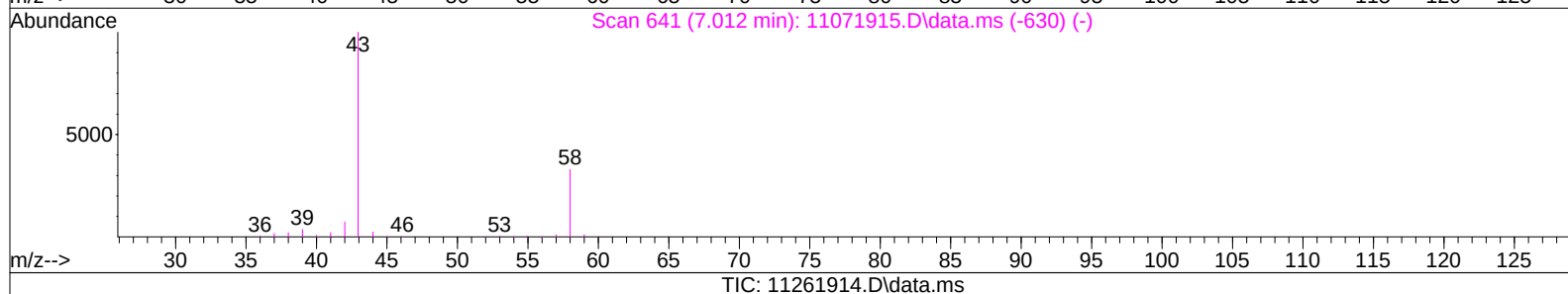
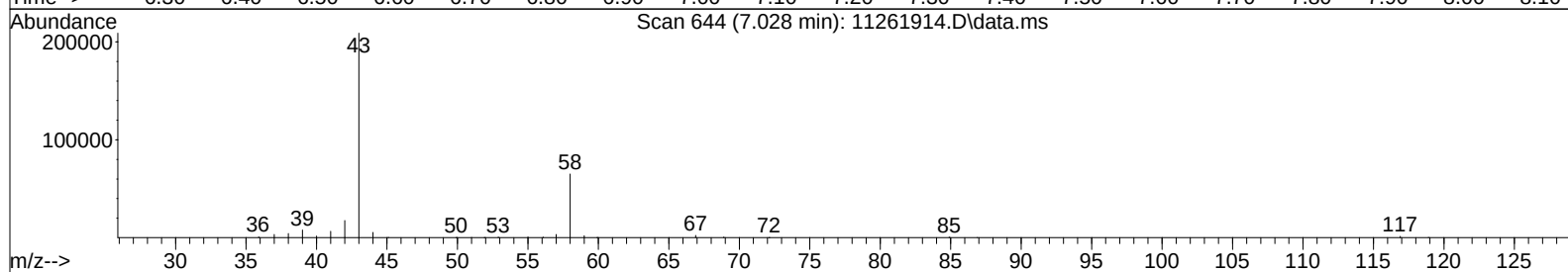
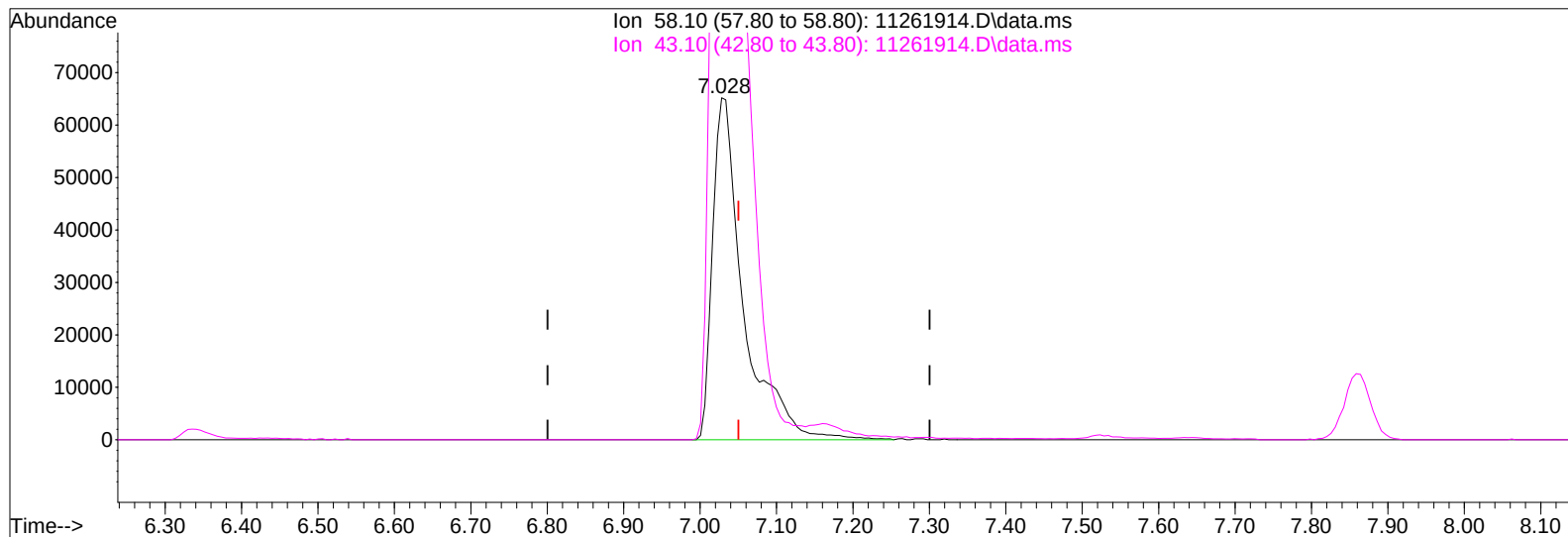
Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



(13) Acetone (T)

7.028min (-0.022) 7.95ng

response 183538

Ion	Exp%	Act%
58.10	100	100
43.10	306.00	310.66
0.00	0.00	0.00
0.00	0.00	0.00

Data File: I:\MS16\DATA\2019_11\26\11261914.D

Acq On : 26 Nov 2019 10:56

Operator: LH

Sample : P1906722-001 (1000mL)

Misc : S31-10161904

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 26 15:51:19 2019

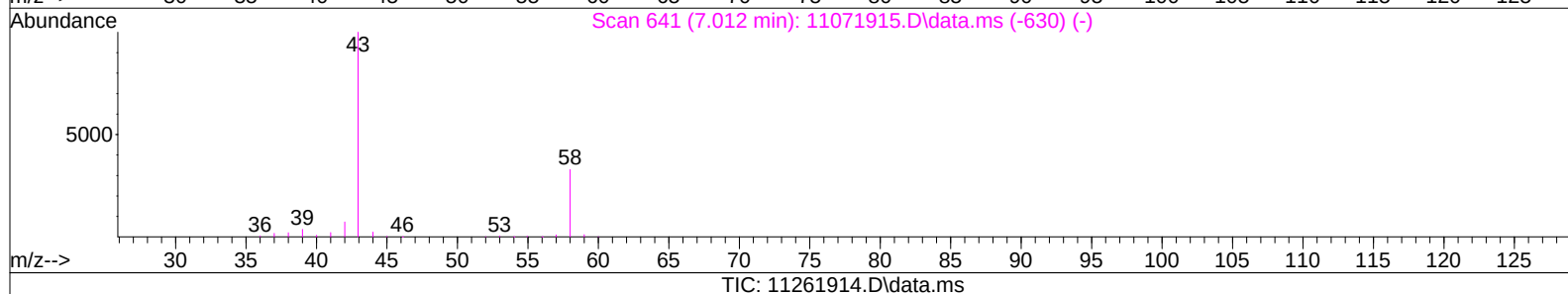
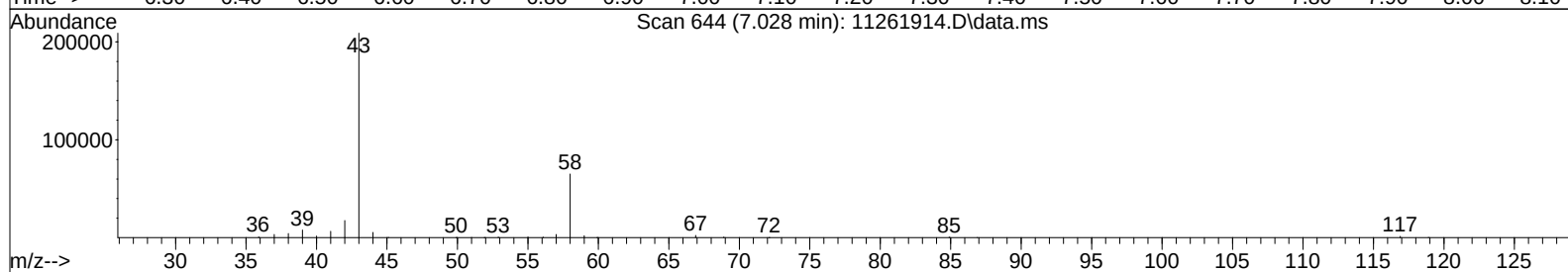
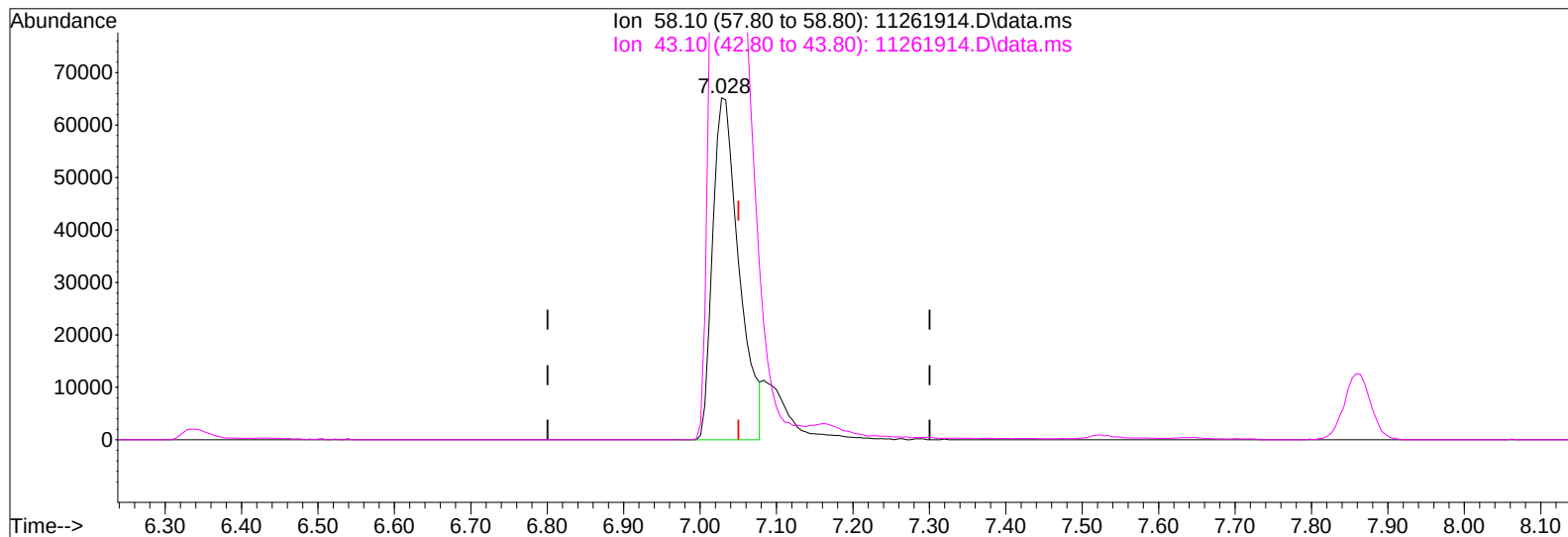
Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



(13) Acetone (T)

7.028min (-0.022) 6.78ng m

IPC

response 156401

LH 11/27/19

Ion	Exp%	Act%
58.10	100	100
43.10	306.00	364.57#
0.00	0.00	0.00
0.00	0.00	0.00

RS 11/27/19

Data File: I:\MS16\DATA\2019_11\26\11261904.D

Acq On : 26 Nov 2019 2:31

Operator: LH

Sample : MB R16112619_ 1000mL

Misc : S31-10161904/AS01319

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 26 09:54:11 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 11/26/19

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	259036	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.29	114	1094351	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.61	82	530060	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.02	65	420532	12.685	ng	-0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	101.52%	
57) Toluene-d8 (SS2)	15.74	98	1137570	12.264	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.08%	
73) Bromofluorobenzene (SS3)	19.00	174	401369	12.113	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	96.88%	

Target Compounds

						Qvalue
2) Propene	4.19	42	886	N.D.		
3) Dichlorodifluoromethan...	0.00	85	0	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.46	45	114	N.D.		
11) Acetonitrile	6.65	41	1078	N.D.		
12) Acrolein	0.00	56	0	N.D.		
13) Acetone	7.08	58	2510	0.108	ng	# 8
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	0.00	45	0	N.D.		
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.		
19) Methylene Chloride	0.00	84	0	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	0.00	151	0	N.D.		
22) Carbon Disulfide	8.72	76	598	N.D.		
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	0.00	72	0	N.D.		
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.		
31) n-Hexane	11.28	57	2701	0.057	ng	# 95
32) Chloroform	0.00	83	0	N.D.		
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.		
41) Benzene	12.90	78	11126	0.100	ng	99
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	13.20	84	1105	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.		
47) Trichloroethene	0.00	130	0	N.D.		
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.		

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Data File: I:\MS16\DATA\2019_11\26\11261904.D

Acq On : 26 Nov 2019 2:31

Operator: LH

Sample : MB R16112619_ 1000mL

Misc : S31-10161904/AS01319

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 26 09:54:11 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.		
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.85	91	2616	N.D.		
59) 2-Hexanone	0.00	43	0	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	0.00	43	0	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	0.00	166	0	N.D.		
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	18.18	91	663	N.D.		
67) m- & p-Xylenes	18.18	91	982	N.D.		
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	0.00	104	0	N.D.		
70) o-Xylene	18.60	91	169	N.D.		
71) n-Nonane	0.00	43	0	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	19.01	105	527	N.D.		
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	19.55	91	1634	N.D.		
77) 3-Ethyltoluene	19.71	105	124	N.D.		
78) 4-Ethyltoluene	19.71	105	124	N.D.		
79) 1,3,5-Trimethylbenzene	19.71	105	124	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	19.71	105	124	N.D.		
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.		
83) n-Decane	0.00	57	0	N.D.		
84) Benzyl Chloride	0.00	91	0	N.D.		
85) 1,3-Dichlorobenzene	20.27	146	190	N.D.		
86) 1,4-Dichlorobenzene	20.33	146	471	N.D.		
87) sec-Butylbenzene	0.00	105	0	N.D.		
88) 4-Isopropyltoluene (p-...	20.51	119	216	N.D.		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.		
90) 1,2-Dichlorobenzene	20.63	146	187	N.D.		
91) d-Limonene	0.00	68	0	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	21.21	57	331	N.D.		
94) 1,2,4-Trichlorobenzene	22.15	180	444	N.D.		
95) Naphthalene	22.26	128	1760	N.D.		
96) n-Dodecane	0.00	57	0	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	18.32	55	332	N.D.		
99) tert-Butylbenzene	0.00	119	0	N.D.		
100) n-Butylbenzene	20.89	91	169	N.D.		

(#)=qualifier out of range (m)=manual integration (+)=signals summed

Data File: I:\MS16\DATA\2019_11\26\11261904.D

Acq On : 26 Nov 2019 2:31

Operator: LH

Sample : MB R16112619_ 1000mL

Misc : S31-10161904/AS01319

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 26 09:54:11 2019

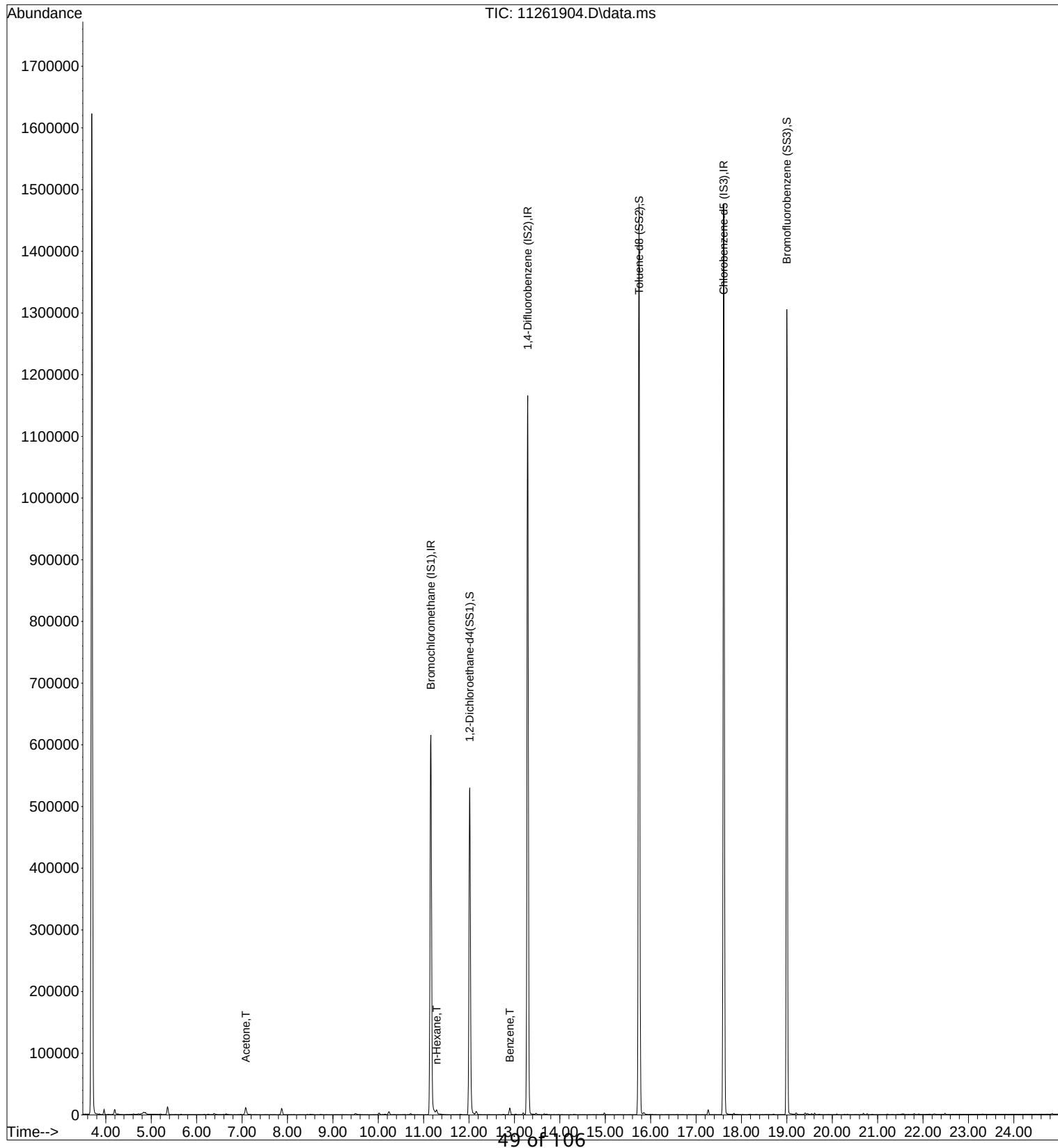
Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_11\26\11261905.D

Acq On : 26 Nov 2019 3:04

Operator: LH

Sample : LCS R16112619_25ng

Misc : S31-10161904/S31-11121908 (12/11)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 26 09:54:29 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

LH 11/26/19

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	260065	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.30	114	1096698	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.61	82	546753	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.03	65	423345	12.720	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	101.76%	
57) Toluene-d8 (SS2)	15.74	98	1186816	12.405	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.20%	
73) Bromofluorobenzene (SS3)	19.00	174	411127	12.029	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	96.24%	

Target Compounds

						Qvalue
2) Propene	4.11	42	1000489	22.768	ng	100
3) Dichlorodifluoromethan...	4.27	85	1247781	23.110	ng	100
4) Chloromethane	4.55	50	723063	19.431	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.82	135	573938	21.441	ng	100
6) Vinyl Chloride	4.97	62	993989	23.327	ng	99
7) 1,3-Butadiene	5.24	54	897623	27.921	ng	100
8) Bromomethane	5.68	94	609653	23.780	ng	100
9) Chloroethane	6.01	64	543331	24.107	ng	100
10) Ethanol	6.37	45	2932731	116.808	ng	100
11) Acetonitrile	6.62	41	1567143	25.074	ng	100
12) Acrolein	6.81	56	499931	25.123	ng	99
13) Acetone	7.02	58	2664134	114.034	ng	98
14) Trichlorofluoromethane	7.27	101	1093705	23.697	ng	100
15) 2-Propanol (Isopropanol)	7.50	45	3484048	52.220	ng	99
16) Acrylonitrile	7.78	53	1066166	25.390	ng	99
17) 1,1-Dichloroethene	8.23	96	652160	24.809	ng	98
18) 2-Methyl-2-Propanol (t...	8.38	59	3281957	68.516	ng	99
19) Methylene Chloride	8.45	84	675467	23.389	ng	100
20) 3-Chloro-1-propene (Al...	8.62	41	1146563	24.503	ng	99
21) Trichlorotrifluoroethane	8.87	151	566470	23.914	ng	99
22) Carbon Disulfide	8.71	76	2566868	25.064	ng	100
23) trans-1,2-Dichloroethene	9.73	61	1049796	25.641	ng	100
24) 1,1-Dichloroethane	9.98	63	1249283	23.767	ng	100
25) Methyl tert-Butyl Ether	10.07	73	1881115	31.918	ng	100
26) Vinyl Acetate	10.23	86	705580	162.531	ng	98
27) 2-Butanone (MEK)	10.47	72	464111	24.952	ng	98
28) cis-1,2-Dichloroethene	11.00	61	996129	24.510	ng	99
29) Diisopropyl Ether	11.29	87	611025	25.296	ng	99
30) Ethyl Acetate	11.30	61	502343	51.126	ng	100
31) n-Hexane	11.28	57	1121934	23.759	ng	100
32) Chloroform	11.35	83	1072125	23.408	ng	100
34) Tetrahydrofuran (THF)	11.74	72	495700	25.701	ng	99
35) Ethyl tert-Butyl Ether	11.88	87	681156	30.346	ng	100
36) 1,2-Dichloroethane	12.14	62	881280	24.726	ng	100
38) 1,1,1-Trichloroethane	12.42	97	995468	25.085	ng	99
39) Isopropyl Acetate	12.85	61	959992	51.358	ng	100
40) 1-Butanol	12.86	56	1378480	56.767	ng	99
41) Benzene	12.90	78	2472239	22.272	ng	100
42) Carbon Tetrachloride	13.06	117	832937	25.808	ng	100
43) Cyclohexane	13.19	84	1974348	47.860	ng	100
44) tert-Amyl Methyl Ether	13.54	73	1716204	29.829	ng	99
45) 1,2-Dichloropropane	13.75	63	751166	24.819	ng	99
46) Bromodichloromethane	13.95	83	913609	25.713	ng	100
47) Trichloroethene	14.00	130	642316	23.697	ng	100
48) 1,4-Dioxane	13.97	88	555130	26.518	ng	100
49) 2,2,4-Trimethylpentane...	14.07	57	2848043	23.256	ng	99

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Data File: I:\MS16\DATA\2019_11\26\11261905.D

Acq On : 26 Nov 2019 3:04

Operator: LH

Sample : LCS R16112619_25ng

Misc : S31-10161904/S31-11121908 (12/11)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 26 09:54:29 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

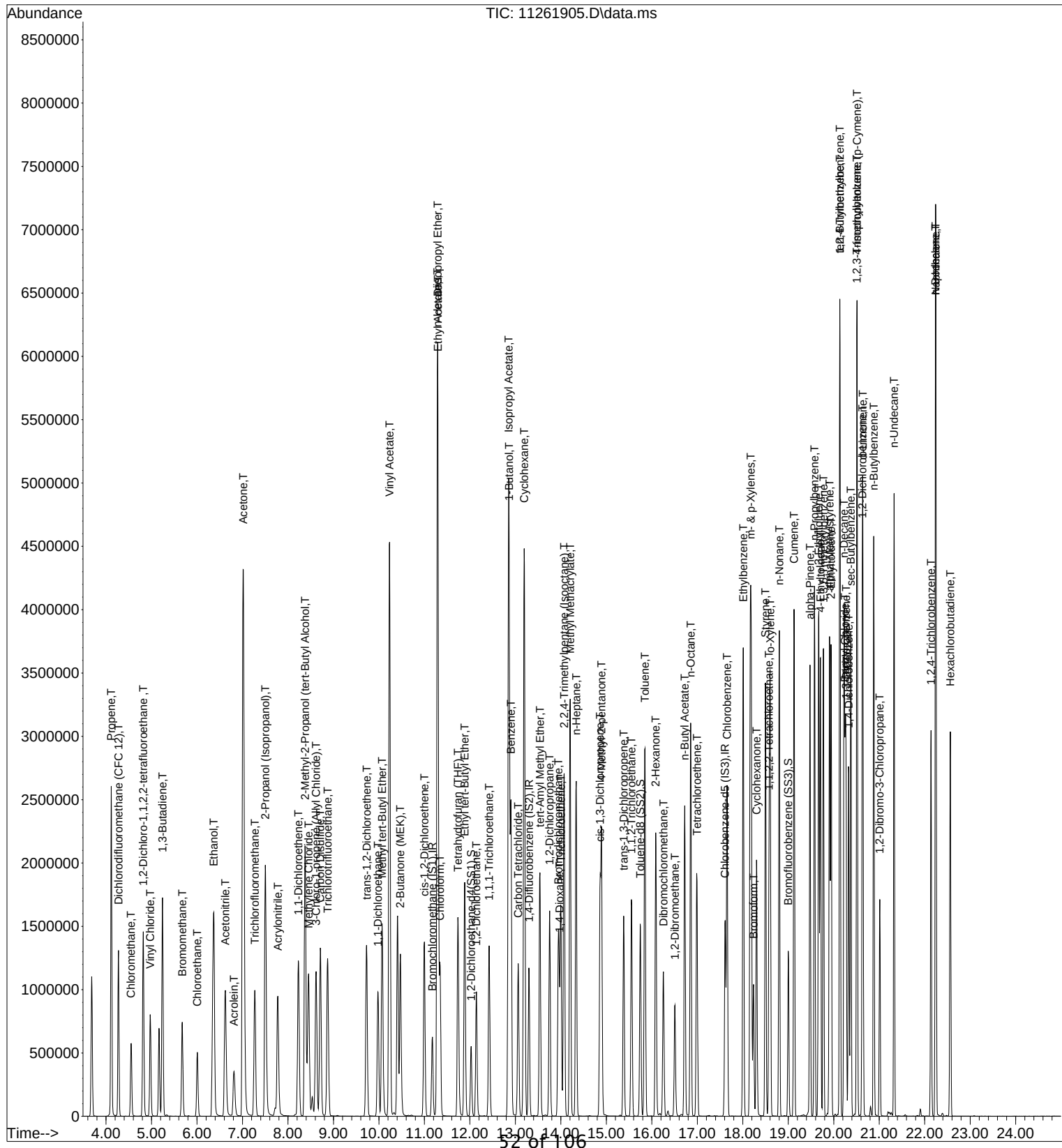
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.20	100	546637	52.897	ng	100
51) n-Heptane	14.34	71	696075	25.021	ng	99
52) cis-1,3-Dichloropropene	14.86	75	1208038	28.445	ng	100
53) 4-Methyl-2-pentanone	14.89	58	686624	26.167	ng	99
54) trans-1,3-Dichloropropene	15.38	75	1037095	28.549	ng	100
55) 1,1,2-Trichloroethane	15.55	97	654326	24.968	ng	100
58) Toluene	15.85	91	2556419	25.335	ng	100
59) 2-Hexanone	16.09	43	1817219	27.320	ng	100
60) Dibromochloromethane	16.26	129	745765	26.304	ng	100
61) 1,2-Dibromoethane	16.51	107	745107	25.646	ng	100
62) n-Butyl Acetate	16.72	43	2110106	27.821	ng	100
63) n-Octane	16.86	57	632326	24.537	ng	99
64) Tetrachloroethene	16.99	166	692765	22.972	ng	100
65) Chlorobenzene	17.65	112	1657000	23.351	ng	100
66) Ethylbenzene	18.01	91	2977951	24.256	ng	100
67) m- & p-Xylenes	18.17	91	4255063	46.308	ng	99
68) Bromoform	18.24	173	566659	26.763	ng	100
69) Styrene	18.50	104	1810983	25.442	ng	100
70) o-Xylene	18.60	91	2017180	23.167	ng	99
71) n-Nonane	18.80	43	1472715	23.639	ng	99
72) 1,1,2,2-Tetrachloroethane	18.58	83	1112942	23.963	ng	100
74) Cumene	19.13	105	2771678	24.213	ng	99
75) alpha-Pinene	19.48	93	1442966	25.510	ng	100
76) n-Propylbenzene	19.58	91	3363501	23.406	ng	100
77) 3-Ethyltoluene	19.67	105	2648357	23.785	ng	100
78) 4-Ethyltoluene	19.71	105	2321130	22.713	ng	100
79) 1,3,5-Trimethylbenzene	19.78	105	2072983	22.129	ng	100
80) alpha-Methylstyrene	19.91	118	1183677	25.252	ng	100
81) 2-Ethyltoluene	19.94	105	2376171	23.671	ng	99
82) 1,2,4-Trimethylbenzene	20.13	105	1995707	21.882	ng	99
83) n-Decane	20.23	57	1287453	22.458	ng	100
84) Benzyl Chloride	20.25	91	1721808	31.525	ng	99
85) 1,3-Dichlorobenzene	20.27	146	1149867	21.534	ng	99
86) 1,4-Dichlorobenzene	20.33	146	1202501	21.985	ng	99
87) sec-Butylbenzene	20.37	105	2660749	23.498	ng	100
88) 4-Isopropyltoluene (p-...	20.51	119	2318643	21.736	ng	100
89) 1,2,3-Trimethylbenzene	20.51	105	1909807	20.893	ng	100
90) 1,2-Dichlorobenzene	20.63	146	1168532	22.229	ng	100
91) d-Limonene	20.64	68	762520	22.193	ng	99
92) 1,2-Dibromo-3-Chloropr...	21.01	157	499051	26.727	ng	98
93) n-Undecane	21.33	57	1534348	25.958	ng	100
94) 1,2,4-Trichlorobenzene	22.14	180	1007111	26.158	ng	99
95) Naphthalene	22.24	128	2863102	25.608	ng	100
96) n-Dodecane	22.24	57	1251198	26.584	ng	100
97) Hexachlorobutadiene	22.56	225	624807	23.516	ng	100
98) Cyclohexanone	18.30	55	954513	24.724	ng	100
99) tert-Butylbenzene	20.13	119	1892880	21.085	ng	99
100) n-Butylbenzene	20.88	91	2507213	23.965	ng	100

(#)=qualifier out of range (m)=manual integration (+)=signals summed

ALS Vial : 2 Sample Multiplier: 1

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_11\26\11261906.D

Acq On : 26 Nov 2019 3:38

Operator: LH

Sample : LCSD R16112619_25ng

Misc : S31-10161904/S31-11121908 (12/11)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 26 09:54:31 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

LH 11/26/19

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	267744	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.30	114	1104390	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.61	82	558107	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.03	65	430590	12.566	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	100.56%	
57) Toluene-d8 (SS2)	15.75	98	1202814	12.316	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.56%	
73) Bromofluorobenzene (SS3)	19.01	174	419624	12.028	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	96.24%	

Target Compounds

						Qvalue
2) Propene	4.11	42	988043	21.840	ng	99
3) Dichlorodifluoromethan...	4.27	85	1256419	22.603	ng	100
4) Chloromethane	4.55	50	739930	19.314	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.82	135	580212	21.054	ng	100
6) Vinyl Chloride	4.97	62	1032553	23.537	ng	100
7) 1,3-Butadiene	5.24	54	890023	26.891	ng	100
8) Bromomethane	5.68	94	603474	22.864	ng	100
9) Chloroethane	6.01	64	536992	23.142	ng	100
10) Ethanol	6.36	45	2938130	113.666	ng	100
11) Acetonitrile	6.62	41	1580343	24.560	ng	100
12) Acrolein	6.81	56	501478	24.478	ng	100
13) Acetone	7.01	58	2667430	110.901	ng	97
14) Trichlorofluoromethane	7.27	101	1101136	23.174	ng	100
15) 2-Propanol (Isopropanol)	7.50	45	3461222	50.390	ng	100
16) Acrylonitrile	7.77	53	1079732	24.975	ng	99
17) 1,1-Dichloroethene	8.23	96	661721	24.451	ng	99
18) 2-Methyl-2-Propanol (t...	8.38	59	3312121	67.163	ng	99
19) Methylene Chloride	8.45	84	678131	22.808	ng	99
20) 3-Chloro-1-propene (Al...	8.62	41	1150816	23.889	ng	99
21) Trichlorotrifluoroethane	8.87	151	571746	23.444	ng	99
22) Carbon Disulfide	8.71	76	2592997	24.593	ng	100
23) trans-1,2-Dichloroethene	9.73	61	1059120	25.127	ng	100
24) 1,1-Dichloroethane	9.98	63	1262185	23.324	ng	100
25) Methyl tert-Butyl Ether	10.07	73	1897422	31.272	ng	100
26) Vinyl Acetate	10.23	86	710575	158.987	ng	97
27) 2-Butanone (MEK)	10.47	72	466229	24.347	ng	97
28) cis-1,2-Dichloroethene	10.99	61	1005193	24.023	ng	100
29) Diisopropyl Ether	11.29	87	523239	21.040	ng	# 68
30) Ethyl Acetate	11.30	61	504352	49.859	ng	100
31) n-Hexane	11.28	57	1119497	23.028	ng	100
32) Chloroform	11.34	83	1075346	22.805	ng	100
34) Tetrahydrofuran (THF)	11.74	72	502027	25.282	ng	99
35) Ethyl tert-Butyl Ether	11.88	87	687610	29.755	ng	100
36) 1,2-Dichloroethane	12.14	62	886873	24.169	ng	99
38) 1,1,1-Trichloroethane	12.42	97	1007186	25.203	ng	99
39) Isopropyl Acetate	12.85	61	960845	51.046	ng	99
40) 1-Butanol	12.87	56	1399438	57.229	ng	99
41) Benzene	12.90	78	2473378	22.127	ng	100
42) Carbon Tetrachloride	13.06	117	840176	25.851	ng	100
43) Cyclohexane	13.19	84	1991214	47.933	ng	100
44) tert-Amyl Methyl Ether	13.54	73	1730923	29.876	ng	99
45) 1,2-Dichloropropane	13.75	63	751640	24.662	ng	100
46) Bromodichloromethane	13.95	83	911424	25.473	ng	100
47) Trichloroethene	14.00	130	640408	23.462	ng	100
48) 1,4-Dioxane	13.96	88	557830	26.461	ng	100
49) 2,2,4-Trimethylpentane...	14.07	57	2875619	23.318	ng	99

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Data File: I:\MS16\DATA\2019_11\26\11261906.D

Acq On : 26 Nov 2019 3:38

Operator: LH

Sample : LCSD R16112619_25ng

Misc : S31-10161904/S31-11121908 (12/11)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 26 09:54:31 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

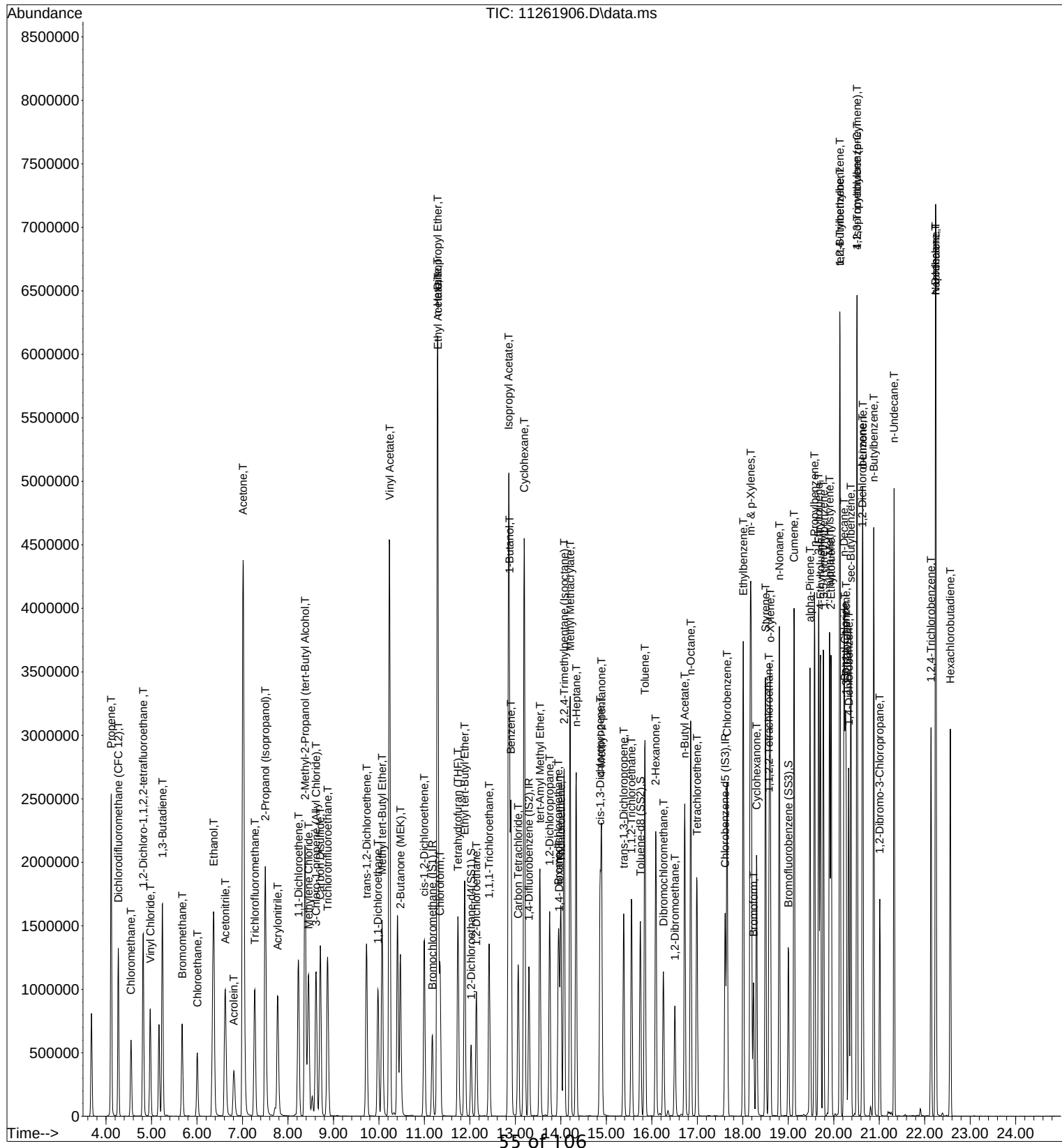
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.20	100	544403	52.314	ng	100
51) n-Heptane	14.34	71	699772	24.979	ng	100
52) cis-1,3-Dichloropropene	14.86	75	1207735	28.240	ng	100
53) 4-Methyl-2-pentanone	14.89	58	693939	26.262	ng	100
54) trans-1,3-Dichloropropene	15.38	75	1046390	28.604	ng	100
55) 1,1,2-Trichloroethane	15.55	97	655767	24.849	ng	99
58) Toluene	15.85	91	2571361	24.965	ng	100
59) 2-Hexanone	16.09	43	1831489	26.975	ng	100
60) Dibromochloromethane	16.26	129	748377	25.859	ng	100
61) 1,2-Dibromoethane	16.51	107	744744	25.112	ng	100
62) n-Butyl Acetate	16.72	43	2132657	27.546	ng	100
63) n-Octane	16.85	57	635546	24.160	ng	100
64) Tetrachloroethene	16.99	166	688728	22.373	ng	100
65) Chlorobenzene	17.65	112	1664685	22.982	ng	100
66) Ethylbenzene	18.01	91	2998711	23.928	ng	99
67) m- & p-Xylenes	18.17	91	4285607	45.691	ng	99
68) Bromoform	18.24	173	567501	26.257	ng	100
69) Styrene	18.50	104	1823383	25.095	ng	99
70) o-Xylene	18.60	91	2028726	22.825	ng	99
71) n-Nonane	18.80	43	1482205	23.308	ng	99
72) 1,1,2,2-Tetrachloroethane	18.58	83	1117108	23.564	ng	100
74) Cumene	19.13	105	2781601	23.806	ng	100
75) alpha-Pinene	19.48	93	1440994	24.957	ng	100
76) n-Propylbenzene	19.58	91	3370556	22.978	ng	100
77) 3-Ethyltoluene	19.67	105	2646864	23.288	ng	100
78) 4-Ethyltoluene	19.71	105	2333151	22.366	ng	99
79) 1,3,5-Trimethylbenzene	19.77	105	2088940	21.846	ng	99
80) alpha-Methylstyrene	19.91	118	1189591	24.861	ng	100
81) 2-Ethyltoluene	19.94	105	2375788	23.186	ng	100
82) 1,2,4-Trimethylbenzene	20.13	105	1991480	21.392	ng	99
83) n-Decane	20.23	57	1287073	21.994	ng	100
84) Benzyl Chloride	20.25	91	1750861	31.405	ng	99
85) 1,3-Dichlorobenzene	20.27	146	1146882	21.042	ng	100
86) 1,4-Dichlorobenzene	20.33	146	1211287	21.695	ng	100
87) sec-Butylbenzene	20.37	105	2660199	23.015	ng	100
88) 4-Isopropyltoluene (p-...	20.51	119	2309962	21.214	ng	99
89) 1,2,3-Trimethylbenzene	20.51	105	1914691	20.521	ng	100
90) 1,2-Dichlorobenzene	20.63	146	1162425	21.663	ng	100
91) d-Limonene	20.64	68	757356	21.595	ng	99
92) 1,2-Dibromo-3-Chloropr...	21.01	157	502144	26.346	ng	98
93) n-Undecane	21.33	57	1541777	25.553	ng	100
94) 1,2,4-Trichlorobenzene	22.14	180	1016573	25.866	ng	99
95) Naphthalene	22.24	128	2885662	25.285	ng	100
96) n-Dodecane	22.24	57	1250748	26.034	ng	100
97) Hexachlorobutadiene	22.56	225	626215	23.090	ng	100
98) Cyclohexanone	18.30	55	966767	24.532	ng	100
99) tert-Butylbenzene	20.13	119	1880680	20.523	ng	99
100) n-Butylbenzene	20.88	91	2517285	23.572	ng	100

(#)=qualifier out of range (m)=manual integration (+)=signals summed

ALS Vial : 2 Sample Multiplier: 1

DataAcq Meth:T015.M



Method Path : I:\MS16\METHODS\

Method File : R16110719.M

Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

Last Update : Thu Nov 07 14:29:49 2019

LH 11/7/19

Response Via : Initial Calibration

Calibration Files

0.1 =11071910.D 0.2 =11071911.D 0.5 =11071912.D 1.0 =11071913.D 5.0 =11071914.D 25 =11071915.D 100 =11071917.D

	Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
1) IR	Bromochloromethane...	-----ISTD-----									
2) T	Propene	2.229	2.012	2.120	2.408	2.321	2.057	2.066	1.682	2.112	10.51
3) T	Dichlorodifluo...	3.102	2.901	2.833	2.710	2.716	2.415	2.201	1.883	2.595	15.48
4) T	Chloromethane		2.604	2.123	1.540	1.700	1.688	1.077		1.789	29.19
5) T	1,2-Dichloro-1...	1.439	1.411	1.400	1.376	1.343	1.202	1.124	0.997	1.287	12.47
6) T	Vinyl Chloride	2.311	2.265	2.166	2.079	2.128	1.923	1.838	1.676	2.048	10.70
7) T	1,3-Butadiene	1.792	1.546	1.530	1.512	1.613	1.602	1.487	1.280	1.545	9.28
8) T	Bromomethane	1.466	1.327	1.292	1.223	1.253	1.169	1.120	1.008	1.232	11.25
9) T	Chloroethane	1.225	1.132	1.103	1.097	1.109	1.035	1.011	0.955	1.083	7.63
10) T	Ethanol	1.456	1.353	1.247	1.244	1.213	1.138	1.072	0.930	1.207	13.51
11) T	Acetonitrile			3.189	3.117	3.044	2.955	2.932	2.787	3.004	4.78
12) T	Acrolein	0.970	1.019	0.952	0.944	0.978	0.953	0.938	0.898	0.956	3.63
13) T	Acetone	1.453	1.332	1.257	1.178	1.132	1.004	0.898	0.728	1.123	21.13
14) T	Trichlorofluor...	2.561	2.409	2.378	2.294	2.304	2.069	1.958	1.775	2.218	11.80
15) T	2-Propanol (Is...	4.015	3.934	3.542	2.875	3.130	3.196	2.651	2.312	3.207	18.71
16) T	Acrylonitrile	1.944	1.928	2.035	2.091	2.138	2.069	2.034	1.907	2.018	4.14
17) T	1,1-Dichloroet...	1.384	1.333	1.314	1.280	1.304	1.219	1.182	1.092	1.263	7.45
18) T	2-Methyl-2-Pro...	2.642	2.413	2.282	2.380	2.536	2.550	2.411	1.205	2.302	19.87
19) T	Methylene Chlo...	1.622	1.507	1.488	1.427	1.412	1.295	1.220	1.136	1.388	11.60
20) T	3-Chloro-1-pro...	2.509	2.288	2.226	2.217	2.312	2.250	2.171	2.020	2.249	6.13
21) T	Trichlorotrifl...	1.297	1.254	1.232	1.168	1.168	1.068	1.010	0.911	1.139	11.62
22) T	Carbon Disulfide			5.286	5.366	5.382	4.863	4.566	4.071	4.922	10.73
23) T	trans-1,2-Dich...	2.165	1.994	2.049	2.020	2.069	1.927	1.842	1.677	1.968	7.72
24) T	1,1-Dichloroet...	2.954	2.709	2.641	2.565	2.569	2.385	2.289	2.100	2.526	10.48
25) T	Methyl tert-Bu...	2.956	2.733	2.724	2.842	2.968	2.893	2.842	2.703	2.833	3.68
26) T	Vinyl Acetate	0.158	0.164	0.170	0.185	0.254	0.271	0.255	0.212	0.209	21.89
27) T	2-Butanone (MEK)	0.832	0.911	0.948	0.957	0.949	0.901	0.869	0.785	0.894	6.90
28) T	cis-1,2-Dichlo...	2.191	2.111	2.050	1.993	2.011	1.868	1.786	1.618	1.953	9.54
29) T	Diisopropyl Ether	1.400	1.339	1.275	1.274	1.283	1.147	0.885	0.685	1.161	21.40
30) T	Ethyl Acetate	0.471	0.531	0.542	0.530	0.546	0.476	0.397	0.286	0.472	19.19
31) T	n-Hexane	2.791	2.627	2.481	2.422	2.418	2.113	1.839	1.466	2.270	19.31
32) T	Chloroform	2.676	2.476	2.397	2.328	2.301	2.003	1.830	1.600	2.201	16.33
33) S	1,2-Dichloroet...	1.634	1.620	1.618	1.631	1.615	1.586	1.558	1.535	1.600	2.26
34) T	Tetrahydrofura...	1.006	0.959	0.954	0.944	0.947	0.912	0.892	0.802	0.927	6.56
35) T	Ethyl tert-But...	1.161	1.169	1.088	1.068	1.115	1.053	1.023	0.955	1.079	6.58
36) T	1,2-Dichloroet...	1.978	1.835	1.785	1.749	1.750	1.618	1.555	1.436	1.713	9.95

37) IR	1,4-Difluorobenzen...	-----ISTD-----									
38) T	1,1,1-Trichlor...	0.506	0.471	0.465	0.449	0.467	0.441	0.427	0.393	0.452	7.46
39) T	Isopropyl Acetate	0.212	0.218	0.222	0.221	0.235	0.221	0.205	0.171	0.213	9.02
40) T	1-Butanol	0.237	0.262	0.285	0.305	0.315	0.317	0.282	0.211	0.277	13.73
41) T	Benzene	1.609	1.508	1.388	1.335	1.323	1.144	1.022	0.791	1.265	21.11
42) T	Carbon Tetrach...	0.362	0.354	0.358	0.369	0.397	0.387	0.373	0.342	0.368	4.86
43) T	Cyclohexane	0.549	0.527	0.511	0.493	0.498	0.451	0.406	0.328	0.470	15.47
44) T	tert-Amyl Meth...	0.730	0.695	0.651	0.644	0.664	0.645	0.632	0.586	0.656	6.52
45) T	1,2-Dichloropr...	0.386	0.366	0.353	0.347	0.355	0.334	0.324	0.295	0.345	8.03
46) T	Bromodichlorom...	0.427	0.414	0.410	0.408	0.429	0.408	0.392	0.352	0.405	6.07
47) T	Trichloroethene	0.361	0.351	0.331	0.321	0.322	0.291	0.269	0.225	0.309	14.53
48) T	1,4-Dioxane	0.252	0.264	0.263	0.264	0.217	0.241	0.222	0.187	0.239	11.74
49) T	2,2,4-Trimethy...	1.668	1.585	1.530	1.486	1.485	1.293	1.166	0.953	1.396	17.18
50) T	Methyl Methacr...	0.116	0.119	0.118	0.121	0.129	0.123	0.117	0.100	0.118	6.89
51) T	n-Heptane	0.350	0.354	0.332	0.329	0.331	0.307	0.288	0.247	0.317	11.29
52) T	cis-1,3-Dichlo...	0.452	0.457	0.457	0.467	0.462	0.528	0.518	0.472	0.484	6.74
53) T	4-Methyl-2-pen...	0.294	0.296	0.313	0.324	0.328	0.312	0.286	0.240	0.299	9.33
54) T	trans-1,3-Dich...			0.337	0.365	0.435	0.462	0.458	0.427	0.414	12.43

55)	T	1,1,2-Trichlor...	0.319	0.315	0.312	0.307	0.312	0.293	0.279	0.251	0.299	7.81
56)	IR	Chlorobenzene-d5 (...)	-----ISTD-----									
57)	S	Toluene-d8 (SS2)	2.255	2.223	2.187	2.155	2.192	2.175	2.155	2.157	2.187	1.64
58)	T	Toluene			2.614	2.448	2.585	2.277	2.108	1.808	2.307	13.44
59)	T	2-Hexanone	1.408	1.465	1.554	1.558	1.631	1.641	1.553	1.355	1.521	6.73
60)	T	Dibromochlorom...	0.655	0.640	0.635	0.639	0.721	0.682	0.644	0.570	0.648	6.66
61)	T	1,2-Dibromoethane	0.711	0.698	0.664	0.653	0.710	0.670	0.637	0.570	0.664	7.04
62)	T	n-Butyl Acetate	1.698	1.669	1.669	1.680	1.865	1.895	1.808	1.588	1.734	6.26
63)	T	n-Octane	0.694	0.637	0.627	0.597	0.636	0.568	0.520	0.433	0.589	13.84
64)	T	Tetrachloroethene	0.844	0.779	0.735	0.697	0.735	0.644	0.588	0.493	0.689	16.15
65)	T	Chlorobenzene	1.939	1.786	1.655	1.561	1.636	1.501	1.712	1.187	1.622	13.68
66)	T	Ethylbenzene	3.325	3.100	2.966	2.848	3.040	2.692	2.446	2.038	2.807	14.56
67)	T	m- & p-Xylenes	2.598	2.442	2.327	2.230	2.284	1.935	1.679	1.310	2.101	20.48
68)	T	Bromoform	0.471	0.478	0.479	0.488	0.568	0.526	0.474	0.388	0.484	10.57
69)	T	Styrene	1.757	1.683	1.660	1.670	1.827	1.663	1.509	1.250	1.627	10.91
70)	T	o-Xylene		2.451	2.344	2.256	2.288	1.844	1.562	1.189	1.991	23.77
71)	T	n-Nonane	1.721	1.594	1.529	1.487	1.581	1.366	1.201	0.916	1.424	18.14
72)	T	1,1,2,2-Tetrac...	1.248	1.189	1.167	1.131	1.181	1.003	0.881	0.696	1.062	17.83
73)	S	Bromofluoroben...	0.756	0.760	0.802	0.849	0.778	0.765	0.765	0.775	0.781	3.95
74)	T	Cumene		3.111	2.929	2.805	2.920	2.527	2.237	1.791	2.617	17.80
75)	T	alpha-Pinene	1.492	1.386	1.371	1.335	1.433	1.262	1.135	0.932	1.293	14.07
76)	T	n-Propylbenzene	3.967	3.718	3.642	3.527	3.632	3.055	2.660	2.080	3.285	19.44
77)	T	3-Ethyltoluene		2.974	2.949	2.862	2.946	2.415	2.039	1.634	2.546	20.98
78)	T	4-Ethyltoluene		2.870	2.771	2.646	2.667	2.208	1.869	1.324	2.336	24.33
79)	T	1,3,5-Trimethy...	2.730	2.493	2.398	2.329	2.338	1.927	1.652	1.265	2.142	22.77
80)	T	alpha-Methylst...	1.140	1.095	1.118	1.149	1.234	1.108	0.976	0.753	1.072	13.72
81)	T	2-Ethyltoluene			2.917	2.784	2.765	2.194	1.803	1.307	2.295	28.07
82)	T	1,2,4-Trimethy...	2.579	2.469	2.415	2.336	2.361	1.893	1.506	1.121	2.085	25.25
83)	T	n-Decane	1.657	1.514	1.493	1.453	1.476	1.203	0.995	0.693	1.311	24.71
84)	T	Benzyl Chloride				0.911	1.435	1.542	1.352	1.003	1.249	22.15
85)	T	1,3-Dichlorobe...	1.604	1.475	1.422	1.337	1.334	1.076	0.892	0.625	1.221	27.04
86)	T	1,4-Dichlorobe...	1.649	1.485	1.416	1.351	1.329	1.123	0.951	0.701	1.250	24.66
87)	T	sec-Butylbenzene			3.311	3.165	3.151	2.479	2.009	1.418	2.589	29.36
88)	T	4-Isopropyltol...		3.054	2.979	2.880	2.920	2.237	1.716	1.285	2.439	28.95
89)	T	1,2,3-Trimethy...	2.689	2.514	2.433	2.334	2.356	1.859	1.445	1.087	2.090	27.20
90)	T	1,2-Dichlorobe...	1.546	1.433	1.395	1.303	1.303	1.093	0.898	0.645	1.202	25.25
91)	T	d-Limonene	0.912	0.927	0.952	0.933	0.956	0.731	0.539	0.334	0.785	29.74
92)	T	1,2-Dibromo-3-...	0.402	0.407	0.429	0.434	0.477	0.469	0.435	0.361	0.427	8.78
93)	T	n-Undecane	1.480	1.390	1.415	1.412	1.582	1.413	1.218	0.900	1.351	15.44
94)	T	1,2,4-Trichlor...	0.958	0.924	0.896	0.885	0.934	0.937	0.840	0.667	0.880	10.64
95)	T	Naphthalene	2.819	2.724	2.755	2.716	2.917	2.718	2.182	1.618	2.556	17.11
96)	T	n-Dodecane	1.116	1.080	1.156	1.180	1.476	1.174	0.858	0.568	1.076	24.69
97)	T	Hexachlorobuta...	0.743	0.681	0.659	0.628	0.648	0.585	0.517	0.399	0.607	17.70
98)	T	Cyclohexanone	1.008	0.955	0.945	0.928	0.794	0.914	0.826	0.691	0.883	11.77
99)	T	tert-Butylbenzene	2.642	2.467	2.391	2.282	2.304	1.818	1.429	1.087	2.052	26.86
100)	T	n-Butylbenzene	2.771	2.622	2.654	2.591	2.696	2.299	1.978	1.523	2.392	18.24

(#) = Out of Range

R16110719.M Thu Nov 07 17:07:21 2019

Primary Source Standards Concentrations (Working & Initial Calibration)

LH 11/7/19

1ng/L Std. ID: S31-11061902
 4ng/L Std. ID: S31-11051904
 20ng/L Std. ID: S31-11051904
 200ng/L Std. ID: S31-10301901

Dilution Factors:		Primary Working Standards										Working STD Conc.(ng/L):	
		Source Std. mg/m ³	200ng/L	20ng/L	4ng/L	1ng/L	4	4	4	4	4	4	4
Compounds													
Propene		1.06	212	21.2	4.24	1.06	0.025	0.050	0.125	0.250	0.500	0.125	0.25
Dichlorodifluoromethane		1.06	212	21.2	4.24	1.06	0.106	0.212	0.530	1.06	5.30	25ng	50ng
Chloromethane		1.06	212	21.2	4.24	1.06	0.106	0.212	0.530	1.06	5.30	26.50	53.0
Freon-114		1.05	210	21.0	4.20	1.05	0.105	0.210	0.525	1.05	5.25	26.50	53.0
Vinyl Chloride		1.08	216	21.6	4.32	1.08	0.108	0.216	0.540	1.08	5.40	27.00	54.0
1,3-Butadiene		1.06	212	21.2	4.24	1.06	0.106	0.212	0.530	1.06	5.30	26.50	53.0
Bromomethane		1.08	216	21.6	4.32	1.08	0.108	0.216	0.540	1.08	5.40	27.00	54.0
Chloroethane		1.08	216	21.6	4.32	1.08	0.108	0.216	0.540	1.08	5.40	27.00	54.0
Ethanol		5.21	1042	104.2	20.84	5.21	0.521	1.042	2.605	5.21	26.05	130.25	260.5
Acetonitrile		1.05	210	21.0	4.20	1.05	0.105	0.210	0.525	1.05	5.25	26.25	52.5
Acrolein		1.03	206	20.6	4.12	1.03	0.103	0.206	0.515	1.03	5.15	25.75	51.5
Acetone		5.33	1066	106.6	21.32	5.33	0.533	1.066	2.665	5.33	26.65	133.25	266.5
Trichlorofluoromethane		1.06	212	21.2	4.24	1.06	0.106	0.212	0.530	1.06	5.30	26.50	53.0
Isopropanol		2.10	420	42.0	8.40	2.10	0.210	0.420	1.050	2.10	10.50	52.50	105.0
Acrylonitrile		1.05	210	21.0	4.20	1.05	0.105	0.210	0.525	1.05	5.25	26.25	52.5
1,1-Dichloroethene		1.08	216	21.6	4.32	1.08	0.108	0.216	0.540	1.08	5.40	27.00	54.0
tert-Butanol		2.16	432	43.2	8.64	2.16	0.216	0.432	1.080	2.16	10.80	54.00	108.0
Methylene Chloride		1.06	212	21.2	4.24	1.06	0.106	0.212	0.530	1.06	5.30	26.50	53.0
Allyl Chloride		1.08	216	21.6	4.32	1.08	0.108	0.216	0.540	1.08	5.40	27.00	54.0
Trichlorotrifluoroethane		1.08	216	21.6	4.32	1.08	0.108	0.216	0.540	1.08	5.40	27.00	54.0
Carbon Disulfide		1.07	214	21.4	4.28	1.07	0.107	0.214	0.535	1.07	5.35	26.75	53.5
trans-1,2-Dichloroethene		1.08	216	21.6	4.32	1.08	0.108	0.216	0.540	1.08	5.40	27.00	54.0
1,1-Dichloroethane		1.09	218	21.8	4.36	1.09	0.109	0.218	0.545	1.09	5.45	27.25	54.5
Methyl tert-Butyl Ether		1.08	216	21.6	4.32	1.08	0.108	0.216	0.540	1.08	5.40	27.00	54.0
Vinyl Acetate		5.35	1070	107.0	21.40	5.35	0.535	1.070	2.675	5.35	26.75	133.75	267.5
2-Butanone		1.06	212	21.2	4.24	1.06	0.106	0.212	0.530	1.06	5.30	26.50	53.0
cis-1,2-Dichloroethene		1.06	212	21.2	4.24	1.06	0.106	0.212	0.530	1.06	5.30	26.50	53.0
Diisopropyl Ether		1.08	216	21.6	4.32	1.08	0.108	0.216	0.540	1.08	5.40	27.00	54.0
Ethyl Acetate		2.17	434	43.4	8.68	2.17	0.217	0.434	1.085	2.17	10.85	54.25	108.5
n-Hexane		1.08	216	21.6	4.32	1.08	0.108	0.216	0.540	1.08	5.40	27.00	54.0
Chloroform		1.07	214	21.4	4.28	1.07	0.107	0.214	0.535	1.07	5.35	26.75	53.5
Tetrahydrofuran		1.09	218	21.8	4.36	1.09	0.109	0.218	0.545	1.09	5.45	27.25	54.5
Ethyl tert-Butyl Ether		1.08	216	21.6	4.32	1.08	0.108	0.216	0.540	1.08	5.40	27.00	54.0
1,2-Dichloroethane		1.08	216	21.6	4.32	1.08	0.108	0.216	0.540	1.08	5.40	27.00	54.0
1,1,1-Trichloroethane		1.07	214	21.4	4.28	1.07	0.107	0.214	0.535	1.07	5.35	26.75	53.5
Isopropyl Acetate		2.11	422	42.2	8.44	2.11	0.211	0.422	1.055	2.11	10.55	52.75	105.5
1-Butanol		2.08	416	41.6	8.32	2.08	0.208	0.416	1.040	2.08	10.40	52.00	104.0
Benzene		1.06	212	21.2	4.24	1.06	0.106	0.212	0.530	1.06	5.30	26.50	53.0
Carbon Tetrachloride		1.05	210	21.0	4.20	1.05	0.105	0.210	0.525	1.05	5.25	26.25	52.5
Cyclohexane		2.12	424	42.4	8.48	2.12	0.212	0.424	1.060	2.12	10.60	53.00	106.0
tert-Amyl Methyl Ether		1.08	216	21.6	4.32	1.08	0.108	0.216	0.540	1.08	5.40	27.00	54.0
1,2-Dichloropropane		1.08	216	21.6	4.32	1.08	0.108	0.216	0.540	1.08	5.40	27.00	54.0
Bromodichloromethane		1.08	216	21.6	4.32	1.08	0.108	0.216	0.540	1.08	5.40	27.00	54.0
Trichloroethene		1.07	214	21.4	4.28	1.07	0.107	0.214	0.535	1.07	5.35	26.75	53.5
1,4-Dioxane		1.08	216	21.6	4.32	1.08	0.108	0.216	0.540	1.08	5.40	27.00	54.0
Isocetane		1.07	214	21.4	4.28	1.07	0.107	0.214	0.535	1.07	5.35	26.75	53.5
Methyl Methacrylate		2.15	430	43.0	8.60	2.15	0.215	0.430	1.075	2.15	10.75	53.75	107.5
n-Heptane		1.08	216	21.6	4.32	1.08	0.108	0.216	0.540	1.08	5.40	27.00	54.0

Primary Source Standards Concentrations (Working & Initial Calibration)

LH 11/7/19

1ng/L Std. ID:
4ng/L Std. ID: S31-11061902
20ng/L Std. ID: S31-11051904
200ng/L Std. ID: S31-10301901

200ng/L Std. ID: S31-10301901										Working STD Conc.(ng/L):	
Dilution Factors:		Source Std. mg/m ³		5		50		1000		Injection (L):	
		200ng/L		20ng/L		20ng/L		4ng/L		ICAL Points:	
Compounds		1.04	208	20.8	4.16	1.04					
cis-1,3-Dichloropropene		1.06	212	21.2	4.24	1.06					
4-Methyl-2-pentanone		1.06	212	21.2	4.24	1.06					
trans-1,3-Dichloropropene		1.07	214	21.4	4.28	1.07					
1,1,2-Trichloroethane		1.07	214	21.4	4.28	1.07					
Toluene		1.07	214	21.4	4.28	1.07					
2-Hexanone		1.07	214	21.4	4.28	1.07					
Dibromochloromethane		1.07	214	21.4	4.28	1.07					
1,2-Dibromoethane		1.07	214	21.4	4.28	1.07					
n-Butyl Acetate		1.09	218	21.8	4.36	1.09					
n-Octane		1.08	216	21.6	4.32	1.08					
Tetrachloroethene		1.04	208	20.8	4.16	1.04					
Chlorobenzene		1.07	214	21.4	4.28	1.07					
Ethylbenzene		1.07	214	21.4	4.28	1.07					
m- & p-Xylene		2.14	428	42.8	8.56	2.14					
Bromoform		1.07	214	21.4	4.28	1.07					
Styrene		1.06	212	21.2	4.24	1.06					
o-Xylene		1.07	214	21.4	4.28	1.07					
n-Nonane		1.07	214	21.4	4.28	1.07					
1,1,1,2,2-Tetrachloroethane		1.07	214	21.4	4.28	1.07					
Cumene		1.08	216	21.6	4.32	1.08					
alpha-Phene		1.07	214	21.4	4.28	1.07					
n-Propylbenzene		1.08	216	21.6	4.32	1.08					
3-Ethyltoluene		1.06	212	21.2	4.24	1.06					
4-Ethyltoluene		1.08	216	21.6	4.32	1.08					
1,3,5-Trimethylbenzene		1.06	212	21.2	4.24	1.06					
alpha-Methylstyrene		1.07	214	21.4	4.28	1.07					
2-Ethyltoluene		1.08	216	21.6	4.32	1.08					
1,2,4-Trimethylbenzene		1.07	214	21.4	4.28	1.07					
n-Decane		1.07	214	21.4	4.28	1.07					
Benzyl Chloride		1.08	216	21.6	4.32	1.08					
1,3-Dichlorobenzene		1.07	214	21.4	4.28	1.07					
1,4-Dichlorobenzene		1.07	214	21.4	4.28	1.07					
sec-Butylbenzene		1.07	214	21.4	4.28	1.07					
p-Isopropyltoluene		1.09	218	21.8	4.36	1.09					
1,2,3-Trimethylbenzene		1.09	218	21.8	4.36	1.09					
1,2-Dichlorobenzene		1.07	214	21.4	4.28	1.07					
d-Limonene		1.08	216	21.6	4.32	1.08					
1,2-Dibromo-3-chloropropane		1.05	210	21.0	4.20	1.05					
n-Undecane		1.08	216	21.6	4.32	1.08					
1,2,4-Trichlorobenzene		1.07	214	21.4	4.28	1.07					
Naphthalene		1.03	206	20.6	4.12	1.03					
n-Dodecane		1.04	208	20.8	4.16	1.04					
Hexachloro-1,3-butadiene		1.06	212	21.2	4.24	1.06					
Methacrylonitrile		1.06	212	21.2	4.24	1.06					
Cyclohexanone		1.00	200	20.0	4.00	1.00					
tert-Butylbenzene		1.07	214	21.4	4.28	1.07					
n-Butylbenzene		1.07	214	21.4	4.28	1.07					

Method : I:\MS16\METHODS\R16110719.M (RTE Integrator)
 Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 Last Update : Thu Nov 07 14:29:49 2019
 Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
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2	0.2	0	13	I:\MS16\DATA\2019_11\07\11071911.D
3	0.5	1	13	I:\MS16\DATA\2019_11\07\11071912.D
4	1.0	1	13	I:\MS16\DATA\2019_11\07\11071913.D
5	5.0	5	13	I:\MS16\DATA\2019_11\07\11071914.D
6	25	27	13	I:\MS16\DATA\2019_11\07\11071915.D
7	50	53	13	I:\MS16\DATA\2019_11\07\11071916.D
8	100	106	13	I:\MS16\DATA\2019_11\07\11071917.D

#	ID	Update Time	Quant Time	Acquisition Time
1	0.1	Nov 07 14:29 2019	Nov 07 14:19 2019	7 Nov 2019 9:52
2	0.2	Nov 07 14:29 2019	Nov 07 14:19 2019	7 Nov 2019 10:25
3	0.5	Nov 07 14:29 2019	Nov 07 14:20 2019	7 Nov 2019 10:58
4	1.0	Nov 07 14:29 2019	Nov 07 14:20 2019	7 Nov 2019 11:31
5	5.0	Nov 07 14:29 2019	Nov 07 14:20 2019	7 Nov 2019 12:04
6	25	Nov 07 14:29 2019	Nov 07 14:20 2019	7 Nov 2019 12:37
7	50	Nov 07 14:29 2019	Nov 07 14:20 2019	7 Nov 2019 13:10
8	100	Nov 07 14:29 2019	Nov 07 14:20 2019	7 Nov 2019 13:43

R16110719.M

Thu Nov 07 17:08:20 2019

LH 11/7/19

Data File: I:\MS16\DATA\2019_11\07\11071910.D

Acq On : 7 Nov 2019 9:52

Operator: LH

Sample : 0.1ng T015 ICAL STD

Misc : S31-10161904/S31/11061902 (12/5)

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 07 14:19:57 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 11/7/19

QLast Update : Thu Nov 07 14:19:40 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	240419	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.29	114	1060511	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.61	82	499170	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.02	65	392835	11.615	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	92.96%	
57) Toluene-d8 (SS2)	15.74	98	1125583	12.481	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.84%	
73) Bromofluorobenzene (SS3)	19.01	174	377312	12.306	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.48%	

Target Compounds

						Qvalue
2) Propene	4.16	42	4545	0.124	ng	98
3) Dichlorodifluoromethan...	4.31	85	6324	0.114	ng	98
4) Chloromethane	4.59	50	5746	0.137	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.85	135	2907	0.090	ng	99
6) Vinyl Chloride	5.00	62	4801	0.103	ng	96
7) 1,3-Butadiene	5.27	54	3654	0.108	ng	95
8) Bromomethane	5.69	94	3045	0.124	ng	98
9) Chloroethane	6.03	64	2545	0.133	ng	95
10) Ethanol	6.35	45	14591	0.648	ng	95
11) Acetonitrile	6.62	41	7195	0.138	ng	93
12) Acrolein	6.84	56	1922	0.106	ng	94
13) Acetone	7.04	58	14896	0.635	ng	94
14) Trichlorofluoromethane	7.28	101	5222	0.105	ng	100
15) 2-Propanol (Isopropanol)	7.55	45	16217	0.254	ng	88
16) Acrylonitrile	7.78	53	3925	0.105	ng	95
17) 1,1-Dichloroethene	8.24	96	2875	0.115	ng	94
18) 2-Methyl-2-Propanol (t...	8.44	59	10975	0.321	ng	89
19) Methylene Chloride	8.44	84	3306	0.122	ng	92
20) 3-Chloro-1-propene (Al...	8.62	41	5212	0.130	ng	89
21) Trichlorotrifluoroethane	8.87	151	2695	0.115	ng	93
22) Carbon Disulfide	8.72	76	12436	0.128	ng	96
23) trans-1,2-Dichloroethene	9.72	61	4498	0.117	ng	97
24) 1,1-Dichloroethane	9.96	63	6193	0.128	ng	97
25) Methyl tert-Butyl Ether	10.11	73	6141	0.156	ng	96
26) Vinyl Acetate	10.23	86	1628	0.288	ng	# 44
27) 2-Butanone (MEK)	10.51	72	1696	0.089	ng	# 40
28) cis-1,2-Dichloroethene	10.98	61	4467	0.115	ng	99
29) Diisopropyl Ether	11.31	87	2909	0.116	ng	# 87
30) Ethyl Acetate	11.32	61	1967	0.195	ng	97
31) n-Hexane	11.28	57	5798	0.124	ng	# 95
32) Chloroform	11.33	83	5508	0.116	ng	99
34) Tetrahydrofuran (THF)	11.77	72	2110	0.114	ng	# 86
35) Ethyl tert-Butyl Ether	11.90	87	2411	0.180	ng	91
36) 1,2-Dichloroethane	12.13	62	4108	0.105	ng	98
38) 1,1,1-Trichloroethane	12.42	97	4591	0.105	ng	99
39) Isopropyl Acetate	12.87	61	3799	0.198	ng	# 81
40) 1-Butanol	12.90	56	4181	0.151	ng	# 66
41) Benzene	12.90	78	14468	0.129	ng	99
42) Carbon Tetrachloride	13.06	117	3227	0.091	ng	97
43) Cyclohexane	13.19	84	9871	0.236	ng	95
44) tert-Amyl Methyl Ether	13.56	73	6685	0.192	ng	95
45) 1,2-Dichloropropane	13.75	63	3536	0.124	ng	99
46) Bromodichloromethane	13.94	83	3913	0.104	ng	100
47) Trichloroethene	14.00	130	3273	0.116	ng	99
48) 1,4-Dioxane	14.00	88	2313	0.104	ng	88
49) 2,2,4-Trimethylpentane...	14.07	57	15139	0.133	ng	98

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Data File: I:\MS16\DATA\2019_11\07\11071910.D

Acq On : 7 Nov 2019 9:52

Operator: LH

Sample : 0.1ng T015 ICAL STD

Misc : S31-10161904/S31/11061902 (12/5)

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 07 14:19:57 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:19:40 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.22	100	2121	0.197	ng	100
51) n-Heptane	14.34	71	3210	0.118	ng	90
52) cis-1,3-Dichloropropene	14.86	75	3990	0.091	ng	96
53) 4-Methyl-2-pentanone	14.91	58	2640	0.101	ng	85
54) trans-1,3-Dichloropropene	15.39	75	2677	0.073	ng	91
55) 1,1,2-Trichloroethane	15.56	97	2896	0.110	ng	95
58) Toluene	15.85	91	13140	0.117	ng	99
59) 2-Hexanone	16.11	43	6018	0.086	ng	89
60) Dibromochloromethane	16.26	129	2798	0.094	ng	95
61) 1,2-Dibromoethane	16.51	107	3040	0.102	ng	99
62) n-Butyl Acetate	16.73	43	7393	0.098	ng	95
63) n-Octane	16.86	57	2993	0.126	ng	97
64) Tetrachloroethene	16.99	166	3504	0.115	ng	100
65) Chlorobenzene	17.65	112	8287	0.112	ng	98
66) Ethylbenzene	18.01	91	14206	0.114	ng	99
67) m- & p-Xylenes	18.17	91	22203	0.234	ng	100
68) Bromoform	18.23	173	2013	0.087	ng	97
69) Styrene	18.50	104	7438	0.097	ng	99
70) o-Xylene	18.60	91	11069	0.120	ng	98
71) n-Nonane	18.80	43	7354	0.126	ng	95
72) 1,1,2,2-Tetrachloroethane	18.58	83	5331	0.114	ng	98
74) Cumene	19.13	105	14568	0.121	ng	99
75) alpha-Pinene	19.48	93	6377	0.146	ng	87
76) n-Propylbenzene	19.58	91	17109	0.117	ng	99
77) 3-Ethyltoluene	19.67	105	13645	0.117	ng	98
78) 4-Ethyltoluene	19.71	105	13415	0.125	ng	98
79) 1,3,5-Trimethylbenzene	19.77	105	11558	0.121	ng	97
80) alpha-Methylstyrene	19.91	118	4869	0.102	ng	92
81) 2-Ethyltoluene	19.94	105	13712	0.125	ng	98
82) 1,2,4-Trimethylbenzene	20.13	105	11019	0.116	ng	97
83) n-Decane	20.23	57	7080	0.133	ng	94
84) Benzyl Chloride	20.25	91	3276	0.048	ng	89
85) 1,3-Dichlorobenzene	20.27	146	6855	0.127	ng	96
86) 1,4-Dichlorobenzene	20.32	146	7045	0.127	ng	97
87) sec-Butylbenzene	20.37	105	15548	0.126	ng	98
88) 4-Isopropyltoluene (p-...	20.51	119	14535	0.120	ng	98
89) 1,2,3-Trimethylbenzene	20.51	105	11704	0.123	ng	98
90) 1,2-Dichlorobenzene	20.63	146	6606	0.123	ng	97
91) d-Limonene	20.64	68	3935	0.118	ng	98
92) 1,2-Dibromo-3-Chloropr...	21.02	157	1686	0.085	ng	# 66
93) n-Undecane	21.33	57	6385	0.117	ng	98
94) 1,2,4-Trichlorobenzene	22.14	180	4095	0.111	ng	97
95) Naphthalene	22.24	128	11596	0.102	ng	97
96) n-Dodecane	22.24	57	4636	0.097	ng	93
97) Hexachlorobutadiene	22.56	225	3144	0.136	ng	97
98) Cyclohexanone	18.31	55	4027	0.097	ng	98
99) tert-Butylbenzene	20.13	119	11291	0.122	ng	98
100) n-Butylbenzene	20.88	91	11840	0.112	ng	97

(#)=qualifier out of range (m)=manual integration (+)=signals summed

Operator: LH

Sample : 0.1ng T015 ICAL STD

Misc : S31-10161904/S31/11061902 (12/5)

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 07 14:19:57 2019

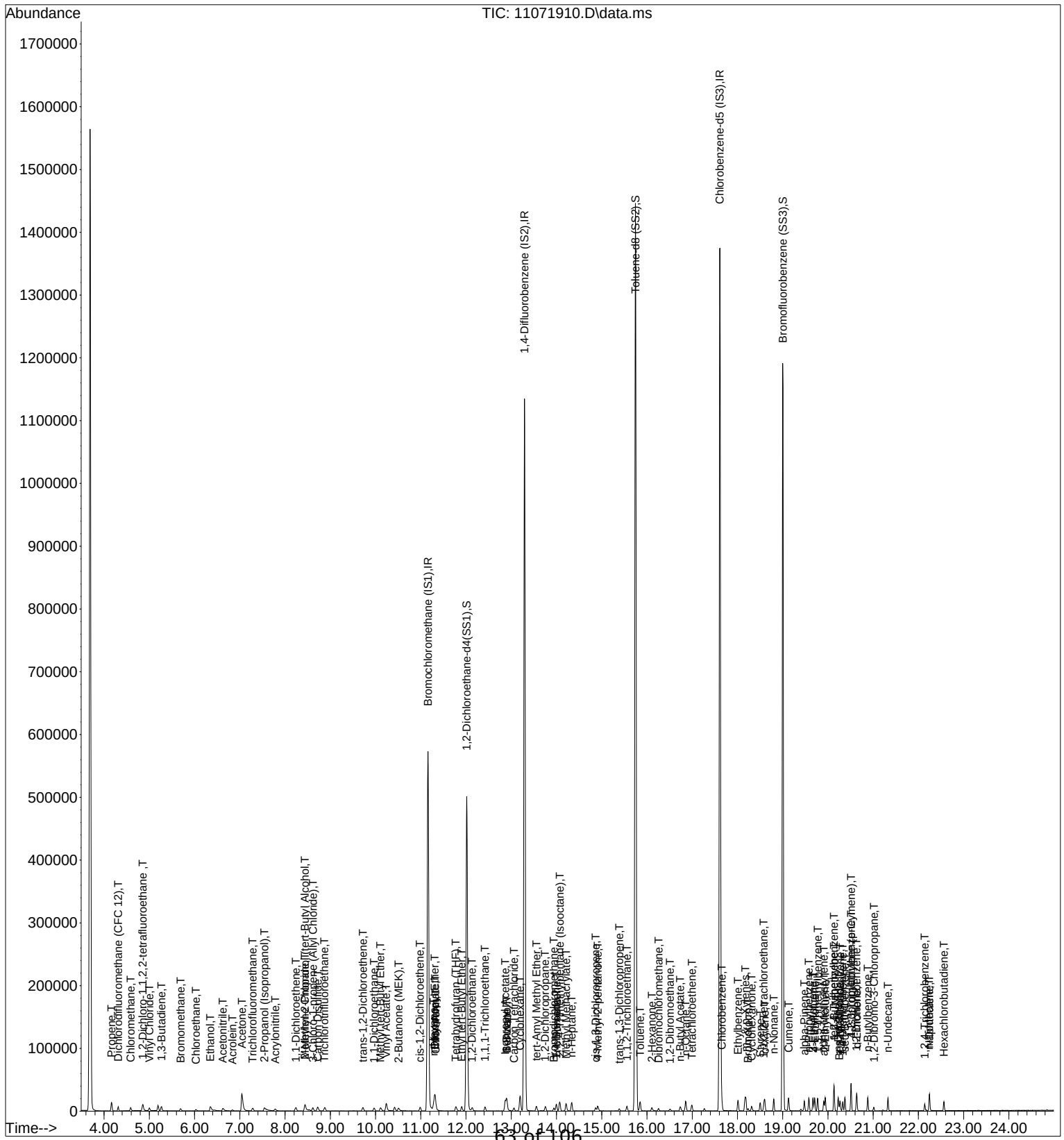
Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:19:40 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_11\07\11071911.D

Acq On : 7 Nov 2019 10:25

Operator: LH

Sample : 0.2ng T015 ICAL STD

Misc : S31-10161904/S31/11061902 (12/5)

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 07 14:19:59 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:19:40 2019

Response via : Initial Calibration

LH 11/7/19

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	242657	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.29	114	1052869	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.61	82	509393	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.02	65	393044	11.514	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	92.08%	
57) Toluene-d8 (SS2)	15.74	98	1132544	12.306	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.48%	
73) Bromofluorobenzene (SS3)	19.01	174	387353	12.380	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.04%	

Target Compounds

						Qvalue
2) Propene	4.15	42	8281	0.224	ng	97
3) Dichlorodifluoromethan...	4.30	85	11941	0.213	ng	99
4) Chloromethane	4.58	50	10715	0.254	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.85	135	5754	0.176	ng	98
6) Vinyl Chloride	4.99	62	9496	0.201	ng	99
7) 1,3-Butadiene	5.26	54	6361	0.186	ng	96
8) Bromomethane	5.69	94	5564	0.225	ng	99
9) Chloroethane	6.02	64	4747	0.246	ng	100
10) Ethanol	6.34	45	27378	1.205	ng	97
11) Acetonitrile	6.61	41	13662	0.259	ng	84
12) Acrolein	6.82	56	4073	0.223	ng	95
13) Acetone	7.03	58	27557	1.165	ng	95
14) Trichlorofluoromethane	7.28	101	9914	0.198	ng	100
15) 2-Propanol (Isopropanol)	7.53	45	32072	0.497	ng	90
16) Acrylonitrile	7.77	53	7860	0.208	ng	98
17) 1,1-Dichloroethene	8.23	96	5590	0.222	ng	94
18) 2-Methyl-2-Propanol (t...	8.44	59	20236	0.587	ng	90
19) Methylene Chloride	8.44	84	6200	0.226	ng	94
20) 3-Chloro-1-propene (Al...	8.61	41	9594	0.237	ng	95
21) Trichlorotrifluoroethane	8.88	151	5258	0.223	ng	98
22) Carbon Disulfide	8.72	76	23132	0.235	ng	98
23) trans-1,2-Dichloroethene	9.72	61	8361	0.216	ng	98
24) 1,1-Dichloroethane	9.97	63	11466	0.236	ng	100
25) Methyl tert-Butyl Ether	10.10	73	11458	0.287	ng	98
26) Vinyl Acetate	10.23	86	3415	0.598	ng	# 67
27) 2-Butanone (MEK)	10.50	72	3748	0.196	ng	# 67
28) cis-1,2-Dichloroethene	10.99	61	8687	0.222	ng	95
29) Diisopropyl Ether	11.30	87	5613	0.222	ng	# 89
30) Ethyl Acetate	11.31	61	4470	0.439	ng	93
31) n-Hexane	11.28	57	11015	0.234	ng	98
32) Chloroform	11.33	83	10287	0.214	ng	99
34) Tetrahydrofuran (THF)	11.76	72	4059	0.218	ng	93
35) Ethyl tert-Butyl Ether	11.90	87	4901	0.362	ng	99
36) 1,2-Dichloroethane	12.14	62	7695	0.195	ng	99
38) 1,1,1-Trichloroethane	12.42	97	8498	0.196	ng	97
39) Isopropyl Acetate	12.86	61	7761	0.408	ng	# 89
40) 1-Butanol	12.89	56	9196	0.335	ng	# 74
41) Benzene	12.90	78	26936	0.242	ng	99
42) Carbon Tetrachloride	13.06	117	6266	0.178	ng	100
43) Cyclohexane	13.19	84	18804	0.453	ng	97
44) tert-Amyl Methyl Ether	13.55	73	12637	0.366	ng	95
45) 1,2-Dichloropropane	13.75	63	6666	0.236	ng	100
46) Bromodichloromethane	13.94	83	7526	0.202	ng	99
47) Trichloroethene	14.00	130	6323	0.225	ng	100
48) 1,4-Dioxane	13.98	88	4803	0.218	ng	94
49) 2,2,4-Trimethylpentane...	14.07	57	28576	0.252	ng	98

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Data File: I:\MS16\DATA\2019_11\07\11071911.D

Acq On : 7 Nov 2019 10:25

Operator: LH

Sample : 0.2ng T015 ICAL STD

Misc : S31-10161904/S31/11061902 (12/5)

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 07 14:19:59 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:19:40 2019

Response via : Initial Calibration

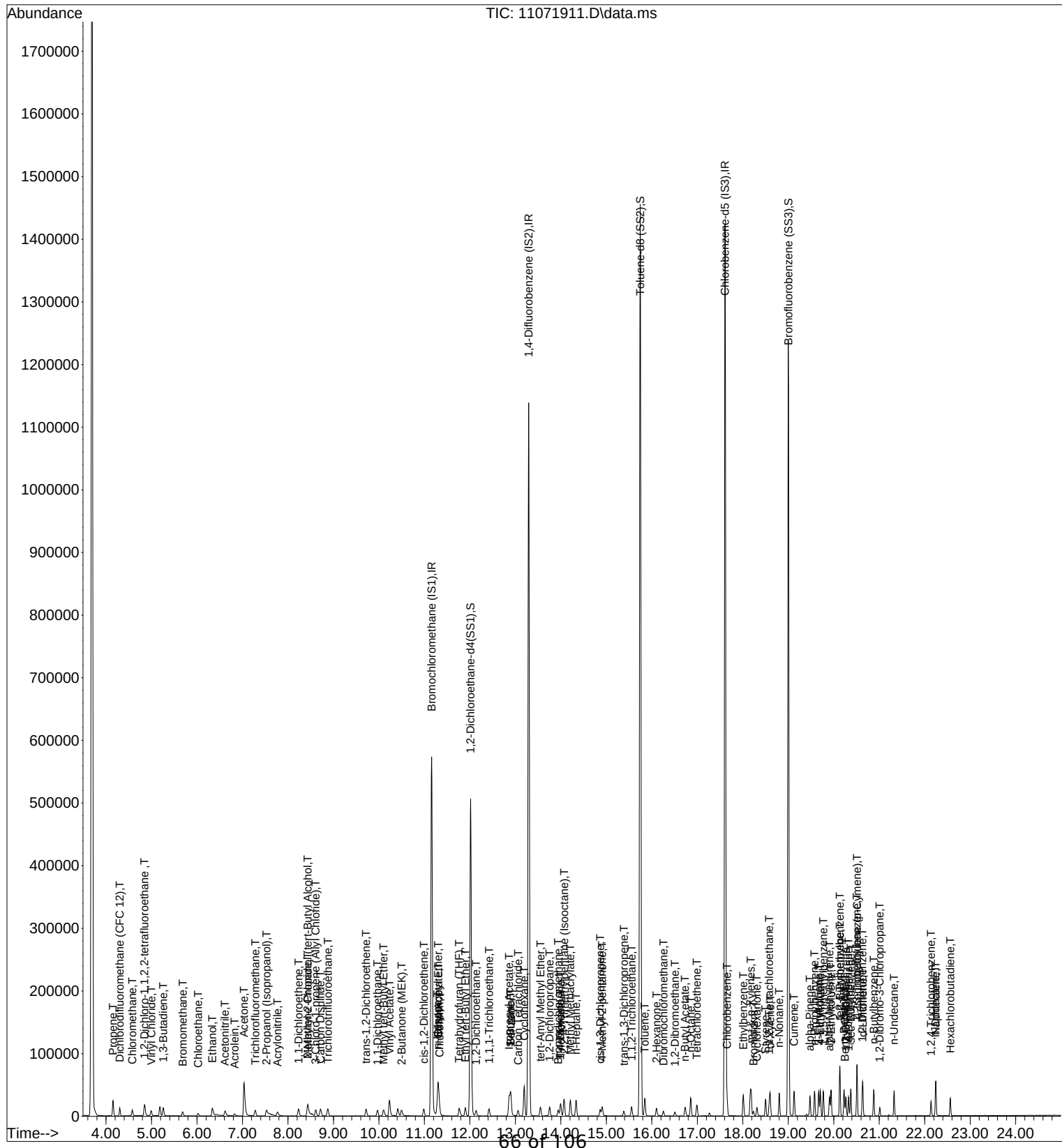
DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.21	100	4326	0.405	ng	98
51) n-Heptane	14.34	71	6440	0.239	ng	97
52) cis-1,3-Dichloropropene	14.86	75	7998	0.185	ng	97
53) 4-Methyl-2-pentanone	14.91	58	5282	0.204	ng	86
54) trans-1,3-Dichloropropene	15.39	75	5531	0.152	ng	99
55) 1,1,2-Trichloroethane	15.56	97	5684	0.217	ng	96
58) Toluene	15.84	91	24321	0.213	ng	99
59) 2-Hexanone	16.10	43	12779	0.179	ng	94
60) Dibromochloromethane	16.26	129	5578	0.185	ng	99
61) 1,2-Dibromoethane	16.51	107	6091	0.200	ng	99
62) n-Butyl Acetate	16.73	43	14828	0.193	ng	96
63) n-Octane	16.86	57	5610	0.231	ng	97
64) Tetrachloroethene	16.99	166	6601	0.213	ng	100
65) Chlorobenzene	17.65	112	15579	0.207	ng	100
66) Ethylbenzene	18.01	91	27031	0.213	ng	100
67) m- & p-Xylenes	18.17	91	42599	0.439	ng	99
68) Bromoform	18.24	173	4168	0.176	ng	98
69) Styrene	18.50	104	14536	0.186	ng	99
70) o-Xylene	18.60	91	21373	0.227	ng	99
71) n-Nonane	18.80	43	13898	0.233	ng	96
72) 1,1,2,2-Tetrachloroethane	18.58	83	10367	0.217	ng	97
74) Cumene	19.13	105	27381	0.223	ng	99
75) alpha-Pinene	19.48	93	12083	0.272	ng	85
76) n-Propylbenzene	19.58	91	32730	0.220	ng	98
77) 3-Ethyltoluene	19.67	105	25696	0.216	ng	99
78) 4-Ethyltoluene	19.70	105	25262	0.230	ng	99
79) 1,3,5-Trimethylbenzene	19.77	105	21541	0.221	ng	99
80) alpha-Methylstyrene	19.91	118	9552	0.197	ng	88
81) 2-Ethyltoluene	19.94	105	25869	0.230	ng	99
82) 1,2,4-Trimethylbenzene	20.13	105	21535	0.223	ng	99
83) n-Decane	20.23	57	13204	0.243	ng	98
84) Benzyl Chloride	20.25	91	6302	0.091	ng	94
85) 1,3-Dichlorobenzene	20.27	146	12865	0.233	ng	99
86) 1,4-Dichlorobenzene	20.32	146	12954	0.229	ng	99
87) sec-Butylbenzene	20.37	105	29565	0.234	ng	98
88) 4-Isopropyltoluene (p-...	20.51	119	27129	0.220	ng	100
89) 1,2,3-Trimethylbenzene	20.51	105	22335	0.231	ng	99
90) 1,2-Dichlorobenzene	20.63	146	12495	0.228	ng	100
91) d-Limonene	20.64	68	8156	0.239	ng	95
92) 1,2-Dibromo-3-Chloropr...	21.01	157	3482	0.172	ng	# 75
93) n-Undecane	21.33	57	12235	0.219	ng	98
94) 1,2,4-Trichlorobenzene	22.14	180	8062	0.214	ng	100
95) Naphthalene	22.24	128	22866	0.197	ng	99
96) n-Dodecane	22.24	57	9154	0.187	ng	95
97) Hexachlorobutadiene	22.56	225	5886	0.250	ng	100
98) Cyclohexanone	18.31	55	7783	0.184	ng	99
99) tert-Butylbenzene	20.13	119	21513	0.228	ng	98
100) n-Butylbenzene	20.88	91	22869	0.212	ng	99

(#)=qualifier out of range (m)=manual integration (+)=signals summed

ALS Vial : 5 Sample Multiplier: 1

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_11\07\11071912.D

Acq On : 7 Nov 2019 10:58

Operator: LH

Sample : 0.5ng T015 ICAL STD

Misc : S31-10161904/S31/11061902 (12/5)

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 07 14:20:01 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:19:40 2019

LH 11/7/19

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	237781	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.29	114	1031641	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.61	82	509323	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.02	65	384738	11.502	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	92.00%	
57) Toluene-d8 (SS2)	15.74	98	1113757	12.103	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	96.80%	
73) Bromofluorobenzene (SS3)	19.01	174	408502	13.057	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	104.48%	

Target Compounds

						Qvalue
2) Propene	4.14	42	21376	0.591	ng	100
3) Dichlorodifluoromethan...	4.29	85	28562	0.520	ng	100
4) Chloromethane	4.56	50	21408	0.518	ng	98
5) 1,2-Dichloro-1,1,2,2-t...	4.83	135	13982	0.438	ng	99
6) Vinyl Chloride	4.98	62	22248	0.481	ng	100
7) 1,3-Butadiene	5.25	54	15430	0.461	ng	99
8) Bromomethane	5.67	94	13268	0.547	ng	99
9) Chloroethane	6.01	64	11326	0.599	ng	98
10) Ethanol	6.32	45	61786	2.775	ng	99
11) Acetonitrile	6.60	41	31847	0.616	ng	95
12) Acrolein	6.81	56	9327	0.520	ng	99
13) Acetone	7.02	58	63740	2.749	ng	97
14) Trichlorofluoromethane	7.28	101	23970	0.488	ng	97
15) 2-Propanol (Isopropanol)	7.50	45	70748	1.119	ng	90
16) Acrylonitrile	7.77	53	20325	0.550	ng	99
17) 1,1-Dichloroethene	8.23	96	13502	0.546	ng	99
18) 2-Methyl-2-Propanol (t...	8.40	59	46881	1.388	ng	90
19) Methylene Chloride	8.44	84	14997	0.557	ng	98
20) 3-Chloro-1-propene (Al...	8.61	41	22863	0.576	ng	97
21) Trichlorotrifluoroethane	8.87	151	12655	0.548	ng	99
22) Carbon Disulfide	8.71	76	53796	0.559	ng	99
23) trans-1,2-Dichloroethene	9.71	61	21049	0.554	ng	99
24) 1,1-Dichloroethane	9.97	63	27375	0.574	ng	99
25) Methyl tert-Butyl Ether	10.09	73	27983	0.716	ng	100
26) Vinyl Acetate	10.23	86	8673	1.550	ng	# 72
27) 2-Butanone (MEK)	10.48	72	9558	0.510	ng	94
28) cis-1,2-Dichloroethene	10.99	61	20666	0.540	ng	99
29) Diisopropyl Ether	11.30	87	13095	0.530	ng	# 84
30) Ethyl Acetate	11.30	61	11181	1.121	ng	96
31) n-Hexane	11.28	57	25483	0.553	ng	98
32) Chloroform	11.33	83	24396	0.518	ng	100
34) Tetrahydrofuran (THF)	11.75	72	9890	0.541	ng	95
35) Ethyl tert-Butyl Ether	11.89	87	11173	0.843	ng	96
36) 1,2-Dichloroethane	12.14	62	18337	0.475	ng	99
38) 1,1,1-Trichloroethane	12.42	97	20527	0.483	ng	99
39) Isopropyl Acetate	12.86	61	19364	1.039	ng	# 93
40) 1-Butanol	12.88	56	24456	0.909	ng	84
41) Benzene	12.90	78	60731	0.556	ng	99
42) Carbon Tetrachloride	13.06	117	15508	0.449	ng	99
43) Cyclohexane	13.19	84	44716	1.100	ng	97
44) tert-Amyl Methyl Ether	13.54	73	29027	0.859	ng	96
45) 1,2-Dichloropropane	13.75	63	15710	0.567	ng	100
46) Bromodichloromethane	13.94	83	18277	0.500	ng	98
47) Trichloroethene	14.00	130	14626	0.532	ng	100
48) 1,4-Dioxane	13.98	88	11707	0.542	ng	93
49) 2,2,4-Trimethylpentane...	14.07	57	67548	0.608	ng	99

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Data File: I:\MS16\DATA\2019_11\07\11071912.D

Acq On : 7 Nov 2019 10:58

Operator: LH

Sample : 0.5ng T015 ICAL STD

Misc : S31-10161904/S31/11061902 (12/5)

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 07 14:20:01 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:19:40 2019

Response via : Initial Calibration

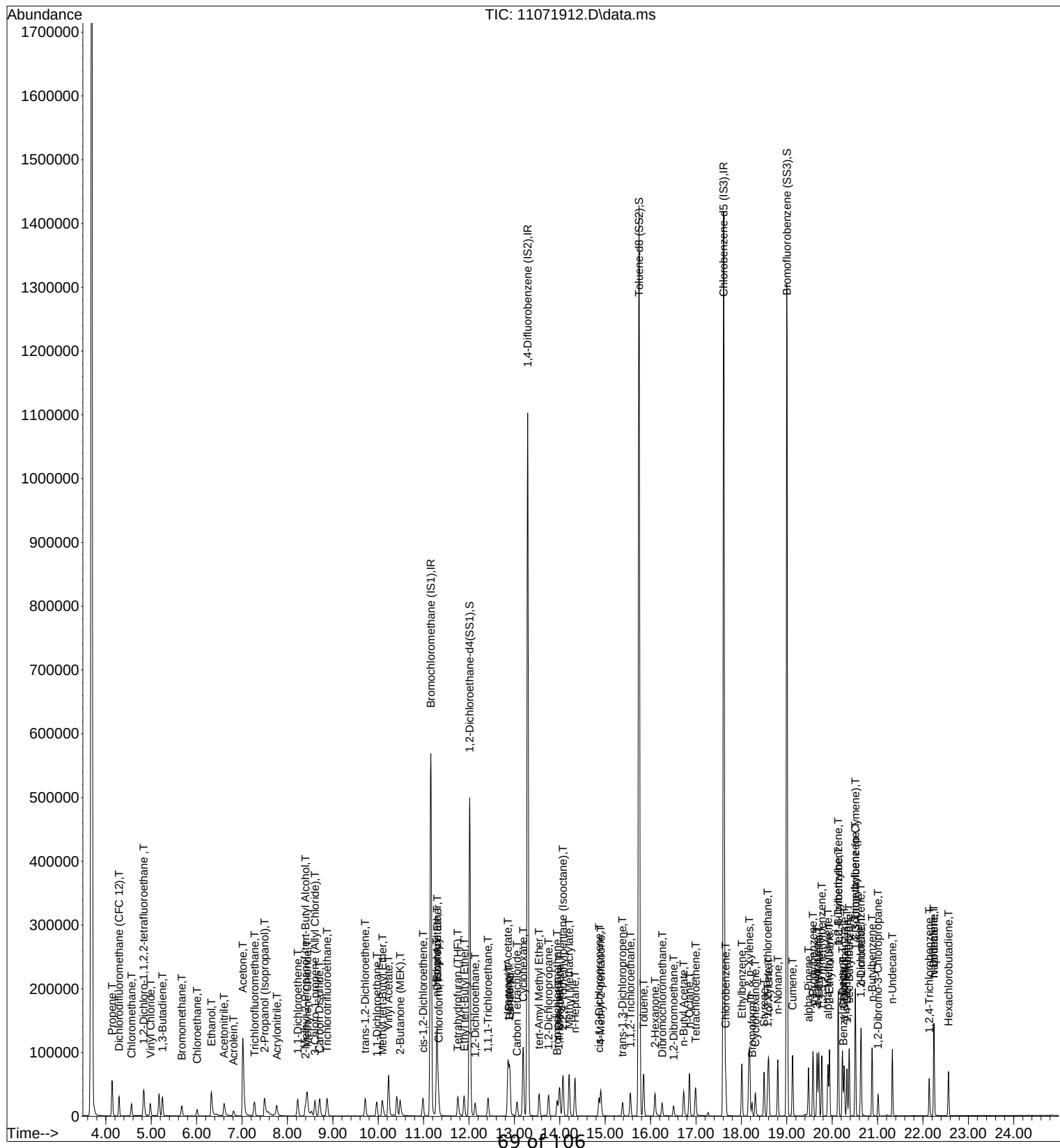
DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.20	100	10434	0.998	ng	92
51) n-Heptane	14.34	71	14778	0.560	ng	99
52) cis-1,3-Dichloropropene	14.86	75	19623	0.462	ng	99
53) 4-Methyl-2-pentanone	14.90	58	13684	0.540	ng	90
54) trans-1,3-Dichloropropene	15.38	75	14736	0.414	ng	98
55) 1,1,2-Trichloroethane	15.56	97	13789	0.538	ng	98
58) Toluene	15.85	91	56991	0.498	ng	100
59) 2-Hexanone	16.10	43	33877	0.475	ng	95
60) Dibromochloromethane	16.26	129	13850	0.458	ng	99
61) 1,2-Dibromoethane	16.51	107	14478	0.476	ng	100
62) n-Butyl Acetate	16.73	43	37058	0.482	ng	99
63) n-Octane	16.86	57	13794	0.569	ng	96
64) Tetrachloroethene	16.99	166	15583	0.503	ng	98
65) Chlorobenzene	17.65	112	36077	0.480	ng	100
66) Ethylbenzene	18.01	91	64652	0.510	ng	99
67) m- & p-Xylenes	18.17	91	101468	1.047	ng	100
68) Bromoform	18.24	173	10447	0.441	ng	99
69) Styrene	18.50	104	35855	0.458	ng	99
70) o-Xylene	18.60	91	51104	0.543	ng	99
71) n-Nonane	18.80	43	33324	0.559	ng	98
72) 1,1,2,2-Tetrachloroethane	18.58	83	25430	0.532	ng	100
74) Cumene	19.13	105	64442	0.525	ng	99
75) alpha-Pinene	19.48	93	29889	0.672	ng	91
76) n-Propylbenzene	19.58	91	80136	0.538	ng	98
77) 3-Ethyltoluene	19.67	105	63680	0.535	ng	99
78) 4-Ethyltoluene	19.70	105	60969	0.556	ng	98
79) 1,3,5-Trimethylbenzene	19.77	105	51796	0.531	ng	100
80) alpha-Methylstyrene	19.91	118	24365	0.503	ng	92
81) 2-Ethyltoluene	19.94	105	64182	0.571	ng	98
82) 1,2,4-Trimethylbenzene	20.13	105	52646	0.544	ng	99
83) n-Decane	20.23	57	32540	0.598	ng	97
84) Benzyl Chloride	20.25	91	16184	0.233	ng	95
85) 1,3-Dichlorobenzene	20.26	146	30998	0.562	ng	99
86) 1,4-Dichlorobenzene	20.32	146	30866	0.546	ng	100
87) sec-Butylbenzene	20.37	105	72180	0.571	ng	98
88) 4-Isopropyltoluene (p-...	20.51	119	66150	0.536	ng	100
89) 1,2,3-Trimethylbenzene	20.51	105	54026	0.558	ng	99
90) 1,2-Dichlorobenzene	20.63	146	30412	0.556	ng	100
91) d-Limonene	20.64	68	20944	0.615	ng	95
92) 1,2-Dibromo-3-Chloropr...	21.01	157	9172	0.453	ng	80
93) n-Undecane	21.33	57	31135	0.558	ng	99
94) 1,2,4-Trichlorobenzene	22.14	180	19532	0.519	ng	99
95) Naphthalene	22.24	128	57806	0.499	ng	99
96) n-Dodecane	22.24	57	24503	0.500	ng	96
97) Hexachlorobutadiene	22.56	225	14241	0.605	ng	99
98) Cyclohexanone	18.31	55	19244	0.455	ng	97
99) tert-Butylbenzene	20.13	119	52114	0.553	ng	100
100) n-Butylbenzene	20.88	91	57856	0.537	ng	98

(#)= qualifier out of range (m)= manual integration (+)= signals summed

ALS Vial : 5 Sample Multiplier: 1

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_11\07\11071913.D

Acq On : 7 Nov 2019 11:31

Operator: LH

Sample : 1.0ng T015 ICAL STD

Misc : S31-10161904/S31/11061902 (12/5)

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 07 14:20:03 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 11/7/19

QLast Update : Thu Nov 07 14:19:40 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	239601	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.29	114	1035971	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.61	82	527912	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.02	65	390727	11.593	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	92.72%	
57) Toluene-d8 (SS2)	15.74	98	1137643	11.928	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	95.44%	
73) Bromofluorobenzene (SS3)	19.00	174	448322	13.826	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	110.64%	

Target Compounds

						Qvalue
2) Propene	4.14	42	48932	1.342	ng	99
3) Dichlorodifluoromethan...	4.29	85	55067	0.995	ng	100
4) Chloromethane	4.56	50	31292	0.751	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.83	135	27692	0.860	ng	99
6) Vinyl Chloride	4.98	62	43038	0.923	ng	100
7) 1,3-Butadiene	5.24	54	30726	0.911	ng	100
8) Bromomethane	5.67	94	25326	1.037	ng	100
9) Chloroethane	6.01	64	22703	1.191	ng	99
10) Ethanol	6.32	45	124234	5.538	ng	100
11) Acetonitrile	6.60	41	62738	1.204	ng	99
12) Acrolein	6.81	56	18636	1.032	ng	99
13) Acetone	7.01	58	120397	5.153	ng	94
14) Trichlorofluoromethane	7.27	101	46615	0.941	ng	100
15) 2-Propanol (Isopropanol)	7.49	45	115733	1.816	ng	91
16) Acrylonitrile	7.76	53	42089	1.130	ng	98
17) 1,1-Dichloroethene	8.22	96	26491	1.064	ng	97
18) 2-Methyl-2-Propanol (t...	8.38	59	98559	2.895	ng	92
19) Methylene Chloride	8.43	84	29004	1.070	ng	97
20) 3-Chloro-1-propene (Al...	8.61	41	45899	1.147	ng	96
21) Trichlorotrifluoroethane	8.87	151	24187	1.039	ng	97
22) Carbon Disulfide	8.71	76	110065	1.135	ng	98
23) trans-1,2-Dichloroethene	9.71	61	41825	1.093	ng	98
24) 1,1-Dichloroethane	9.96	63	53589	1.115	ng	99
25) Methyl tert-Butyl Ether	10.08	73	58841	1.495	ng	99
26) Vinyl Acetate	10.22	86	18934	3.357	ng	# 79
27) 2-Butanone (MEK)	10.48	72	19444	1.029	ng	98
28) cis-1,2-Dichloroethene	10.98	61	40491	1.049	ng	98
29) Diisopropyl Ether	11.30	87	26366	1.058	ng	# 86
30) Ethyl Acetate	11.30	61	22050	2.195	ng	99
31) n-Hexane	11.28	57	50142	1.080	ng	99
32) Chloroform	11.33	83	47744	1.007	ng	99
34) Tetrahydrofuran (THF)	11.75	72	19717	1.070	ng	97
35) Ethyl tert-Butyl Ether	11.89	87	22107	1.655	ng	97
36) 1,2-Dichloroethane	12.14	62	36199	0.930	ng	99
38) 1,1,1-Trichloroethane	12.42	97	39833	0.933	ng	99
39) Isopropyl Acetate	12.85	61	38654	2.066	ng	# 93
40) 1-Butanol	12.87	56	52617	1.948	ng	91
41) Benzene	12.90	78	117317	1.069	ng	100
42) Carbon Tetrachloride	13.06	117	32131	0.925	ng	99
43) Cyclohexane	13.19	84	86539	2.121	ng	95
44) tert-Amyl Methyl Ether	13.54	73	57618	1.698	ng	96
45) 1,2-Dichloropropane	13.75	63	31051	1.115	ng	99
46) Bromodichloromethane	13.94	83	36518	0.995	ng	99
47) Trichloroethene	14.00	130	28491	1.032	ng	99
48) 1,4-Dioxane	13.97	88	23608	1.089	ng	95
49) 2,2,4-Trimethylpentane...	14.07	57	131793	1.181	ng	99

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Data File: I:\MS16\DATA\2019_11\07\11071913.D

Acq On : 7 Nov 2019 11:31

Operator: LH

Sample : 1.0ng T015 ICAL STD

Misc : S31-10161904/S31/11061902 (12/5)

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 07 14:20:03 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:19:40 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.20	100	21489	2.046	ng	92
51) n-Heptane	14.33	71	29454	1.111	ng	99
52) cis-1,3-Dichloropropene	14.86	75	40224	0.944	ng	99
53) 4-Methyl-2-pentanone	14.90	58	28445	1.118	ng	94
54) trans-1,3-Dichloropropene	15.38	75	32059	0.897	ng	99
55) 1,1,2-Trichloroethane	15.55	97	27242	1.058	ng	100
58) Toluene	15.84	91	110612	0.933	ng	99
59) 2-Hexanone	16.09	43	70388	0.953	ng	97
60) Dibromochloromethane	16.25	129	28869	0.921	ng	98
61) 1,2-Dibromoethane	16.50	107	29509	0.936	ng	99
62) n-Butyl Acetate	16.72	43	77352	0.970	ng	100
63) n-Octane	16.86	57	27229	1.084	ng	97
64) Tetrachloroethene	16.99	166	30623	0.953	ng	99
65) Chlorobenzene	17.65	112	70556	0.905	ng	99
66) Ethylbenzene	18.01	91	128705	0.980	ng	99
67) m- & p-Xylenes	18.17	91	201508	2.006	ng	100
68) Bromoform	18.24	173	22062	0.899	ng	99
69) Styrene	18.50	104	74771	0.921	ng	100
70) o-Xylene	18.60	91	101959	1.044	ng	98
71) n-Nonane	18.80	43	67180	1.088	ng	97
72) 1,1,2,2-Tetrachloroethane	18.58	83	51107	1.031	ng	100
74) Cumene	19.13	105	127924	1.005	ng	99
75) alpha-Pinene	19.48	93	60318	1.308	ng	94
76) n-Propylbenzene	19.58	91	160889	1.042	ng	98
77) 3-Ethyltoluene	19.67	105	128112	1.038	ng	99
78) 4-Ethyltoluene	19.70	105	120704	1.062	ng	98
79) 1,3,5-Trimethylbenzene	19.77	105	104259	1.031	ng	99
80) alpha-Methylstyrene	19.91	118	51929	1.033	ng	98
81) 2-Ethyltoluene	19.94	105	126972	1.090	ng	98
82) 1,2,4-Trimethylbenzene	20.13	105	105560	1.053	ng	100
83) n-Decane	20.23	57	65667	1.165	ng	97
84) Benzyl Chloride	20.25	91	41540	0.578	ng	95
85) 1,3-Dichlorobenzene	20.27	146	60440	1.056	ng	100
86) 1,4-Dichlorobenzene	20.32	146	61044	1.043	ng	100
87) sec-Butylbenzene	20.37	105	143028	1.092	ng	99
88) 4-Isopropyltoluene (p-...	20.51	119	132585	1.036	ng	100
89) 1,2,3-Trimethylbenzene	20.51	105	107463	1.071	ng	99
90) 1,2-Dichlorobenzene	20.63	146	58862	1.039	ng	100
91) d-Limonene	20.64	68	42553	1.205	ng	96
92) 1,2-Dibromo-3-Chloropr...	21.01	157	19260	0.918	ng	84
93) n-Undecane	21.33	57	64425	1.114	ng	98
94) 1,2,4-Trichlorobenzene	22.14	180	40013	1.025	ng	99
95) Naphthalene	22.24	128	118163	0.984	ng	99
96) n-Dodecane	22.24	57	51807	1.020	ng	96
97) Hexachlorobutadiene	22.56	225	28114	1.152	ng	99
98) Cyclohexanone	18.31	55	39198	0.894	ng	97
99) tert-Butylbenzene	20.13	119	103125	1.056	ng	100
100) n-Butylbenzene	20.88	91	117081	1.048	ng	99

(#)= qualifier out of range (m)= manual integration (+)= signals summed

Data File: I:\MS16\DATA\2019_11\07\11071913.D

Acq On : 7 Nov 2019 11:31

Operator: LH

Sample : 1.0ng T015 ICAL STD

Misc : S31-10161904/S31/11061902 (12/5)

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Nov 07 14:20:03 2019

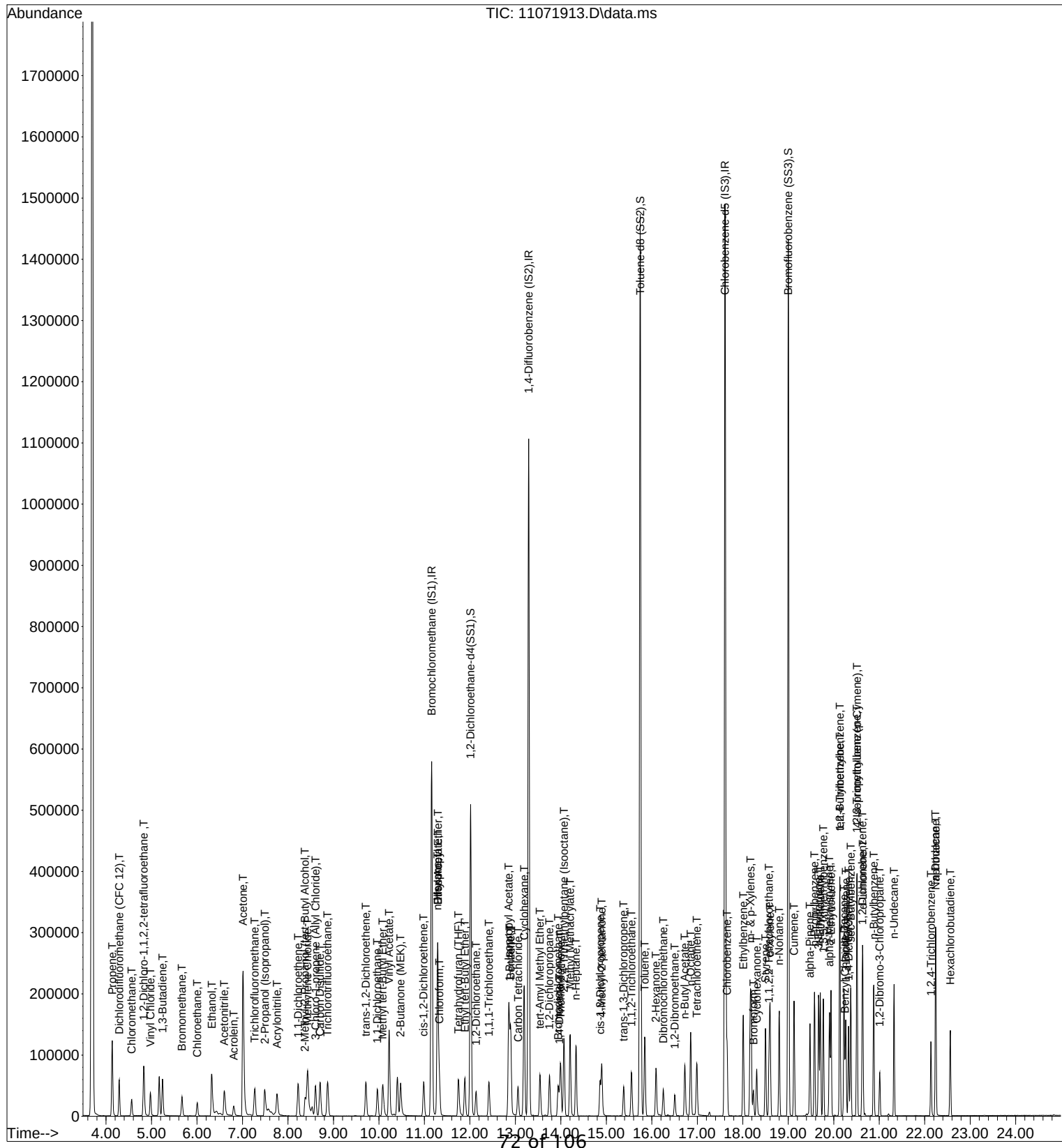
Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:19:40 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_11\07\11071914.D

Acq On : 7 Nov 2019 12:04

Operator: LH

Sample : 5.0ng T015 ICAL STD

Misc : S31-10161904/S31/11051901 (12/4)

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 07 14:20:05 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 11/7/19

QLast Update : Thu Nov 07 14:19:40 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	238299	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.29	114	1012944	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.61	82	491745	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.02	65	384957	11.484	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	91.84%	
57) Toluene-d8 (SS2)	15.74	98	1078033	12.134	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	97.04%	
73) Bromofluorobenzene (SS3)	19.00	174	382464	12.662	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	101.28%	

Target Compounds

						Qvalue
2) Propene	4.11	42	234481	6.468	ng	100
3) Dichlorodifluoromethan...	4.27	85	274420	4.987	ng	100
4) Chloromethane	4.54	50	171733	4.146	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.82	135	134424	4.197	ng	100
6) Vinyl Chloride	4.96	62	219080	4.724	ng	100
7) 1,3-Butadiene	5.23	54	162956	4.861	ng	99
8) Bromomethane	5.66	94	129033	5.310	ng	100
9) Chloroethane	5.99	64	114171	6.022	ng	100
10) Ethanol	6.33	45	602443	27.002	ng	100
11) Acetonitrile	6.60	41	304638	5.877	ng	99
12) Acrolein	6.80	56	95999	5.343	ng	100
13) Acetone	7.00	58	575159	24.753	ng	98
14) Trichlorofluoromethane	7.26	101	232759	4.726	ng	100
15) 2-Propanol (Isopropanol)	7.48	45	626633	9.886	ng	98
16) Acrylonitrile	7.76	53	213994	5.777	ng	100
17) 1,1-Dichloroethene	8.22	96	134225	5.420	ng	98
18) 2-Methyl-2-Propanol (t...	8.36	59	522177	15.422	ng	94
19) Methylene Chloride	8.44	84	142662	5.290	ng	97
20) 3-Chloro-1-propene (Al...	8.61	41	237978	5.981	ng	99
21) Trichlorotrifluoroethane	8.87	151	120247	5.192	ng	98
22) Carbon Disulfide	8.71	76	548941	5.690	ng	100
23) trans-1,2-Dichloroethene	9.72	61	212969	5.597	ng	98
24) 1,1-Dichloroethane	9.97	63	266947	5.584	ng	100
25) Methyl tert-Butyl Ether	10.07	73	305507	7.805	ng	100
26) Vinyl Acetate	10.22	86	129428	23.075	ng	# 86
27) 2-Butanone (MEK)	10.47	72	95916	5.103	ng	97
28) cis-1,2-Dichloroethene	10.99	61	203204	5.294	ng	98
29) Diisopropyl Ether	11.29	87	132111	5.331	ng	# 91
30) Ethyl Acetate	11.29	61	112934	11.301	ng	99
31) n-Hexane	11.28	57	248884	5.391	ng	99
32) Chloroform	11.33	83	234677	4.976	ng	100
34) Tetrahydrofuran (THF)	11.74	72	98432	5.373	ng	99
35) Ethyl tert-Butyl Ether	11.88	87	114745	8.636	ng	98
36) 1,2-Dichloroethane	12.14	62	180136	4.655	ng	99
38) 1,1,1-Trichloroethane	12.42	97	202514	4.849	ng	99
39) Isopropyl Acetate	12.85	61	200699	10.970	ng	98
40) 1-Butanol	12.86	56	265751	10.062	ng	95
41) Benzene	12.90	78	568348	5.299	ng	100
42) Carbon Tetrachloride	13.06	117	168902	4.975	ng	99
43) Cyclohexane	13.19	84	427501	10.715	ng	98
44) tert-Amyl Methyl Ether	13.54	73	290720	8.760	ng	99
45) 1,2-Dichloropropane	13.75	63	155339	5.707	ng	100
46) Bromodichloromethane	13.94	83	187925	5.236	ng	100
47) Trichloroethene	14.00	130	139544	5.171	ng	100
48) 1,4-Dioxane	13.97	88	94862	4.477	ng	97
49) 2,2,4-Trimethylpentane...	14.07	57	643593	5.900	ng	100

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Data File: I:\MS16\DATA\2019_11\07\11071914.D

Acq On : 7 Nov 2019 12:04

Operator: LH

Sample : 5.0ng T015 ICAL STD

Misc : S31-10161904/S31/11051901 (12/4)

ALS Vial : 6 Sample Multiplier: 1

Quant Time: Nov 07 14:20:05 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:19:40 2019

Response via : Initial Calibration

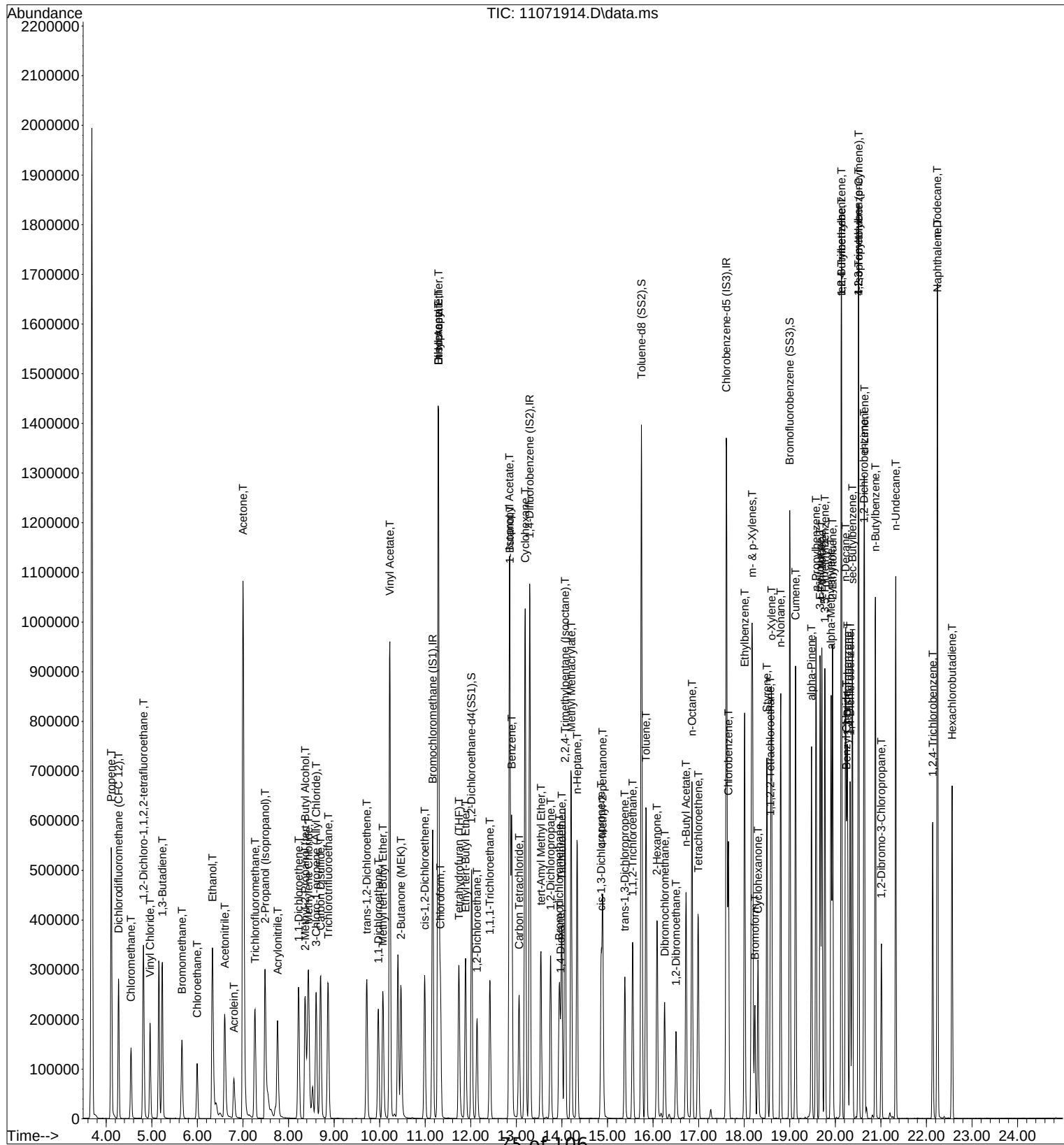
DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.20	100	111974	10.905	ng	97
51) n-Heptane	14.33	71	144848	5.587	ng	99
52) cis-1,3-Dichloropropene	14.86	75	219954	5.278	ng	100
53) 4-Methyl-2-pentanone	14.89	58	140994	5.667	ng	97
54) trans-1,3-Dichloropropene	15.38	75	186718	5.342	ng	100
55) 1,1,2-Trichloroethane	15.55	97	135469	5.380	ng	100
58) Toluene	15.84	91	544045	4.926	ng	100
59) 2-Hexanone	16.09	43	343203	4.989	ng	99
60) Dibromochloromethane	16.26	129	151849	5.203	ng	100
61) 1,2-Dibromoethane	16.50	107	149397	5.087	ng	99
62) n-Butyl Acetate	16.72	43	399804	5.381	ng	100
63) n-Octane	16.86	57	135163	5.775	ng	98
64) Tetrachloroethene	16.99	166	150358	5.025	ng	100
65) Chlorobenzene	17.65	112	344409	4.743	ng	100
66) Ethylbenzene	18.01	91	639801	5.228	ng	99
67) m- & p-Xylenes	18.17	91	961513	10.274	ng	99
68) Bromoform	18.24	173	119555	5.229	ng	100
69) Styrene	18.50	104	380961	5.040	ng	100
70) o-Xylene	18.60	91	481522	5.295	ng	99
71) n-Nonane	18.80	43	332661	5.782	ng	98
72) 1,1,2,2-Tetrachloroethane	18.58	83	248518	5.381	ng	99
74) Cumene	19.13	105	620376	5.232	ng	99
75) alpha-Pinene	19.48	93	301514	7.018	ng	99
76) n-Propylbenzene	19.58	91	771553	5.367	ng	99
77) 3-Ethyltoluene	19.67	105	614253	5.343	ng	99
78) 4-Ethyltoluene	19.70	105	566506	5.353	ng	99
79) 1,3,5-Trimethylbenzene	19.77	105	487448	5.174	ng	99
80) alpha-Methylstyrene	19.91	118	259653	5.547	ng	92
81) 2-Ethyltoluene	19.94	105	587353	5.415	ng	99
82) 1,2,4-Trimethylbenzene	20.13	105	496917	5.320	ng	99
83) n-Decane	20.23	57	310726	5.918	ng	98
84) Benzyl Chloride	20.25	91	304906	4.551	ng	98
85) 1,3-Dichlorobenzene	20.27	146	280838	5.269	ng	100
86) 1,4-Dichlorobenzene	20.32	146	279646	5.128	ng	100
87) sec-Butylbenzene	20.37	105	663130	5.436	ng	99
88) 4-Isopropyltoluene (p-...	20.51	119	626102	5.253	ng	99
89) 1,2,3-Trimethylbenzene	20.51	105	505232	5.408	ng	99
90) 1,2-Dichlorobenzene	20.63	146	274298	5.196	ng	99
91) d-Limonene	20.64	68	203036	6.172	ng	98
92) 1,2-Dibromo-3-Chloropr...	21.01	157	98589	5.043	ng	92
93) n-Undecane	21.33	57	336056	6.237	ng	98
94) 1,2,4-Trichlorobenzene	22.14	180	196514	5.405	ng	100
95) Naphthalene	22.24	128	590983	5.281	ng	100
96) n-Dodecane	22.24	57	301976	6.381	ng	98
97) Hexachlorobutadiene	22.56	225	135078	5.943	ng	100
98) Cyclohexanone	18.30	55	156263	3.825	ng	98
99) tert-Butylbenzene	20.13	119	484944	5.332	ng	99
100) n-Butylbenzene	20.88	91	567449	5.453	ng	99

(#)=qualifier out of range (m)=manual integration (+)=signals summed

ALS Vial : 6 Sample Multiplier: 1

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_11\07\11071915.D

Acq On : 7 Nov 2019 12:37

Operator: LH

Sample : 25ng T015 ICAL STD

Misc : S31-10161904/S31/10301901 (11/28)

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 07 14:20:07 2019

Quant Method : I:\MS16\METHODS\R16110719.M

LH 11/7/19

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:19:40 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	243145	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.30	114	1011289	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.61	82	504677	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.03	65	385666	11.276	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	90.24%	
57) Toluene-d8 (SS2)	15.75	98	1097431	12.036	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	96.32%	
73) Bromofluorobenzene (SS3)	19.00	174	386327	12.462	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.68%	

Target Compounds

						Qvalue
2) Propene	4.10	42	1060410	28.667	ng	100
3) Dichlorodifluoromethan...	4.26	85	1244611	22.167	ng	100
4) Chloromethane	4.54	50	870100	20.587	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	613532	18.776	ng	100
6) Vinyl Chloride	4.97	62	1009727	21.338	ng	100
7) 1,3-Butadiene	5.23	54	825532	24.133	ng	100
8) Bromomethane	5.66	94	613991	24.764	ng	100
9) Chloroethane	6.00	64	543801	28.109	ng	100
10) Ethanol	6.37	45	2884029	126.690	ng	100
11) Acetonitrile	6.62	41	1509040	28.530	ng	100
12) Acrolein	6.81	56	477266	26.036	ng	100
13) Acetone	7.01	58	2603387	109.807	ng	100
14) Trichlorofluoromethane	7.26	101	1066321	21.220	ng	100
15) 2-Propanol (Isopropanol)	7.50	45	3263725	50.464	ng	100
16) Acrylonitrile	7.77	53	1056604	27.957	ng	100
17) 1,1-Dichloroethene	8.22	96	640252	25.340	ng	100
18) 2-Methyl-2-Propanol (t...	8.38	59	2678015	77.516	ng	100
19) Methylene Chloride	8.45	84	667286	24.252	ng	100
20) 3-Chloro-1-propene (Al...	8.61	41	1181721	29.107	ng	100
21) Trichlorotrifluoroethane	8.86	151	560681	23.725	ng	100
22) Carbon Disulfide	8.71	76	2530153	25.701	ng	100
23) trans-1,2-Dichloroethene	9.72	61	1011803	26.063	ng	100
24) 1,1-Dichloroethane	9.98	63	1264306	25.918	ng	100
25) Methyl tert-Butyl Ether	10.07	73	1519558	38.050	ng	100
26) Vinyl Acetate	10.23	86	705494	123.270	ng	100
27) 2-Butanone (MEK)	10.47	72	464597	24.224	ng	100
28) cis-1,2-Dichloroethene	10.99	61	963007	24.589	ng	100
29) Diisopropyl Ether	11.29	87	602582	23.832	ng	100
30) Ethyl Acetate	11.30	61	502020	49.237	ng	100
31) n-Hexane	11.28	57	1109774	23.560	ng	100
32) Chloroform	11.34	83	1042236	21.657	ng	100
34) Tetrahydrofuran (THF)	11.74	72	483538	25.867	ng	100
35) Ethyl tert-Butyl Ether	11.88	87	553003	40.789	ng	100
36) 1,2-Dichloroethane	12.14	62	849681	21.521	ng	100
38) 1,1,1-Trichloroethane	12.42	97	954520	22.894	ng	100
39) Isopropyl Acetate	12.85	61	941283	51.535	ng	100
40) 1-Butanol	12.87	56	1332728	50.541	ng	100
41) Benzene	12.90	78	2452781	22.905	ng	100
42) Carbon Tetrachloride	13.06	117	822081	24.255	ng	100
43) Cyclohexane	13.19	84	1932604	48.520	ng	100
44) tert-Amyl Methyl Ether	13.54	73	1409138	42.532	ng	100
45) 1,2-Dichloropropane	13.75	63	729766	26.856	ng	100
46) Bromodichloromethane	13.95	83	891489	24.879	ng	100
47) Trichloroethene	14.00	130	630689	23.411	ng	100
48) 1,4-Dioxane	13.97	88	525397	24.836	ng	100
49) 2,2,4-Trimethylpentane...	14.07	57	2798959	25.703	ng	100

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Data File: I:\MS16\DATA\2019_11\07\11071915.D

Acq On : 7 Nov 2019 12:37

Operator: LH

Sample : 25ng T015 ICAL STD

Misc : S31-10161904/S31/10301901 (11/28)

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 07 14:20:07 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:19:40 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.20	100	534479	52.137	ng	100
51) n-Heptane	14.34	71	669636	25.871	ng	100
52) cis-1,3-Dichloropropene	14.86	75	1110174	26.685	ng	100
53) 4-Methyl-2-pentanone	14.89	58	668187	26.903	ng	100
54) trans-1,3-Dichloropropene	15.38	75	990418	28.383	ng	100
55) 1,1,2-Trichloroethane	15.56	97	633969	25.218	ng	100
58) Toluene	15.85	91	2459671	21.698	ng	100
59) 2-Hexanone	16.08	43	1772552	25.107	ng	100
60) Dibromochloromethane	16.26	129	736339	24.585	ng	100
61) 1,2-Dibromoethane	16.51	107	723741	24.010	ng	100
62) n-Butyl Acetate	16.72	43	2085051	27.346	ng	100
63) n-Octane	16.85	57	619615	25.793	ng	100
64) Tetrachloroethene	16.99	166	675971	22.013	ng	100
65) Chlorobenzene	17.65	112	1621103	21.752	ng	100
66) Ethylbenzene	18.01	91	2907854	23.150	ng	100
67) m- & p-Xylenes	18.17	91	4179594	43.518	ng	100
68) Bromoform	18.24	173	568054	24.210	ng	100
69) Styrene	18.50	104	1779070	22.933	ng	100
70) o-Xylene	18.60	91	1991230	21.336	ng	100
71) n-Nonane	18.80	43	1475597	24.990	ng	100
72) 1,1,2,2-Tetrachloroethane	18.58	83	1083559	22.861	ng	100
74) Cumene	19.13	105	2754312	22.635	ng	100
75) alpha-Pinene	19.48	93	1362964	30.912	ng	100
76) n-Propylbenzene	19.58	91	3330448	22.572	ng	100
77) 3-Ethyltoluene	19.67	105	2584089	21.902	ng	100
78) 4-Ethyltoluene	19.71	105	2406506	22.158	ng	100
79) 1,3,5-Trimethylbenzene	19.77	105	2061463	21.321	ng	100
80) alpha-Methylstyrene	19.91	118	1197035	24.916	ng	100
81) 2-Ethyltoluene	19.94	105	2391765	21.483	ng	100
82) 1,2,4-Trimethylbenzene	20.13	105	2044695	21.331	ng	100
83) n-Decane	20.23	57	1299738	24.120	ng	100
84) Benzyl Chloride	20.25	91	1680765	24.445	ng	100
85) 1,3-Dichlorobenzene	20.27	146	1161905	21.241	ng	100
86) 1,4-Dichlorobenzene	20.33	146	1212579	21.664	ng	100
87) sec-Butylbenzene	20.37	105	2677121	21.385	ng	100
88) 4-Isopropyltoluene (p-...	20.51	119	2461230	20.119	ng	100
89) 1,2,3-Trimethylbenzene	20.51	105	2045653	21.336	ng	100
90) 1,2-Dichlorobenzene	20.63	146	1180021	21.780	ng	100
91) d-Limonene	20.64	68	797218	23.613	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.01	157	497290	24.783	ng	100
93) n-Undecane	21.33	57	1540840	27.863	ng	100
94) 1,2,4-Trichlorobenzene	22.14	180	1011939	27.119	ng	100
95) Naphthalene	22.24	128	2825714	24.604	ng	100
96) n-Dodecane	22.24	57	1232040	25.368	ng	100
97) Hexachlorobutadiene	22.56	225	625855	26.830	ng	100
98) Cyclohexanone	18.30	55	922222	21.997	ng	100
99) tert-Butylbenzene	20.13	119	1963210	21.032	ng	100
100) n-Butylbenzene	20.88	91	2482476	23.243	ng	100

(#)=qualifier out of range (m)=manual integration (+)=signals summed

Data File: I:\MS16\DATA\2019_11\07\11071915.D

Acq On : 7 Nov 2019 12:37

Operator: LH

Sample : 25ng T015 ICAL STD

Misc : S31-10161904/S31/10301901 (11/28)

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 07 14:20:07 2019

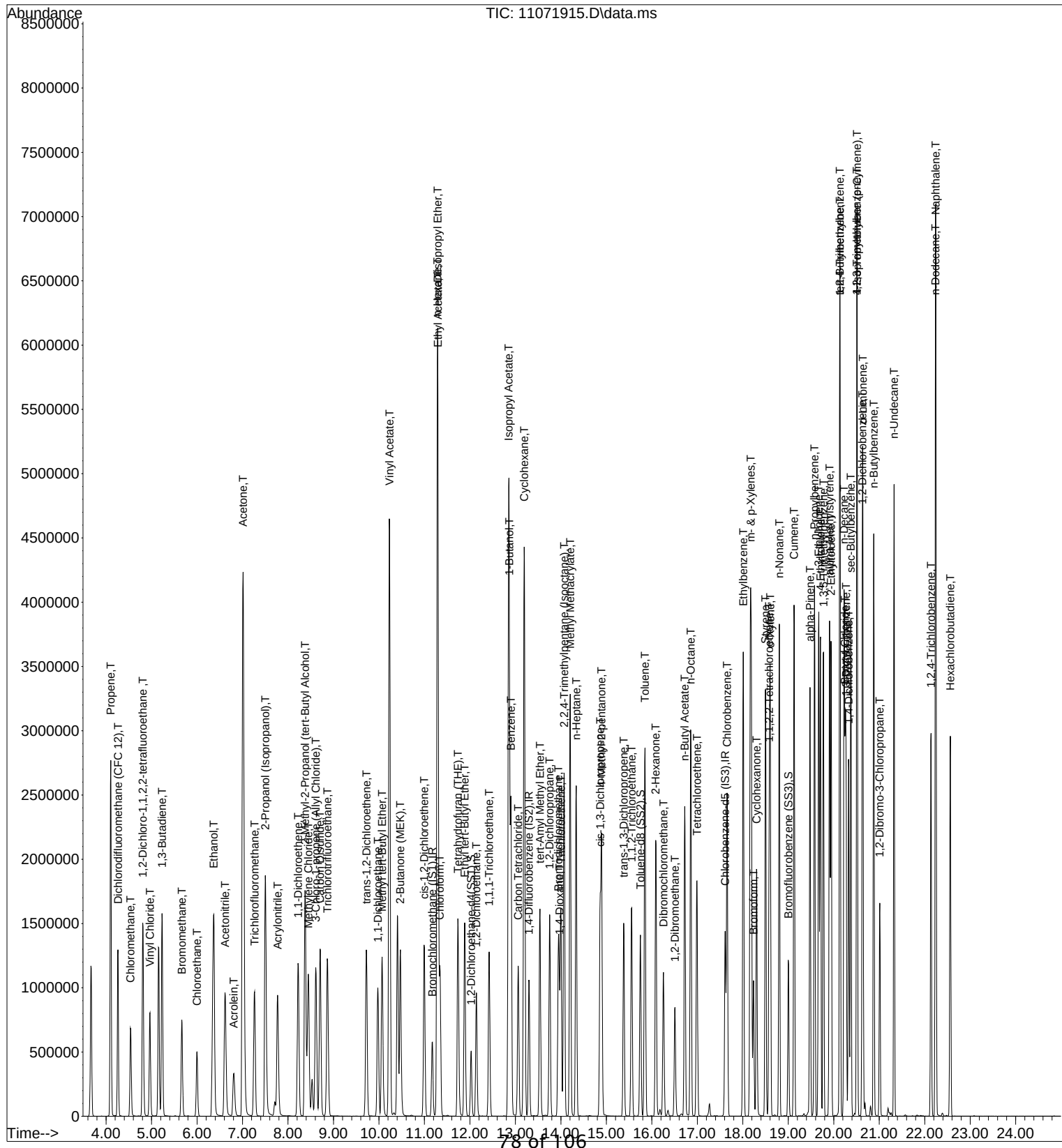
Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:19:40 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_11\07\11071916.D

Acq On : 7 Nov 2019 13:10

Operator: LH

Sample : 50ng T015 ICAL STD

Misc : S31-10161904/S31/10301901 (11/28)

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 07 14:20:09 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 11/7/19

QLast Update : Thu Nov 07 14:19:40 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.18	130	247812	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.30	114	1010870	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.61	82	510813	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.03	65	386180	11.078	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	88.64%	
57) Toluene-d8 (SS2)	15.75	98	1100898	11.929	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	95.44%	
73) Bromofluorobenzene (SS3)	19.01	174	391016	12.462	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.68%	

Target Compounds

						Qvalue
2) Propene	4.11	42	2171109	57.588	ng	100
3) Dichlorodifluoromethan...	4.27	85	2312603	40.413	ng	99
4) Chloromethane	4.55	50	1131495	26.268	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.82	135	1170185	35.136	ng	100
6) Vinyl Chloride	4.98	62	1967178	40.789	ng	100
7) 1,3-Butadiene	5.25	54	1562266	44.809	ng	99
8) Bromomethane	5.68	94	1198805	47.441	ng	100
9) Chloroethane	6.01	64	1081867	54.869	ng	100
10) Ethanol	6.40	45	5536168	238.614	ng	100
11) Acetonitrile	6.64	41	3051298	56.601	ng	100
12) Acrolein	6.82	56	958019	51.277	ng	99
13) Acetone	7.03	58	4744047	196.329	ng	99
14) Trichlorofluoromethane	7.28	101	2056888	40.162	ng	100
15) 2-Propanol (Isopropanol)	7.52	45	5517787	83.709	ng	100
16) Acrylonitrile	7.79	53	2117356	54.969	ng	100
17) 1,1-Dichloroethene	8.23	96	1265329	49.136	ng	98
18) 2-Methyl-2-Propanol (t...	8.40	59	5161591	146.590	ng	99
19) Methylene Chloride	8.46	84	1281481	45.697	ng	98
20) 3-Chloro-1-propene (Al...	8.62	41	2323839	56.160	ng	99
21) Trichlorotrifluoroethane	8.88	151	1081726	44.912	ng	98
22) Carbon Disulfide	8.72	76	4842978	48.269	ng	100
23) trans-1,2-Dichloroethene	9.73	61	1971707	49.832	ng	99
24) 1,1-Dichloroethane	9.98	63	2473160	49.743	ng	100
25) Methyl tert-Butyl Ether	10.07	73	3042635	74.753	ng	100
26) Vinyl Acetate	10.25	86	1350041	231.448	ng	# 83
27) 2-Butanone (MEK)	10.48	72	912753	46.695	ng	97
28) cis-1,2-Dichloroethene	11.00	61	1876562	47.013	ng	99
29) Diisopropyl Ether	11.30	87	947401	36.764	ng	# 83
30) Ethyl Acetate	11.30	61	853676	82.149	ng	97
31) n-Hexane	11.28	57	1969162	41.017	ng	99
32) Chloroform	11.35	83	1940838	39.570	ng	100
34) Tetrahydrofuran (THF)	11.74	72	963334	50.563	ng	98
35) Ethyl tert-Butyl Ether	11.89	87	1095290	79.267	ng	97
36) 1,2-Dichloroethane	12.15	62	1664489	41.365	ng	100
38) 1,1,1-Trichloroethane	12.42	97	1845480	44.282	ng	99
39) Isopropyl Acetate	12.86	61	1745146	95.586	ng	97
40) 1-Butanol	12.88	56	2368497	89.857	ng	99
41) Benzene	12.91	78	4380244	40.921	ng	100
42) Carbon Tetrachloride	13.07	117	1584141	46.759	ng	100
43) Cyclohexane	13.20	84	3482614	87.471	ng	98
44) tert-Amyl Methyl Ether	13.54	73	2759232	83.316	ng	99
45) 1,2-Dichloropropane	13.76	63	1415637	52.118	ng	100
46) Bromodichloromethane	13.95	83	1711252	47.775	ng	100
47) Trichloroethene	14.00	130	1163362	43.201	ng	100
48) 1,4-Dioxane	13.97	88	968956	45.823	ng	99
49) 2,2,4-Trimethylpentane...	14.07	57	5046650	46.363	ng	100

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Data File: I:\MS16\DATA\2019_11\07\11071916.D

Acq On : 7 Nov 2019 13:10

Operator: LH

Sample : 50ng T015 ICAL STD

Misc : S31-10161904/S31/10301901 (11/28)

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 07 14:20:09 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:19:40 2019

Response via : Initial Calibration

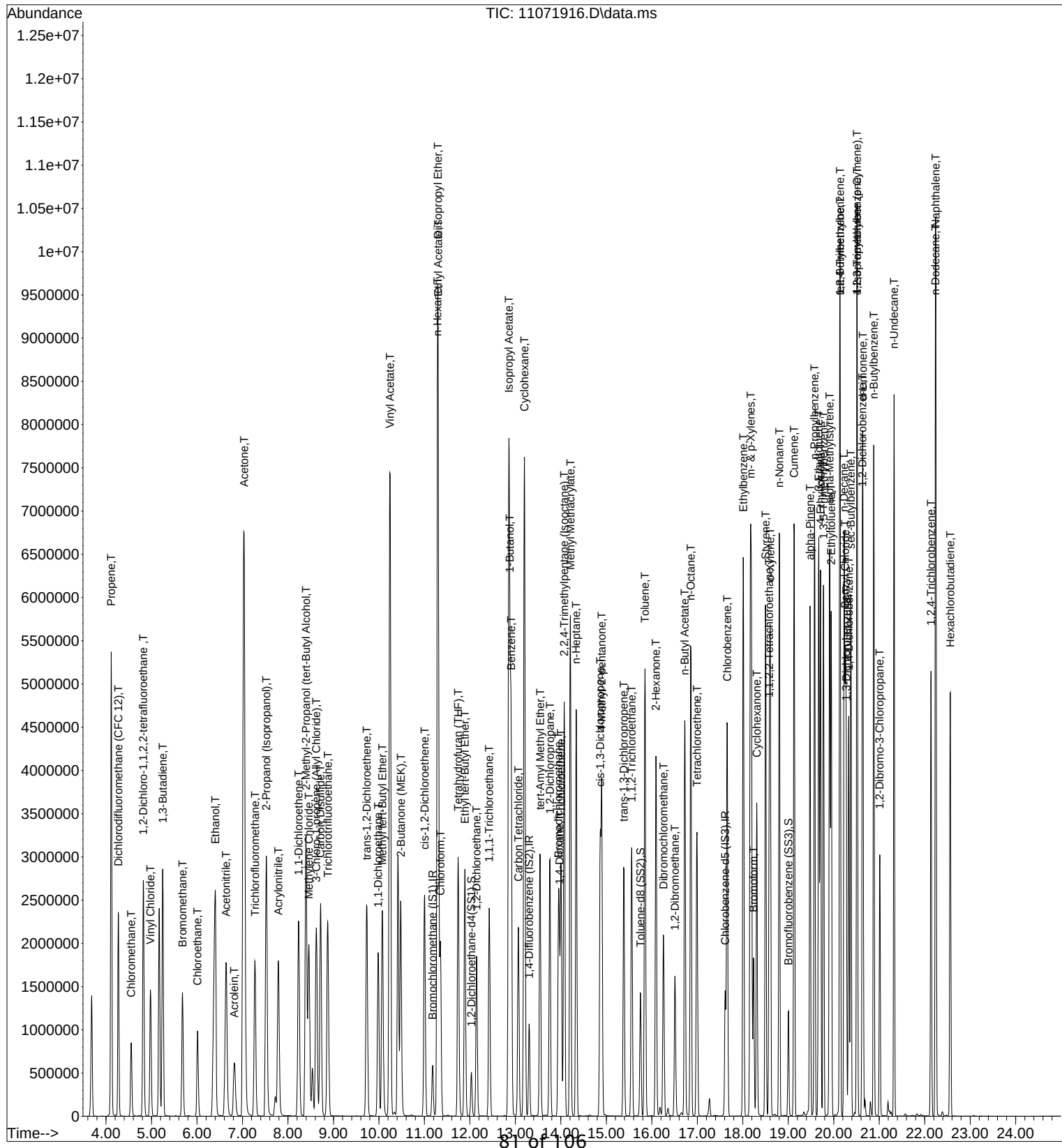
DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.21	100	1013747	98.930	ng	96
51) n-Heptane	14.34	71	1255745	48.535	ng	99
52) cis-1,3-Dichloropropene	14.86	75	2178960	52.397	ng	100
53) 4-Methyl-2-pentanone	14.90	58	1226970	49.421	ng	98
54) trans-1,3-Dichloropropene	15.38	75	1965006	56.335	ng	100
55) 1,1,2-Trichloroethane	15.56	97	1208136	48.078	ng	100
58) Toluene	15.85	91	4609300	40.173	ng	100
59) 2-Hexanone	16.09	43	3396227	47.528	ng	100
60) Dibromochloromethane	16.26	129	1407548	46.430	ng	99
61) 1,2-Dibromoethane	16.51	107	1393351	45.669	ng	100
62) n-Butyl Acetate	16.72	43	4025587	52.162	ng	99
63) n-Octane	16.86	57	1148502	47.235	ng	98
64) Tetrachloroethene	16.99	166	1250413	40.231	ng	99
65) Chlorobenzene	17.66	112	3042907	40.339	ng	100
66) Ethylbenzene	18.01	91	5347520	42.061	ng	100
67) m- & p-Xylenes	18.17	91	7342820	75.535	ng	99
68) Bromoform	18.24	173	1035643	43.609	ng	100
69) Styrene	18.50	104	3268170	41.622	ng	99
70) o-Xylene	18.60	91	3416001	36.163	ng	99
71) n-Nonane	18.80	43	2626058	43.940	ng	98
72) 1,1,2,2-Tetrachloroethane	18.58	83	1925825	40.144	ng	100
74) Cumene	19.13	105	4936222	40.080	ng	100
75) alpha-Pinene	19.48	93	2480560	55.583	ng	100
76) n-Propylbenzene	19.58	91	5870823	39.312	ng	100
77) 3-Ethyltoluene	19.67	105	4416899	36.986	ng	96
78) 4-Ethyltoluene	19.71	105	4123918	37.516	ng	94
79) 1,3,5-Trimethylbenzene	19.78	105	3577479	36.556	ng	99
80) alpha-Methylstyrene	19.91	118	2134488	43.895	ng	100
81) 2-Ethyltoluene	19.95	105	3979294	35.314	ng	99
82) 1,2,4-Trimethylbenzene	20.14	105	3293166	33.943	ng	98
83) n-Decane	20.23	57	2175379	39.885	ng	99
84) Benzyl Chloride	20.25	91	2984278	42.881	ng	100
85) 1,3-Dichlorobenzene	20.28	146	1949149	35.204	ng	100
86) 1,4-Dichlorobenzene	20.33	146	2078800	36.695	ng	99
87) sec-Butylbenzene	20.37	105	4391918	34.662	ng	100
88) 4-Isopropyltoluene (p-...	20.51	119	3822028	30.867	ng	98
89) 1,2,3-Trimethylbenzene	20.51	105	3218634	33.167	ng	98
90) 1,2-Dichlorobenzene	20.63	146	1962585	35.788	ng	100
91) d-Limonene	20.64	68	1189603	34.811	ng	96
92) 1,2-Dibromo-3-Chloropr...	21.01	157	934264	46.001	ng	95
93) n-Undecane	21.33	57	2687188	48.008	ng	99
94) 1,2,4-Trichlorobenzene	22.14	180	1835796	48.606	ng	99
95) Naphthalene	22.24	128	4591140	39.496	ng	100
96) n-Dodecane	22.24	57	1824162	37.109	ng	98
97) Hexachlorobutadiene	22.56	225	1118813	47.387	ng	99
98) Cyclohexanone	18.31	55	1686740	39.750	ng	98
99) tert-Butylbenzene	20.14	119	3123677	33.062	ng	99
100) n-Butylbenzene	20.88	91	4325059	40.008	ng	100

(#)= qualifier out of range (m)= manual integration (+)= signals summed

ALS Vial : 7 Sample Multiplier: 1

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_11\07\11071917.D

Acq On : 7 Nov 2019 13:43

Operator: LH

Sample : 100ng T015 ICAL STD

Misc : S31-10161904/S31/10301901 (11/28)

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 07 14:20:11 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 11/7/19

QLast Update : Thu Nov 07 14:19:40 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.19	130	249872	12.500	ng	0.01
37) 1,4-Difluorobenzene (IS2)	13.31	114	997106	12.500	ng	0.01
56) Chlorobenzene-d5 (IS3)	17.61	82	507805	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.04	65	383642	10.915	ng	0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	87.28%	
57) Toluene-d8 (SS2)	15.76	98	1095270	11.938	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	95.52%	
73) Bromofluorobenzene (SS3)	19.01	174	393503	12.616	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	100.96%	

Target Compounds

						Qvalue
2) Propene	4.12	42	3564990	93.781	ng	100
3) Dichlorodifluoromethan...	4.27	85	3989830	69.147	ng	100
4) Chloromethane	4.56	50	1017480	23.426	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.83	135	2093005	62.327	ng	100
6) Vinyl Chloride	4.99	62	3617817	74.397	ng	100
7) 1,3-Butadiene	5.26	54	2712022	77.145	ng	99
8) Bromomethane	5.69	94	2175935	85.400	ng	100
9) Chloroethane	6.02	64	2061452	103.688	ng	100
10) Ethanol	6.44	45	9690097	414.210	ng	99
11) Acetonitrile	6.67	41	5850438	107.629	ng	100
12) Acrolein	6.84	56	1848668	98.133	ng	99
13) Acetone	7.05	58	7761071	318.539	ng	100
14) Trichlorofluoromethane	7.28	101	3760602	72.823	ng	100
15) 2-Propanol (Isopropanol)	7.55	45	9704225	146.007	ng	100
16) Acrylonitrile	7.80	53	4002524	103.054	ng	100
17) 1,1-Dichloroethene	8.24	96	2357009	90.774	ng	97
18) 2-Methyl-2-Propanol (t...	8.41	59	5202941	146.546	ng	99
19) Methylene Chloride	8.47	84	2406325	85.101	ng	96
20) 3-Chloro-1-propene (Al...	8.63	41	4361337	104.531	ng	98
21) Trichlorotrifluoroethane	8.88	151	1966024	80.953	ng	96
22) Carbon Disulfide	8.72	76	8707696	86.072	ng	100
23) trans-1,2-Dichloroethene	9.74	61	3620241	90.742	ng	98
24) 1,1-Dichloroethane	9.99	63	4574713	91.254	ng	99
25) Methyl tert-Butyl Ether	10.08	73	5835633	142.190	ng	100
26) Vinyl Acetate	10.26	86	2267598	385.546	ng	# 62
27) 2-Butanone (MEK)	10.49	72	1663674	84.409	ng	# 91
28) cis-1,2-Dichloroethene	11.01	61	3428126	85.177	ng	98
29) Diisopropyl Ether	11.30	87	1479114	56.924	ng	97
30) Ethyl Acetate	11.32	61	1239795	118.322	ng	94
31) n-Hexane	11.29	57	3165259	65.388	ng	99
32) Chloroform	11.36	83	3422524	69.204	ng	99
34) Tetrahydrofuran (THF)	11.75	72	1747147	90.948	ng	97
35) Ethyl tert-Butyl Ether	11.89	87	2062268	148.017	ng	94
36) 1,2-Dichloroethane	12.15	62	3100209	76.410	ng	100
38) 1,1,1-Trichloroethane	12.43	97	3350496	81.505	ng	99
39) Isopropyl Acetate	12.86	61	2870198	159.377	ng	# 91
40) 1-Butanol	12.90	56	3499882	134.613	ng	95
41) Benzene	12.91	78	6689152	63.354	ng	99
42) Carbon Tetrachloride	13.07	117	2864112	85.706	ng	100
43) Cyclohexane	13.20	84	5543891	141.165	ng	96
44) tert-Amyl Methyl Ether	13.54	73	5045173	154.443	ng	98
45) 1,2-Dichloropropane	13.76	63	2539381	94.780	ng	100
46) Bromodichloromethane	13.95	83	3028808	85.726	ng	100
47) Trichloroethene	14.01	130	1924453	72.450	ng	100
48) 1,4-Dioxane	13.98	88	1609129	77.148	ng	96
49) 2,2,4-Trimethylpentane...	14.08	57	8137523	75.790	ng	99

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Data File: I:\MS16\DATA\2019_11\07\11071917.D

Acq On : 7 Nov 2019 13:43

Operator: LH

Sample : 100ng T015 ICAL STD

Misc : S31-10161904/S31/10301901 (11/28)

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 07 14:20:11 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:19:40 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.22	100	1720319	170.200	ng	92
51) n-Heptane	14.34	71	2124381	83.242	ng	98
52) cis-1,3-Dichloropropene	14.86	75	3914545	95.431	ng	99
53) 4-Methyl-2-pentanone	14.90	58	2033054	83.019	ng	94
54) trans-1,3-Dichloropropene	15.39	75	3613315	105.021	ng	99
55) 1,1,2-Trichloroethane	15.56	97	2143242	86.468	ng	100
58) Toluene	15.85	91	7860860	68.918	ng	100
59) 2-Hexanone	16.10	43	5888890	82.899	ng	99
60) Dibromochloromethane	16.26	129	2476689	82.182	ng	99
61) 1,2-Dibromoethane	16.51	107	2475829	81.629	ng	99
62) n-Butyl Acetate	16.73	43	7031708	91.653	ng	98
63) n-Octane	16.86	57	1900099	78.610	ng	96
64) Tetrachloroethene	16.99	166	2083632	67.437	ng	99
65) Chlorobenzene	17.66	112	5159556	68.803	ng	100
66) Ethylbenzene	18.02	91	8859213	70.095	ng	100
67) m- & p-Xylenes	18.17	91	11388239	117.843	ng	97
68) Bromoform	18.24	173	1688045	71.501	ng	99
69) Styrene	18.50	104	5381381	68.941	ng	98
70) o-Xylene	18.61	91	5169229	55.047	ng	96
71) n-Nonane	18.80	43	3983221	67.044	ng	94
72) 1,1,2,2-Tetrachloroethane	18.58	83	3023688	63.402	ng	100
74) Cumene	19.13	105	7858943	64.189	ng	99
75) alpha-Pinene	19.48	93	4052631	91.347	ng	99
76) n-Propylbenzene	19.58	91	9126736	61.476	ng	100
77) 3-Ethyltoluene	19.67	105	7035383	59.262	ng	98
78) 4-Ethyltoluene	19.71	105	5809953	53.167	ng	97
79) 1,3,5-Trimethylbenzene	19.77	105	5448710	56.007	ng	96
80) alpha-Methylstyrene	19.91	118	3274723	67.743	ng	99
81) 2-Ethyltoluene	19.95	105	5732886	51.177	ng	97
82) 1,2,4-Trimethylbenzene	20.14	105	4872128	50.514	ng	98
83) n-Decane	20.23	57	3014196	55.592	ng	97
84) Benzyl Chloride	20.26	91	4401212	63.616	ng	99
85) 1,3-Dichlorobenzene	20.28	146	2718785	49.396	ng	100
86) 1,4-Dichlorobenzene	20.33	146	3045470	54.077	ng	100
87) sec-Butylbenzene	20.38	105	6163103	48.929	ng	98
88) 4-Isopropyltoluene (p-...	20.52	119	5691331	46.236	ng	96
89) 1,2,3-Trimethylbenzene	20.51	105	4812662	49.886	ng	99
90) 1,2-Dichlorobenzene	20.63	146	2801674	51.392	ng	100
91) d-Limonene	20.64	68	1465463	43.138	ng	89
92) 1,2-Dibromo-3-Chloropr...	21.01	157	1539605	76.255	ng	93
93) n-Undecane	21.33	57	3947386	70.940	ng	97
94) 1,2,4-Trichlorobenzene	22.14	180	2900160	77.242	ng	98
95) Naphthalene	22.24	128	6770625	58.591	ng	99
96) n-Dodecane	22.24	57	2398841	49.089	ng	96
97) Hexachlorobutadiene	22.56	225	1716380	73.127	ng	99
98) Cyclohexanone	18.31	55	2808360	66.574	ng	96
99) tert-Butylbenzene	20.14	119	4724259	50.300	ng	97
100) n-Butylbenzene	20.88	91	6621248	61.611	ng	100

(#)= qualifier out of range (m)= manual integration (+)= signals summed

Data File: I:\MS16\DATA\2019_11\07\11071917.D

Acq On : 7 Nov 2019 13:43

Operator: LH

Sample : 100ng T015 ICAL STD

Misc : S31-10161904/S31/10301901 (11/28)

ALS Vial : 7 Sample Multiplier: 1

Quant Time: Nov 07 14:20:11 2019

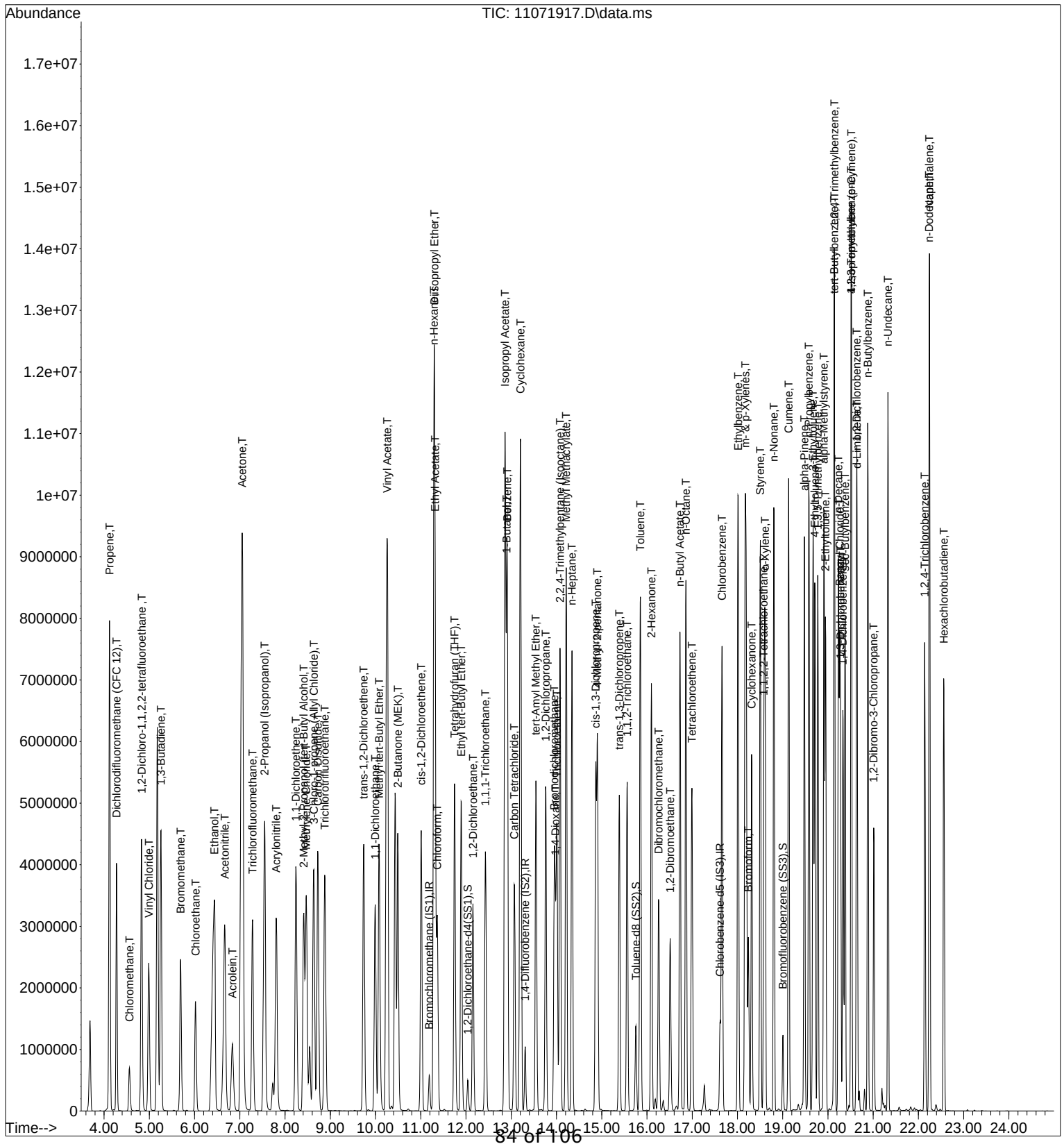
Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP V0A-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:19:40 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_11\07\11071918.D

Acq On : 7 Nov 2019 14:16

Operator: LH

Sample : 25ng T015 ICV STD

Misc : S31-10161904/S31-10241903 (11/22)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 07 14:45:28 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 11/7/19

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	254451	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.30	114	1059674	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.61	82	527177	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.03	65	393541	12.085	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	96.72%	
57) Toluene-d8 (SS2)	15.75	98	1159309	12.567	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	100.56%	
73) Bromofluorobenzene (SS3)	19.00	174	408560	12.397	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.20%	

Target Compounds

						Qvalue
2) Propene	4.11	42	1051211	24.450	ng	100
3) Dichlorodifluoromethan...	4.26	85	1295084	24.516	ng	100
4) Chloromethane	4.54	50	929405	25.527	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	629118	24.021	ng	100
6) Vinyl Chloride	4.97	62	1020453	24.476	ng	100
7) 1,3-Butadiene	5.24	54	854808	27.176	ng	99
8) Bromomethane	5.67	94	623757	24.867	ng	99
9) Chloroethane	6.01	64	554584	25.149	ng	100
10) Ethanol	6.37	45	3089974	125.786	ng	100
11) Acetonitrile	6.62	41	1625448	26.581	ng	100
12) Acrolein	6.81	56	508656	26.126	ng	100
13) Acetone	7.02	58	2723448	119.145	ng	99
14) Trichlorofluoromethane	7.26	101	1120987	24.824	ng	100
15) 2-Propanol (Isopropanol)	7.51	45	3558709	54.516	ng	99
16) Acrylonitrile	7.78	53	1126374	27.415	ng	100
17) 1,1-Dichloroethene	8.23	96	690950	26.865	ng	97
18) 2-Methyl-2-Propanol (t...	8.38	59	2797187	59.684	ng	99
19) Methylene Chloride	8.45	84	711016	25.163	ng	97
20) 3-Chloro-1-propene (Al...	8.62	41	1199240	26.194	ng	99
21) Trichlorotrifluoroethane	8.87	151	605651	26.132	ng	98
22) Carbon Disulfide	8.71	76	2708730	27.033	ng	100
23) trans-1,2-Dichloroethene	9.73	61	1081244	26.992	ng	99
24) 1,1-Dichloroethane	9.98	63	1293542	25.152	ng	100
25) Methyl tert-Butyl Ether	10.07	73	1604778	27.830	ng	100
26) Vinyl Acetate	10.23	86	756460	178.096	ng	# 93
27) 2-Butanone (MEK)	10.47	72	504907	27.744	ng	96
28) cis-1,2-Dichloroethene	11.00	61	1026482	25.814	ng	99
29) Diisopropyl Ether	11.29	87	633831	26.819	ng	96
30) Ethyl Acetate	11.30	61	528423	54.967	ng	99
31) n-Hexane	11.28	57	1154557	24.990	ng	99
32) Chloroform	11.34	83	1110694	24.785	ng	100
34) Tetrahydrofuran (THF)	11.74	72	523732	27.753	ng	97
35) Ethyl tert-Butyl Ether	11.89	87	592679	26.987	ng	98
36) 1,2-Dichloroethane	12.14	62	896586	25.710	ng	100
38) 1,1,1-Trichloroethane	12.42	97	1035508	27.005	ng	99
39) Isopropyl Acetate	12.85	61	1002254	55.493	ng	98
40) 1-Butanol	12.87	56	1463174	62.360	ng	98
41) Benzene	12.90	78	2591625	24.163	ng	100
42) Carbon Tetrachloride	13.06	117	864576	27.725	ng	100
43) Cyclohexane	13.20	84	2055124	51.559	ng	99
44) tert-Amyl Methyl Ether	13.54	73	1530692	27.534	ng	99
45) 1,2-Dichloropropane	13.75	63	781568	26.726	ng	100
46) Bromodichloromethane	13.95	83	952719	27.751	ng	100
47) Trichloroethene	14.00	130	676382	25.826	ng	100
48) 1,4-Dioxane	13.97	88	579631	28.656	ng	99
49) 2,2,4-Trimethylpentane...	14.07	57	2917767	24.658	ng	100

85 of 106

Data File: I:\MS16\DATA\2019_11\07\11071918.D

Acq On : 7 Nov 2019 14:16

Operator: LH

Sample : 25ng T015 ICV STD

Misc : S31-10161904/S31-10241903 (11/22)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 07 14:45:28 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

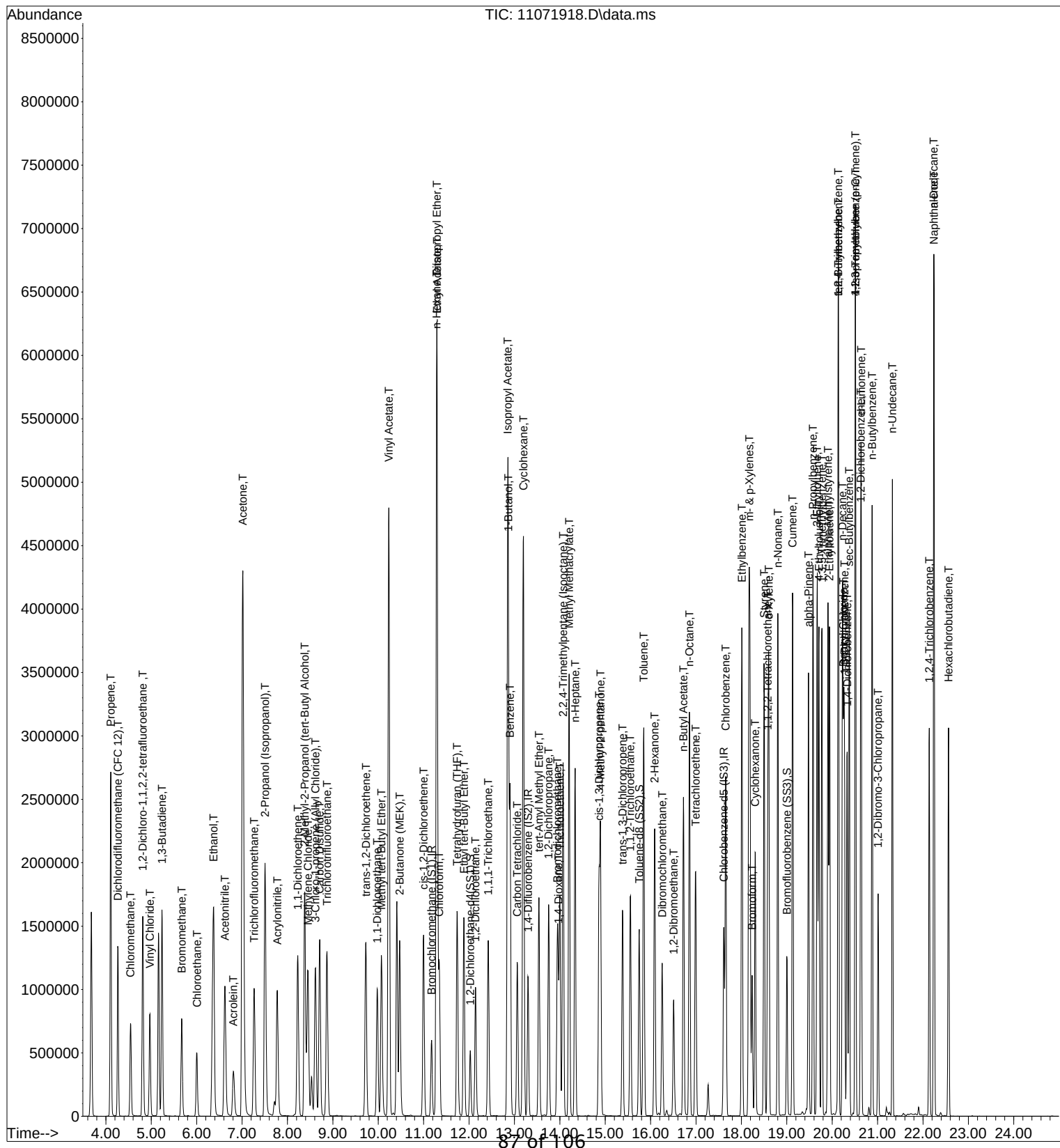
DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.20	100	585143	58.601	ng	97
51) n-Heptane	14.34	71	718014	26.711	ng	99
52) cis-1,3-Dichloropropene	14.86	75	1281123	31.220	ng	100
53) 4-Methyl-2-pentanone	14.90	58	711388	28.058	ng	98
54) trans-1,3-Dichloropropene	15.38	75	1086513	30.954	ng	100
55) 1,1,2-Trichloroethane	15.55	97	684683	27.039	ng	100
58) Toluene	15.85	91	2698234	27.734	ng	100
59) 2-Hexanone	16.09	43	1881154	29.332	ng	99
60) Dibromochloromethane	16.26	129	791313	28.947	ng	100
61) 1,2-Dibromoethane	16.51	107	784310	27.997	ng	100
62) n-Butyl Acetate	16.72	43	2190516	29.954	ng	99
63) n-Octane	16.85	57	658900	26.517	ng	99
64) Tetrachloroethene	16.99	166	736351	25.324	ng	100
65) Chlorobenzene	17.65	112	1743022	25.476	ng	100
66) Ethylbenzene	18.01	91	3131910	26.457	ng	100
67) m- & p-Xylenes	18.17	91	4462683	50.371	ng	100
68) Bromoform	18.23	173	609850	29.872	ng	100
69) Styrene	18.50	104	1926459	28.069	ng	100
70) o-Xylene	18.60	91	2101795	25.035	ng	100
71) n-Nonane	18.80	43	1526811	25.418	ng	99
72) 1,1,2,2-Tetrachloroethane	18.58	83	1160549	25.916	ng	100
74) Cumene	19.13	105	2914421	26.406	ng	100
75) alpha-Pinene	19.48	93	1437061	26.349	ng	98
76) n-Propylbenzene	19.58	91	3529289	25.472	ng	100
77) 3-Ethyltoluene	19.67	105	2771683	25.817	ng	100
78) 4-Ethyltoluene	19.71	105	2458583	24.951	ng	100
79) 1,3,5-Trimethylbenzene	19.77	105	2182843	24.168	ng	100
80) alpha-Methylstyrene	19.91	118	1262147	27.925	ng	99
81) 2-Ethyltoluene	19.94	105	2515381	25.989	ng	100
82) 1,2,4-Trimethylbenzene	20.13	105	2153595	24.490	ng	100
83) n-Decane	20.23	57	1339707	24.237	ng	100
84) Benzyl Chloride	20.25	91	1825123	34.657	ng	100
85) 1,3-Dichlorobenzene	20.27	146	1227617	23.844	ng	99
86) 1,4-Dichlorobenzene	20.33	146	1285375	24.373	ng	100
87) sec-Butylbenzene	20.37	105	2791890	25.572	ng	100
88) 4-Isopropyltoluene (p-...	20.51	119	2553603	24.828	ng	100
89) 1,2,3-Trimethylbenzene	20.51	105	2077676	23.574	ng	100
90) 1,2-Dichlorobenzene	20.63	146	1255985	24.780	ng	100
91) d-Limonene	20.64	68	802978	24.239	ng	99
92) 1,2-Dibromo-3-Chloropr...	21.01	157	525907	29.212	ng	98
93) n-Undecane	21.33	57	1564910	27.458	ng	99
94) 1,2,4-Trichlorobenzene	22.14	180	1048045	28.232	ng	100
95) Naphthalene	22.24	128	2900356	26.905	ng	100
96) n-Dodecane	22.24	57	1120938	24.701	ng	99
97) Hexachlorobutadiene	22.56	225	659050	25.726	ng	99
98) Cyclohexanone	18.30	55	997740	26.804	ng	99
99) tert-Butylbenzene	20.13	119	2042198	23.593	ng	100
100) n-Butylbenzene	20.88	91	2632966	26.102	ng	100

(#)= qualifier out of range (m)= manual integration (+)= signals summed

ALS Vial : 2 Sample Multiplier: 1

DataAcq Meth:T015.M



Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: 11071918.D

Acq. Method File: TO15.M

Data File Path: I:\MS16\DATA\2019_11\07\

Sample Name: 25ng TO15 ICV STD

Operator: LH

Misc Info: S31-10161904/S31-10241903 (

Date Acquired: 11/7/19

14:16

Instrument Name: GCMS-16

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
2)	Propene	4.11	24.5	26.25	93	53	112	*	*
3)	Dichlorodifluoromethane (CFC 12)	4.26	24.5	26.25	93	62	103	*	*
4)	Chloromethane	4.54	25.5	26.50	96	51	121	*	*
5)	1,2-Dichloro-1,1,2,2-tetrafluoroethane	4.81	24.0	25.75	93	56	111	*	*
6)	Vinyl Chloride	4.97	24.5	26.50	92	57	117	*	*
7)	1,3-Butadiene	5.24	27.2	26.50	103	53	134	*	*
8)	Bromomethane	5.67	24.9	26.50	94	65	110	*	*
9)	Chloroethane	6.01	25.1	26.75	94	64	111	*	*
10)	Ethanol	6.37	126	132.50	95	57	124	*	*
11)	Acetonitrile	6.62	26.6	26.75	99	57	126	*	*
12)	Acrolein	6.81	26.1	25.75	101	62	121	*	*
13)	Acetone	7.02	119	133.50	89	60	113	*	*
14)	Trichlorofluoromethane	7.26	24.8	26.50	94	63	104	*	*
15)	2-Propanol (Isopropanol)	7.51	54.5	52.75	103	60	124	*	*
16)	Acrylonitrile	7.78	27.4	26.50	103	66	125	*	*
17)	1,1-Dichloroethene	8.23	26.9	26.75	101	68	107	*	*
18)	2-Methyl-2-Propanol (tert-Butyl Alcohol)	8.38	59.7	53.75	111	64	114	*	*
19)	Methylene Chloride	8.45	25.2	26.25	96	66	105	*	*
20)	3-Chloro-1-propene (Allyl Chloride)	8.62	26.2	26.75	98	63	127	*	*
21)	Trichlorotrifluoroethane	8.87	26.1	27.00	97	59	109	*	*
22)	Carbon Disulfide	8.71	27.0	26.50	102	67	109	*	*
23)	trans-1,2-Dichloroethene	9.73	27.0	26.75	101	70	115	*	*
24)	1,1-Dichloroethane	9.98	25.2	26.50	95	66	106	*	*
25)	Methyl tert-Butyl Ether	10.07	27.8	26.75	104	67	109	*	*
26)	Vinyl Acetate	10.23	178	133.25	134	68	136	*	*
27)	2-Butanone (MEK)	10.47	27.7	26.50	105	71	116	*	*
28)	cis-1,2-Dichloroethene	11.00	25.8	26.50	97	67	110	*	*
29)	Diisopropyl Ether	11.29	26.8	27.00	99	62	109	*	*
30)	Ethyl Acetate	11.30	55.0	54.00	102	64	127	*	*
31)	n-Hexane	11.28	25.0	27.00	93	60	115	*	*
32)	Chloroform	11.34	24.8	26.75	93	66	105	*	*
34)	Tetrahydrofuran (THF)	11.74	27.8	27.50	101	65	110	*	*
35)	Ethyl tert-Butyl Ether	11.89	27.0	26.75	101	69	109	*	*
36)	1,2-Dichloroethane	12.14	25.7	26.75	96	60	110	*	*
38)	1,1,1-Trichloroethane	12.42	27.0	26.75	101	64	108	*	*
39)	Isopropyl Acetate	12.85	55.5	52.50	106	66	119	*	*
40)	1-Butanol	12.87	62.4	53.25	117	54	143	*	*
41)	Benzene	12.90	24.2	26.25	92	67	106	*	*
42)	Carbon Tetrachloride	13.06	27.7	26.00	107	64	112	*	*
43)	Cyclohexane	13.20	51.6	52.75	98	67	110	*	*
44)	tert-Amyl Methyl Ether	13.54	27.5	26.75	103	68	112	*	*
45)	1,2-Dichloropropane	13.75	26.7	26.75	100	66	112	*	*
46)	Bromodichloromethane	13.95	27.8	27.25	102	67	113	*	*
47)	Trichloroethene	14.00	25.8	27.00	96	66	108	*	*
48)	1,4-Dioxane	13.97	28.7	27.00	106	70	116	*	*
49)	2,2,4-Trimethylpentane (Isooctane)	14.07	24.7	26.75	92	64	113	*	*

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: 11071918.D

Data File Path: I:\MS16\DATA\2019_11\07\

Operator: LH

Date Acquired: 11/7/19

14:16

TO15.M

Sample Name: 25ng TO15 ICV STD

Misc Info: S31-10161904/S31-10241903 (

Instrument Name: GCMS-16

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
50)	Methyl Methacrylate	14.20	58.6	53.75	109	73	118	*	*
51)	n-Heptane	14.34	26.7	26.75	100	66	110	*	*
52)	cis-1,3-Dichloropropene	14.86	31.2	26.75	117	75	120	*	*
53)	4-Methyl-2-pentanone	14.90	28.1	26.50	106	65	124	*	*
54)	trans-1,3-Dichloropropene	15.38	31.0	26.50	117	77	123	*	*
55)	1,1,2-Trichloroethane	15.55	27.0	26.75	101	68	112	*	*
58)	Toluene	15.85	27.7	26.50	105	62	111	*	*
59)	2-Hexanone	16.09	29.3	27.00	109	59	128	*	*
60)	Dibromochloromethane	16.26	28.9	26.75	108	67	123	*	*
61)	1,2-Dibromoethane	16.51	28.0	26.75	105	66	122	*	*
62)	n-Butyl Acetate	16.72	30.0	27.25	110	64	128	*	*
63)	n-Octane	16.85	26.5	27.00	98	65	114	*	*
64)	Tetrachloroethene	16.99	25.3	26.00	97	55	120	*	*
65)	Chlorobenzene	17.65	25.5	26.75	95	61	114	*	*
66)	Ethylbenzene	18.01	26.5	26.50	100	64	113	*	*
67)	m- & p-Xylenes	18.17	50.4	53.25	95	64	114	*	*
68)	Bromoform	18.24	29.9	26.75	112	65	132	*	*
69)	Styrene	18.50	28.1	26.50	106	67	124	*	*
70)	o-Xylene	18.60	25.0	26.75	93	65	114	*	*
71)	n-Nonane	18.80	25.4	26.75	95	64	117	*	*
72)	1,1,2,2-Tetrachloroethane	18.58	25.9	26.75	97	66	119	*	*
74)	Cumene	19.13	26.4	26.75	99	61	116	*	*
75)	alpha-Pinene	19.48	26.3	26.50	99	65	120	*	*
76)	n-Propylbenzene	19.58	25.5	26.75	95	63	117	*	*
77)	3-Ethyltoluene	19.67	25.8	26.75	96	60	117	*	*
78)	4-Ethyltoluene	19.71	25.0	26.25	95	63	124	*	*
79)	1,3,5-Trimethylbenzene	19.77	24.2	26.50	91	60	117	*	*
80)	alpha-Methylstyrene	19.91	27.9	26.50	105	64	131	*	*
81)	2-Ethyltoluene	19.94	26.0	26.75	97	62	116	*	*
82)	1,2,4-Trimethylbenzene	20.13	24.5	26.50	92	61	122	*	*
83)	n-Decane	20.23	24.2	26.75	90	67	120	*	*
84)	Benzyl Chloride	20.25	34.7	26.75	130	77	142	*	*
85)	1,3-Dichlorobenzene	20.27	23.8	26.75	89	61	125	*	*
86)	1,4-Dichlorobenzene	20.33	24.4	26.75	91	59	123	*	*
87)	sec-Butylbenzene	20.37	25.6	26.50	97	62	117	*	*
88)	4-Isopropyltoluene (p-Cymene)	20.51	24.8	27.25	91	58	122	*	*
89)	1,2,3-Trimethylbenzene	20.51	23.6	27.00	87	62	124	*	*
90)	1,2-Dichlorobenzene	20.63	24.8	26.75	93	61	126	*	*
91)	d-Limonene	20.64	24.2	26.50	91	66	124	*	*
92)	1,2-Dibromo-3-Chloropropane	21.01	29.2	26.75	109	67	138	*	*
93)	n-Undecane	21.33	27.5	27.00	102	68	127	*	*
94)	1,2,4-Trichlorobenzene	22.14	28.2	27.00	104	62	141	*	*
95)	Naphthalene	22.24	26.9	26.50	102	62	145	*	*
96)	n-Dodecane	22.24	24.7	26.50	93	64	152	*	*
97)	Hexachlorobutadiene	22.56	25.7	26.75	96	49	131	*	*
98)	Cyclohexanone	18.31	26.8	25.25	106	61	127	*	*
99)	tert-Butylbenzene	20.13	23.6	26.50	89	58	122	*	*
100)	n-Butylbenzene	20.88	26.1	26.75	98	64	121	*	*

Bold = 75 Compound List

Data File: I:\MS16\DATA\2019_11\26\11261901.D

Acq On : 26 Nov 2019 00:51

Operator: LH

Sample : CCV R16112619_25ng

Misc : S31-10161904/S31-10301904 (11/28)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 26 09:53:42 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

LH 11/26/19

DataAcq Meth:T015.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min

Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 IR	Bromochloromethane (IS1)	1.000	1.000	0.0	109	-0.02
2 T	Propene	2.112	1.895	10.3	101	-0.02
3 T	Dichlorodifluoromethane (CF	2.595	2.385	8.1	108	-0.01
4 T	Chloromethane	1.789	1.499	16.2	97	-0.02
5 T	1,2-Dichloro-1,1,2,2-tetra	1.287	1.110	13.8	101	-0.02
6 T	Vinyl Chloride	2.048	1.873	8.5	107	-0.03
7 T	1,3-Butadiene	1.545	1.648	-6.7	113	-0.03
8 T	Bromomethane	1.232	1.155	6.2	108	-0.03
9 T	Chloroethane	1.083	1.014	6.4	107	-0.02
10 T	Ethanol	1.207	1.106	8.4	106	-0.08
11 T	Acetonitrile	3.004	2.908	3.2	108	-0.05
12 T	Acrolein	0.956	0.930	2.7	107	-0.03
13 T	Acetone	1.123	0.974	13.3	106	-0.04
14 T	Trichlorofluoromethane	2.218	2.013	9.2	106	-0.02
15 T	2-Propanol (Isopropanol)	3.207	3.264	-1.8	112	-0.06
16 T	Acrylonitrile	2.018	1.983	1.7	105	-0.04
17 T	1,1-Dichloroethene	1.263	1.175	7.0	105	-0.02
18 T	2-Methyl-2-Propanol (tert-B	2.302	2.946	-28.0	126	-0.04
19 T	Methylene Chloride	1.388	1.246	10.2	105	-0.02
20 T	3-Chloro-1-propene (Allyl C	2.249	2.118	5.8	103	-0.02
21 T	Trichlorotrifluoroethane	1.139	1.025	10.0	105	-0.01
22 T	Carbon Disulfide	4.922	4.673	5.1	105	-0.02
23 T	trans-1,2-Dichloroethene	1.968	1.877	4.6	107	-0.02
24 T	1,1-Dichloroethane	2.526	2.302	8.9	106	-0.02
25 T	Methyl tert-Butyl Ether	2.833	3.382	-19.4	128	-0.02
26 T	Vinyl Acetate	0.209	0.258	-23.4	104	-0.03
27 T	2-Butanone (MEK)	0.894	0.857	4.1	104	-0.03
28 T	cis-1,2-Dichloroethene	1.953	1.806	7.5	106	-0.02
29 T	Diisopropyl Ether	1.161	0.947	18.4	90	-0.02
30 T	Ethyl Acetate	0.472	0.447	5.3	103	-0.03
31 T	n-Hexane	2.270	1.995	12.1	103	-0.01
32 T	Chloroform	2.201	1.923	12.6	105	-0.02
33 S	1,2-Dichloroethane-d4(SS1)	1.600	1.607	-0.4	111	-0.02
34 T	Tetrahydrofuran (THF)	0.927	0.879	5.2	105	-0.01
35 T	Ethyl tert-Butyl Ether	1.079	1.241	-15.0	129	-0.01
36 T	1,2-Dichloroethane	1.713	1.583	7.6	107	-0.02
37 IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	110	-0.01
38 T	1,1,1-Trichloroethane	0.452	0.425	6.0	106	-0.01
39 T	Isopropyl Acetate	0.213	0.210	1.4	105	-0.02
40 T	1-Butanol	0.277	0.307	-10.8	107	-0.03
41 T	Benzene	1.265	1.091	13.8	105	-0.01
42 T	Carbon Tetrachloride	0.368	0.349	5.2	99	0.00
43 T	Cyclohexane	0.470	0.430	8.5	105	-0.01
44 T	tert-Amyl Methyl Ether	0.656	0.748	-14.0	128	-0.01
45 T	1,2-Dichloropropane	0.345	0.320	7.2	105	0.00
46 T	Bromodichloromethane	0.405	0.391	3.5	105	-0.01
47 T	Trichloroethene	0.309	0.277	10.4	105	-0.01
48 T	1,4-Dioxane	0.239	0.235	1.7	108	-0.02
49 T	2,2,4-Trimethylpentane (Iso	1.396	1.228	12.0	104	-0.01
50 T	Methyl Methacrylate	0.118	0.117	0.8	105	-0.01
51 T	n-Heptane	0.317	0.297	6.3	107	0.00
52 T	cis-1,3-Dichloropropene	0.484	0.507	-4.8	106	0.00
53 T	4-Methyl-2-pentanone	0.299	0.299	0.0	105	-0.01
54 T	trans-1,3-Dichloropropene	0.414	0.449	-8.5	107	0.00

90 of 106

Data File: I:\MS16\DATA\2019_11\26\11261901.D

Acq On : 26 Nov 2019 00:51

Operator: LH

Sample : CCV R16112619_25ng

Misc : S31-10161904/S31-10301904 (11/28)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 26 09:53:42 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min

Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
55 T	1,1,2-Trichloroethane	0.299	0.281	6.0	105	-0.01
56 IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	109	0.00
57 S	Toluene-d8 (SS2)	2.187	2.173	0.6	109	-0.01
58 T	Toluene	2.307	2.208	4.3	106	-0.01
59 T	2-Hexanone	1.521	1.563	-2.8	104	-0.01
60 T	Dibromochloromethane	0.648	0.646	0.3	103	0.00
61 T	1,2-Dibromoethane	0.664	0.647	2.6	105	-0.01
62 T	n-Butyl Acetate	1.734	1.799	-3.7	104	0.00
63 T	n-Octane	0.589	0.545	7.5	105	0.00
64 T	Tetrachloroethene	0.689	0.616	10.6	104	0.00
65 T	Chlorobenzene	1.622	1.436	11.5	104	0.00
66 T	Ethylbenzene	2.807	2.583	8.0	105	0.00
67 T	m- & p-Xylenes	2.101	1.841	12.4	104	0.00
68 T	Bromoform	0.484	0.487	-0.6	101	0.00
69 T	Styrene	1.627	1.581	2.8	104	0.00
70 T	o-Xylene	1.991	1.755	11.9	104	0.00
71 T	n-Nonane	1.424	1.279	10.2	102	0.00
72 T	1,1,2,2-Tetrachloroethane	1.062	0.957	9.9	104	0.00
73 S	Bromofluorobenzene (SS3)	0.781	0.757	3.1	108	0.00
74 T	Cumene	2.617	2.401	8.3	104	0.00
75 T	alpha-Pinene	1.293	1.287	0.5	111	0.00
76 T	n-Propylbenzene	3.285	2.889	12.1	103	0.00
77 T	3-Ethyltoluene	2.546	2.288	10.1	103	0.00
78 T	4-Ethyltoluene	2.336	2.057	11.9	102	0.00
79 T	1,3,5-Trimethylbenzene	2.142	1.811	15.5	103	0.00
80 T	alpha-Methylstyrene	1.072	1.030	3.9	102	0.00
81 T	2-Ethyltoluene	2.295	2.041	11.1	102	0.00
82 T	1,2,4-Trimethylbenzene	2.085	1.733	16.9	100	-0.01
83 T	n-Decane	1.311	1.118	14.7	101	0.00
84 T	Benzyl Chloride	1.249	1.456	-16.6	103	-0.01
85 T	1,3-Dichlorobenzene	1.221	0.998	18.3	101	0.00
86 T	1,4-Dichlorobenzene	1.250	1.052	15.8	102	0.00
87 T	sec-Butylbenzene	2.589	2.308	10.9	102	0.00
88 T	4-Isopropyltoluene (p-Cymen	2.439	1.980	18.8	97	0.00
89 T	1,2,3-Trimethylbenzene	2.090	1.686	19.3	99	0.00
90 T	1,2-Dichlorobenzene	1.202	1.011	15.9	101	0.00
91 T	d-Limonene	0.785	0.667	15.0	100	0.00
92 T	1,2-Dibromo-3-Chloropropane	0.427	0.438	-2.6	102	0.00
93 T	n-Undecane	1.351	1.292	4.4	100	0.00
94 T	1,2,4-Trichlorobenzene	0.880	0.869	1.3	101	0.00
95 T	Naphthalene	2.556	2.516	1.6	101	0.00
96 T	n-Dodecane	1.076	1.045	2.9	97	0.00
97 T	Hexachlorobutadiene	0.607	0.536	11.7	100	0.00
98 T	Cyclohexanone	0.883	0.890	-0.8	106	-0.01
99 T	tert-Butylbenzene	2.052	1.651	19.5	99	0.00
100 T	n-Butylbenzene	2.392	2.152	10.0	102	0.00

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

Data File: I:\MS16\DATA\2019_11\26\11261901.D

Acq On : 26 Nov 2019 00:51

Operator: LH

Sample : CCV R16112619_25ng

Misc : S31-10161904/S31-10301904 (11/28)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 26 09:53:42 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 11/26/19

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	266090	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.30	114	1112883	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.61	82	551254	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.02	65	427688	12.559	ng	-0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	100.48%	
57) Toluene-d8 (SS2)	15.74	98	1197934	12.419	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.36%	
73) Bromofluorobenzene (SS3)	19.01	174	417413	12.113	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	96.88%	

Target Compounds

						Qvalue
2) Propene	4.10	42	1068763	23.771	ng	100
3) Dichlorodifluoromethan...	4.26	85	1345207	24.351	ng	100
4) Chloromethane	4.54	50	845795	22.214	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	620077	22.640	ng	100
6) Vinyl Chloride	4.96	62	1076570	24.693	ng	100
7) 1,3-Butadiene	5.23	54	929849	28.269	ng	99
8) Bromomethane	5.66	94	663796	25.305	ng	100
9) Chloroethane	6.00	64	582926	25.278	ng	100
10) Ethanol	6.36	45	3066315	119.363	ng	100
11) Acetonitrile	6.61	41	1625185	25.414	ng	100
12) Acrolein	6.80	56	509944	25.046	ng	100
13) Acetone	7.01	58	2762186	115.554	ng	99
14) Trichlorofluoromethane	7.26	101	1135630	24.049	ng	100
15) 2-Propanol (Isopropanol)	7.50	45	3647356	53.430	ng	100
16) Acrylonitrile	7.76	53	1107829	25.785	ng	99
17) 1,1-Dichloroethene	8.22	96	675139	25.102	ng	99
18) 2-Methyl-2-Propanol (t...	8.37	59	3386581	69.100	ng	99
19) Methylene Chloride	8.45	84	702826	23.785	ng	99
20) 3-Chloro-1-propene (Al...	8.61	41	1217384	25.427	ng	99
21) Trichlorotrifluoroethane	8.86	151	589305	24.315	ng	99
22) Carbon Disulfide	8.71	76	2661243	25.397	ng	100
23) trans-1,2-Dichloroethene	9.72	61	1078947	25.757	ng	100
24) 1,1-Dichloroethane	9.98	63	1335603	24.834	ng	100
25) Methyl tert-Butyl Ether	10.06	73	1943944	32.238	ng	100
26) Vinyl Acetate	10.23	86	735392	165.563	ng	# 96
27) 2-Butanone (MEK)	10.47	72	483171	25.389	ng	97
28) cis-1,2-Dichloroethene	10.99	61	1019051	24.506	ng	100
29) Diisopropyl Ether	11.28	87	544505	22.031	ng	# 73
30) Ethyl Acetate	11.29	61	515732	51.301	ng	100
31) n-Hexane	11.28	57	1146578	23.731	ng	99
32) Chloroform	11.34	83	1095235	23.371	ng	100
34) Tetrahydrofuran (THF)	11.74	72	509750	25.831	ng	98
35) Ethyl tert-Butyl Ether	11.88	87	713185	31.054	ng	99
36) 1,2-Dichloroethane	12.14	62	909877	24.950	ng	99
38) 1,1,1-Trichloroethane	12.42	97	1011531	25.119	ng	100
39) Isopropyl Acetate	12.85	61	984222	51.889	ng	100
40) 1-Butanol	12.86	56	1421279	57.678	ng	99
41) Benzene	12.90	78	2574727	22.858	ng	100
42) Carbon Tetrachloride	13.06	117	816117	24.919	ng	99
43) Cyclohexane	13.19	84	2027076	48.424	ng	100
44) tert-Amyl Methyl Ether	13.53	73	1798789	30.810	ng	99
45) 1,2-Dichloropropane	13.75	63	768368	25.018	ng	100
46) Bromodichloromethane	13.94	83	939669	26.062	ng	100
47) Trichloroethene	14.00	130	659307	23.970	ng	100
48) 1,4-Dioxane	13.96	88	564862	26.590	ng	99
49) 2,2,4-Trimethylpentane...	14.07	57	2923435	23.524	ng	100

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Data File: I:\MS16\DATA\2019_11\26\11261901.D

Acq On : 26 Nov 2019 00:51

Operator: LH

Sample : CCV R16112619_25ng

Misc : S31-10161904/S31-10301904 (11/28)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 26 09:53:42 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

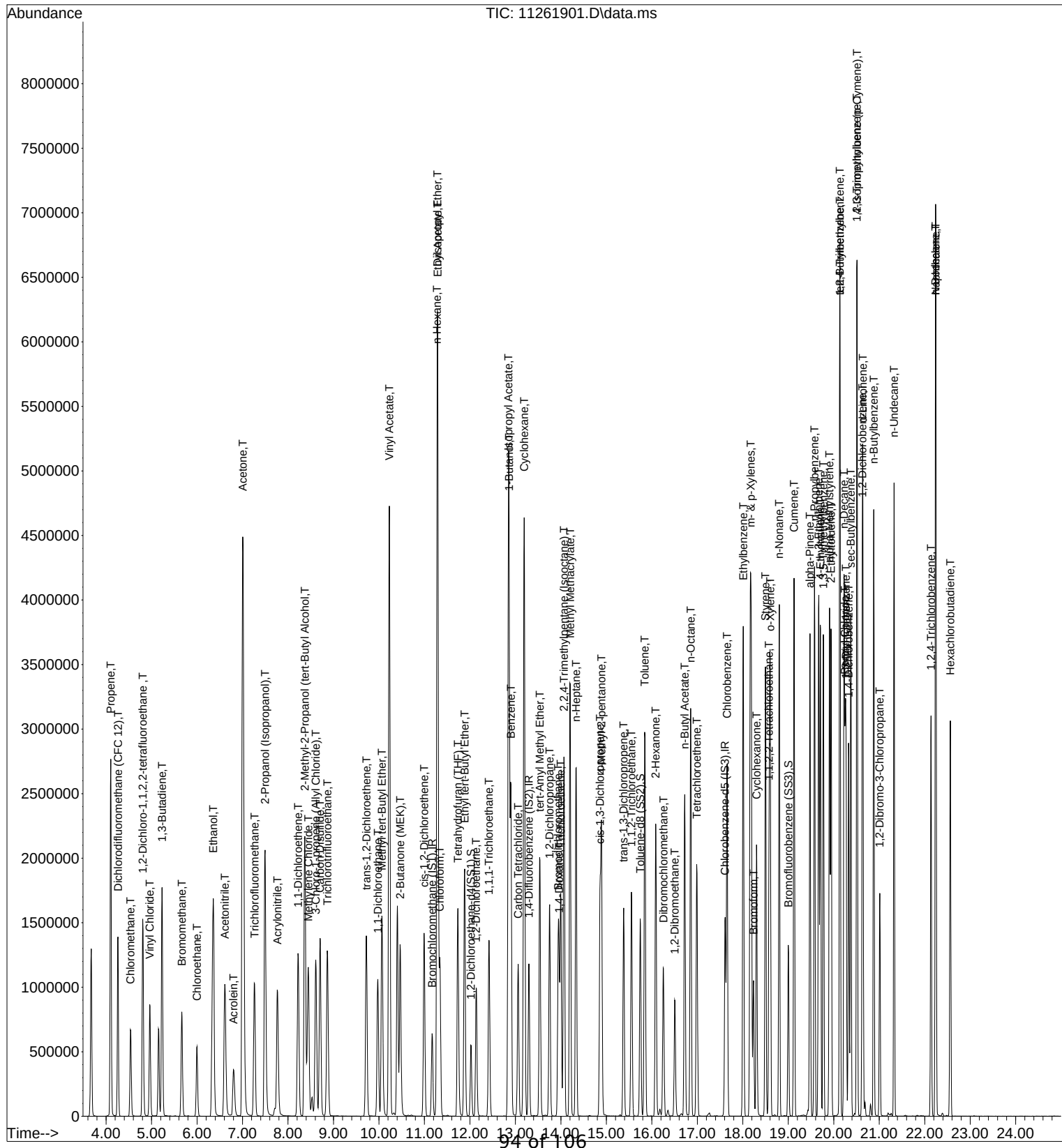
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.20	100	561616	53.556	ng	100
51) n-Heptane	14.34	71	714617	25.314	ng	100
52) cis-1,3-Dichloropropene	14.86	75	1173573	27.232	ng	100
53) 4-Methyl-2-pentanone	14.89	58	704909	26.473	ng	100
54) trans-1,3-Dichloropropene	15.38	75	1059839	28.750	ng	100
55) 1,1,2-Trichloroethane	15.55	97	668211	25.127	ng	100
58) Toluene	15.84	91	2605264	25.609	ng	100
59) 2-Hexanone	16.09	43	1843665	27.492	ng	100
60) Dibromochloromethane	16.26	129	761981	26.656	ng	100
61) 1,2-Dibromoethane	16.50	107	763133	26.052	ng	100
62) n-Butyl Acetate	16.72	43	2162101	28.274	ng	100
63) n-Octane	16.85	57	649067	24.981	ng	100
64) Tetrachloroethene	16.99	166	706246	23.228	ng	100
65) Chlorobenzene	17.65	112	1693940	23.677	ng	100
66) Ethylbenzene	18.01	91	3046740	24.614	ng	100
67) m- & p-Xylenes	18.17	91	4343867	46.888	ng	99
68) Bromoform	18.24	173	574581	26.915	ng	100
69) Styrene	18.50	104	1847728	25.746	ng	100
70) o-Xylene	18.60	91	2070336	23.583	ng	99
71) n-Nonane	18.80	43	1508778	24.020	ng	99
72) 1,1,2,2-Tetrachloroethane	18.58	83	1128428	24.098	ng	100
74) Cumene	19.13	105	2858687	24.769	ng	99
75) alpha-Pinene	19.48	93	1517814	26.615	ng	99
76) n-Propylbenzene	19.58	91	3439922	23.743	ng	100
77) 3-Ethyltoluene	19.67	105	2674208	23.821	ng	100
78) 4-Ethyltoluene	19.70	105	2449771	23.776	ng	99
79) 1,3,5-Trimethylbenzene	19.77	105	2116240	22.407	ng	100
80) alpha-Methylstyrene	19.91	118	1215114	25.711	ng	100
81) 2-Ethyltoluene	19.94	105	2430145	24.011	ng	99
82) 1,2,4-Trimethylbenzene	20.13	105	2044750	22.237	ng	100
83) n-Decane	20.23	57	1318751	22.816	ng	100
84) Benzyl Chloride	20.25	91	1733420	31.478	ng	100
85) 1,3-Dichlorobenzene	20.27	146	1177765	21.877	ng	100
86) 1,4-Dichlorobenzene	20.32	146	1240442	22.493	ng	99
87) sec-Butylbenzene	20.37	105	2722489	23.847	ng	100
88) 4-Isopropyltoluene (p-...	20.51	119	2379578	22.125	ng	99
89) 1,2,3-Trimethylbenzene	20.51	105	2026456	21.989	ng	99
90) 1,2-Dichlorobenzene	20.63	146	1192905	22.507	ng	100
91) d-Limonene	20.64	68	794177	22.926	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.01	157	507179	26.941	ng	98
93) n-Undecane	21.33	57	1537816	25.804	ng	100
94) 1,2,4-Trichlorobenzene	22.14	180	1025369	26.414	ng	100
95) Naphthalene	22.24	128	2856885	25.344	ng	100
96) n-Dodecane	22.24	57	1197893	25.244	ng	100
97) Hexachlorobutadiene	22.56	225	625832	23.362	ng	100
98) Cyclohexanone	18.30	55	981056	25.204	ng	100
99) tert-Butylbenzene	20.13	119	1947321	21.514	ng	99
100) n-Butylbenzene	20.88	91	2538862	24.070	ng	100

(#)=qualifier out of range (m)=manual integration (+)=signals summed

ALS Vial : 2 Sample Multiplier: 1

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_11\26\11261936.D

Acq On : 26 Nov 2019 23:43

Operator: LH

Sample : CCV2 R16112619_25ng

Misc : S31-10161904/S31-10301904 (11/28)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 27 07:04:34 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 11/27/19

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min

Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 IR	Bromochloromethane (IS1)	1.000	1.000	0.0	105	-0.01
2 T	Propene	2.112	1.819	13.9	93	-0.01
3 T	Dichlorodifluoromethane (CF	2.595	2.301	11.3	100	0.00
4 T	Chloromethane	1.789	1.389	22.4	87	-0.01
5 T	1,2-Dichloro-1,1,2,2-tetra	1.287	1.083	15.9	95	-0.01
6 T	Vinyl Chloride	2.048	1.962	4.2	107	-0.02
7 T	1,3-Butadiene	1.545	1.561	-1.0	103	-0.02
8 T	Bromomethane	1.232	1.151	6.6	104	-0.02
9 T	Chloroethane	1.083	0.999	7.8	102	-0.02
10 T	Ethanol	1.207	1.049	13.1	97	-0.08
11 T	Acetonitrile	3.004	2.803	6.7	100	-0.05
12 T	Acrolein	0.956	0.906	5.2	100	-0.03
13 T	Acetone	1.123	0.902	19.7	94	-0.04
14 T	Trichlorofluoromethane	2.218	1.997	10.0	102	-0.01
15 T	2-Propanol (Isopropanol)	3.207	3.054	4.8	101	-0.05
16 T	Acrylonitrile	2.018	1.937	4.0	98	-0.03
17 T	1,1-Dichloroethene	1.263	1.182	6.4	102	-0.01
18 T	2-Methyl-2-Propanol (tert-B	2.302	2.849	-23.8	118	-0.04
19 T	Methylene Chloride	1.388	1.233	11.2	100	-0.02
20 T	3-Chloro-1-propene (Allyl C	2.249	2.051	8.8	96	-0.02
21 T	Trichlorotrifluoroethane	1.139	1.029	9.7	101	0.00
22 T	Carbon Disulfide	4.922	4.645	5.6	100	-0.01
23 T	trans-1,2-Dichloroethene	1.968	1.858	5.6	101	-0.01
24 T	1,1-Dichloroethane	2.526	2.273	10.0	100	-0.02
25 T	Methyl tert-Butyl Ether	2.833	3.321	-17.2	121	-0.01
26 T	Vinyl Acetate	0.209	0.242	-15.8	94	-0.02
27 T	2-Butanone (MEK)	0.894	0.834	6.7	97	-0.02
28 T	cis-1,2-Dichloroethene	1.953	1.789	8.4	101	-0.01
29 T	Diisopropyl Ether	1.161	1.062	8.5	97	-0.01
30 T	Ethyl Acetate	0.472	0.416	11.9	92	-0.02
31 T	n-Hexane	2.270	1.873	17.5	93	0.00
32 T	Chloroform	2.201	1.894	13.9	99	-0.02
33 S	1,2-Dichloroethane-d4(SS1)	1.600	1.561	2.4	104	-0.01
34 T	Tetrahydrofuran (THF)	0.927	0.868	6.4	100	-0.01
35 T	Ethyl tert-Butyl Ether	1.079	1.222	-13.3	122	-0.01
36 T	1,2-Dichloroethane	1.713	1.553	9.3	101	-0.01
37 IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	105	-0.01
38 T	1,1,1-Trichloroethane	0.452	0.424	6.2	100	0.00
39 T	Isopropyl Acetate	0.213	0.201	5.6	95	-0.01
40 T	1-Butanol	0.277	0.294	-6.1	97	-0.03
41 T	Benzene	1.265	1.076	14.9	98	-0.01
42 T	Carbon Tetrachloride	0.368	0.351	4.6	95	0.00
43 T	Cyclohexane	0.470	0.423	10.0	98	0.00
44 T	tert-Amyl Methyl Ether	0.656	0.739	-12.7	120	0.00
45 T	1,2-Dichloropropane	0.345	0.320	7.2	100	0.00
46 T	Bromodichloromethane	0.405	0.391	3.5	100	0.00
47 T	Trichloroethene	0.309	0.279	9.7	100	0.00
48 T	1,4-Dioxane	0.239	0.235	1.7	102	-0.01
49 T	2,2,4-Trimethylpentane (Iso	1.396	1.209	13.4	98	0.00
50 T	Methyl Methacrylate	0.118	0.117	0.8	99	-0.01
51 T	n-Heptane	0.317	0.296	6.6	101	0.00
52 T	cis-1,3-Dichloropropene	0.484	0.508	-5.0	101	0.00
53 T	4-Methyl-2-pentanone	0.299	0.296	1.0	99	-0.01
54 T	trans-1,3-Dichloropropene	0.414	0.455	-9.9	103	0.00

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Data File: I:\MS16\DATA\2019_11\26\11261936.D

Acq On : 26 Nov 2019 23:43

Operator: LH

Sample : CCV2 R16112619_25ng

Misc : S31-10161904/S31-10301904 (11/28)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 27 07:04:34 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min

Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
55 T	1,1,2-Trichloroethane	0.299	0.284	5.0	101	-0.01
56 IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	103	0.00
57 S	Toluene-d8 (SS2)	2.187	2.207	-0.9	104	0.00
58 T	Toluene	2.307	2.244	2.7	101	0.00
59 T	2-Hexanone	1.521	1.529	-0.5	96	-0.01
60 T	Dibromochloromethane	0.648	0.659	-1.7	99	0.00
61 T	1,2-Dibromoethane	0.664	0.661	0.5	101	0.00
62 T	n-Butyl Acetate	1.734	1.774	-2.3	96	0.00
63 T	n-Octane	0.589	0.542	8.0	98	0.00
64 T	Tetrachloroethene	0.689	0.634	8.0	101	0.00
65 T	Chlorobenzene	1.622	1.467	9.6	100	0.00
66 T	Ethylbenzene	2.807	2.605	7.2	99	0.00
67 T	m- & p-Xylenes	2.101	1.823	13.2	97	0.00
68 T	Bromoform	0.484	0.488	-0.8	95	0.00
69 T	Styrene	1.627	1.588	2.4	98	0.00
70 T	o-Xylene	1.991	1.738	12.7	97	0.00
71 T	n-Nonane	1.424	1.226	13.9	92	0.00
72 T	1,1,2,2-Tetrachloroethane	1.062	0.939	11.6	96	0.00
73 S	Bromofluorobenzene (SS3)	0.781	0.755	3.3	101	0.00
74 T	Cumene	2.617	2.419	7.6	98	0.00
75 T	alpha-Pinene	1.293	1.294	-0.1	105	0.00
76 T	n-Propylbenzene	3.285	2.888	12.1	97	0.00
77 T	3-Ethyltoluene	2.546	2.222	12.7	95	0.00
78 T	4-Ethyltoluene	2.336	2.037	12.8	95	0.00
79 T	1,3,5-Trimethylbenzene	2.142	1.771	17.3	94	0.00
80 T	alpha-Methylstyrene	1.072	1.016	5.2	94	0.00
81 T	2-Ethyltoluene	2.295	1.976	13.9	93	0.00
82 T	1,2,4-Trimethylbenzene	2.085	1.702	18.4	92	0.00
83 T	n-Decane	1.311	1.034	21.1	88	0.00
84 T	Benzyl Chloride	1.249	1.423	-13.9	95	0.00
85 T	1,3-Dichlorobenzene	1.221	0.979	19.8	94	0.00
86 T	1,4-Dichlorobenzene	1.250	1.015	18.8	93	0.00
87 T	sec-Butylbenzene	2.589	2.230	13.9	92	0.00
88 T	4-Isopropyltoluene (p-Cymen	2.439	1.958	19.7	90	0.00
89 T	1,2,3-Trimethylbenzene	2.090	1.657	20.7	92	0.00
90 T	1,2-Dichlorobenzene	1.202	0.993	17.4	93	0.00
91 T	d-Limonene	0.785	0.622	20.8	87	0.00
92 T	1,2-Dibromo-3-Chloropropane	0.427	0.448	-4.9	98	0.00
93 T	n-Undecane	1.351	1.282	5.1	93	0.00
94 T	1,2,4-Trichlorobenzene	0.880	0.913	-3.8	100	0.00
95 T	Naphthalene	2.556	2.519	1.4	95	0.00
96 T	n-Dodecane	1.076	0.999	7.2	87	0.00
97 T	Hexachlorobutadiene	0.607	0.559	7.9	98	0.00
98 T	Cyclohexanone	0.883	0.872	1.2	98	-0.01
99 T	tert-Butylbenzene	2.052	1.625	20.8	92	0.00
100 T	n-Butylbenzene	2.392	2.118	11.5	95	0.00

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

Data File: I:\MS16\DATA\2019_11\26\11261936.D

Acq On : 26 Nov 2019 23:43

Operator: LH

Sample : CCV2 R16112619_25ng

Misc : S31-10161904/S31-10301904 (11/28)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 27 07:04:34 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 11/27/19

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	255789	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.30	114	1056843	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.61	82	518610	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.03	65	399290	12.198	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	97.60%	
57) Toluene-d8 (SS2)	15.75	98	1144639	12.613	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	100.88%	
73) Bromofluorobenzene (SS3)	19.00	174	391725	12.083	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	96.64%	

Target Compounds

						Qvalue
2) Propene	4.11	42	986231	22.819	ng	100
3) Dichlorodifluoromethan...	4.27	85	1247775	23.497	ng	100
4) Chloromethane	4.55	50	752971	20.573	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.82	135	581679	22.093	ng	100
6) Vinyl Chloride	4.97	62	1083969	25.864	ng	100
7) 1,3-Butadiene	5.24	54	846273	26.764	ng	99
8) Bromomethane	5.68	94	636069	25.225	ng	100
9) Chloroethane	6.01	64	552079	24.904	ng	100
10) Ethanol	6.36	45	2796672	113.251	ng	100
11) Acetonitrile	6.62	41	1505597	24.492	ng	100
12) Acrolein	6.81	56	477218	24.383	ng	99
13) Acetone	7.01	58	2459208	107.023	ng	100
14) Trichlorofluoromethane	7.27	101	1082917	23.856	ng	100
15) 2-Propanol (Isopropanol)	7.50	45	3281366	50.004	ng	100
16) Acrylonitrile	7.77	53	1040643	25.196	ng	99
17) 1,1-Dichloroethene	8.23	96	653267	25.267	ng	100
18) 2-Methyl-2-Propanol (t...	8.38	59	3148357	66.826	ng	98
19) Methylene Chloride	8.45	84	668859	23.547	ng	98
20) 3-Chloro-1-propene (Al...	8.62	41	1133063	24.619	ng	97
21) Trichlorotrifluoroethane	8.87	151	568370	24.395	ng	99
22) Carbon Disulfide	8.71	76	2542563	25.242	ng	100
23) trans-1,2-Dichloroethene	9.73	61	1026444	25.490	ng	100
24) 1,1-Dichloroethane	9.98	63	1267358	24.514	ng	100
25) Methyl tert-Butyl Ether	10.07	73	1835046	31.657	ng	100
26) Vinyl Acetate	10.23	86	662733	155.213	ng	# 85
27) 2-Butanone (MEK)	10.47	72	452022	24.709	ng	92
28) cis-1,2-Dichloroethene	11.00	61	970085	24.268	ng	100
29) Diisopropyl Ether	11.29	87	586949	24.705	ng	# 88
30) Ethyl Acetate	11.30	61	462341	47.842	ng	98
31) n-Hexane	11.28	57	1034855	22.282	ng	99
32) Chloroform	11.34	83	1036751	23.014	ng	100
34) Tetrahydrofuran (THF)	11.74	72	483965	25.512	ng	96
35) Ethyl tert-Butyl Ether	11.88	87	675154	30.581	ng	98
36) 1,2-Dichloroethane	12.14	62	858305	24.484	ng	100
38) 1,1,1-Trichloroethane	12.42	97	958692	25.069	ng	100
39) Isopropyl Acetate	12.85	61	895375	49.708	ng	97
40) 1-Butanol	12.87	56	1290914	55.166	ng	98
41) Benzene	12.90	78	2409865	22.529	ng	100
42) Carbon Tetrachloride	13.06	117	779831	25.074	ng	100
43) Cyclohexane	13.20	84	1896213	47.700	ng	98
44) tert-Amyl Methyl Ether	13.54	73	1686904	30.426	ng	99
45) 1,2-Dichloropropane	13.75	63	730393	25.043	ng	99
46) Bromodichloromethane	13.95	83	892194	26.057	ng	100
47) Trichloroethene	14.00	130	630232	24.128	ng	100
48) 1,4-Dioxane	13.97	88	536140	26.577	ng	99
49) 2,2,4-Trimethylpentane...	14.07	57	2734025	23.167	ng	100

97 of 106

Data File: I:\MS16\DATA\2019_11\26\11261936.D

Acq On : 26 Nov 2019 23:43

Operator: LH

Sample : CCV2 R16112619_25ng

Misc : S31-10161904/S31-10301904 (11/28)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Nov 27 07:04:34 2019

Quant Method : I:\MS16\METHODS\R16110719.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Thu Nov 07 14:29:49 2019

Response via : Initial Calibration

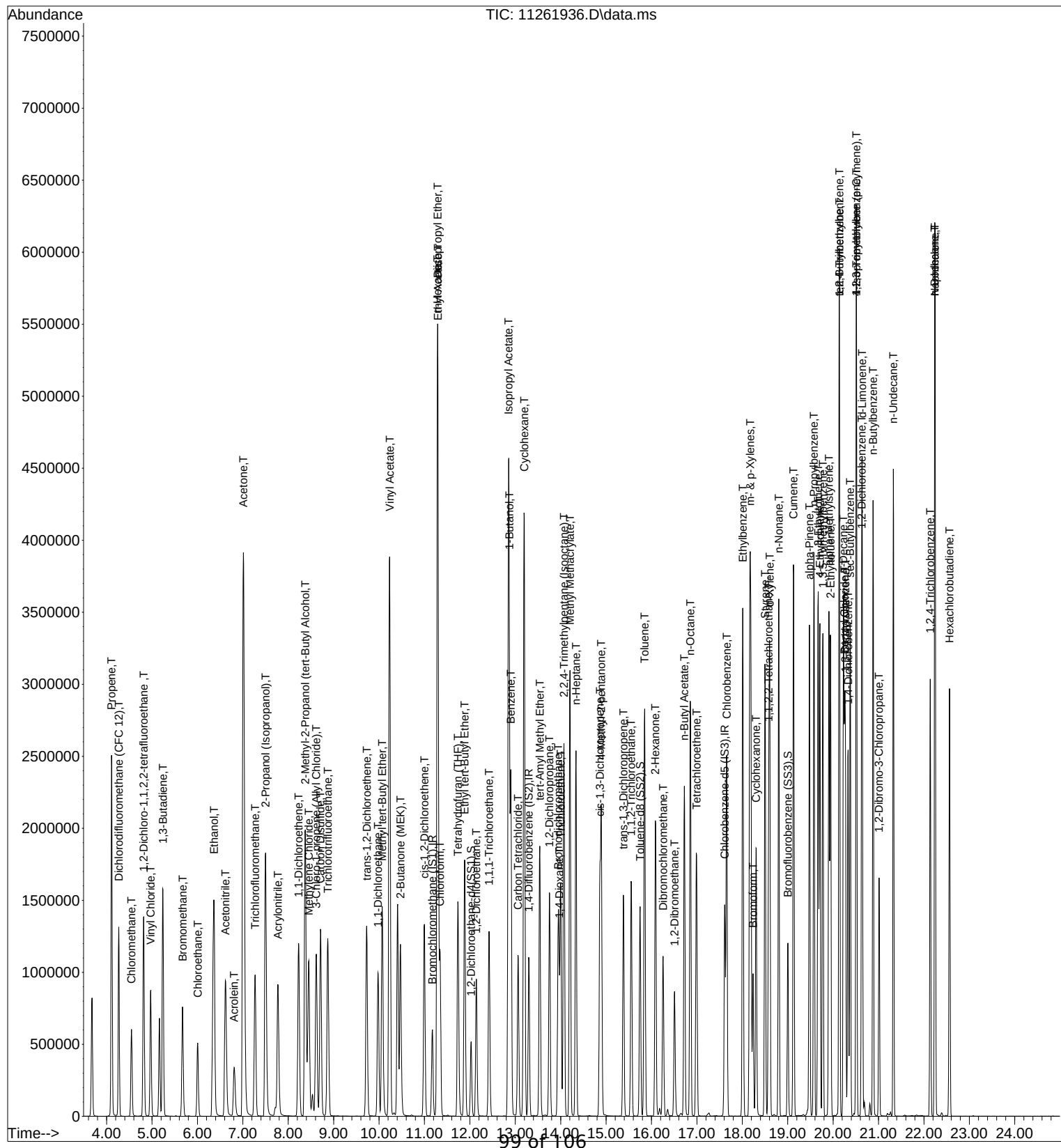
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.20	100	531497	53.371	ng	96
51) n-Heptane	14.34	71	676791	25.245	ng	99
52) cis-1,3-Dichloropropene	14.86	75	1117772	27.312	ng	100
53) 4-Methyl-2-pentanone	14.89	58	662991	26.219	ng	97
54) trans-1,3-Dichloropropene	15.38	75	1019072	29.110	ng	100
55) 1,1,2-Trichloroethane	15.55	97	641878	25.417	ng	100
58) Toluene	15.85	91	2490767	26.024	ng	100
59) 2-Hexanone	16.09	43	1696613	26.891	ng	99
60) Dibromochloromethane	16.26	129	731797	27.212	ng	100
61) 1,2-Dibromoethane	16.51	107	733568	26.619	ng	100
62) n-Butyl Acetate	16.72	43	2006024	27.884	ng	99
63) n-Octane	16.85	57	607146	24.838	ng	98
64) Tetrachloroethene	16.99	166	683590	23.898	ng	100
65) Chlorobenzene	17.66	112	1628159	24.190	ng	100
66) Ethylbenzene	18.01	91	2890632	24.823	ng	100
67) m- & p-Xylenes	18.17	91	4046323	46.426	ng	99
68) Bromoform	18.24	173	541090	26.942	ng	100
69) Styrene	18.50	104	1745933	25.859	ng	100
70) o-Xylene	18.60	91	1928361	23.349	ng	100
71) n-Nonane	18.80	43	1360847	23.029	ng	97
72) 1,1,2,2-Tetrachloroethane	18.58	83	1042335	23.661	ng	100
74) Cumene	19.13	105	2709563	24.955	ng	100
75) alpha-Pinene	19.48	93	1436429	26.773	ng	99
76) n-Propylbenzene	19.58	91	3235549	23.738	ng	100
77) 3-Ethyltoluene	19.67	105	2442610	23.128	ng	100
78) 4-Ethyltoluene	19.71	105	2282255	23.545	ng	100
79) 1,3,5-Trimethylbenzene	19.77	105	1947674	21.920	ng	100
80) alpha-Methylstyrene	19.91	118	1127292	25.354	ng	100
81) 2-Ethyltoluene	19.95	105	2214003	23.253	ng	99
82) 1,2,4-Trimethylbenzene	20.14	105	1888476	21.830	ng	100
83) n-Decane	20.23	57	1147124	21.096	ng	99
84) Benzyl Chloride	20.25	91	1594247	30.773	ng	100
85) 1,3-Dichlorobenzene	20.27	146	1086476	21.451	ng	100
86) 1,4-Dichlorobenzene	20.33	146	1126444	21.712	ng	100
87) sec-Butylbenzene	20.37	105	2474765	23.042	ng	99
88) 4-Isopropyltoluene (p-...	20.51	119	2213118	21.873	ng	99
89) 1,2,3-Trimethylbenzene	20.51	105	1873841	21.612	ng	99
90) 1,2-Dichlorobenzene	20.63	146	1102565	22.112	ng	100
91) d-Limonene	20.64	68	696481	21.371	ng	98
92) 1,2-Dibromo-3-Chloropr...	21.01	157	487852	27.545	ng	100
93) n-Undecane	21.33	57	1436468	25.621	ng	99
94) 1,2,4-Trichlorobenzene	22.14	180	1012765	27.732	ng	100
95) Naphthalene	22.24	128	2691185	25.377	ng	100
96) n-Dodecane	22.24	57	1077257	24.130	ng	99
97) Hexachlorobutadiene	22.56	225	614704	24.391	ng	100
98) Cyclohexanone	18.30	55	904420	24.698	ng	98
99) tert-Butylbenzene	20.14	119	1803413	21.178	ng	100
100) n-Butylbenzene	20.88	91	2350789	23.689	ng	100

(#)=qualifier out of range (m)=manual integration (+)=signals summed

ALS Vial : 2 Sample Multiplier: 1

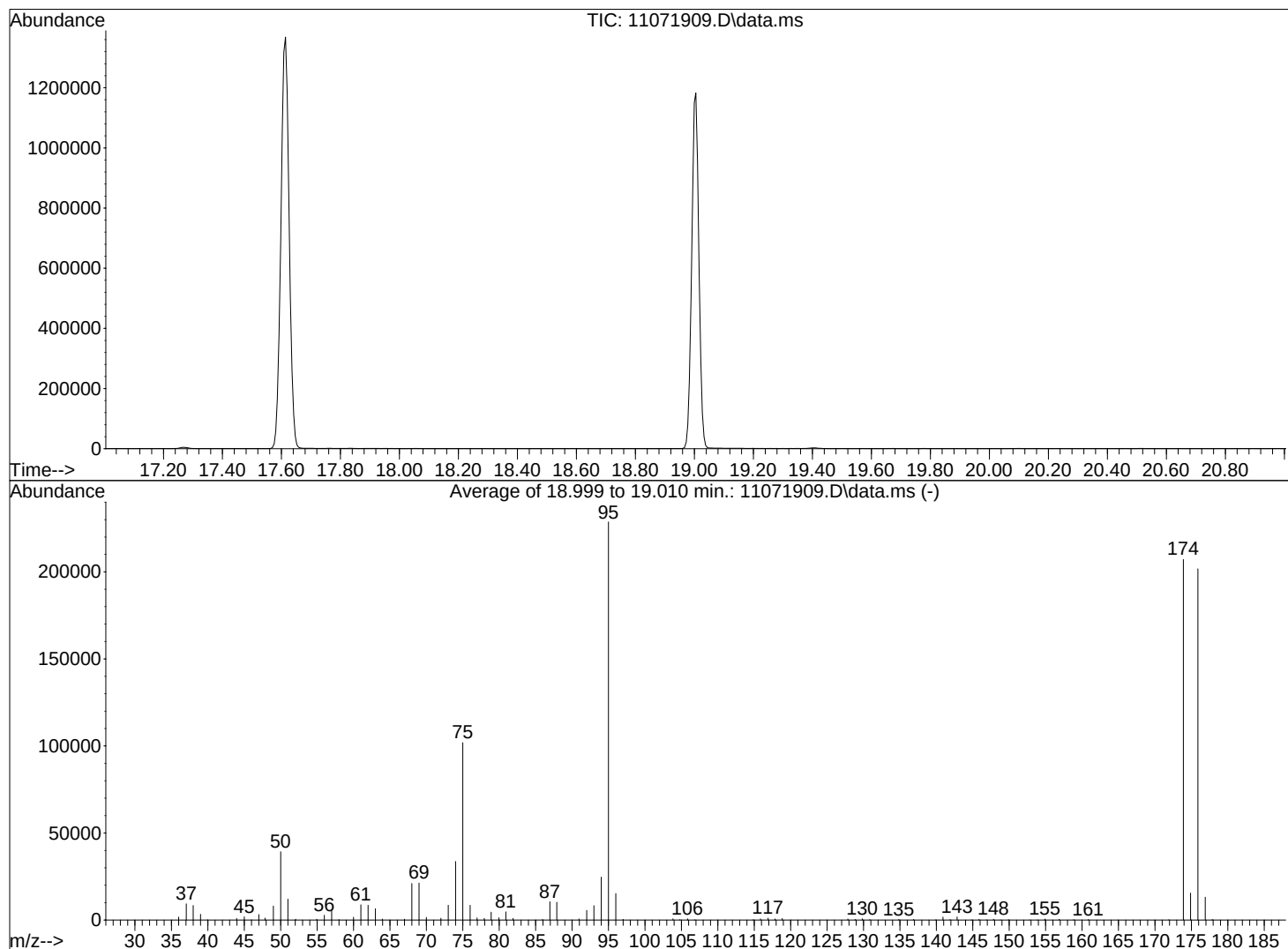
DataAcq Meth:T015.M



Data Path : I:\MS16\DATA\2019_11\07\
Data File : 11071909.D
Acq On : 7 Nov 2019 9:19
Operator : LH
Sample : 12.5ng T015 BFB
Misc : S31-10161904
ALS Vial : 2 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS16\METHODS\R16110719.M
Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
Last Update : Thu Nov 07 14:19:40 2019



AutoFind: Scans 2821, 2822, 2823; Background Corrected with Scan 2813

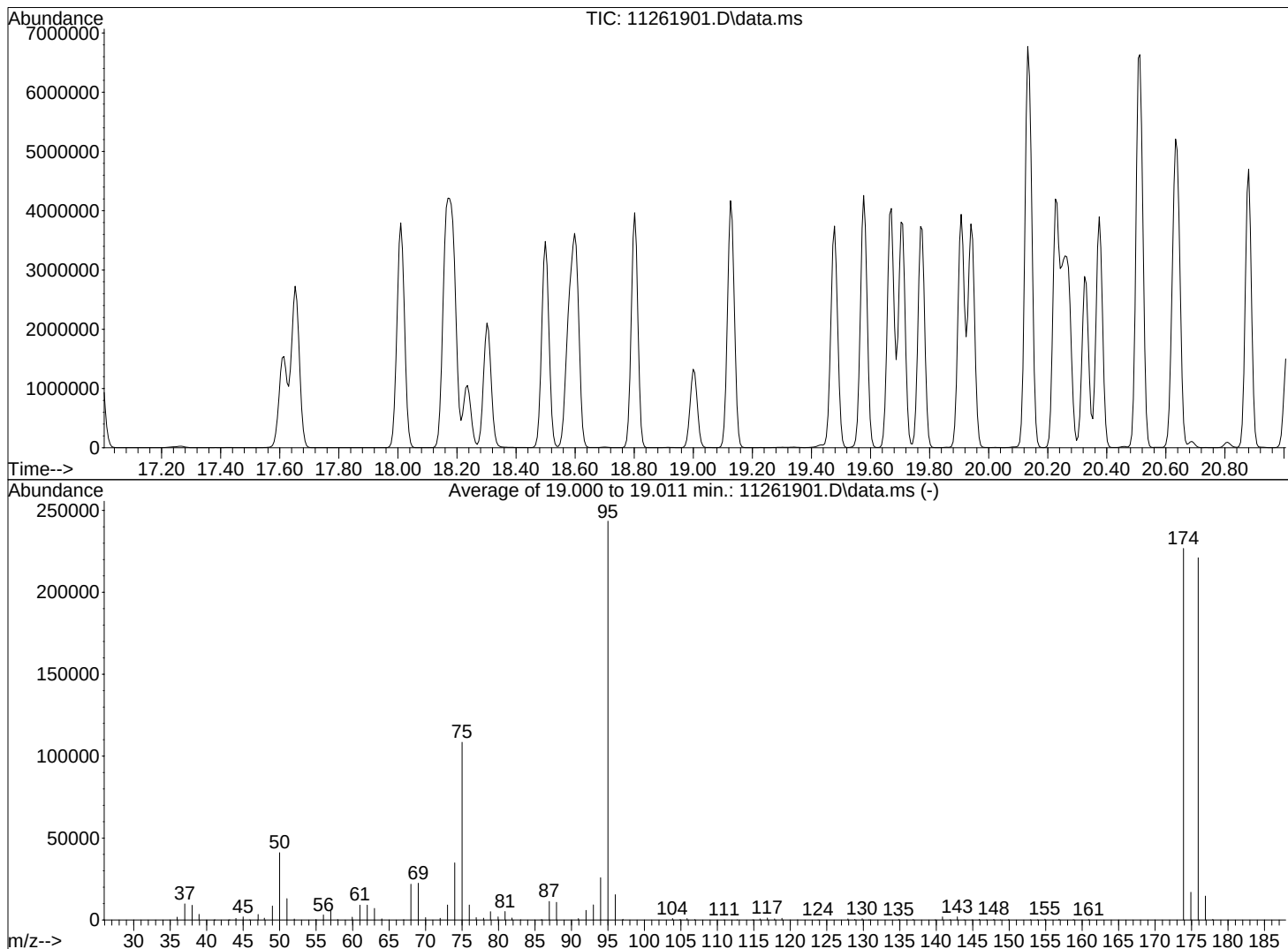
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.2	39240	PASS
75	95	30	66	44.6	101933	PASS
95	95	100	100	100.0	228672	PASS
96	95	5	9	6.7	15282	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	90.6	207125	PASS
175	174	4	9	7.5	15494	PASS
176	174	93	101	97.4	201792	PASS
177	176	5	9	6.5	13148	PASS

LH 11/7/19

Data Path : I:\MS16\DATA\2019_11\26\
Data File : 11261901.D
Acq On : 26 Nov 2019 00:51
Operator : LH
Sample : CCV R16112619_25ng
Misc : S31-10161904/S31-10301904 (11/28)
ALS Vial : 2 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS16\METHODS\R16110719.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Thu Nov 07 14:29:49 2019



AutoFind: Scans 2821, 2822, 2823; Background Corrected with Scan 2812

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	16.9	41109	PASS
75	95	30	66	44.5	108440	PASS
95	95	100	100	100.0	243435	PASS
96	95	5	9	6.3	15452	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	93.2	226795	PASS
175	174	4	9	7.5	16908	PASS
176	174	93	101	97.5	221056	PASS
177	176	5	9	6.6	14560	PASS

LH 11/26/19

Injection Log

Directory: J:\MS16\DATA\2019_11\07\

[illegible]

Injection Log

Directory: I:\MS16\DATA\2019_11\26\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	11/26/19 0:51	11261901.D	CCV R16112619_25ng	S31-10161904/S31-10301904 (11/28)	LH	2	passed
2	11/26/19 1:25	11261902.D	CCV C16112619_25ng	S31-10161904/S31-11141905 (12/13)	LH	3	passed
3	11/26/19 1:58	11261903.D	Blank (100mL)	S31-10161904	LH	2	
4	11/26/19 2:31	11261904.D	MB R16112619_ 1000mL	S31-10161904/AS01319	LH	2	passed
5	11/26/19 3:04	11261905.D	LCS R16112619_25ng	S31-10161904/S31-11121908 (12/11)	LH	2	passed
6	11/26/19 3:38	11261906.D	LCSD R16112619_25ng	S31-10161904/S31-11121908 (12/11)	LH	2	passed
7	11/26/19 4:11	11261907.D	Blank (100mL)	S31-10161904	LH	2	
8	11/26/19 4:44	11261908.D	P1906769-001 (1000mL)	S31-10161904	LH	13	
9	11/26/19 5:18	11261909.D	P1906769-001dup (1000mL)	S31-10161904	LH	13	passed
10	11/26/19 5:51	11261910.D	P1906769-002 (1000mL)	S31-10161904	LH	14	
11	11/26/19 6:25	11261911.D	P1906769-003 (1000mL)	S31-10161904	LH	15	
12	11/26/19 6:58	11261912.D	P1906769-004 (1000mL)	S31-10161904	LH	16	
13	11/26/19 10:05	11261913.D	P1906818-001dil (100mL)	S31-10161904	LH	4	
14	11/26/19 10:56	11261914.D	P1906722-001 (1000mL)	S31-10161904	LH	5	
15	11/26/19 11:36	11261915.D	P1906949-001 (1000mL)	S31-10161904	LH	6	
16	11/26/19 12:18	11261916.D	P1906949-002 (1000mL)	S31-10161904	LH	7	
17	11/26/19 12:52	11261917.D	P1906949-003 (1000mL)	S31-10161904	LH	8	
18	11/26/19 13:25	11261918.D	P1906949-004 (1000mL)	S31-10161904	LH	9	
19	11/26/19 14:02	11261919.D	P1906949-005 (1000mL)	S31-10161904	LH	10	
20	11/26/19 14:35	11261920.D	P1906949-006 (1000mL)	S31-10161904	LH	11	
21	11/26/19 15:09	11261921.D	P1906949-007 (1000mL)	S31-10161904	LH	12	
22	11/26/19 15:42	11261922.D	P1906949-008 (1000mL)	S31-10161904	LH	13	
23	11/26/19 16:17	11261923.D	P1906949-009 (1000mL)	S31-10161904	LH	14	
24	11/26/19 16:51	11261924.D	P1906949-011 (1000mL)	S31-10161904	LH	15	
25	11/26/19 17:24	11261925.D	P1906949-012 (1000mL)	S31-10161904	LH	16	
26	11/26/19 18:12	11261926.D	P1906949-014 (1000mL)	S31-10161904	LH	1	
27	11/26/19 18:45	11261927.D	P1906949-013 (1000mL)	S31-10161904	LH	4	
28	11/26/19 19:18	11261928.D	P1906949-013dil (100mL)	S31-10161904	LH	4	not needed
29	11/26/19 19:52	11261929.D	P1906949-015 (1000mL)	S31-10161904	LH	5	
30	11/26/19 20:25	11261930.D	P1906949-015dil (100mL)	S31-10161904	LH	5	not needed
31	11/26/19 20:58	11261931.D	P1906949-002dil (100mL)	S31-10161904	LH	7	
32	11/26/19 21:30	11261932.D	P1906949-005dil (100mL)	S31-10161904	LH	10	
33	11/26/19 22:03	11261933.D	P1906949-008dil (100mL)	S31-10161904	LH	13	
34	11/26/19 22:36	11261934.D	P1906949-011dil (100mL)	S31-10161904	LH	15	
35	11/26/19 23:09	11261935.D	system	S31-10161904	LH	2	
36	11/26/19 23:43	11261936.D	CCV2 R16112619_25ng	S31-10161904/S31-10301904 (11/28)	LH	2	passed
				LH 11/27/19			

SIMIVALLEY QC Certification

Conditioner: P-Conditioner-10

Cycles: 30

Batch: 24153

Batch Started By: DALLIN.JONES on 8/30/19 0912

Finished Cleaning By: DALLIN.JONES on 8/30/19 0913

Container IDs	Cleaned Date	QC Date Analyzed	QC Results	Initial Vacuum			Final Vacuum			Comments
				Vacuum	Date/Time	User	Vacuum	Date/Time	User	
SC01662	8/30/19	8/30/19	Pass w/ Conditions	-14.3	8/30/19 0913	DALLIN.JONES	-14.0	10/1/19 1005	JHULETTE	
SC02066	8/30/19	8/30/19	Pass w/ Conditions	-14.3	8/30/19 0913	DALLIN.JONES	-14.0	10/1/19 1000	JHULETTE	
SC01932	8/30/19	8/30/19	Pass w/ Conditions	-14.3	8/30/19 0913	DALLIN.JONES	-14.0	9/25/19 0717	JHULETTE	
SC01773	8/30/19	8/30/19	Pass w/ Conditions	-14.3	8/30/19 0913	DALLIN.JONES	-14.0	9/25/19 0717	JHULETTE	
SC00832	8/30/19	8/30/19	Pass w/ Conditions	-14.3	8/30/19 0913	DALLIN.JONES	-14.0	9/25/19 0717	JHULETTE	
SC00803	8/30/19	8/30/19	Pass w/ Conditions	-14.3	8/30/19 0913	DALLIN.JONES	-14.0	9/25/19 0703	JHULETTE	
SC01792	8/30/19	8/30/19	Pass w/ Conditions	-14.3	8/30/19 0913	DALLIN.JONES	-14.0	10/1/19 1005	JHULETTE	
SC00857	8/30/19	8/30/19	Pass w/ Conditions	-14.3	8/30/19 0913	DALLIN.JONES	-14.0			
SC02200	8/30/19	8/30/19	Pass w/ Conditions	-14.3	8/30/19 0913	DALLIN.JONES	-14.0	9/25/19 0703	JHULETTE	

Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)

SC01533	8/30/19	8/30/19	Pass w/ Conditions	-14.3	8/30/19 0913	DALLIN.JONES	-14.0	9/16/19 0245	SMOH	102200_MS21_08/30/19

Passed For: TO-15 (client specified)

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS

Batch Comment:

* QC Canister

Data Path : I:\MS21\DATA\2019_08\30\
 Data File : 08301908.D
 Acq On : 30 Aug 2019 13:46
 Operator : RVT
 Sample : 083019_SC01533_24153
 Misc : LL+TICS (Sig #1); S31-08091901 (Sig #2)
 ALS Vial : 4 Sample Multiplier: 1

RVT 9/3/19

Quant Time: Sep 03 08:20:55 2019
 Quant Method : I:\MS21\Methods\F21081919.M
 Quant Title : EPA TO-15
 QLast Update : Tue Aug 20 08:37:44 2019
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	7.51	130	25272	1000.000	pg	0.00
37) 1,4-Difluorobenzene (IS2)	9.75	114	78610	1000.000	pg	0.00
56) Chlorobenzene-d5 (IS3)	14.69	117	74570	1000.000	pg	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4 ...	8.33	65	38400	944.184	pg	0.00
Spiked Amount	1000.000		Recovery	=	94.42%	
57) Toluene-d8 (SS2)	12.59	98	90167	925.990	pg	0.00
Spiked Amount	1000.000		Recovery	=	92.60%	
74) Bromofluorobenzene (SS3)	16.12	174	21651	941.016	pg	0.00
Spiked Amount	1000.000		Recovery	=	94.10%	

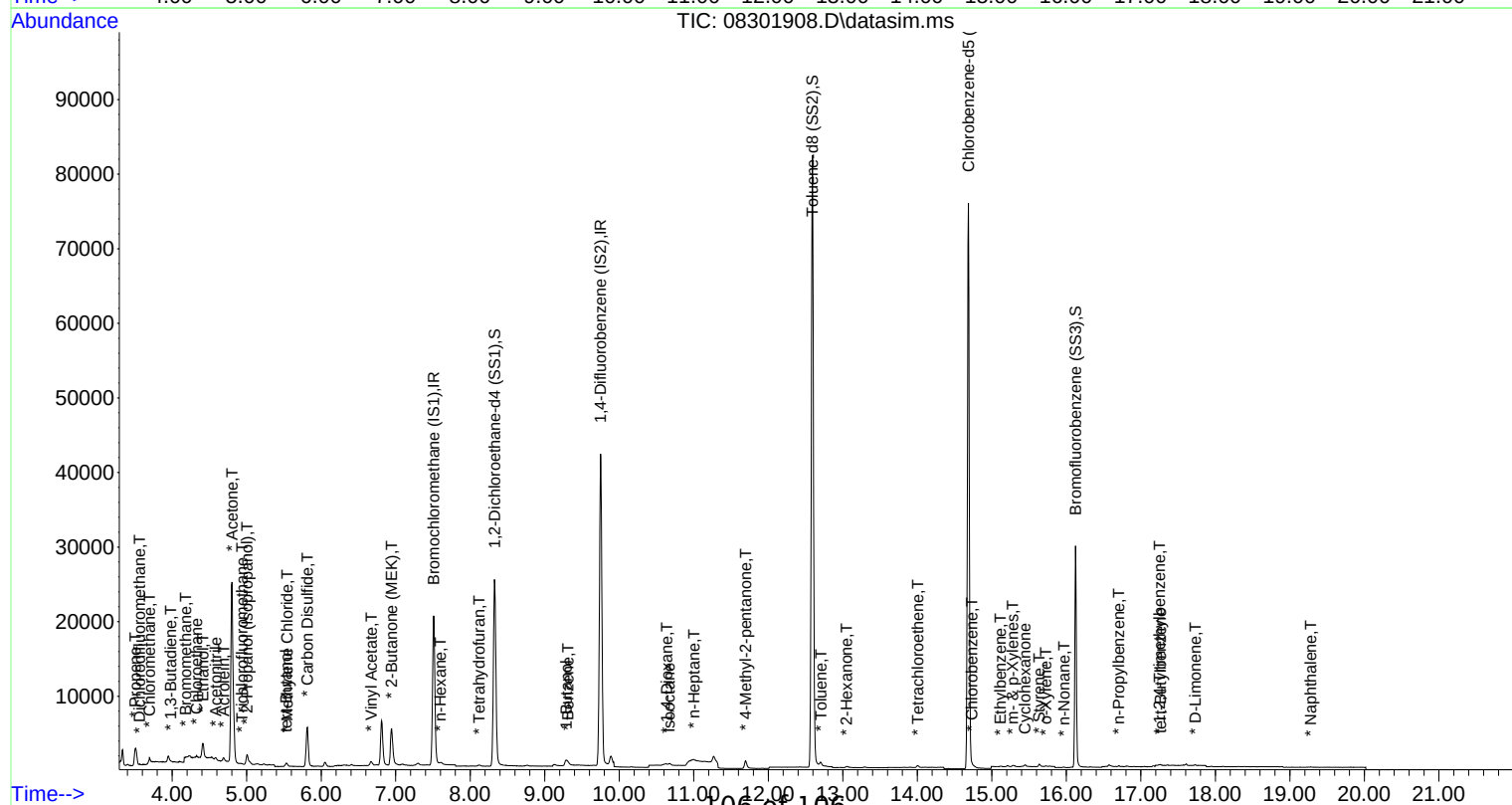
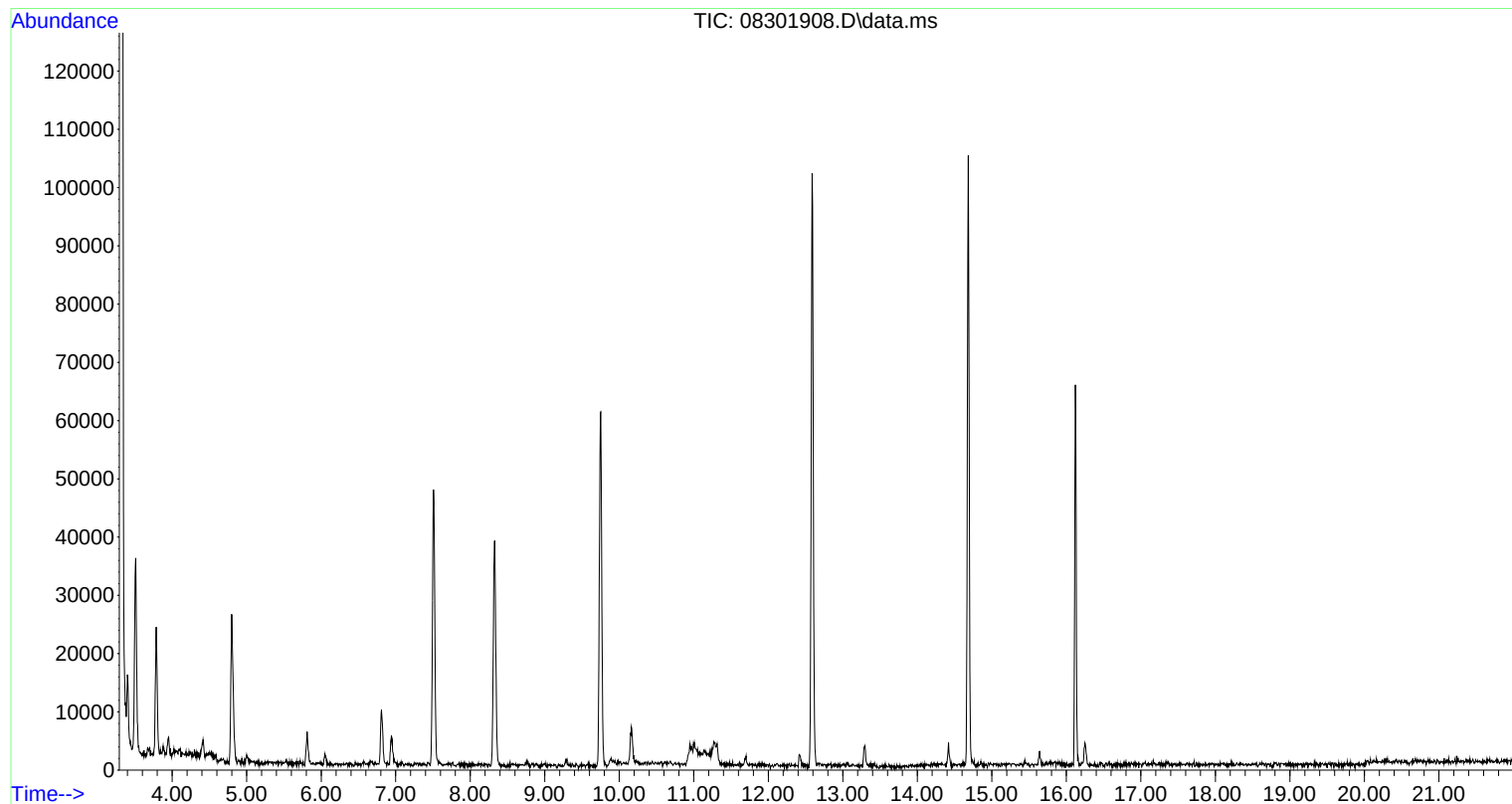
Target Compounds

						Qvalue
2) * Propene	3.51	42	1038	27.228	pg	# 50
3) * Dichlorodifluoromethane	3.56	85	102	1.142	pg	# 42
4) * Chloromethane	3.69	50	716	12.892	pg	# 100
7) * 1,3-Butadiene	3.98	54	94	2.113	pg	# 11
8) * Bromomethane	4.18	94	52	1.199	pg	# 58
9) * Chloroethane	4.33	64	326	11.542	pg	# 96
10) * Ethanol	4.41	45	2284	100.182	pg	# 99
11) * Acetonitrile	4.58	41	432	7.569	pg	# 64
12) * Acrolein	4.69	56	507	18.876	pg	# 82
13) * Acetone	4.80	58	18311	469.978	pg	# 48
14) * Trichlorofluoromethane	4.94	101	197	2.759	pg	# 1
15) * 2-Propanol (Isopropa...	5.00	45	2112	23.026	pg	# 82
18) tert-Butanol	5.53	59	708	7.058	pg	# 79
19) * Methylene Chloride	5.54	84	107	2.786	pg	# 18
22) * Carbon Disulfide	5.81	76	9863	42.482	pg	# 98
26) * Vinyl Acetate	6.67	86	162	15.555	pg	# 37
27) * 2-Butanone (MEK)	6.95	72	2220	83.402	pg	# 96
31) * n-Hexane	7.60	57	126	2.120	pg	# 59
34) * Tetrahydrofuran	8.12	71	90	4.183	pg	# 52
39) * Benzene	9.31	78	377	3.373	pg	# 52
41) 1-Butanol	9.29	56	792	23.862	pg	# 86
48) * 1,4-Dioxane	10.64	88	184	6.605	pg	# 89
49) Isooctane	10.67	56	134	2.960	pg	# 86
51) * n-Heptane	11.00	71	201	5.260	pg	# 95
53) * 4-Methyl-2-pentanone	11.70	58	664	19.034	pg	# 88
58) * Toluene	12.71	91	547	4.063	pg	# 99
59) * 2-Hexanone	13.05	58	353	13.214	pg	# 97
64) * Tetrachloroethene	14.01	166	269	7.644	pg	# 100
65) * Chlorobenzene	14.73	112	52	0.646	pg	# 43
66) * Ethylbenzene	15.11	91	94	0.675	pg	# 44
67) * m- & p-Xylenes	15.28	91	267	2.510	pg	# 89
69) Cyclohexanone	15.44	98	140	5.405	pg	# 95
70) * Styrene	15.63	104	51	0.864	pg	# 29
71) * o-Xylene	15.72	91	89	0.795	pg	# 78
72) * n-Nonane	15.97	57	51	1.149	pg	# 35
77) * n-Propylbenzene	16.70	91	111	0.822	pg	# 54
83) tert-Butylbenzene	17.26	134	51	2.213	pg	# 1
84) * 1,2,4-Trimethylbenzene	17.25	105	89	0.975	pg	# 25
93) * D-Limonene	17.73	68	76	1.971	pg	# 97
98) * Naphthalene	19.28	128	77	3.072	pg	# 67

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2019_08\30\
Data File : 08301908.D
Acq On : 30 Aug 2019 13:46
Operator : RVT
Sample : 083019_SC01533_24153
Misc : LL+TICS (Sig #1); S31-08091901 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Sep 03 08:20:55 2019
Quant Method : I:\MS21\Methods\F21081919.M
Quant Title : EPA T0-15
QLast Update : Tue Aug 20 08:37:44 2019
Response via : Initial Calibration





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Simi Valley, CA 93065
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www.alsglobal.com

LABORATORY REPORT

January 2, 2020

Todd Calhoun
Trinity Analysis & Development Corp.
1002 N. Eglin Pkwy.
Shalimar, FL 32579

RE: DDMT / 10A023.330

Dear Todd:

Enclosed are the results of the samples submitted to our laboratory on December 9, 2019. For your reference, these analyses have been assigned our service request number P1907461.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

5:11 pm, Jan 02, 2020

Kate Kaneko
Project Manager



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: Trinity Analysis & Development Corp.
Project: DDMT / 10A023.330

Service Request No: P1907461

CASE NARRATIVE

The samples were received intact under chain of custody on December 9, 2019 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.



2655 Park Center Dr., Suite A
 Simi Valley, CA 93065
 T: +1 805 526 7161
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1521096
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-006
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946
Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.		

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Trinity Analysis & Development Corp.
Project ID: DDMT / 10A023.330

Service Request: P1907461

Date Received: 12/9/2019
Time Received: 11:00

TO-15 - VOC Cans

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	
ODSVE-EFF-Y9Q2	P1907461-001	Air	12/5/2019	08:45	SC00803	-2.73	3.89	X
ODSVE-DUP1-Y9Q2	P1907461-002	Air	12/5/2019	08:45	SSC00083	-5.24	3.84	X

Page 7 of 7[illegible]

Client: <u>Trinity Analysis & Development Corp.</u>	Work order: <u>P1907461</u>
Project: <u>DDMT / 10A023.330</u>	
Sample(s) received on: <u>12/09/19</u>	Date opened: <u>12/09/19</u> by: <u>ADAVID</u>

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: ODSVE-EFF-Y9Q2

Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

ALS Sample ID: P1907461-001

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sampling Media: 6.0 L Summa Canister

Test Notes:

Container ID: SC00803

Date Collected: 12/5/19

Date Received: 12/9/19

Date Analyzed: 12/30/19

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -2.73

Final Pressure (psig): 3.89

Container Dilution Factor: 1.55

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.35	0.48	0.28	0.12	J
75-71-8	Dichlorodifluoromethane (CFC 12)	4.0	0.17	0.097	0.027	
74-87-3	Chloromethane	0.23	0.40	0.23	0.065	U
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.069	0.12	0.069	0.019	U
75-01-4	Vinyl Chloride	0.14	0.33	0.10	0.035	J
106-99-0	1,3-Butadiene	0.22	0.37	0.22	0.062	U
74-83-9	Bromomethane	0.064	0.22	0.064	0.030	U
75-00-3	Chloroethane	0.18	0.32	0.18	0.039	U
64-17-5	Ethanol	1.5	4.3	0.67	0.30	J, B
75-05-8	Acetonitrile	0.29	0.49	0.29	0.12	U
107-02-8	Acrolein	0.37	0.68	0.21	0.10	J
67-64-1	Acetone	2.9	3.5	1.8	0.78	J
75-69-4	Trichlorofluoromethane	0.31	0.15	0.088	0.022	
67-63-0	2-Propanol (Isopropyl Alcohol)	0.17	1.3	0.39	0.14	J
107-13-1	Acrylonitrile	0.22	0.38	0.22	0.079	U
75-35-4	1,1-Dichloroethene	0.62	0.21	0.066	0.029	
75-09-2	Methylene Chloride	0.14	0.24	0.14	0.067	U
107-05-1	3-Chloro-1-propene (Allyl Chloride)	0.084	0.27	0.084	0.036	U
76-13-1	Trichlorotrifluoroethane	2.8	0.11	0.034	0.015	
75-15-0	Carbon Disulfide	2.0	0.55	0.27	0.080	
156-60-5	trans-1,2-Dichloroethene	0.46	0.21	0.066	0.029	
75-34-3	1,1-Dichloroethane	0.42	0.21	0.12	0.030	
1634-04-4	Methyl tert-Butyl Ether	0.073	0.23	0.073	0.027	U
108-05-4	Vinyl Acetate	0.81	2.4	1.1	0.53	J
78-93-3	2-Butanone (MEK)	0.42	0.58	0.16	0.058	J

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

B = Analyte detected in both the sample and associated method blank.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: ODSVE-EFF-Y9Q2

Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

ALS Sample ID: P1907461-001

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sampling Media: 6.0 L Summa Canister

Test Notes:

Container ID: SC00803

Date Collected: 12/5/19

Date Received: 12/9/19

Date Analyzed: 12/30/19

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -2.73 Final Pressure (psig): 3.89

Container Dilution Factor: 1.55

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	36	0.21	0.066	0.029	
141-78-6	Ethyl Acetate	0.28	0.47	0.28	0.12	U
110-54-3	n-Hexane	0.12	0.24	0.14	0.048	J
67-66-3	Chloroform	6.4	0.17	0.054	0.023	
109-99-9	Tetrahydrofuran (THF)	0.089	0.29	0.089	0.035	U
107-06-2	1,2-Dichloroethane	0.065	0.21	0.065	0.023	U
71-55-6	1,1,1-Trichloroethane	0.29	0.15	0.048	0.019	
71-43-2	Benzene	0.087	0.26	0.083	0.037	J
56-23-5	Carbon Tetrachloride	0.41	0.13	0.042	0.018	
110-82-7	Cyclohexane	0.15	0.50	0.15	0.068	U
78-87-5	1,2-Dichloropropane	0.057	0.18	0.057	0.022	U
75-27-4	Bromodichloromethane	0.039	0.12	0.039	0.018	U
79-01-6	Trichloroethene	26	0.16	0.049	0.021	
123-91-1	1,4-Dioxane	0.073	0.23	0.073	0.027	U
80-62-6	Methyl Methacrylate	0.24	0.42	0.24	0.072	U
142-82-5	n-Heptane	0.067	0.20	0.12	0.032	J
10061-01-5	cis-1,3-Dichloropropene	0.061	0.18	0.061	0.028	U
108-10-1	4-Methyl-2-pentanone	0.064	0.20	0.064	0.028	U
10061-02-6	trans-1,3-Dichloropropene	0.11	0.18	0.11	0.038	U
79-00-5	1,1,2-Trichloroethane	0.043	0.15	0.048	0.015	J
108-88-3	Toluene	0.14	0.22	0.070	0.027	J
591-78-6	2-Hexanone	0.058	0.20	0.064	0.025	J
124-48-1	Dibromochloromethane	0.031	0.098	0.031	0.013	U
106-93-4	1,2-Dibromoethane	0.034	0.11	0.034	0.013	U
123-86-4	n-Butyl Acetate	0.049	0.18	0.055	0.024	J

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: ODSVE-EFF-Y9Q2
Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461
 ALS Sample ID: P1907461-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: SC00803

Date Collected: 12/5/19
Date Received: 12/9/19
Date Analyzed: 12/30/19
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -2.73 Final Pressure (psig): 3.89

Container Dilution Factor: 1.55

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	0.11	0.18	0.11	0.040	U
127-18-4	Tetrachloroethene	2.4	0.12	0.039	0.016	
108-90-7	Chlorobenzene	0.057	0.18	0.057	0.024	U
100-41-4	Ethylbenzene	0.061	0.19	0.061	0.027	U
179601-23-1	m,p-Xylenes	0.065	0.39	0.12	0.050	J
75-25-2	Bromoform	0.048	0.081	0.048	0.016	U
100-42-5	Styrene	0.12	0.19	0.12	0.031	U
95-47-6	o-Xylene	0.061	0.19	0.061	0.027	U
111-84-2	n-Nonane	0.095	0.16	0.095	0.026	U
79-34-5	1,1,2,2-Tetrachloroethane	0.33	0.12	0.038	0.017	
98-82-8	Cumene	0.054	0.17	0.054	0.024	U
80-56-8	alpha-Pinene	0.086	0.15	0.086	0.023	U
103-65-1	n-Propylbenzene	0.054	0.17	0.054	0.024	U
622-96-8	4-Ethyltoluene	0.10	0.17	0.10	0.027	U
108-67-8	1,3,5-Trimethylbenzene	0.054	0.17	0.054	0.024	U
95-63-6	1,2,4-Trimethylbenzene	0.054	0.17	0.054	0.023	U
100-44-7	Benzyl Chloride	0.096	0.33	0.096	0.036	U
541-73-1	1,3-Dichlorobenzene	0.044	0.14	0.044	0.021	U
106-46-7	1,4-Dichlorobenzene	0.083	0.14	0.083	0.021	U
95-50-1	1,2-Dichlorobenzene	0.044	0.14	0.044	0.020	U
5989-27-5	d-Limonene	0.083	0.15	0.083	0.031	U
96-12-8	1,2-Dibromo-3-chloropropane	0.050	0.085	0.050	0.016	U
120-82-1	1,2,4-Trichlorobenzene	0.067	0.11	0.067	0.027	U
91-20-3	Naphthalene	0.092	0.15	0.092	0.038	U
87-68-3	Hexachlorobutadiene	0.047	0.077	0.047	0.016	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.
 LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
 J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: ODSVE-DUP1-Y9Q2

Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

ALS Sample ID: P1907461-002

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sampling Media: 6.0 L Silonite Canister

Test Notes:

Container ID: SSC00083

Date Collected: 12/5/19

Date Received: 12/9/19

Date Analyzed: 12/31/19

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -5.24

Final Pressure (psig): 3.84

Container Dilution Factor: 1.96

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.32	0.60	0.35	0.15	J
75-71-8	Dichlorodifluoromethane (CFC 12)	4.1	0.21	0.12	0.034	
74-87-3	Chloromethane	0.28	0.50	0.28	0.082	U
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.087	0.15	0.087	0.024	U
75-01-4	Vinyl Chloride	0.14	0.41	0.13	0.044	J
106-99-0	1,3-Butadiene	0.27	0.47	0.27	0.078	U
74-83-9	Bromomethane	0.081	0.27	0.081	0.037	U
75-00-3	Chloroethane	0.23	0.40	0.23	0.049	U
64-17-5	Ethanol	1.4	5.4	0.85	0.39	J, B
75-05-8	Acetonitrile	0.16	0.62	0.36	0.15	J
107-02-8	Acrolein	0.48	0.86	0.27	0.13	J
67-64-1	Acetone	2.3	4.4	2.2	0.99	J
75-69-4	Trichlorofluoromethane	0.31	0.18	0.11	0.028	
67-63-0	2-Propanol (Isopropyl Alcohol)	0.49	1.7	0.49	0.18	U
107-13-1	Acrylonitrile	0.28	0.48	0.28	0.099	U
75-35-4	1,1-Dichloroethene	0.62	0.27	0.084	0.037	
75-09-2	Methylene Chloride	0.18	0.30	0.18	0.085	U
107-05-1	3-Chloro-1-propene (Allyl Chloride)	0.11	0.34	0.11	0.045	U
76-13-1	Trichlorotrifluoroethane	2.9	0.14	0.043	0.019	
75-15-0	Carbon Disulfide	4.3	0.69	0.34	0.10	
156-60-5	trans-1,2-Dichloroethene	0.45	0.27	0.084	0.037	
75-34-3	1,1-Dichloroethane	0.42	0.27	0.15	0.038	
1634-04-4	Methyl tert-Butyl Ether	0.092	0.29	0.092	0.034	U
108-05-4	Vinyl Acetate	1.9	3.0	1.4	0.67	J
78-93-3	2-Butanone (MEK)	0.48	0.73	0.21	0.073	J

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

B = Analyte detected in both the sample and associated method blank.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: ODSVE-DUP1-Y9Q2

Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

ALS Sample ID: P1907461-002

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sampling Media: 6.0 L Silonite Canister

Test Notes:

Container ID: SSC00083

Date Collected: 12/5/19

Date Received: 12/9/19

Date Analyzed: 12/31/19

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -5.24 Final Pressure (psig): 3.84

Container Dilution Factor: 1.96

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	36	0.26	0.084	0.037	
141-78-6	Ethyl Acetate	0.35	0.60	0.35	0.15	U
110-54-3	n-Hexane	0.10	0.30	0.18	0.061	J
67-66-3	Chloroform	6.5	0.22	0.068	0.029	
109-99-9	Tetrahydrofuran (THF)	0.11	0.37	0.11	0.045	U
107-06-2	1,2-Dichloroethane	0.082	0.26	0.082	0.029	U
71-55-6	1,1,1-Trichloroethane	0.30	0.19	0.061	0.024	
71-43-2	Benzene	0.085	0.33	0.10	0.047	J
56-23-5	Carbon Tetrachloride	0.41	0.17	0.053	0.023	
110-82-7	Cyclohexane	0.19	0.63	0.19	0.085	U
78-87-5	1,2-Dichloropropane	0.072	0.23	0.072	0.028	U
75-27-4	Bromodichloromethane	0.050	0.16	0.050	0.023	U
79-01-6	Trichloroethene	26	0.20	0.062	0.026	
123-91-1	1,4-Dioxane	0.092	0.29	0.092	0.034	U
80-62-6	Methyl Methacrylate	0.31	0.53	0.31	0.091	U
142-82-5	n-Heptane	0.051	0.26	0.15	0.041	J
10061-01-5	cis-1,3-Dichloropropene	0.078	0.22	0.078	0.036	U
108-10-1	4-Methyl-2-pentanone	0.081	0.25	0.081	0.035	U
10061-02-6	trans-1,3-Dichloropropene	0.14	0.23	0.14	0.048	U
79-00-5	1,1,2-Trichloroethane	0.045	0.19	0.061	0.019	J
108-88-3	Toluene	0.16	0.28	0.088	0.034	J
591-78-6	2-Hexanone	0.081	0.26	0.081	0.032	U
124-48-1	Dibromochloromethane	0.039	0.12	0.039	0.016	U
106-93-4	1,2-Dibromoethane	0.043	0.14	0.043	0.016	U
123-86-4	n-Butyl Acetate	0.040	0.23	0.070	0.030	J

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: ODSVE-DUP1-Y9Q2
Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461
 ALS Sample ID: P1907461-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sampling Media: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00083

Date Collected: 12/5/19
Date Received: 12/9/19
Date Analyzed: 12/31/19
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -5.24 Final Pressure (psig): 3.84

Container Dilution Factor: 1.96

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	0.13	0.23	0.13	0.050	U
127-18-4	Tetrachloroethene	2.4	0.15	0.049	0.020	
108-90-7	Chlorobenzene	0.072	0.23	0.072	0.030	U
100-41-4	Ethylbenzene	0.077	0.24	0.077	0.034	U
179601-23-1	m,p-Xylenes	0.072	0.50	0.15	0.063	J
75-25-2	Bromoform	0.061	0.10	0.061	0.021	U
100-42-5	Styrene	0.15	0.24	0.15	0.040	U
95-47-6	o-Xylene	0.077	0.24	0.077	0.035	U
111-84-2	n-Nonane	0.12	0.20	0.12	0.033	U
79-34-5	1,1,2,2-Tetrachloroethane	0.32	0.15	0.049	0.021	
98-82-8	Cumene	0.068	0.22	0.068	0.031	U
80-56-8	alpha-Pinene	0.11	0.19	0.11	0.029	U
103-65-1	n-Propylbenzene	0.068	0.22	0.068	0.031	U
622-96-8	4-Ethyltoluene	0.13	0.22	0.13	0.034	U
108-67-8	1,3,5-Trimethylbenzene	0.068	0.21	0.068	0.031	U
95-63-6	1,2,4-Trimethylbenzene	0.068	0.22	0.068	0.030	U
100-44-7	Benzyl Chloride	0.12	0.42	0.12	0.045	U
541-73-1	1,3-Dichlorobenzene	0.055	0.18	0.055	0.026	U
106-46-7	1,4-Dichlorobenzene	0.10	0.18	0.10	0.027	U
95-50-1	1,2-Dichlorobenzene	0.055	0.18	0.055	0.026	U
5989-27-5	d-Limonene	0.11	0.19	0.11	0.039	U
96-12-8	1,2-Dibromo-3-chloropropane	0.063	0.11	0.063	0.020	U
120-82-1	1,2,4-Trichlorobenzene	0.085	0.14	0.085	0.034	U
91-20-3	Naphthalene	0.074	0.19	0.12	0.049	J
87-68-3	Hexachlorobutadiene	0.059	0.097	0.059	0.020	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.
 LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
 J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Method Blank

Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

ALS Sample ID: P191230-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 12/30/19

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.18	0.31	0.18	0.076	U
75-71-8	Dichlorodifluoromethane (CFC 12)	0.063	0.11	0.063	0.018	U
74-87-3	Chloromethane	0.15	0.26	0.15	0.042	U
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.044	0.076	0.044	0.012	U
75-01-4	Vinyl Chloride	0.067	0.21	0.067	0.022	U
106-99-0	1,3-Butadiene	0.14	0.24	0.14	0.040	U
74-83-9	Bromomethane	0.041	0.14	0.041	0.019	U
75-00-3	Chloroethane	0.12	0.20	0.12	0.025	U
64-17-5	Ethanol	0.23	2.8	0.44	0.20	J
75-05-8	Acetonitrile	0.18	0.32	0.18	0.077	U
107-02-8	Acrolein	0.14	0.44	0.14	0.065	U
67-64-1	Acetone	1.1	2.2	1.1	0.51	U
75-69-4	Trichlorofluoromethane	0.057	0.094	0.057	0.014	U
67-63-0	2-Propanol (Isopropyl Alcohol)	0.25	0.85	0.25	0.090	U
107-13-1	Acrylonitrile	0.14	0.24	0.14	0.051	U
75-35-4	1,1-Dichloroethene	0.043	0.14	0.043	0.019	U
75-09-2	Methylene Chloride	0.092	0.15	0.092	0.043	U
107-05-1	3-Chloro-1-propene (Allyl Chloride)	0.054	0.17	0.054	0.023	U
76-13-1	Trichlorotrifluoroethane	0.022	0.070	0.022	0.0099	U
75-15-0	Carbon Disulfide	0.17	0.35	0.17	0.051	U
156-60-5	trans-1,2-Dichloroethene	0.043	0.14	0.043	0.019	U
75-34-3	1,1-Dichloroethane	0.077	0.14	0.077	0.019	U
1634-04-4	Methyl tert-Butyl Ether	0.047	0.15	0.047	0.017	U
108-05-4	Vinyl Acetate	0.74	1.5	0.74	0.34	U
78-93-3	2-Butanone (MEK)	0.11	0.37	0.11	0.037	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Method Blank

Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

ALS Sample ID: P191230-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 12/30/19

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	0.043	0.13	0.043	0.019	U
141-78-6	Ethyl Acetate	0.18	0.31	0.18	0.078	U
110-54-3	n-Hexane	0.091	0.15	0.091	0.031	U
67-66-3	Chloroform	0.035	0.11	0.035	0.015	U
109-99-9	Tetrahydrofuran (THF)	0.058	0.19	0.058	0.023	U
107-06-2	1,2-Dichloroethane	0.042	0.13	0.042	0.015	U
71-55-6	1,1,1-Trichloroethane	0.031	0.099	0.031	0.012	U
71-43-2	Benzene	0.053	0.17	0.053	0.024	U
56-23-5	Carbon Tetrachloride	0.027	0.084	0.027	0.012	U
110-82-7	Cyclohexane	0.096	0.32	0.096	0.044	U
78-87-5	1,2-Dichloropropane	0.037	0.12	0.037	0.014	U
75-27-4	Bromodichloromethane	0.025	0.081	0.025	0.011	U
79-01-6	Trichloroethene	0.032	0.10	0.032	0.013	U
123-91-1	1,4-Dioxane	0.047	0.15	0.047	0.017	U
80-62-6	Methyl Methacrylate	0.16	0.27	0.16	0.046	U
142-82-5	n-Heptane	0.078	0.13	0.078	0.021	U
10061-01-5	cis-1,3-Dichloropropene	0.040	0.11	0.040	0.018	U
108-10-1	4-Methyl-2-pentanone	0.041	0.13	0.041	0.018	U
10061-02-6	trans-1,3-Dichloropropene	0.071	0.12	0.071	0.024	U
79-00-5	1,1,2-Trichloroethane	0.031	0.099	0.031	0.0099	U
108-88-3	Toluene	0.045	0.14	0.045	0.017	U
591-78-6	2-Hexanone	0.042	0.13	0.042	0.016	U
124-48-1	Dibromochloromethane	0.020	0.063	0.020	0.0082	U
106-93-4	1,2-Dibromoethane	0.022	0.070	0.022	0.0081	U
123-86-4	n-Butyl Acetate	0.036	0.12	0.036	0.015	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: Method Blank
Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461
 ALS Sample ID: P191230-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Simon Cao
Sampling Media: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/30/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	0.069	0.12	0.069	0.026	U
127-18-4	Tetrachloroethene	0.025	0.077	0.025	0.010	U
108-90-7	Chlorobenzene	0.037	0.12	0.037	0.015	U
100-41-4	Ethylbenzene	0.039	0.12	0.039	0.017	U
179601-23-1	m,p-Xylenes	0.078	0.25	0.078	0.032	U
75-25-2	Bromoform	0.031	0.052	0.031	0.011	U
100-42-5	Styrene	0.075	0.12	0.075	0.020	U
95-47-6	o-Xylene	0.039	0.12	0.039	0.018	U
111-84-2	n-Nonane	0.061	0.10	0.061	0.017	U
79-34-5	1,1,2,2-Tetrachloroethane	0.025	0.079	0.025	0.011	U
98-82-8	Cumene	0.035	0.11	0.035	0.016	U
80-56-8	alpha-Pinene	0.056	0.097	0.056	0.015	U
103-65-1	n-Propylbenzene	0.035	0.11	0.035	0.016	U
622-96-8	4-Ethyltoluene	0.065	0.11	0.065	0.017	U
108-67-8	1,3,5-Trimethylbenzene	0.035	0.11	0.035	0.016	U
95-63-6	1,2,4-Trimethylbenzene	0.035	0.11	0.035	0.015	U
100-44-7	Benzyl Chloride	0.062	0.21	0.062	0.023	U
541-73-1	1,3-Dichlorobenzene	0.028	0.090	0.028	0.013	U
106-46-7	1,4-Dichlorobenzene	0.053	0.090	0.053	0.014	U
95-50-1	1,2-Dichlorobenzene	0.028	0.090	0.028	0.013	U
5989-27-5	d-Limonene	0.054	0.097	0.054	0.020	U
96-12-8	1,2-Dibromo-3-chloropropane	0.032	0.055	0.032	0.010	U
120-82-1	1,2,4-Trichlorobenzene	0.043	0.073	0.043	0.018	U
91-20-3	Naphthalene	0.059	0.099	0.059	0.025	U
87-68-3	Hexachlorobutadiene	0.030	0.050	0.030	0.010	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.
 LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

Client: Trinity Analysis & Development Corp.
Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Simon Cao
Sampling Media: 6.0 L Summa Canister(s) / 6.0 L Silonite Canister(s)
Test Notes:

Date(s) Collected: 12/5/19
Date(s) Received: 12/9/19
Date(s) Analyzed: 12/30 - 12/31/19

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4	Toluene-d8	Bromofluorobenzene	Acceptance Limits	Data Qualifier
		Percent Recovered	Percent Recovered	Percent Recovered		
Method Blank	P191230-MB	97	98	88	70-130	
Lab Control Sample	P191230-LCS	96	98	90	70-130	
Duplicate Lab Control Sample	P191230-DLCS	92	98	90	70-130	
ODSVE-EFF-Y9Q2	P1907461-001	97	98	89	70-130	
ODSVE-DUP1-Y9Q2	P1907461-002	97	98	89	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Duplicate Lab Control Sample

Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

ALS Sample ID: P191230-DLCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 12/30/19

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount		Result		% Recovery		DOD		Data Qualifier
		LCS / DLCS		LCS	DLCS	LCS	DLCS	Acceptance	RPD	
		ppbV		ppbV	ppbV			Limits	Limit	
115-07-1	Propene	122		130	130	107	107	57-136	0	25
75-71-8	Dichlorodifluoromethane (CFC 12)	42.5		40.0	38.8	94	91	59-128	3	25
74-87-3	Chloromethane	103		109	110	106	107	59-132	0.9	25
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	29.5		24.0	24.0	81	81	63-121	0	25
75-01-4	Vinyl Chloride	83.0		83.3	83.9	100	101	64-127	1	25
106-99-0	1,3-Butadiene	95.9		104	104	108	108	66-134	0	25
74-83-9	Bromomethane	54.6		52.0	51.9	95	95	63-134	0	25
75-00-3	Chloroethane	81.1		86.0	85.9	106	106	63-127	0	25
64-17-5	Ethanol	563		641	639	114	113	59-125	0.9	25
75-05-8	Acetonitrile	128		135	137	105	107	63-132	2	25
107-02-8	Acrolein	89.9		107	107	119	119	62-126	0	25
67-64-1	Acetone	450		481	476	107	106	58-128	0.9	25
75-69-4	Trichlorofluoromethane	37.7		34.6	33.7	92	89	62-126	3	25
67-63-0	2-Propanol (Isopropyl Alcohol)	172		207	204	120	119	52-125	0.8	25
107-13-1	Acrylonitrile	97.7		117	117	120	120	71-137	0	25
75-35-4	1,1-Dichloroethene	54.0		55.1	54.6	102	101	61-133	1	25
75-09-2	Methylene Chloride	60.5		63.9	62.8	106	104	62-115	2	25
107-05-1	3-Chloro-1-propene (Allyl Chloride)	68.4		74.5	73.4	109	107	71-131	2	25
76-13-1	Trichlorotrifluoroethane	28.2		25.7	25.2	91	89	66-126	2	25
75-15-0	Carbon Disulfide	68.1		74.4	73.3	109	108	57-134	0.9	25
156-60-5	trans-1,2-Dichloroethene	54.0		59.9	59.5	111	110	67-124	0.9	25
75-34-3	1,1-Dichloroethane	52.4		55.0	54.1	105	103	68-126	2	25
1634-04-4	Methyl tert-Butyl Ether	59.4		65.2	64.7	110	109	66-126	0.9	25
108-05-4	Vinyl Acetate	303		322	316	106	104	56-139	2	25
78-93-3	2-Butanone (MEK)	71.9		82.9	81.4	115	113	67-130	2	25

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Duplicate Lab Control Sample

Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

ALS Sample ID: P191230-DLCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 12/30/19

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		DOD	RPD	RPD	Data
		LCS / DLCS ppbV	LCS ppbV	DLCS ppbV	LCS	DLCS	Acceptance Limits			
156-59-2	cis-1,2-Dichloroethene	53.5	58.0	56.9	108	106	70-121	2	25	
141-78-6	Ethyl Acetate	120	143	139	119	116	65-128	3	25	
110-54-3	n-Hexane	61.3	68.7	67.4	112	110	63-120	2	25	
67-66-3	Chloroform	43.8	44.1	42.7	101	97	68-123	4	25	
109-99-9	Tetrahydrofuran (THF)	74.6	81.4	80.1	109	107	64-123	2	25	
107-06-2	1,2-Dichloroethane	52.9	50.4	47.0	95	89	65-128	7	25	
71-55-6	1,1,1-Trichloroethane	39.2	38.3	37.0	98	94	68-125	4	25	
71-43-2	Benzene	65.8	68.7	67.4	104	102	69-119	2	25	
56-23-5	Carbon Tetrachloride	33.1	32.0	30.9	97	93	68-132	4	25	
110-82-7	Cyclohexane	123	128	127	104	103	70-117	1	25	
78-87-5	1,2-Dichloropropane	46.3	51.8	51.4	112	111	69-123	0.9	25	
75-27-4	Bromodichloromethane	32.6	32.8	31.7	101	97	72-128	4	25	
79-01-6	Trichloroethene	40.2	38.1	37.4	95	93	71-123	2	25	
123-91-1	1,4-Dioxane	60.0	65.3	64.9	109	108	71-122	0.9	25	
80-62-6	Methyl Methacrylate	105	111	108	106	103	70-128	3	25	
142-82-5	n-Heptane	52.2	57.3	56.4	110	108	69-123	2	25	
10061-01-5	cis-1,3-Dichloropropene	47.2	54.1	53.2	115	113	70-128	2	25	
108-10-1	4-Methyl-2-pentanone	51.8	62.2	61.4	120	119	67-130	0.8	25	
10061-02-6	trans-1,3-Dichloropropene	46.7	53.1	52.1	114	112	75-133	2	25	
79-00-5	1,1,2-Trichloroethane	39.2	40.3	39.7	103	101	73-119	2	25	
108-88-3	Toluene	56.3	53.8	53.2	96	94	66-119	2	25	
591-78-6	2-Hexanone	52.7	58.7	57.2	111	109	62-128	2	25	
124-48-1	Dibromochloromethane	25.1	24.9	24.3	99	97	70-130	2	25	
106-93-4	1,2-Dibromoethane	27.9	27.7	27.2	99	97	74-122	2	25	
123-86-4	n-Butyl Acetate	45.9	53.3	52.1	116	114	65-134	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Duplicate Lab Control Sample

Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

ALS Sample ID: P191230-DLCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 12/30/19

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		DOD	RPD	RPD	Data
		LCS / DLCS ppbV	LCS ppbV	DLCS ppbV	LCS	DLCS	Acceptance Limits			
111-65-9	n-Octane	46.3	50.1	49.4	108	107	69-121	0.9	25	
127-18-4	Tetrachloroethene	30.7	27.3	26.7	89	87	66-124	2	25	
108-90-7	Chlorobenzene	46.5	42.2	41.5	91	89	70-119	2	25	
100-41-4	Ethylbenzene	48.8	48.8	47.8	100	98	70-124	2	25	
179601-23-1	m,p-Xylenes	98.1	91.6	92.1	93	94	61-134	1	25	
75-25-2	Bromoform	20.7	20.7	20.3	100	98	66-139	2	25	
100-42-5	Styrene	49.8	49.6	48.9	100	98	73-127	2	25	
95-47-6	o-Xylene	49.3	47.6	46.7	97	95	67-125	2	25	
111-84-2	n-Nonane	40.8	44.5	43.7	109	107	63-128	2	25	
79-34-5	1,1,2,2-Tetrachloroethane	31.2	33.1	32.4	106	104	65-127	2	25	
98-82-8	Cumene	43.5	42.1	41.0	97	94	68-124	3	25	
80-56-8	alpha-Pinene	38.1	39.0	38.7	102	102	62-136	0	25	
103-65-1	n-Propylbenzene	43.6	44.1	43.2	101	99	69-123	2	25	
622-96-8	4-Ethyltoluene	42.7	42.6	41.6	100	97	67-129	3	25	
108-67-8	1,3,5-Trimethylbenzene	43.1	41.5	40.9	96	95	67-130	1	25	
95-63-6	1,2,4-Trimethylbenzene	43.1	43.1	42.0	100	97	66-132	3	25	
100-44-7	Benzyl Chloride	41.3	42.7	42.2	103	102	50-147	1	25	
541-73-1	1,3-Dichlorobenzene	35.6	32.8	32.2	92	90	65-130	2	25	
106-46-7	1,4-Dichlorobenzene	35.6	32.8	32.2	92	90	60-131	2	25	
95-50-1	1,2-Dichlorobenzene	35.6	33.5	32.9	94	92	63-129	2	25	
5989-27-5	d-Limonene	38.1	41.7	41.0	109	108	65-136	0.9	25	
96-12-8	1,2-Dibromo-3-chloropropane	22.1	21.7	21.3	98	96	73-133	2	25	
120-82-1	1,2,4-Trichlorobenzene	29.1	27.6	27.2	95	93	55-142	2	25	
91-20-3	Naphthalene	40.5	39.9	39.2	99	97	57-138	2	25	
87-68-3	Hexachlorobutadiene	20.1	18.0	17.6	90	88	56-138	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Trinity Analysis & Development Corp.
Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

Method Blank Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Simon Cao
Sampling Media: 6.0 L Summa Canister(s)
Test Notes:

Lab File ID: 12301904.D
Date Analyzed: 12/30/19
Time Analyzed: 05:12

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P191230-LCS	12301905.D	05:45
Duplicate Lab Control Sample	P191230-DLCS	12301906.D	06:19
ODSVE-EFF-Y9Q2	P1907461-001	12301931.D	22:55
ODSVE-DUP1-Y9Q2	P1907461-002	12301933.D	00:01

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Trinity Analysis & Development Corp.
Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

Internal Standard Area and RT Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Simon Cao
Sampling Media: 6.0 L Summa Canister(s)
Test Notes:

Lab File ID: 12301902.D
Date Analyzed: 12/30/19
Time Analyzed: 04:06

	IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
	AREA	#	RT	#	AREA	#
24 Hour Standard	306689	11.17	1288065	13.30	600044	17.61
Upper Limit	429365	11.50	1803291	13.63	840062	17.94
Lower Limit	184013	10.84	772839	12.97	360026	17.28

Client Sample ID		IS1 (BCM)	IS2 (DFB)	IS3 (CBZ)
Client Sample ID		AREA	RT	AREA
01 Method Blank		289970	11.15	1261170
02 Lab Control Sample		306921	11.17	1300417
03 Duplicate Lab Control Sample		320246	11.17	1340155
04 ODSVE-EFF-Y9Q2		304985	11.16	1309225
05 ODSVE-DUP1-Y9Q2		297098	11.16	1277047

IS1 (BCM) = Bromochloromethane

IS2 (DFB) = 1,4-Difluorobenzene

IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area

AREA LOWER LIMIT = 60% of internal standard area

RT UPPER LIMIT = 0.33 minutes of internal standard RT

RT LOWER LIMIT = 0.33 minutes of internal standard RT

Column used to flag values outside QC limits with an I.

I = Internal standard not within the specified limits.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: ODSVE-EFF-Y9Q2

Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

ALS Sample ID: P1907461-001

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sampling Media: 6.0 L Summa Canister

Test Notes:

Container ID: SC00803

Date Collected: 12/5/19

Date Received: 12/9/19

Date Analyzed: 12/30/19

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -2.73

Final Pressure (psig): 3.89

Container Dilution Factor: 1.55

CAS #	Compound	Result µg/m ³	LOQ µg/m ³	LOD µg/m ³	MDL µg/m ³	Data Qualifier
115-07-1	Propene	0.60	0.82	0.48	0.20	J
75-71-8	Dichlorodifluoromethane (CFC 12)	20	0.82	0.48	0.13	
74-87-3	Chloromethane	0.47	0.82	0.47	0.13	U
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.48	0.82	0.48	0.13	U
75-01-4	Vinyl Chloride	0.35	0.84	0.26	0.088	J
106-99-0	1,3-Butadiene	0.48	0.82	0.48	0.14	U
74-83-9	Bromomethane	0.25	0.84	0.25	0.11	U
75-00-3	Chloroethane	0.48	0.84	0.48	0.10	U
64-17-5	Ethanol	2.8	8.1	1.3	0.57	J, B
75-05-8	Acetonitrile	0.48	0.82	0.48	0.20	U
107-02-8	Acrolein	0.86	1.6	0.48	0.23	J
67-64-1	Acetone	7.0	8.2	4.2	1.9	J
75-69-4	Trichlorofluoromethane	1.7	0.82	0.50	0.13	
67-63-0	2-Propanol (Isopropyl Alcohol)	0.43	3.3	0.96	0.34	J
107-13-1	Acrylonitrile	0.48	0.82	0.48	0.17	U
75-35-4	1,1-Dichloroethene	2.5	0.84	0.26	0.11	
75-09-2	Methylene Chloride	0.50	0.82	0.50	0.23	U
107-05-1	3-Chloro-1-propene (Allyl Chloride)	0.26	0.84	0.26	0.11	U
76-13-1	Trichlorotrifluoroethane	22	0.84	0.26	0.12	
75-15-0	Carbon Disulfide	6.2	1.7	0.84	0.25	
156-60-5	trans-1,2-Dichloroethene	1.8	0.84	0.26	0.11	
75-34-3	1,1-Dichloroethane	1.7	0.85	0.48	0.12	
1634-04-4	Methyl tert-Butyl Ether	0.26	0.84	0.26	0.098	U
108-05-4	Vinyl Acetate	2.9	8.4	4.0	1.9	J
78-93-3	2-Butanone (MEK)	1.3	1.7	0.48	0.17	J

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

B = Analyte detected in both the sample and associated method blank.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: ODSVE-EFF-Y9Q2

Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

ALS Sample ID: P1907461-001

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sampling Media: 6.0 L Summa Canister

Test Notes:

Container ID: SC00803

Date Collected: 12/5/19

Date Received: 12/9/19

Date Analyzed: 12/30/19

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -2.73 Final Pressure (psig): 3.89

Container Dilution Factor: 1.55

CAS #	Compound	Result µg/m ³	LOQ µg/m ³	LOD µg/m ³	MDL µg/m ³	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	140	0.82	0.26	0.12	
141-78-6	Ethyl Acetate	1.0	1.7	1.0	0.43	U
110-54-3	n-Hexane	0.42	0.84	0.50	0.17	J
67-66-3	Chloroform	31	0.84	0.26	0.11	
109-99-9	Tetrahydrofuran (THF)	0.26	0.85	0.26	0.10	U
107-06-2	1,2-Dichloroethane	0.26	0.84	0.26	0.091	U
71-55-6	1,1,1-Trichloroethane	1.6	0.84	0.26	0.10	
71-43-2	Benzene	0.28	0.82	0.26	0.12	J
56-23-5	Carbon Tetrachloride	2.6	0.82	0.26	0.11	
110-82-7	Cyclohexane	0.51	1.7	0.51	0.23	U
78-87-5	1,2-Dichloropropane	0.26	0.84	0.26	0.10	U
75-27-4	Bromodichloromethane	0.26	0.84	0.26	0.12	U
79-01-6	Trichloroethene	140	0.84	0.26	0.11	
123-91-1	1,4-Dioxane	0.26	0.84	0.26	0.098	U
80-62-6	Methyl Methacrylate	0.99	1.7	0.99	0.29	U
142-82-5	n-Heptane	0.27	0.84	0.50	0.13	J
10061-01-5	cis-1,3-Dichloropropene	0.28	0.81	0.28	0.13	U
108-10-1	4-Methyl-2-pentanone	0.26	0.82	0.26	0.11	U
10061-02-6	trans-1,3-Dichloropropene	0.50	0.82	0.50	0.17	U
79-00-5	1,1,2-Trichloroethane	0.23	0.84	0.26	0.084	J
108-88-3	Toluene	0.54	0.84	0.26	0.10	J
591-78-6	2-Hexanone	0.24	0.84	0.26	0.10	J
124-48-1	Dibromochloromethane	0.26	0.84	0.26	0.11	U
106-93-4	1,2-Dibromoethane	0.26	0.84	0.26	0.096	U
123-86-4	n-Butyl Acetate	0.23	0.85	0.26	0.11	J

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: ODSVE-EFF-Y9Q2
Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461
 ALS Sample ID: P1907461-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: SC00803

Date Collected: 12/5/19
Date Received: 12/9/19
Date Analyzed: 12/30/19
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -2.73 Final Pressure (psig): 3.89

Container Dilution Factor: 1.55

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
111-65-9	n-Octane	0.50	0.84	0.50	0.19	U
127-18-4	Tetrachloroethene	16	0.81	0.26	0.11	
108-90-7	Chlorobenzene	0.26	0.84	0.26	0.11	U
100-41-4	Ethylbenzene	0.26	0.84	0.26	0.12	U
179601-23-1	m,p-Xylenes	0.28	1.7	0.53	0.22	J
75-25-2	Bromoform	0.50	0.84	0.50	0.17	U
100-42-5	Styrene	0.50	0.82	0.50	0.13	U
95-47-6	o-Xylene	0.26	0.84	0.26	0.12	U
111-84-2	n-Nonane	0.50	0.84	0.50	0.14	U
79-34-5	1,1,2,2-Tetrachloroethane	2.3	0.84	0.26	0.11	
98-82-8	Cumene	0.26	0.84	0.26	0.12	U
80-56-8	alpha-Pinene	0.48	0.84	0.48	0.13	U
103-65-1	n-Propylbenzene	0.26	0.84	0.26	0.12	U
622-96-8	4-Ethyltoluene	0.50	0.84	0.50	0.13	U
108-67-8	1,3,5-Trimethylbenzene	0.26	0.82	0.26	0.12	U
95-63-6	1,2,4-Trimethylbenzene	0.26	0.84	0.26	0.11	U
100-44-7	Benzyl Chloride	0.50	1.7	0.50	0.19	U
541-73-1	1,3-Dichlorobenzene	0.26	0.84	0.26	0.12	U
106-46-7	1,4-Dichlorobenzene	0.50	0.84	0.50	0.13	U
95-50-1	1,2-Dichlorobenzene	0.26	0.84	0.26	0.12	U
5989-27-5	d-Limonene	0.47	0.84	0.47	0.17	U
96-12-8	1,2-Dibromo-3-chloropropane	0.48	0.82	0.48	0.16	U
120-82-1	1,2,4-Trichlorobenzene	0.50	0.84	0.50	0.20	U
91-20-3	Naphthalene	0.48	0.81	0.48	0.20	U
87-68-3	Hexachlorobutadiene	0.50	0.82	0.50	0.17	U

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 J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: ODSVE-DUP1-Y9Q2

Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

ALS Sample ID: P1907461-002

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sampling Media: 6.0 L Silonite Canister

Test Notes:

Container ID: SSC00083

Date Collected: 12/5/19

Date Received: 12/9/19

Date Analyzed: 12/31/19

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -5.24

Final Pressure (psig): 3.84

Container Dilution Factor: 1.96

CAS #	Compound	Result µg/m ³	LOQ µg/m ³	LOD µg/m ³	MDL µg/m ³	Data Qualifier
115-07-1	Propene	0.54	1.0	0.61	0.25	J
75-71-8	Dichlorodifluoromethane (CFC 12)	20	1.0	0.61	0.17	
74-87-3	Chloromethane	0.59	1.0	0.59	0.17	U
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.61	1.0	0.61	0.16	U
75-01-4	Vinyl Chloride	0.35	1.1	0.33	0.11	J
106-99-0	1,3-Butadiene	0.61	1.0	0.61	0.17	U
74-83-9	Bromomethane	0.31	1.1	0.31	0.15	U
75-00-3	Chloroethane	0.61	1.1	0.61	0.13	U
64-17-5	Ethanol	2.6	10	1.6	0.73	J, B
75-05-8	Acetonitrile	0.26	1.0	0.61	0.25	J
107-02-8	Acrolein	1.1	2.0	0.61	0.29	J
67-64-1	Acetone	5.5	10	5.3	2.4	J
75-69-4	Trichlorofluoromethane	1.8	1.0	0.63	0.16	
67-63-0	2-Propanol (Isopropyl Alcohol)	1.2	4.1	1.2	0.43	U
107-13-1	Acrylonitrile	0.61	1.0	0.61	0.22	U
75-35-4	1,1-Dichloroethene	2.5	1.1	0.33	0.15	
75-09-2	Methylene Chloride	0.63	1.0	0.63	0.29	U
107-05-1	3-Chloro-1-propene (Allyl Chloride)	0.33	1.1	0.33	0.14	U
76-13-1	Trichlorotrifluoroethane	22	1.1	0.33	0.15	
75-15-0	Carbon Disulfide	13	2.2	1.1	0.31	
156-60-5	trans-1,2-Dichloroethene	1.8	1.1	0.33	0.15	
75-34-3	1,1-Dichloroethane	1.7	1.1	0.61	0.15	
1634-04-4	Methyl tert-Butyl Ether	0.33	1.1	0.33	0.12	U
108-05-4	Vinyl Acetate	6.6	11	5.1	2.4	J
78-93-3	2-Butanone (MEK)	1.4	2.2	0.61	0.22	J

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

B = Analyte detected in both the sample and associated method blank.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: ODSVE-DUP1-Y9Q2

Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

ALS Sample ID: P1907461-002

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sampling Media: 6.0 L Silonite Canister

Test Notes:

Container ID: SSC00083

Date Collected: 12/5/19

Date Received: 12/9/19

Date Analyzed: 12/31/19

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -5.24 Final Pressure (psig): 3.84

Container Dilution Factor: 1.96

CAS #	Compound	Result µg/m ³	LOQ µg/m ³	LOD µg/m ³	MDL µg/m ³	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	140	1.0	0.33	0.15	
141-78-6	Ethyl Acetate	1.3	2.2	1.3	0.55	U
110-54-3	n-Hexane	0.36	1.1	0.63	0.22	J
67-66-3	Chloroform	32	1.1	0.33	0.14	
109-99-9	Tetrahydrofuran (THF)	0.33	1.1	0.33	0.13	U
107-06-2	1,2-Dichloroethane	0.33	1.1	0.33	0.12	U
71-55-6	1,1,1-Trichloroethane	1.6	1.1	0.33	0.13	
71-43-2	Benzene	0.27	1.0	0.33	0.15	J
56-23-5	Carbon Tetrachloride	2.6	1.0	0.33	0.15	
110-82-7	Cyclohexane	0.65	2.2	0.65	0.29	U
78-87-5	1,2-Dichloropropane	0.33	1.1	0.33	0.13	U
75-27-4	Bromodichloromethane	0.33	1.1	0.33	0.15	U
79-01-6	Trichloroethene	140	1.1	0.33	0.14	
123-91-1	1,4-Dioxane	0.33	1.1	0.33	0.12	U
80-62-6	Methyl Methacrylate	1.3	2.2	1.3	0.37	U
142-82-5	n-Heptane	0.21	1.1	0.63	0.17	J
10061-01-5	cis-1,3-Dichloropropene	0.35	1.0	0.35	0.16	U
108-10-1	4-Methyl-2-pentanone	0.33	1.0	0.33	0.14	U
10061-02-6	trans-1,3-Dichloropropene	0.63	1.0	0.63	0.22	U
79-00-5	1,1,2-Trichloroethane	0.25	1.1	0.33	0.11	J
108-88-3	Toluene	0.59	1.1	0.33	0.13	J
591-78-6	2-Hexanone	0.33	1.1	0.33	0.13	U
124-48-1	Dibromochloromethane	0.33	1.1	0.33	0.14	U
106-93-4	1,2-Dibromoethane	0.33	1.1	0.33	0.12	U
123-86-4	n-Butyl Acetate	0.19	1.1	0.33	0.14	J

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: ODSVE-DUP1-Y9Q2
Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461
 ALS Sample ID: P1907461-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sampling Media: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00083

Date Collected: 12/5/19
Date Received: 12/9/19
Date Analyzed: 12/31/19
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -5.24 Final Pressure (psig): 3.84

Container Dilution Factor: 1.96

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
111-65-9	n-Octane	0.63	1.1	0.63	0.24	U
127-18-4	Tetrachloroethene	17	1.0	0.33	0.14	
108-90-7	Chlorobenzene	0.33	1.1	0.33	0.14	U
100-41-4	Ethylbenzene	0.33	1.1	0.33	0.15	U
179601-23-1	m,p-Xylenes	0.31	2.2	0.67	0.27	J
75-25-2	Bromoform	0.63	1.1	0.63	0.22	U
100-42-5	Styrene	0.63	1.0	0.63	0.17	U
95-47-6	o-Xylene	0.33	1.1	0.33	0.15	U
111-84-2	n-Nonane	0.63	1.1	0.63	0.17	U
79-34-5	1,1,2,2-Tetrachloroethane	2.2	1.1	0.33	0.15	
98-82-8	Cumene	0.33	1.1	0.33	0.15	U
80-56-8	alpha-Pinene	0.61	1.1	0.61	0.16	U
103-65-1	n-Propylbenzene	0.33	1.1	0.33	0.15	U
622-96-8	4-Ethyltoluene	0.63	1.1	0.63	0.17	U
108-67-8	1,3,5-Trimethylbenzene	0.33	1.0	0.33	0.15	U
95-63-6	1,2,4-Trimethylbenzene	0.33	1.1	0.33	0.15	U
100-44-7	Benzyl Chloride	0.63	2.2	0.63	0.24	U
541-73-1	1,3-Dichlorobenzene	0.33	1.1	0.33	0.16	U
106-46-7	1,4-Dichlorobenzene	0.63	1.1	0.63	0.16	U
95-50-1	1,2-Dichlorobenzene	0.33	1.1	0.33	0.15	U
5989-27-5	d-Limonene	0.59	1.1	0.59	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	0.61	1.0	0.61	0.20	U
120-82-1	1,2,4-Trichlorobenzene	0.63	1.1	0.63	0.25	U
91-20-3	Naphthalene	0.39	1.0	0.61	0.25	J
87-68-3	Hexachlorobutadiene	0.63	1.0	0.63	0.22	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.
 LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
 J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Method Blank

Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

ALS Sample ID: P191230-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 12/30/19

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	LOQ µg/m ³	LOD µg/m ³	MDL µg/m ³	Data Qualifier
115-07-1	Propene	0.31	0.53	0.31	0.13	U
75-71-8	Dichlorodifluoromethane (CFC 12)	0.31	0.53	0.31	0.087	U
74-87-3	Chloromethane	0.30	0.53	0.30	0.086	U
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.31	0.53	0.31	0.084	U
75-01-4	Vinyl Chloride	0.17	0.54	0.17	0.057	U
106-99-0	1,3-Butadiene	0.31	0.53	0.31	0.088	U
74-83-9	Bromomethane	0.16	0.54	0.16	0.074	U
75-00-3	Chloroethane	0.31	0.54	0.31	0.066	U
64-17-5	Ethanol	0.43	5.2	0.82	0.37	J
75-05-8	Acetonitrile	0.31	0.53	0.31	0.13	U
107-02-8	Acrolein	0.31	1.0	0.31	0.15	U
67-64-1	Acetone	2.7	5.3	2.7	1.2	U
75-69-4	Trichlorofluoromethane	0.32	0.53	0.32	0.081	U
67-63-0	2-Propanol (Isopropyl Alcohol)	0.62	2.1	0.62	0.22	U
107-13-1	Acrylonitrile	0.31	0.53	0.31	0.11	U
75-35-4	1,1-Dichloroethene	0.17	0.54	0.17	0.074	U
75-09-2	Methylene Chloride	0.32	0.53	0.32	0.15	U
107-05-1	3-Chloro-1-propene (Allyl Chloride)	0.17	0.54	0.17	0.072	U
76-13-1	Trichlorotrifluoroethane	0.17	0.54	0.17	0.076	U
75-15-0	Carbon Disulfide	0.54	1.1	0.54	0.16	U
156-60-5	trans-1,2-Dichloroethene	0.17	0.54	0.17	0.074	U
75-34-3	1,1-Dichloroethane	0.31	0.55	0.31	0.078	U
1634-04-4	Methyl tert-Butyl Ether	0.17	0.54	0.17	0.063	U
108-05-4	Vinyl Acetate	2.6	5.4	2.6	1.2	U
78-93-3	2-Butanone (MEK)	0.31	1.1	0.31	0.11	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Method Blank

Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

ALS Sample ID: P191230-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 12/30/19

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	0.17	0.53	0.17	0.075	U
141-78-6	Ethyl Acetate	0.65	1.1	0.65	0.28	U
110-54-3	n-Hexane	0.32	0.54	0.32	0.11	U
67-66-3	Chloroform	0.17	0.54	0.17	0.071	U
109-99-9	Tetrahydrofuran (THF)	0.17	0.55	0.17	0.067	U
107-06-2	1,2-Dichloroethane	0.17	0.54	0.17	0.059	U
71-55-6	1,1,1-Trichloroethane	0.17	0.54	0.17	0.066	U
71-43-2	Benzene	0.17	0.53	0.17	0.077	U
56-23-5	Carbon Tetrachloride	0.17	0.53	0.17	0.074	U
110-82-7	Cyclohexane	0.33	1.1	0.33	0.15	U
78-87-5	1,2-Dichloropropane	0.17	0.54	0.17	0.066	U
75-27-4	Bromodichloromethane	0.17	0.54	0.17	0.077	U
79-01-6	Trichloroethene	0.17	0.54	0.17	0.072	U
123-91-1	1,4-Dioxane	0.17	0.54	0.17	0.063	U
80-62-6	Methyl Methacrylate	0.64	1.1	0.64	0.19	U
142-82-5	n-Heptane	0.32	0.54	0.32	0.085	U
10061-01-5	cis-1,3-Dichloropropene	0.18	0.52	0.18	0.083	U
108-10-1	4-Methyl-2-pentanone	0.17	0.53	0.17	0.073	U
10061-02-6	trans-1,3-Dichloropropene	0.32	0.53	0.32	0.11	U
79-00-5	1,1,2-Trichloroethane	0.17	0.54	0.17	0.054	U
108-88-3	Toluene	0.17	0.54	0.17	0.065	U
591-78-6	2-Hexanone	0.17	0.54	0.17	0.066	U
124-48-1	Dibromochloromethane	0.17	0.54	0.17	0.070	U
106-93-4	1,2-Dibromoethane	0.17	0.54	0.17	0.062	U
123-86-4	n-Butyl Acetate	0.17	0.55	0.17	0.073	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: Method Blank
Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461
 ALS Sample ID: P191230-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Simon Cao
Sampling Media: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 12/30/19
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	LOQ µg/m ³	LOD µg/m ³	MDL µg/m ³	Data Qualifier
111-65-9	n-Octane	0.32	0.54	0.32	0.12	U
127-18-4	Tetrachloroethene	0.17	0.52	0.17	0.069	U
108-90-7	Chlorobenzene	0.17	0.54	0.17	0.071	U
100-41-4	Ethylbenzene	0.17	0.54	0.17	0.075	U
179601-23-1	m,p-Xylenes	0.34	1.1	0.34	0.14	U
75-25-2	Bromoform	0.32	0.54	0.32	0.11	U
100-42-5	Styrene	0.32	0.53	0.32	0.086	U
95-47-6	o-Xylene	0.17	0.54	0.17	0.077	U
111-84-2	n-Nonane	0.32	0.54	0.32	0.089	U
79-34-5	1,1,2,2-Tetrachloroethane	0.17	0.54	0.17	0.074	U
98-82-8	Cumene	0.17	0.54	0.17	0.077	U
80-56-8	alpha-Pinene	0.31	0.54	0.31	0.082	U
103-65-1	n-Propylbenzene	0.17	0.54	0.17	0.077	U
622-96-8	4-Ethyltoluene	0.32	0.54	0.32	0.085	U
108-67-8	1,3,5-Trimethylbenzene	0.17	0.53	0.17	0.077	U
95-63-6	1,2,4-Trimethylbenzene	0.17	0.54	0.17	0.074	U
100-44-7	Benzyl Chloride	0.32	1.1	0.32	0.12	U
541-73-1	1,3-Dichlorobenzene	0.17	0.54	0.17	0.080	U
106-46-7	1,4-Dichlorobenzene	0.32	0.54	0.32	0.082	U
95-50-1	1,2-Dichlorobenzene	0.17	0.54	0.17	0.079	U
5989-27-5	d-Limonene	0.30	0.54	0.30	0.11	U
96-12-8	1,2-Dibromo-3-chloropropane	0.31	0.53	0.31	0.10	U
120-82-1	1,2,4-Trichlorobenzene	0.32	0.54	0.32	0.13	U
91-20-3	Naphthalene	0.31	0.52	0.31	0.13	U
87-68-3	Hexachlorobutadiene	0.32	0.53	0.32	0.11	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.
 LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

Client: Trinity Analysis & Development Corp.
Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Simon Cao
Sampling Media: 6.0 L Summa Canister(s) / 6.0 L Silonite Canister(s)
Test Notes:

Date(s) Collected: 12/5/19
Date(s) Received: 12/9/19
Date(s) Analyzed: 12/30 - 12/31/19

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4	Toluene-d8	Bromofluorobenzene	Acceptance Limits	Data Qualifier
		Percent Recovered	Percent Recovered	Percent Recovered		
Method Blank	P191230-MB	98	98	88	70-130	
Lab Control Sample	P191230-LCS	96	98	90	70-130	
Duplicate Lab Control Sample	P191230-DLCS	92	97	90	70-130	
ODSVE-EFF-Y9Q2	P1907461-001	97	98	89	70-130	
ODSVE-DUP1-Y9Q2	P1907461-002	98	97	89	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Duplicate Lab Control Sample

Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

ALS Sample ID: P191230-DLCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 12/30/19

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		DOD	RPD	RPD	Data
		LCS / DLCS µg/m³	LCS µg/m³	DLCS µg/m³	LCS	DLCS	Acceptance Limits			
115-07-1	Propene	210	223	223	106	106	57-136	0	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	198	192	94	91	59-128	3	25	
74-87-3	Chloromethane	212	226	228	107	108	59-132	0.9	25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	206	167	168	81	82	63-121	1	25	
75-01-4	Vinyl Chloride	212	213	214	100	101	64-127	1	25	
106-99-0	1,3-Butadiene	212	229	231	108	109	66-134	0.9	25	
74-83-9	Bromomethane	212	202	202	95	95	63-134	0	25	
75-00-3	Chloroethane	214	227	227	106	106	63-127	0	25	
64-17-5	Ethanol	1,060	1210	1200	114	113	59-125	0.9	25	
75-05-8	Acetonitrile	214	226	229	106	107	63-132	0.9	25	
107-02-8	Acrolein	206	245	245	119	119	62-126	0	25	
67-64-1	Acetone	1,070	1140	1130	107	106	58-128	0.9	25	
75-69-4	Trichlorofluoromethane	212	194	190	92	90	62-126	2	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	422	509	502	121	119	52-125	2	25	
107-13-1	Acrylonitrile	212	254	254	120	120	71-137	0	25	
75-35-4	1,1-Dichloroethene	214	218	216	102	101	61-133	1	25	
75-09-2	Methylene Chloride	210	222	218	106	104	62-115	2	25	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	214	233	230	109	107	71-131	2	25	
76-13-1	Trichlorotrifluoroethane	216	197	193	91	89	66-126	2	25	
75-15-0	Carbon Disulfide	212	231	228	109	108	57-134	0.9	25	
156-60-5	trans-1,2-Dichloroethene	214	237	236	111	110	67-124	0.9	25	
75-34-3	1,1-Dichloroethane	212	222	219	105	103	68-126	2	25	
1634-04-4	Methyl tert-Butyl Ether	214	235	233	110	109	66-126	0.9	25	
108-05-4	Vinyl Acetate	1,070	1130	1110	106	104	56-139	2	25	
78-93-3	2-Butanone (MEK)	212	244	240	115	113	67-130	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Duplicate Lab Control Sample

Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

ALS Sample ID: P191230-DLCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 12/30/19

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		DOD	RPD	RPD	Data
		LCS / DLCS µg/m³	LCS µg/m³	DLCS µg/m³	LCS	DLCS	Acceptance Limits			
156-59-2	cis-1,2-Dichloroethene	212	230	226	108	107	70-121	0.9	25	
141-78-6	Ethyl Acetate	432	515	500	119	116	65-128	3	25	
110-54-3	n-Hexane	216	242	237	112	110	63-120	2	25	
67-66-3	Chloroform	214	215	209	100	98	68-123	2	25	
109-99-9	Tetrahydrofuran (THF)	220	240	236	109	107	64-123	2	25	
107-06-2	1,2-Dichloroethane	214	204	190	95	89	65-128	7	25	
71-55-6	1,1,1-Trichloroethane	214	209	202	98	94	68-125	4	25	
71-43-2	Benzene	210	219	215	104	102	69-119	2	25	
56-23-5	Carbon Tetrachloride	208	201	194	97	93	68-132	4	25	
110-82-7	Cyclohexane	422	441	436	105	103	70-117	2	25	
78-87-5	1,2-Dichloropropane	214	239	237	112	111	69-123	0.9	25	
75-27-4	Bromodichloromethane	218	220	212	101	97	72-128	4	25	
79-01-6	Trichloroethene	216	205	201	95	93	71-123	2	25	
123-91-1	1,4-Dioxane	216	235	234	109	108	71-122	0.9	25	
80-62-6	Methyl Methacrylate	430	454	442	106	103	70-128	3	25	
142-82-5	n-Heptane	214	235	231	110	108	69-123	2	25	
10061-01-5	cis-1,3-Dichloropropene	214	245	241	114	113	70-128	0.9	25	
108-10-1	4-Methyl-2-pentanone	212	255	252	120	119	67-130	0.8	25	
10061-02-6	trans-1,3-Dichloropropene	212	241	237	114	112	75-133	2	25	
79-00-5	1,1,2-Trichloroethane	214	220	217	103	101	73-119	2	25	
108-88-3	Toluene	212	203	200	96	94	66-119	2	25	
591-78-6	2-Hexanone	216	241	234	112	108	62-128	4	25	
124-48-1	Dibromochloromethane	214	212	207	99	97	70-130	2	25	
106-93-4	1,2-Dibromoethane	214	213	209	100	98	74-122	2	25	
123-86-4	n-Butyl Acetate	218	253	247	116	113	65-134	3	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Duplicate Lab Control Sample

Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

ALS Sample ID: P191230-DLCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 12/30/19

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		DOD	RPD	RPD	Data
		LCS / DLCS µg/m³	LCS µg/m³	DLCS µg/m³	LCS	DLCS	Acceptance Limits			
111-65-9	n-Octane	216	234	231	108	107	69-121	0.9	25	
127-18-4	Tetrachloroethene	208	185	181	89	87	66-124	2	25	
108-90-7	Chlorobenzene	214	194	191	91	89	70-119	2	25	
100-41-4	Ethylbenzene	212	212	208	100	98	70-124	2	25	
179601-23-1	m,p-Xylenes	426	398	400	93	94	61-134	1	25	
75-25-2	Bromoform	214	214	210	100	98	66-139	2	25	
100-42-5	Styrene	212	211	208	100	98	73-127	2	25	
95-47-6	o-Xylene	214	207	203	97	95	67-125	2	25	
111-84-2	n-Nonane	214	233	229	109	107	63-128	2	25	
79-34-5	1,1,2,2-Tetrachloroethane	214	227	223	106	104	65-127	2	25	
98-82-8	Cumene	214	207	202	97	94	68-124	3	25	
80-56-8	alpha-Pinene	212	217	215	102	101	62-136	1	25	
103-65-1	n-Propylbenzene	214	217	212	101	99	69-123	2	25	
622-96-8	4-Ethyltoluene	210	209	204	100	97	67-129	3	25	
108-67-8	1,3,5-Trimethylbenzene	212	204	201	96	95	67-130	1	25	
95-63-6	1,2,4-Trimethylbenzene	212	212	206	100	97	66-132	3	25	
100-44-7	Benzyl Chloride	214	221	219	103	102	50-147	1	25	
541-73-1	1,3-Dichlorobenzene	214	197	193	92	90	65-130	2	25	
106-46-7	1,4-Dichlorobenzene	214	197	194	92	91	60-131	1	25	
95-50-1	1,2-Dichlorobenzene	214	201	198	94	93	63-129	1	25	
5989-27-5	d-Limonene	212	232	229	109	108	65-136	0.9	25	
96-12-8	1,2-Dibromo-3-chloropropane	214	210	205	98	96	73-133	2	25	
120-82-1	1,2,4-Trichlorobenzene	216	205	202	95	94	55-142	1	25	
91-20-3	Naphthalene	212	209	205	99	97	57-138	2	25	
87-68-3	Hexachlorobutadiene	214	191	188	89	88	56-138	1	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Trinity Analysis & Development Corp.
Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

Method Blank Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Simon Cao
Sampling Media: 6.0 L Summa Canister(s)
Test Notes:

Lab File ID: 12301904.D
Date Analyzed: 12/30/19
Time Analyzed: 05:12

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P191230-LCS	12301905.D	05:45
Duplicate Lab Control Sample	P191230-DLCS	12301906.D	06:19
ODSVE-EFF-Y9Q2	P1907461-001	12301931.D	22:55
ODSVE-DUP1-Y9Q2	P1907461-002	12301933.D	00:01

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Trinity Analysis & Development Corp.
Client Project ID: DDMT / 10A023.330

ALS Project ID: P1907461

Internal Standard Area and RT Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Simon Cao
Sampling Media: 6.0 L Summa Canister(s)
Test Notes:

Lab File ID: 12301902.D
Date Analyzed: 12/30/19
Time Analyzed: 04:06

	IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
	AREA	#	RT	#	AREA	#
24 Hour Standard	306689	11.17	1288065	13.30	600044	17.61
Upper Limit	429365	11.50	1803291	13.63	840062	17.94
Lower Limit	184013	10.84	772839	12.97	360026	17.28

Client Sample ID						
01	Method Blank	289970	11.15	1261170	13.29	583586
02	Lab Control Sample	306921	11.17	1300417	13.30	603244
03	Duplicate Lab Control Sample	320246	11.17	1340155	13.30	624165
04	ODSVE-EFF-Y9Q2	304985	11.16	1309225	13.29	603175
05	ODSVE-DUP1-Y9Q2	297098	11.16	1277047	13.29	588212
06						
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

IS1 (BCM) = Bromochloromethane

IS2 (DFB) = 1,4-Difluorobenzene

IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area

AREA LOWER LIMIT = 60% of internal standard area

RT UPPER LIMIT = 0.33 minutes of internal standard RT

RT LOWER LIMIT = 0.33 minutes of internal standard RT

Column used to flag values outside QC limits with an I.

I = Internal standard not within the specified limits.

Data File: I:\MS16\DATA\2019_12\30\12301931.D

Acq On : 30 Dec 2019 22:55

Operator: LH

Sample : P1907461-001 (1000mL)

Misc : S31-10161904

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 31 09:44:26 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 12/31/19

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	304985	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.29	114	1309225	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.61	82	603175	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.02	65	448878	12.181	ng	-0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	97.44%	
57) Toluene-d8 (SS2)	15.74	98	1320598	12.216	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	97.76%	
73) Bromofluorobenzene (SS3)	19.00	174	508127	11.160	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	89.28%	

Target Compounds

						Qvalue
2) Propene	4.11	42	10729	0.387	ng	# 87
3) Dichlorodifluoromethan...	4.26	85	763710	12.722	ng	99
4) Chloromethane	4.55	50	827	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	2365	0.062	ng	91
6) Vinyl Chloride	4.96	62	9462	0.228	ng	96
7) 1,3-Butadiene	5.23	54	411	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	5.99	64	252	N.D.		
10) Ethanol	6.34	45	32462	1.791	ng	98
11) Acetonitrile	6.63	41	5795	0.125	ng	# 59
12) Acrolein	6.82	56	8177	0.553	ng	96
13) Acetone	7.03	58	89715	4.490	ng	87
14) Trichlorofluoromethane	7.26	101	61765	1.117	ng	100
15) 2-Propanol (Isopropanol)	7.53	45	15549	0.275	ng	82
16) Acrylonitrile	7.85	53	728	N.D.		
17) 1,1-Dichloroethene	8.22	96	43695	1.591	ng	95
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.43	84	1920	0.068	ng	99
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d	
21) Trichlorotrifluoroethane	8.86	151	412451	14.042	ng	94
22) Carbon Disulfide	8.70	76	391063	3.993	ng	99
23) trans-1,2-Dichloroethene	9.71	61	43107	1.188	ng	94
24) 1,1-Dichloroethane	9.97	63	50063	1.086	ng	99
25) Methyl tert-Butyl Ether	10.13	73	730	N.D.		
26) Vinyl Acetate	10.19	86	12160	1.843	ng	# 56
27) 2-Butanone (MEK)	10.49	72	14239	0.808	ng	99
28) cis-1,2-Dichloroethene	10.98	61	3349990	92.099	ng	96
29) Diisopropyl Ether	0.00	87	0	N.D.	d	
30) Ethyl Acetate	0.00	61	0	N.D.	d	
31) n-Hexane	11.28	57	11519	0.268	ng	# 36
32) Chloroform	11.32	83	1025931	20.199	ng	99
34) Tetrahydrofuran (THF)	11.78	72	673	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.14	62	1420	N.D.		
38) 1,1,1-Trichloroethane	12.42	97	49565	1.032	ng	99
39) Isopropyl Acetate	12.87	61	196	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	12.90	78	20987	0.180	ng	100
42) Carbon Tetrachloride	13.06	117	75214	1.681	ng	99
43) Cyclohexane	13.19	84	5133	0.115	ng	91
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.	d	
45) 1,2-Dichloropropane	13.75	63	690	N.D.		
46) Bromodichloromethane	13.88	83	413	N.D.		
47) Trichloroethene	14.00	130	3133167	90.794	ng	100
48) 1,4-Dioxane	0.00	88	0	N.D.	d	
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

37 of 152

Data File: I:\MS16\DATA\2019_12\30\12301931.D

Acq On : 30 Dec 2019 22:55

Operator: LH

Sample : P1907461-001 (1000mL)

Misc : S31-10161904

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 31 09:44:26 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.	d	
51) n-Heptane	14.33	71	4690	0.176	ng	93
52) cis-1,3-Dichloropropene	14.70	75	108	N.D.		
53) 4-Methyl-2-pentanone	14.90	58	1607	0.067	ng	# 35
54) trans-1,3-Dichloropropene	15.41	75	844	N.D.		
55) 1,1,2-Trichloroethane	15.55	97	4353	0.150	ng	95
58) Toluene	15.84	91	44257	0.347	ng	100
59) 2-Hexanone	16.10	43	8839	0.154	ng	99
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.73	43	9222	0.149	ng	# 84
63) n-Octane	16.85	57	1707	0.076	ng	95
64) Tetrachloroethene	16.99	166	440318	10.590	ng	100
65) Chlorobenzene	17.65	112	855	N.D.		
66) Ethylbenzene	18.01	91	7880	0.056	ng	96
67) m- & p-Xylenes	18.16	91	21541	0.182	ng	98
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.50	104	1487	N.D.		
70) o-Xylene	18.60	91	8166	0.072	ng	93
71) n-Nonane	18.80	43	3839	0.078	ng	87
72) 1,1,2,2-Tetrachloroethane	18.58	83	76441	1.459	ng	99
74) Cumene	19.13	105	5223	N.D.		
75) alpha-Pinene	19.48	93	3279	N.D.		
76) n-Propylbenzene	19.58	91	2596	N.D.		
77) 3-Ethyltoluene	19.67	105	4281	N.D.		
78) 4-Ethyltoluene	19.71	105	2273	N.D.		
79) 1,3,5-Trimethylbenzene	19.77	105	1532	N.D.		
80) alpha-Methylstyrene	19.91	118	1252	N.D.		
81) 2-Ethyltoluene	19.94	105	2032	N.D.		
82) 1,2,4-Trimethylbenzene	20.13	105	6261	0.051	ng	87
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.25	91	627	N.D.		
85) 1,3-Dichlorobenzene	20.27	146	421	N.D.		
86) 1,4-Dichlorobenzene	20.33	146	1684	N.D.		
87) sec-Butylbenzene	20.37	105	1701	N.D.		
88) 4-Isopropyltoluene (p-...	20.51	119	2793	N.D.		
89) 1,2,3-Trimethylbenzene	20.51	105	1815	N.D.		
90) 1,2-Dichlorobenzene	20.63	146	358	N.D.		
91) d-Limonene	20.64	68	1936	N.D.		
92) 1,2-Dibromo-3-Chloropr...	20.94	157	323	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.14	180	186	N.D.		
95) Naphthalene	22.24	128	12792	0.073	ng	97
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	22.56	225	738	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	20.87	91	5367	N.D.		

(#)=qualifier out of range (m)=manual integration (+)=signals summed

Data File: I:\MS16\DATA\2019_12\30\12301931.D

Acq On : 30 Dec 2019 22:55

Operator: LH

Sample : P1907461-001 (1000mL)

Misc : S31-10161904

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 31 09:44:26 2019

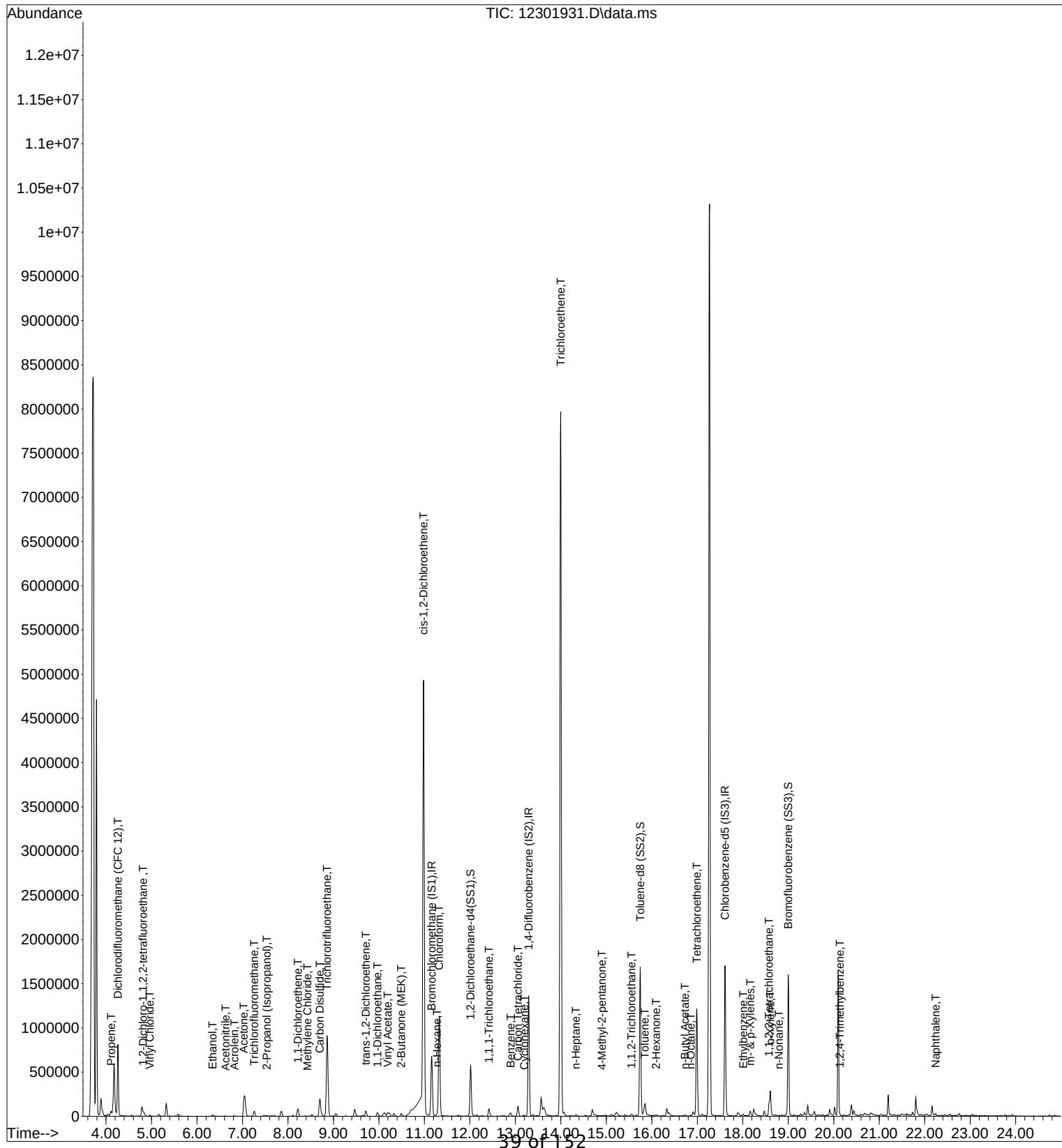
Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_12\30\12301931.D

Acq On : 30 Dec 2019 22:55

Operator: LH

Sample : P1907461-001 (1000mL)

Misc : S31-10161904

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 31 09:44:26 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

LH 12/31/19

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	304985	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.29	114	1309225	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.61	82	603175	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.02	65	448878	12.181	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	97.44%
57) Toluene-d8 (SS2)	15.74	98	1320598	12.216	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	97.76%
73) Bromofluorobenzene (SS3)	19.00	174	508127	11.160	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	89.28%

Target Compounds

						Qvalue
2) Propene	4.11	42	10729	0.387	ng	# 87
3) Dichlorodifluoromethan...	4.26	85	763710	12.722	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	2365	0.062	ng	91
6) Vinyl Chloride	4.96	62	9462	0.228	ng	96
10) Ethanol	6.34	45	32462	1.791	ng	98
11) Acetonitrile	6.63	41	5795	0.125	ng	# 59
12) Acrolein	6.82	56	8177	0.553	ng	96
13) Acetone	7.03	58	89715	4.490	ng	87
14) Trichlorofluoromethane	7.26	101	61765	1.117	ng	100
15) 2-Propanol (Isopropanol)	7.53	45	15549	0.275	ng	82
17) 1,1-Dichloroethene	8.22	96	43695	1.591	ng	95
19) Methylene Chloride	8.43	84	1920	0.068	ng	99
21) Trichlorotrifluoroethane	8.86	151	412451	14.042	ng	94
22) Carbon Disulfide	8.70	76	391063	3.993	ng	99
23) trans-1,2-Dichloroethene	9.71	61	43107	1.188	ng	94
24) 1,1-Dichloroethane	9.97	63	50063	1.086	ng	99
26) Vinyl Acetate	10.19	86	12160	1.843	ng	# 56
27) 2-Butanone (MEK)	10.49	72	14239	0.808	ng	99
28) cis-1,2-Dichloroethene	10.98	61	3349990	92.099	ng	96
31) n-Hexane	11.28	57	11519	0.268	ng	# 36
32) Chloroform	11.32	83	1025931	20.199	ng	99
38) 1,1,1-Trichloroethane	12.42	97	49565	1.032	ng	99
41) Benzene	12.90	78	20987	0.180	ng	100
42) Carbon Tetrachloride	13.06	117	75214	1.681	ng	99
43) Cyclohexane	13.19	84	5133	0.115	ng	91
47) Trichloroethene	14.00	130	3133167	90.794	ng	100
51) n-Heptane	14.33	71	4690	0.176	ng	93
53) 4-Methyl-2-pentanone	14.90	58	1607	0.067	ng	# 35
55) 1,1,2-Trichloroethane	15.55	97	4353	0.150	ng	95
58) Toluene	15.84	91	44257	0.347	ng	100
59) 2-Hexanone	16.10	43	8839	0.154	ng	99
62) n-Butyl Acetate	16.73	43	9222	0.149	ng	# 84
63) n-Octane	16.85	57	1707	0.076	ng	95
64) Tetrachloroethene	16.99	166	440318	10.590	ng	100
66) Ethylbenzene	18.01	91	7880	0.056	ng	96
67) m- & p-Xylenes	18.16	91	21541	0.182	ng	98
70) o-Xylene	18.60	91	8166	0.072	ng	93
71) n-Nonane	18.80	43	3839	0.078	ng	87
72) 1,1,2,2-Tetrachloroethane	18.58	83	76441	1.459	ng	99
82) 1,2,4-Trimethylbenzene	20.13	105	6261	0.051	ng	87
95) Naphthalene	22.24	128	12792	0.073	ng	97

(#)= qualifier out of range (m)= manual integration (+)= signals summed

Data File: I:\MS16\DATA\2019_12\30\12301931.D

Acq On : 30 Dec 2019 22:55

Operator: LH

Sample : P1907461-001 (1000mL)

Misc : S31-10161904

ALS Vial : 4 Sample Multiplier: 1

Quant Time: Dec 31 09:44:26 2019

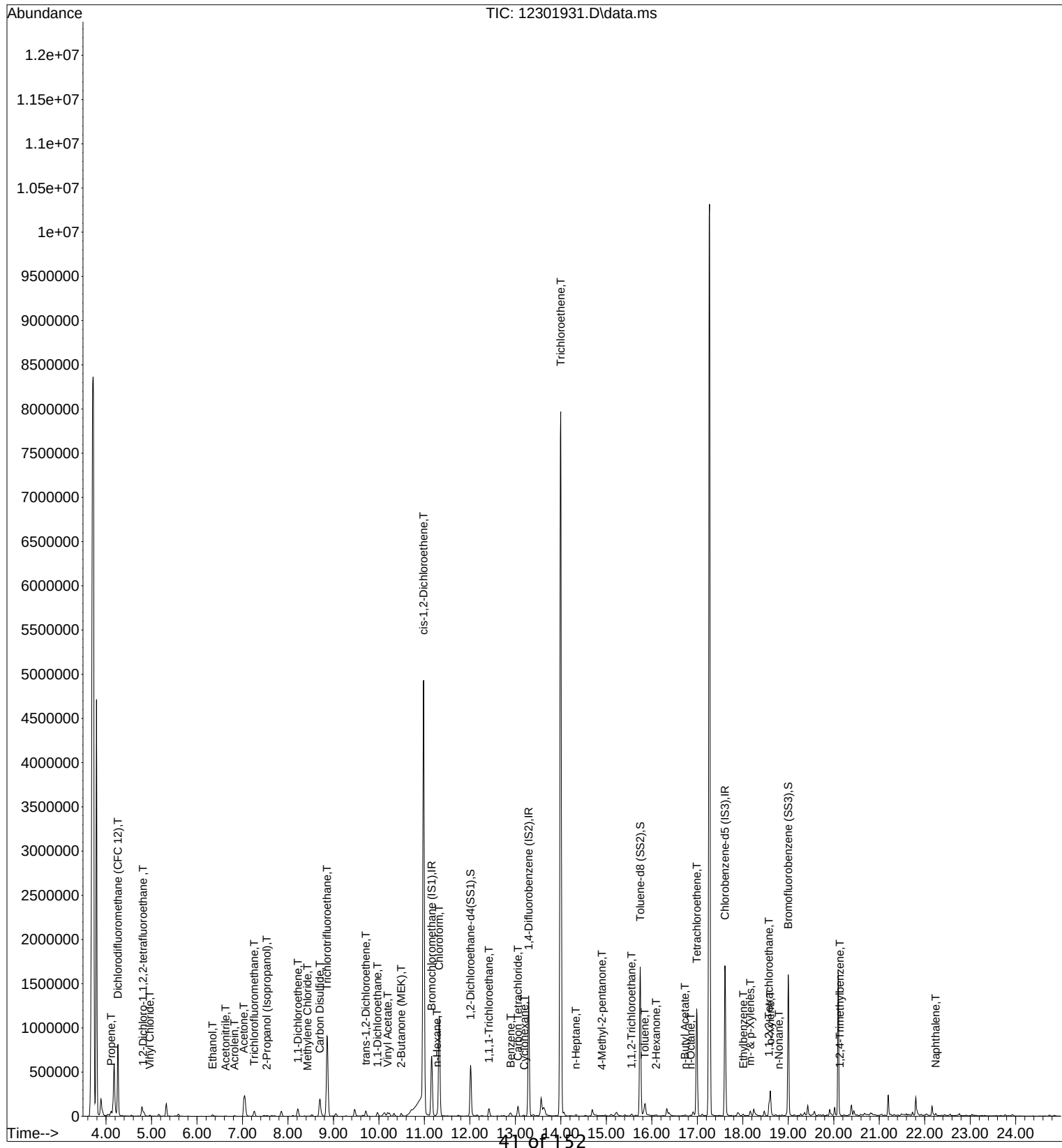
Quant Method : I:\MS16\METHODS\R16120919.M

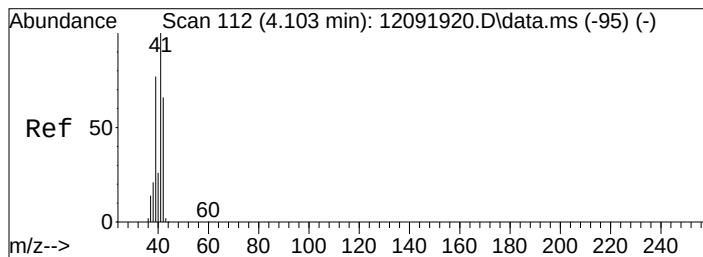
Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:T015.M





#2

Propene

Concen: 0.39 ng

RT: 4.11 min Scan# 114

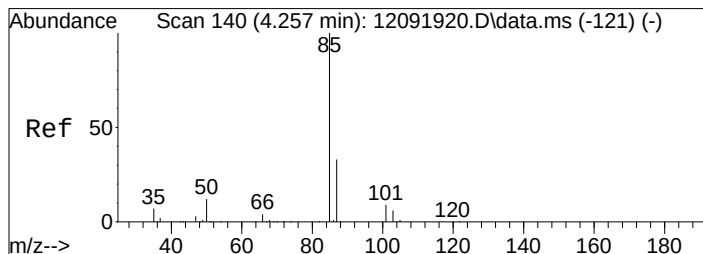
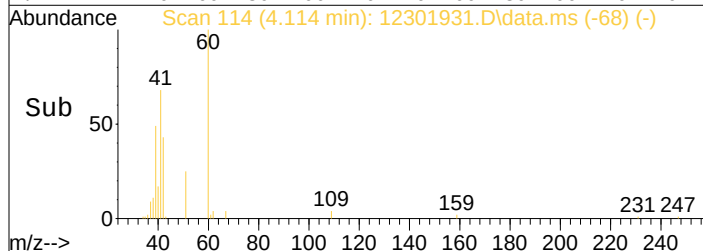
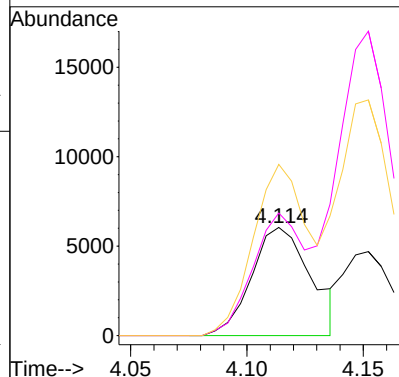
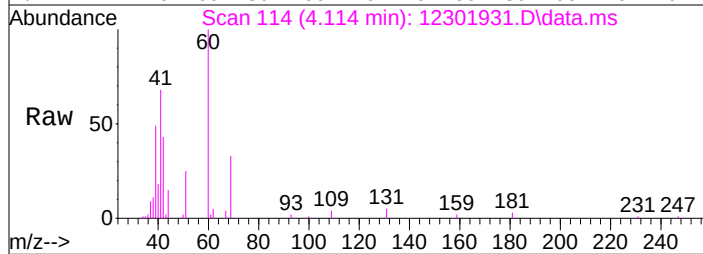
Delta R.T. 0.005 min

Lab File: 12301931.D

Acq: 30 Dec 2019 22:55

Tgt Ion: 42 Resp: 10729

Ion	Ratio	Lower	Upper
42	100		
39	93.9	99.1	139.1#
41	144.6	132.0	172.0



#3

Dichlorodifluoromethane (CFC 12)

Concen: 12.72 ng

RT: 4.26 min Scan# 141

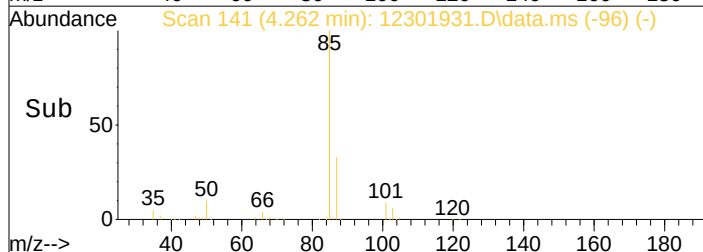
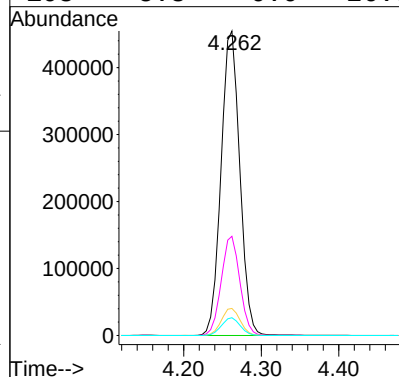
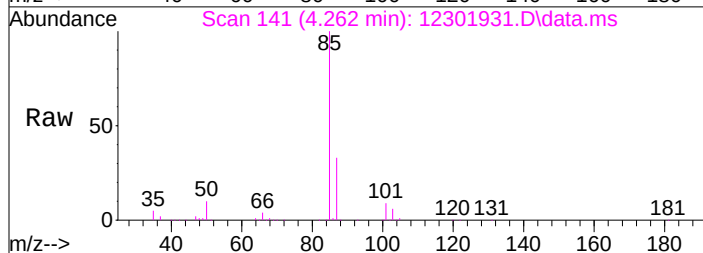
Delta R.T. 0.000 min

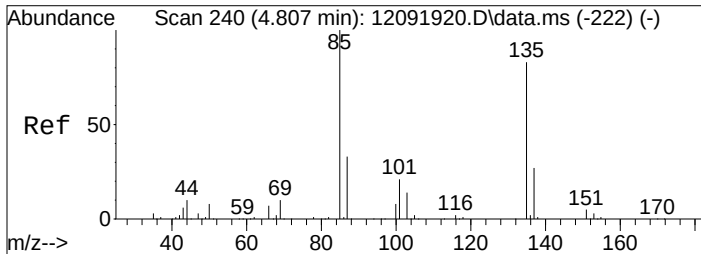
Lab File: 12301931.D

Acq: 30 Dec 2019 22:55

Tgt Ion: 85 Resp: 763710

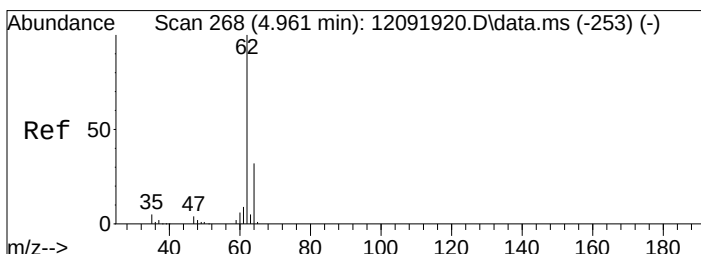
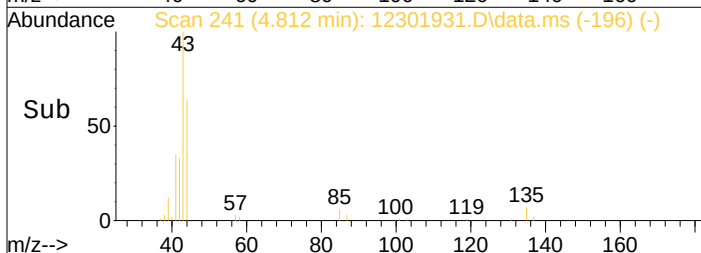
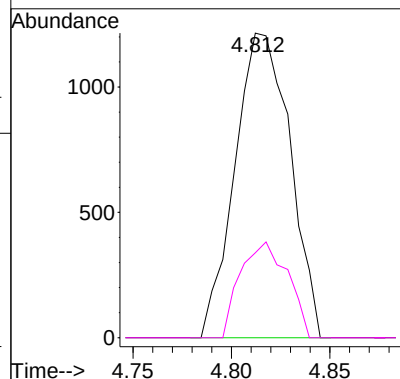
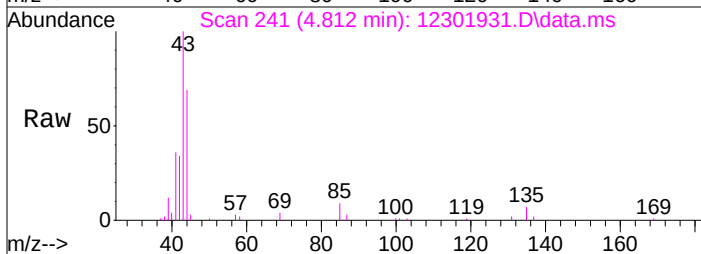
Ion	Ratio	Lower	Upper
85	100		
87	32.4	12.6	52.6
101	8.9	0.0	29.2
103	5.8	0.0	26.0





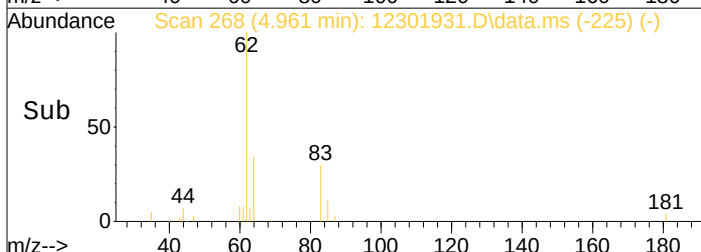
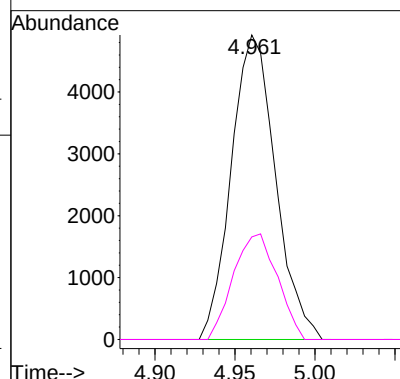
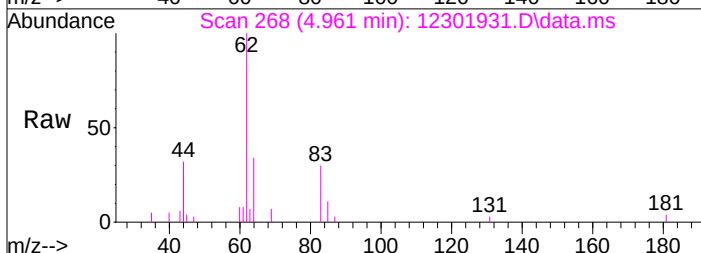
#5
 1,2-Dichloro-1,1,2,2-tetrafluoroethane
 Concen: 0.06 ng
 RT: 4.81 min Scan# 241
 Delta R.T. 0.000 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

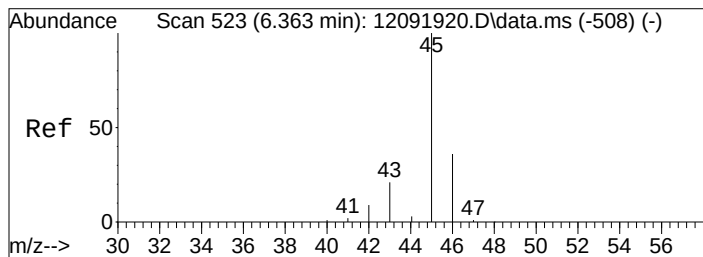
Tgt Ion: 135 Resp: 2365
 Ion Ratio Lower Upper
 135 100
 137 26.9 12.1 52.1



#6
 Vinyl Chloride
 Concen: 0.23 ng
 RT: 4.96 min Scan# 268
 Delta R.T. -0.011 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

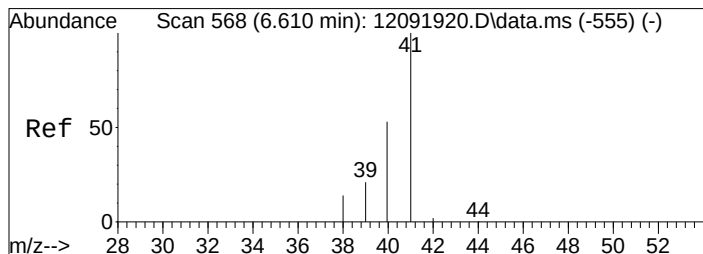
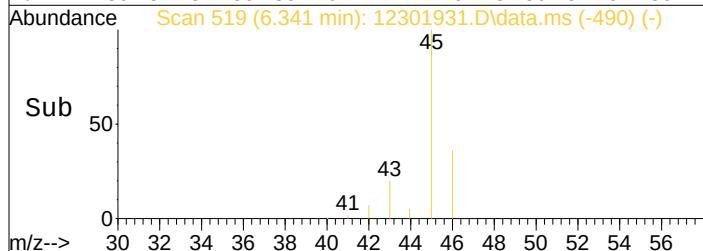
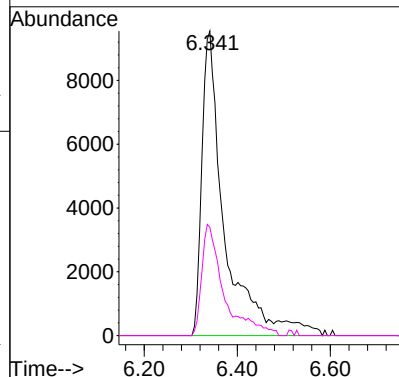
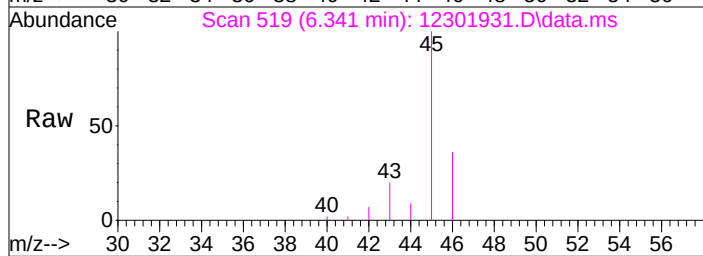
Tgt Ion: 62 Resp: 9462
 Ion Ratio Lower Upper
 62 100
 64 34.4 12.4 52.4





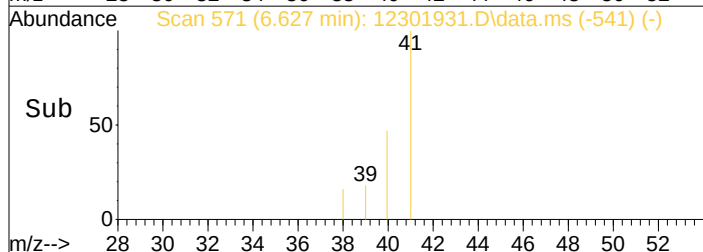
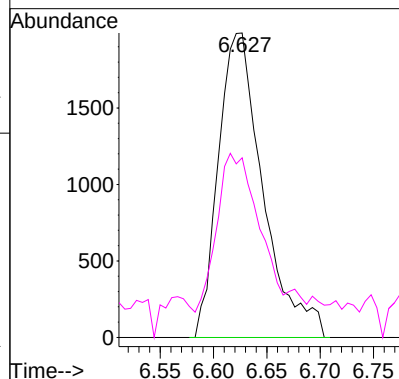
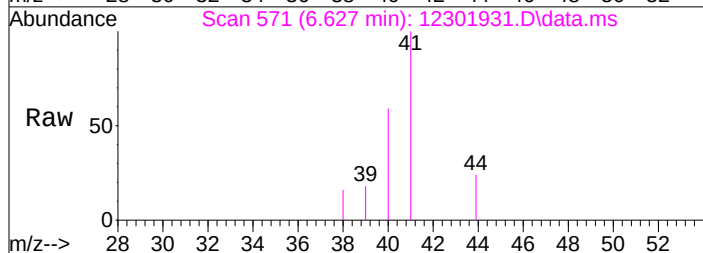
#10
Ethanol
Concen: 1.79 ng
RT: 6.34 min Scan# 519
Delta R.T. -0.093 min
Lab File: 12301931.D
Acq: 30 Dec 2019 22:55

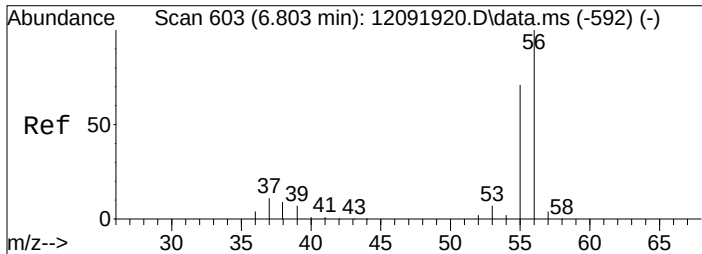
Tgt Ion: 45 Resp: 32462
Ion Ratio Lower Upper
45 100
46 35.2 16.5 56.5



#11
Acetonitrile
Concen: 0.13 ng
RT: 6.63 min Scan# 571
Delta R.T. -0.033 min
Lab File: 12301931.D
Acq: 30 Dec 2019 22:55

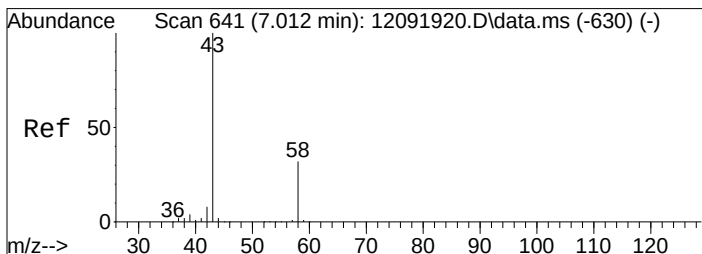
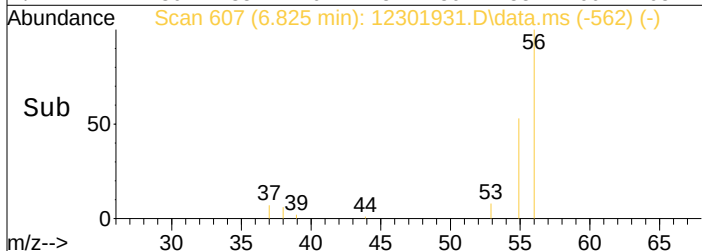
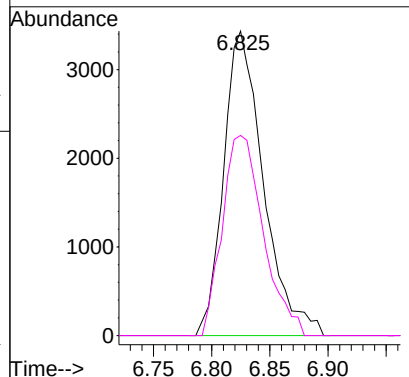
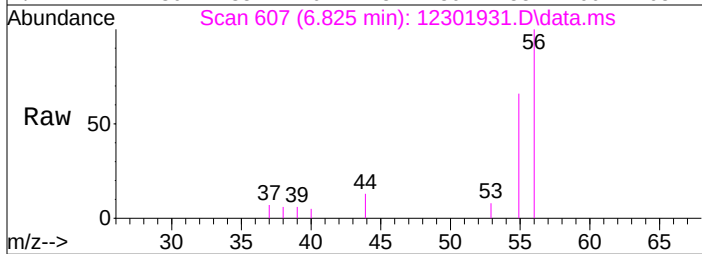
Tgt Ion: 41 Resp: 5795
Ion Ratio Lower Upper
41 100
40 84.0 34.7 74.7#





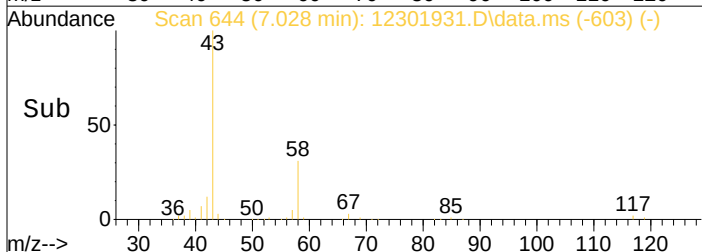
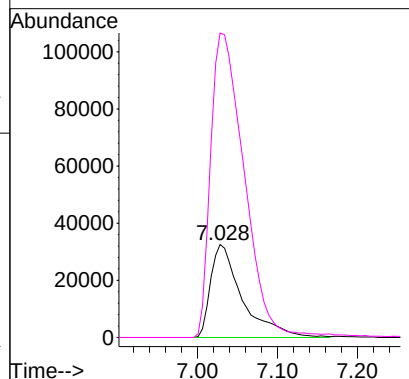
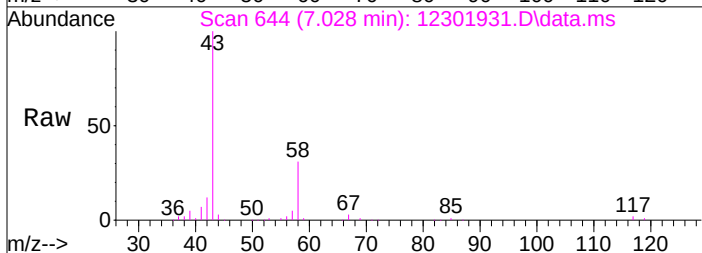
#12
 Acrolein
 Concen: 0.55 ng
 RT: 6.82 min Scan# 607
 Delta R.T. 0.000 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

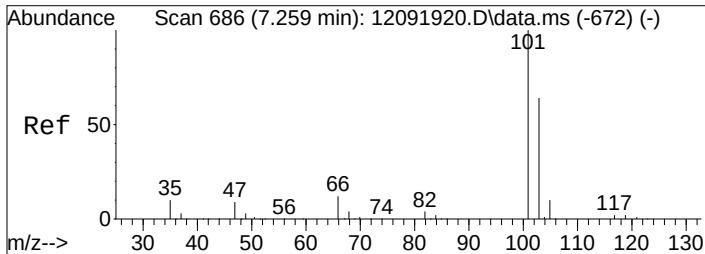
Tgt Ion: 56 Resp: 8177
 Ion Ratio Lower Upper
 56 100
 55 67.6 50.7 90.7



#13
 Acetone
 Concen: 4.49 ng
 RT: 7.03 min Scan# 644
 Delta R.T. -0.022 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

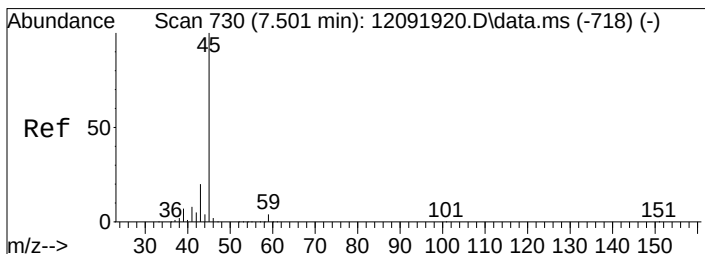
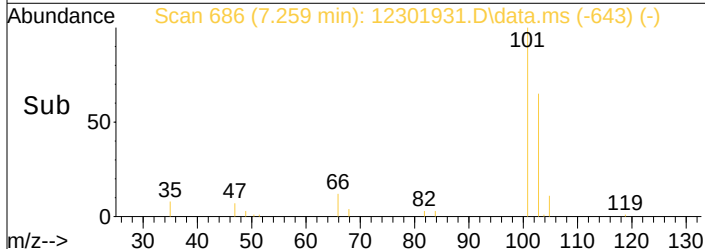
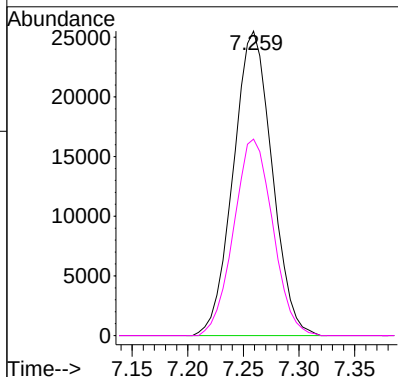
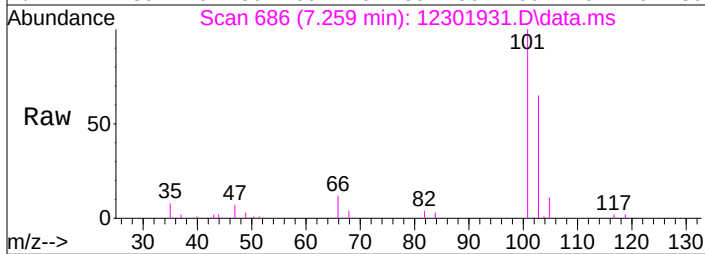
Tgt Ion: 58 Resp: 89715
 Ion Ratio Lower Upper
 58 100
 43 349.2 292.8 352.8





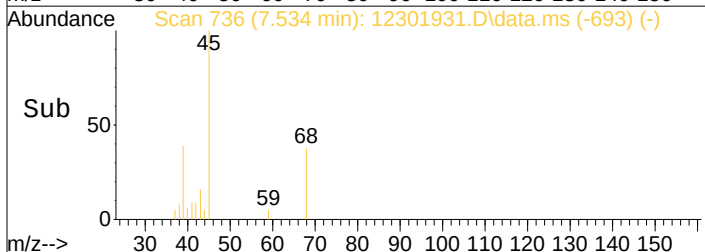
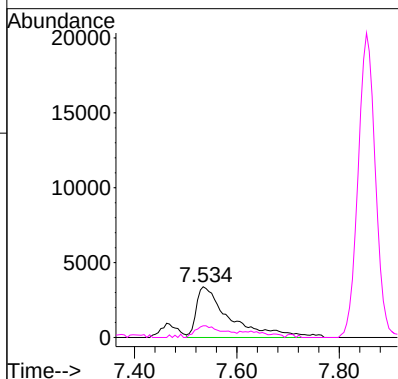
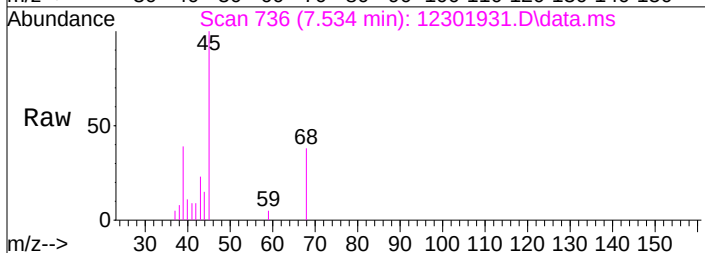
#14
 Trichlorofluoromethane
 Concen: 1.12 ng
 RT: 7.26 min Scan# 686
 Delta R.T. -0.011 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

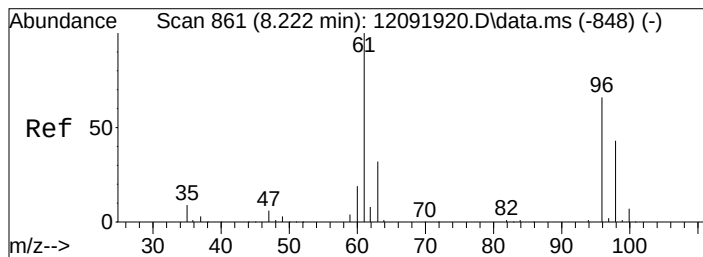
Tgt Ion: 101 Resp: 61765
 Ion Ratio Lower Upper
 101 100
 103 65.1 44.9 84.9



#15
 2-Propanol (Isopropanol)
 Concen: 0.28 ng
 RT: 7.53 min Scan# 736
 Delta R.T. -0.011 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

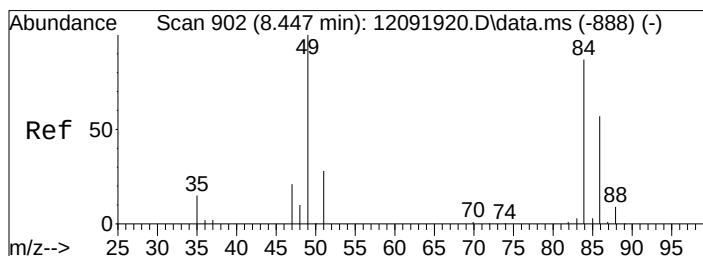
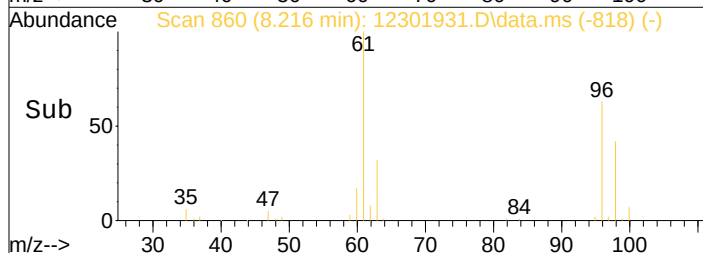
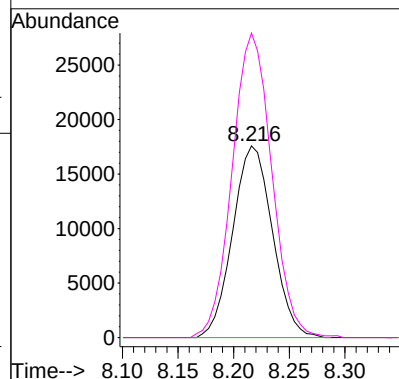
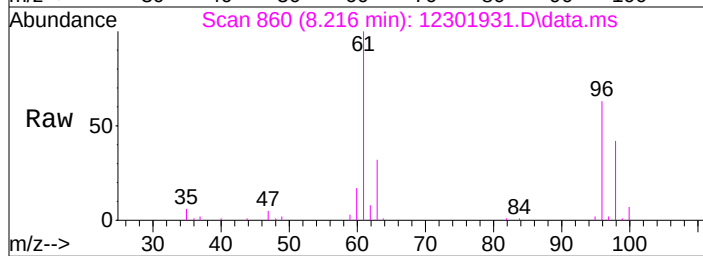
Tgt Ion: 45 Resp: 15549
 Ion Ratio Lower Upper
 45 100
 43 28.6 0.4 40.4





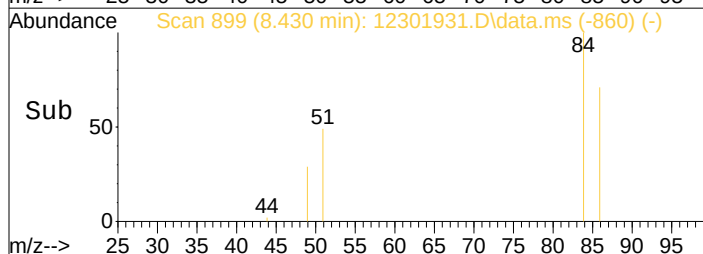
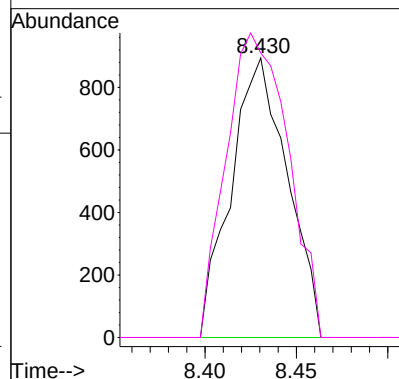
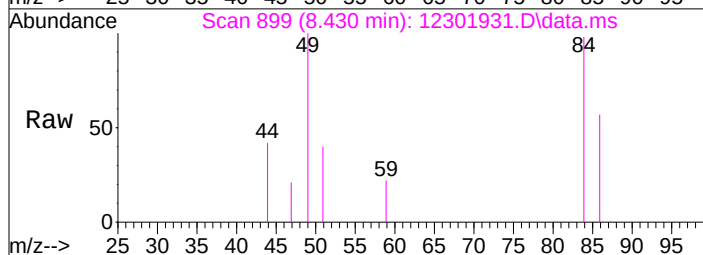
#17
 1,1-Dichloroethene
 Concen: 1.59 ng
 RT: 8.22 min Scan# 860
 Delta R.T. -0.016 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

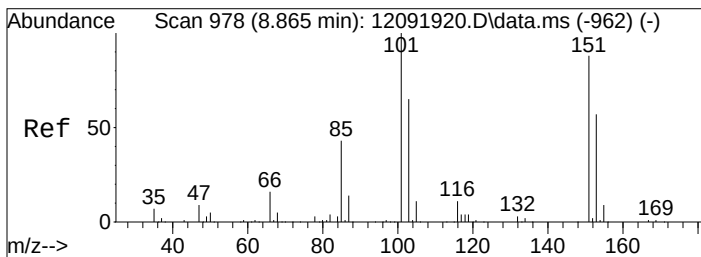
Tgt Ion: 96 Resp: 43695
 Ion Ratio Lower Upper
 96 100
 61 158.1 131.6 171.6



#19
 Methylene Chloride
 Concen: 0.07 ng
 RT: 8.43 min Scan# 899
 Delta R.T. -0.033 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

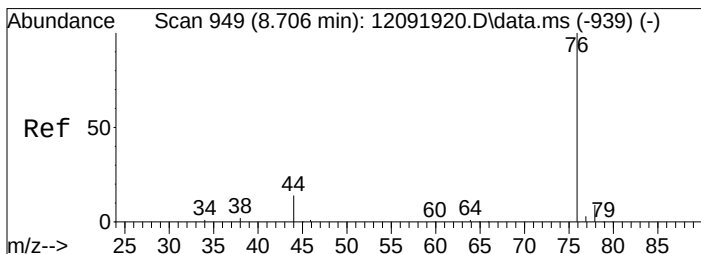
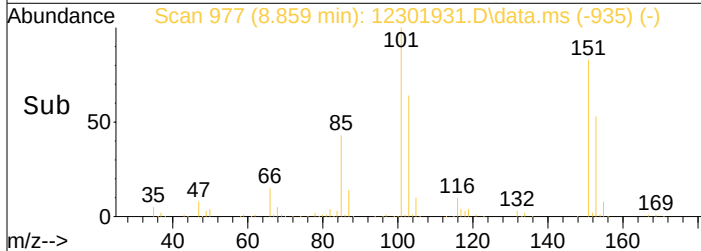
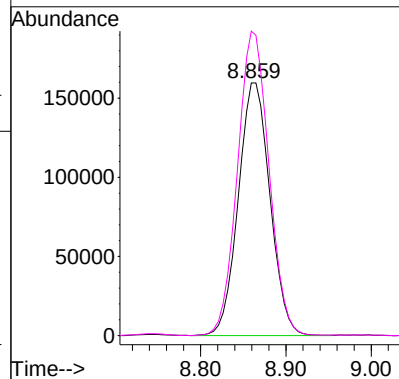
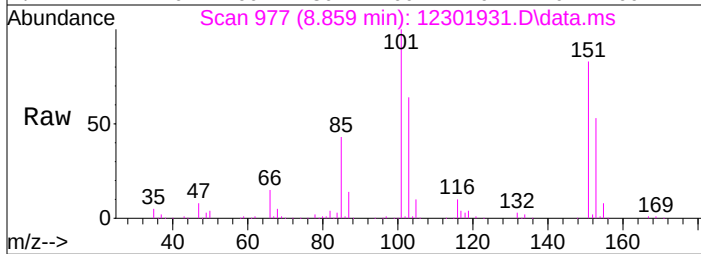
Tgt Ion: 84 Resp: 1920
 Ion Ratio Lower Upper
 84 100
 49 119.6 93.0 143.0





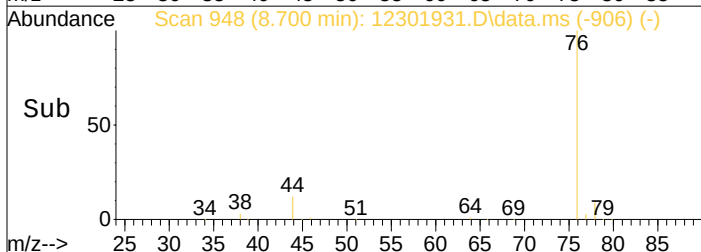
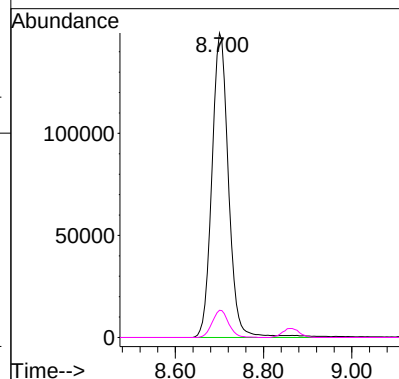
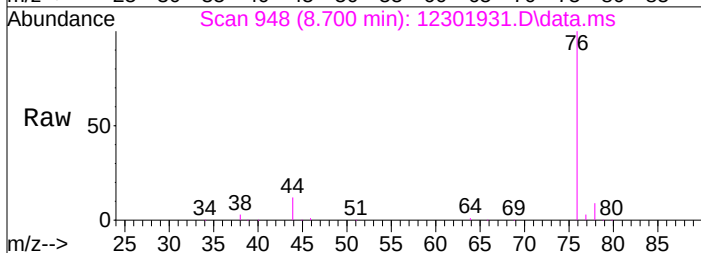
#21
 Trichlorotrifluoroethane
 Concen: 14.04 ng
 RT: 8.86 min Scan# 977
 Delta R.T. -0.017 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

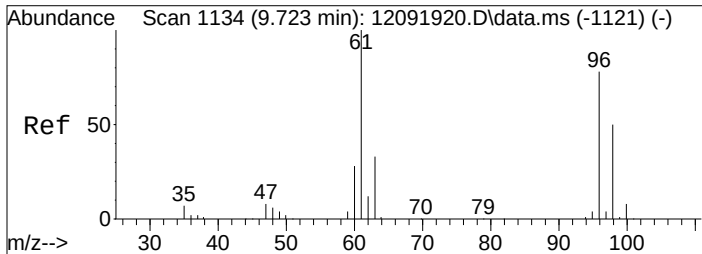
Tgt Ion: 151 Resp: 412451
 Ion Ratio Lower Upper
 151 100
 101 119.8 93.4 133.4



#22
 Carbon Disulfide
 Concen: 3.99 ng
 RT: 8.70 min Scan# 948
 Delta R.T. -0.017 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

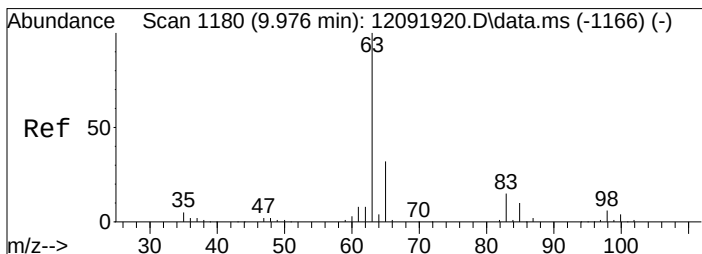
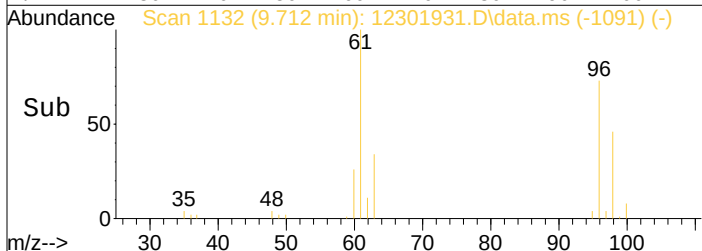
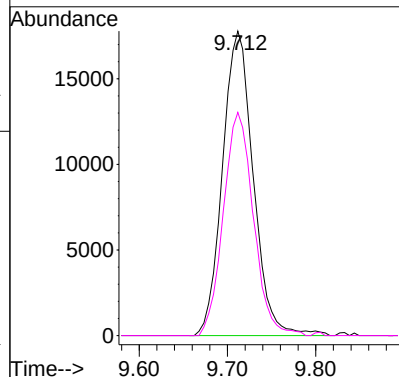
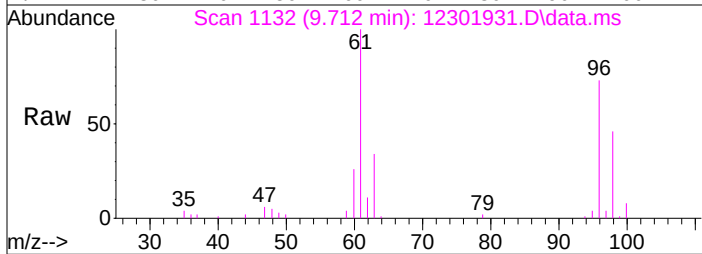
Tgt Ion: 76 Resp: 391063
 Ion Ratio Lower Upper
 76 100
 78 8.8 0.0 29.2





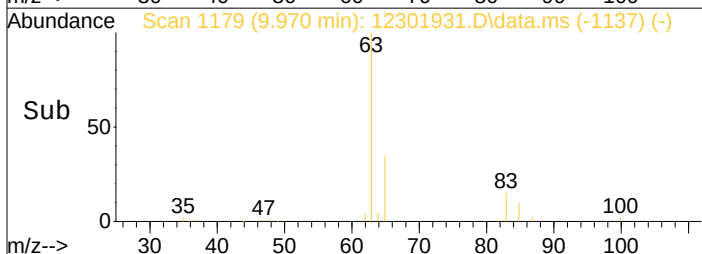
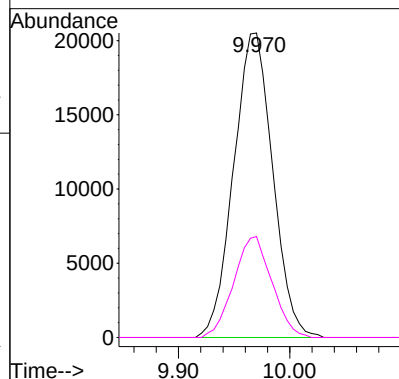
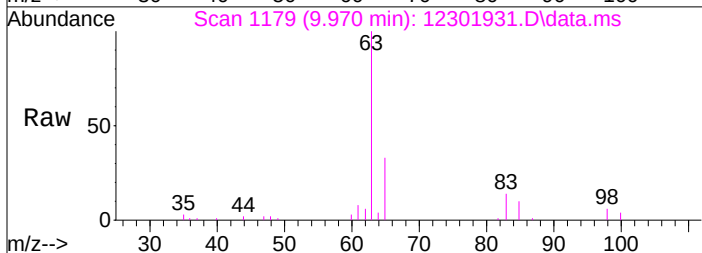
#23
trans-1,2-Dichloroethene
Concen: 1.19 ng
RT: 9.71 min Scan# 1132
Delta R.T. -0.022 min
Lab File: 12301931.D
Acq: 30 Dec 2019 22:55

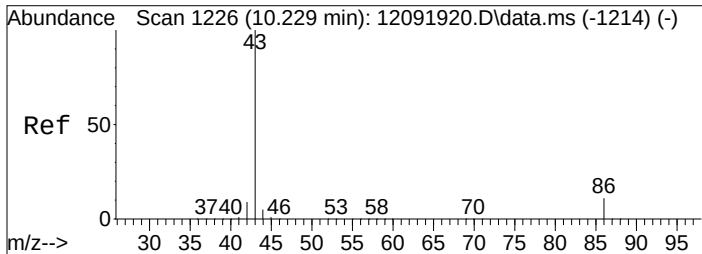
Tgt Ion: 61 Resp: 43107
Ion Ratio Lower Upper
61 100
96 71.6 57.2 97.2



#24
1,1-Dichloroethane
Concen: 1.09 ng
RT: 9.97 min Scan# 1179
Delta R.T. -0.016 min
Lab File: 12301931.D
Acq: 30 Dec 2019 22:55

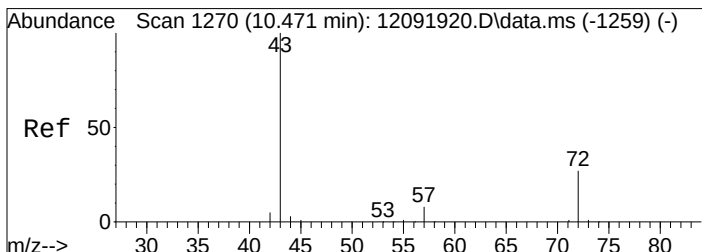
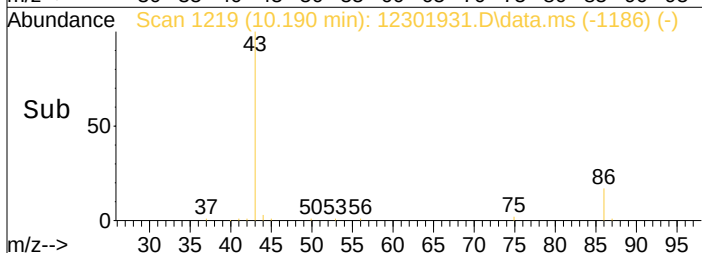
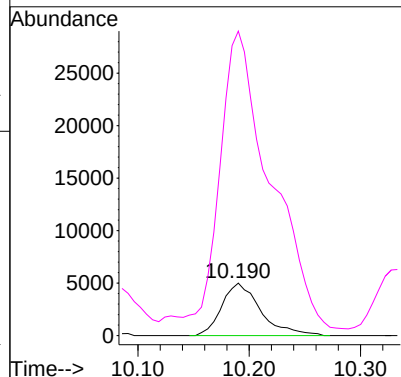
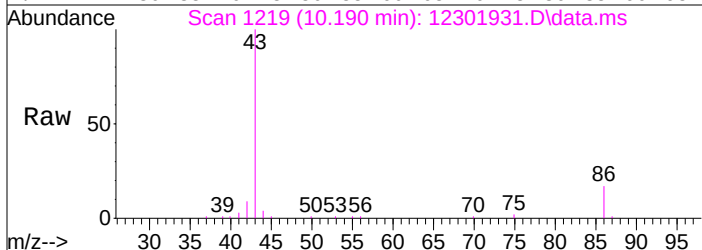
Tgt Ion: 63 Resp: 50063
Ion Ratio Lower Upper
63 100
65 32.3 11.8 51.8





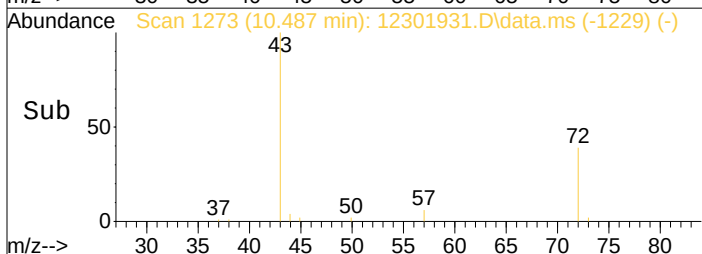
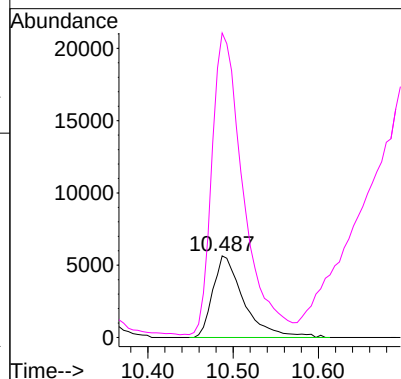
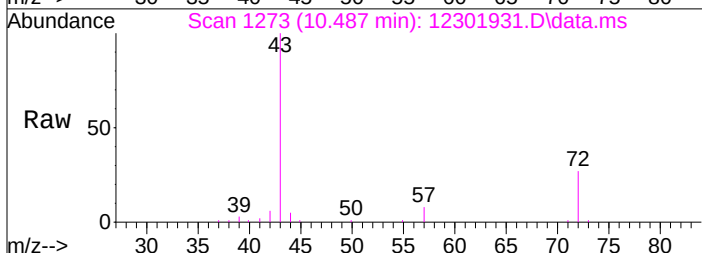
#26
 Vinyl Acetate
 Concen: 1.84 ng
 RT: 10.19 min Scan# 1219
 Delta R.T. -0.066 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

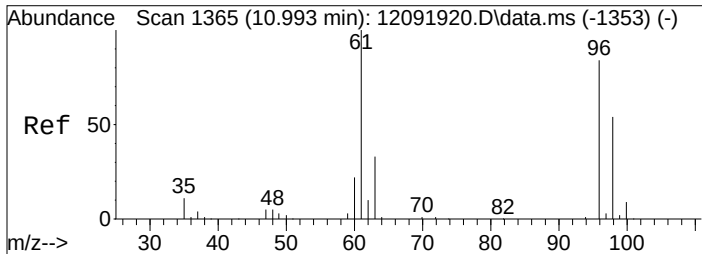
Tgt Ion: 86 Resp: 12160
 Ion Ratio Lower Upper
 86 100
 43 772.6 945.6 985.6#



#27
 2-Butanone (MEK)
 Concen: 0.81 ng
 RT: 10.49 min Scan# 1273
 Delta R.T. -0.006 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

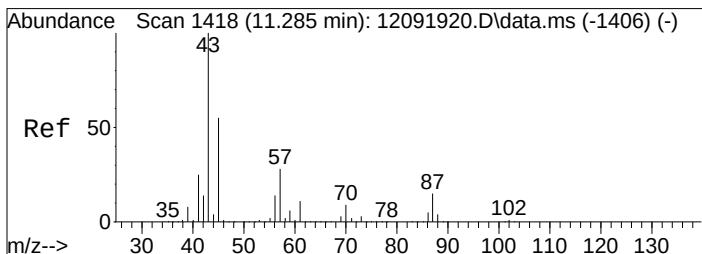
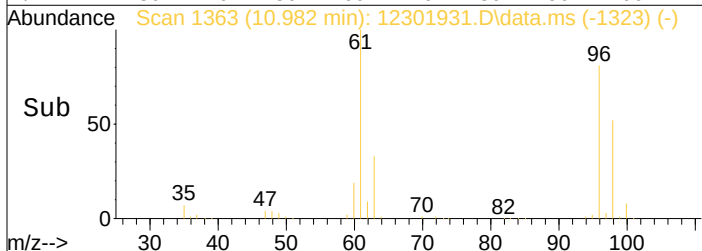
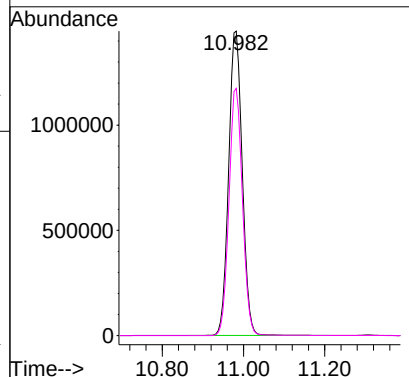
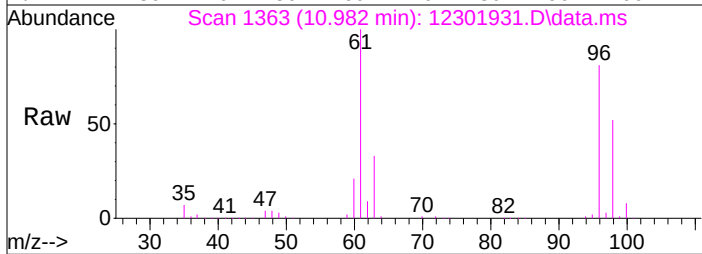
Tgt Ion: 72 Resp: 14239
 Ion Ratio Lower Upper
 72 100
 43 373.4 355.2 395.2





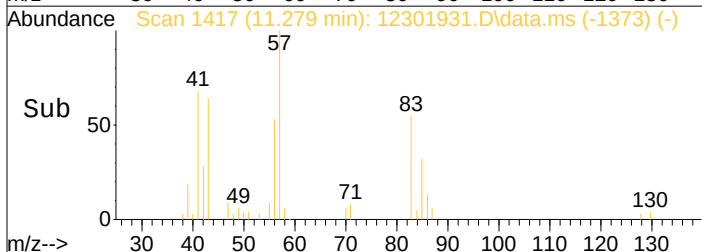
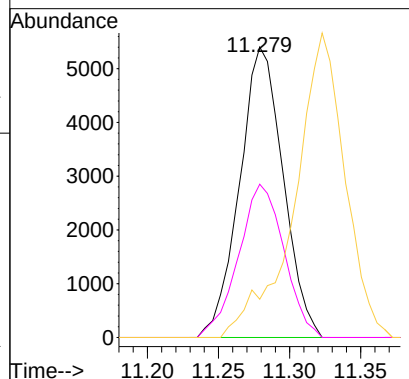
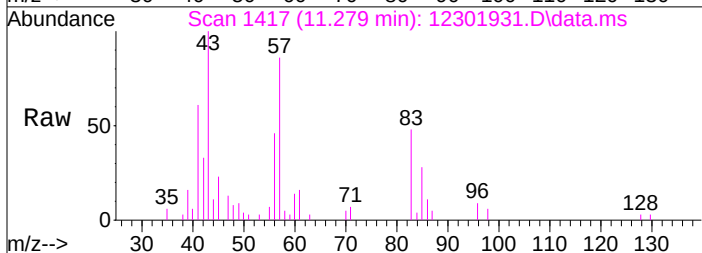
#28
 cis-1,2-Dichloroethene
 Concen: 92.10 ng
 RT: 10.98 min Scan# 1363
 Delta R.T. -0.027 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

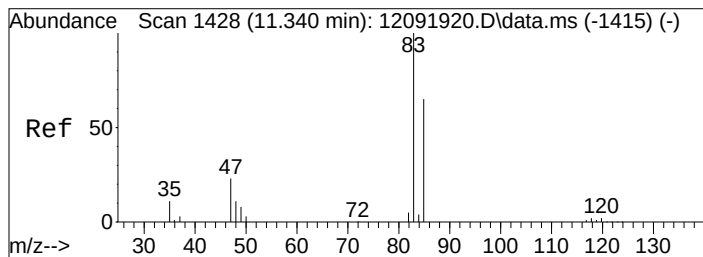
Tgt Ion:	61	Resp:	3349990
Ion Ratio		Lower	Upper
61	100		
96	80.7	64.4	104.4



#31
 n-Hexane
 Concen: 0.27 ng
 RT: 11.28 min Scan# 1417
 Delta R.T. -0.005 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

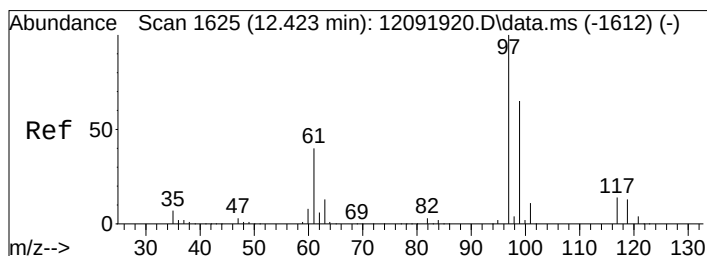
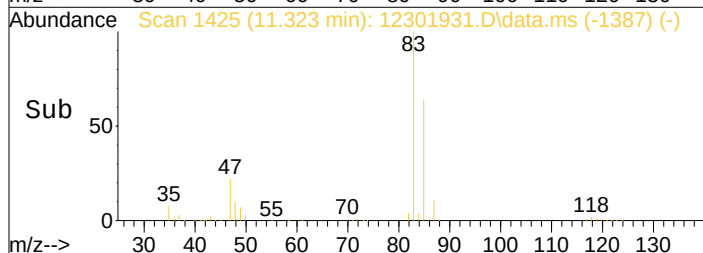
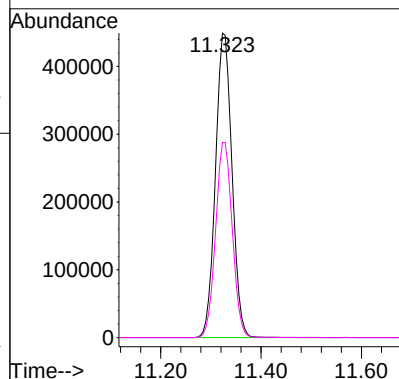
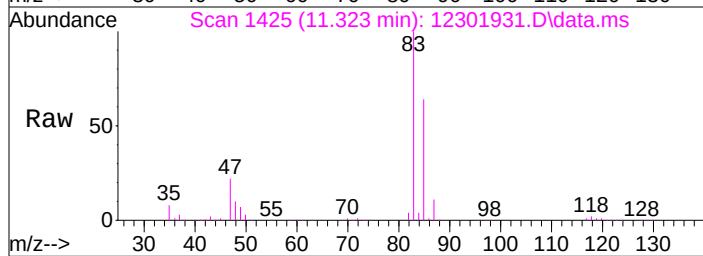
Tgt Ion:	57	Resp:	11519
Ion Ratio		Lower	Upper
57	100		
56	55.1	41.5	62.3
86	120.8	15.0	22.6#





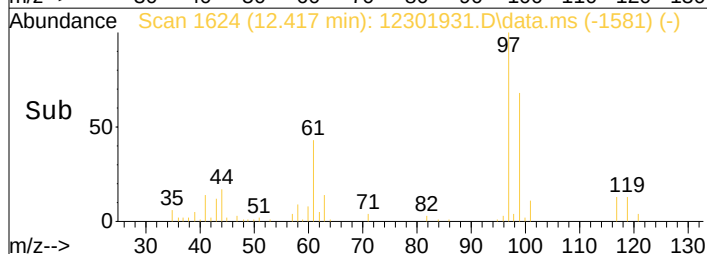
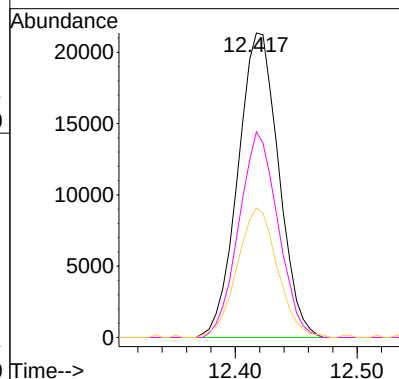
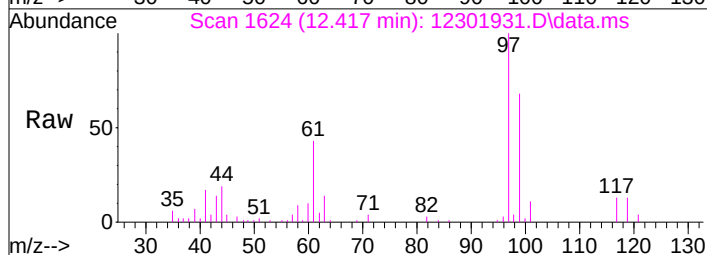
#32
Chloroform
Concen: 20.20 ng
RT: 11.32 min Scan# 1425
Delta R.T. -0.039 min
Lab File: 12301931.D
Acq: 30 Dec 2019 22:55

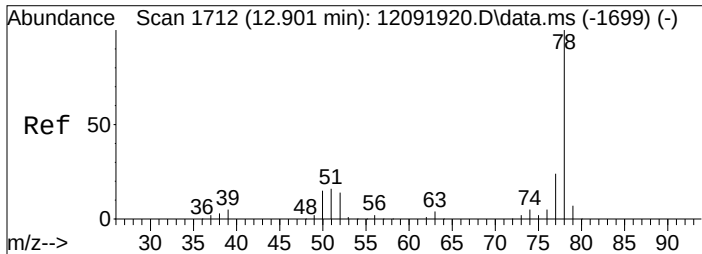
Tgt Ion: 83 Resp: 1025931
Ion Ratio Lower Upper
83 100
85 64.8 45.5 85.5



#38
1,1,1-Trichloroethane
Concen: 1.03 ng
RT: 12.42 min Scan# 1624
Delta R.T. -0.011 min
Lab File: 12301931.D
Acq: 30 Dec 2019 22:55

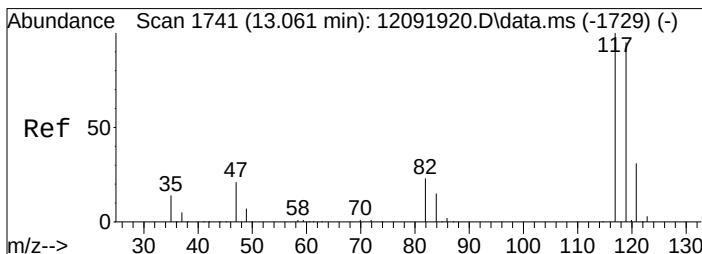
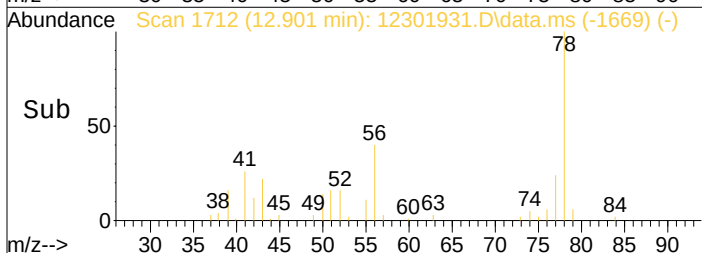
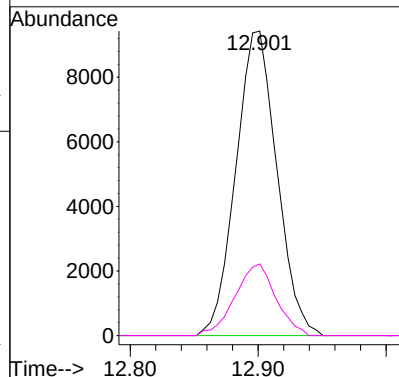
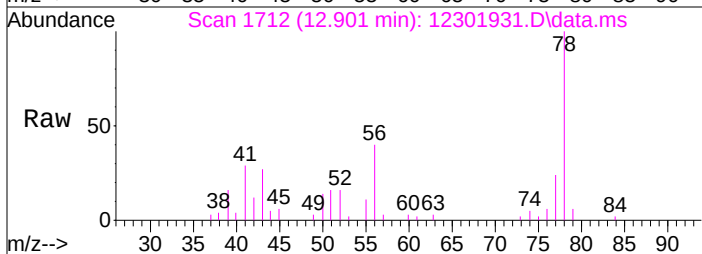
Tgt Ion: 97 Resp: 49565
Ion Ratio Lower Upper
97 100
99 64.9 44.7 84.7
61 42.2 21.2 61.2





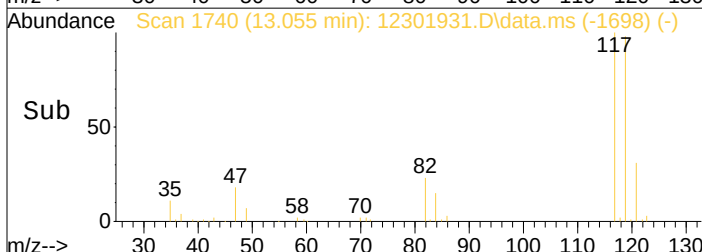
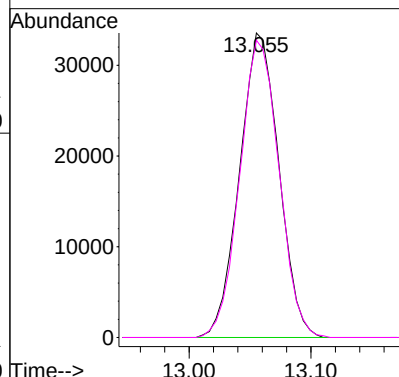
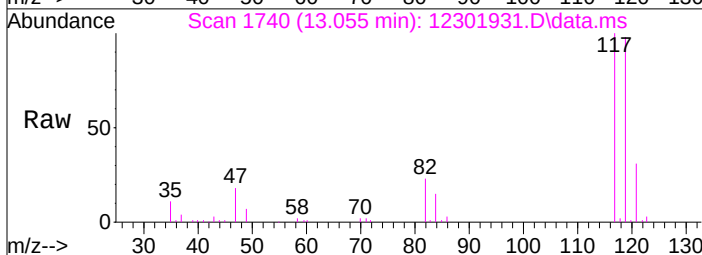
#41
Benzene
Concen: 0.18 ng
RT: 12.90 min Scan# 1712
Delta R.T. -0.011 min
Lab File: 12301931.D
Acq: 30 Dec 2019 22:55

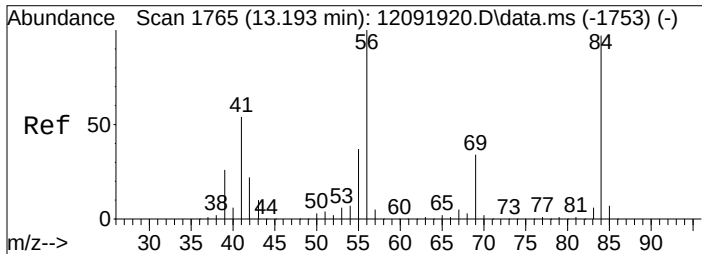
Tgt Ion: 78 Resp: 20987
Ion Ratio Lower Upper
78 100
77 23.5 3.5 43.5



#42
Carbon Tetrachloride
Concen: 1.68 ng
RT: 13.06 min Scan# 1740
Delta R.T. -0.016 min
Lab File: 12301931.D
Acq: 30 Dec 2019 22:55

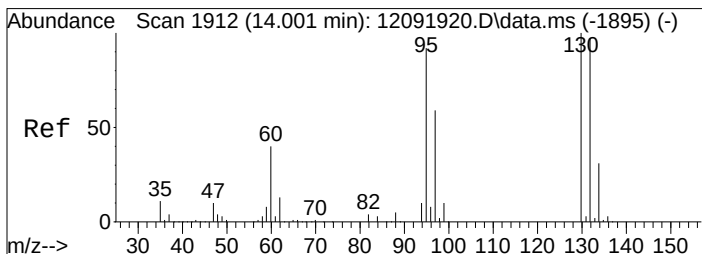
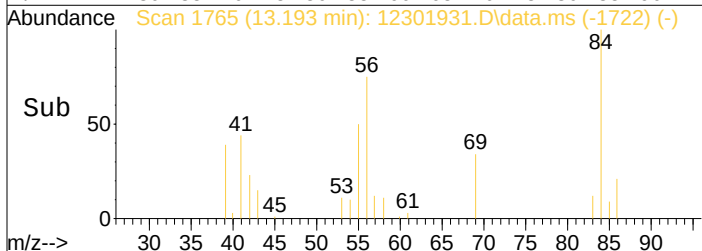
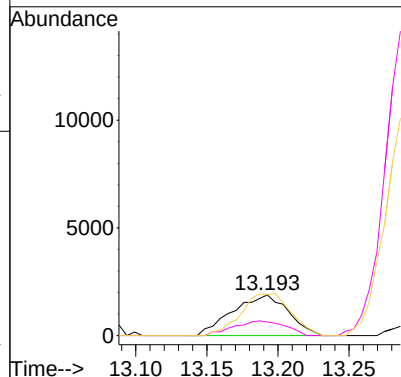
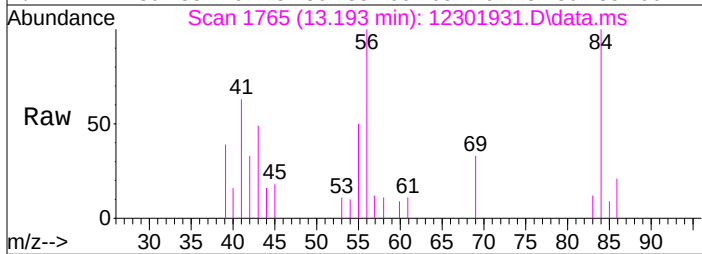
Tgt Ion: 117 Resp: 75214
Ion Ratio Lower Upper
117 100
119 97.5 76.3 116.3





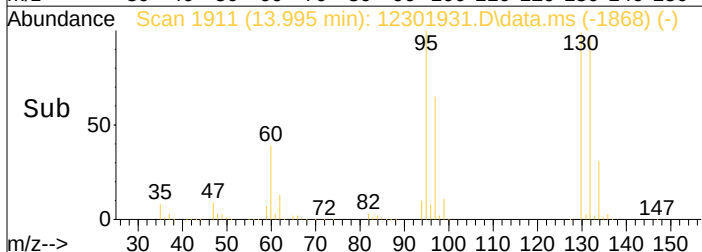
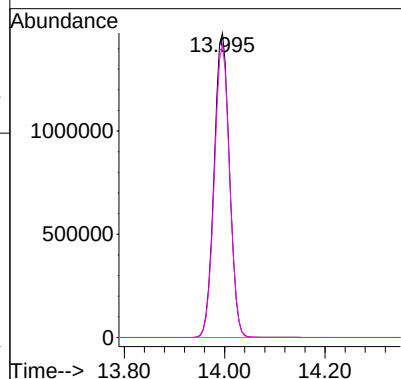
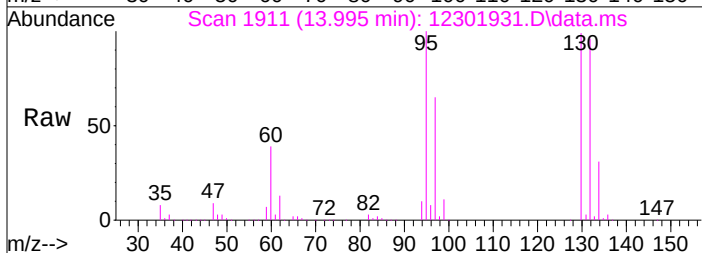
#43
 Cyclohexane
 Concen: 0.11 ng
 RT: 13.19 min Scan# 1765
 Delta R.T. -0.011 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

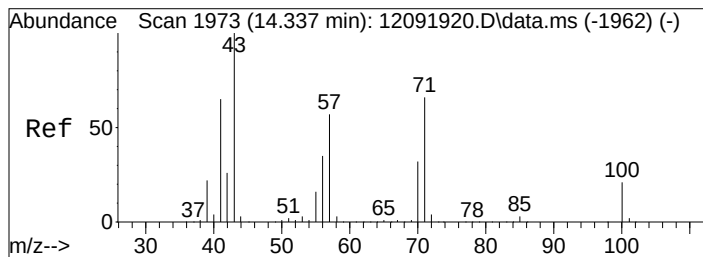
Tgt Ion:	84	Resp:	5133
Ion Ratio		Lower	Upper
84	100		
69	33.6	14.9	54.9
56	91.9	83.9	123.9



#47
 Trichloroethene
 Concen: 90.79 ng
 RT: 14.00 min Scan# 1911
 Delta R.T. -0.011 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

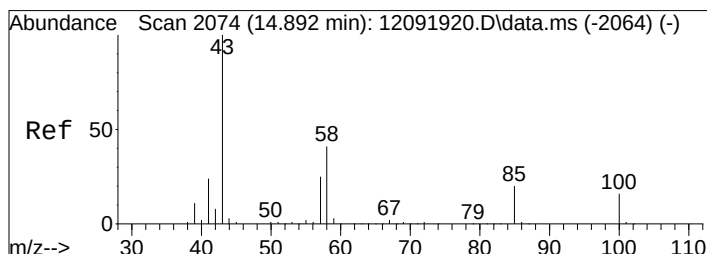
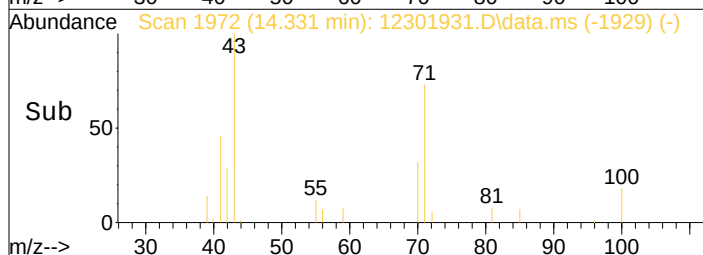
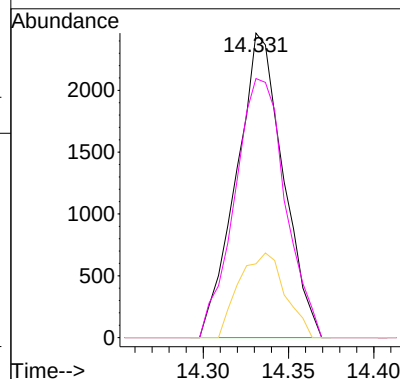
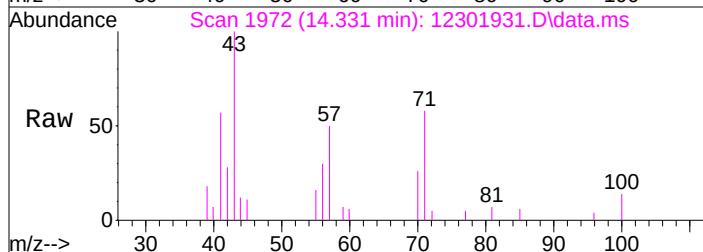
Tgt Ion:	130	Resp:	3133167
Ion Ratio		Lower	Upper
130	100		
132	96.1	75.9	115.9





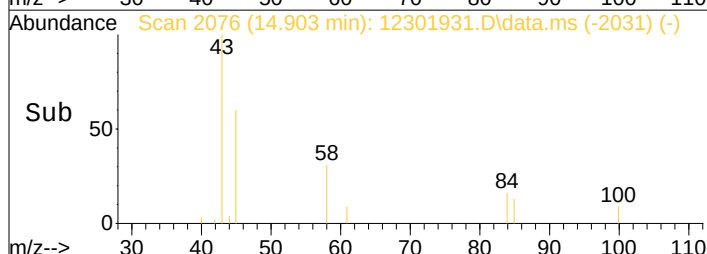
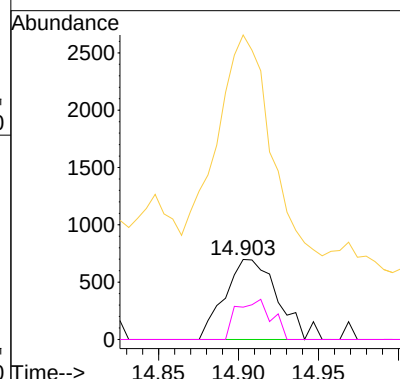
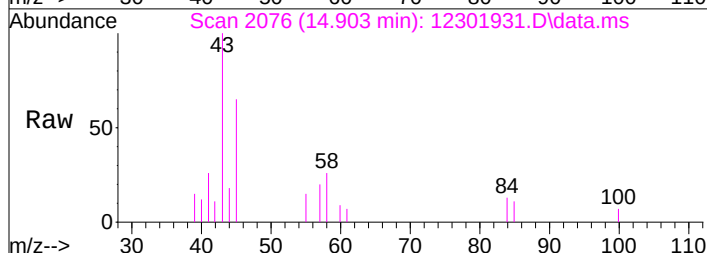
#51
n-Heptane
Concen: 0.18 ng
RT: 14.33 min Scan# 1972
Delta R.T. -0.011 min
Lab File: 12301931.D
Acq: 30 Dec 2019 22:55

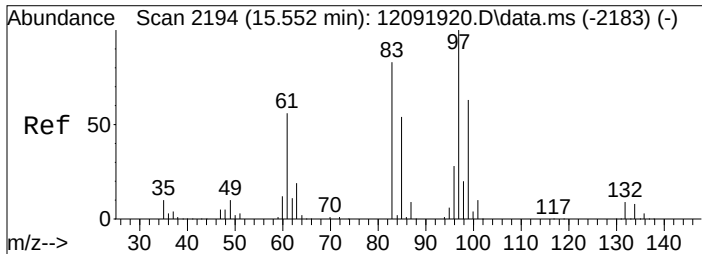
Tgt Ion: 71 Resp: 4690
Ion Ratio Lower Upper
71 100
57 92.2 66.1 106.1
100 27.4 11.4 51.4



#53
4-Methyl-2-pentanone
Concen: 0.07 ng
RT: 14.90 min Scan# 2076
Delta R.T. 0.000 min
Lab File: 12301931.D
Acq: 30 Dec 2019 22:55

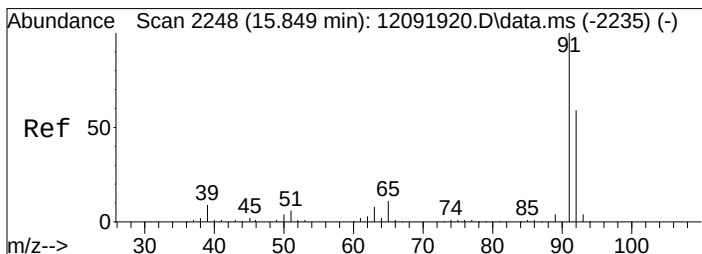
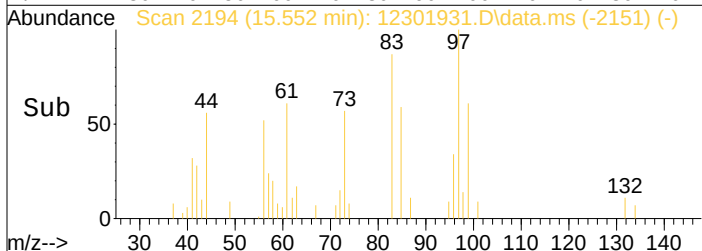
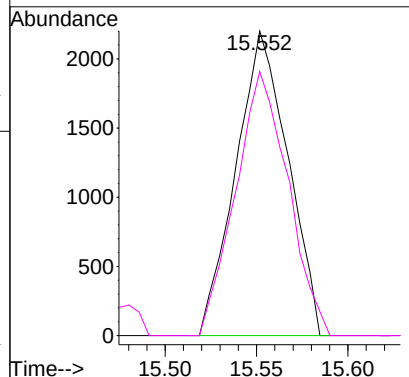
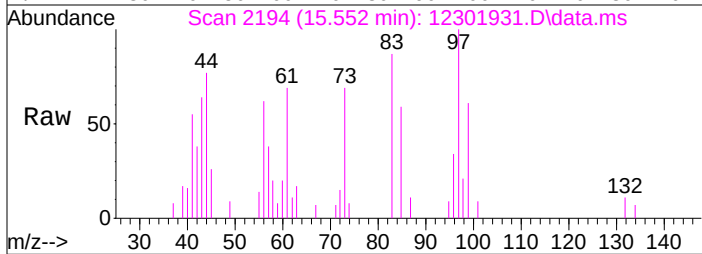
Tgt Ion: 58 Resp: 1607
Ion Ratio Lower Upper
58 100
85 32.9 39.9 59.9#
43 368.2 194.6 291.8#





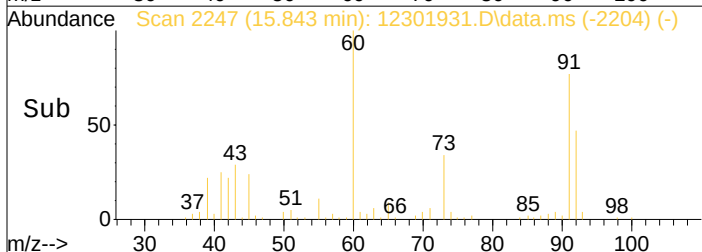
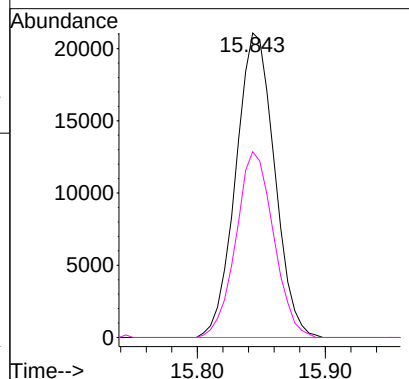
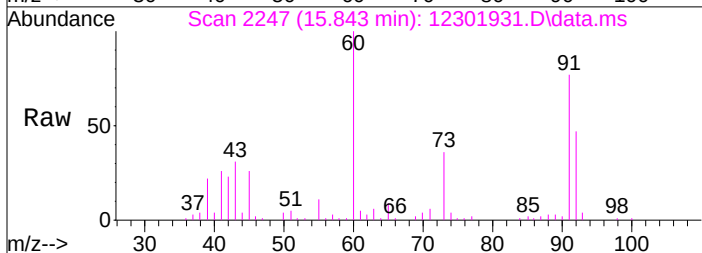
#55
 1,1,2-Trichloroethane
 Concen: 0.15 ng
 RT: 15.55 min Scan# 2194
 Delta R.T. -0.011 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

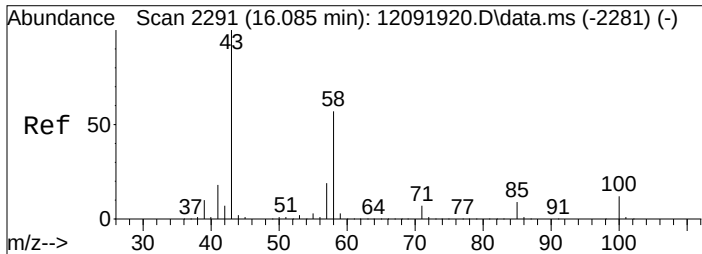
Tgt Ion: 97 Resp: 4353
 Ion Ratio Lower Upper
 97 100
 83 87.7 63.3 103.3



#58
 Toluene
 Concen: 0.35 ng
 RT: 15.84 min Scan# 2247
 Delta R.T. -0.011 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

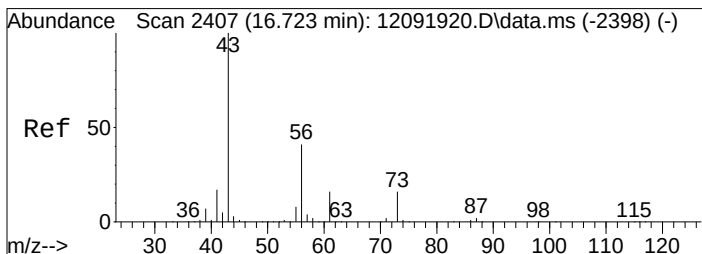
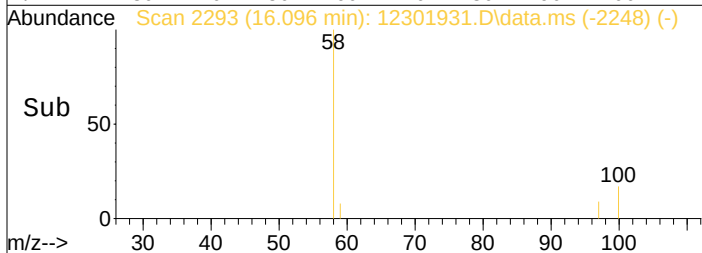
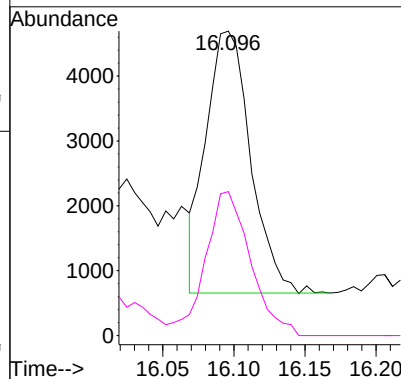
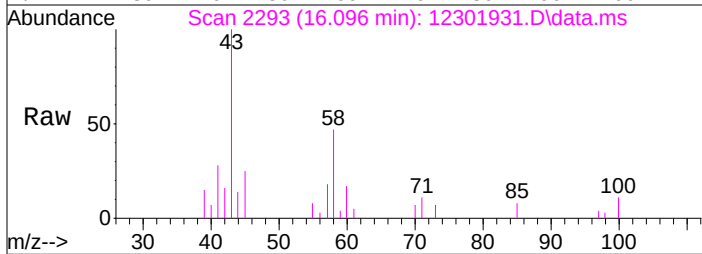
Tgt Ion: 91 Resp: 44257
 Ion Ratio Lower Upper
 91 100
 92 59.4 39.5 79.5





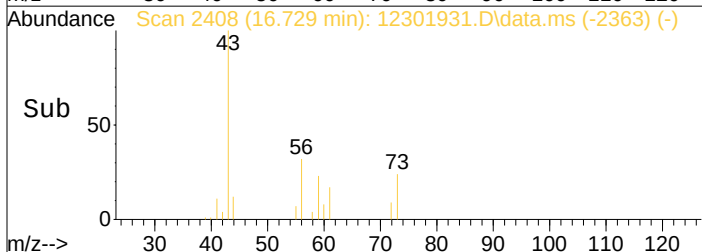
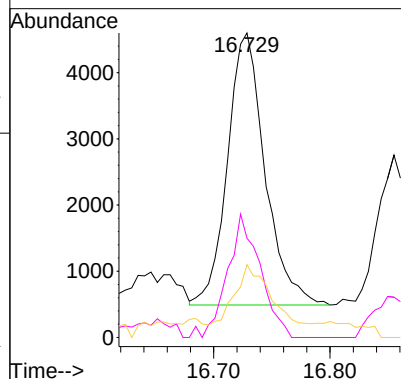
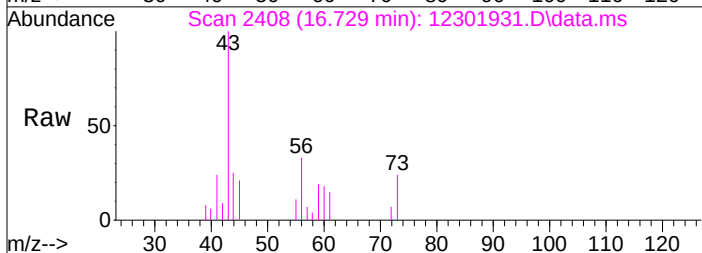
#59
2-Hexanone
Concen: 0.15 ng
RT: 16.10 min Scan# 2293
Delta R.T. 0.000 min
Lab File: 12301931.D
Acq: 30 Dec 2019 22:55

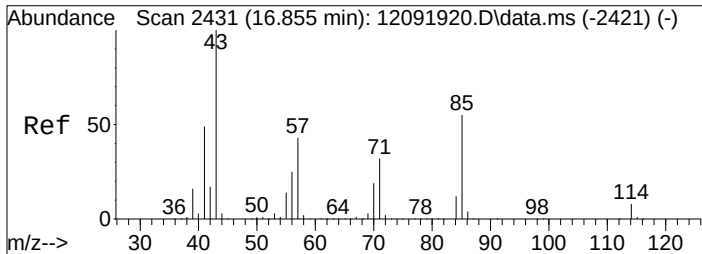
Tgt Ion: 43 Resp: 8839
Ion Ratio Lower Upper
43 100
58 55.5 36.5 76.5



#62
n-Butyl Acetate
Concen: 0.15 ng
RT: 16.73 min Scan# 2408
Delta R.T. 0.000 min
Lab File: 12301931.D
Acq: 30 Dec 2019 22:55

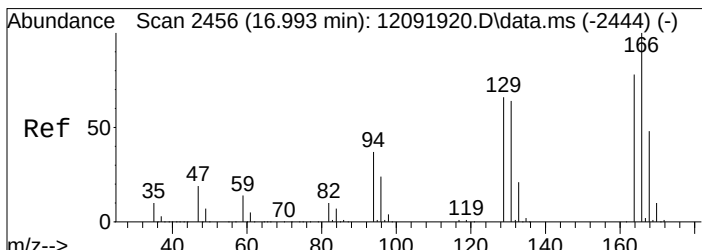
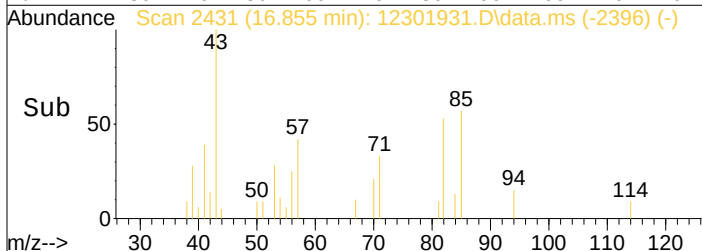
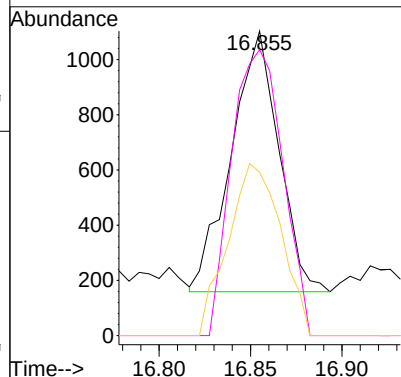
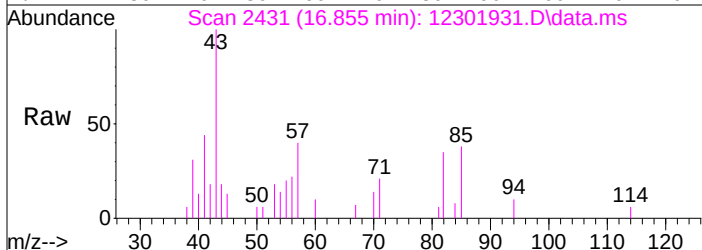
Tgt Ion: 43 Resp: 9222
Ion Ratio Lower Upper
43 100
56 39.5 20.7 60.7
73 37.3 0.0 35.9#





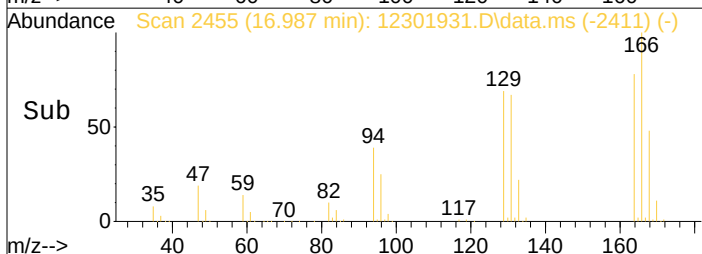
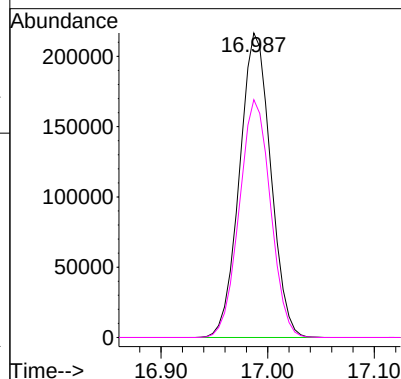
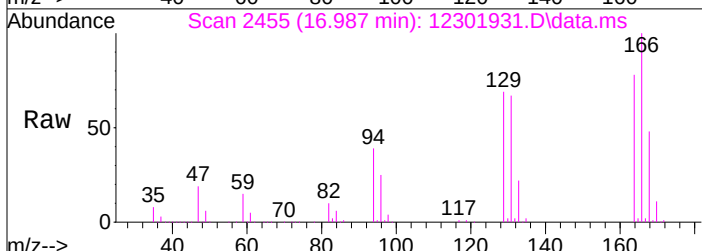
#63
n-Octane
Concen: 0.08 ng
RT: 16.85 min Scan# 2431
Delta R.T. -0.006 min
Lab File: 12301931.D
Acq: 30 Dec 2019 22:55

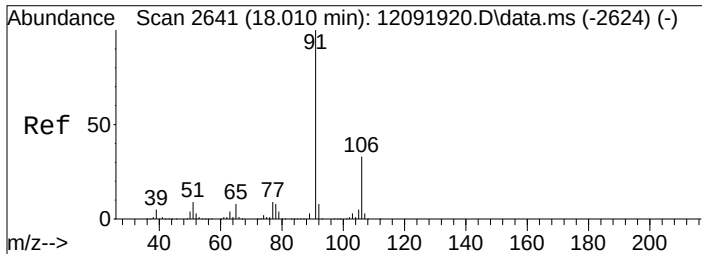
Tgt Ion:	57	Resp:	1707
Ion Ratio		Lower	Upper
57	100		
85	118.2	101.8	152.6
71	73.5	59.0	88.6



#64
Tetrachloroethene
Concen: 10.59 ng
RT: 16.99 min Scan# 2455
Delta R.T. -0.006 min
Lab File: 12301931.D
Acq: 30 Dec 2019 22:55

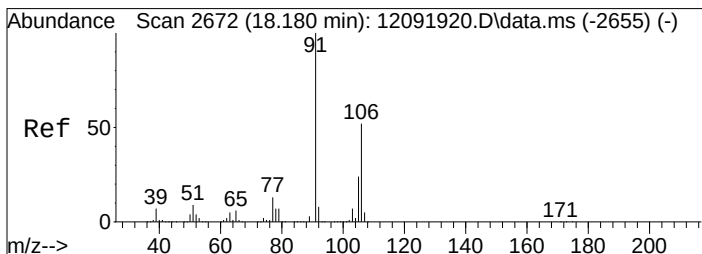
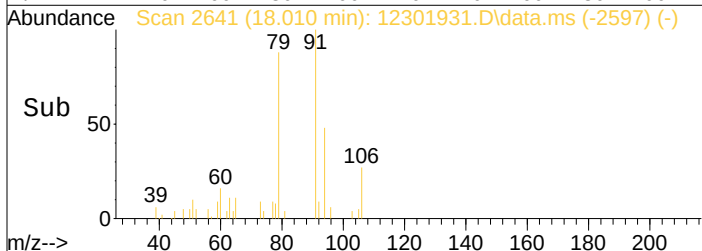
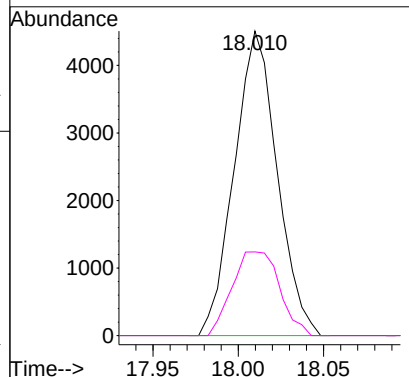
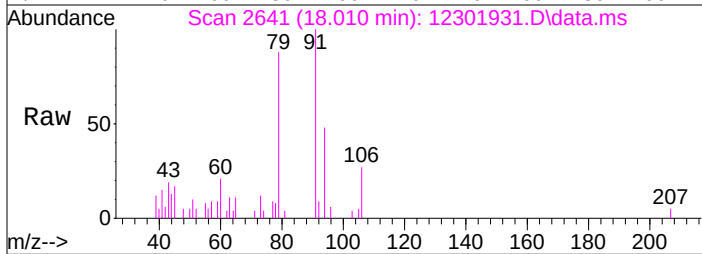
Tgt Ion:	166	Resp:	440318
Ion Ratio		Lower	Upper
166	100		
164	78.0	58.2	98.2





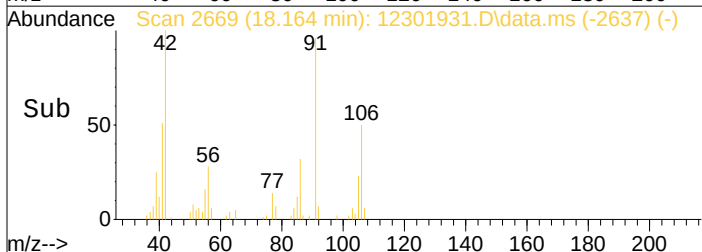
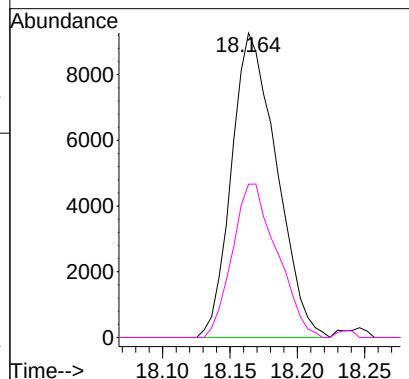
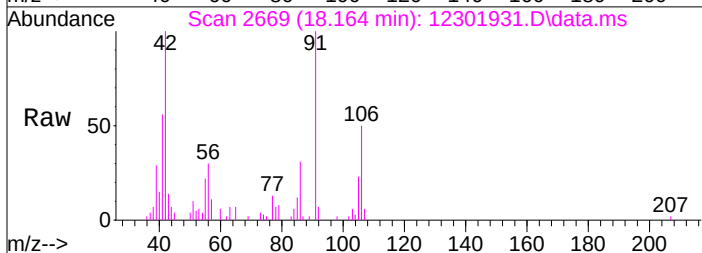
#66
Ethylbenzene
Concen: 0.06 ng
RT: 18.01 min Scan# 2641
Delta R.T. -0.005 min
Lab File: 12301931.D
Acq: 30 Dec 2019 22:55

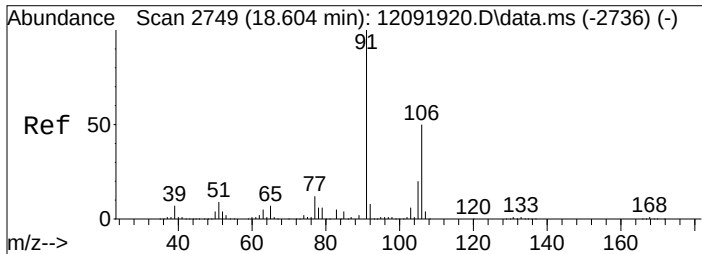
Tgt Ion: 91 Resp: 7880
Ion Ratio Lower Upper
91 100
106 30.4 12.7 52.7



#67
m- & p-Xylenes
Concen: 0.18 ng
RT: 18.16 min Scan# 2669
Delta R.T. -0.022 min
Lab File: 12301931.D
Acq: 30 Dec 2019 22:55

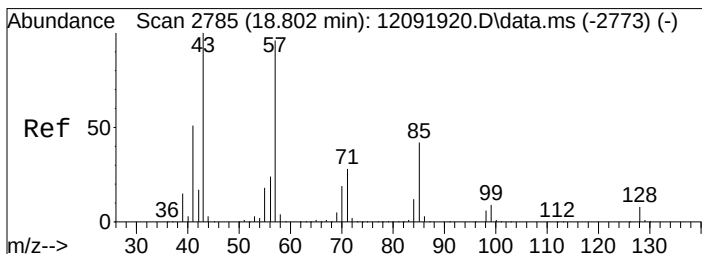
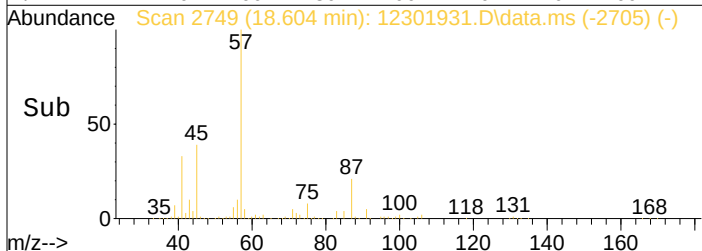
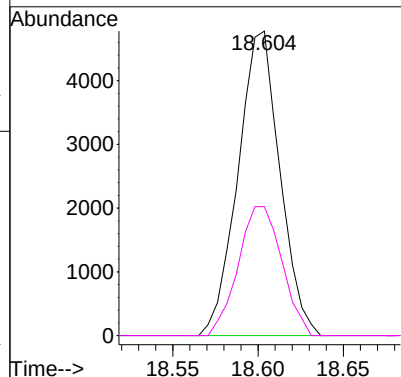
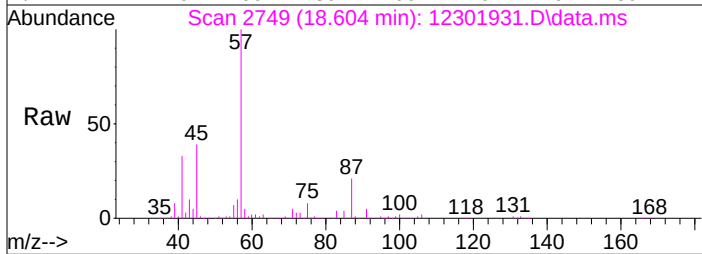
Tgt Ion: 91 Resp: 21541
Ion Ratio Lower Upper
91 100
106 50.0 31.5 71.5





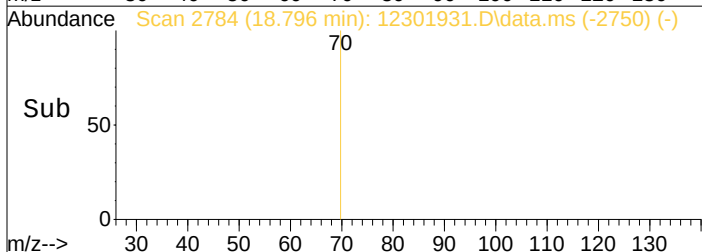
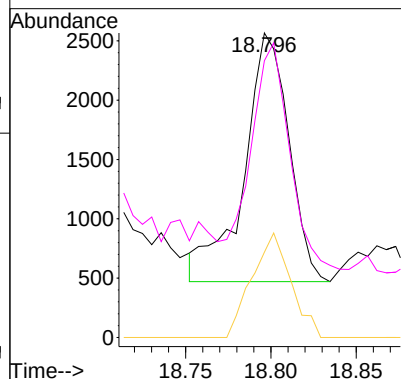
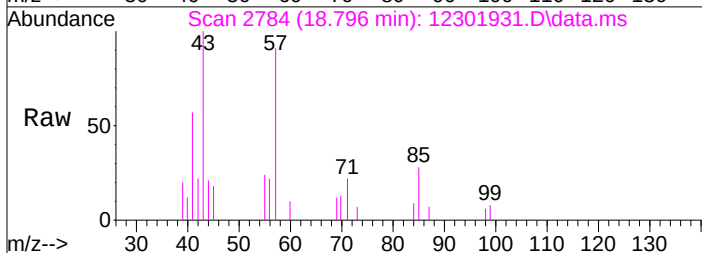
#70
o-Xylene
Concen: 0.07 ng
RT: 18.60 min Scan# 2749
Delta R.T. -0.006 min
Lab File: 12301931.D
Acq: 30 Dec 2019 22:55

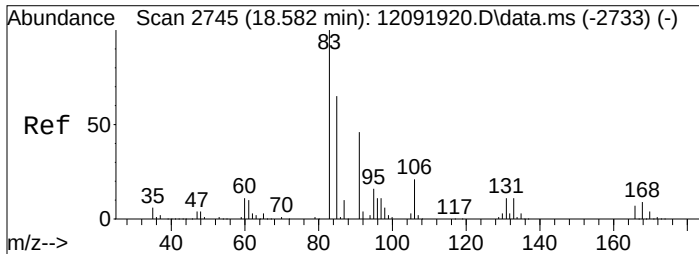
Tgt Ion: 91 Resp: 8166
Ion Ratio Lower Upper
91 100
106 44.1 29.1 69.1



#71
n-Nonane
Concen: 0.08 ng
RT: 18.80 min Scan# 2784
Delta R.T. -0.011 min
Lab File: 12301931.D
Acq: 30 Dec 2019 22:55

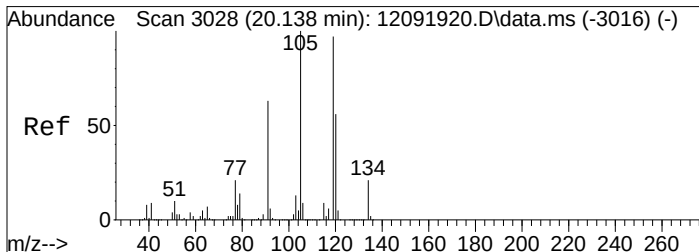
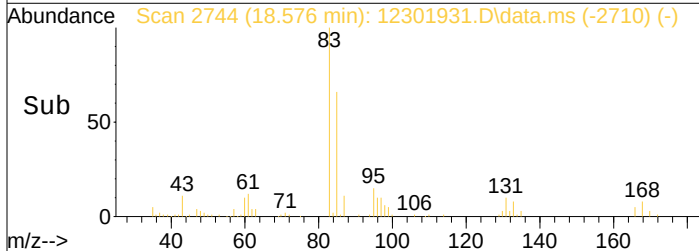
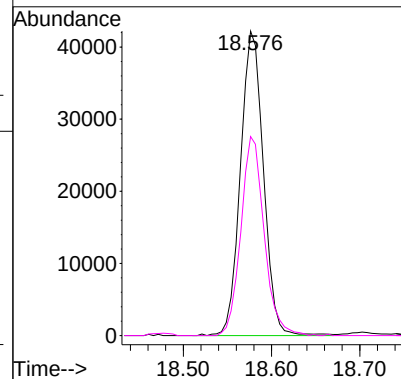
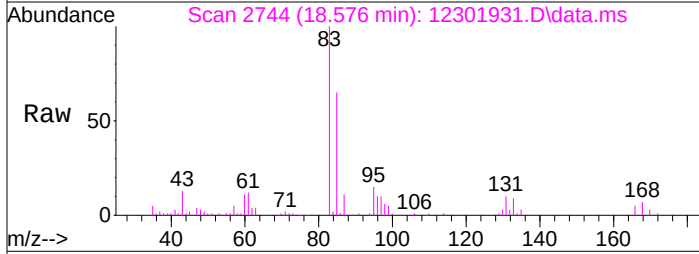
Tgt Ion: 43 Resp: 3839
Ion Ratio Lower Upper
43 100
57 79.1 74.4 114.4
85 36.2 20.5 60.5





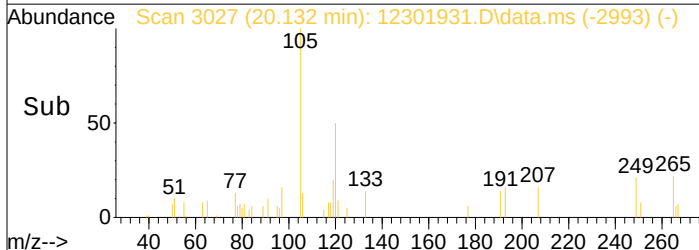
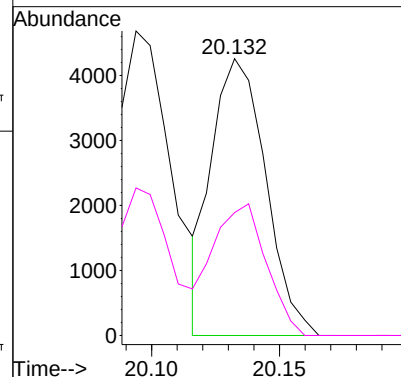
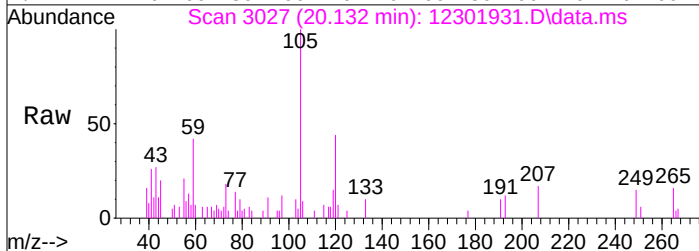
#72
 1,1,2,2-Tetrachloroethane
 Concen: 1.46 ng
 RT: 18.58 min Scan# 2744
 Delta R.T. -0.011 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

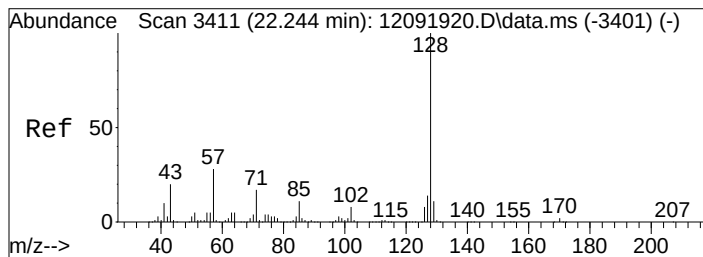
Tgt Ion: 83 Resp: 76441
 Ion Ratio Lower Upper
 83 100
 85 66.1 45.1 85.1



#82
 1,2,4-Trimethylbenzene
 Concen: 0.05 ng
 RT: 20.13 min Scan# 3027
 Delta R.T. -0.011 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

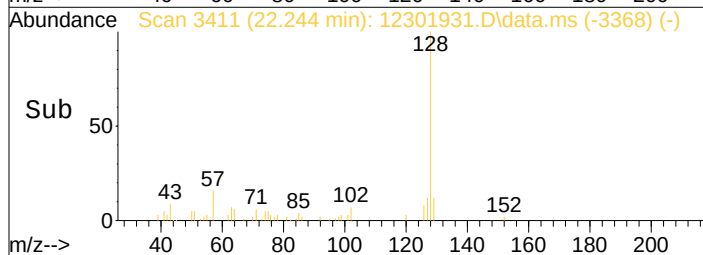
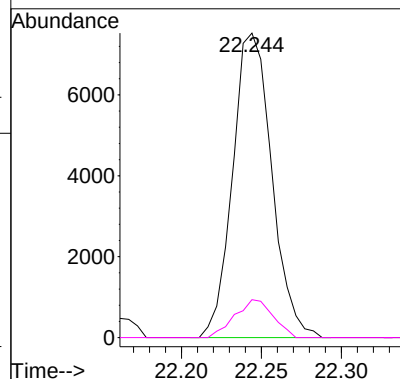
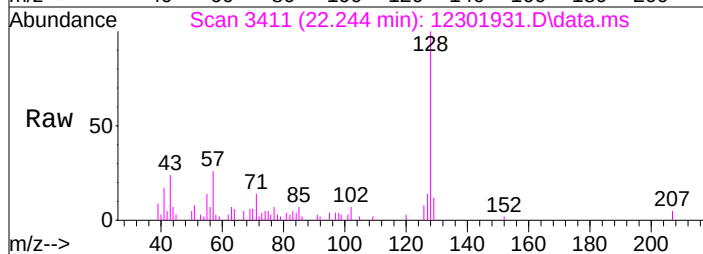
Tgt Ion: 105 Resp: 6261
 Ion Ratio Lower Upper
 105 100
 120 46.7 36.1 76.1





#95
 Naphthalene
 Concen: 0.07 ng
 RT: 22.24 min Scan# 3411
 Delta R.T. -0.011 min
 Lab File: 12301931.D
 Acq: 30 Dec 2019 22:55

Tgt Ion:128 Resp: 12792
 Ion Ratio Lower Upper
 128 100
 129 12.1 0.0 31.1



Data File: I:\MS16\DATA\2019_12\30\12301933.D

Acq On : 31 Dec 2019 00:01

Operator: LH

Sample : P1907461-002 (1000mL)

Misc : S31-10161904

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 31 09:47:10 2019

Quant Method : I:\MS16\METHODS\R16120919.M

LH 12/31/19

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	297098	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.29	114	1277047	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.61	82	588212	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.02	65	438003	12.201	ng	-0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	97.60%	
57) Toluene-d8 (SS2)	15.74	98	1282322	12.164	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	97.28%	
73) Bromofluorobenzene (SS3)	19.00	174	495949	11.170	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	89.36%	

Target Compounds

						Qvalue
2) Propene	4.11	42	7521	0.278	ng	93
3) Dichlorodifluoromethan...	4.26	85	599232	10.247	ng	100
4) Chloromethane	4.54	50	1218	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	4.82	135	1783	N.D.		
6) Vinyl Chloride	4.96	62	7278	0.180	ng	98
7) 1,3-Butadiene	5.22	54	284	N.D.		
8) Bromomethane	5.66	94	1488	0.059	ng	96
9) Chloroethane	5.99	64	662	N.D.		
10) Ethanol	6.34	45	23379	1.324	ng	96
11) Acetonitrile	6.63	41	6033	0.134	ng	# 18
12) Acrolein	6.82	56	8161	0.566	ng	99
13) Acetone	7.03	58	54460	2.798	ng	# 80
14) Trichlorofluoromethane	7.25	101	48456	0.899	ng	99
15) 2-Propanol (Isopropanol)	7.55	45	6383	0.116	ng	# 56
16) Acrylonitrile	0.00	53	0	N.D.	d	
17) 1,1-Dichloroethene	8.22	96	33467	1.251	ng	96
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.43	84	1654	0.060	ng	87
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d	
21) Trichlorotrifluoroethane	8.86	151	323023	11.289	ng	95
22) Carbon Disulfide	8.70	76	656941	6.885	ng	99
23) trans-1,2-Dichloroethene	9.71	61	32358	0.915	ng	94
24) 1,1-Dichloroethane	9.96	63	39275	0.875	ng	100
25) Methyl tert-Butyl Ether	10.11	73	1112	N.D.		
26) Vinyl Acetate	10.18	86	21597	3.360	ng	# 33
27) 2-Butanone (MEK)	10.49	72	12314	0.717	ng	99
28) cis-1,2-Dichloroethene	10.98	61	2552987	72.051	ng	97
29) Diisopropyl Ether	0.00	87	0	N.D.	d	
30) Ethyl Acetate	0.00	61	0	N.D.	d	
31) n-Hexane	11.27	57	7739	0.185	ng	# 30
32) Chloroform	11.32	83	796293	16.094	ng	99
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.	d	
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.14	62	1246	N.D.		
38) 1,1,1-Trichloroethane	12.42	97	38674	0.826	ng	99
39) Isopropyl Acetate	12.74	61	102	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	12.90	78	15656	0.138	ng	99
42) Carbon Tetrachloride	13.06	117	58083	1.331	ng	98
43) Cyclohexane	13.19	84	3346	0.077	ng	96
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.	d	
45) 1,2-Dichloropropane	13.75	63	527	N.D.		
46) Bromodichloromethane	13.95	83	1979	N.D.		
47) Trichloroethene	14.00	130	2438732	72.451	ng	100
48) 1,4-Dioxane	14.00	88	710	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	

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Data File: I:\MS16\DATA\2019_12\30\12301933.D

Acq On : 31 Dec 2019 00:01

Operator: LH

Sample : P1907461-002 (1000mL)

Misc : S31-10161904

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 31 09:47:10 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.	d	
51) n-Heptane	14.33	71	2772	0.106	ng	86
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.	d	
53) 4-Methyl-2-pentanone	14.90	58	765	N.D.		
54) trans-1,3-Dichloropropene	15.40	75	165	N.D.		
55) 1,1,2-Trichloroethane	15.55	97	3581	0.126	ng	98
58) Toluene	15.84	91	37155	0.299	ng	99
59) 2-Hexanone	16.10	43	2546	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.72	43	5947	0.098	ng	91
63) n-Octane	16.85	57	1087	N.D.		
64) Tetrachloroethene	16.99	166	341890	8.432	ng	100
65) Chlorobenzene	17.65	112	790	N.D.		
66) Ethylbenzene	18.01	91	8800	0.064	ng	97
67) m- & p-Xylenes	18.16	91	18500	0.160	ng	98
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.50	104	4239	N.D.		
70) o-Xylene	18.60	91	7150	0.064	ng	96
71) n-Nonane	18.80	43	2700	0.056	ng	91
72) 1,1,2,2-Tetrachloroethane	18.58	83	57844	1.132	ng	99
74) Cumene	19.13	105	2993	N.D.		
75) alpha-Pinene	19.47	93	3215	N.D.		
76) n-Propylbenzene	19.58	91	2424	N.D.		
77) 3-Ethyltoluene	19.66	105	4264	N.D.		
78) 4-Ethyltoluene	19.70	105	2121	N.D.		
79) 1,3,5-Trimethylbenzene	19.77	105	2429	N.D.		
80) alpha-Methylstyrene	19.91	118	1574	N.D.		
81) 2-Ethyltoluene	19.94	105	2414	N.D.		
82) 1,2,4-Trimethylbenzene	20.13	105	6165	0.052	ng	97
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.25	91	629	N.D.		
85) 1,3-Dichlorobenzene	20.26	146	257	N.D.		
86) 1,4-Dichlorobenzene	20.32	146	1650	N.D.		
87) sec-Butylbenzene	20.37	105	748	N.D.		
88) 4-Isopropyltoluene (p-...	20.51	119	4701	N.D.		
89) 1,2,3-Trimethylbenzene	20.51	105	2036	N.D.		
90) 1,2-Dichlorobenzene	20.63	146	224	N.D.		
91) d-Limonene	20.64	68	2177	0.053	ng	93
92) 1,2-Dibromo-3-Chloropr...	21.12	157	290	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	22.14	180	214	N.D.		
95) Naphthalene	22.24	128	33591	0.197	ng	99
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	22.56	225	487	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	20.10	119	4729	N.D.		
100) n-Butylbenzene	20.87	91	3320	N.D.		

(#)= qualifier out of range (m)= manual integration (+)= signals summed

Data File: I:\MS16\DATA\2019_12\30\12301933.D

Acq On : 31 Dec 2019 00:01

Operator: LH

Sample : P1907461-002 (1000mL)

Misc : S31-10161904

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 31 09:47:10 2019

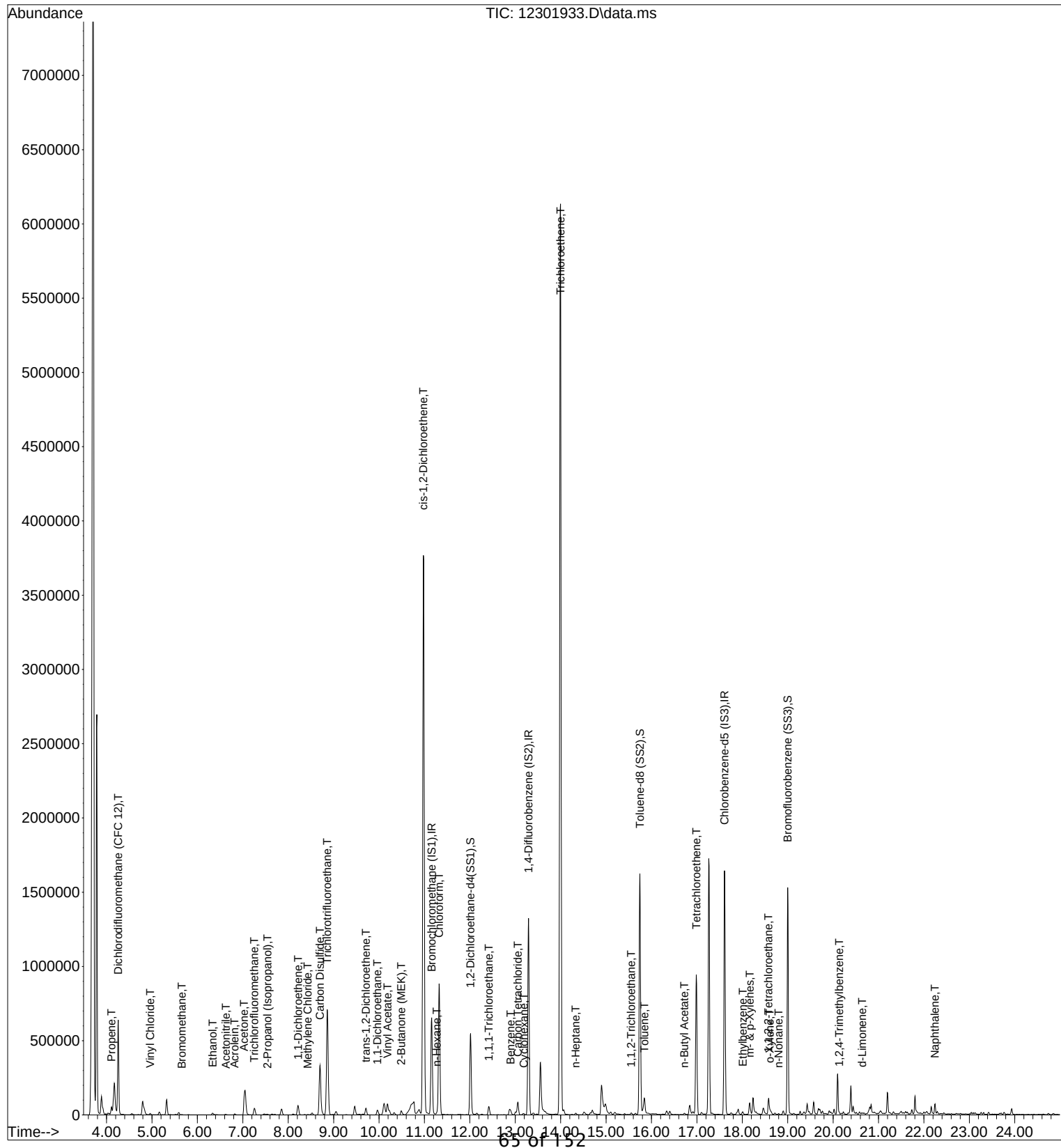
Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_12\30\12301933.D

Acq On : 31 Dec 2019 00:01

Operator: LH

Sample : P1907461-002 (1000mL)

Misc : S31-10161904

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 31 09:47:10 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

LH 12/31/19

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	297098	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.29	114	1277047	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.61	82	588212	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.02	65	438003	12.201	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	97.60%
57) Toluene-d8 (SS2)	15.74	98	1282322	12.164	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	97.28%
73) Bromofluorobenzene (SS3)	19.00	174	495949	11.170	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	89.36%

Target Compounds

						Qvalue
2) Propene	4.11	42	7521	0.278	ng	93
3) Dichlorodifluoromethan...	4.26	85	599232	10.247	ng	100
6) Vinyl Chloride	4.96	62	7278	0.180	ng	98
8) Bromomethane	5.66	94	1488	0.059	ng	96
10) Ethanol	6.34	45	23379	1.324	ng	96
11) Acetonitrile	6.63	41	6033	0.134	ng	# 18
12) Acrolein	6.82	56	8161	0.566	ng	99
13) Acetone	7.03	58	54460	2.798	ng	# 80
14) Trichlorofluoromethane	7.25	101	48456	0.899	ng	99
15) 2-Propanol (Isopropanol)	7.55	45	6383	0.116	ng	# 56
17) 1,1-Dichloroethene	8.22	96	33467	1.251	ng	96
19) Methylene Chloride	8.43	84	1654	0.060	ng	87
21) Trichlorotrifluoroethane	8.86	151	323023	11.289	ng	95
22) Carbon Disulfide	8.70	76	656941	6.885	ng	99
23) trans-1,2-Dichloroethene	9.71	61	32358	0.915	ng	94
24) 1,1-Dichloroethane	9.96	63	39275	0.875	ng	100
26) Vinyl Acetate	10.18	86	21597	3.360	ng	# 33
27) 2-Butanone (MEK)	10.49	72	12314	0.717	ng	99
28) cis-1,2-Dichloroethene	10.98	61	2552987	72.051	ng	97
31) n-Hexane	11.27	57	7739	0.185	ng	# 30
32) Chloroform	11.32	83	796293	16.094	ng	99
38) 1,1,1-Trichloroethane	12.42	97	38674	0.826	ng	99
41) Benzene	12.90	78	15656	0.138	ng	99
42) Carbon Tetrachloride	13.06	117	58083	1.331	ng	98
43) Cyclohexane	13.19	84	3346	0.077	ng	96
47) Trichloroethene	14.00	130	2438732	72.451	ng	100
51) n-Heptane	14.33	71	2772	0.106	ng	86
55) 1,1,2-Trichloroethane	15.55	97	3581	0.126	ng	98
58) Toluene	15.84	91	37155	0.299	ng	99
62) n-Butyl Acetate	16.72	43	5947	0.098	ng	91
64) Tetrachloroethene	16.99	166	341890	8.432	ng	100
66) Ethylbenzene	18.01	91	8800	0.064	ng	97
67) m- & p-Xylenes	18.16	91	18500	0.160	ng	98
70) o-Xylene	18.60	91	7150	0.064	ng	96
71) n-Nonane	18.80	43	2700	0.056	ng	91
72) 1,1,2,2-Tetrachloroethane	18.58	83	57844	1.132	ng	99
82) 1,2,4-Trimethylbenzene	20.13	105	6165	0.052	ng	97
91) d-Limonene	20.64	68	2177	0.053	ng	93
95) Naphthalene	22.24	128	33591	0.197	ng	99

(#)=qualifier out of range (m)=manual integration (+)=signals summed

Data File: I:\MS16\DATA\2019_12\30\12301933.D

Acq On : 31 Dec 2019 00:01

Operator: LH

Sample : P1907461-002 (1000mL)

Misc : S31-10161904

ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 31 09:47:10 2019

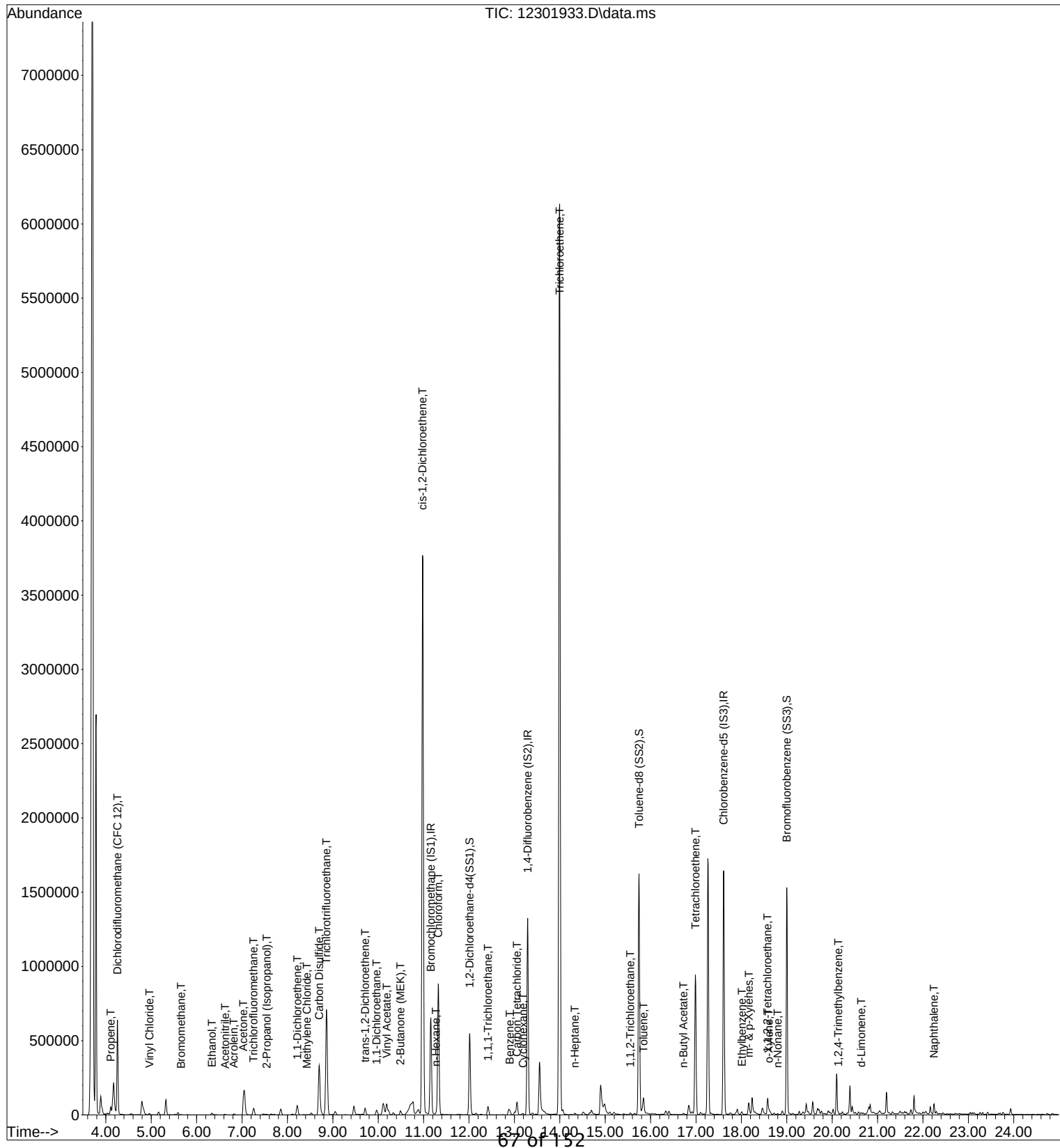
Quant Method : I:\MS16\METHODS\R16120919.M

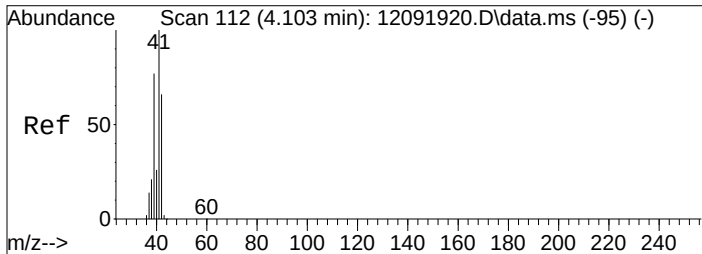
Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

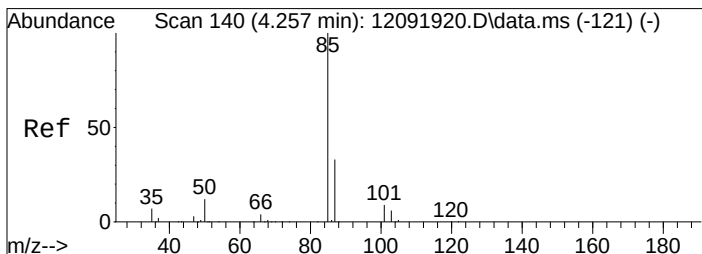
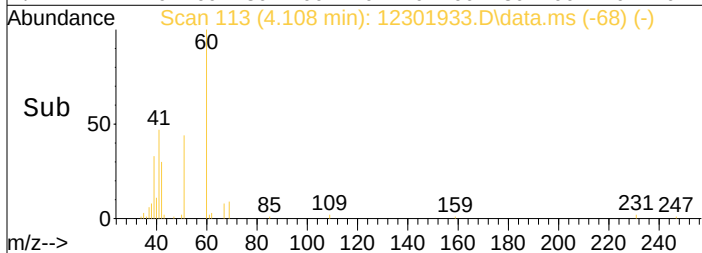
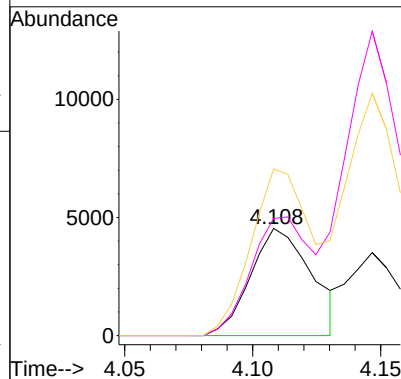
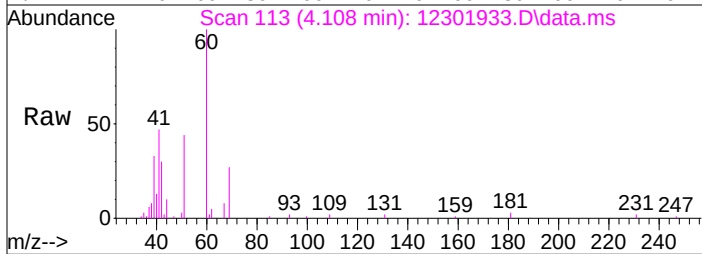
DataAcq Meth:T015.M





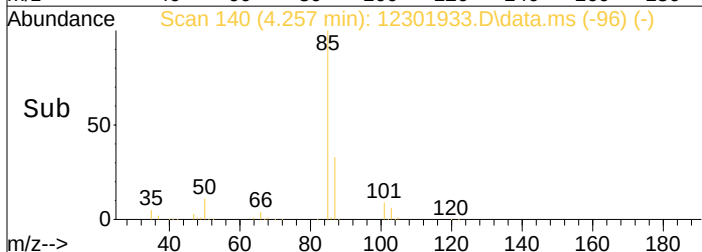
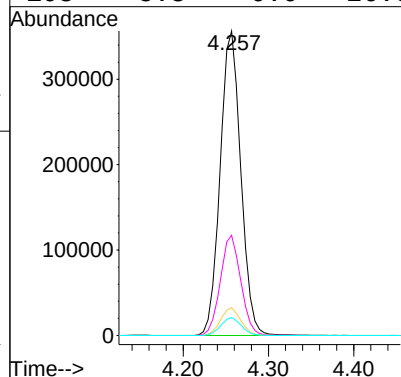
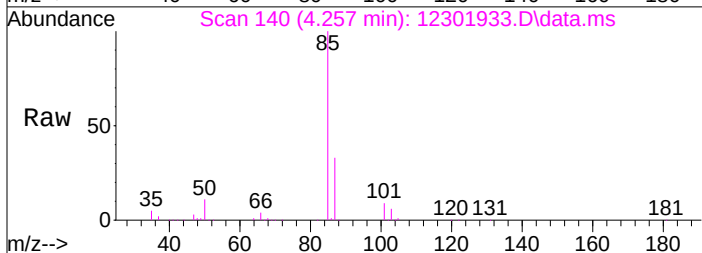
#2
 Propene
 Concen: 0.28 ng
 RT: 4.11 min Scan# 113
 Delta R.T. 0.000 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

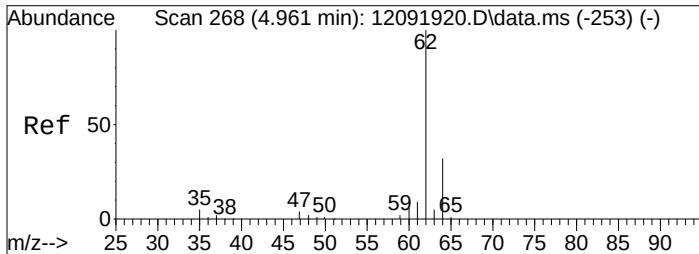
Tgt Ion: 42 Resp: 7521
 Ion Ratio Lower Upper
 42 100
 39 108.5 99.1 139.1
 41 145.3 132.0 172.0



#3
 Dichlorodifluoromethane (CFC 12)
 Concen: 10.25 ng
 RT: 4.26 min Scan# 140
 Delta R.T. -0.006 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

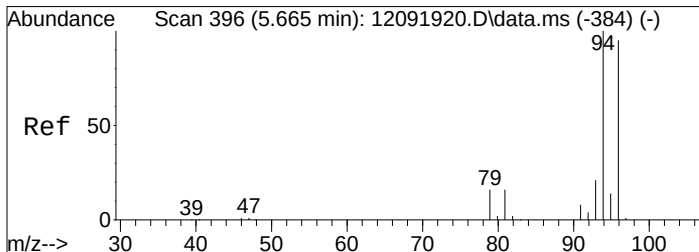
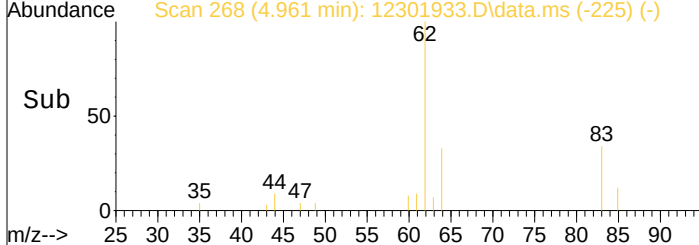
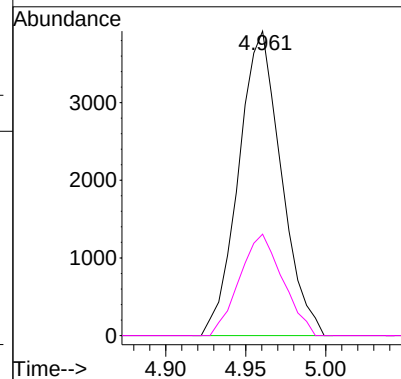
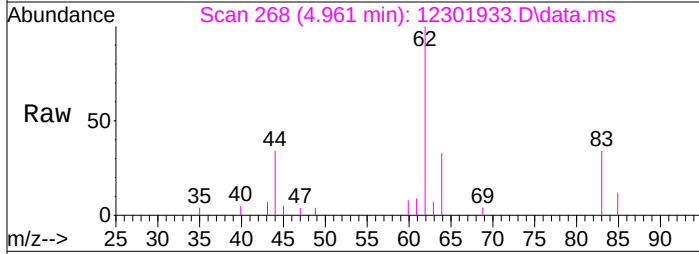
Tgt Ion: 85 Resp: 599232
 Ion Ratio Lower Upper
 85 100
 87 32.5 12.6 52.6
 101 8.9 0.0 29.2
 103 5.8 0.0 26.0





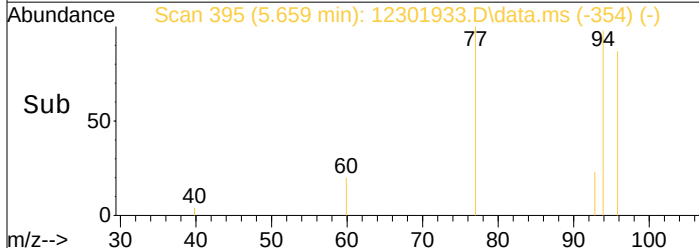
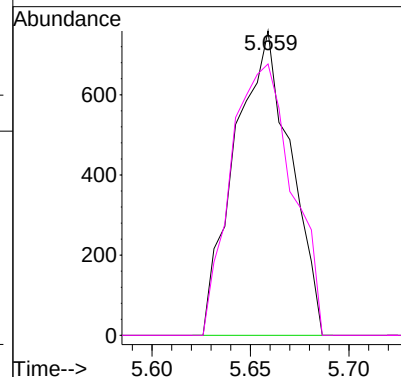
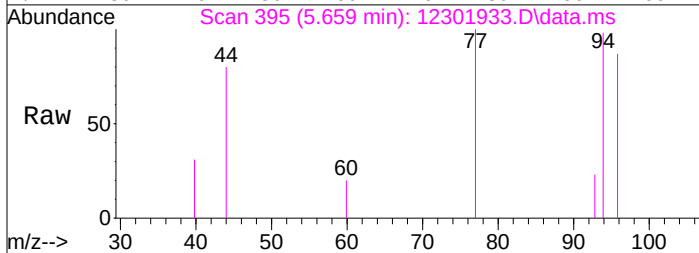
#6
 Vinyl Chloride
 Concen: 0.18 ng
 RT: 4.96 min Scan# 268
 Delta R.T. -0.011 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

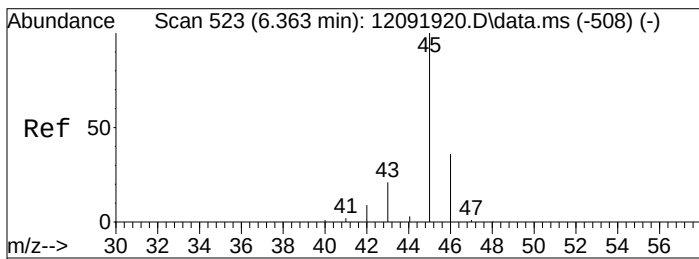
Tgt Ion: 62 Resp: 7278
 Ion Ratio Lower Upper
 62 100
 64 33.7 12.4 52.4



#8
 Bromomethane
 Concen: 0.06 ng
 RT: 5.66 min Scan# 395
 Delta R.T. -0.022 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

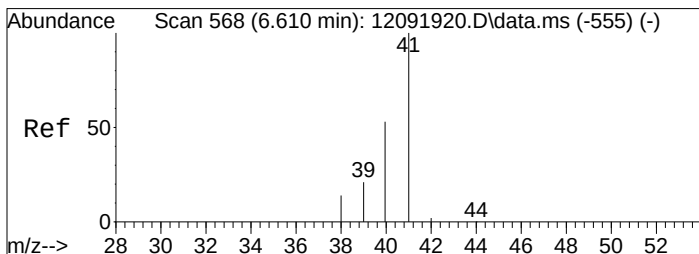
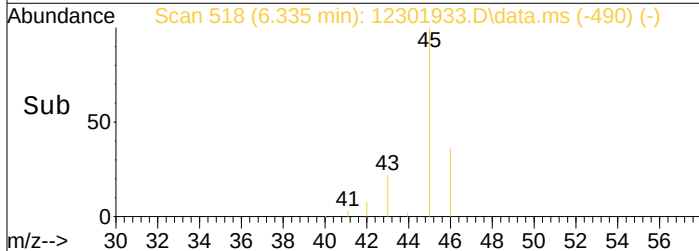
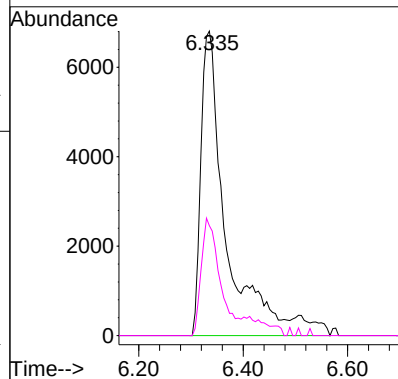
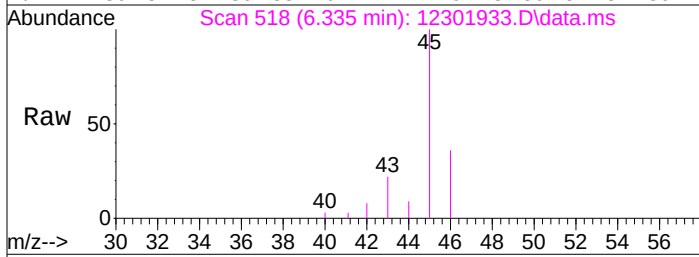
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 Ion Ratio Lower Upper
 94 100
 96 98.5 74.8 114.8





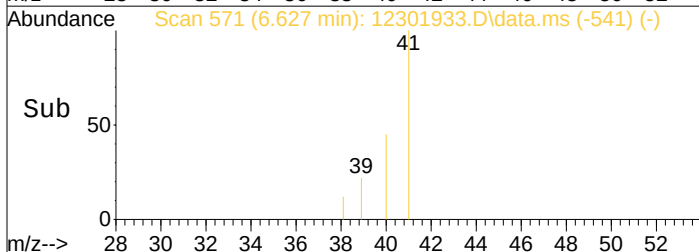
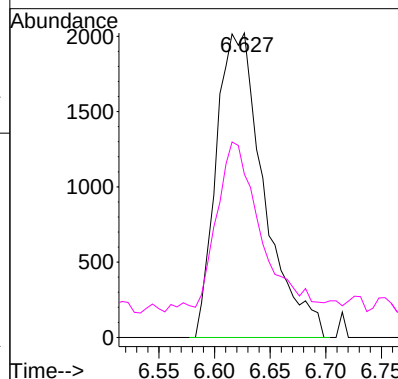
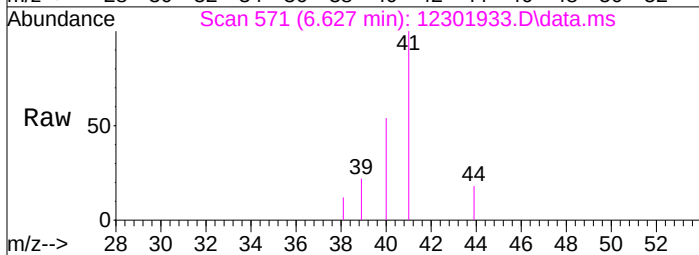
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Ethanol
Concen: 1.32 ng
RT: 6.34 min Scan# 518
Delta R.T. -0.099 min
Lab File: 12301933.D
Acq: 31 Dec 2019 00:01

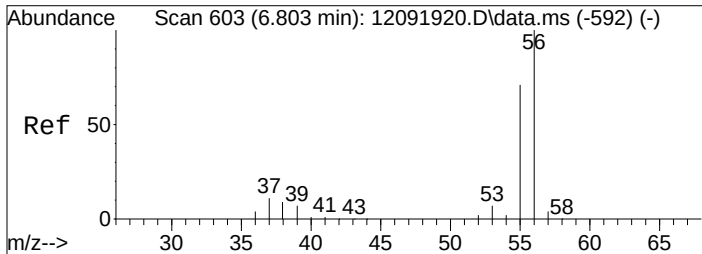
Tgt Ion: 45 Resp: 23379
Ion Ratio Lower Upper
45 100
46 34.1 16.5 56.5



#11
Acetonitrile
Concen: 0.13 ng
RT: 6.63 min Scan# 571
Delta R.T. -0.033 min
Lab File: 12301933.D
Acq: 31 Dec 2019 00:01

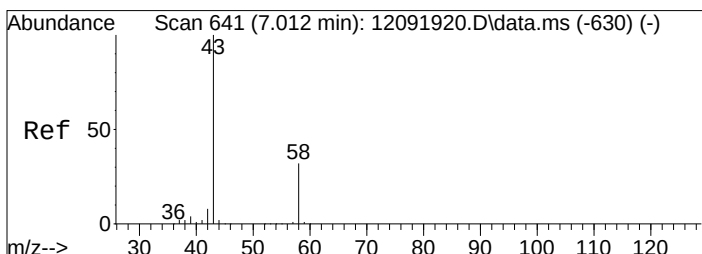
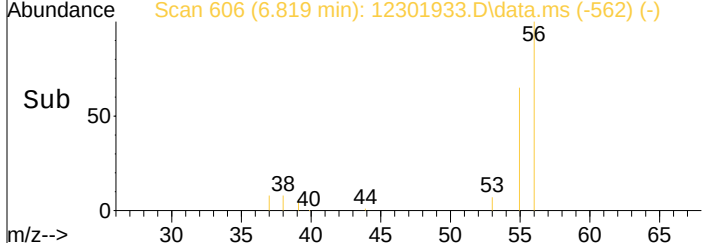
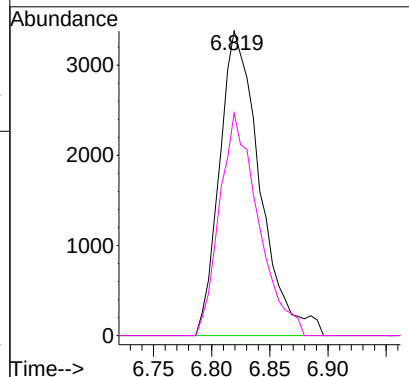
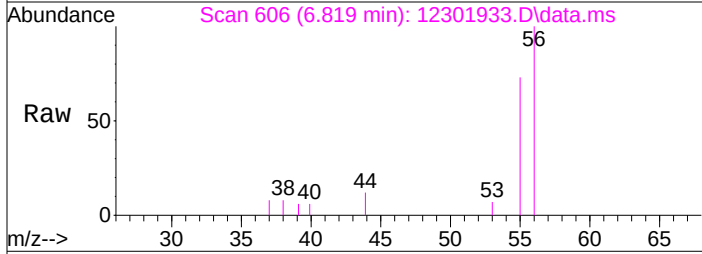
Tgt Ion: 41 Resp: 6033
Ion Ratio Lower Upper
41 100
40 113.7 34.7 74.7#





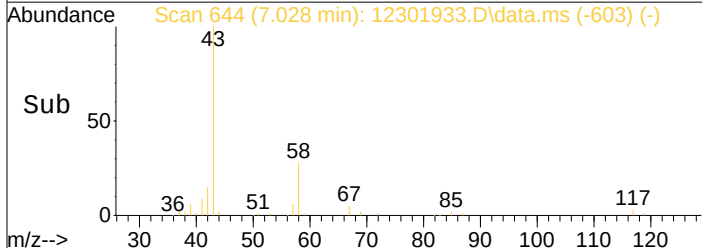
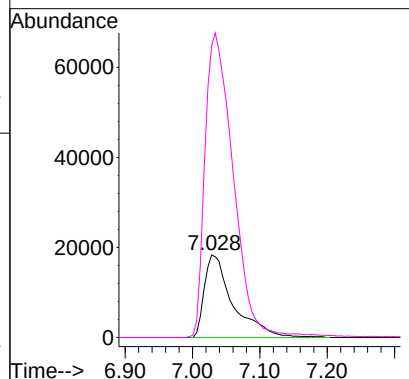
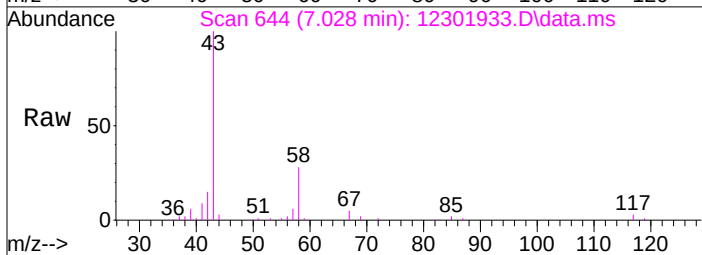
#12
 Acrolein
 Concen: 0.57 ng
 RT: 6.82 min Scan# 606
 Delta R.T. -0.006 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

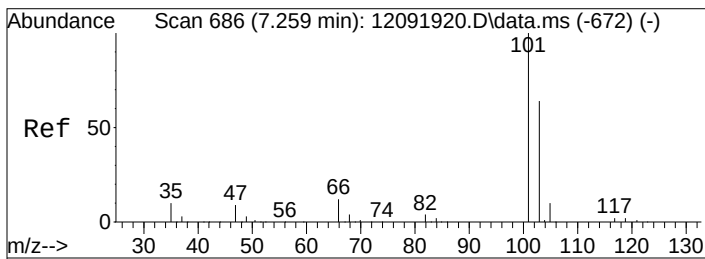
Tgt Ion: 56 Resp: 8161
 Ion Ratio Lower Upper
 56 100
 55 70.0 50.7 90.7



#13
 Acetone
 Concen: 2.80 ng
 RT: 7.03 min Scan# 644
 Delta R.T. -0.022 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

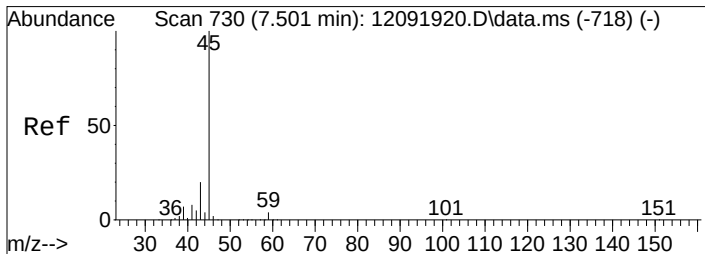
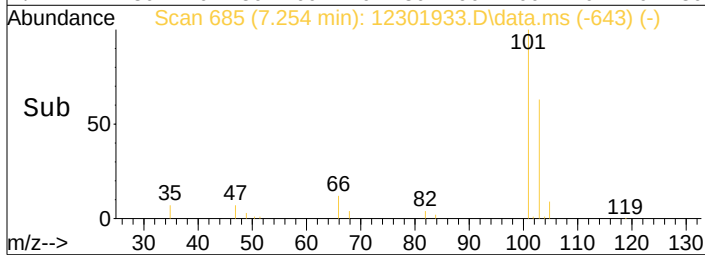
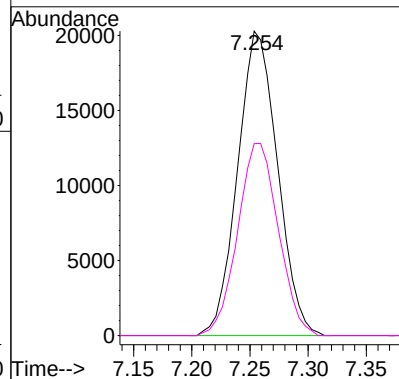
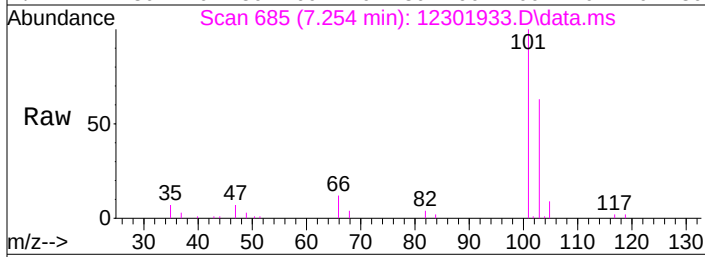
Tgt Ion: 58 Resp: 54460
 Ion Ratio Lower Upper
 58 100
 43 364.1 292.8 352.8#





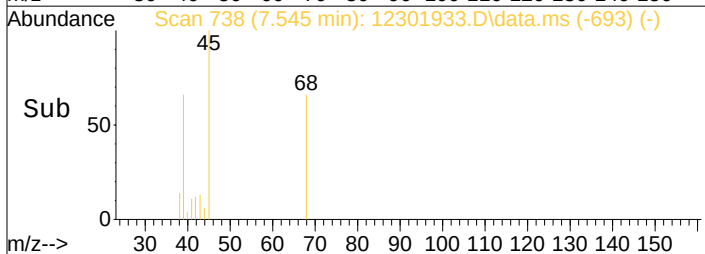
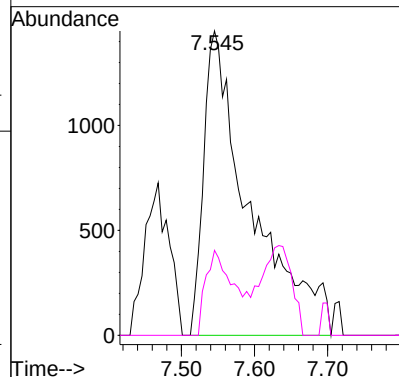
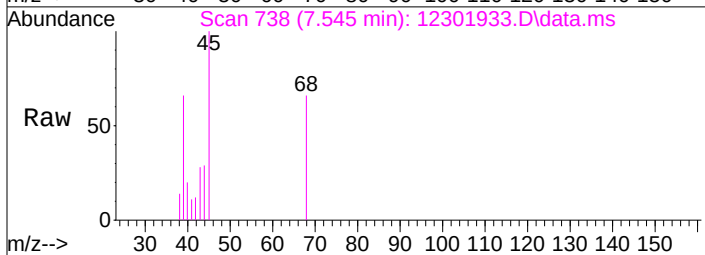
#14
 Trichlorofluoromethane
 Concen: 0.90 ng
 RT: 7.25 min Scan# 685
 Delta R.T. -0.016 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

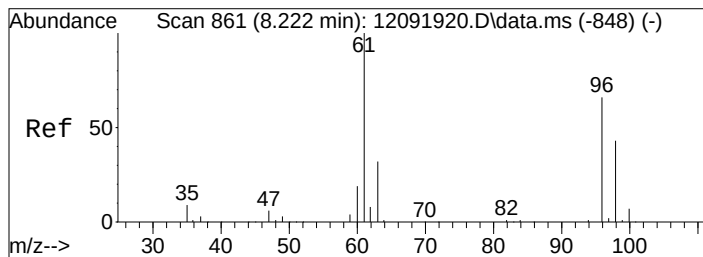
Tgt Ion: 101 Resp: 48456
 Ion Ratio Lower Upper
 101 100
 103 64.4 44.9 84.9



#15
 2-Propanol (Isopropanol)
 Concen: 0.12 ng
 RT: 7.55 min Scan# 738
 Delta R.T. 0.000 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

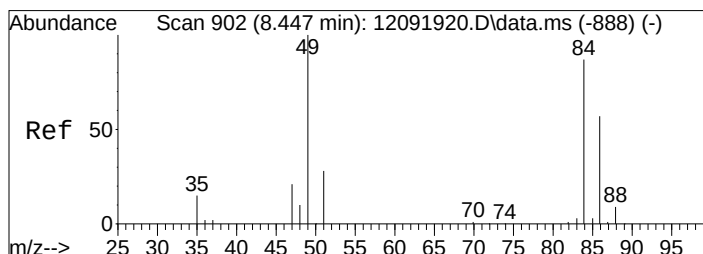
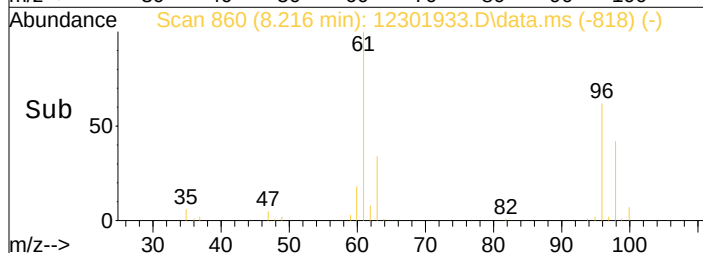
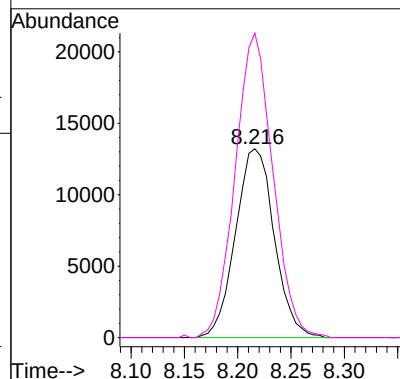
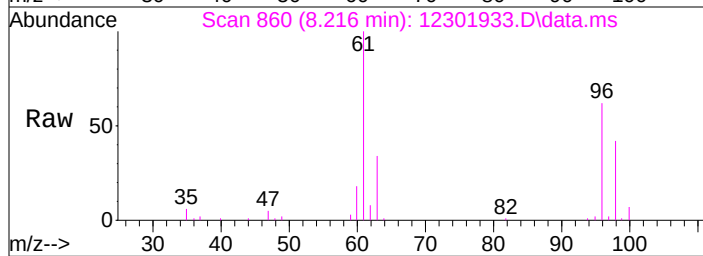
Tgt Ion: 45 Resp: 6383
 Ion Ratio Lower Upper
 45 100
 43 0.0 0.4 40.4#





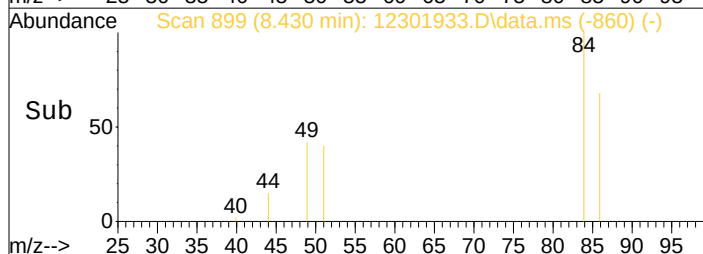
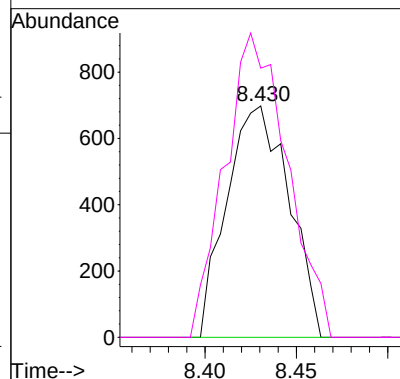
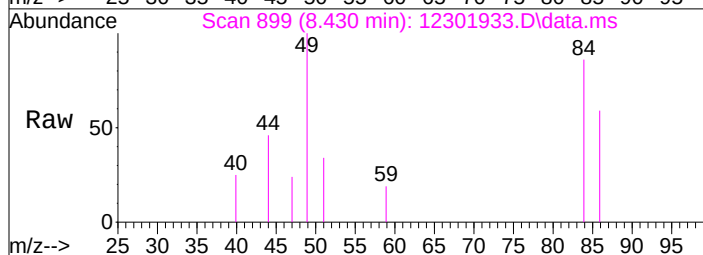
#17
 1,1-Dichloroethene
 Concen: 1.25 ng
 RT: 8.22 min Scan# 860
 Delta R.T. -0.016 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

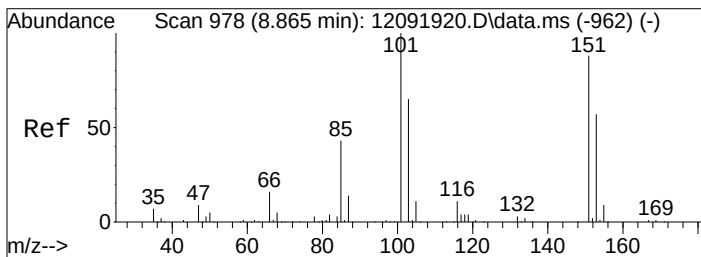
Tgt Ion: 96 Resp: 33467
 Ion Ratio Lower Upper
 96 100
 61 156.8 131.6 171.6



#19
 Methylene Chloride
 Concen: 0.06 ng
 RT: 8.43 min Scan# 899
 Delta R.T. -0.033 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

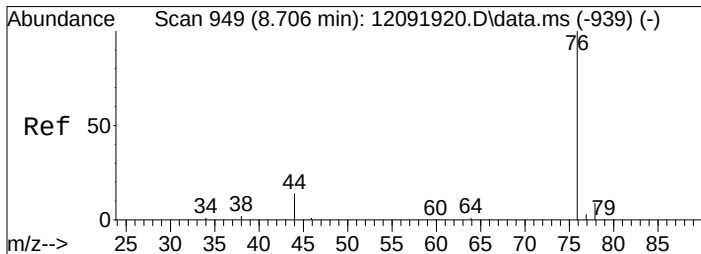
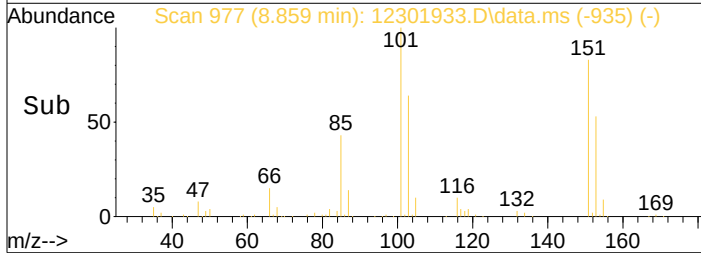
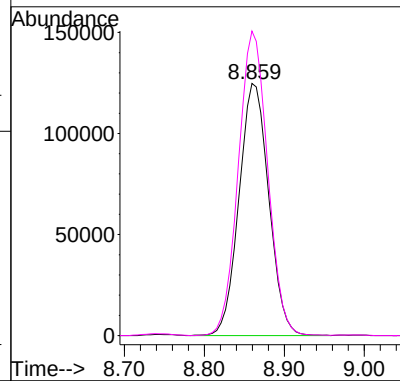
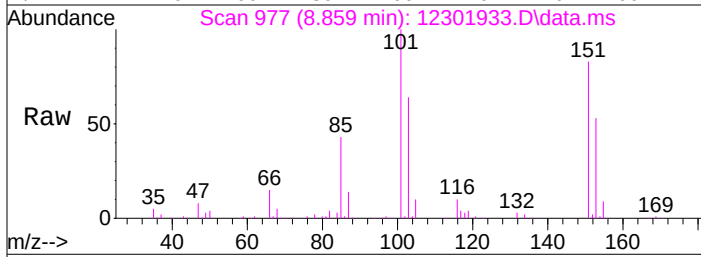
Tgt Ion: 84 Resp: 1654
 Ion Ratio Lower Upper
 84 100
 49 131.9 93.0 143.0





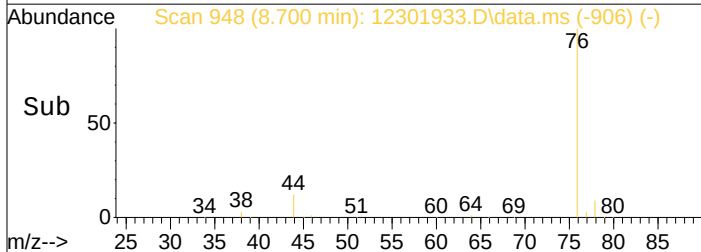
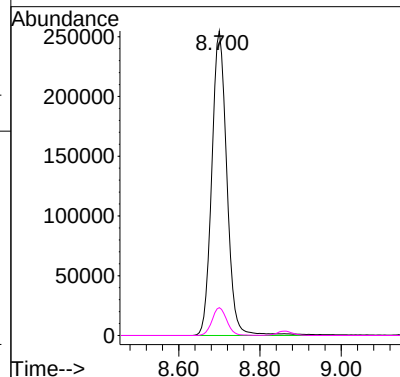
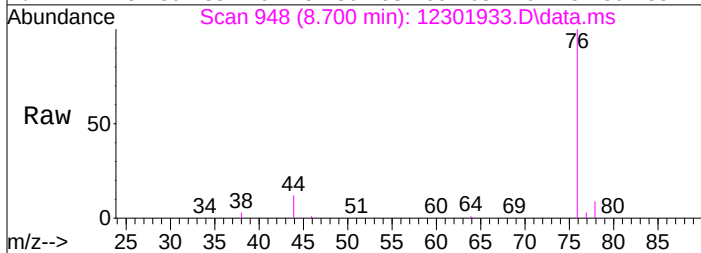
#21
 Trichlorotrifluoroethane
 Concen: 11.29 ng
 RT: 8.86 min Scan# 977
 Delta R.T. -0.017 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

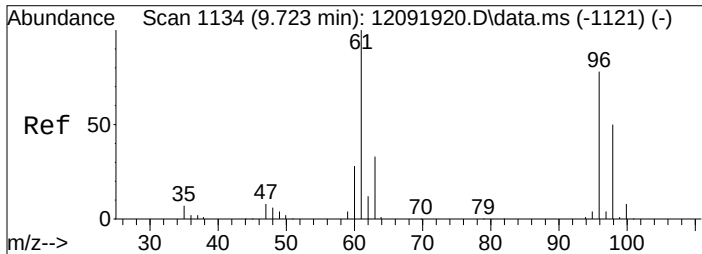
Tgt Ion: 151 Resp: 323023
 Ion Ratio Lower Upper
 151 100
 101 119.3 93.4 133.4



#22
 Carbon Disulfide
 Concen: 6.89 ng
 RT: 8.70 min Scan# 948
 Delta R.T. -0.017 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

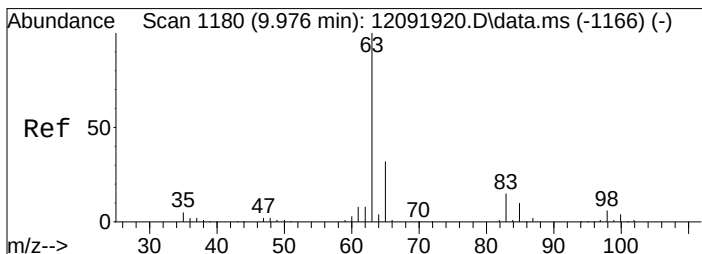
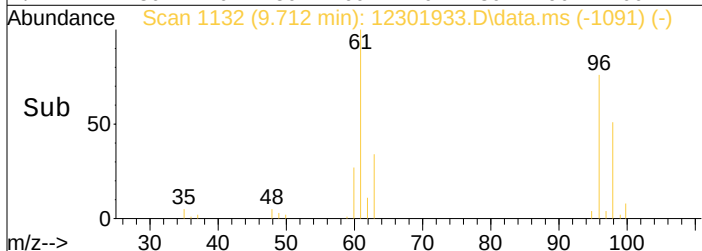
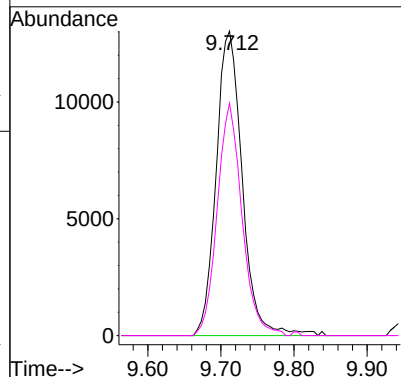
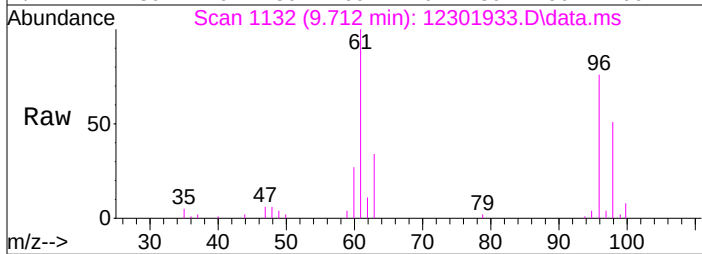
Tgt Ion: 76 Resp: 656941
 Ion Ratio Lower Upper
 76 100
 78 9.0 0.0 29.2





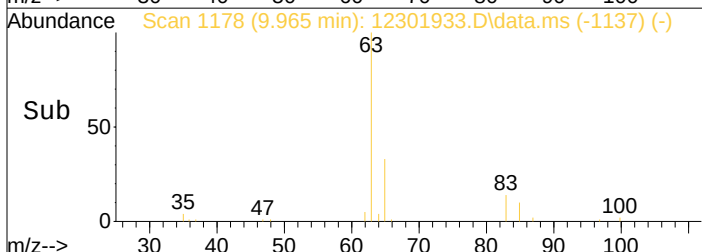
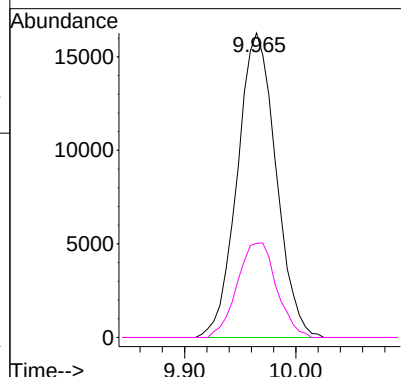
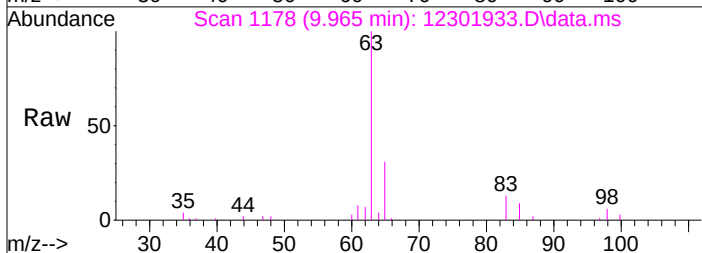
#23
 trans-1,2-Dichloroethene
 Concen: 0.92 ng
 RT: 9.71 min Scan# 1132
 Delta R.T. -0.022 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

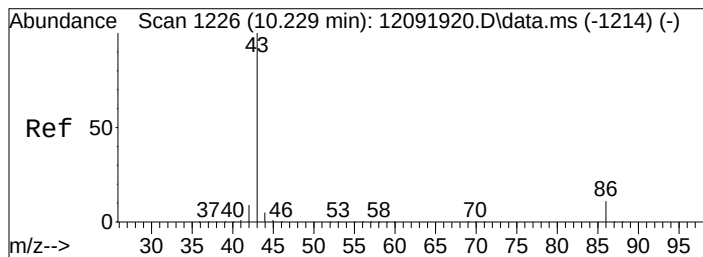
Tgt Ion: 61 Resp: 32358
 Ion Ratio Lower Upper
 61 100
 96 72.4 57.2 97.2



#24
 1,1-Dichloroethane
 Concen: 0.87 ng
 RT: 9.96 min Scan# 1178
 Delta R.T. -0.022 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

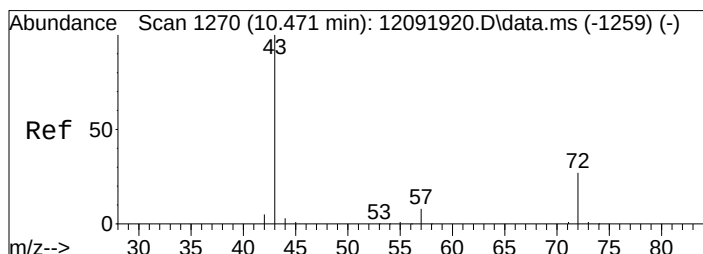
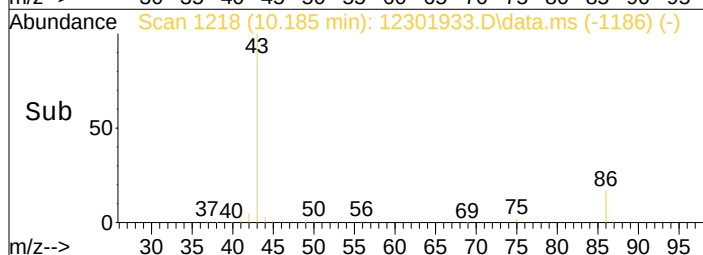
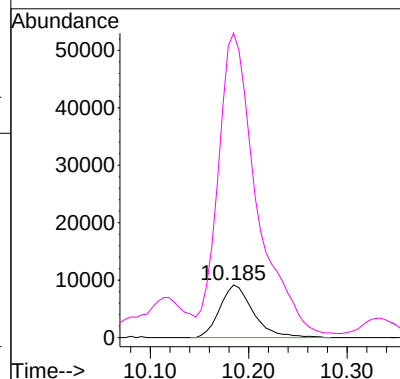
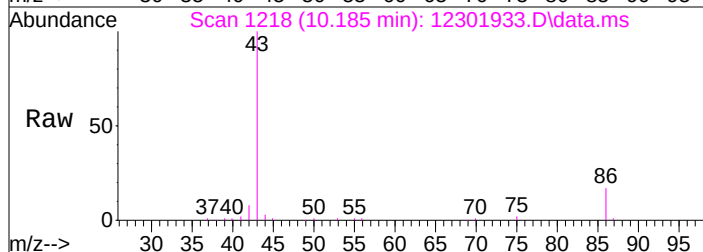
Tgt Ion: 63 Resp: 39275
 Ion Ratio Lower Upper
 63 100
 65 31.7 11.8 51.8





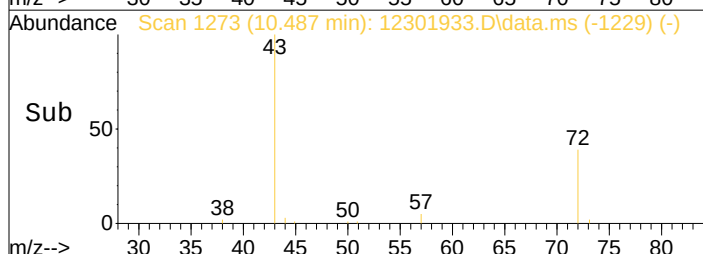
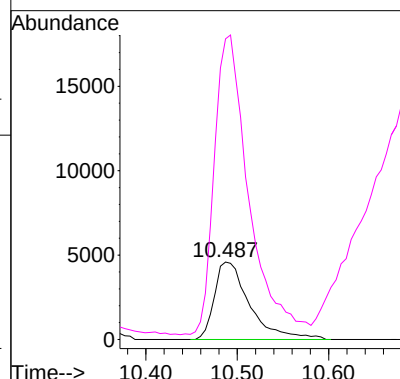
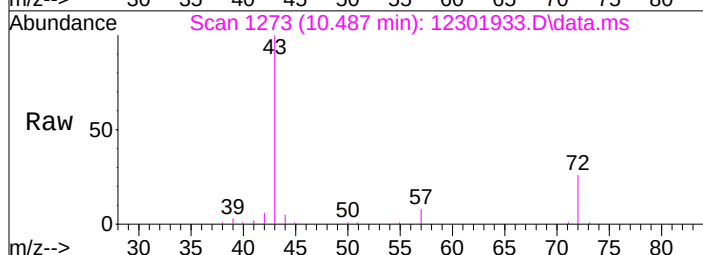
#26
 Vinyl Acetate
 Concen: 3.36 ng
 RT: 10.18 min Scan# 1218
 Delta R.T. -0.071 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

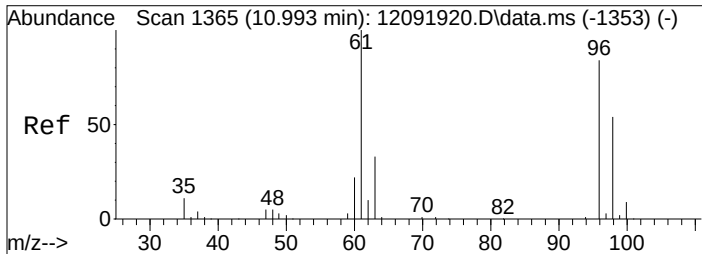
Tgt Ion: 86 Resp: 21597
 Ion Ratio Lower Upper
 86 100
 43 675.4 945.6 985.6#



#27
 2-Butanone (MEK)
 Concen: 0.72 ng
 RT: 10.49 min Scan# 1273
 Delta R.T. -0.006 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

Tgt Ion: 72 Resp: 12314
 Ion Ratio Lower Upper
 72 100
 43 378.5 355.2 395.2

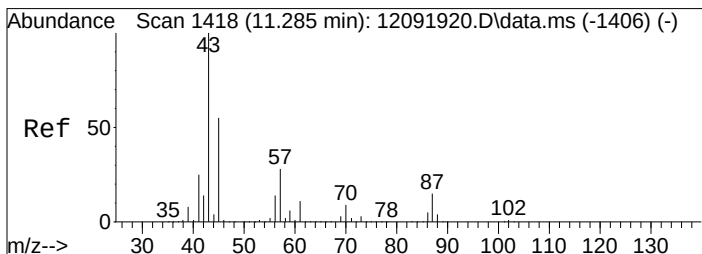
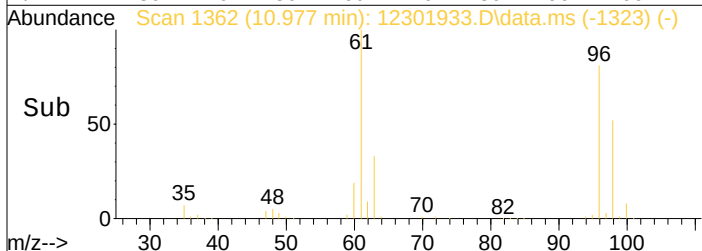
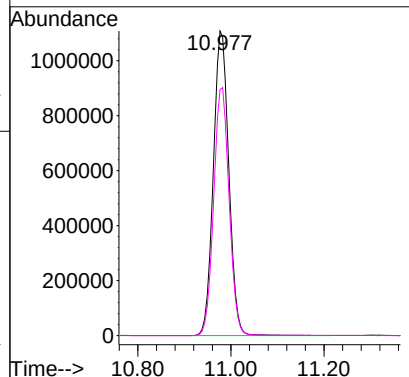
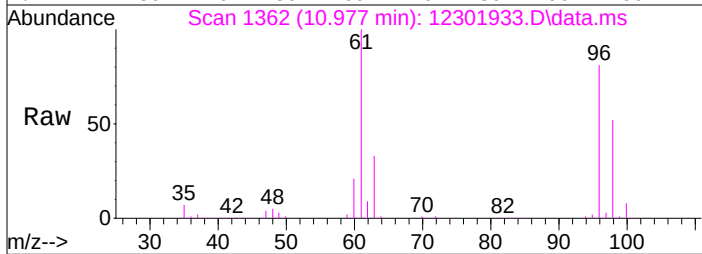




#28
 cis-1,2-Dichloroethene
 Concen: 72.05 ng
 RT: 10.98 min Scan# 1362
 Delta R.T. -0.033 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

Tgt Ion: 61 Resp: 2552987

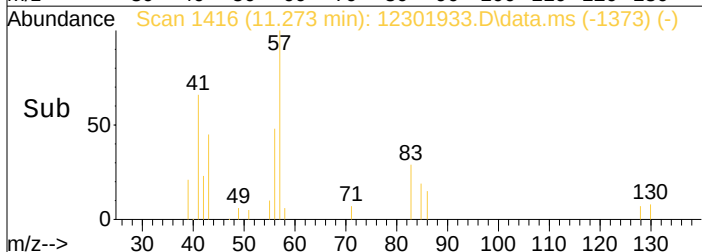
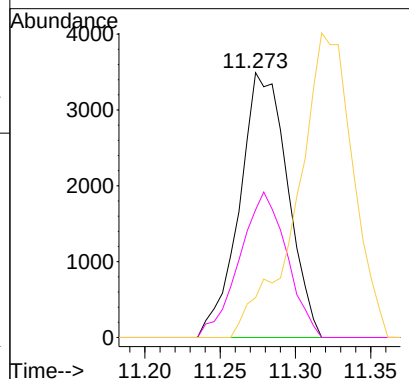
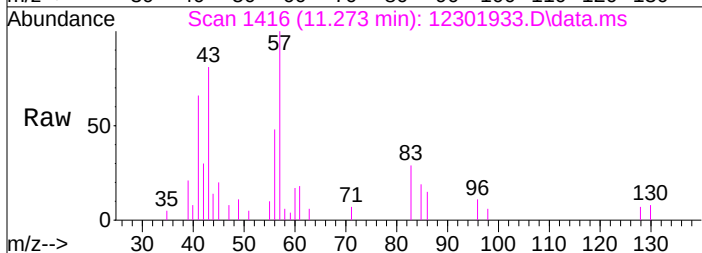
Ion	Ratio	Lower	Upper
61	100		
96	81.6	64.4	104.4

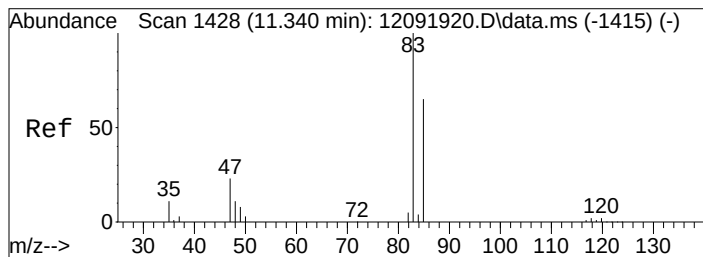


#31
 n-Hexane
 Concen: 0.18 ng
 RT: 11.27 min Scan# 1416
 Delta R.T. -0.011 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

Tgt Ion: 57 Resp: 7739

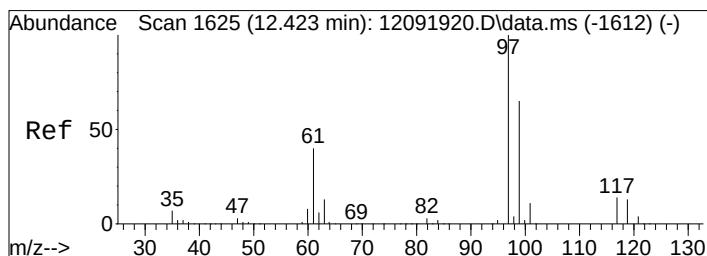
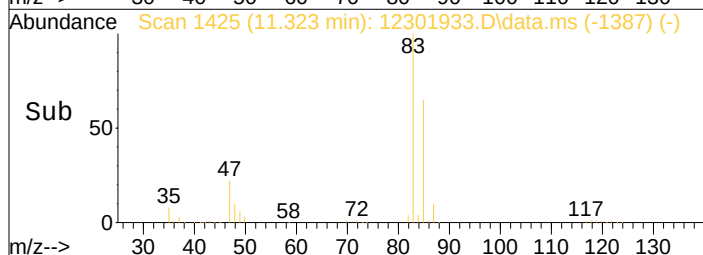
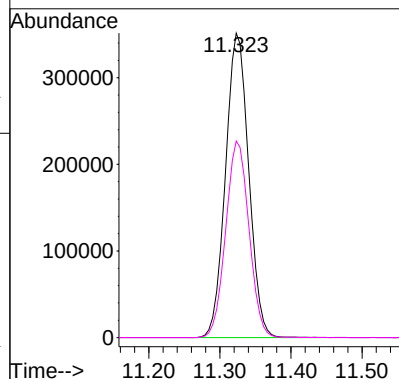
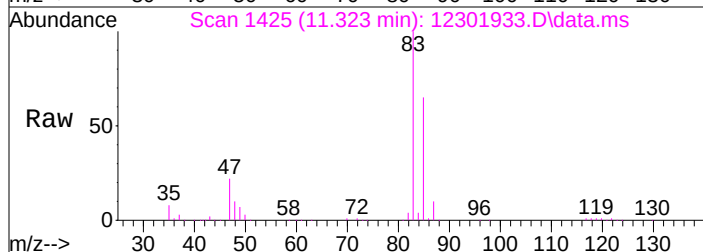
Ion	Ratio	Lower	Upper
57	100		
56	54.2	41.5	62.3
86	133.4	15.0	22.6#





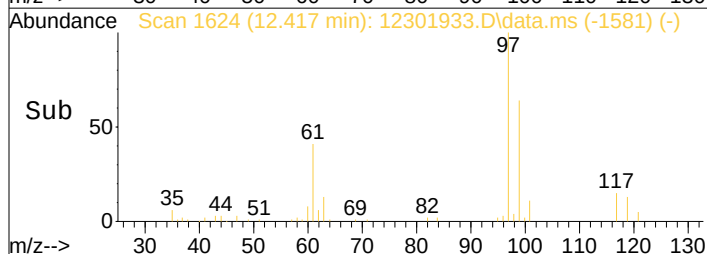
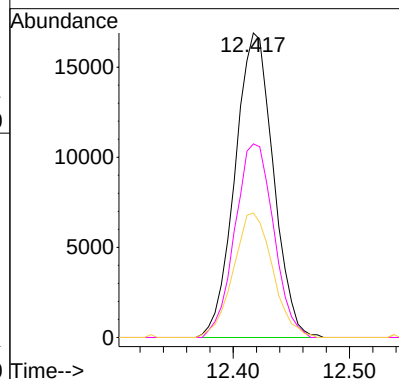
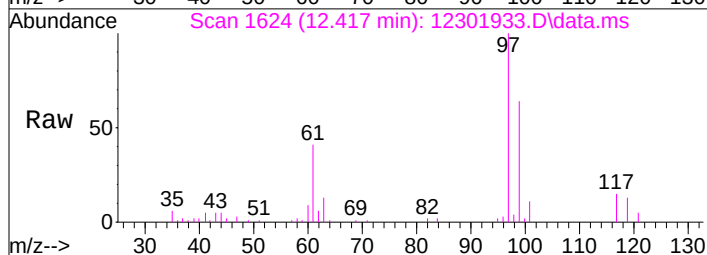
#32
Chloroform
Concen: 16.09 ng
RT: 11.32 min Scan# 1425
Delta R.T. -0.038 min
Lab File: 12301933.D
Acq: 31 Dec 2019 00:01

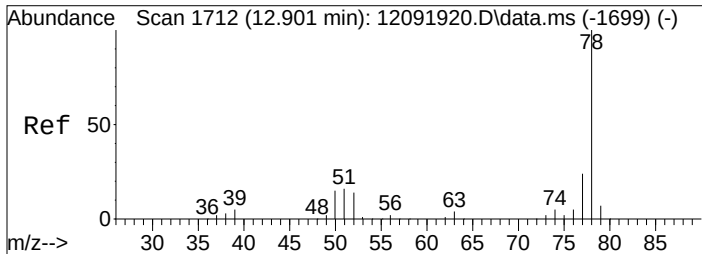
Tgt Ion: 83 Resp: 796293
Ion Ratio Lower Upper
83 100
85 64.8 45.5 85.5



#38
1,1,1-Trichloroethane
Concen: 0.83 ng
RT: 12.42 min Scan# 1624
Delta R.T. -0.011 min
Lab File: 12301933.D
Acq: 31 Dec 2019 00:01

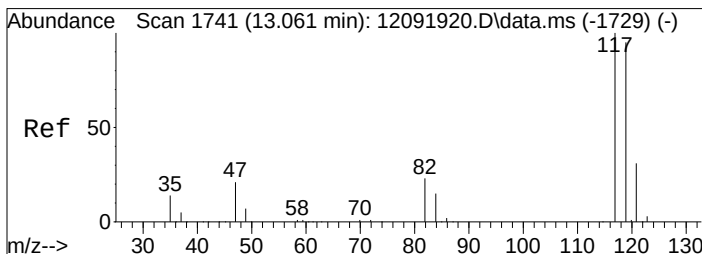
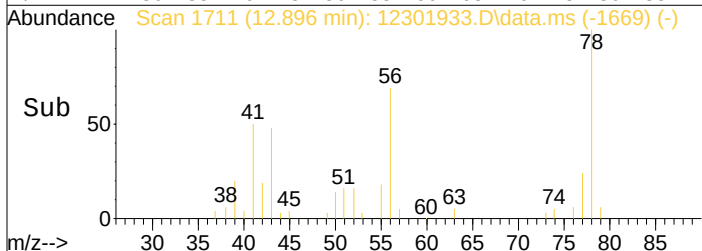
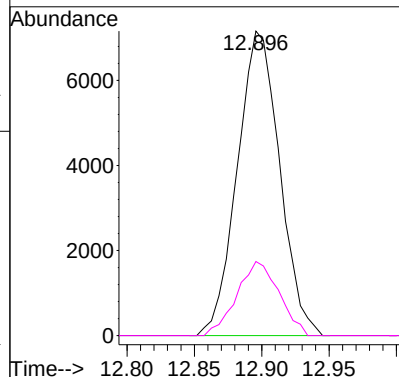
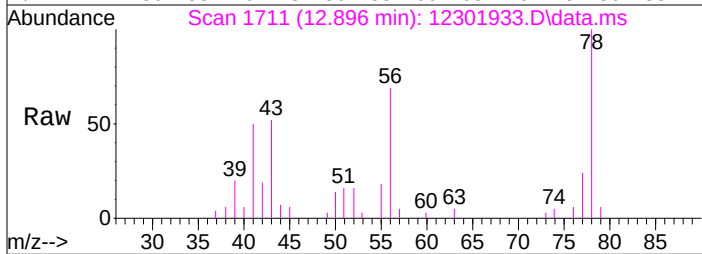
Tgt Ion: 97 Resp: 38674
Ion Ratio Lower Upper
97 100
99 64.3 44.7 84.7
61 42.1 21.2 61.2





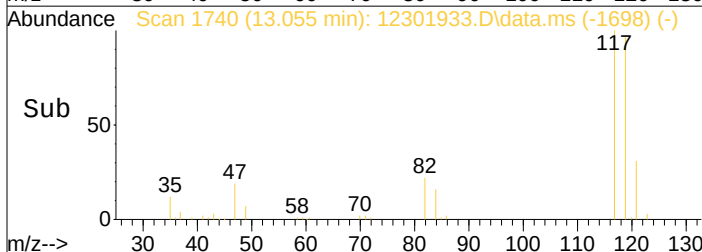
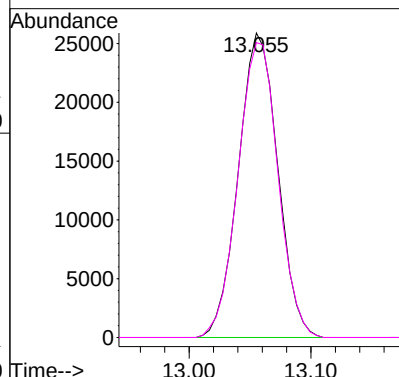
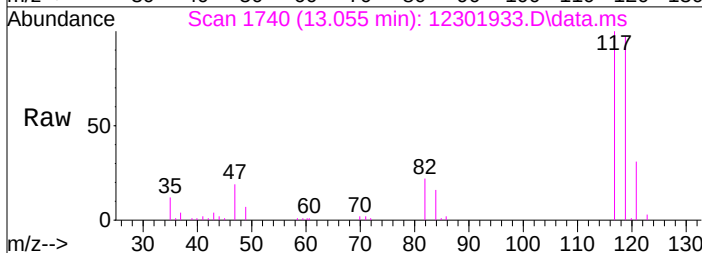
#41
Benzene
Concen: 0.14 ng
RT: 12.90 min Scan# 1711
Delta R.T. -0.016 min
Lab File: 12301933.D
Acq: 31 Dec 2019 00:01

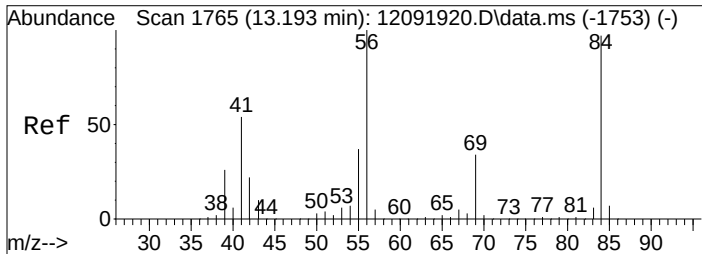
Tgt Ion: 78 Resp: 15656
Ion Ratio Lower Upper
78 100
77 24.2 3.5 43.5



#42
Carbon Tetrachloride
Concen: 1.33 ng
RT: 13.06 min Scan# 1740
Delta R.T. -0.016 min
Lab File: 12301933.D
Acq: 31 Dec 2019 00:01

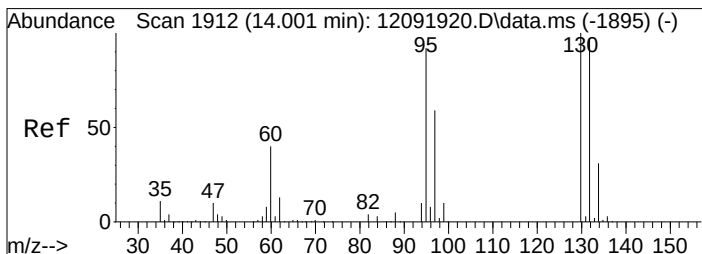
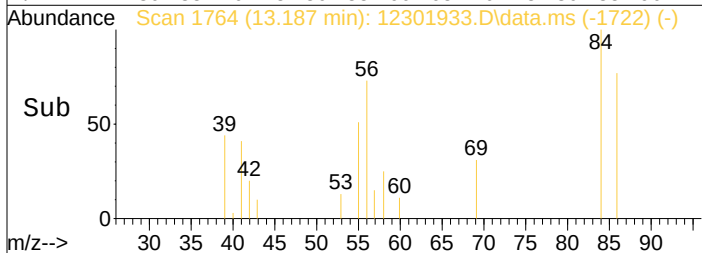
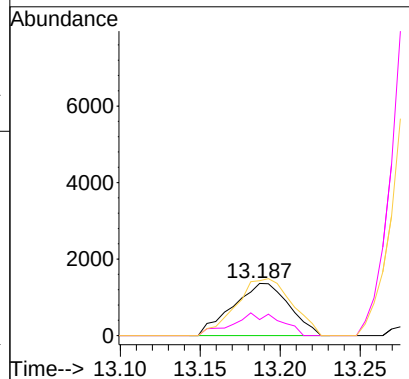
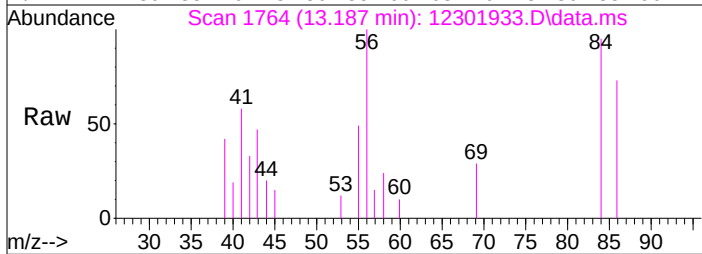
Tgt Ion: 117 Resp: 58083
Ion Ratio Lower Upper
117 100
119 98.7 76.3 116.3





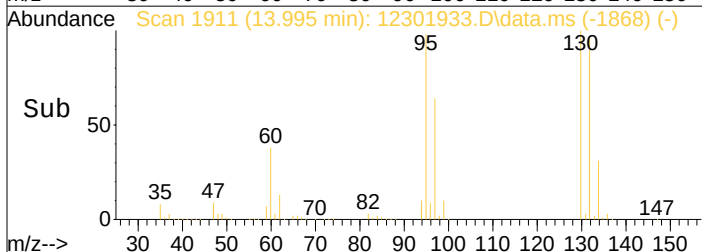
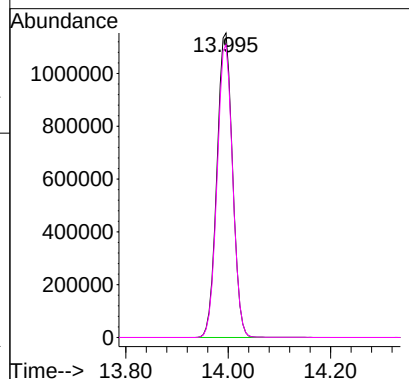
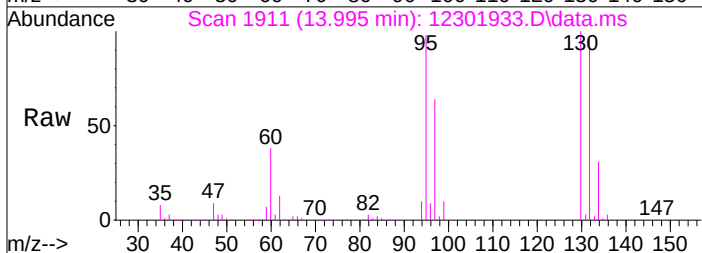
#43
 Cyclohexane
 Concen: 0.08 ng
 RT: 13.19 min Scan# 1764
 Delta R.T. -0.017 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

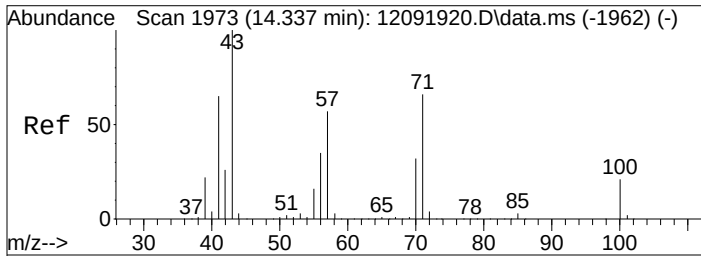
Tgt Ion:	84	Resp:	3346
Ion Ratio		Lower	Upper
84	100		
69	37.5	14.9	54.9
56	107.4	83.9	123.9



#47
 Trichloroethene
 Concen: 72.45 ng
 RT: 14.00 min Scan# 1911
 Delta R.T. -0.011 min
 Lab File: 12301933.D
 Acq: 31 Dec 2019 00:01

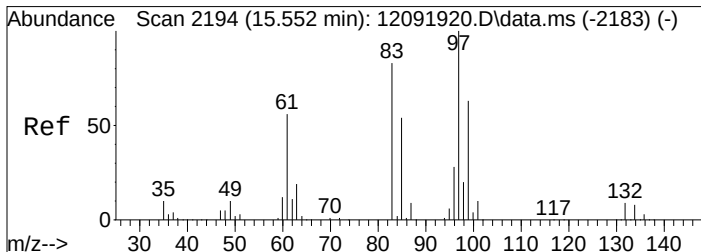
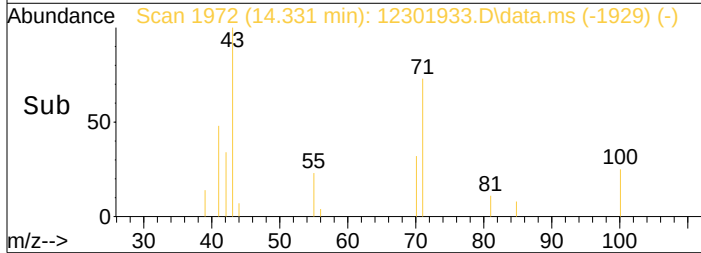
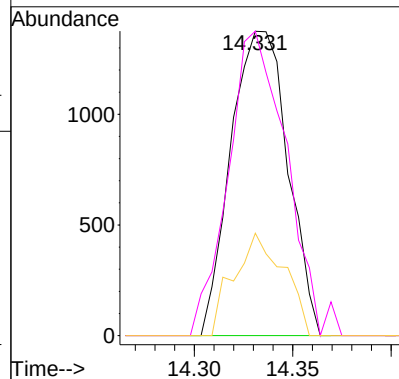
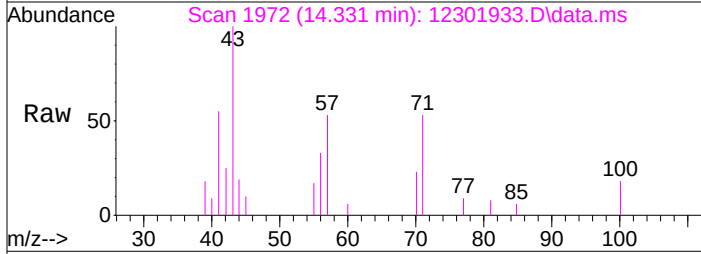
Tgt Ion:	130	Resp:	2438732
Ion Ratio		Lower	Upper
130	100		
132	96.0	75.9	115.9





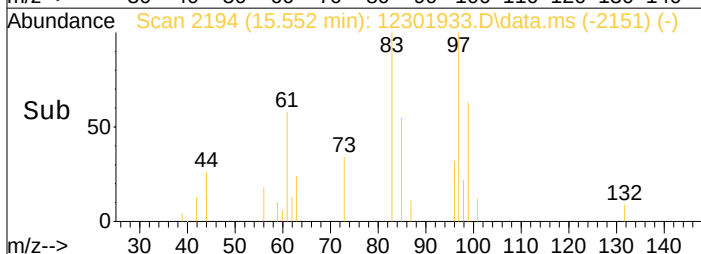
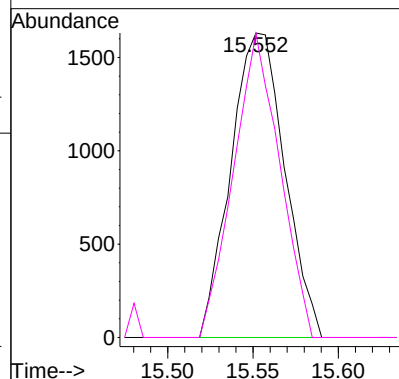
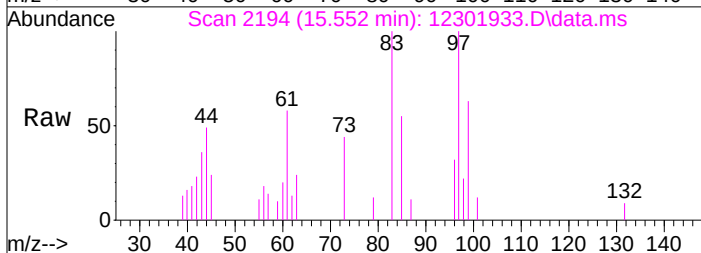
#51
n-Heptane
Concen: 0.11 ng
RT: 14.33 min Scan# 1972
Delta R.T. -0.011 min
Lab File: 12301933.D
Acq: 31 Dec 2019 00:01

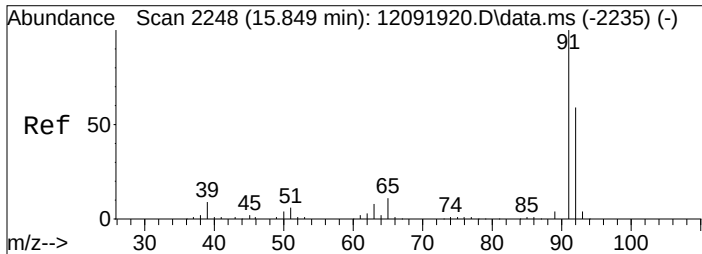
Tgt Ion: 71 Resp: 2772
Ion Ratio Lower Upper
71 100
57 102.2 66.1 106.1
100 29.5 11.4 51.4



#55
1,1,2-Trichloroethane
Concen: 0.13 ng
RT: 15.55 min Scan# 2194
Delta R.T. -0.011 min
Lab File: 12301933.D
Acq: 31 Dec 2019 00:01

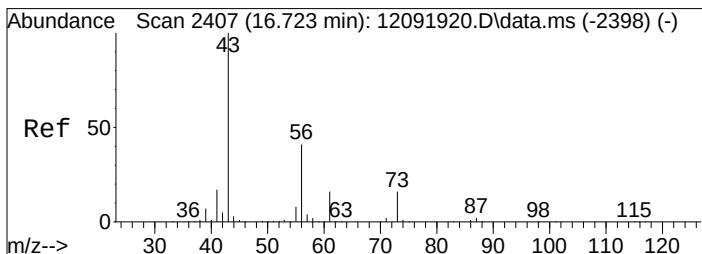
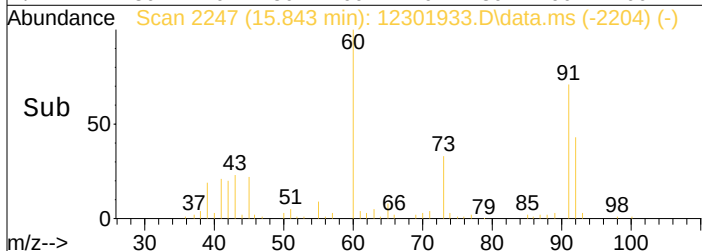
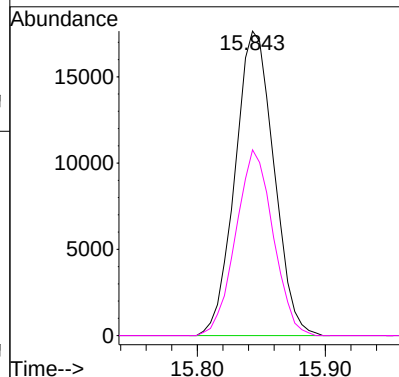
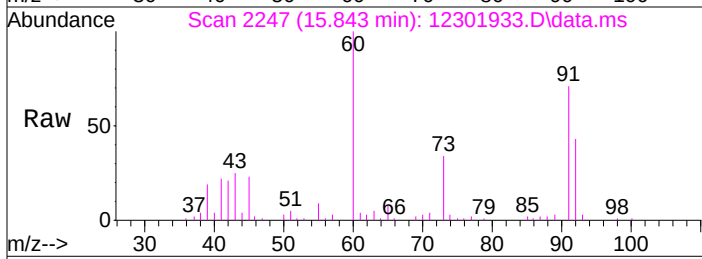
Tgt Ion: 97 Resp: 3581
Ion Ratio Lower Upper
97 100
83 85.5 63.3 103.3





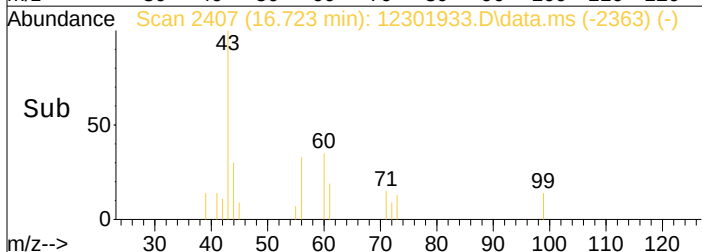
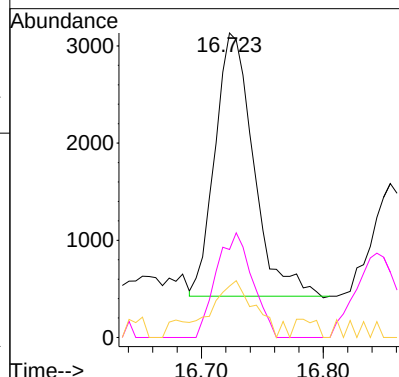
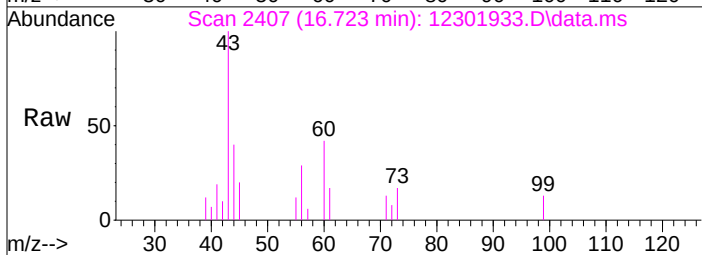
#58
Toluene
Concen: 0.30 ng
RT: 15.84 min Scan# 2247
Delta R.T. -0.011 min
Lab File: 12301933.D
Acq: 31 Dec 2019 00:01

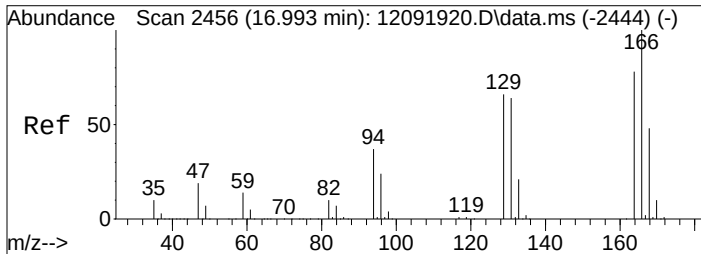
Tgt Ion: 91 Resp: 37155
Ion Ratio Lower Upper
91 100
92 58.7 39.5 79.5



#62
n-Butyl Acetate
Concen: 0.10 ng
RT: 16.72 min Scan# 2407
Delta R.T. -0.006 min
Lab File: 12301933.D
Acq: 31 Dec 2019 00:01

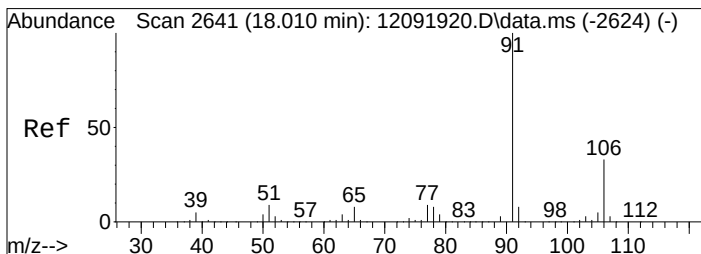
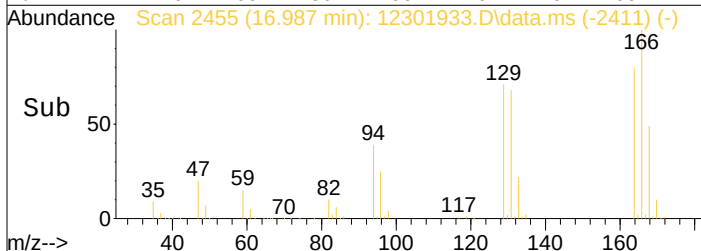
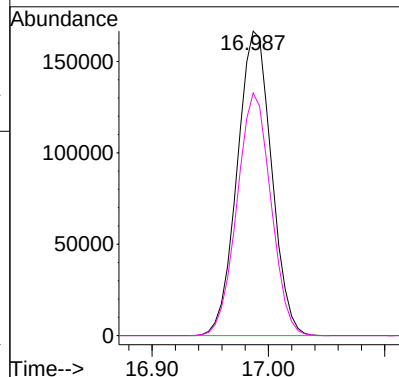
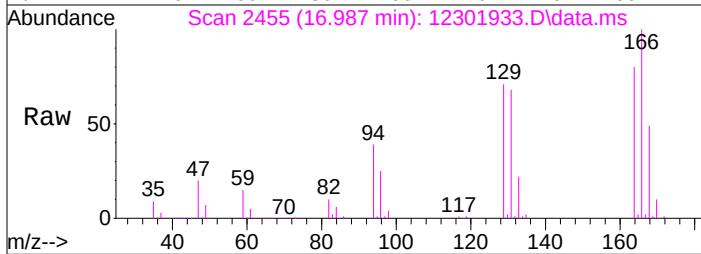
Tgt Ion: 43 Resp: 5947
Ion Ratio Lower Upper
43 100
56 37.3 20.7 60.7
73 22.8 0.0 35.9





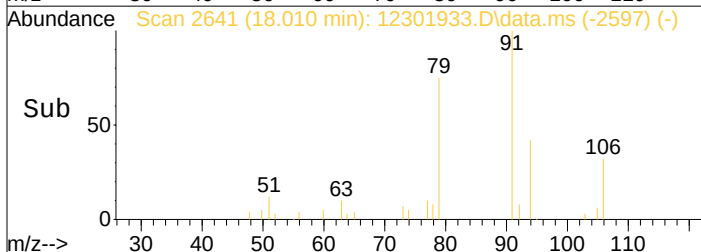
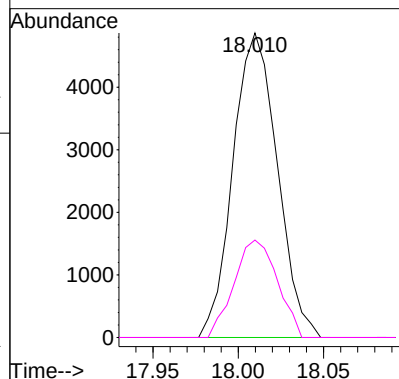
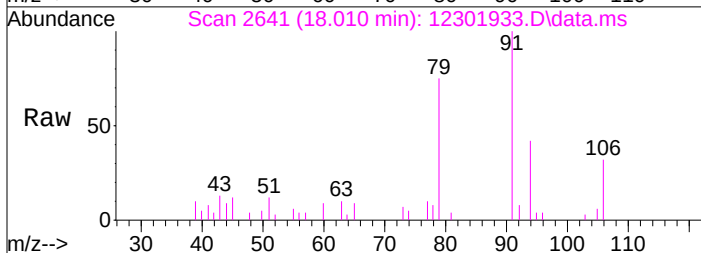
#64
Tetrachloroethene
Concen: 8.43 ng
RT: 16.99 min Scan# 2455
Delta R.T. -0.006 min
Lab File: 12301933.D
Acq: 31 Dec 2019 00:01

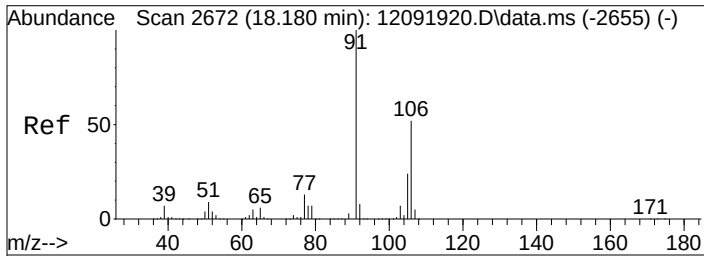
Tgt Ion: 166 Resp: 341890
Ion Ratio Lower Upper
166 100
164 78.6 58.2 98.2



#66
Ethylbenzene
Concen: 0.06 ng
RT: 18.01 min Scan# 2641
Delta R.T. -0.005 min
Lab File: 12301933.D
Acq: 31 Dec 2019 00:01

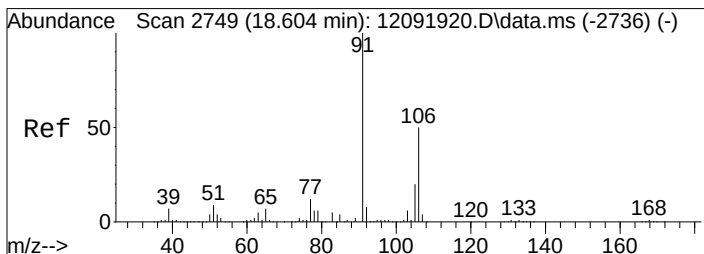
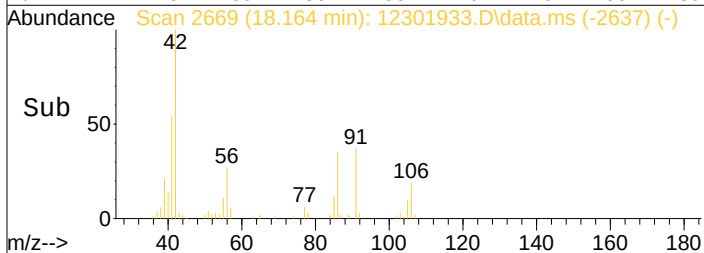
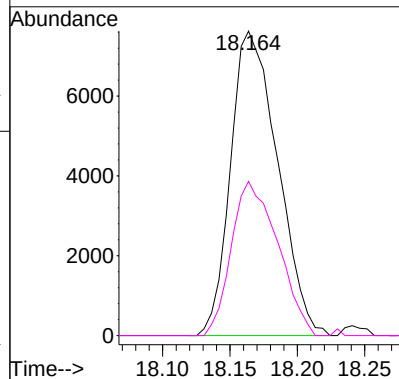
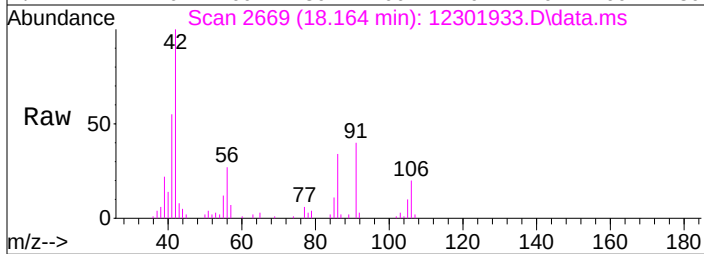
Tgt Ion: 91 Resp: 8800
Ion Ratio Lower Upper
91 100
106 31.2 12.7 52.7





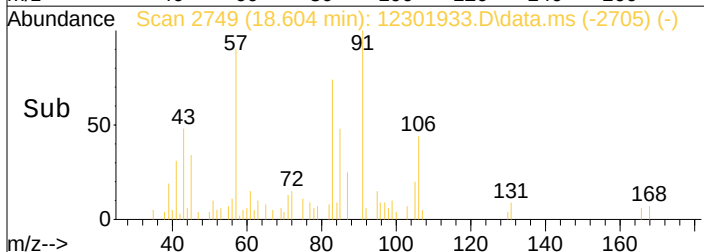
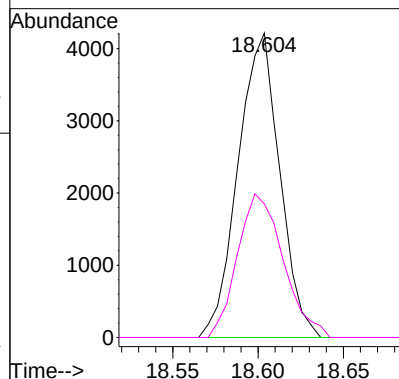
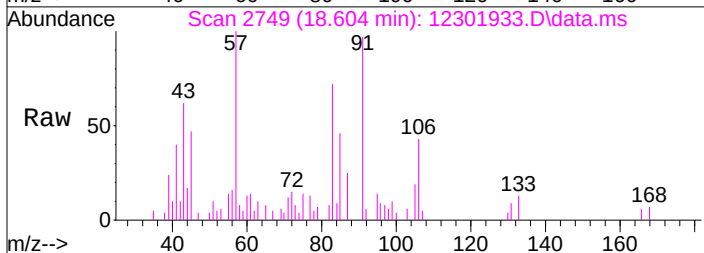
#67
m- & p-Xylenes
Concen: 0.16 ng
RT: 18.16 min Scan# 2669
Delta R.T. -0.022 min
Lab File: 12301933.D
Acq: 31 Dec 2019 00:01

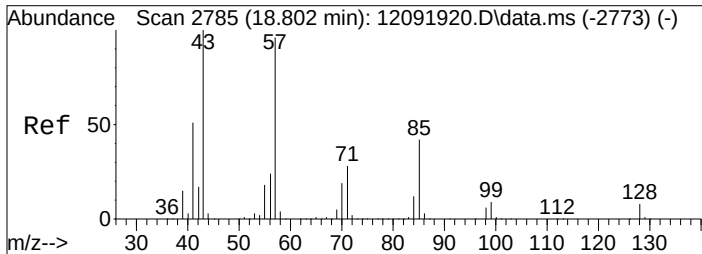
Tgt Ion: 91 Resp: 18500
Ion Ratio Lower Upper
91 100
106 50.0 31.5 71.5



#70
o-Xylene
Concen: 0.06 ng
RT: 18.60 min Scan# 2749
Delta R.T. -0.006 min
Lab File: 12301933.D
Acq: 31 Dec 2019 00:01

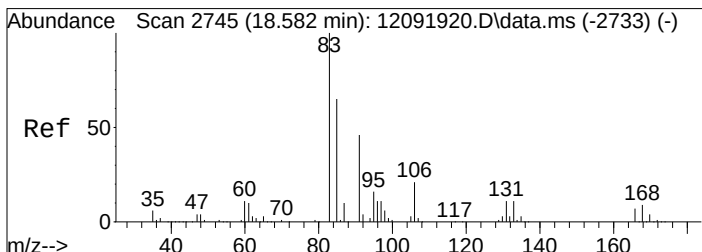
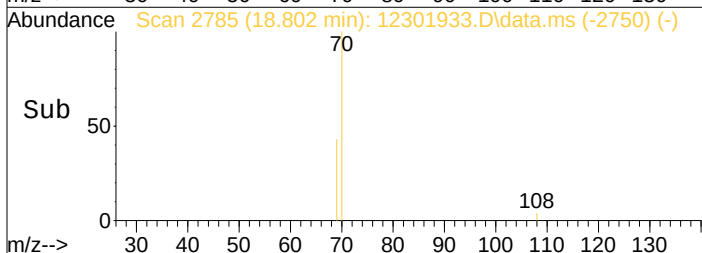
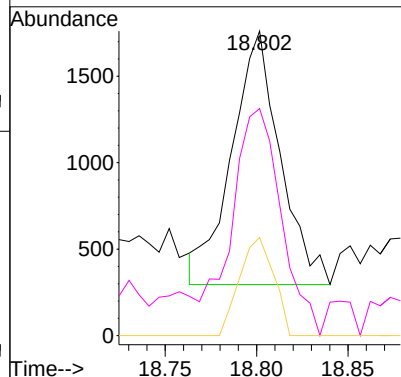
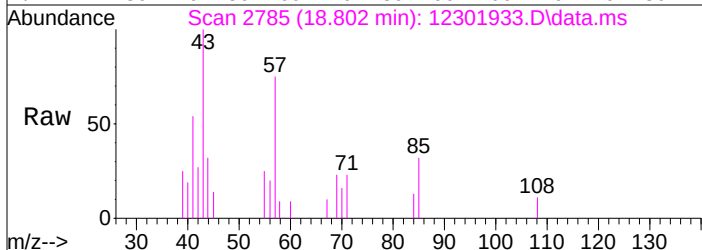
Tgt Ion: 91 Resp: 7150
Ion Ratio Lower Upper
91 100
106 51.9 29.1 69.1





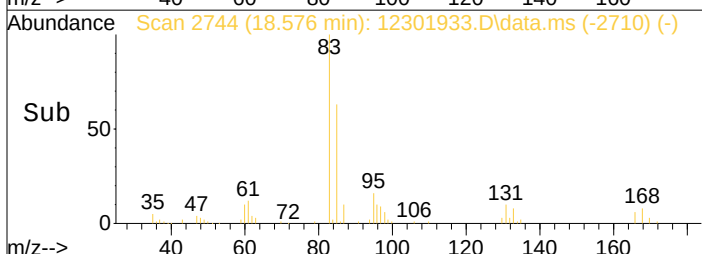
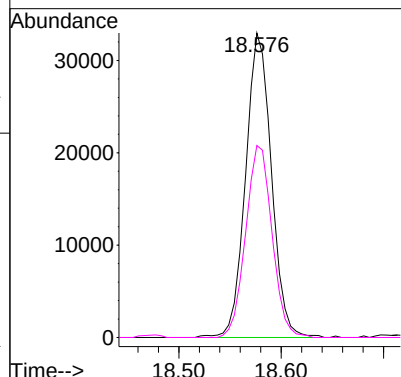
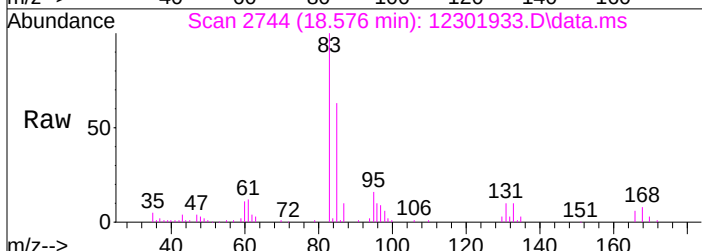
#71
n-Nonane
Concen: 0.06 ng
RT: 18.80 min Scan# 2785
Delta R.T. -0.005 min
Lab File: 12301933.D
Acq: 31 Dec 2019 00:01

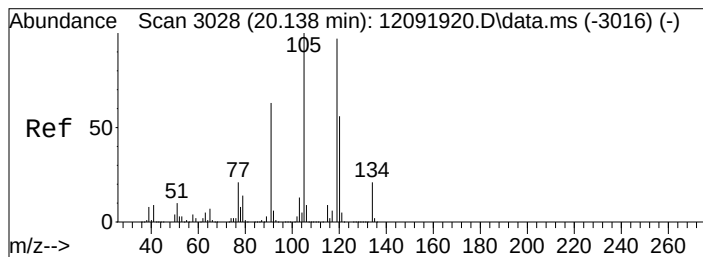
Tgt Ion:	43	Resp:	2700
Ion Ratio		Lower	Upper
43	100		
57	90.9	74.4	114.4
85	27.4	20.5	60.5



#72
1,1,2,2-Tetrachloroethane
Concen: 1.13 ng
RT: 18.58 min Scan# 2744
Delta R.T. -0.011 min
Lab File: 12301933.D
Acq: 31 Dec 2019 00:01

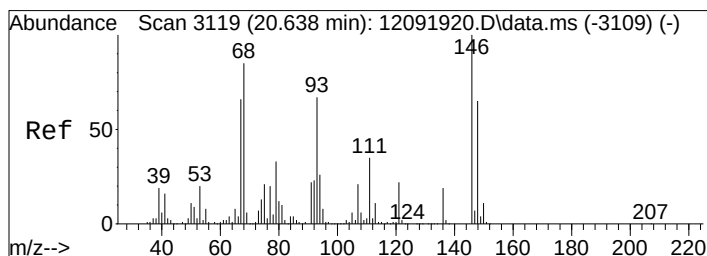
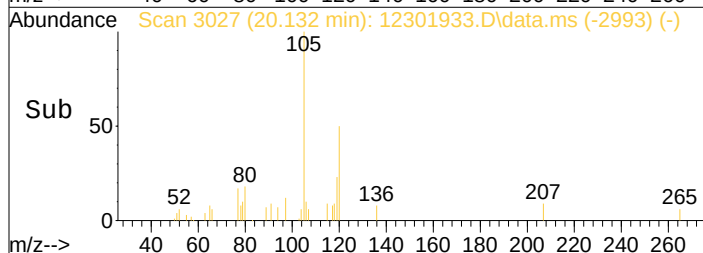
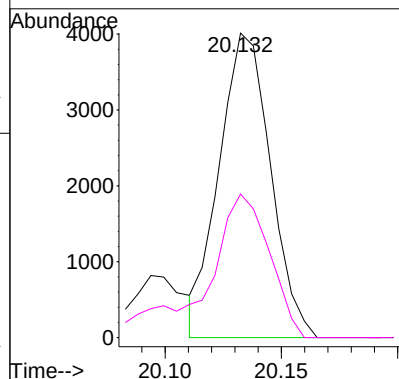
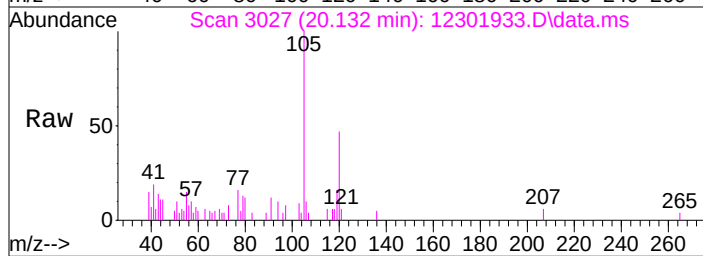
Tgt Ion:	83	Resp:	57844
Ion Ratio		Lower	Upper
83	100		
85	64.4	45.1	85.1





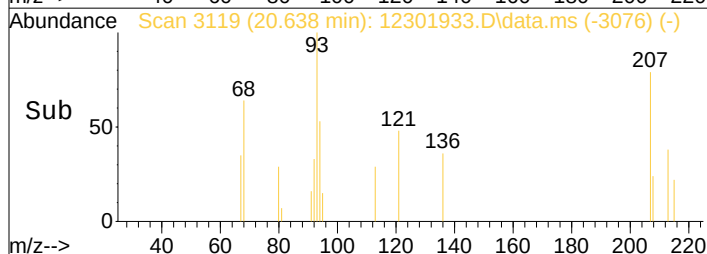
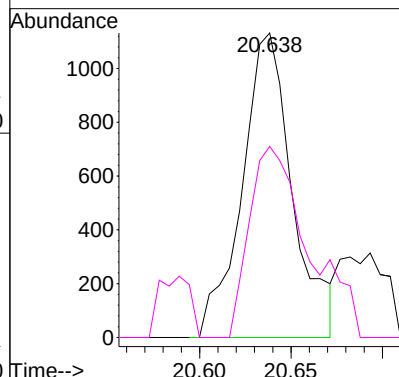
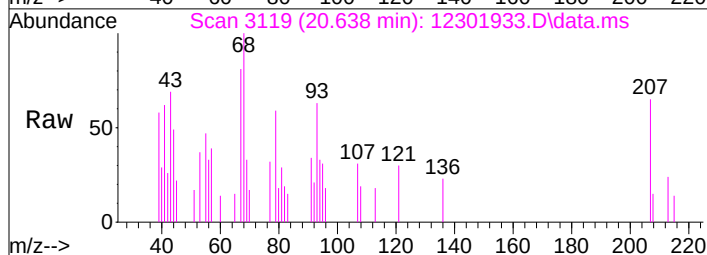
#82
1,2,4-Trimethylbenzene
Concen: 0.05 ng
RT: 20.13 min Scan# 3027
Delta R.T. -0.011 min
Lab File: 12301933.D
Acq: 31 Dec 2019 00:01

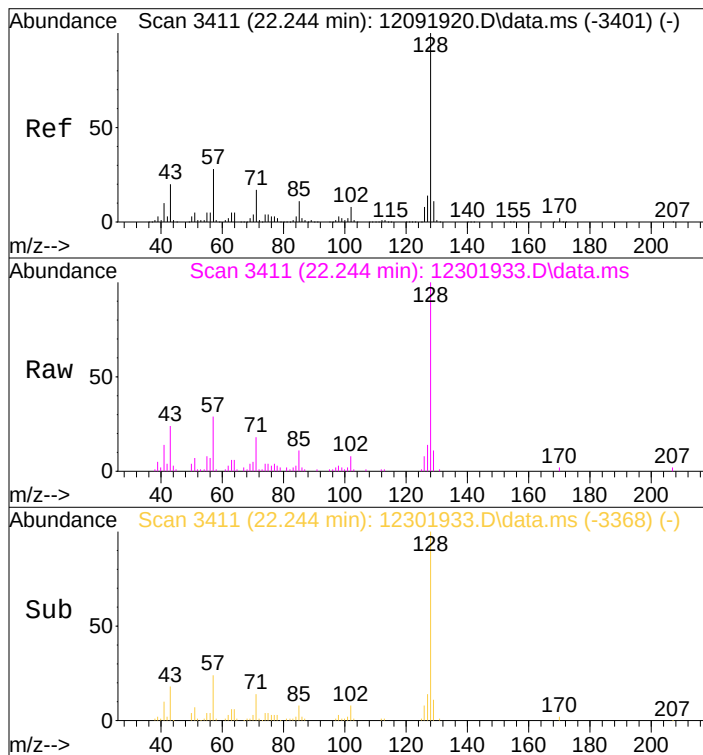
Tgt Ion: 105 Resp: 6165
Ion Ratio Lower Upper
105 100
120 58.1 36.1 76.1



#91
d-Limonene
Concen: 0.05 ng
RT: 20.64 min Scan# 3119
Delta R.T. -0.011 min
Lab File: 12301933.D
Acq: 31 Dec 2019 00:01

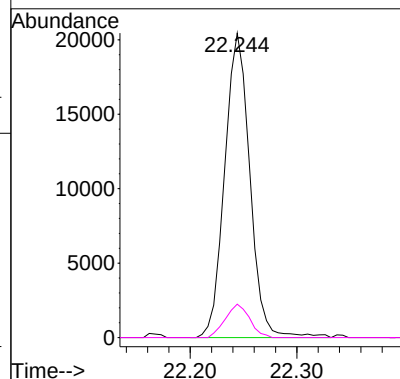
Tgt Ion: 68 Resp: 2177
Ion Ratio Lower Upper
68 100
93 73.2 59.0 99.0





#95
Naphthalene
Concen: 0.20 ng
RT: 22.24 min Scan# 3411
Delta R.T. -0.011 min
Lab File: 12301933.D
Acq: 31 Dec 2019 00:01

Tgt Ion	Ratio	Resp	Lower	Upper
128	100	33591		
129	10.6	0.0	31.1	



Data File: I:\MS16\DATA\2019_12\30\12301904.D

Acq On : 30 Dec 2019 5:12

Operator: SC

Sample : MB R16123019_1000mL

Misc : S31-10161904/AS01319

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 30 09:09:03 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

LH 12/30/19

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.15	130	289970	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.29	114	1261170	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.61	82	583586	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.01	65	429054	12.246	ng	-0.03
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.00%	
57) Toluene-d8 (SS2)	15.74	98	1282803	12.265	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.08%	
73) Bromofluorobenzene (SS3)	19.00	174	485696	11.025	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	88.24%	

Target Compounds

						Qvalue
2) Propene	4.17	42	493	N.D.		
3) Dichlorodifluoromethan...	0.00	85	0	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.36	45	7388	0.429	ng	81
11) Acetonitrile	6.64	41	2687	0.061	ng	# 1
12) Acrolein	0.00	56	0	N.D.		
13) Acetone	7.08	58	2738	0.144	ng	91
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	7.62	45	709	N.D.		
16) Acrylonitrile	7.81	53	431	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.		
19) Methylene Chloride	0.00	84	0	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	0.00	151	0	N.D.		
22) Carbon Disulfide	8.72	76	566	N.D.		
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	0.00	72	0	N.D.		
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.		
31) n-Hexane	0.00	57	0	N.D.		
32) Chloroform	0.00	83	0	N.D.		
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	12.92	56	1324	0.054	ng	# 73
41) Benzene	12.90	78	754	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	13.29	84	663	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.		
47) Trichloroethene	0.00	130	0	N.D.		
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.		

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Data File: I:\MS16\DATA\2019_12\30\12301904.D

Acq On : 30 Dec 2019 5:12

Operator: SC

Sample : MB R16123019_1000mL

Misc : S31-10161904/AS01319

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 30 09:09:03 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	0.00	100	0	N.D.		
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.85	91	2480	N.D.		
59) 2-Hexanone	16.14	43	373	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.76	43	357	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	0.00	166	0	N.D.		
65) Chlorobenzene	17.65	112	134	N.D.		
66) Ethylbenzene	18.02	91	611	N.D.		
67) m- & p-Xylenes	18.17	91	3514	N.D.		
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.52	104	416	N.D.		
70) o-Xylene	18.60	91	1701	N.D.		
71) n-Nonane	0.00	43	0	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	19.14	105	161	N.D.		
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	19.54	91	1434	N.D.		
77) 3-Ethyltoluene	19.68	105	418	N.D.		
78) 4-Ethyltoluene	19.70	105	650	N.D.		
79) 1,3,5-Trimethylbenzene	19.77	105	675	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	19.95	105	512	N.D.		
82) 1,2,4-Trimethylbenzene	20.14	105	565	N.D.		
83) n-Decane	20.41	57	118	N.D.		
84) Benzyl Chloride	20.25	91	480	N.D.		
85) 1,3-Dichlorobenzene	20.27	146	731	N.D.		
86) 1,4-Dichlorobenzene	20.33	146	985	N.D.		
87) sec-Butylbenzene	20.52	105	124	N.D.		
88) 4-Isopropyltoluene (p-...	20.52	119	242	N.D.		
89) 1,2,3-Trimethylbenzene	20.52	105	124	N.D.		
90) 1,2-Dichlorobenzene	20.63	146	412	N.D.		
91) d-Limonene	0.00	68	0	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	21.21	57	188	N.D.		
94) 1,2,4-Trichlorobenzene	22.15	180	946	N.D.		
95) Naphthalene	22.25	128	4210	N.D.		
96) n-Dodecane	0.00	57	0	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	18.33	55	389	N.D.		
99) tert-Butylbenzene	0.00	119	0	N.D.		
100) n-Butylbenzene	20.88	91	331	N.D.		

(#)=qualifier out of range (m)=manual integration (+)=signals summed

Data File: I:\MS16\DATA\2019_12\30\12301904.D

Acq On : 30 Dec 2019 5:12

Operator: SC

Sample : MB R16123019_1000mL

Misc : S31-10161904/AS01319

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 30 09:09:03 2019

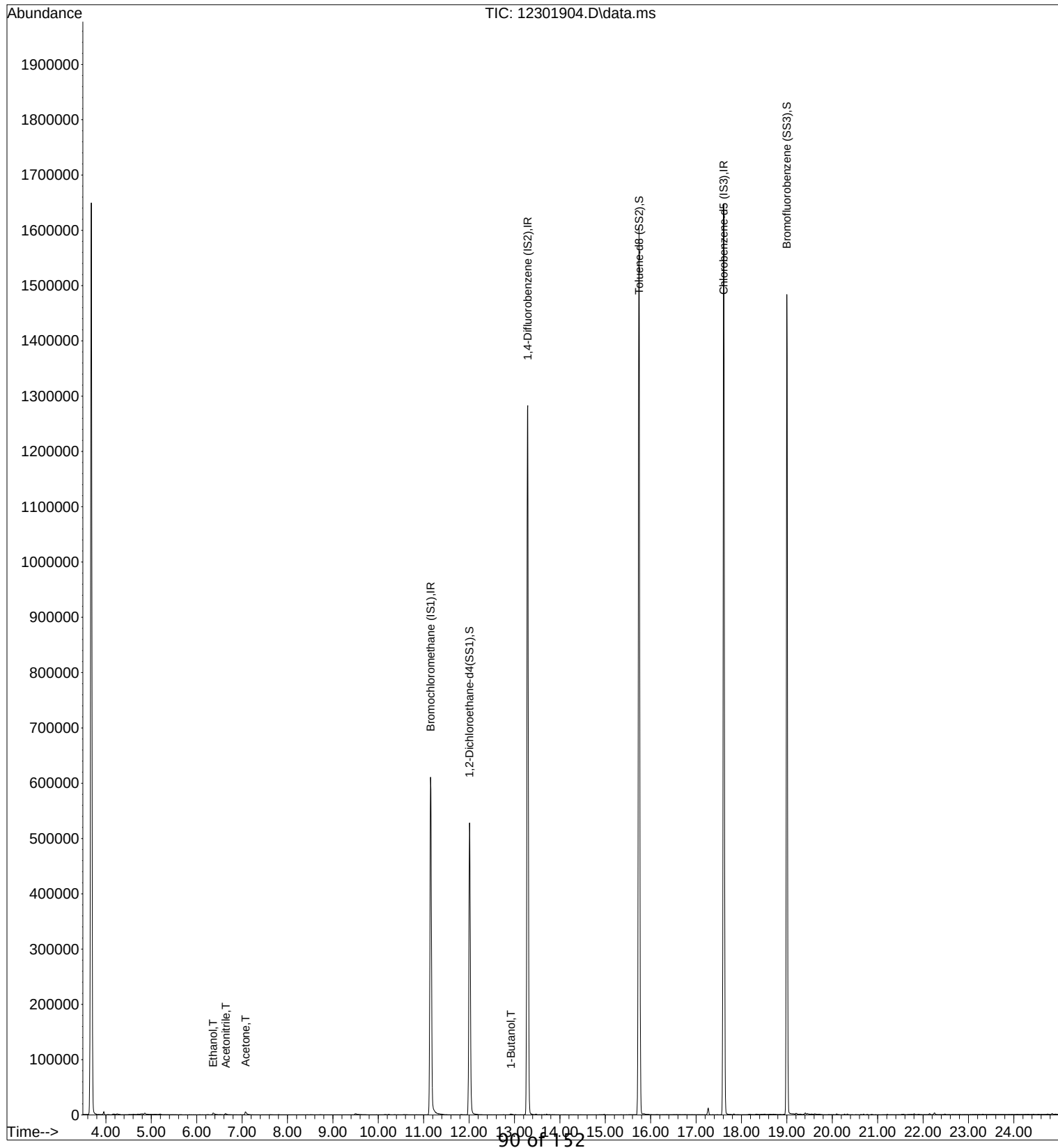
Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_12\30\12301905.D

Acq On : 30 Dec 2019 5:45

Operator: SC

Sample : LCS R16123019_25ng

Misc : S31-10161904/S31-12191903 (1/17)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 30 09:09:05 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

LH 12/30/19

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	306921	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.30	114	1300417	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.61	82	603244	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.03	65	446224	12.032	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	96.24%	
57) Toluene-d8 (SS2)	15.75	98	1319965	12.209	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	97.68%	
73) Bromofluorobenzene (SS3)	19.01	174	511239	11.227	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	89.84%	

Target Compounds

						Qvalue
2) Propene	4.11	42	778885	27.911	ng	96
3) Dichlorodifluoromethan...	4.26	85	1491514	24.689	ng	100
4) Chloromethane	4.54	50	1042389	28.224	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	800905	20.931	ng	100
6) Vinyl Chloride	4.97	62	1112109	26.619	ng	99
7) 1,3-Butadiene	5.24	54	818452	28.612	ng	99
8) Bromomethane	5.67	94	662675	25.231	ng	99
9) Chloroethane	6.00	64	514277	28.342	ng	100
10) Ethanol	6.37	45	2752928	150.948	ng	99
11) Acetonitrile	6.62	41	1319015	28.305	ng	98
12) Acrolein	6.81	56	455907	30.627	ng	99
13) Acetone	7.01	58	2868727	142.652	ng	# 83
14) Trichlorofluoromethane	7.26	101	1352726	24.304	ng	100
15) 2-Propanol (Isopropanol)	7.50	45	3620166	63.680	ng	95
16) Acrylonitrile	7.77	53	1003752	31.693	ng	99
17) 1,1-Dichloroethene	8.23	96	754584	27.294	ng	98
18) 2-Methyl-2-Propanol (t...	8.38	59	3939205	63.855	ng	96
19) Methylene Chloride	8.45	84	786503	27.731	ng	98
20) 3-Chloro-1-propene (Al...	8.61	41	1058075	29.123	ng	97
21) Trichlorotrifluoroethane	8.87	151	727489	24.611	ng	94
22) Carbon Disulfide	8.71	76	2851860	28.933	ng	100
23) trans-1,2-Dichloroethene	9.72	61	1082964	29.651	ng	97
24) 1,1-Dichloroethane	9.98	63	1289953	27.805	ng	100
25) Methyl tert-Butyl Ether	10.07	73	2294346	29.351	ng	98
26) Vinyl Acetate	10.23	86	941646	141.812	ng	# 88
27) 2-Butanone (MEK)	10.47	72	541701	30.547	ng	100
28) cis-1,2-Dichloroethene	11.00	61	1051690	28.731	ng	96
29) Diisopropyl Ether	11.29	87	812566	29.539	ng	# 88
30) Ethyl Acetate	11.30	61	633045	64.398	ng	96
31) n-Hexane	11.28	57	1310227	30.265	ng	98
32) Chloroform	11.34	83	1375258	26.906	ng	100
34) Tetrahydrofuran (THF)	11.74	72	531176	30.010	ng	96
35) Ethyl tert-Butyl Ether	11.88	87	910629	29.737	ng	93
36) 1,2-Dichloroethane	12.14	62	986288	25.470	ng	100
38) 1,1,1-Trichloroethane	12.42	97	1244068	26.083	ng	99
39) Isopropyl Acetate	12.85	61	1080582	63.002	ng	93
40) 1-Butanol	12.87	56	1693810	66.839	ng	91
41) Benzene	12.90	78	3167915	27.408	ng	99
42) Carbon Tetrachloride	13.06	117	1116251	25.115	ng	100
43) Cyclohexane	13.20	84	2450357	55.101	ng	92
44) tert-Amyl Methyl Ether	13.54	73	2193505	31.275	ng	98
45) 1,2-Dichloropropane	13.75	63	767791	29.933	ng	100
46) Bromodichloromethane	13.95	83	1109216	27.447	ng	100
47) Trichloroethene	14.00	130	876761	25.579	ng	99
48) 1,4-Dioxane	13.97	88	687996	29.406	ng	94
49) 2,2,4-Trimethylpentane...	14.07	57	3108850	29.414	ng	92

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Data File: I:\MS16\DATA\2019_12\30\12301905.D

Acq On : 30 Dec 2019 5:45

Operator: SC

Sample : LCS R16123019_25ng

Misc : S31-10161904/S31-12191903 (1/17)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 30 09:09:05 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.20	100	702022	56.792	ng	# 88
51) n-Heptane	14.34	71	777201	29.322	ng	96
52) cis-1,3-Dichloropropene	14.86	75	1378322	30.679	ng	100
53) 4-Methyl-2-pentanone	14.90	58	762113	31.841	ng	95
54) trans-1,3-Dichloropropene	15.38	75	1186653	30.136	ng	100
55) 1,1,2-Trichloroethane	15.56	97	793355	27.468	ng	97
58) Toluene	15.85	91	3229324	25.343	ng	100
59) 2-Hexanone	16.09	43	1731203	30.063	ng	95
60) Dibromochloromethane	16.26	129	1006620	26.501	ng	100
61) 1,2-Dibromoethane	16.51	107	929812	26.636	ng	100
62) n-Butyl Acetate	16.72	43	1962340	31.631	ng	98
63) n-Octane	16.85	57	659792	29.238	ng	94
64) Tetrachloroethene	16.99	166	962141	23.138	ng	100
65) Chlorobenzene	17.65	112	2193873	24.293	ng	100
66) Ethylbenzene	18.01	91	3754797	26.506	ng	99
67) m- & p-Xylenes	18.18	91	5888365	49.712	ng	99
68) Bromoform	18.24	173	880586	26.689	ng	100
69) Styrene	18.50	104	2386131	26.373	ng	100
70) o-Xylene	18.60	91	2944982	25.813	ng	99
71) n-Nonane	18.80	43	1443923	29.166	ng	98
72) 1,1,2,2-Tetrachloroethane	18.58	83	1486703	28.380	ng	99
74) Cumene	19.13	105	3797922	25.851	ng	99
75) alpha-Pinene	19.48	93	1969221	27.167	ng	99
76) n-Propylbenzene	19.58	91	4556387	27.066	ng	98
77) 3-Ethyltoluene	19.67	105	3787946	26.078	ng	99
78) 4-Ethyltoluene	19.71	105	3625335	26.179	ng	99
79) 1,3,5-Trimethylbenzene	19.77	105	3143628	25.481	ng	99
80) alpha-Methylstyrene	19.91	118	1701586	25.555	ng	93
81) 2-Ethyltoluene	19.95	105	3745280	26.285	ng	98
82) 1,2,4-Trimethylbenzene	20.14	105	3249608	26.505	ng	98
83) n-Decane	20.23	57	1638107	31.012	ng	97
84) Benzyl Chloride	20.25	91	2871947	27.633	ng	97
85) 1,3-Dichlorobenzene	20.27	146	1921723	24.646	ng	99
86) 1,4-Dichlorobenzene	20.33	146	1923390	24.675	ng	99
87) sec-Butylbenzene	20.37	105	4204164	26.310	ng	99
88) 4-Isopropyltoluene (p-...	20.51	119	3877204	25.880	ng	99
89) 1,2,3-Trimethylbenzene	20.51	105	3186830	26.271	ng	98
90) 1,2-Dichlorobenzene	20.63	146	1869448	25.185	ng	100
91) d-Limonene	20.64	68	1217375	29.008	ng	92
92) 1,2-Dibromo-3-Chloropr...	21.01	157	698799	26.242	ng	94
93) n-Undecane	21.33	57	1705617	31.188	ng	97
94) 1,2,4-Trichlorobenzene	22.14	180	1433642	25.610	ng	100
95) Naphthalene	22.24	128	4566360	26.131	ng	100
96) n-Dodecane	22.24	57	1691762	34.476	ng	96
97) Hexachlorobutadiene	22.56	225	945516	23.931	ng	100
98) Cyclohexanone	18.30	55	1154269	29.186	ng	93
99) tert-Butylbenzene	20.14	119	3107154	25.049	ng	99
100) n-Butylbenzene	20.88	91	3428869	27.772	ng	98

(#)=qualifier out of range (m)=manual integration (+)=signals summed

Data File: I:\MS16\DATA\2019_12\30\12301905.D

Acq On : 30 Dec 2019 5:45

Operator: SC

Sample : LCS R16123019_25ng

Misc : S31-10161904/S31-12191903 (1/17)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 30 09:09:05 2019

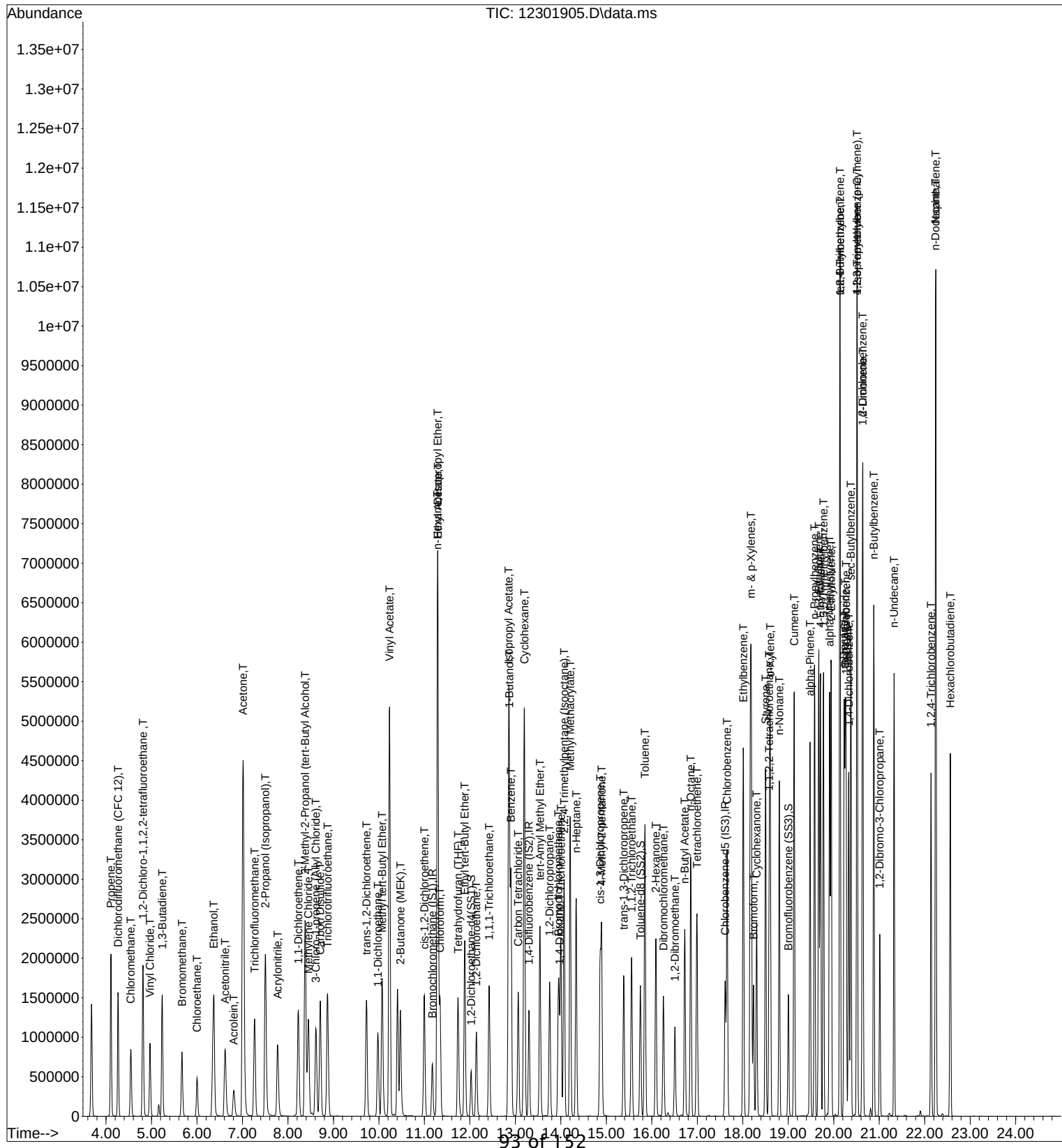
Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP V0A-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_12\30\12301906.D

Acq On : 30 Dec 2019 6:19

Operator: SC

Sample : LCSD R16123019_25ng

Misc : S31-10161904/S31-12191903 (1/17)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 30 09:09:07 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

LH 12/30/19

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	320246	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.30	114	1340155	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.61	82	624165	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.03	65	445543	11.514	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	92.08%	
57) Toluene-d8 (SS2)	15.75	98	1361450	12.171	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	97.36%	
73) Bromofluorobenzene (SS3)	19.00	174	527690	11.200	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	89.60%	

Target Compounds

						Qvalue
2) Propene	4.11	42	811194	27.859	ng	95
3) Dichlorodifluoromethan...	4.27	85	1511932	23.986	ng	99
4) Chloromethane	4.55	50	1098369	28.502	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.82	135	836044	20.941	ng	100
6) Vinyl Chloride	4.97	62	1168357	26.802	ng	99
7) 1,3-Butadiene	5.24	54	861001	28.847	ng	98
8) Bromomethane	5.67	94	690583	25.199	ng	99
9) Chloroethane	6.01	64	536532	28.338	ng	100
10) Ethanol	6.37	45	2864189	150.514	ng	98
11) Acetonitrile	6.62	41	1392937	28.647	ng	97
12) Acrolein	6.81	56	475061	30.586	ng	99
13) Acetone	7.02	58	2961556	141.140	ng	# 82
14) Trichlorofluoromethane	7.27	101	1376217	23.698	ng	100
15) 2-Propanol (Isopropanol)	7.51	45	3719299	62.702	ng	94
16) Acrylonitrile	7.78	53	1047797	31.707	ng	99
17) 1,1-Dichloroethene	8.23	96	780071	27.042	ng	98
18) 2-Methyl-2-Propanol (t...	8.38	59	4067194	63.186	ng	96
19) Methylene Chloride	8.45	84	806628	27.258	ng	99
20) 3-Chloro-1-propene (Al...	8.62	41	1088329	28.709	ng	99
21) Trichlorotrifluoroethane	8.87	151	745494	24.171	ng	94
22) Carbon Disulfide	8.71	76	2931617	28.505	ng	100
23) trans-1,2-Dichloroethene	9.73	61	1124157	29.498	ng	96
24) 1,1-Dichloroethane	9.98	63	1323922	27.350	ng	100
25) Methyl tert-Butyl Ether	10.07	73	2376319	29.135	ng	97
26) Vinyl Acetate	10.23	86	961930	138.839	ng	# 88
27) 2-Butanone (MEK)	10.47	72	555365	30.014	ng	100
28) cis-1,2-Dichloroethene	11.00	61	1077231	28.204	ng	97
29) Diisopropyl Ether	11.29	87	827307	28.823	ng	# 87
30) Ethyl Acetate	11.30	61	640715	62.466	ng	96
31) n-Hexane	11.28	57	1339917	29.663	ng	98
32) Chloroform	11.34	83	1391125	26.084	ng	100
34) Tetrahydrofuran (THF)	11.74	72	545406	29.532	ng	97
35) Ethyl tert-Butyl Ether	11.89	87	935919	29.292	ng	94
36) 1,2-Dichloroethane	12.14	62	959778	23.754	ng	98
38) 1,1,1-Trichloroethane	12.42	97	1240652	25.241	ng	99
39) Isopropyl Acetate	12.85	61	1092888	61.830	ng	# 90
40) 1-Butanol	12.87	56	1713266	65.602	ng	89
41) Benzene	12.90	78	3206067	26.916	ng	99
42) Carbon Tetrachloride	13.07	117	1112287	24.284	ng	99
43) Cyclohexane	13.20	84	2495700	54.457	ng	93
44) tert-Amyl Methyl Ether	13.54	73	2240759	31.001	ng	96
45) 1,2-Dichloropropane	13.75	63	784368	29.673	ng	100
46) Bromodichloromethane	13.95	83	1104125	26.511	ng	100
47) Trichloroethene	14.00	130	885970	25.081	ng	100
48) 1,4-Dioxane	13.97	88	704597	29.222	ng	94
49) 2,2,4-Trimethylpentane...	14.07	57	3154924	28.965	ng	89

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Data File: I:\MS16\DATA\2019_12\30\12301906.D

Acq On : 30 Dec 2019 6:19

Operator: SC

Sample : LCSD R16123019_25ng

Misc : S31-10161904/S31-12191903 (1/17)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 30 09:09:07 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.20	100	703778	55.246	ng	# 87
51) n-Heptane	14.34	71	788296	28.858	ng	96
52) cis-1,3-Dichloropropene	14.86	75	1397338	30.180	ng	100
53) 4-Methyl-2-pentanone	14.90	58	776128	31.465	ng	92
54) trans-1,3-Dichloropropene	15.38	75	1199969	29.571	ng	100
55) 1,1,2-Trichloroethane	15.56	97	806446	27.094	ng	97
58) Toluene	15.85	91	3300350	25.032	ng	100
59) 2-Hexanone	16.09	43	1745021	29.288	ng	95
60) Dibromochloromethane	16.26	129	1018229	25.908	ng	100
61) 1,2-Dibromoethane	16.51	107	944412	26.147	ng	100
62) n-Butyl Acetate	16.72	43	1985633	30.934	ng	97
63) n-Octane	16.85	57	672799	28.815	ng	94
64) Tetrachloroethene	16.99	166	974738	22.655	ng	100
65) Chlorobenzene	17.65	112	2229300	23.858	ng	100
66) Ethylbenzene	18.01	91	3806289	25.969	ng	98
67) m- & p-Xylenes	18.18	91	6126371	49.988	ng	97
68) Bromoform	18.24	173	895022	26.217	ng	100
69) Styrene	18.50	104	2434002	26.001	ng	100
70) o-Xylene	18.60	91	2989509	25.325	ng	99
71) n-Nonane	18.80	43	1468402	28.666	ng	98
72) 1,1,2,2-Tetrachloroethane	18.58	83	1508817	27.837	ng	100
74) Cumene	19.13	105	3829877	25.195	ng	99
75) alpha-Pinene	19.48	93	2020090	26.935	ng	99
76) n-Propylbenzene	19.58	91	4622927	26.541	ng	98
77) 3-Ethyltoluene	19.67	105	3875600	25.787	ng	99
78) 4-Ethyltoluene	19.71	105	3658933	25.536	ng	99
79) 1,3,5-Trimethylbenzene	19.77	105	3203252	25.094	ng	99
80) alpha-Methylstyrene	19.91	118	1738748	25.237	ng	93
81) 2-Ethyltoluene	19.94	105	3819879	25.910	ng	98
82) 1,2,4-Trimethylbenzene	20.14	105	3273942	25.809	ng	98
83) n-Decane	20.23	57	1672447	30.601	ng	97
84) Benzyl Chloride	20.25	91	2937402	27.315	ng	97
85) 1,3-Dichlorobenzene	20.27	146	1949288	24.162	ng	100
86) 1,4-Dichlorobenzene	20.33	146	1952693	24.211	ng	100
87) sec-Butylbenzene	20.37	105	4290375	25.950	ng	99
88) 4-Isopropyltoluene (p-...	20.51	119	3918656	25.280	ng	99
89) 1,2,3-Trimethylbenzene	20.51	105	3228006	25.718	ng	98
90) 1,2-Dichlorobenzene	20.63	146	1897381	24.705	ng	99
91) d-Limonene	20.64	68	1240789	28.575	ng	92
92) 1,2-Dibromo-3-Chloropr...	21.01	157	707261	25.669	ng	94
93) n-Undecane	21.33	57	1736685	30.692	ng	97
94) 1,2,4-Trichlorobenzene	22.14	180	1459874	25.205	ng	99
95) Naphthalene	22.24	128	4640176	25.663	ng	100
96) n-Dodecane	22.24	57	1711485	33.709	ng	96
97) Hexachlorobutadiene	22.56	225	958171	23.439	ng	100
98) Cyclohexanone	18.30	55	1181428	28.871	ng	92
99) tert-Butylbenzene	20.14	119	3128346	24.375	ng	99
100) n-Butylbenzene	20.88	91	3480094	27.243	ng	99

(#)=qualifier out of range (m)=manual integration (+)=signals summed

Data File: I:\MS16\DATA\2019_12\30\12301906.D

Acq On : 30 Dec 2019 6:19

Operator: SC

Sample : LCSD R16123019_25ng

Misc : S31-10161904/S31-12191903 (1/17)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 30 09:09:07 2019

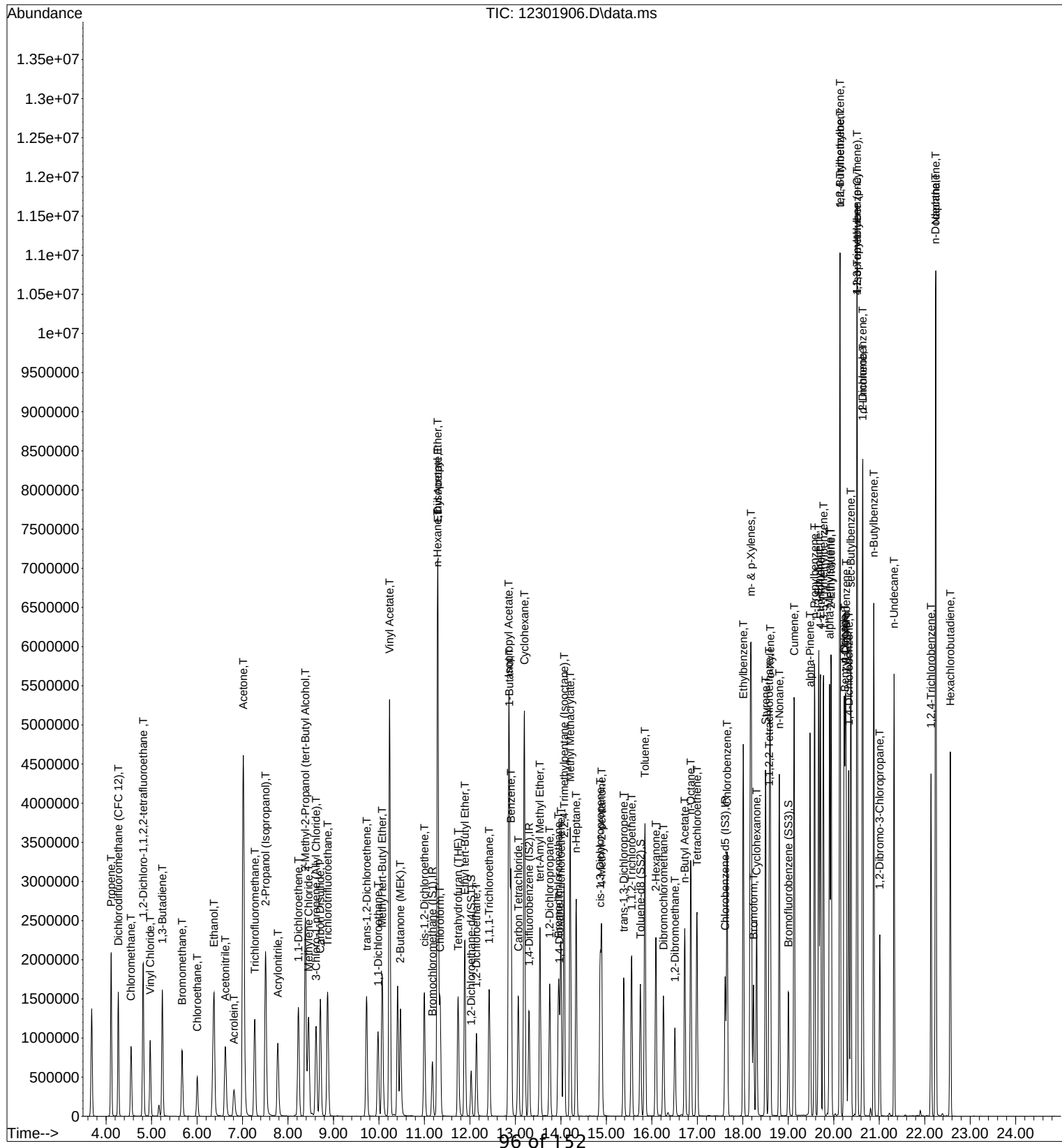
Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP V0A-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



Method Path : I:\MS16\METHODS\
 Method File : R16120919.M
 Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 Last Update : Tue Dec 10 09:44:38 2019
 Response Via : Initial Calibration

LH 12/10/19

Calibration Files

0.1 =12091915.D 0.2 =12091916.D 0.5 =12091917.D 1.0 =12091918.D 5.0 =12091919.D 25 =12091920.D
 100 =12091922.D

Compound		0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD

1) IR	Bromochloromethane...	-----ISTD-----									
2) T	Propene	1.137	1.043	1.021	0.972	1.247	1.068	1.235	1.370	1.137	12.03
3) T	Dichlorodifluo...	2.608	2.479	2.627	2.506	2.450	2.542	2.298	2.174	2.460	6.28
4) T	Chloromethane	1.747	1.704	1.751	1.675	1.257	1.603	1.372	0.923	1.504	19.70
5) T	1,2-Dichloro-1...	1.611	1.516	1.608	1.550	1.513	1.610	1.539	1.519	1.558	2.85
6) T	Vinyl Chloride	1.751	1.707	1.727	1.653	1.673	1.761	1.668	1.673	1.702	2.42
7) T	1,3-Butadiene	1.315	1.159	1.277	1.199	0.978	1.140	1.121	1.132	1.165	8.89
8) T	Bromomethane	1.130	1.158	1.066	1.055	0.987	1.081	1.048	1.032	1.070	5.07
9) T	Chloroethane	0.770	0.709	0.753	0.725	0.708	0.761	0.737	0.749	0.739	3.14
10) T	Ethanol		0.880	0.739	0.681	0.625	0.746	0.759	0.768	0.743	10.64
11) T	Acetonitrile	2.577	2.118	1.736	1.703	1.689	1.813	1.776	1.773	1.898	16.12
12) T	Acrolein	0.628	0.570	0.590	0.576	0.595	0.634	0.626	0.631	0.606	4.33
13) T	Acetone	0.992	0.876	0.773	0.746	0.720	0.811	0.815	0.820	0.819	10.36
14) T	Trichlorofluor...	2.291	2.263	2.314	2.224	2.199	2.335	2.255	2.253	2.267	1.99
15) T	2-Propanol (Is...	2.816	2.638	2.561	2.521	1.895	2.682	2.002	1.408	2.315	21.22
16) T	Acrylonitrile	1.299	1.201	1.200	1.217	1.253	1.398	1.367	1.383	1.290	6.50
17) T	1,1-Dichloroet...	1.141	1.080	1.123	1.104	1.087	1.168	1.140	1.165	1.126	2.98
18) T	2-Methyl-2-Pro...	2.372	2.317	2.446	2.385	2.463	2.758	2.751	2.608	2.512	6.86
19) T	Methylene Chlo...	1.172	1.142	1.131	1.111	1.123	1.191	1.163	1.208	1.155	2.96
20) T	3-Chloro-1-pro...	1.528	1.464	1.473	1.460	1.405	1.555	1.489	1.462	1.480	3.08
21) T	Trichlorotrifl...	1.261	1.164	1.211	1.163	1.166	1.234	1.204	1.228	1.204	3.07
22) T	Carbon Disulfide	4.065	3.874	4.007	3.942	3.869	4.196	4.056	4.106	4.014	2.85
23) T	trans-1,2-Dich...	1.384	1.398	1.449	1.457	1.477	1.609	1.557	1.568	1.488	5.52
24) T	1,1-Dichloroet...	1.963	1.867	1.897	1.849	1.835	1.958	1.876	1.870	1.889	2.52
25) T	Methyl tert-Bu...	3.135	3.125	3.189	3.076	3.104	3.295	3.258	3.286	3.184	2.71
26) T	Vinyl Acetate				0.202	0.209	0.302	0.320	0.319	0.270	22.14
27) T	2-Butanone (MEK)	0.663	0.680	0.665	0.682	0.697	0.795	0.783	0.814	0.722	8.81
28) T	cis-1,2-Dichlo...	1.501	1.445	1.497	1.434	1.443	1.570	1.512	1.524	1.491	3.18
29) T	Diisopropyl Ether	1.129	1.088	1.120	1.120	1.131	1.133	1.168	1.073	1.120	2.58
30) T	Ethyl Acetate			0.351	0.341	0.361	0.460	0.471	0.419	0.400	14.32
31) T	n-Hexane	1.793	1.724	1.707	1.646	1.678	1.906	1.923	1.727	1.763	5.83
32) T	Chloroform	2.067	2.064	2.083	2.021	2.030	2.181	2.109	2.099	2.082	2.43
33) S	1,2-Dichloroet...	1.523	1.526	1.500	1.537	1.502	1.515	1.496	1.484	1.510	1.18
34) T	Tetrahydrofura...	0.806	0.737	0.675	0.659	0.661	0.749	0.734	0.746	0.721	7.16
35) T	Ethyl tert-But...	1.193	1.188	1.242	1.201	1.200	1.298	1.297	1.359	1.247	5.09
36) T	1,2-Dichloroet...	1.605	1.536	1.581	1.539	1.537	1.669	1.589	1.560	1.577	2.89
37) IR	1,4-Difluorobenzen...	-----ISTD-----									
38) T	1,1,1-Trichlor...	0.456	0.449	0.455	0.431	0.447	0.482	0.473	0.474	0.458	3.68
39) T	Isopropyl Acetate	0.145	0.144	0.155	0.147	0.157	0.186	0.193	0.193	0.165	13.28
40) T	1-Butanol	0.285	0.224	0.186	0.182	0.202	0.288	0.298	0.285	0.244	20.55
41) T	Benzene	1.155	1.083	1.070	1.015	1.038	1.144	1.178	1.204	1.111	6.21
42) T	Carbon Tetrach...	0.411	0.397	0.417	0.396	0.422	0.461	0.455	0.460	0.427	6.46
43) T	Cyclohexane	0.418	0.401	0.418	0.391	0.407	0.452	0.465	0.468	0.427	6.99
44) T	tert-Amyl Meth...	0.673	0.645	0.671	0.626	0.646	0.705	0.704	0.723	0.674	5.08
45) T	1,2-Dichloropr...	0.260	0.238	0.244	0.230	0.237	0.255	0.250	0.258	0.247	4.41
46) T	Bromodichlorom...	0.358	0.359	0.373	0.360	0.382	0.426	0.424	0.424	0.388	8.02
47) T	Trichloroethene	0.330	0.314	0.318	0.304	0.313	0.347	0.346	0.364	0.329	6.39
48) T	1,4-Dioxane	0.214	0.213	0.206	0.193	0.204	0.248	0.252	0.269	0.225	12.19
49) T	2,2,4-Trimethy...	1.057	1.007	1.020	0.956	0.979	1.042	1.027	1.040	1.016	3.37
50) T	Methyl Methacr...	0.105	0.105	0.106	0.105	0.113	0.133	0.138	0.145	0.119	14.45
51) T	n-Heptane	0.256	0.248	0.252	0.234	0.242	0.261	0.263	0.283	0.255	5.83
52) T	cis-1,3-Dichlo...	0.388	0.384	0.399	0.375	0.370	0.482	0.486	0.502	0.432	11.46
53) T	4-Methyl-2-pen...	0.219	0.207	0.215	0.211	0.221	0.253	0.253	0.261	0.230	9.55
54) T	trans-1,3-Dich...	0.303	0.319	0.345	0.340	0.377	0.443	0.446	0.455	0.378	16.24

55)	T	1,1,2-Trichlor...	0.282	0.266	0.268	0.251	0.271	0.293	0.291	0.299	0.278	5.90
56)	IR	Chlorobenzene-d5 (...	-----ISTD-----									
57)	S	Toluene-d8 (SS2)	2.256	2.243	2.268	2.263	2.254	2.227	2.215	2.196	2.240	1.14
58)	T	Toluene	3.147	2.603	2.578	2.446	2.444	2.649	2.633	2.622	2.640	8.34
59)	T	2-Hexanone	1.333	1.229	1.046	1.005	1.070	1.330	1.287	1.245	1.193	11.13
60)	T	Dibromochlorom...	0.737	0.697	0.725	0.724	0.777	0.882	0.876	0.879	0.787	10.09
61)	T	1,2-Dibromoethane	0.716	0.667	0.691	0.663	0.707	0.785	0.777	0.780	0.723	7.04
62)	T	n-Butyl Acetate	1.405	1.244	1.109	1.078	1.150	1.463	1.428	1.408	1.286	12.31
63)	T	n-Octane	0.465	0.454	0.457	0.442	0.444	0.486	0.488	0.505	0.468	4.88
64)	T	Tetrachloroethene	0.850	0.831	0.827	0.814	0.831	0.906	0.910	0.924	0.862	5.11
65)	T	Chlorobenzene	1.932	1.756	1.743	1.679	1.707	1.880	2.327	1.947	1.871	11.26
66)	T	Ethylbenzene	3.067	2.785	2.820	2.715	2.802	3.138	3.137	3.019	2.935	5.88
67)	T	m- & p-Xylenes	3.080	2.377	2.262	2.171	2.237	2.536	2.604	2.368	2.454	11.92
68)	T	Bromoform	0.602	0.555	0.594	0.581	0.673	0.809	0.816	0.839	0.684	17.43
69)	T	Styrene	1.937	1.705	1.719	1.665	1.758	2.065	2.081	2.069	1.875	9.70
70)	T	o-Xylene	2.424	2.335	2.289	2.174	2.233	2.521	2.533	2.403	2.364	5.50
71)	T	n-Nonane	1.047	0.992	1.017	0.994	1.017	1.102	1.067	0.971	1.026	4.25
72)	T	1,1,2,2-Tetrac...	1.060	1.000	1.015	1.001	1.045	1.184	1.193	1.187	1.086	8.03
73)	S	Bromofluoroben...	0.943	0.934	0.932	0.937	0.955	0.952	0.948	0.949	0.944	0.91
74)	T	Cumene	3.162	2.916	2.987	2.832	2.927	3.272	3.271	2.987	3.044	5.54
75)	T	alpha-Pinene	1.474	1.407	1.471	1.419	1.447	1.604	1.622	1.570	1.502	5.63
76)	T	n-Propylbenzene	3.612	3.399	3.381	3.248	3.343	3.836	3.774	3.313	3.488	6.38
77)	T	3-Ethyltoluene	3.066	2.802	2.932	2.836	2.924	3.289	3.208	3.021	3.010	5.72
78)	T	4-Ethyltoluene	2.965	2.668	2.677	2.567	2.698	3.237	3.283	2.862	2.870	9.44
79)	T	1,3,5-Trimethy...	2.555	2.519	2.419	2.364	2.452	2.781	2.783	2.577	2.556	6.10
80)	T	alpha-Methylst...	1.367	1.214	1.245	1.235	1.338	1.548	1.574	1.517	1.380	10.73
81)	T	2-Ethyltoluene	2.881	2.856	2.895	2.762	2.845	3.232	3.222	2.927	2.953	5.96
82)	T	1,2,4-Trimethy...	2.587	2.395	2.427	2.346	2.473	3.037	2.869	2.190	2.540	11.09
83)	T	n-Decane	0.962	0.939	1.071	1.026	1.084	1.249	1.272	1.152	1.095	11.23
84)	T	Benzyl Chloride				1.445	1.774	2.544	2.639	2.366	2.154	24.12
85)	T	1,3-Dichlorobe...	1.784	1.512	1.456	1.407	1.465	1.787	1.826	1.687	1.616	10.71
86)	T	1,4-Dichlorobe...	1.939	1.575	1.411	1.365	1.420	1.754	1.761	1.698	1.615	12.73
87)	T	sec-Butylbenzene	3.309	3.144	3.262	3.146	3.271	3.645	3.585	3.126	3.311	6.04
88)	T	4-Isopropyltol...	3.028	2.891	3.028	2.942	3.159	3.792	3.475	2.520	3.104	12.41
89)	T	1,2,3-Trimethy...	2.470	2.294	2.437	2.377	2.514	3.057	2.846	2.113	2.514	12.03
90)	T	1,2-Dichlorobe...	1.642	1.420	1.411	1.371	1.440	1.782	1.785	1.453	1.538	11.15
91)	T	d-Limonene	0.791	0.795	0.843	0.815	0.885	1.015	1.009	0.805	0.870	10.69
92)	T	1,2-Dibromo-3-...	0.487	0.453	0.472	0.481	0.535	0.650	0.658	0.678	0.552	17.13
93)	T	n-Undecane			1.021	0.988	1.063	1.262	1.284	1.181	1.133	11.19
94)	T	1,2,4-Trichlor...	1.203	0.947	0.961	0.941	0.999	1.379	1.427	1.423	1.160	19.26
95)	T	Naphthalene	4.683	3.291	2.893	2.788	3.004	4.528	4.432	3.348	3.621	21.89
96)	T	n-Dodecane			0.851	0.848	0.941	1.266	1.244	0.951	1.017	18.64
97)	T	Hexachlorobuta...	0.770	0.724	0.743	0.729	0.772	0.918	0.953	0.942	0.819	12.24
98)	T	Cyclohexanone	0.954	0.810	0.705	0.687	0.715	0.909	0.885	0.891	0.820	12.81
99)	T	tert-Butylbenzene	2.752	2.453	2.491	2.398	2.507	3.000	2.813	2.149	2.570	10.48
100)	T	n-Butylbenzene	2.519	2.353	2.464	2.370	2.480	2.903	2.839	2.539	2.558	7.99

(#) = Out of Range

R16120919.M Tue Dec 10 11:32:34 2019

Primary Source Standards Concentrations (Working & Initial Calibration)

LH 12/11/19

1ng/L Std. ID: S31-12061908	40ng/L Std. ID: S31-12061902
4ng/L Std. ID: S31-12061908	200ng/L Std. ID: S31-12061902
20ng/L Std. ID: S31-12061909	1000ng/L Std. ID: S31-12061909

Dilution Factors:															1		5		25		50		250		1000		Working STD Conc.(ng/L):		4		4		20		20		200		200		200	
		Source Std. mg/m³		1000ng/L		200ng/L		40ng/L		20ng/L		4ng/L		2ng/L		1ng/L				Injection (L):		ICAL Points:		0.025		0.050		0.050		0.125		0.25		0.25		0.50		100ng				
Compounds																								0.1ng		0.5ng		1ng		25ng		50ng		50ng		100ng						
Propene		1.06	1060	212	42.4	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	1.06		0.106	0.212	0.212	0.530	26.50	53.0	53.0	106	106	106	106	106	106	106	106	106	106						
Dichlorodifluoromethane		1.06	1060	212	42.4	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	1.06		0.106	0.212	0.212	0.530	26.50	53.0	53.0	106	106	106	106	106	106	106	106	106	106						
Chloromethane		1.06	1060	212	42.4	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	1.06		0.106	0.212	0.212	0.530	26.50	53.0	53.0	106	106	106	106	106	106	106	106	106	106						
Freon-114		1.05	1050	210	42.0	21.0	4.20	21.0	4.20	21.0	4.20	21.0	4.20	21.0	4.20	21.0	4.20	1.05		0.105	0.210	0.210	0.525	26.25	52.5	52.5	105	105	105	105	105	105	105	105	105	105						
Vinyl Chloride		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	1.08		0.108	0.216	0.216	0.540	27.00	54.0	54.0	108	108	108	108	108	108	108	108	108	108						
1,3-Butadiene		1.06	1060	212	42.4	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	1.06		0.106	0.212	0.212	0.530	26.50	53.0	53.0	106	106	106	106	106	106	106	106	106	106						
Bromomethane		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	1.08		0.108	0.216	0.216	0.540	27.00	54.0	54.0	108	108	108	108	108	108	108	108	108	108						
Chloroethane		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	1.08		0.108	0.216	0.216	0.540	27.00	54.0	54.0	108	108	108	108	108	108	108	108	108	108						
Ethanol		5.21	5210	1042	208.4	104.2	20.84	104.2	20.84	104.2	20.84	104.2	20.84	104.2	20.84	104.2	20.84	5.21		0.521	1.042	1.042	2.605	130.25	260.5	260.5	521	521	521	521	521	521	521	521	521	521						
Acetonitrile		1.05	1050	210	42.0	21.0	4.20	21.0	4.20	21.0	4.20	21.0	4.20	21.0	4.20	21.0	4.20	1.05		0.105	0.210	0.210	0.525	26.25	52.5	52.5	105	105	105	105	105	105	105	105	105	105						
Acrolein		1.03	1030	206	41.2	20.6	4.12	20.6	4.12	20.6	4.12	20.6	4.12	20.6	4.12	20.6	4.12	1.03		0.103	0.206	0.206	0.515	25.75	51.5	51.5	103	103	103	103	103	103	103	103	103	103						
Acetone		5.33	5330	1066	213.2	106.6	21.32	106.6	21.32	106.6	21.32	106.6	21.32	106.6	21.32	106.6	21.32	5.33		0.533	1.066	1.066	2.665	133.25	266.5	266.5	533	533	533	533	533	533	533	533	533	533						
Trichlorofluoromethane		1.06	1060	212	42.4	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	1.06		0.106	0.212	0.212	0.530	26.50	53.0	53.0	106	106	106	106	106	106	106	106	106	106						
Isopropanol		2.10	2100	420	84.0	42.0	8.40	42.0	8.40	42.0	8.40	42.0	8.40	42.0	8.40	42.0	8.40	2.10		0.210	0.420	0.420	1.050	52.50	105.0	105.0	210	210	210	210	210	210	210	210	210	210						
Acrylonitrile		1.05	1050	210	42.0	21.0	4.20	21.0	4.20	21.0	4.20	21.0	4.20	21.0	4.20	21.0	4.20	1.05		0.105	0.210	0.210	0.525	26.25	52.5	52.5	105	105	105	105	105	105	105	105	105	105						
1,1-Dichloroethene		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	1.08		0.108	0.216	0.216	0.540	27.00	54.0	54.0	108	108	108	108	108	108	108	108	108	108						
tert-Butanol		2.16	2160	432	86.4	43.2	8.64	43.2	8.64	43.2	8.64	43.2	8.64	43.2	8.64	43.2	8.64	2.16		0.216	0.432	0.432	1.080	54.00	108.0	108.0	216	216	216	216	216	216	216	216	216	216						
Methylene Chloride		1.06	1060	212	42.4	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	1.06		0.106	0.212	0.212	0.530	26.50	53.0	53.0	106	106	106	106	106	106	106	106	106	106						
Allyl Chloride		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	1.08		0.108	0.216	0.216	0.540	27.00	54.0	54.0	108	108	108	108	108	108	108	108	108	108						
Trichlorofluoroethane		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	1.08		0.108	0.216	0.216	0.540	27.00	54.0	54.0	108	108	108	108	108	108	108	108	108	108						
Carbon Disulfide		1.07	1070	214	42.8	21.4	4.28	21.4	4.28	21.4	4.28	21.4	4.28	21.4	4.28	21.4	4.28	1.07		0.107	0.214	0.214	0.535	26.75	53.5	53.5	107	107	107	107	107	107	107	107	107	107						
trans-1,2-Dichloroethene		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	1.08		0.108	0.216	0.216	0.540	27.00	54.0	54.0	108	108	108	108	108	108	108	108	108	108						
1,1-Dichloroethane		1.09	1090	218	43.6	21.8	4.36	21.8	4.36	21.8	4.36	21.8	4.36	21.8	4.36	21.8	4.36	1.09		0.109	0.218	0.218	0.545	27.25	54.5	54.5	109	109	109	109	109	109	109	109	109	109						
Methyl tert-Butyl Ether		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	1.08		0.108	0.216	0.216	0.540	27.00	54.0	54.0	108	108	108	108	108	108	108	108	108	108						
Vinyl Acetate		5.35	5350	1070	214.0	107.0	21.40	107.0	21.40	107.0	21.40	107.0	21.40	107.0	21.40	107.0	21.40	5.35		0.535	1.070	1.070	2.675	133.75	267.5	267.5	535	535	535	535	535	535	535	535	535	535						
2-Butanone		1.06	1060	212	42.4	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	1.06		0.106	0.212	0.212	0.530	26.50	53.0	53.0	106	106	106	106	106	106	106	106	106	106						
cis-1,2-Dichloroethene		1.06	1060	212	42.4	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	21.2	4.24	1.06		0.106	0.212	0.212	0.530	26.50	53.0	53.0	106	106	106	106	106	106	106	106	106	106						
Diisopropyl Ether		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	1.08		0.108	0.216	0.216	0.540	27.00	54.0	54.0	108	108	108	108	108	108	108	108	108	108						
Ethyl Acetate		2.17	2170	434	86.8	43.4	8.68	43.4	8.68	43.4	8.68	43.4	8.68	43.4	8.68	43.4	8.68	2.17		0.217	0.434	0.434	1.085	54.25	108.5	108.5	217	217	217	217	217	217	217	217	217	217						
n-Hexane		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	21.6	4.32	1.08		0.108	0.216	0.216	0.540	27.00	54.0	54.0	108	108	108	108	108	108	108	108	108	108						
Chloroform		1.07	1070	214	42.8	21.4	4.28	21.4	4.																																	

Primary Source Standards Concentrations (Working & Initial Calibration)

LH 12/11/19

1ng/L Std. ID: S31-12061908
4ng/L Std. ID: S31-12061902
20ng/L Std. ID: S31-12061909

40ng/L Std. ID: S31-12061902
200ng/L Std. ID: S31-12061902
1000ng/L Std. ID: S31-12061909

Dilution Factors:														Working STD Conc.(ng/L):	
		1		5		25		50		250		1000		Injection (L): ICAL Points:	
Compounds	Source Std. mg/m ³	1000ng/L	200ng/L	40ng/L	20ng/L	4ng/L	2ng/L	1ng/L	0.5ng	0.25	0.125	25ng	5ng	200	50ng
cis-1,3-Dichloropropene	1.04	1040	208	41.6	20.8	4.16	2.08	1.04	0.520	1.04	0.520	26.00	5.20	200	50.0
4-Methyl-2-pentanone	1.06	1060	212	42.4	21.2	4.24	2.12	1.06	0.530	1.06	0.530	26.50	5.30	200	53.0
trans-1,3-Dichloropropene	1.06	1060	212	42.4	21.2	4.24	2.12	1.06	0.530	1.06	0.530	26.50	5.30	200	53.0
1,1,2-Trichloroethane	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
Toluene	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
2-Hexanone	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
Dibromochloromethane	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
1,2-Dibromoethane	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
n-Butyl Acetate	1.09	1090	218	43.6	21.8	4.36	2.18	1.09	0.545	1.09	0.545	27.25	5.45	200	54.5
n-Octane	1.08	1080	216	43.2	21.6	4.32	2.16	1.08	0.540	1.08	0.540	27.00	5.40	200	54.0
Tetrachloroethene	1.04	1040	208	41.6	20.8	4.16	2.08	1.04	0.520	1.04	0.520	26.00	5.20	200	52.0
Chlorobenzene	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
Ethylbenzene	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
m-&p-Xylene	2.14	2140	428	85.6	42.8	8.56	4.28	2.14	1.070	2.14	1.070	53.50	10.70	200	107.0
Bromoform	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
Styrene	1.06	1060	212	42.4	21.2	4.24	2.12	1.06	0.530	1.06	0.530	26.50	5.30	200	53.0
o-Xylene	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
n-Nonane	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
1,1,2,2-Tetrachloroethane	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
Cumene	1.08	1080	216	43.2	21.6	4.32	2.16	1.08	0.540	1.08	0.540	27.00	5.40	200	54.0
alpha-Pinene	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
n-Propylbenzene	1.08	1080	216	43.2	21.6	4.32	2.16	1.08	0.540	1.08	0.540	27.00	5.40	200	54.0
3-Ethyltoluene	1.06	1060	212	42.4	21.2	4.24	2.12	1.06	0.530	1.06	0.530	26.50	5.30	200	53.0
4-Ethyltoluene	1.08	1080	216	43.2	21.6	4.32	2.16	1.08	0.540	1.08	0.540	27.00	5.40	200	54.0
1,3,5-Trimethylbenzene	1.06	1060	212	42.4	21.2	4.24	2.12	1.06	0.530	1.06	0.530	26.50	5.30	200	53.0
alpha-Methylstyrene	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
2-Ethyltoluene	1.08	1080	216	43.2	21.6	4.32	2.16	1.08	0.540	1.08	0.540	27.00	5.40	200	54.0
1,2,4-Trimethylbenzene	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
n-Decane	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
Benzyl Chloride	1.08	1080	216	43.2	21.6	4.32	2.16	1.08	0.540	1.08	0.540	27.00	5.40	200	54.0
1,3-Dichlorobenzene	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
1,4-Dichlorobenzene	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
sec-Butylbenzene	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
p-Isopropyltoluene	1.09	1090	218	43.6	21.8	4.36	2.18	1.09	0.545	1.09	0.545	27.25	5.45	200	54.5
1,2,3-Trimethylbenzene	1.09	1090	218	43.6	21.8	4.36	2.18	1.09	0.545	1.09	0.545	27.25	5.45	200	54.5
1,2-Dichlorobenzene	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
d-Limonene	1.08	1080	216	43.2	21.6	4.32	2.16	1.08	0.540	1.08	0.540	27.00	5.40	200	54.0
1,2-Dibromo-3-chloropropane	1.05	1050	210	42.0	21.0	4.20	2.10	1.05	0.525	1.05	0.525	26.25	5.25	200	52.5
n-Undecane	1.08	1080	216	43.2	21.6	4.32	2.16	1.08	0.540	1.08	0.540	27.00	5.40	200	54.0
1,2,4-Trichlorobenzene	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
Naphthalene	1.03	1030	206	41.2	20.6	4.12	2.06	1.03	0.515	1.03	0.515	25.75	5.15	200	51.5
n-Dodecane	1.04	1040	208	41.6	20.8	4.16	2.08	1.04	0.520	1.04	0.520	26.00	5.20	200	52.0
Hexachloro-1,3-butadiene	1.06	1060	212	42.4	21.2	4.24	2.12	1.06	0.530	1.06	0.530	26.50	5.30	200	53.0
Methacrylonitrile	1.06	1060	212	42.4	21.2	4.24	2.12	1.06	0.530	1.06	0.530	26.50	5.30	200	53.0
Cyclohexanone	1.00	1000	200	40.0	20.0	4.00	2.00	1.00	0.500	1.00	0.500	25.00	5.00	200	50.0
tert-Butylbenzene	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5
n-Butylbenzene	1.07	1070	214	42.8	21.4	4.28	2.14	1.07	0.535	1.07	0.535	26.75	5.35	200	53.5

Method : I:\MS16\METHODS\R16120919.M (RTE Integrator)
 Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 Last Update : Tue Dec 10 09:44:38 2019
 Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	0.1	0	13	I:\MS16\DATA\2019_12\09\12091915.D
2	0.2	0	13	I:\MS16\DATA\2019_12\09\12091916.D
3	0.5	1	13	I:\MS16\DATA\2019_12\09\12091917.D
4	1.0	1	13	I:\MS16\DATA\2019_12\09\12091918.D
5	5.0	5	13	I:\MS16\DATA\2019_12\09\12091919.D
6	25	27	13	I:\MS16\DATA\2019_12\09\12091920.D
7	50	53	13	I:\MS16\DATA\2019_12\09\12091921.D
8	100	106	13	I:\MS16\DATA\2019_12\09\12091922.D

#	ID	Update Time	Quant Time	Acquisition Time
1	0.1	Dec 10 09:43 2019	Dec 10 09:37 2019	9 Dec 2019 18:14
2	0.2	Dec 10 09:43 2019	Dec 10 09:37 2019	9 Dec 2019 18:46
3	0.5	Dec 10 09:44 2019	Dec 10 09:37 2019	9 Dec 2019 19:19
4	1.0	Dec 10 09:44 2019	Dec 10 09:37 2019	9 Dec 2019 19:52
5	5.0	Dec 10 09:44 2019	Dec 10 09:38 2019	9 Dec 2019 20:25
6	25	Dec 10 09:44 2019	Dec 10 09:38 2019	9 Dec 2019 20:58
7	50	Dec 10 09:44 2019	Dec 10 09:38 2019	9 Dec 2019 21:31
8	100	Dec 10 09:44 2019	Dec 10 09:38 2019	9 Dec 2019 22:04

R16120919.M

Tue Dec 10 11:31:34 2019

LH 12/10/19

Data File: I:\MS16\DATA\2019_12\09\12091915.D

Acq On : 9 Dec 2019 18:14

Operator: LH

Sample : 0.1ng T015 ICAL STD

Misc : S31-10161904/S31-12061908 (1/4)

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 10 09:37:52 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 12/10/19

QLast Update : Tue Dec 10 09:37:30 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	253926	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.29	114	1087872	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.61	82	475827	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.01	65	386722	12.418	ng	-0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.36%	
57) Toluene-d8 (SS2)	15.74	98	1073468	12.672	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	101.36%	
73) Bromofluorobenzene (SS3)	19.00	174	448525	12.889	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	103.12%	

Target Compounds

						Qvalue
2) Propene	4.15	42	2448	0.103	ng	98
3) Dichlorodifluoromethan...	4.30	85	5616	0.110	ng	97
4) Chloromethane	4.58	50	3762	0.118	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.84	135	3437	0.109	ng	100
6) Vinyl Chloride	4.99	62	3842	0.107	ng	100
7) 1,3-Butadiene	5.25	54	2832	0.117	ng	91
8) Bromomethane	5.69	94	2479	0.101	ng	99
9) Chloroethane	6.02	64	1689	0.109	ng	84
10) Ethanol	6.34	45	12815	0.835	ng	92
11) Acetonitrile	6.62	41	5496	0.144	ng	# 48
12) Acrolein	6.82	56	1314	0.102	ng	94
13) Acetone	7.04	58	10736	0.627	ng	# 85
14) Trichlorofluoromethane	7.28	101	4934	0.106	ng	97
15) 2-Propanol (Isopropanol)	7.54	45	12011	0.246	ng	88
16) Acrylonitrile	7.77	53	2771	0.101	ng	96
17) 1,1-Dichloroethene	8.23	96	2503	0.108	ng	96
18) 2-Methyl-2-Propanol (t...	8.44	59	10407	0.197	ng	91
19) Methylene Chloride	8.43	84	2524	0.104	ng	98
20) 3-Chloro-1-propene (Al...	8.61	41	3353	0.107	ng	88
21) Trichlorotrifluoroethane	8.87	151	2767	0.115	ng	96
22) Carbon Disulfide	8.72	76	8835	0.104	ng	95
23) trans-1,2-Dichloroethene	9.71	61	3037	0.097	ng	98
24) 1,1-Dichloroethane	9.96	63	4346	0.110	ng	98
25) Methyl tert-Butyl Ether	10.10	73	6879	0.104	ng	96
26) Vinyl Acetate	10.23	86	1558	0.275	ng	# 20
27) 2-Butanone (MEK)	10.50	72	1427	0.095	ng	# 42
28) cis-1,2-Dichloroethene	10.98	61	3233	0.103	ng	98
29) Diisopropyl Ether	11.31	87	2478	0.106	ng	95
30) Ethyl Acetate	11.31	61	1456	0.178	ng	98
31) n-Hexane	11.28	57	3934	0.105	ng	# 97
32) Chloroform	11.33	83	4493	0.103	ng	98
34) Tetrahydrofuran (THF)	11.77	72	1784	0.119	ng	91
35) Ethyl tert-Butyl Ether	11.91	87	2617	0.100	ng	92
36) 1,2-Dichloroethane	12.14	62	3522	0.107	ng	95
38) 1,1,1-Trichloroethane	12.42	97	4243	0.106	ng	99
39) Isopropyl Acetate	12.86	61	2654	0.179	ng	# 40
40) 1-Butanol	12.90	56	5161	0.238	ng	# 76
41) Benzene	12.90	78	10652	0.107	ng	99
42) Carbon Tetrachloride	13.06	117	3752	0.100	ng	100
43) Cyclohexane	13.19	84	7707	0.202	ng	96
44) tert-Amyl Methyl Ether	13.56	73	6330	0.107	ng	91
45) 1,2-Dichloropropane	13.75	63	2443	0.111	ng	95
46) Bromodichloromethane	13.93	83	3367	0.098	ng	98
47) Trichloroethene	14.00	130	3069	0.106	ng	94
48) 1,4-Dioxane	13.99	88	2010	0.100	ng	94
49) 2,2,4-Trimethylpentane...	14.07	57	9844	0.107	ng	91

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Data File: I:\MS16\DATA\2019_12\09\12091915.D

Acq On : 9 Dec 2019 18:14

Operator: LH

Sample : 0.1ng T015 ICAL STD

Misc : S31-10161904/S31-12061908 (1/4)

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 10 09:37:52 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:37:30 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.22	100	1966	0.189	ng	# 85
51) n-Heptane	14.33	71	2403	0.104	ng	98
52) cis-1,3-Dichloropropene	14.86	75	3510	0.091	ng	100
53) 4-Methyl-2-pentanone	14.91	58	2017	0.097	ng	# 67
54) trans-1,3-Dichloropropene	15.38	75	2794	0.083	ng	100
55) 1,1,2-Trichloroethane	15.55	97	2624	0.108	ng	99
58) Toluene	15.85	91	12820	0.131	ng	90
59) 2-Hexanone	16.11	43	5431	0.120	ng	85
60) Dibromochloromethane	16.26	129	3001	0.102	ng	93
61) 1,2-Dibromoethane	16.51	107	2918	0.107	ng	94
62) n-Butyl Acetate	16.73	43	5828	0.119	ng	91
63) n-Octane	16.85	57	1911	0.104	ng	98
64) Tetrachloroethene	16.99	166	3365	0.105	ng	97
65) Chlorobenzene	17.65	112	7870	0.112	ng	95
66) Ethylbenzene	18.01	91	12492	0.113	ng	99
67) m- & p-Xylenes	18.18	91	25094	0.282	ng	82
68) Bromoform	18.24	173	2451	0.096	ng	96
69) Styrene	18.50	104	7816	0.111	ng	96
70) o-Xylene	18.60	91	9875	0.111	ng	97
71) n-Nonane	18.80	43	4265	0.104	ng	97
72) 1,1,2,2-Tetrachloroethane	18.58	83	4317	0.103	ng	97
74) Cumene	19.13	105	12999	0.114	ng	98
75) alpha-Pinene	19.48	93	6003	0.105	ng	# 41
76) n-Propylbenzene	19.58	91	14851	0.112	ng	94
77) 3-Ethyltoluene	19.67	105	12372	0.109	ng	95
78) 4-Ethyltoluene	19.71	105	12189	0.114	ng	100
79) 1,3,5-Trimethylbenzene	19.77	105	10310	0.108	ng	93
80) alpha-Methylstyrene	19.91	118	5567	0.107	ng	87
81) 2-Ethyltoluene	19.94	105	11843	0.107	ng	94
82) 1,2,4-Trimethylbenzene	20.13	105	10536	0.110	ng	100
83) n-Decane	20.23	57	3919	0.091	ng	96
84) Benzyl Chloride	20.25	91	6148	0.074	ng	97
85) 1,3-Dichlorobenzene	20.27	146	7267	0.125	ng	99
86) 1,4-Dichlorobenzene	20.33	146	7896	0.138	ng	99
87) sec-Butylbenzene	20.37	105	13479	0.108	ng	97
88) 4-Isopropyltoluene (p-...	20.51	119	12565	0.107	ng	95
89) 1,2,3-Trimethylbenzene	20.51	105	10248	0.107	ng	99
90) 1,2-Dichlorobenzene	20.63	146	6690	0.118	ng	97
91) d-Limonene	20.64	68	3252	0.096	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.01	157	1945	0.094	ng	# 84
93) n-Undecane	21.33	57	2506	0.056	ng	91
94) 1,2,4-Trichlorobenzene	22.14	180	4899	0.111	ng	94
95) Naphthalene	22.24	128	18363	0.141	ng	95
96) n-Dodecane	22.24	57	905	0.023	ng	88
97) Hexachlorobutadiene	22.56	225	3105	0.103	ng	95
98) Cyclohexanone	18.31	55	3632	0.114	ng	93
99) tert-Butylbenzene	20.13	119	11208	0.116	ng	96
100) n-Butylbenzene	20.88	91	10261	0.106	ng	97

(#)=qualifier out of range (m)=manual integration (+)=signals summed

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 10 09:37:52 2019

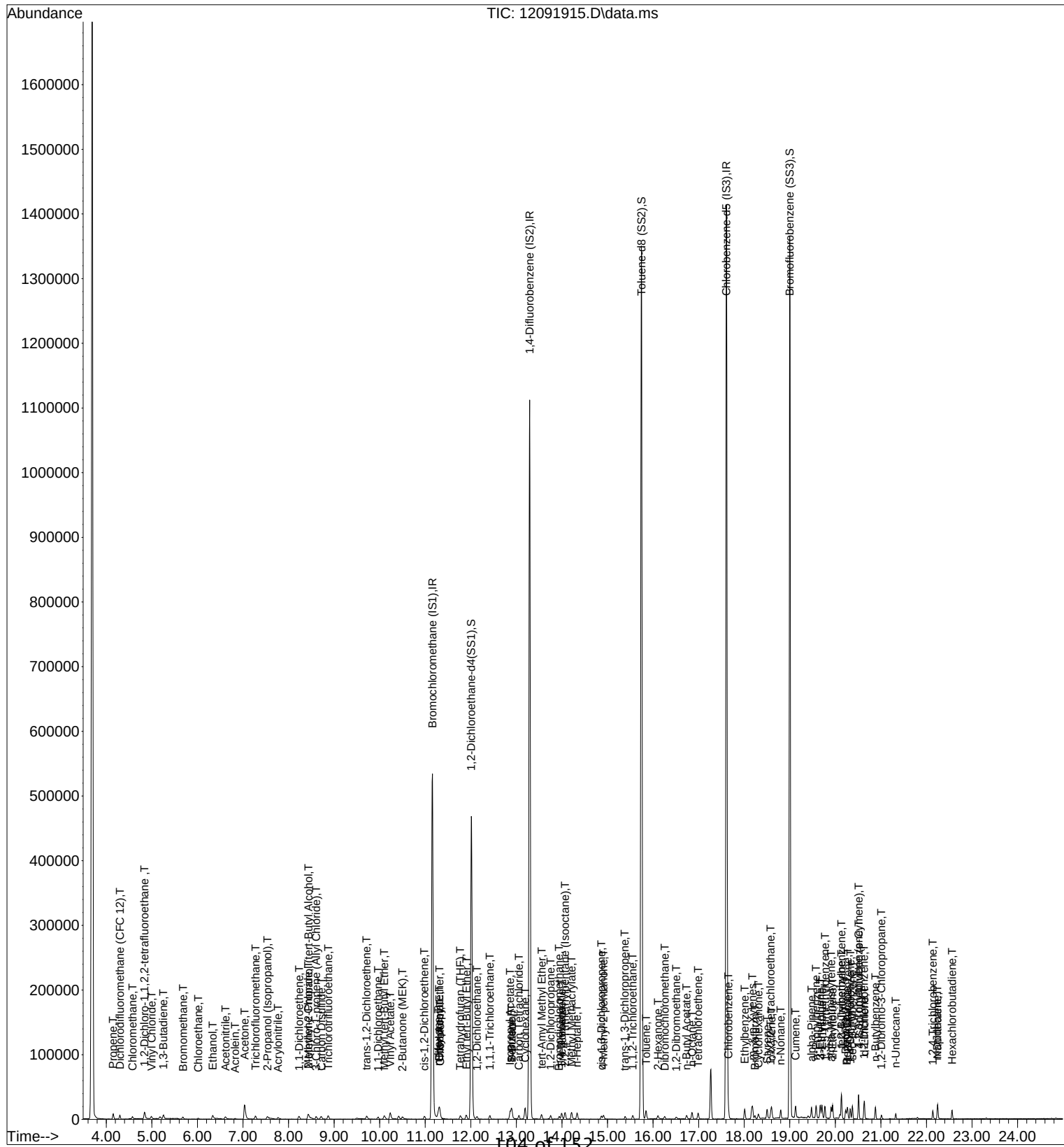
Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP V0A-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:37:30 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_12\09\12091916.D

Acq On : 9 Dec 2019 18:46

Operator: LH

Sample : 0.2ng T015 ICAL STD

Misc : S31-10161904/S31-12061908 (1/4)

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 10 09:37:54 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 12/10/19

QLast Update : Tue Dec 10 09:37:30 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	247486	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.29	114	1061392	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.61	82	472036	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.01	65	377665	12.443	ng	-0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.52%	
57) Toluene-d8 (SS2)	15.74	98	1058740	12.598	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	100.80%	
73) Bromofluorobenzene (SS3)	19.00	174	441093	12.777	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	102.24%	

Target Compounds

						Qvalue
2) Propene	4.14	42	4376	0.190	ng	98
3) Dichlorodifluoromethan...	4.28	85	10405	0.209	ng	99
4) Chloromethane	4.56	50	7152	0.231	ng	98
5) 1,2-Dichloro-1,1,2,2-t...	4.83	135	6304	0.204	ng	99
6) Vinyl Chloride	4.98	62	7300	0.208	ng	96
7) 1,3-Butadiene	5.25	54	4866	0.207	ng	93
8) Bromomethane	5.67	94	4954	0.207	ng	99
9) Chloroethane	6.01	64	3033	0.201	ng	93
10) Ethanol	6.32	45	18163	1.214	ng	98
11) Acetonitrile	6.60	41	8807	0.237	ng	79
12) Acrolein	6.81	56	2324	0.186	ng	100
13) Acetone	7.02	58	18498	1.108	ng	87
14) Trichlorofluoromethane	7.26	101	9500	0.210	ng	100
15) 2-Propanol (Isopropanol)	7.52	45	21939	0.462	ng	91
16) Acrylonitrile	7.76	53	4994	0.188	ng	95
17) 1,1-Dichloroethene	8.22	96	4617	0.204	ng	95
18) 2-Methyl-2-Propanol (t...	8.43	59	19815	0.385	ng	92
19) Methylene Chloride	8.43	84	4794	0.202	ng	100
20) 3-Chloro-1-propene (Al...	8.60	41	6263	0.205	ng	93
21) Trichlorotrifluoroethane	8.87	151	4979	0.212	ng	98
22) Carbon Disulfide	8.71	76	16416	0.199	ng	100
23) trans-1,2-Dichloroethene	9.71	61	5978	0.195	ng	99
24) 1,1-Dichloroethane	9.96	63	8058	0.209	ng	97
25) Methyl tert-Butyl Ether	10.09	73	13364	0.207	ng	98
26) Vinyl Acetate	10.22	86	3236	0.586	ng	# 39
27) 2-Butanone (MEK)	10.49	72	2853	0.194	ng	# 67
28) cis-1,2-Dichloroethene	10.98	61	6064	0.198	ng	100
29) Diisopropyl Ether	11.30	87	4655	0.204	ng	94
30) Ethyl Acetate	11.31	61	2960	0.371	ng	94
31) n-Hexane	11.28	57	7374	0.202	ng	98
32) Chloroform	11.32	83	8743	0.206	ng	99
34) Tetrahydrofuran (THF)	11.76	72	3181	0.217	ng	94
35) Ethyl tert-Butyl Ether	11.89	87	5081	0.200	ng	97
36) 1,2-Dichloroethane	12.14	62	6570	0.204	ng	99
38) 1,1,1-Trichloroethane	12.42	97	8155	0.208	ng	99
39) Isopropyl Acetate	12.86	61	5168	0.356	ng	# 68
40) 1-Butanol	12.90	56	7907	0.374	ng	# 74
41) Benzene	12.90	78	19497	0.200	ng	100
42) Carbon Tetrachloride	13.06	117	7077	0.193	ng	98
43) Cyclohexane	13.19	84	14449	0.388	ng	96
44) tert-Amyl Methyl Ether	13.55	73	11824	0.204	ng	96
45) 1,2-Dichloropropane	13.75	63	4356	0.203	ng	99
46) Bromodichloromethane	13.94	83	6588	0.196	ng	100
47) Trichloroethene	14.00	130	5708	0.202	ng	98
48) 1,4-Dioxane	13.99	88	3914	0.199	ng	98
49) 2,2,4-Trimethylpentane...	14.07	57	18300	0.203	ng	97

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Data File: I:\MS16\DATA\2019_12\09\12091916.D

Acq On : 9 Dec 2019 18:46 Operator: LH
 Sample : 0.2ng T015 ICAL STD
 Misc : S31-10161904/S31-12061908 (1/4)
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 10 09:37:54 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:37:30 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.21	100	3822	0.377	ng	95
51) n-Heptane	14.33	71	4556	0.202	ng	99
52) cis-1,3-Dichloropropene	14.86	75	6775	0.180	ng	100
53) 4-Methyl-2-pentanone	14.90	58	3724	0.183	ng	80
54) trans-1,3-Dichloropropene	15.39	75	5738	0.174	ng	93
55) 1,1,2-Trichloroethane	15.55	97	4842	0.204	ng	98
58) Toluene	15.85	91	21038	0.216	ng	98
59) 2-Hexanone	16.10	43	9935	0.222	ng	89
60) Dibromochloromethane	16.26	129	5631	0.192	ng	98
61) 1,2-Dibromoethane	16.50	107	5387	0.199	ng	99
62) n-Butyl Acetate	16.73	43	10243	0.210	ng	95
63) n-Octane	16.86	57	3707	0.203	ng	96
64) Tetrachloroethene	16.99	166	6524	0.204	ng	99
65) Chlorobenzene	17.65	112	14190	0.203	ng	99
66) Ethylbenzene	18.01	91	22503	0.204	ng	97
67) m- & p-Xylenes	18.18	91	38418	0.435	ng	95
68) Bromoform	18.23	173	4483	0.178	ng	99
69) Styrene	18.50	104	13649	0.195	ng	98
70) o-Xylene	18.60	91	18871	0.215	ng	96
71) n-Nonane	18.80	43	8015	0.198	ng	95
72) 1,1,2,2-Tetrachloroethane	18.58	83	8084	0.194	ng	100
74) Cumene	19.13	105	23785	0.211	ng	100
75) alpha-Pinene	19.48	93	11372	0.200	ng	73
76) n-Propylbenzene	19.58	91	27723	0.210	ng	100
77) 3-Ethyltoluene	19.67	105	22431	0.199	ng	99
78) 4-Ethyltoluene	19.70	105	21765	0.205	ng	99
79) 1,3,5-Trimethylbenzene	19.77	105	20167	0.213	ng	95
80) alpha-Methylstyrene	19.91	118	9811	0.191	ng	95
81) 2-Ethyltoluene	19.94	105	23293	0.211	ng	98
82) 1,2,4-Trimethylbenzene	20.13	105	19353	0.204	ng	100
83) n-Decane	20.23	57	7591	0.178	ng	95
84) Benzyl Chloride	20.25	91	11853	0.144	ng	93
85) 1,3-Dichlorobenzene	20.26	146	12222	0.211	ng	100
86) 1,4-Dichlorobenzene	20.32	146	12727	0.223	ng	97
87) sec-Butylbenzene	20.37	105	25411	0.204	ng	97
88) 4-Isopropyltoluene (p-...	20.51	119	23798	0.204	ng	96
89) 1,2,3-Trimethylbenzene	20.51	105	18887	0.199	ng	99
90) 1,2-Dichlorobenzene	20.63	146	11479	0.204	ng	100
91) d-Limonene	20.64	68	6482	0.194	ng	94
92) 1,2-Dibromo-3-Chloropr...	21.01	157	3595	0.174	ng	84
93) n-Undecane	21.33	57	4657	0.105	ng	93
94) 1,2,4-Trichlorobenzene	22.14	180	7652	0.174	ng	100
95) Naphthalene	22.24	128	25605	0.198	ng	98
96) n-Dodecane	22.24	57	1766	0.045	ng	92
97) Hexachlorobutadiene	22.56	225	5798	0.193	ng	100
98) Cyclohexanone	18.31	55	6118	0.193	ng	98
99) tert-Butylbenzene	20.13	119	19824	0.207	ng	99
100) n-Butylbenzene	20.88	91	19012	0.198	ng	99

(#)= qualifier out of range (m)= manual integration (+)= signals summed

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 10 09:37:54 2019

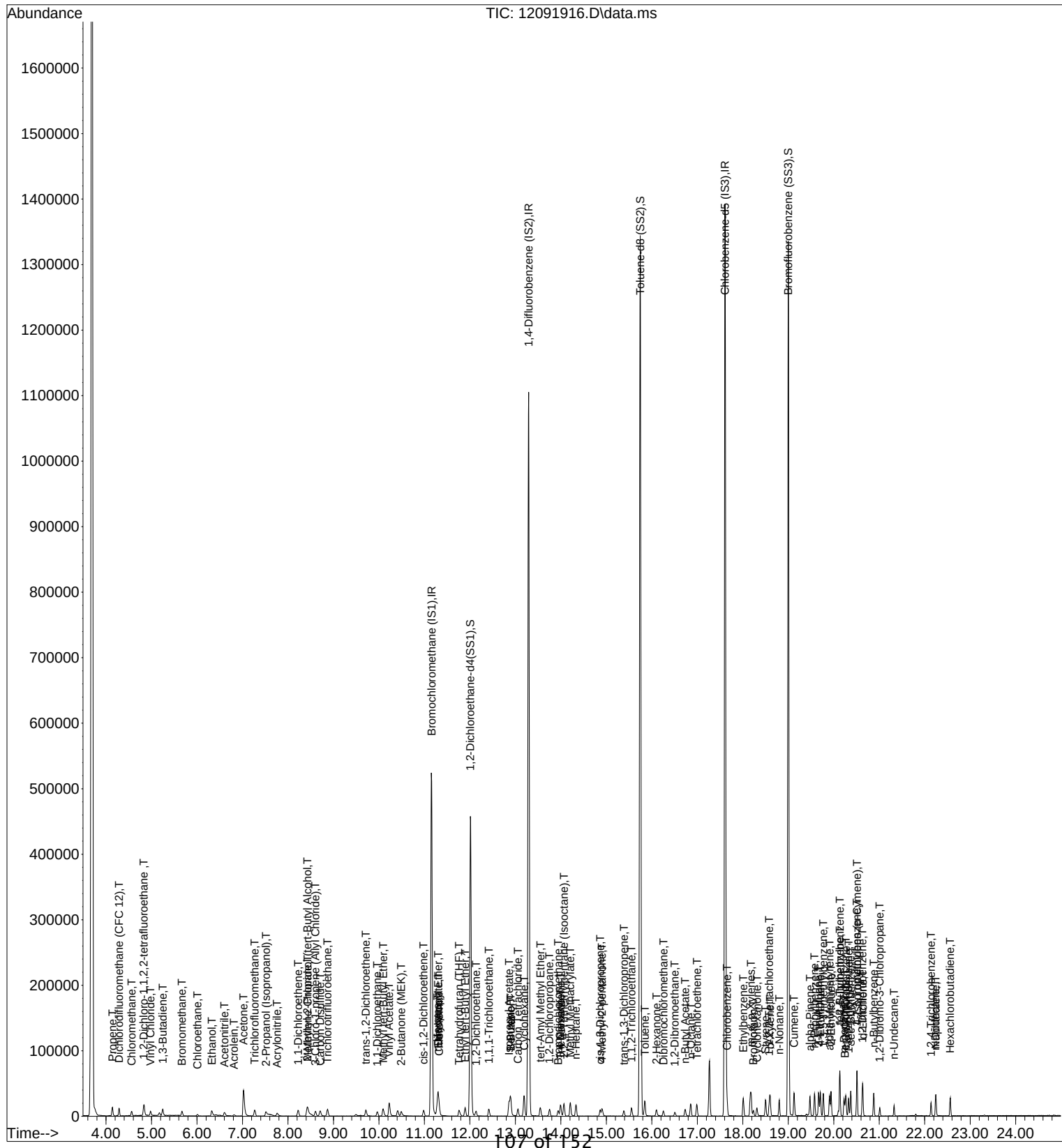
Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP V0A-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:37:30 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_12\09\12091917.D

Acq On : 9 Dec 2019 19:19

Operator: LH

Sample : 0.5ng T015 ICAL STD

Misc : S31-10161904/S31-12061909 (1/4)

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 10 09:37:56 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 12/10/19

QLast Update : Tue Dec 10 09:37:30 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	247982	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.29	114	1049827	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.61	82	465911	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.01	65	372094	12.235	ng	-0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	97.92%	
57) Toluene-d8 (SS2)	15.74	98	1056748	12.740	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	101.92%	
73) Bromofluorobenzene (SS3)	19.00	174	434014	12.738	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	101.92%	

Target Compounds

						Qvalue
2) Propene	4.13	42	10731	0.464	ng	99
3) Dichlorodifluoromethan...	4.28	85	27620	0.554	ng	99
4) Chloromethane	4.55	50	18411	0.593	ng	98
5) 1,2-Dichloro-1,1,2,2-t...	4.82	135	16752	0.542	ng	99
6) Vinyl Chloride	4.97	62	18499	0.527	ng	99
7) 1,3-Butadiene	5.24	54	13424	0.570	ng	98
8) Bromomethane	5.66	94	11418	0.477	ng	99
9) Chloroethane	6.00	64	8062	0.534	ng	98
10) Ethanol	6.31	45	38189	2.547	ng	98
11) Acetonitrile	6.59	41	18076	0.486	ng	73
12) Acrolein	6.80	56	6029	0.482	ng	99
13) Acetone	7.01	58	40845	2.442	ng	89
14) Trichlorofluoromethane	7.26	101	24331	0.537	ng	100
15) 2-Propanol (Isopropanol)	7.48	45	53340	1.121	ng	92
16) Acrylonitrile	7.75	53	12502	0.469	ng	98
17) 1,1-Dichloroethene	8.22	96	12034	0.530	ng	100
18) 2-Methyl-2-Propanol (t...	8.39	59	52417	1.016	ng	95
19) Methylene Chloride	8.43	84	11891	0.500	ng	100
20) 3-Chloro-1-propene (Al...	8.60	41	15778	0.514	ng	95
21) Trichlorotrifluoroethane	8.86	151	12971	0.551	ng	100
22) Carbon Disulfide	8.70	76	42527	0.515	ng	99
23) trans-1,2-Dichloroethene	9.71	61	15528	0.506	ng	99
24) 1,1-Dichloroethane	9.96	63	20512	0.532	ng	99
25) Methyl tert-Butyl Ether	10.09	73	34158	0.528	ng	99
26) Vinyl Acetate	10.22	86	10223	1.847	ng	# 66
27) 2-Butanone (MEK)	10.48	72	6989	0.475	ng	95
28) cis-1,2-Dichloroethene	10.98	61	15740	0.514	ng	99
29) Diisopropyl Ether	11.30	87	12001	0.524	ng	# 87
30) Ethyl Acetate	11.29	61	7545	0.945	ng	100
31) n-Hexane	11.28	57	18289	0.501	ng	98
32) Chloroform	11.32	83	22105	0.520	ng	99
34) Tetrahydrofuran (THF)	11.75	72	7294	0.497	ng	94
35) Ethyl tert-Butyl Ether	11.89	87	13307	0.523	ng	98
36) 1,2-Dichloroethane	12.13	62	16933	0.526	ng	99
38) 1,1,1-Trichloroethane	12.42	97	20460	0.529	ng	99
39) Isopropyl Acetate	12.85	61	13710	0.956	ng	# 87
40) 1-Butanol	12.88	56	16222	0.776	ng	# 71
41) Benzene	12.90	78	47643	0.494	ng	100
42) Carbon Tetrachloride	13.06	117	18373	0.507	ng	99
43) Cyclohexane	13.19	84	37182	1.008	ng	98
44) tert-Amyl Methyl Ether	13.54	73	30440	0.531	ng	96
45) 1,2-Dichloropropane	13.75	63	11086	0.523	ng	99
46) Bromodichloromethane	13.94	83	16923	0.509	ng	99
47) Trichloroethene	14.00	130	14273	0.510	ng	100
48) 1,4-Dioxane	13.97	88	9332	0.479	ng	98
49) 2,2,4-Trimethylpentane...	14.07	57	45810	0.514	ng	98

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Data File: I:\MS16\DATA\2019_12\09\12091917.D

Acq On : 9 Dec 2019 19:19

Operator: LH

Sample : 0.5ng T015 ICAL STD

Misc : S31-10161904/S31-12061909 (1/4)

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 10 09:37:56 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:37:30 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.20	100	9593	0.956	ng	94
51) n-Heptane	14.33	71	11411	0.513	ng	99
52) cis-1,3-Dichloropropene	14.86	75	17408	0.467	ng	100
53) 4-Methyl-2-pentanone	14.90	58	9583	0.477	ng	89
54) trans-1,3-Dichloropropene	15.38	75	15362	0.471	ng	98
55) 1,1,2-Trichloroethane	15.56	97	12021	0.512	ng	99
58) Toluene	15.84	91	51399	0.534	ng	98
59) 2-Hexanone	16.10	43	20852	0.472	ng	93
60) Dibromochloromethane	16.25	129	14453	0.500	ng	99
61) 1,2-Dibromoethane	16.51	107	13772	0.515	ng	100
62) n-Butyl Acetate	16.73	43	22538	0.469	ng	97
63) n-Octane	16.85	57	9202	0.510	ng	97
64) Tetrachloroethene	16.99	166	16035	0.509	ng	97
65) Chlorobenzene	17.65	112	34754	0.504	ng	100
66) Ethylbenzene	18.01	91	56243	0.518	ng	100
67) m- & p-Xylenes	18.17	91	90198	1.035	ng	98
68) Bromoform	18.23	173	11853	0.475	ng	99
69) Styrene	18.50	104	33951	0.491	ng	99
70) o-Xylene	18.60	91	45646	0.526	ng	97
71) n-Nonane	18.80	43	20274	0.506	ng	97
72) 1,1,2,2-Tetrachloroethane	18.58	83	20240	0.492	ng	99
74) Cumene	19.13	105	60127	0.539	ng	99
75) alpha-Pinene	19.48	93	29339	0.523	ng	94
76) n-Propylbenzene	19.58	91	68054	0.523	ng	99
77) 3-Ethyltoluene	19.67	105	57923	0.521	ng	100
78) 4-Ethyltoluene	19.70	105	53872	0.513	ng	99
79) 1,3,5-Trimethylbenzene	19.77	105	47794	0.511	ng	100
80) alpha-Methylstyrene	19.91	118	24820	0.489	ng	91
81) 2-Ethyltoluene	19.94	105	58278	0.536	ng	99
82) 1,2,4-Trimethylbenzene	20.13	105	48395	0.518	ng	99
83) n-Decane	20.23	57	21363	0.509	ng	97
84) Benzyl Chloride	20.25	91	28501	0.352	ng	96
85) 1,3-Dichlorobenzene	20.26	146	29036	0.508	ng	100
86) 1,4-Dichlorobenzene	20.32	146	28142	0.501	ng	99
87) sec-Butylbenzene	20.37	105	65046	0.530	ng	99
88) 4-Isopropyltoluene (p-...	20.51	119	61503	0.533	ng	98
89) 1,2,3-Trimethylbenzene	20.51	105	49507	0.530	ng	99
90) 1,2-Dichlorobenzene	20.63	146	28137	0.506	ng	100
91) d-Limonene	20.64	68	16972	0.514	ng	97
92) 1,2-Dibromo-3-Chloropr...	21.01	157	9227	0.453	ng	87
93) n-Undecane	21.33	57	20554	0.471	ng	97
94) 1,2,4-Trichlorobenzene	22.14	180	19158	0.442	ng	99
95) Naphthalene	22.24	128	55530	0.436	ng	98
96) n-Dodecane	22.24	57	16498	0.423	ng	96
97) Hexachlorobutadiene	22.56	225	14673	0.496	ng	99
98) Cyclohexanone	18.31	55	13139	0.421	ng	97
99) tert-Butylbenzene	20.13	119	49670	0.526	ng	100
100) n-Butylbenzene	20.88	91	49134	0.518	ng	98

(#)= qualifier out of range (m)= manual integration (+)= signals summed

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 10 09:37:56 2019

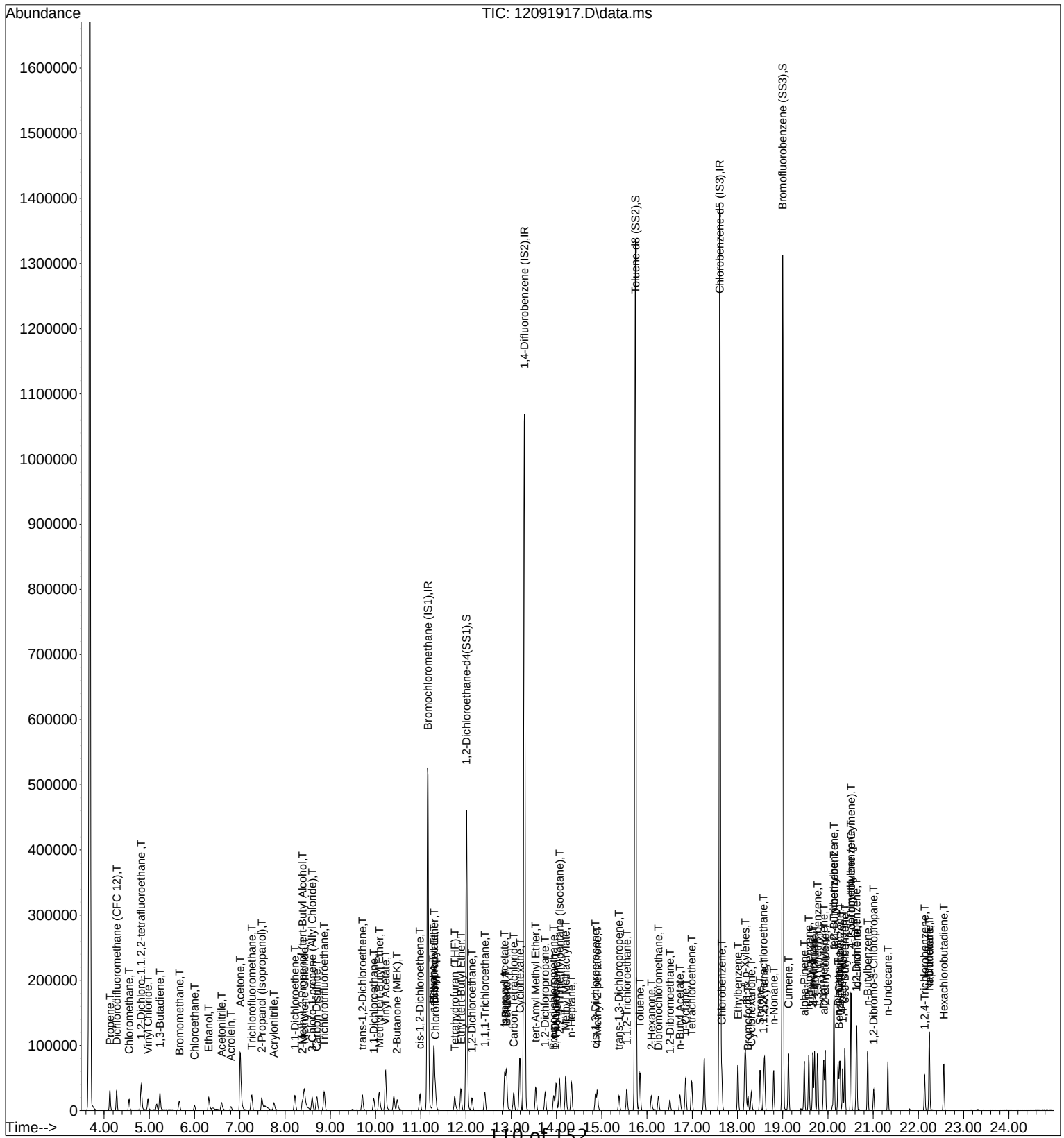
Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:37:30 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_12\09\12091918.D

Acq On : 9 Dec 2019 19:52

Operator: LH

Sample : 1.0ng T015 ICAL STD

Misc : S31-10161904/S31-12061909 (1/4)

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 10 09:37:59 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:37:30 2019

LH 12/10/19

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	239923	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.29	114	1046592	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.61	82	458158	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.02	65	368811	12.535	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	100.24%	
57) Toluene-d8 (SS2)	15.74	98	1036995	12.713	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	101.68%	
73) Bromofluorobenzene (SS3)	19.00	174	429132	12.807	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	102.48%	

Target Compounds

						Qvalue
2) Propene	4.12	42	19772	0.884	ng	99
3) Dichlorodifluoromethan...	4.28	85	50984	1.058	ng	100
4) Chloromethane	4.55	50	34079	1.135	ng	98
5) 1,2-Dichloro-1,1,2,2-t...	4.82	135	31244	1.045	ng	100
6) Vinyl Chloride	4.97	62	34259	1.008	ng	98
7) 1,3-Butadiene	5.24	54	24386	1.071	ng	98
8) Bromomethane	5.66	94	21879	0.944	ng	99
9) Chloroethane	6.00	64	15030	1.029	ng	100
10) Ethanol	6.32	45	68131	4.696	ng	100
11) Acetonitrile	6.60	41	34312	0.954	ng	87
12) Acrolein	6.80	56	11392	0.940	ng	98
13) Acetone	7.01	58	76302	4.716	ng	88
14) Trichlorofluoromethane	7.26	101	45243	1.032	ng	99
15) 2-Propanol (Isopropanol)	7.48	45	101627	2.207	ng	94
16) Acrylonitrile	7.75	53	24525	0.950	ng	100
17) 1,1-Dichloroethene	8.22	96	22881	1.042	ng	99
18) 2-Methyl-2-Propanol (t...	8.37	59	98860	1.981	ng	97
19) Methylene Chloride	8.43	84	22596	0.982	ng	98
20) 3-Chloro-1-propene (Al...	8.60	41	30267	1.020	ng	98
21) Trichlorotrifluoroethane	8.87	151	24107	1.059	ng	98
22) Carbon Disulfide	8.70	76	80966	1.013	ng	98
23) trans-1,2-Dichloroethene	9.71	61	30213	1.018	ng	98
24) 1,1-Dichloroethane	9.96	63	38677	1.036	ng	99
25) Methyl tert-Butyl Ether	10.08	73	63761	1.018	ng	100
26) Vinyl Acetate	10.22	86	20727	3.870	ng	# 73
27) 2-Butanone (MEK)	10.48	72	13869	0.974	ng	99
28) cis-1,2-Dichloroethene	10.98	61	29173	0.985	ng	100
29) Diisopropyl Ether	11.29	87	23207	1.047	ng	# 82
30) Ethyl Acetate	11.29	61	14192	1.837	ng	99
31) n-Hexane	11.28	57	34119	0.966	ng	99
32) Chloroform	11.33	83	41503	1.010	ng	99
34) Tetrahydrofuran (THF)	11.75	72	13780	0.970	ng	94
35) Ethyl tert-Butyl Ether	11.89	87	24896	1.011	ng	99
36) 1,2-Dichloroethane	12.14	62	31899	1.023	ng	99
38) 1,1,1-Trichloroethane	12.42	97	38641	1.002	ng	99
39) Isopropyl Acetate	12.85	61	25918	1.812	ng	# 88
40) 1-Butanol	12.87	56	31697	1.521	ng	# 75
41) Benzene	12.90	78	90048	0.936	ng	100
42) Carbon Tetrachloride	13.06	117	34788	0.963	ng	99
43) Cyclohexane	13.19	84	69489	1.890	ng	99
44) tert-Amyl Methyl Ether	13.54	73	56614	0.991	ng	96
45) 1,2-Dichloropropane	13.75	63	20820	0.985	ng	100
46) Bromodichloromethane	13.94	83	32585	0.983	ng	99
47) Trichloroethene	14.00	130	27202	0.976	ng	99
48) 1,4-Dioxane	13.97	88	17471	0.900	ng	99
49) 2,2,4-Trimethylpentane...	14.07	57	85619	0.963	ng	97

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Data File: I:\MS16\DATA\2019_12\09\12091918.D

Acq On : 9 Dec 2019 19:52

Operator: LH

Sample : 1.0ng T015 ICAL STD

Misc : S31-10161904/S31-12061909 (1/4)

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 10 09:37:59 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:37:30 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.20	100	18934	1.892	ng	98
51) n-Heptane	14.33	71	21118	0.952	ng	99
52) cis-1,3-Dichloropropene	14.86	75	34400	0.926	ng	99
53) 4-Methyl-2-pentanone	14.90	58	18722	0.934	ng	94
54) trans-1,3-Dichloropropene	15.38	75	30218	0.930	ng	99
55) 1,1,2-Trichloroethane	15.55	97	22506	0.962	ng	98
58) Toluene	15.84	91	95947	1.015	ng	98
59) 2-Hexanone	16.09	43	39425	0.908	ng	98
60) Dibromochloromethane	16.25	129	28385	0.999	ng	100
61) 1,2-Dibromoethane	16.50	107	26020	0.989	ng	99
62) n-Butyl Acetate	16.72	43	43057	0.910	ng	98
63) n-Octane	16.85	57	17504	0.987	ng	97
64) Tetrachloroethene	16.99	166	31039	1.002	ng	100
65) Chlorobenzene	17.65	112	65828	0.971	ng	100
66) Ethylbenzene	18.01	91	106464	0.997	ng	100
67) m- & p-Xylenes	18.17	91	170311	1.988	ng	98
68) Bromoform	18.23	173	22791	0.930	ng	99
69) Styrene	18.50	104	64686	0.950	ng	100
70) o-Xylene	18.60	91	85244	0.998	ng	99
71) n-Nonane	18.80	43	38983	0.990	ng	96
72) 1,1,2,2-Tetrachloroethane	18.58	83	39250	0.970	ng	100
74) Cumene	19.13	105	112113	1.022	ng	99
75) alpha-Pinene	19.48	93	55667	1.010	ng	97
76) n-Propylbenzene	19.58	91	128575	1.005	ng	99
77) 3-Ethyltoluene	19.67	105	110188	1.008	ng	100
78) 4-Ethyltoluene	19.70	105	101605	0.984	ng	100
79) 1,3,5-Trimethylbenzene	19.77	105	91861	0.998	ng	100
80) alpha-Methylstyrene	19.91	118	48439	0.971	ng	91
81) 2-Ethyltoluene	19.94	105	109343	1.022	ng	99
82) 1,2,4-Trimethylbenzene	20.13	105	92008	1.001	ng	100
83) n-Decane	20.23	57	40235	0.974	ng	99
84) Benzyl Chloride	20.25	91	57208	0.718	ng	97
85) 1,3-Dichlorobenzene	20.27	146	55164	0.982	ng	100
86) 1,4-Dichlorobenzene	20.32	146	53533	0.968	ng	99
87) sec-Butylbenzene	20.37	105	123400	1.022	ng	99
88) 4-Isopropyltoluene (p-...	20.51	119	117542	1.036	ng	98
89) 1,2,3-Trimethylbenzene	20.51	105	94981	1.033	ng	100
90) 1,2-Dichlorobenzene	20.63	146	53787	0.985	ng	100
91) d-Limonene	20.64	68	32245	0.992	ng	98
92) 1,2-Dibromo-3-Chloropr...	21.01	157	18519	0.925	ng	91
93) n-Undecane	21.33	57	39107	0.912	ng	98
94) 1,2,4-Trichlorobenzene	22.14	180	36896	0.866	ng	99
95) Naphthalene	22.24	128	105258	0.840	ng	99
96) n-Dodecane	22.24	57	32333	0.843	ng	95
97) Hexachlorobutadiene	22.56	225	28321	0.973	ng	100
98) Cyclohexanone	18.31	55	25180	0.820	ng	97
99) tert-Butylbenzene	20.13	119	94045	1.013	ng	99
100) n-Butylbenzene	20.88	91	92943	0.997	ng	98

(#)=qualifier out of range (m)=manual integration (+)=signals summed

Data File: I:\MS16\DATA\2019_12\09\12091918.D

Acq On : 9 Dec 2019 19:52

Operator: LH

Sample : 1.0ng T015 ICAL STD

Misc : S31-10161904/S31-12061909 (1/4)

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 10 09:37:59 2019

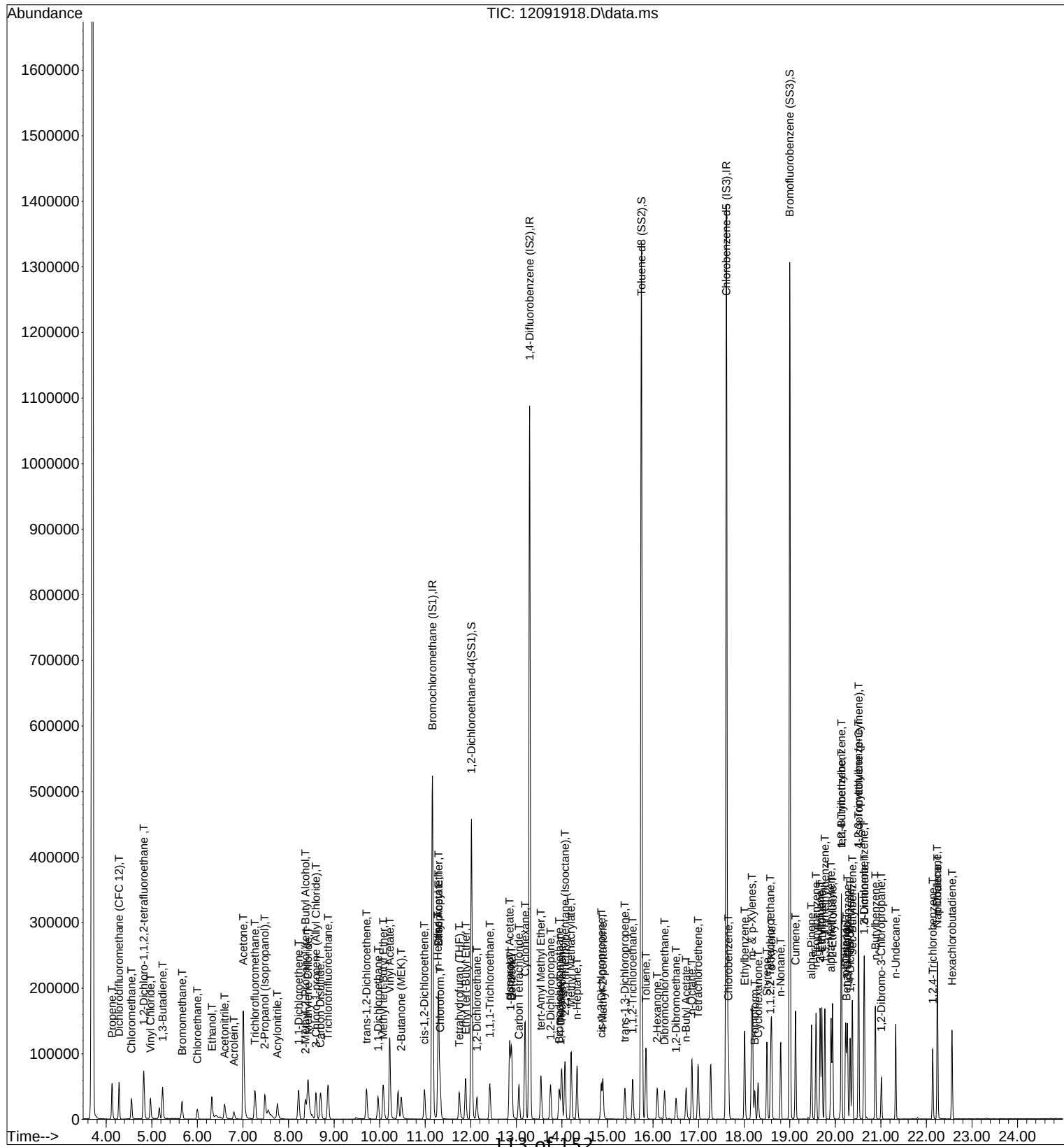
Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:37:30 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_12\09\12091919.D

Acq On : 9 Dec 2019 20:25

Operator: LH

Sample : 5.0ng T015 ICAL STD

Misc : S31-10161904/S31-12061909 (1/4)

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 10 09:38:01 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 12/10/19

QLast Update : Tue Dec 10 09:37:30 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	225432	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.29	114	953249	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.61	82	425710	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.02	65	338492	12.244	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	97.92%	
57) Toluene-d8 (SS2)	15.74	98	959622	12.661	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	101.28%	
73) Bromofluorobenzene (SS3)	19.00	174	406533	13.058	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	104.48%	

Target Compounds

						Qvalue
2) Propene	4.11	42	119209	5.675	ng	99
3) Dichlorodifluoromethan...	4.27	85	234171	5.169	ng	100
4) Chloromethane	4.54	50	120182	4.260	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	143285	5.099	ng	100
6) Vinyl Chloride	4.96	62	162883	5.103	ng	99
7) 1,3-Butadiene	5.22	54	93437	4.366	ng	98
8) Bromomethane	5.66	94	96124	4.414	ng	99
9) Chloroethane	5.99	64	68952	5.024	ng	100
10) Ethanol	6.32	45	293782	21.549	ng	100
11) Acetonitrile	6.59	41	159892	4.732	ng	98
12) Acrolein	6.80	56	55298	4.858	ng	100
13) Acetone	7.00	58	346149	22.768	ng	90
14) Trichlorofluoromethane	7.26	101	210194	5.102	ng	100
15) 2-Propanol (Isopropanol)	7.48	45	358860	8.294	ng	98
16) Acrylonitrile	7.75	53	118597	4.890	ng	100
17) 1,1-Dichloroethene	8.22	96	105846	5.130	ng	99
18) 2-Methyl-2-Propanol (t...	8.36	59	479661	10.229	ng	98
19) Methylene Chloride	8.44	84	107317	4.962	ng	100
20) 3-Chloro-1-propene (Al...	8.60	41	136849	4.908	ng	99
21) Trichlorotrifluoroethane	8.86	151	113507	5.307	ng	99
22) Carbon Disulfide	8.70	76	373283	4.971	ng	100
23) trans-1,2-Dichloroethene	9.71	61	143874	5.160	ng	100
24) 1,1-Dichloroethane	9.96	63	180313	5.143	ng	100
25) Methyl tert-Butyl Ether	10.07	73	302319	5.138	ng	100
26) Vinyl Acetate	10.22	86	100770	20.026	ng	# 81
27) 2-Butanone (MEK)	10.47	72	66636	4.978	ng	98
28) cis-1,2-Dichloroethene	10.99	61	137896	4.955	ng	99
29) Diisopropyl Ether	11.28	87	110152	5.288	ng	# 81
30) Ethyl Acetate	11.29	61	70672	9.737	ng	99
31) n-Hexane	11.28	57	163445	4.927	ng	100
32) Chloroform	11.33	83	195906	5.072	ng	100
34) Tetrahydrofuran (THF)	11.74	72	64984	4.869	ng	98
35) Ethyl tert-Butyl Ether	11.88	87	116889	5.051	ng	99
36) 1,2-Dichloroethane	12.14	62	149643	5.110	ng	100
38) 1,1,1-Trichloroethane	12.42	97	182572	5.197	ng	99
39) Isopropyl Acetate	12.85	61	126205	9.690	ng	# 91
40) 1-Butanol	12.86	56	160198	8.442	ng	81
41) Benzene	12.90	78	419664	4.790	ng	100
42) Carbon Tetrachloride	13.06	117	168827	5.133	ng	99
43) Cyclohexane	13.19	84	328735	9.817	ng	99
44) tert-Amyl Methyl Ether	13.54	73	265981	5.112	ng	98
45) 1,2-Dichloropropane	13.75	63	97710	5.074	ng	100
46) Bromodichloromethane	13.94	83	157463	5.214	ng	99
47) Trichloroethene	14.00	130	127786	5.032	ng	100
48) 1,4-Dioxane	13.97	88	84044	4.755	ng	100
49) 2,2,4-Trimethylpentane...	14.07	57	399225	4.930	ng	98

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Data File: I:\MS16\DATA\2019_12\09\12091919.D

Acq On : 9 Dec 2019 20:25

Operator: LH

Sample : 5.0ng T015 ICAL STD

Misc : S31-10161904/S31-12061909 (1/4)

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 10 09:38:01 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:37:30 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.20	100	92309	10.127	ng	99
51) n-Heptane	14.34	71	99794	4.939	ng	100
52) cis-1,3-Dichloropropene	14.86	75	166738	4.928	ng	100
53) 4-Methyl-2-pentanone	14.89	58	89389	4.895	ng	95
54) trans-1,3-Dichloropropene	15.38	75	152181	5.143	ng	100
55) 1,1,2-Trichloroethane	15.55	97	110371	5.181	ng	98
58) Toluene	15.84	91	445333	5.068	ng	100
59) 2-Hexanone	16.09	43	194950	4.833	ng	97
60) Dibromochloromethane	16.25	129	141583	5.361	ng	100
61) 1,2-Dibromoethane	16.50	107	128820	5.267	ng	100
62) n-Butyl Acetate	16.72	43	213375	4.856	ng	98
63) n-Octane	16.86	57	81571	4.948	ng	100
64) Tetrachloroethene	16.99	166	147241	5.114	ng	100
65) Chlorobenzene	17.65	112	311064	4.940	ng	99
66) Ethylbenzene	18.01	91	510605	5.144	ng	99
67) m- & p-Xylenes	18.17	91	815330	10.240	ng	98
68) Bromoform	18.24	173	122613	5.383	ng	100
69) Styrene	18.50	104	317252	5.017	ng	99
70) o-Xylene	18.60	91	406853	5.129	ng	100
71) n-Nonane	18.80	43	185334	5.067	ng	97
72) 1,1,2,2-Tetrachloroethane	18.58	83	190342	5.064	ng	100
74) Cumene	19.13	105	538205	5.282	ng	99
75) alpha-Pinene	19.48	93	263729	5.147	ng	99
76) n-Propylbenzene	19.58	91	614764	5.174	ng	99
77) 3-Ethyltoluene	19.67	105	527824	5.197	ng	99
78) 4-Ethyltoluene	19.70	105	496092	5.169	ng	100
79) 1,3,5-Trimethylbenzene	19.77	105	442631	5.175	ng	100
80) alpha-Methylstyrene	19.91	118	243784	5.258	ng	92
81) 2-Ethyltoluene	19.94	105	523221	5.263	ng	99
82) 1,2,4-Trimethylbenzene	20.13	105	450674	5.279	ng	99
83) n-Decane	20.23	57	197566	5.148	ng	98
84) Benzyl Chloride	20.25	91	326237	4.407	ng	98
85) 1,3-Dichlorobenzene	20.27	146	267010	5.114	ng	100
86) 1,4-Dichlorobenzene	20.32	146	258700	5.037	ng	100
87) sec-Butylbenzene	20.37	105	595989	5.313	ng	99
88) 4-Isopropyltoluene (p-...	20.51	119	586318	5.561	ng	99
89) 1,2,3-Trimethylbenzene	20.51	105	466611	5.462	ng	100
90) 1,2-Dichlorobenzene	20.63	146	262357	5.168	ng	100
91) d-Limonene	20.64	68	162780	5.391	ng	98
92) 1,2-Dibromo-3-Chloropr...	21.01	157	95741	5.148	ng	95
93) n-Undecane	21.33	57	195415	4.903	ng	98
94) 1,2,4-Trichlorobenzene	22.14	180	182095	4.598	ng	99
95) Naphthalene	22.24	128	526952	4.526	ng	99
96) n-Dodecane	22.24	57	166629	4.675	ng	97
97) Hexachlorobutadiene	22.56	225	139330	5.150	ng	100
98) Cyclohexanone	18.30	55	121810	4.270	ng	98
99) tert-Butylbenzene	20.13	119	456718	5.296	ng	100
100) n-Butylbenzene	20.88	91	451886	5.215	ng	99

(#)=qualifier out of range (m)=manual integration (+)=signals summed

Operator: LH

Sample : 5.0ng T015 ICAL STD

Misc : S31-10161904/S31-12061909 (1/4)

ALS Vial : 8 Sample Multiplier: 1

Quant Time: Dec 10 09:38:01 2019

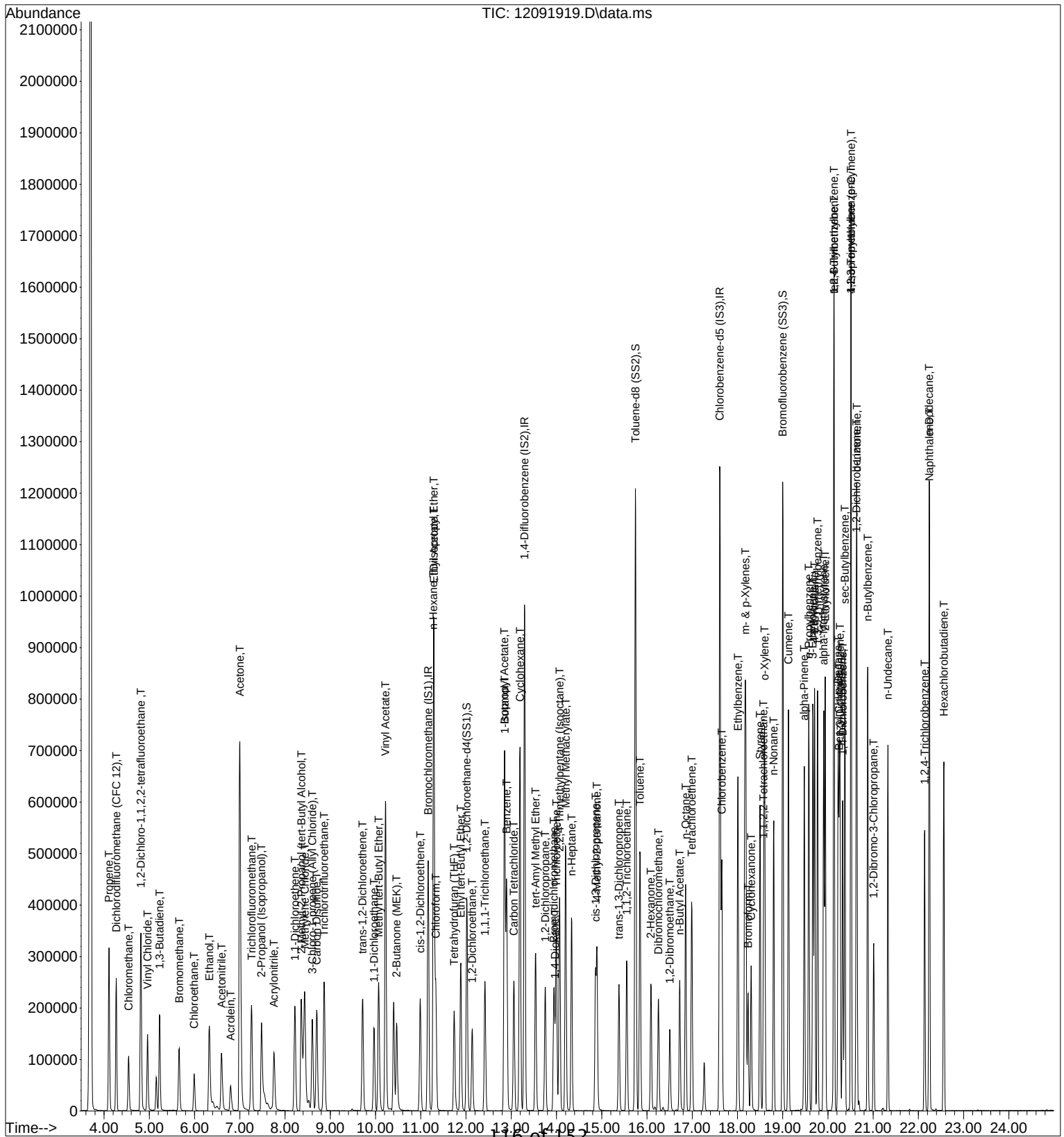
Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:37:30 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_12\09\12091920.D

Acq On : 9 Dec 2019 20:58

Operator: LH

Sample : 25ng T015 ICAL STD

Misc : S31-10161904/S31-12061902 (1/4)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 10 09:38:02 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:37:30 2019

LH 12/10/19

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	232660	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.30	114	983970	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.61	82	441345	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.03	65	352480	12.353	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.80%	
57) Toluene-d8 (SS2)	15.75	98	982905	12.509	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	100.08%	
73) Bromofluorobenzene (SS3)	19.01	174	420199	13.018	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	104.16%	

Target Compounds

						Qvalue
2) Propene	4.10	42	526575	24.288	ng	100
3) Dichlorodifluoromethan...	4.26	85	1253623	26.815	ng	100
4) Chloromethane	4.54	50	790740	27.160	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	786607	27.125	ng	100
6) Vinyl Chloride	4.96	62	884931	26.862	ng	100
7) 1,3-Butadiene	5.23	54	562231	25.453	ng	100
8) Bromomethane	5.66	94	543142	24.166	ng	100
9) Chloroethane	5.99	64	382632	27.013	ng	100
10) Ethanol	6.36	45	1808816	128.558	ng	100
11) Acetonitrile	6.61	41	885934	25.405	ng	100
12) Acrolein	6.80	56	303808	25.862	ng	100
13) Acetone	7.01	58	2011080	128.171	ng	100
14) Trichlorofluoromethane	7.26	101	1151590	27.086	ng	100
15) 2-Propanol (Isopropanol)	7.50	45	2620747	58.686	ng	100
16) Acrylonitrile	7.77	53	683154	27.295	ng	100
17) 1,1-Dichloroethene	8.22	96	587081	27.570	ng	100
18) 2-Methyl-2-Propanol (t...	8.38	59	2772178	57.279	ng	100
19) Methylene Chloride	8.45	84	587440	26.320	ng	100
20) 3-Chloro-1-propene (Al...	8.61	41	781237	27.146	ng	100
21) Trichlorotrifluoroethane	8.86	151	620160	28.093	ng	100
22) Carbon Disulfide	8.71	76	2088935	26.954	ng	100
23) trans-1,2-Dichloroethene	9.72	61	808416	28.092	ng	100
24) 1,1-Dichloroethane	9.98	63	993307	27.450	ng	100
25) Methyl tert-Butyl Ether	10.06	73	1656084	27.272	ng	100
26) Vinyl Acetate	10.23	86	752620	144.918	ng	100
27) 2-Butanone (MEK)	10.47	72	392265	28.396	ng	100
28) cis-1,2-Dichloroethene	10.99	61	774469	26.966	ng	100
29) Diisopropyl Ether	11.29	87	569201	26.476	ng	100
30) Ethyl Acetate	11.29	61	463990	61.939	ng	100
31) n-Hexane	11.28	57	958085	27.982	ng	100
32) Chloroform	11.34	83	1086123	27.244	ng	100
34) Tetrahydrofuran (THF)	11.74	72	380063	27.590	ng	100
35) Ethyl tert-Butyl Ether	11.88	87	652169	27.305	ng	100
36) 1,2-Dichloroethane	12.14	62	838866	27.755	ng	100
38) 1,1,1-Trichloroethane	12.42	97	1015880	28.016	ng	100
39) Isopropyl Acetate	12.85	61	773222	57.514	ng	100
40) 1-Butanol	12.87	56	1177151	60.097	ng	100
41) Benzene	12.90	78	2387321	26.396	ng	100
42) Carbon Tetrachloride	13.06	117	951829	28.037	ng	100
43) Cyclohexane	13.19	84	1885003	54.534	ng	100
44) tert-Amyl Methyl Ether	13.54	73	1499184	27.914	ng	100
45) 1,2-Dichloropropane	13.75	63	541721	27.254	ng	100
46) Bromodichloromethane	13.95	83	906159	29.066	ng	100
47) Trichloroethene	14.00	130	730577	27.871	ng	100
48) 1,4-Dioxane	13.97	88	527800	28.927	ng	100
49) 2,2,4-Trimethylpentane...	14.07	57	2194535	26.254	ng	100

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Data File: I:\MS16\DATA\2019_12\09\12091920.D

Acq On : 9 Dec 2019 20:58

Operator: LH

Sample : 25ng T015 ICAL STD

Misc : S31-10161904/S31-12061902 (1/4)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 10 09:38:02 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:37:30 2019

Response via : Initial Calibration

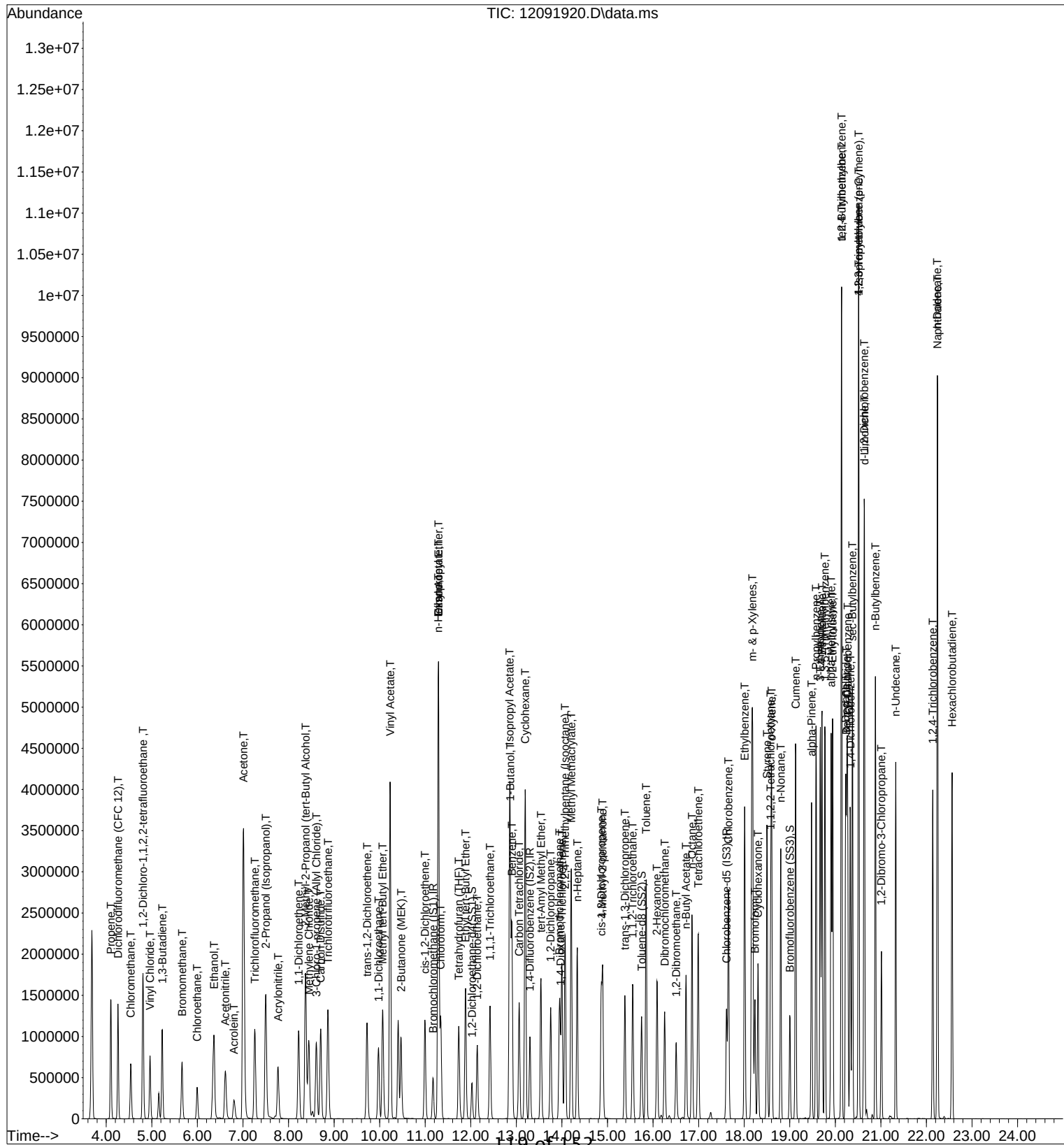
DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.20	100	562261	59.756	ng	100
51) n-Heptane	14.34	71	554028	26.561	ng	100
52) cis-1,3-Dichloropropene	14.86	75	986213	28.237	ng	100
53) 4-Methyl-2-pentanone	14.89	58	527278	27.974	ng	100
54) trans-1,3-Dichloropropene	15.38	75	924844	30.279	ng	100
55) 1,1,2-Trichloroethane	15.55	97	617369	28.074	ng	100
58) Toluene	15.85	91	2502164	27.466	ng	100
59) 2-Hexanone	16.09	43	1256306	30.044	ng	100
60) Dibromochloromethane	16.26	129	833480	30.443	ng	100
61) 1,2-Dibromoethane	16.51	107	741732	29.255	ng	100
62) n-Butyl Acetate	16.72	43	1407828	30.903	ng	100
63) n-Octane	16.86	57	463627	27.127	ng	100
64) Tetrachloroethene	16.99	166	831575	27.861	ng	100
65) Chlorobenzene	17.65	112	1775417	27.198	ng	100
66) Ethylbenzene	18.01	91	2964039	28.800	ng	100
67) m- & p-Xylenes	18.18	91	4790221	58.031	ng	100
68) Bromoform	18.24	173	764287	32.367	ng	100
69) Styrene	18.50	104	1931678	29.465	ng	100
70) o-Xylene	18.60	91	2381116	28.952	ng	100
71) n-Nonane	18.80	43	1040944	27.451	ng	100
72) 1,1,2,2-Tetrachloroethane	18.58	83	1117978	28.690	ng	100
74) Cumene	19.13	105	3119560	29.530	ng	100
75) alpha-Pinene	19.48	93	1515258	28.526	ng	100
76) n-Propylbenzene	19.58	91	3657149	29.688	ng	100
77) 3-Ethyltoluene	19.67	105	3076997	29.222	ng	100
78) 4-Ethyltoluene	19.71	105	3085603	31.010	ng	100
79) 1,3,5-Trimethylbenzene	19.77	105	2602088	29.345	ng	100
80) alpha-Methylstyrene	19.91	118	1462399	30.424	ng	100
81) 2-Ethyltoluene	19.94	105	3081013	29.895	ng	100
82) 1,2,4-Trimethylbenzene	20.14	105	2868027	32.405	ng	100
83) n-Decane	20.23	57	1179664	29.649	ng	100
84) Benzyl Chloride	20.25	91	2425450	31.607	ng	100
85) 1,3-Dichlorobenzene	20.27	146	1688094	31.186	ng	100
86) 1,4-Dichlorobenzene	20.33	146	1656633	31.111	ng	100
87) sec-Butylbenzene	20.37	105	3442769	29.606	ng	100
88) 4-Isopropyltoluene (p-...	20.51	119	3648091	33.374	ng	100
89) 1,2,3-Trimethylbenzene	20.51	105	2941241	33.212	ng	100
90) 1,2-Dichlorobenzene	20.63	146	1683145	31.983	ng	100
91) d-Limonene	20.64	68	967795	30.919	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.01	157	602241	31.237	ng	100
93) n-Undecane	21.33	57	1203251	29.123	ng	100
94) 1,2,4-Trichlorobenzene	22.14	180	1302457	31.724	ng	100
95) Naphthalene	22.24	128	4116517	34.101	ng	100
96) n-Dodecane	22.24	57	1162194	31.452	ng	100
97) Hexachlorobutadiene	22.56	225	858539	30.610	ng	100
98) Cyclohexanone	18.30	55	802502	27.132	ng	100
99) tert-Butylbenzene	20.14	119	2833565	31.696	ng	100
100) n-Butylbenzene	20.88	91	2741835	30.519	ng	100

(#)= qualifier out of range (m)= manual integration (+)= signals summed

ALS Vial : 2 Sample Multiplier: 1

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_12\09\12091921.D

Acq On : 9 Dec 2019 21:31

Operator: LH

Sample : 50ng T015 ICAL STD

Misc : S31-10161904/S31-12061902 (1/4)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 10 09:38:05 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:37:30 2019

LH 12/10/19

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.18	130	239613	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.30	114	1006543	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.61	82	453627	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.03	65	358506	12.200	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	97.60%	
57) Toluene-d8 (SS2)	15.75	98	1004631	12.439	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.52%	
73) Bromofluorobenzene (SS3)	19.00	174	429949	12.960	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	103.68%	

Target Compounds

						Qvalue
2) Propene	4.11	42	1255004	56.208	ng	98
3) Dichlorodifluoromethan...	4.27	85	2334951	48.495	ng	100
4) Chloromethane	4.55	50	1394249	46.499	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	1548383	51.844	ng	100
6) Vinyl Chloride	4.97	62	1726572	50.888	ng	100
7) 1,3-Butadiene	5.24	54	1138573	50.049	ng	98
8) Bromomethane	5.67	94	1084518	46.853	ng	100
9) Chloroethane	6.01	64	763062	52.307	ng	100
10) Ethanol	6.39	45	3790435	261.580	ng	100
11) Acetonitrile	6.63	41	1786853	49.752	ng	99
12) Acrolein	6.81	56	618138	51.094	ng	100
13) Acetone	7.03	58	4162765	257.604	ng	87
14) Trichlorofluoromethane	7.26	101	2291039	52.323	ng	100
15) 2-Propanol (Isopropanol)	7.52	45	4028840	87.599	ng	99
16) Acrylonitrile	7.78	53	1376129	53.387	ng	100
17) 1,1-Dichloroethene	8.23	96	1180562	53.832	ng	98
18) 2-Methyl-2-Propanol (t...	8.39	59	5695023	114.257	ng	98
19) Methylene Chloride	8.45	84	1181846	51.416	ng	98
20) 3-Chloro-1-propene (Al...	8.62	41	1541713	52.017	ng	99
21) Trichlorotrifluoroethane	8.87	151	1246583	54.832	ng	99
22) Carbon Disulfide	8.71	76	4159477	52.114	ng	100
23) trans-1,2-Dichloroethene	9.73	61	1612069	54.393	ng	99
24) 1,1-Dichloroethane	9.98	63	1960328	52.601	ng	100
25) Methyl tert-Butyl Ether	10.07	73	3372458	53.924	ng	100
26) Vinyl Acetate	10.24	86	1642689	307.123	ng	# 75
27) 2-Butanone (MEK)	10.48	72	795577	55.920	ng	96
28) cis-1,2-Dichloroethene	11.00	61	1536236	51.937	ng	99
29) Diisopropyl Ether	11.30	87	1208942	54.601	ng	# 80
30) Ethyl Acetate	11.30	61	979772	126.996	ng	98
31) n-Hexane	11.28	57	1990743	56.454	ng	99
32) Chloroform	11.34	83	2162994	52.681	ng	100
34) Tetrahydrofuran (THF)	11.74	72	767272	54.082	ng	98
35) Ethyl tert-Butyl Ether	11.89	87	1342115	54.560	ng	98
36) 1,2-Dichloroethane	12.14	62	1645296	52.858	ng	100
38) 1,1,1-Trichloroethane	12.42	97	2036392	54.900	ng	99
39) Isopropyl Acetate	12.86	61	1638053	119.109	ng	# 87
40) 1-Butanol	12.88	56	2494118	124.476	ng	91
41) Benzene	12.90	78	5028259	54.350	ng	100
42) Carbon Tetrachloride	13.07	117	1924875	55.428	ng	100
43) Cyclohexane	13.20	84	3973038	112.364	ng	98
44) tert-Amyl Methyl Ether	13.54	73	3059395	55.688	ng	99
45) 1,2-Dichloropropane	13.75	63	1088471	53.532	ng	100
46) Bromodichloromethane	13.95	83	1844156	57.827	ng	100
47) Trichloroethene	14.00	130	1492638	55.665	ng	100
48) 1,4-Dioxane	13.97	88	1093685	58.598	ng	99
49) 2,2,4-Trimethylpentane...	14.07	57	4426329	51.766	ng	97

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Data File: I:\MS16\DATA\2019_12\09\12091921.D

Acq On : 9 Dec 2019 21:31

Operator: LH

Sample : 50ng T015 ICAL STD

Misc : S31-10161904/S31-12061902 (1/4)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 10 09:38:05 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:37:30 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.21	100	1198781	124.547	ng	97
51) n-Heptane	14.34	71	1145299	53.677	ng	99
52) cis-1,3-Dichloropropene	14.86	75	2034394	56.943	ng	100
53) 4-Methyl-2-pentanone	14.90	58	1081483	56.090	ng	96
54) trans-1,3-Dichloropropene	15.38	75	1904504	60.955	ng	100
55) 1,1,2-Trichloroethane	15.56	97	1254614	55.771	ng	100
58) Toluene	15.85	91	5112550	54.600	ng	99
59) 2-Hexanone	16.09	43	2499681	58.161	ng	98
60) Dibromochloromethane	16.26	129	1700062	60.414	ng	100
61) 1,2-Dibromoethane	16.51	107	1509505	57.924	ng	100
62) n-Butyl Acetate	16.72	43	2823466	60.300	ng	98
63) n-Octane	16.85	57	955343	54.384	ng	98
64) Tetrachloroethene	16.99	166	1717534	55.985	ng	100
65) Chlorobenzene	17.66	112	3672994	54.744	ng	100
66) Ethylbenzene	18.01	91	6090736	57.579	ng	99
67) m- & p-Xylenes	18.18	91	10111695	119.182	ng	100
68) Bromoform	18.24	173	1585194	65.314	ng	100
69) Styrene	18.50	104	4003266	59.410	ng	100
70) o-Xylene	18.60	91	4918316	58.182	ng	99
71) n-Nonane	18.80	43	2071206	53.141	ng	96
72) 1,1,2,2-Tetrachloroethane	18.58	83	2315396	57.810	ng	100
74) Cumene	19.13	105	6409485	59.029	ng	99
75) alpha-Pinene	19.48	93	3149269	57.682	ng	99
76) n-Propylbenzene	19.58	91	7395964	58.414	ng	99
77) 3-Ethyltoluene	19.67	105	6171001	57.018	ng	94
78) 4-Ethyltoluene	19.71	105	6433979	62.909	ng	97
79) 1,3,5-Trimethylbenzene	19.77	105	5353677	58.741	ng	99
80) alpha-Methylstyrene	19.91	118	3055866	61.854	ng	93
81) 2-Ethyltoluene	19.95	105	6314178	59.607	ng	99
82) 1,2,4-Trimethylbenzene	20.14	105	5571141	61.243	ng	99
83) n-Decane	20.23	57	2469962	60.399	ng	98
84) Benzyl Chloride	20.25	91	5171916	65.572	ng	98
85) 1,3-Dichlorobenzene	20.27	146	3545796	63.733	ng	100
86) 1,4-Dichlorobenzene	20.33	146	3418125	62.453	ng	100
87) sec-Butylbenzene	20.37	105	6959772	58.231	ng	99
88) 4-Isopropyltoluene (p-...	20.52	119	6873376	61.177	ng	99
89) 1,2,3-Trimethylbenzene	20.51	105	5629216	61.843	ng	100
90) 1,2-Dichlorobenzene	20.63	146	3464683	64.054	ng	99
91) d-Limonene	20.64	68	1976491	61.435	ng	99
92) 1,2-Dibromo-3-Chloropr...	21.01	157	1253641	63.263	ng	95
93) n-Undecane	21.33	57	2516895	59.268	ng	98
94) 1,2,4-Trichlorobenzene	22.14	180	2769826	65.638	ng	99
95) Naphthalene	22.24	128	8283723	66.763	ng	99
96) n-Dodecane	22.24	57	2347136	61.800	ng	97
97) Hexachlorobutadiene	22.56	225	1832113	63.552	ng	100
98) Cyclohexanone	18.31	55	1605474	52.811	ng	98
99) tert-Butylbenzene	20.14	119	5460722	59.429	ng	99
100) n-Butylbenzene	20.88	91	5512207	59.695	ng	98

(#)=qualifier out of range (m)=manual integration (+)=signals summed

Data File: I:\MS16\DATA\2019_12\09\12091921.D

Acq On : 9 Dec 2019 21:31

Operator: LH

Sample : 50ng T015 ICAL STD

Misc : S31-10161904/S31-12061902 (1/4)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 10 09:38:05 2019

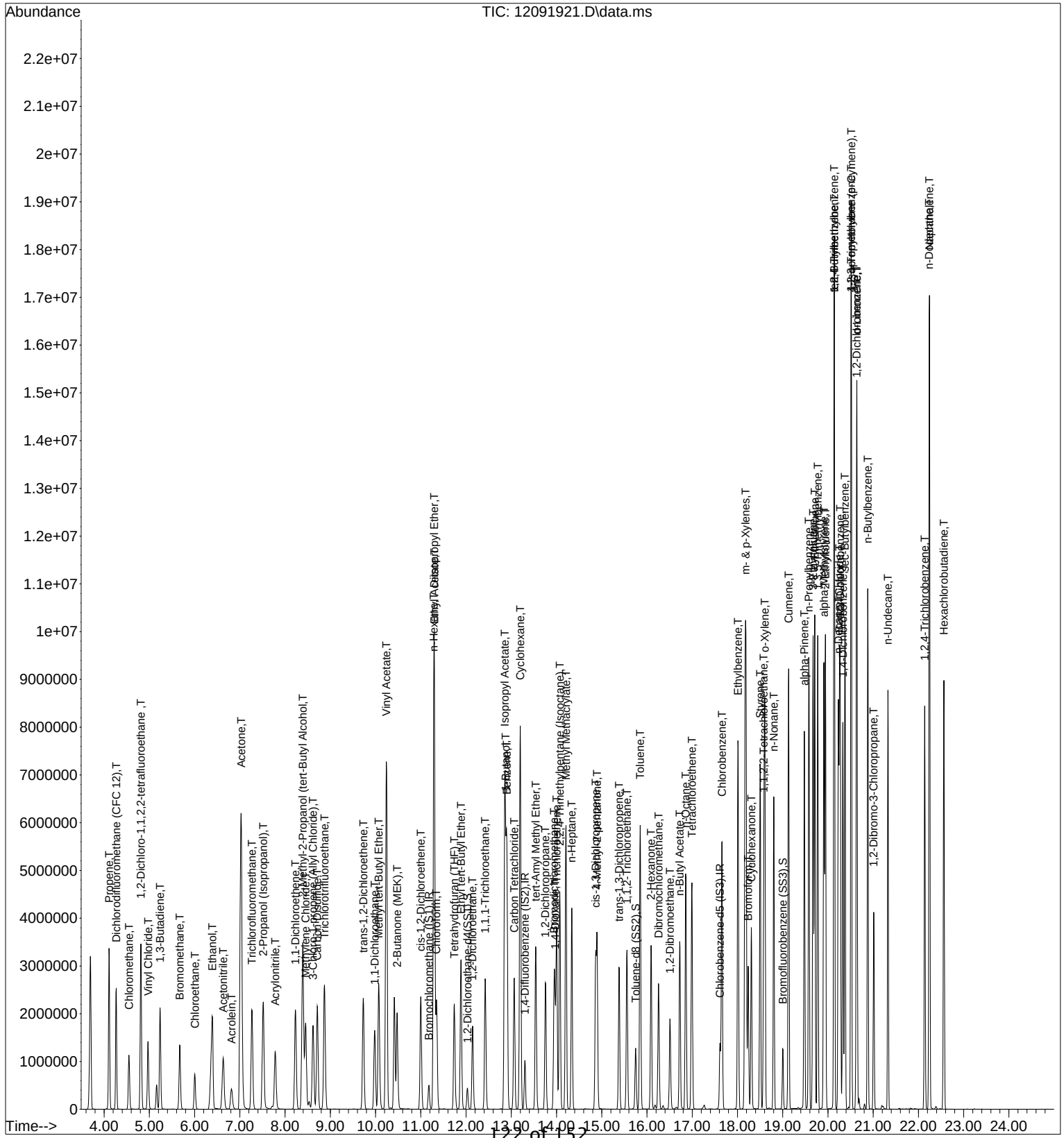
Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP V0A-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:37:30 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_12\09\12091922.D

Acq On : 9 Dec 2019 22:04

Operator: LH

Sample : 100ng T015 ICAL STD

Misc : S31-10161904/S31-12061902 (1/4)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 10 09:38:07 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:37:30 2019

LH 12/10/19

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.19	130	248350	12.500	ng	0.01
37) 1,4-Difluorobenzene (IS2)	13.31	114	1043782	12.500	ng	0.01
56) Chlorobenzene-d5 (IS3)	17.61	82	472278	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.04	65	368480	12.098	ng	0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	96.80%	
57) Toluene-d8 (SS2)	15.76	98	1036991	12.333	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.64%	
73) Bromofluorobenzene (SS3)	19.01	174	447963	12.970	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	103.76%	

Target Compounds

						Qvalue
2) Propene	4.11	42	2885975	124.707	ng	95
3) Dichlorodifluoromethan...	4.26	85	4577948	91.735	ng	99
4) Chloromethane	4.55	50	1944842	62.579	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	3168240	102.350	ng	99
6) Vinyl Chloride	4.97	62	3589704	102.079	ng	100
7) 1,3-Butadiene	5.24	54	2384112	101.114	ng	95
8) Bromomethane	5.68	94	2214963	92.323	ng	100
9) Chloroethane	6.01	64	1606653	106.260	ng	100
10) Ethanol	6.43	45	7951331	529.422	ng	99
11) Acetonitrile	6.66	41	3698023	99.343	ng	99
12) Acrolein	6.82	56	1290268	102.898	ng	100
13) Acetone	7.05	58	8681750	518.352	ng	# 70
14) Trichlorofluoromethane	7.27	101	4744402	104.541	ng	100
15) 2-Propanol (Isopropanol)	7.55	45	5873516	123.215	ng	98
16) Acrylonitrile	7.80	53	2885469	108.004	ng	100
17) 1,1-Dichloroethene	8.23	96	2498726	109.929	ng	96
18) 2-Methyl-2-Propanol (t...	8.42	59	11194324	216.686	ng	96
19) Methylene Chloride	8.46	84	2543592	106.765	ng	93
20) 3-Chloro-1-propene (Al...	8.63	41	3137938	102.148	ng	97
21) Trichlorotrifluoroethane	8.88	151	2634858	111.819	ng	98
22) Carbon Disulfide	8.72	76	8729651	105.526	ng	99
23) trans-1,2-Dichloroethene	9.73	61	3363763	109.505	ng	98
24) 1,1-Dichloroethane	9.99	63	4050751	104.869	ng	99
25) Methyl tert-Butyl Ether	10.07	73	7050725	108.772	ng	100
26) Vinyl Acetate	10.26	86	3388148	611.176	ng	# 40
27) 2-Butanone (MEK)	10.49	72	1713460	116.199	ng	# 88
28) cis-1,2-Dichloroethene	11.01	61	3210436	104.720	ng	97
29) Diisopropyl Ether	11.30	87	2303104	100.359	ng	# 61
30) Ethyl Acetate	11.32	61	1806924	225.971	ng	95
31) n-Hexane	11.28	57	3705088	101.374	ng	100
32) Chloroform	11.36	83	4461639	104.843	ng	100
34) Tetrahydrofuran (THF)	11.75	72	1615709	109.879	ng	95
35) Ethyl tert-Butyl Ether	11.89	87	2915169	114.340	ng	94
36) 1,2-Dichloroethane	12.15	62	3348086	103.779	ng	100
38) 1,1,1-Trichloroethane	12.43	97	4234978	110.099	ng	98
39) Isopropyl Acetate	12.86	61	3397606	238.238	ng	# 68
40) 1-Butanol	12.90	56	4944326	237.957	ng	83
41) Benzene	12.91	78	10660715	111.120	ng	100
42) Carbon Tetrachloride	13.07	117	4035516	112.059	ng	99
43) Cyclohexane	13.20	84	8276403	225.720	ng	95
44) tert-Amyl Methyl Ether	13.54	73	6520850	114.459	ng	96
45) 1,2-Dichloropropane	13.76	63	2325664	110.298	ng	100
46) Bromodichloromethane	13.95	83	3823321	115.610	ng	99
47) Trichloroethene	14.01	130	3253735	117.014	ng	100
48) 1,4-Dioxane	13.98	88	2425924	125.340	ng	97
49) 2,2,4-Trimethylpentane...	14.08	57	9292097	104.794	ng	92

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Data File: I:\MS16\DATA\2019_12\09\12091922.D

Acq On : 9 Dec 2019 22:04

Operator: LH

Sample : 100ng T015 ICAL STD

Misc : S31-10161904/S31-12061902 (1/4)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 10 09:38:07 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:37:30 2019

Response via : Initial Calibration

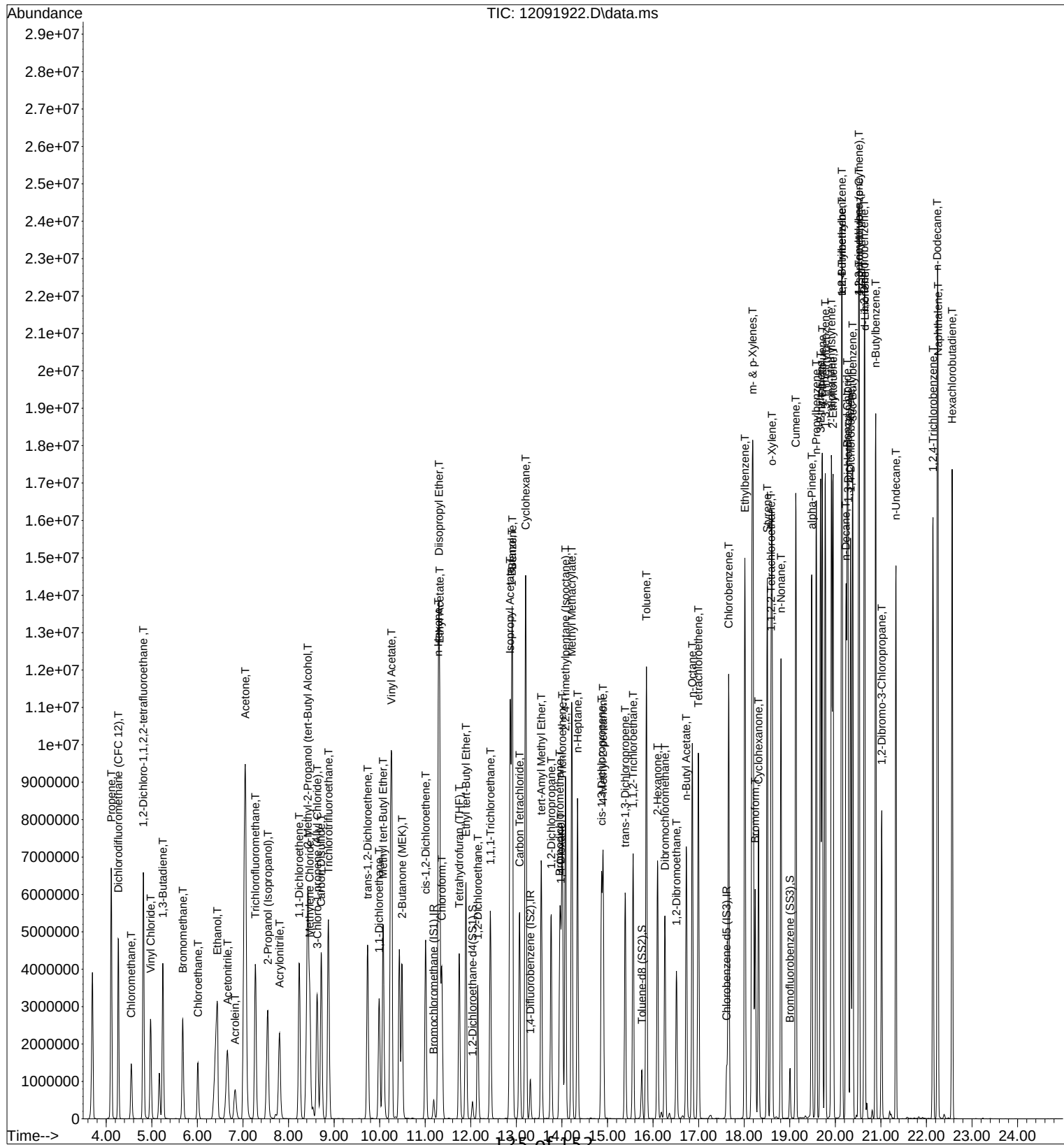
DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.22	100	2610578	261.548	ng	94
51) n-Heptane	14.34	71	2549093	115.207	ng	98
52) cis-1,3-Dichloropropene	14.87	75	4355978	117.574	ng	99
53) 4-Methyl-2-pentanone	14.90	58	2314450	115.753	ng	88
54) trans-1,3-Dichloropropene	15.39	75	4024231	124.203	ng	100
55) 1,1,2-Trichloroethane	15.56	97	2672125	114.546	ng	100
58) Toluene	15.85	91	10599922	108.733	ng	98
59) 2-Hexanone	16.10	43	5031499	112.446	ng	92
60) Dibromochloromethane	16.26	129	3555073	121.346	ng	99
61) 1,2-Dibromoethane	16.51	107	3152775	116.204	ng	100
62) n-Butyl Acetate	16.73	43	5797145	118.918	ng	94
63) n-Octane	16.86	57	2059856	112.630	ng	95
64) Tetrachloroethene	16.99	166	3629206	113.627	ng	99
65) Chlorobenzene	17.66	112	7873038	112.710	ng	100
66) Ethylbenzene	18.02	91	12203251	110.808	ng	95
67) m- & p-Xylenes	18.19	91	19143166	216.721	ng	98
68) Bromoform	18.24	173	3391317	134.212	ng	99
69) Styrene	18.50	104	8286675	118.121	ng	100
70) o-Xylene	18.61	91	9716153	110.400	ng	97
71) n-Nonane	18.81	43	3925747	96.746	ng	86
72) 1,1,2,2-Tetrachloroethane	18.59	83	4799014	115.088	ng	100
74) Cumene	19.13	105	12189940	107.832	ng	95
75) alpha-Pinene	19.48	93	6348464	111.687	ng	99
76) n-Propylbenzene	19.58	91	13519129	102.559	ng	93
77) 3-Ethyltoluene	19.68	105	12099044	107.377	ng	95
78) 4-Ethyltoluene	19.71	105	11678856	109.683	ng	93
79) 1,3,5-Trimethylbenzene	19.78	105	10319939	108.760	ng	97
80) alpha-Methylstyrene	19.91	118	6133362	119.244	ng	99
81) 2-Ethyltoluene	19.95	105	11943696	108.298	ng	95
82) 1,2,4-Trimethylbenzene	20.14	105	8852241	93.469	ng	100
83) n-Decane	20.23	57	4657458	109.392	ng	95
84) Benzyl Chloride	20.26	91	9652926	117.551	ng	94
85) 1,3-Dichlorobenzene	20.28	146	6821015	117.760	ng	100
86) 1,4-Dichlorobenzene	20.34	146	6862492	120.434	ng	100
87) sec-Butylbenzene	20.38	105	12636343	101.550	ng	94
88) 4-Isopropyltoluene (p-...	20.52	119	10377019	88.714	ng	97
89) 1,2,3-Trimethylbenzene	20.52	105	8703179	91.838	ng	99
90) 1,2-Dichlorobenzene	20.63	146	5873193	104.293	ng	99
91) d-Limonene	20.65	68	3282832	98.010	ng	97
92) 1,2-Dibromo-3-Chloropr...	21.02	157	2691413	130.454	ng	88
93) n-Undecane	21.33	57	4819248	109.002	ng	95
94) 1,2,4-Trichlorobenzene	22.15	180	5754584	130.983	ng	99
95) Naphthalene	22.26	128	13028803	100.860	ng	98
96) n-Dodecane	22.24	57	3735547	94.473	ng	95
97) Hexachlorobutadiene	22.56	225	3772923	125.706	ng	100
98) Cyclohexanone	18.31	55	3364907	106.315	ng	93
99) tert-Butylbenzene	20.14	119	8688908	90.827	ng	98
100) n-Butylbenzene	20.89	91	10262654	106.751	ng	95

(#)=qualifier out of range (m)=manual integration (+)=signals summed

ALS Vial : 2 Sample Multiplier: 1

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_12\09\12091923.D

Acq On : 9 Dec 2019 22:37

Operator: LH

Sample : 25ng T015 ICV STD

Misc : S31-10161904/S31-11261902 (12/25)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 10 09:54:54 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

LH 12/10/19

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	251914	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.30	114	1062504	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.61	82	466910	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.03	65	377200	12.392	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.12%	
57) Toluene-d8 (SS2)	15.75	98	1048173	12.526	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	100.24%	
73) Bromofluorobenzene (SS3)	19.01	174	441724	12.533	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	100.24%	

Target Compounds

						Qvalue
2) Propene	4.11	42	590448	25.779	ng	99
3) Dichlorodifluoromethan...	4.27	85	1275702	25.727	ng	100
4) Chloromethane	4.55	50	743359	24.522	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.82	135	778317	24.783	ng	99
6) Vinyl Chloride	4.97	62	896159	26.134	ng	100
7) 1,3-Butadiene	5.24	54	601821	25.633	ng	98
8) Bromomethane	5.67	94	537981	24.956	ng	100
9) Chloroethane	6.01	64	382327	25.671	ng	100
10) Ethanol	6.37	45	1858000	124.123	ng	100
11) Acetonitrile	6.62	41	937639	24.514	ng	99
12) Acrolein	6.81	56	320375	26.222	ng	100
13) Acetone	7.02	58	2060989	124.864	ng	97
14) Trichlorofluoromethane	7.27	101	1168765	25.585	ng	100
15) 2-Propanol (Isopropanol)	7.51	45	2508030	53.751	ng	99
16) Acrylonitrile	7.78	53	709088	27.278	ng	100
17) 1,1-Dichloroethene	8.23	96	600557	26.466	ng	100
18) 2-Methyl-2-Propanol (t...	8.38	59	2904595	57.365	ng	99
19) Methylene Chloride	8.45	84	600330	25.789	ng	99
20) 3-Chloro-1-propene (Al...	8.62	41	765176	25.660	ng	100
21) Trichlorotrifluoroethane	8.87	151	635097	26.177	ng	99
22) Carbon Disulfide	8.71	76	2113849	26.128	ng	100
23) trans-1,2-Dichloroethene	9.73	61	823226	27.461	ng	100
24) 1,1-Dichloroethane	9.98	63	976080	25.634	ng	100
25) Methyl tert-Butyl Ether	10.07	73	1725815	26.899	ng	100
26) Vinyl Acetate	10.23	86	755940	138.703	ng	97
27) 2-Butanone (MEK)	10.47	72	401359	27.575	ng	99
28) cis-1,2-Dichloroethene	11.00	61	794328	26.439	ng	100
29) Diisopropyl Ether	11.29	87	667455	29.562	ng	# 74
30) Ethyl Acetate	11.30	61	470899	58.363	ng	99
31) n-Hexane	11.28	57	985284	27.729	ng	100
32) Chloroform	11.34	83	1109672	26.450	ng	100
34) Tetrahydrofuran (THF)	11.74	72	390530	26.882	ng	99
35) Ethyl tert-Butyl Ether	11.88	87	671229	26.706	ng	99
36) 1,2-Dichloroethane	12.14	62	842003	26.492	ng	100
38) 1,1,1-Trichloroethane	12.42	97	1054940	27.071	ng	100
39) Isopropyl Acetate	12.85	61	789576	56.343	ng	98
40) 1-Butanol	12.87	56	1212396	58.554	ng	99
41) Benzene	12.90	78	2390095	25.309	ng	100
42) Carbon Tetrachloride	13.06	117	966019	26.602	ng	100
43) Cyclohexane	13.20	84	1919307	52.824	ng	99
44) tert-Amyl Methyl Ether	13.54	73	1526248	26.634	ng	99
45) 1,2-Dichloropropane	13.75	63	552156	26.346	ng	100
46) Bromodichloromethane	13.95	83	901956	27.316	ng	100
47) Trichloroethene	14.00	130	734389	26.223	ng	100
48) 1,4-Dioxane	13.97	88	536394	28.060	ng	100
49) 2,2,4-Trimethylpentane...	14.07	57	2231758	25.844	ng	99

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Data File: I:\MS16\DATA\2019_12\09\12091923.D

Acq On : 9 Dec 2019 22:37

Operator: LH

Sample : 25ng T015 ICV STD

Misc : S31-10161904/S31-11261902 (12/25)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 10 09:54:54 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

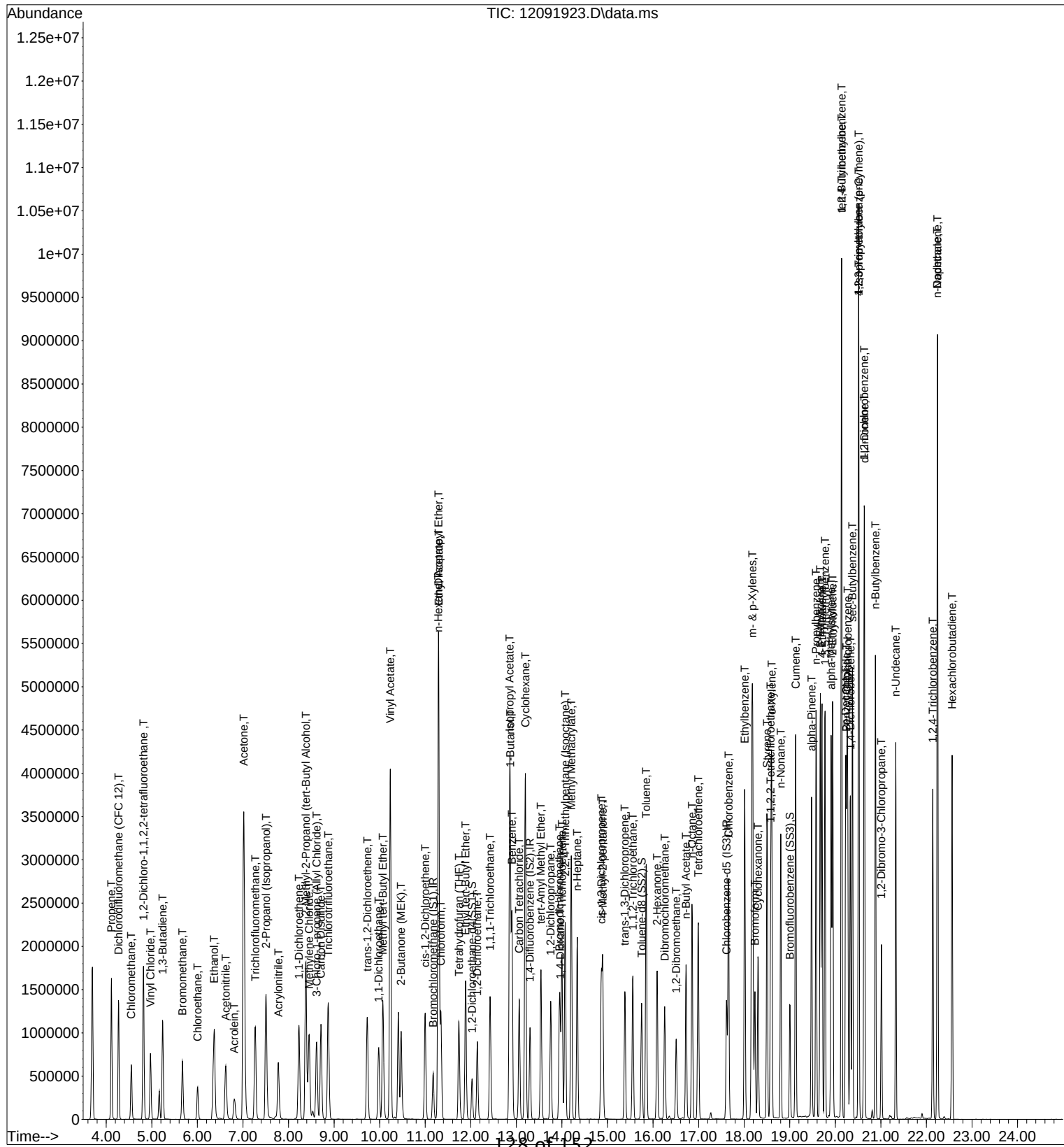
DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.20	100	571526	56.588	ng	99
51) n-Heptane	14.34	71	570531	26.344	ng	100
52) cis-1,3-Dichloropropene	14.86	75	1056995	28.795	ng	100
53) 4-Methyl-2-pentanone	14.90	58	539862	27.606	ng	99
54) trans-1,3-Dichloropropene	15.38	75	935645	29.082	ng	100
55) 1,1,2-Trichloroethane	15.56	97	625682	26.514	ng	99
58) Toluene	15.85	91	2544051	25.794	ng	100
59) 2-Hexanone	16.09	43	1279481	28.707	ng	99
60) Dibromochloromethane	16.26	129	839764	28.564	ng	100
61) 1,2-Dibromoethane	16.51	107	748571	27.705	ng	100
62) n-Butyl Acetate	16.72	43	1430148	29.784	ng	100
63) n-Octane	16.85	57	471566	26.998	ng	100
64) Tetrachloroethene	16.99	166	838696	26.059	ng	100
65) Chlorobenzene	17.66	112	1790371	25.614	ng	100
66) Ethylbenzene	18.01	91	2978189	27.162	ng	100
67) m- & p-Xylenes	18.18	91	4816055	52.531	ng	100
68) Bromoform	18.24	173	779947	30.541	ng	100
69) Styrene	18.50	104	1925976	27.503	ng	100
70) o-Xylene	18.60	91	2376196	26.909	ng	100
71) n-Nonane	18.80	43	1047038	27.325	ng	100
72) 1,1,2,2-Tetrachloroethane	18.58	83	1130188	27.874	ng	100
74) Cumene	19.13	105	3084748	27.127	ng	100
75) alpha-Pinene	19.48	93	1470786	26.216	ng	100
76) n-Propylbenzene	19.58	91	3625757	27.826	ng	100
77) 3-Ethyltoluene	19.67	105	3108217	27.647	ng	100
78) 4-Ethyltoluene	19.71	105	2967947	27.690	ng	100
79) 1,3,5-Trimethylbenzene	19.77	105	2595345	27.179	ng	100
80) alpha-Methylstyrene	19.91	118	1385070	26.875	ng	93
81) 2-Ethyltoluene	19.94	105	3069759	27.835	ng	100
82) 1,2,4-Trimethylbenzene	20.14	105	2823659	29.756	ng	100
83) n-Decane	20.23	57	1181146	28.890	ng	100
84) Benzyl Chloride	20.25	91	2379758	29.583	ng	99
85) 1,3-Dichlorobenzene	20.27	146	1658882	27.487	ng	100
86) 1,4-Dichlorobenzene	20.33	146	1629576	27.010	ng	100
87) sec-Butylbenzene	20.37	105	3417215	27.630	ng	100
88) 4-Isopropyltoluene (p-...	20.51	119	3526216	30.410	ng	100
89) 1,2,3-Trimethylbenzene	20.51	105	2759313	29.388	ng	99
90) 1,2-Dichlorobenzene	20.63	146	1645353	28.639	ng	100
91) d-Limonene	20.64	68	901575	27.756	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.01	157	597667	28.997	ng	99
93) n-Undecane	21.33	57	1214872	28.701	ng	100
94) 1,2,4-Trichlorobenzene	22.14	180	1249598	28.841	ng	100
95) Naphthalene	22.24	128	3972556	29.371	ng	100
96) n-Dodecane	22.24	57	1237136	32.573	ng	100
97) Hexachlorobutadiene	22.56	225	853321	27.904	ng	99
98) Cyclohexanone	18.30	55	808601	26.415	ng	99
99) tert-Butylbenzene	20.14	119	2766181	28.812	ng	100
100) n-Butylbenzene	20.88	91	2701208	28.267	ng	100

(#)= qualifier out of range (m)= manual integration (+)= signals summed

ALS Vial : 2 Sample Multiplier: 1

DataAcq Meth:T015.M



Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: 12091923.D

Acq. Method File: TO15.M

Data File Path: I:\MS16\DATA\2019_12\09\

Sample Name: 25ng TO15 ICV STD

Operator: LH

Misc Info: S31-10161904/S31-11261902 (

Date Acquired: 12/9/19

22:37

Instrument Name: GCMS-16

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
2)	Propene	4.11	25.8	26.25	98	51	133	*	*
3)	Dichlorodifluoromethane (CFC 12)	4.27	25.7	26.25	98	64	115	*	*
4)	Chloromethane	4.55	24.5	26.50	92	49	127	*	*
5)	1,2-Dichloro-1,1,2,2-tetrafluoroethane	4.82	24.8	25.75	96	65	114	*	*
6)	Vinyl Chloride	4.97	26.1	26.50	98	61	129	*	*
7)	1,3-Butadiene	5.24	25.6	26.50	97	54	140	*	*
8)	Bromomethane	5.67	25.0	26.50	94	68	120	*	*
9)	Chloroethane	6.01	25.7	26.75	96	63	123	*	*
10)	Ethanol	6.37	124	132.50	94	49	134	*	*
11)	Acetonitrile	6.62	24.5	26.75	92	50	137	*	*
12)	Acrolein	6.81	26.2	25.75	102	62	128	*	*
13)	Acetone	7.02	125	133.50	94	56	125	*	*
14)	Trichlorofluoromethane	7.27	25.6	26.50	97	64	115	*	*
15)	2-Propanol (Isopropanol)	7.51	53.8	52.75	102	57	133	*	*
16)	Acrylonitrile	7.78	27.3	26.50	103	64	136	*	*
17)	1,1-Dichloroethene	8.23	26.5	26.75	99	68	115	*	*
18)	2-Methyl-2-Propanol (tert-Butyl Alcohol)	8.38	57.4	53.75	107	56	132	*	*
19)	Methylene Chloride	8.45	25.8	26.25	98	68	114	*	*
20)	3-Chloro-1-propene (Allyl Chloride)	8.62	25.7	26.75	96	55	139	*	*
21)	Trichlorotrifluoroethane	8.87	26.2	27.00	97	65	115	*	*
22)	Carbon Disulfide	8.71	26.1	26.50	98	68	113	*	*
23)	trans-1,2-Dichloroethene	9.73	27.5	26.75	103	65	122	*	*
24)	1,1-Dichloroethane	9.98	25.6	26.50	97	63	118	*	*
25)	Methyl tert-Butyl Ether	10.07	26.9	26.75	101	57	131	*	*
26)	Vinyl Acetate	10.23	139	133.25	104	71	128	*	*
27)	2-Butanone (MEK)	10.47	27.6	26.50	104	67	123	*	*
28)	cis-1,2-Dichloroethene	11.00	26.4	26.50	100	64	120	*	*
29)	Diisopropyl Ether	11.29	29.6	27.00	110	62	121	*	*
30)	Ethyl Acetate	11.30	58.4	54.00	108	64	131	*	*
31)	n-Hexane	11.28	27.7	27.00	103	58	125	*	*
32)	Chloroform	11.34	26.5	26.75	99	65	114	*	*
34)	Tetrahydrofuran (THF)	11.74	26.9	27.50	98	65	115	*	*
35)	Ethyl tert-Butyl Ether	11.88	26.7	26.75	100	61	130	*	*
36)	1,2-Dichloroethane	12.14	26.5	26.75	99	59	120	*	*
38)	1,1,1-Trichloroethane	12.42	27.1	26.75	101	66	115	*	*
39)	Isopropyl Acetate	12.85	56.3	52.50	107	65	129	*	*
40)	1-Butanol	12.87	58.6	53.25	110	58	140	*	*
41)	Benzene	12.90	25.3	26.25	96	66	109	*	*
42)	Carbon Tetrachloride	13.06	26.6	26.00	102	66	119	*	*
43)	Cyclohexane	13.20	52.8	52.75	100	67	117	*	*
44)	tert-Amyl Methyl Ether	13.54	26.6	26.75	99	62	133	*	*
45)	1,2-Dichloropropane	13.75	26.3	26.75	98	66	119	*	*
46)	Bromodichloromethane	13.95	27.3	27.25	100	71	119	*	*
47)	Trichloroethene	14.00	26.2	27.00	97	70	114	*	*
48)	1,4-Dioxane	13.97	28.1	27.00	104	71	117	*	*
49)	2,2,4-Trimethylpentane (Isooctane)	14.07	25.8	26.75	96	61	122	*	*

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: 12091923.D

Data File Path: I:\MS16\DATA\2019_12\09\

Operator: LH

Date Acquired: 12/9/19

22:37

TO15.M

Sample Name: 25ng TO15 ICV STD

Misc Info: S31-10161904/S31-11261902 (

Instrument Name: GCMS-16

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
50)	Methyl Methacrylate	14.20	56.6	53.75	105	76	121	*	*
51)	n-Heptane	14.34	26.3	26.75	98	66	119	*	*
52)	cis-1,3-Dichloropropene	14.86	28.8	26.75	108	72	125	*	*
53)	4-Methyl-2-pentanone	14.90	27.6	26.50	104	68	130	*	*
54)	trans-1,3-Dichloropropene	15.38	29.1	26.50	110	71	132	*	*
55)	1,1,2-Trichloroethane	15.56	26.5	26.75	99	70	117	*	*
58)	Toluene	15.85	25.8	26.50	97	67	113	*	*
59)	2-Hexanone	16.09	28.7	27.00	106	62	135	*	*
60)	Dibromochloromethane	16.26	28.6	26.75	107	73	126	*	*
61)	1,2-Dibromoethane	16.51	27.7	26.75	104	71	122	*	*
62)	n-Butyl Acetate	16.72	29.8	27.25	109	65	134	*	*
63)	n-Octane	16.85	27.0	27.00	100	63	120	*	*
64)	Tetrachloroethene	16.99	26.1	26.00	100	64	120	*	*
65)	Chlorobenzene	17.66	25.6	26.75	96	65	116	*	*
66)	Ethylbenzene	18.01	27.2	26.50	103	65	117	*	*
67)	m- & p-Xylenes	18.18	52.5	53.25	99	64	121	*	*
68)	Bromoform	18.24	30.5	26.75	114	72	130	*	*
69)	Styrene	18.50	27.5	26.50	104	72	126	*	*
70)	o-Xylene	18.60	26.9	26.75	101	64	120	*	*
71)	n-Nonane	18.80	27.3	26.75	102	56	132	*	*
72)	1,1,2,2-Tetrachloroethane	18.58	27.9	26.75	104	66	122	*	*
74)	Cumene	19.13	27.1	26.75	101	64	121	*	*
75)	alpha-Pinene	19.48	26.2	26.50	99	62	136	*	*
76)	n-Propylbenzene	19.58	27.8	26.75	104	65	123	*	*
77)	3-Ethyltoluene	19.67	27.6	26.75	103	62	123	*	*
78)	4-Ethyltoluene	19.71	27.7	26.25	106	71	126	*	*
79)	1,3,5-Trimethylbenzene	19.77	27.2	26.50	103	65	120	*	*
80)	alpha-Methylstyrene	19.91	26.9	26.50	102	70	132	*	*
81)	2-Ethyltoluene	19.94	27.8	26.75	104	66	121	*	*
82)	1,2,4-Trimethylbenzene	20.14	29.8	26.50	112	63	129	*	*
83)	n-Decane	20.23	28.9	26.75	108	61	131	*	*
84)	Benzyl Chloride	20.25	29.6	26.75	111	66	138	*	*
85)	1,3-Dichlorobenzene	20.27	27.5	26.75	103	65	127	*	*
86)	1,4-Dichlorobenzene	20.33	27.0	26.75	101	66	125	*	*
87)	sec-Butylbenzene	20.37	27.6	26.50	104	68	123	*	*
88)	4-Isopropyltoluene (p-Cymene)	20.51	30.4	27.25	112	61	129	*	*
89)	1,2,3-Trimethylbenzene	20.51	29.4	27.00	109	60	134	*	*
90)	1,2-Dichlorobenzene	20.63	28.6	26.75	107	67	128	*	*
91)	d-Limonene	20.64	27.8	26.50	105	65	136	*	*
92)	1,2-Dibromo-3-Chloropropane	21.01	29.0	26.75	108	73	133	*	*
93)	n-Undecane	21.33	28.7	27.00	106	64	131	*	*
94)	1,2,4-Trichlorobenzene	22.14	28.8	27.00	107	62	140	*	*
95)	Naphthalene	22.24	29.4	26.50	111	57	149	*	*
96)	n-Dodecane	22.24	32.6	26.50	123	41	181	*	*
97)	Hexachlorobutadiene	22.56	27.9	26.75	104	57	129	*	*
98)	Cyclohexanone	18.31	26.4	25.25	105	61	131	*	*
99)	tert-Butylbenzene	20.14	28.8	26.50	109	62	130	*	*
100)	n-Butylbenzene	20.88	28.3	26.75	106	67	124	*	*

Bold = 75 Compound List

Data File: I:\MS16\DATA\2019_12\30\12301902.D

Acq On : 30 Dec 2019 4:06

Operator: SC

Sample : CCV R16123019_25ng

Misc : S31-10161904/S31-12061902 (1/4)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 30 09:08:59 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 12/30/19

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min

Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 IR	Bromochloromethane (IS1)	1.000	1.000	0.0	132	-0.01
2 T	Propene	1.137	1.189	-4.6	147	0.00
3 T	Dichlorodifluoromethane (CF	2.460	2.154	12.4	112	0.00
4 T	Chloromethane	1.504	1.466	2.5	121	0.00
5 T	1,2-Dichloro-1,1,2,2-tetra	1.558	1.193	23.4	98	0.00
6 T	Vinyl Chloride	1.702	1.612	5.3	121	0.00
7 T	1,3-Butadiene	1.165	1.170	-0.4	135	-0.01
8 T	Bromomethane	1.070	0.989	7.6	121	-0.02
9 T	Chloroethane	0.739	0.749	-1.4	130	-0.01
10 T	Ethanol	0.743	0.810	-9.0	143	-0.07
11 T	Acetonitrile	1.898	1.912	-0.7	139	-0.04
12 T	Acrolein	0.606	0.670	-10.6	139	-0.02
13 T	Acetone	0.819	0.822	-0.4	134	-0.04
14 T	Trichlorofluoromethane	2.267	1.947	14.1	110	0.00
15 T	2-Propanol (Isopropanol)	2.315	2.497	-7.9	123	-0.05
16 T	Acrylonitrile	1.290	1.465	-13.6	138	-0.03
17 T	1,1-Dichloroethene	1.126	1.062	5.7	120	0.00
18 T	2-Methyl-2-Propanol (tert-B	2.512	2.703	-7.6	129	-0.05
19 T	Methylene Chloride	1.155	1.137	1.6	126	-0.02
20 T	3-Chloro-1-propene (Allyl C	1.480	1.577	-6.6	134	-0.02
21 T	Trichlorotrifluoroethane	1.204	1.034	14.1	111	0.00
22 T	Carbon Disulfide	4.014	4.075	-1.5	128	0.00
23 T	trans-1,2-Dichloroethene	1.488	1.547	-4.0	127	-0.01
24 T	1,1-Dichloroethane	1.889	1.867	1.2	126	-0.01
25 T	Methyl tert-Butyl Ether	3.184	3.264	-2.5	131	0.00
26 T	Vinyl Acetate	0.270	0.265	1.9	116	-0.03
27 T	2-Butanone (MEK)	0.722	0.782	-8.3	130	-0.02
28 T	cis-1,2-Dichloroethene	1.491	1.510	-1.3	127	-0.02
29 T	Diisopropyl Ether	1.120	1.146	-2.3	133	-0.01
30 T	Ethyl Acetate	0.400	0.439	-9.7	126	-0.02
31 T	n-Hexane	1.763	1.863	-5.7	129	0.00
32 T	Chloroform	2.082	1.943	6.7	117	-0.02
33 S	1,2-Dichloroethane-d4(SS1)	1.510	1.450	4.0	126	-0.01
34 T	Tetrahydrofuran (THF)	0.721	0.735	-1.9	129	-0.01
35 T	Ethyl tert-Butyl Ether	1.247	1.290	-3.4	131	-0.01
36 T	1,2-Dichloroethane	1.577	1.403	11.0	111	-0.01
37 IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	131	-0.01
38 T	1,1,1-Trichloroethane	0.458	0.414	9.6	112	0.00
39 T	Isopropyl Acetate	0.165	0.184	-11.5	129	-0.01
40 T	1-Butanol	0.244	0.273	-11.9	124	-0.03
41 T	Benzene	1.111	1.092	1.7	125	-0.01
42 T	Carbon Tetrachloride	0.427	0.389	8.9	111	-0.01
43 T	Cyclohexane	0.427	0.419	1.9	122	-0.01
44 T	tert-Amyl Methyl Ether	0.674	0.738	-9.5	137	0.00
45 T	1,2-Dichloropropane	0.247	0.257	-4.0	132	-0.01
46 T	Bromodichloromethane	0.388	0.374	3.6	115	0.00
47 T	Trichloroethene	0.329	0.296	10.0	112	0.00
48 T	1,4-Dioxane	0.225	0.226	-0.4	119	-0.02
49 T	2,2,4-Trimethylpentane (Iso	1.016	1.058	-4.1	133	-0.01
50 T	Methyl Methacrylate	0.119	0.117	1.7	115	-0.01
51 T	n-Heptane	0.255	0.262	-2.7	132	0.00
52 T	cis-1,3-Dichloropropene	0.432	0.455	-5.3	124	0.00
53 T	4-Methyl-2-pentanone	0.230	0.255	-10.9	132	-0.01
54 T	trans-1,3-Dichloropropene	0.378	0.408	-7.9	120	0.00

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Data File: I:\MS16\DATA\2019_12\30\12301902.D

Acq On : 30 Dec 2019 4:06

Operator: SC

Sample : CCV R16123019_25ng

Misc : S31-10161904/S31-12061902 (1/4)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 30 09:08:59 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min

Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
55 T	1,1,2-Trichloroethane	0.278	0.267	4.0	119	-0.01
56 IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	136	0.00
57 S	Toluene-d8 (SS2)	2.240	2.177	2.8	133	0.00
58 T	Toluene	2.640	2.337	11.5	120	0.00
59 T	2-Hexanone	1.193	1.219	-2.2	125	-0.01
60 T	Dibromochloromethane	0.787	0.729	7.4	112	0.00
61 T	1,2-Dibromoethane	0.723	0.670	7.3	116	0.00
62 T	n-Butyl Acetate	1.286	1.347	-4.7	125	0.00
63 T	n-Octane	0.468	0.480	-2.6	134	0.00
64 T	Tetrachloroethene	0.862	0.716	16.9	108	0.00
65 T	Chlorobenzene	1.871	1.588	15.1	115	0.00
66 T	Ethylbenzene	2.935	2.721	7.3	118	0.00
67 T	m- & p-Xylenes	2.454	2.164	11.8	116	0.00
68 T	Bromoform	0.684	0.631	7.7	106	0.00
69 T	Styrene	1.875	1.716	8.5	113	0.00
70 T	o-Xylene	2.364	2.124	10.2	115	0.00
71 T	n-Nonane	1.026	1.057	-3.0	130	0.00
72 T	1,1,2,2-Tetrachloroethane	1.086	1.070	1.5	123	0.00
73 S	Bromofluorobenzene (SS3)	0.944	0.842	10.8	120	0.00
74 T	Cumene	3.044	2.730	10.3	113	0.00
75 T	alpha-Pinene	1.502	1.425	5.1	121	0.00
76 T	n-Propylbenzene	3.488	3.292	5.6	117	0.00
77 T	3-Ethyltoluene	3.010	2.752	8.6	114	0.00
78 T	4-Ethyltoluene	2.870	2.678	6.7	113	0.00
79 T	1,3,5-Trimethylbenzene	2.556	2.301	10.0	113	0.00
80 T	alpha-Methylstyrene	1.380	1.182	14.3	104	0.00
81 T	2-Ethyltoluene	2.953	2.681	9.2	113	-0.01
82 T	1,2,4-Trimethylbenzene	2.540	2.344	7.7	105	0.00
83 T	n-Decane	1.095	1.186	-8.3	129	0.00
84 T	Benzyl Chloride	2.154	2.049	4.9	109	-0.01
85 T	1,3-Dichlorobenzene	1.616	1.384	14.4	105	-0.01
86 T	1,4-Dichlorobenzene	1.615	1.393	13.7	108	-0.01
87 T	sec-Butylbenzene	3.311	3.051	7.9	114	0.00
88 T	4-Isopropyltoluene (p-Cymen	3.104	2.768	10.8	99	0.00
89 T	1,2,3-Trimethylbenzene	2.514	2.362	6.0	105	0.00
90 T	1,2-Dichlorobenzene	1.538	1.356	11.8	103	0.00
91 T	d-Limonene	0.870	0.866	0.5	116	-0.01
92 T	1,2-Dibromo-3-Chloropropane	0.552	0.525	4.9	110	0.00
93 T	n-Undecane	1.133	1.210	-6.8	130	0.00
94 T	1,2,4-Trichlorobenzene	1.160	1.071	7.7	106	0.00
95 T	Naphthalene	3.621	3.413	5.7	102	-0.01
96 T	n-Dodecane	1.017	1.177	-15.7	126	0.00
97 T	Hexachlorobutadiene	0.819	0.698	14.8	103	0.00
98 T	Cyclohexanone	0.820	0.826	-0.7	124	-0.01
99 T	tert-Butylbenzene	2.570	2.238	12.9	101	0.00
100 T	n-Butylbenzene	2.558	2.493	2.5	117	0.00

(#)= Out of Range

SPCC's out = 0 CCC's out = 0

Data File: I:\MS16\DATA\2019_12\30\12301902.D

Acq On : 30 Dec 2019 4:06

Operator: SC

Sample : CCV R16123019_25ng

Misc : S31-10161904/S31-12061902 (1/4)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 30 09:08:59 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

LH 12/30/19

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	306689	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.30	114	1288065	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.61	82	600044	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.03	65	444586	11.997	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	96.00%	
57) Toluene-d8 (SS2)	15.75	98	1306566	12.150	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	97.20%	
73) Bromofluorobenzene (SS3)	19.01	174	505072	11.151	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	89.20%	

Target Compounds

						Qvalue
2) Propene	4.11	42	773018	27.722	ng	95
3) Dichlorodifluoromethan...	4.26	85	1400774	23.204	ng	100
4) Chloromethane	4.54	50	953390	25.834	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	768126	20.090	ng	100
6) Vinyl Chloride	4.97	62	1067923	25.581	ng	100
7) 1,3-Butadiene	5.23	54	760941	26.622	ng	99
8) Bromomethane	5.66	94	655239	24.967	ng	99
9) Chloroethane	6.00	64	495897	27.350	ng	100
10) Ethanol	6.36	45	2587480	141.984	ng	99
11) Acetonitrile	6.62	41	1231636	26.450	ng	98
12) Acrolein	6.81	56	423176	28.450	ng	99
13) Acetone	7.01	58	2687550	133.743	ng	# 84
14) Trichlorofluoromethane	7.26	101	1265635	22.757	ng	100
15) 2-Propanol (Isopropanol)	7.50	45	3216768	56.627	ng	94
16) Acrylonitrile	7.77	53	943758	29.821	ng	99
17) 1,1-Dichloroethene	8.23	96	703797	25.476	ng	97
18) 2-Methyl-2-Propanol (t...	8.37	59	3581646	58.103	ng	96
19) Methylene Chloride	8.45	84	739556	26.096	ng	98
20) 3-Chloro-1-propene (Al...	8.61	41	1044811	28.780	ng	97
21) Trichlorotrifluoroethane	8.87	151	685285	23.201	ng	94
22) Carbon Disulfide	8.71	76	2674744	27.157	ng	100
23) trans-1,2-Dichloroethene	9.72	61	1024885	28.082	ng	95
24) 1,1-Dichloroethane	9.98	63	1248086	26.923	ng	100
25) Methyl tert-Butyl Ether	10.07	73	2162473	27.685	ng	98
26) Vinyl Acetate	10.23	86	870508	131.198	ng	# 84
27) 2-Butanone (MEK)	10.47	72	508734	28.709	ng	99
28) cis-1,2-Dichloroethene	10.99	61	981490	26.834	ng	96
29) Diisopropyl Ether	11.29	87	759258	27.622	ng	# 90
30) Ethyl Acetate	11.30	61	584219	59.476	ng	96
31) n-Hexane	11.28	57	1234252	28.532	ng	98
32) Chloroform	11.34	83	1274985	24.963	ng	100
34) Tetrahydrofuran (THF)	11.74	72	491588	27.794	ng	95
35) Ethyl tert-Butyl Ether	11.88	87	854674	27.931	ng	93
36) 1,2-Dichloroethane	12.14	62	929643	24.025	ng	99
38) 1,1,1-Trichloroethane	12.42	97	1141808	24.169	ng	100
39) Isopropyl Acetate	12.85	61	997602	58.722	ng	93
40) 1-Butanol	12.87	56	1463461	58.303	ng	95
41) Benzene	12.90	78	2980967	26.038	ng	99
42) Carbon Tetrachloride	13.06	117	1052983	23.919	ng	100
43) Cyclohexane	13.19	84	2290426	51.999	ng	92
44) tert-Amyl Methyl Ether	13.54	73	2053533	29.560	ng	98
45) 1,2-Dichloropropane	13.75	63	714412	28.119	ng	100
46) Bromodichloromethane	13.95	83	1039483	25.968	ng	100
47) Trichloroethene	14.00	130	816781	24.058	ng	100
48) 1,4-Dioxane	13.96	88	627515	27.078	ng	93
49) 2,2,4-Trimethylpentane...	14.07	57	2915384	27.848	ng	92

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Data File: I:\MS16\DATA\2019_12\30\12301902.D

Acq On : 30 Dec 2019 4:06

Operator: SC

Sample : CCV R16123019_25ng

Misc : S31-10161904/S31-12061902 (1/4)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 30 09:08:59 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.20	100	647232	52.861	ng	# 87
51) n-Heptane	14.34	71	729839	27.799	ng	96
52) cis-1,3-Dichloropropene	14.86	75	1219098	27.395	ng	100
53) 4-Methyl-2-pentanone	14.89	58	697631	29.426	ng	95
54) trans-1,3-Dichloropropene	15.38	75	1112770	28.531	ng	100
55) 1,1,2-Trichloroethane	15.55	97	734616	25.679	ng	97
58) Toluene	15.85	91	3001410	23.680	ng	100
59) 2-Hexanone	16.09	43	1565540	27.331	ng	96
60) Dibromochloromethane	16.26	129	935914	24.771	ng	100
61) 1,2-Dibromoethane	16.51	107	860866	24.792	ng	100
62) n-Butyl Acetate	16.72	43	1762512	28.561	ng	98
63) n-Octane	16.86	57	621886	27.705	ng	94
64) Tetrachloroethene	16.99	166	894234	21.620	ng	100
65) Chlorobenzene	17.65	112	2038763	22.696	ng	100
66) Ethylbenzene	18.01	91	3493501	24.793	ng	98
67) m- & p-Xylenes	18.18	91	5558253	47.175	ng	97
68) Bromoform	18.24	173	810401	24.693	ng	100
69) Styrene	18.50	104	2183490	24.262	ng	100
70) o-Xylene	18.60	91	2727536	24.034	ng	99
71) n-Nonane	18.80	43	1356928	27.555	ng	98
72) 1,1,2,2-Tetrachloroethane	18.58	83	1374515	26.378	ng	99
74) Cumene	19.13	105	3538982	24.217	ng	99
75) alpha-Pinene	19.48	93	1829933	25.380	ng	99
76) n-Propylbenzene	19.58	91	4266232	25.477	ng	98
77) 3-Ethyltoluene	19.67	105	3500633	24.229	ng	99
78) 4-Ethyltoluene	19.71	105	3471534	25.202	ng	98
79) 1,3,5-Trimethylbenzene	19.78	105	2927643	23.857	ng	99
80) alpha-Methylstyrene	19.91	118	1517355	22.909	ng	99
81) 2-Ethyltoluene	19.94	105	3474565	24.515	ng	98
82) 1,2,4-Trimethylbenzene	20.14	105	3010453	24.686	ng	97
83) n-Decane	20.23	57	1522875	28.984	ng	96
84) Benzyl Chloride	20.25	91	2655303	25.684	ng	97
85) 1,3-Dichlorobenzene	20.27	146	1776680	22.907	ng	100
86) 1,4-Dichlorobenzene	20.32	146	1788571	23.068	ng	100
87) sec-Butylbenzene	20.37	105	3918055	24.651	ng	98
88) 4-Isopropyltoluene (p-...	20.51	119	3621001	24.299	ng	99
89) 1,2,3-Trimethylbenzene	20.51	105	3090277	25.611	ng	97
90) 1,2-Dichlorobenzene	20.63	146	1740984	23.580	ng	100
91) d-Limonene	20.64	68	1122554	26.891	ng	92
92) 1,2-Dibromo-3-Chloropr...	21.01	157	661597	24.977	ng	94
93) n-Undecane	21.33	57	1568715	28.838	ng	97
94) 1,2,4-Trichlorobenzene	22.14	180	1375535	24.703	ng	99
95) Naphthalene	22.24	128	4218727	24.270	ng	100
96) n-Dodecane	22.24	57	1468662	30.089	ng	96
97) Hexachlorobutadiene	22.56	225	888129	22.599	ng	100
98) Cyclohexanone	18.30	55	991697	25.209	ng	92
99) tert-Butylbenzene	20.14	119	2873242	23.287	ng	99
100) n-Butylbenzene	20.88	91	3200938	26.065	ng	98

(#)=qualifier out of range (m)=manual integration (+)=signals summed

Data File: I:\MS16\DATA\2019_12\30\12301902.D

Acq On : 30 Dec 2019 4:06

Operator: SC

Sample : CCV R16123019_25ng

Misc : S31-10161904/S31-12061902 (1/4)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 30 09:08:59 2019

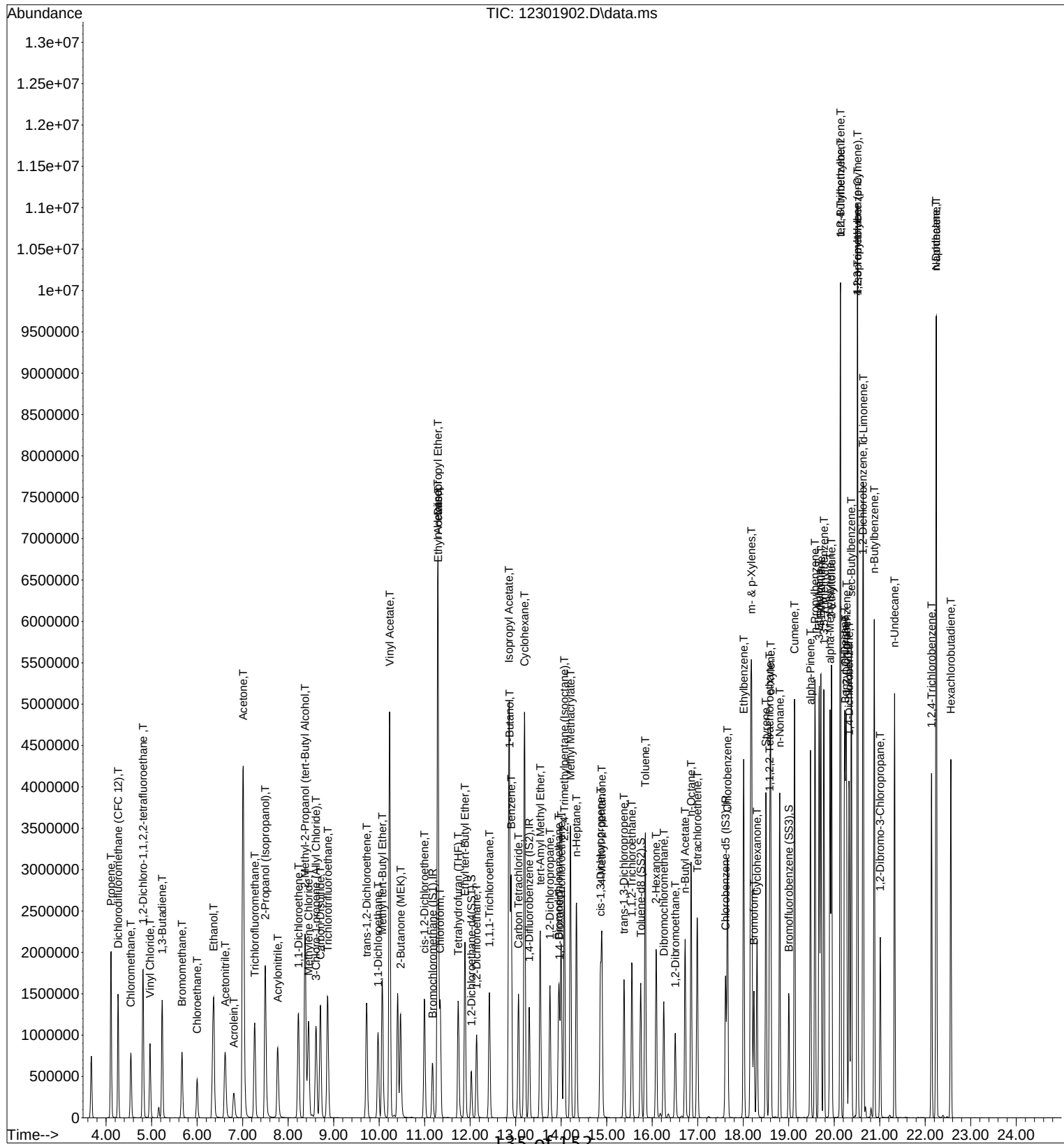
Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File: I:\MS16\DATA\2019_12\30\12301937.D

Acq On : 31 Dec 2019 2:14

Operator: LH

Sample : CCVend R16123019_25ng

Misc : S31-10161904/S31-12061902 (1/4)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 31 09:02:51 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 12/31/19

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:T015.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min

Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 IR	Bromochloromethane (IS1)	1.000	1.000	0.0	136	-0.01
2 T	Propene	1.137	1.194	-5.0	152	0.00
3 T	Dichlorodifluoromethane (CF	2.460	2.147	12.7	115	0.00
4 T	Chloromethane	1.504	1.513	-0.6	128	0.00
5 T	1,2-Dichloro-1,1,2,2-tetra	1.558	1.181	24.2	100	0.00
6 T	Vinyl Chloride	1.702	1.578	7.3	122	0.00
7 T	1,3-Butadiene	1.165	1.166	-0.1	139	0.00
8 T	Bromomethane	1.070	0.979	8.5	123	-0.01
9 T	Chloroethane	0.739	0.750	-1.5	134	0.00
10 T	Ethanol	0.743	0.822	-10.6	150	-0.07
11 T	Acetonitrile	1.898	1.932	-1.8	145	-0.04
12 T	Acrolein	0.606	0.672	-10.9	144	-0.02
13 T	Acetone	0.819	0.828	-1.1	139	-0.04
14 T	Trichlorofluoromethane	2.267	1.933	14.7	113	0.00
15 T	2-Propanol (Isopropanol)	2.315	2.563	-10.7	130	-0.04
16 T	Acrylonitrile	1.290	1.463	-13.4	142	-0.03
17 T	1,1-Dichloroethene	1.126	1.052	6.6	123	0.00
18 T	2-Methyl-2-Propanol (tert-B	2.512	2.741	-9.1	135	-0.04
19 T	Methylene Chloride	1.155	1.110	3.9	127	-0.01
20 T	3-Chloro-1-propene (Allyl C	1.480	1.558	-5.3	136	-0.02
21 T	Trichlorotrifluoroethane	1.204	1.005	16.5	111	0.00
22 T	Carbon Disulfide	4.014	4.058	-1.1	132	0.00
23 T	trans-1,2-Dichloroethene	1.488	1.515	-1.8	128	0.00
24 T	1,1-Dichloroethane	1.889	1.862	1.4	129	-0.01
25 T	Methyl tert-Butyl Ether	3.184	3.236	-1.6	134	0.00
26 T	Vinyl Acetate	0.270	0.264	2.2	119	-0.02
27 T	2-Butanone (MEK)	0.722	0.769	-6.5	132	-0.02
28 T	cis-1,2-Dichloroethene	1.491	1.491	0.0	129	-0.02
29 T	Diisopropyl Ether	1.120	1.134	-1.2	136	-0.01
30 T	Ethyl Acetate	0.400	0.437	-9.2	129	-0.02
31 T	n-Hexane	1.763	1.831	-3.9	131	0.00
32 T	Chloroform	2.082	1.925	7.5	120	-0.02
33 S	1,2-Dichloroethane-d4(SS1)	1.510	1.484	1.7	133	-0.01
34 T	Tetrahydrofuran (THF)	0.721	0.727	-0.8	132	-0.01
35 T	Ethyl tert-Butyl Ether	1.247	1.284	-3.0	135	-0.01
36 T	1,2-Dichloroethane	1.577	1.400	11.2	114	-0.01
37 IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	136	-0.01
38 T	1,1,1-Trichloroethane	0.458	0.406	11.4	115	0.00
39 T	Isopropyl Acetate	0.165	0.181	-9.7	133	-0.01
40 T	1-Butanol	0.244	0.273	-11.9	129	-0.04
41 T	Benzene	1.111	1.066	4.1	127	-0.01
42 T	Carbon Tetrachloride	0.427	0.380	11.0	112	-0.01
43 T	Cyclohexane	0.427	0.406	4.9	122	0.00
44 T	tert-Amyl Methyl Ether	0.674	0.735	-9.1	142	0.00
45 T	1,2-Dichloropropane	0.247	0.252	-2.0	135	-0.01
46 T	Bromodichloromethane	0.388	0.367	5.4	117	0.00
47 T	Trichloroethene	0.329	0.288	12.5	113	0.00
48 T	1,4-Dioxane	0.225	0.221	1.8	121	-0.01
49 T	2,2,4-Trimethylpentane (Iso	1.016	1.036	-2.0	135	0.00
50 T	Methyl Methacrylate	0.119	0.114	4.2	117	-0.01
51 T	n-Heptane	0.255	0.255	0.0	133	0.00
52 T	cis-1,3-Dichloropropene	0.432	0.446	-3.2	126	0.00
53 T	4-Methyl-2-pentanone	0.230	0.249	-8.3	134	-0.01
54 T	trans-1,3-Dichloropropene	0.378	0.401	-6.1	123	0.00

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Data File: I:\MS16\DATA\2019_12\30\12301937.D

Acq On : 31 Dec 2019 2:14

Operator: LH

Sample : CCVend R16123019_25ng

Misc : S31-10161904/S31-12061902 (1/4)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 31 09:02:51 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min

Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
55 T	1,1,2-Trichloroethane	0.278	0.259	6.8	120	-0.01
56 IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	142	0.00
57 S	Toluene-d8 (SS2)	2.240	2.156	3.8	138	0.00
58 T	Toluene	2.640	2.261	14.4	122	0.00
59 T	2-Hexanone	1.193	1.202	-0.8	129	-0.01
60 T	Dibromochloromethane	0.787	0.707	10.2	114	0.00
61 T	1,2-Dibromoethane	0.723	0.652	9.8	118	0.00
62 T	n-Butyl Acetate	1.286	1.328	-3.3	129	0.00
63 T	n-Octane	0.468	0.466	0.4	136	0.00
64 T	Tetrachloroethene	0.862	0.693	19.6	109	0.00
65 T	Chlorobenzene	1.871	1.538	17.8	117	0.00
66 T	Ethylbenzene	2.935	2.635	10.2	120	0.00
67 T	m- & p-Xylenes	2.454	2.115	13.8	119	0.00
68 T	Bromoform	0.684	0.614	10.2	108	0.00
69 T	Styrene	1.875	1.667	11.1	115	0.00
70 T	o-Xylene	2.364	2.080	12.0	117	0.00
71 T	n-Nonane	1.026	1.041	-1.5	134	0.00
72 T	1,1,2,2-Tetrachloroethane	1.086	1.037	4.5	125	0.00
73 S	Bromofluorobenzene (SS3)	0.944	0.845	10.5	126	0.00
74 T	Cumene	3.044	2.667	12.4	116	0.00
75 T	alpha-Pinene	1.502	1.386	7.7	123	0.00
76 T	n-Propylbenzene	3.488	3.200	8.3	119	0.00
77 T	3-Ethyltoluene	3.010	2.664	11.5	115	0.00
78 T	4-Ethyltoluene	2.870	2.603	9.3	115	0.00
79 T	1,3,5-Trimethylbenzene	2.556	2.224	13.0	114	0.00
80 T	alpha-Methylstyrene	1.380	1.152	16.5	106	0.00
81 T	2-Ethyltoluene	2.953	2.610	11.6	115	-0.01
82 T	1,2,4-Trimethylbenzene	2.540	2.302	9.4	108	0.00
83 T	n-Decane	1.095	1.164	-6.3	133	0.00
84 T	Benzyl Chloride	2.154	2.014	6.5	113	-0.01
85 T	1,3-Dichlorobenzene	1.616	1.351	16.4	108	-0.01
86 T	1,4-Dichlorobenzene	1.615	1.355	16.1	110	0.00
87 T	sec-Butylbenzene	3.311	2.968	10.4	116	0.00
88 T	4-Isopropyltoluene (p-Cymen	3.104	2.753	11.3	103	0.00
89 T	1,2,3-Trimethylbenzene	2.514	2.311	8.1	108	0.00
90 T	1,2-Dichlorobenzene	1.538	1.319	14.2	105	0.00
91 T	d-Limonene	0.870	0.849	2.4	119	-0.01
92 T	1,2-Dibromo-3-Chloropropane	0.552	0.509	7.8	112	0.00
93 T	n-Undecane	1.133	1.176	-3.8	133	0.00
94 T	1,2,4-Trichlorobenzene	1.160	1.034	10.9	107	0.00
95 T	Naphthalene	3.621	3.309	8.6	104	-0.01
96 T	n-Dodecane	1.017	1.151	-13.2	129	0.00
97 T	Hexachlorobutadiene	0.819	0.676	17.5	105	0.00
98 T	Cyclohexanone	0.820	0.804	2.0	126	-0.01
99 T	tert-Butylbenzene	2.570	2.215	13.8	105	0.00
100 T	n-Butylbenzene	2.558	2.406	5.9	118	0.00

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

Data File: I:\MS16\DATA\2019_12\30\12301937.D

Acq On : 31 Dec 2019 2:14

Operator: LH

Sample : CCVend R16123019_25ng

Misc : S31-10161904/S31-12061902 (1/4)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 31 09:02:51 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

LH 12/31/19

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	316509	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.30	114	1340141	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.61	82	628587	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...	12.03	65	469677	12.281	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.24%	
57) Toluene-d8 (SS2)	15.75	98	1355297	12.030	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	96.24%	
73) Bromofluorobenzene (SS3)	19.01	174	531106	11.193	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	89.52%	

Target Compounds

						Qvalue
2) Propene	4.11	42	801376	27.847	ng	95
3) Dichlorodifluoromethan...	4.27	85	1440903	23.129	ng	99
4) Chloromethane	4.55	50	1015312	26.658	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.82	135	784812	19.889	ng	100
6) Vinyl Chloride	4.97	62	1078743	25.039	ng	100
7) 1,3-Butadiene	5.24	54	782199	26.517	ng	100
8) Bromomethane	5.67	94	668980	24.699	ng	99
9) Chloroethane	6.01	64	512861	27.408	ng	99
10) Ethanol	6.36	45	2711891	144.194	ng	99
11) Acetonitrile	6.62	41	1283919	26.717	ng	98
12) Acrolein	6.81	56	437874	28.524	ng	99
13) Acetone	7.01	58	2793049	134.681	ng	# 85
14) Trichlorofluoromethane	7.26	101	1296857	22.595	ng	100
15) 2-Propanol (Isopropanol)	7.50	45	3407660	58.127	ng	94
16) Acrylonitrile	7.77	53	972457	29.775	ng	99
17) 1,1-Dichloroethene	8.23	96	719255	25.228	ng	96
18) 2-Methyl-2-Propanol (t...	8.38	59	3748364	58.921	ng	96
19) Methylene Chloride	8.45	84	744557	25.457	ng	96
20) 3-Chloro-1-propene (Al...	8.61	41	1065390	28.436	ng	96
21) Trichlorotrifluoroethane	8.87	151	686833	22.532	ng	93
22) Carbon Disulfide	8.71	76	2748523	27.040	ng	100
23) trans-1,2-Dichloroethene	9.73	61	1035949	27.504	ng	95
24) 1,1-Dichloroethane	9.98	63	1284725	26.854	ng	100
25) Methyl tert-Butyl Ether	10.07	73	2212131	27.442	ng	97
26) Vinyl Acetate	10.23	86	895627	130.796	ng	# 80
27) 2-Butanone (MEK)	10.47	72	516061	28.219	ng	96
28) cis-1,2-Dichloroethene	10.99	61	1000763	26.512	ng	95
29) Diisopropyl Ether	11.29	87	775309	27.331	ng	# 91
30) Ethyl Acetate	11.30	61	599799	59.168	ng	95
31) n-Hexane	11.28	57	1252081	28.046	ng	98
32) Chloroform	11.34	83	1304068	24.740	ng	100
34) Tetrahydrofuran (THF)	11.74	72	501312	27.465	ng	94
35) Ethyl tert-Butyl Ether	11.88	87	878014	27.804	ng	92
36) 1,2-Dichloroethane	12.14	62	957241	23.971	ng	100
38) 1,1,1-Trichloroethane	12.42	97	1164691	23.695	ng	99
39) Isopropyl Acetate	12.85	61	1026204	58.058	ng	94
40) 1-Butanol	12.86	56	1523759	58.346	ng	94
41) Benzene	12.90	78	3029350	25.433	ng	99
42) Carbon Tetrachloride	13.06	117	1070805	23.378	ng	100
43) Cyclohexane	13.20	84	2308617	50.375	ng	92
44) tert-Amyl Methyl Ether	13.54	73	2126584	29.422	ng	97
45) 1,2-Dichloropropane	13.75	63	729760	27.607	ng	100
46) Bromodichloromethane	13.95	83	1062426	25.510	ng	100
47) Trichloroethene	14.00	130	826818	23.407	ng	100
48) 1,4-Dioxane	13.97	88	638696	26.489	ng	93
49) 2,2,4-Trimethylpentane...	14.07	57	2972191	27.288	ng	92

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Data File: I:\MS16\DATA\2019_12\30\12301937.D

Acq On : 31 Dec 2019 2:14

Operator: LH

Sample : CCVend R16123019_25ng

Misc : S31-10161904/S31-12061902 (1/4)

ALS Vial : 2 Sample Multiplier: 1

Quant Time: Dec 31 09:02:51 2019

Quant Method : I:\MS16\METHODS\R16120919.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Dec 10 09:44:38 2019

Response via : Initial Calibration

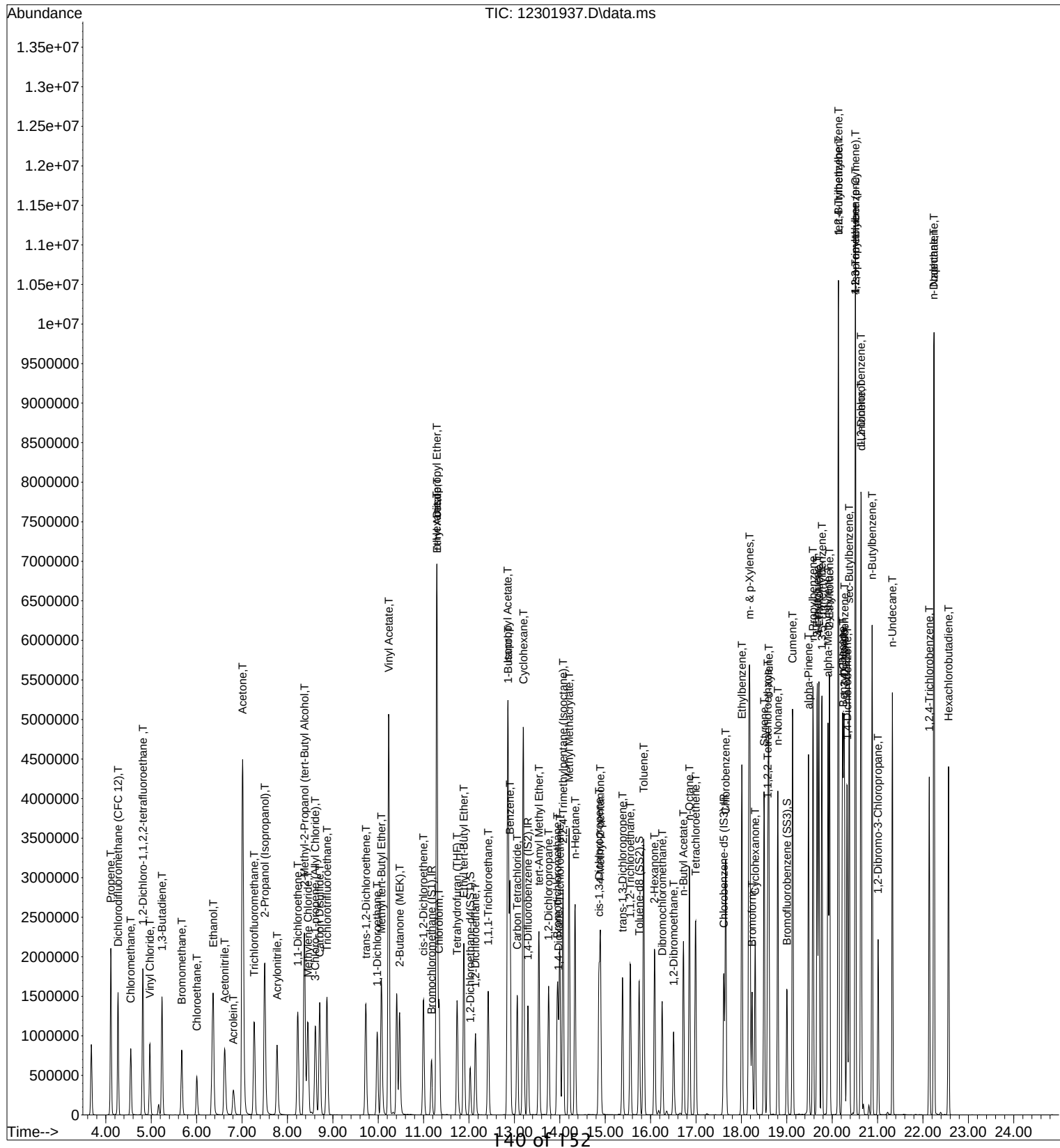
DataAcq Meth:TO15.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
50) Methyl Methacrylate	14.20	100	658554	51.696	ng	# 86
51) n-Heptane	14.34	71	737383	26.995	ng	95
52) cis-1,3-Dichloropropene	14.86	75	1242470	26.835	ng	100
53) 4-Methyl-2-pentanone	14.89	58	708395	28.719	ng	96
54) trans-1,3-Dichloropropene	15.38	75	1138211	28.049	ng	100
55) 1,1,2-Trichloroethane	15.55	97	743864	24.991	ng	97
58) Toluene	15.85	91	3041335	22.905	ng	100
59) 2-Hexanone	16.09	43	1616434	26.939	ng	97
60) Dibromochloromethane	16.26	129	950453	24.013	ng	100
61) 1,2-Dibromoethane	16.51	107	876513	24.096	ng	100
62) n-Butyl Acetate	16.72	43	1819965	28.153	ng	98
63) n-Octane	16.85	57	632642	26.904	ng	93
64) Tetrachloroethene	16.99	166	906565	20.922	ng	100
65) Chlorobenzene	17.65	112	2069318	21.990	ng	100
66) Ethylbenzene	18.01	91	3544937	24.015	ng	98
67) m- & p-Xylenes	18.18	91	5690876	46.108	ng	97
68) Bromoform	18.24	173	825777	24.019	ng	100
69) Styrene	18.50	104	2221562	23.564	ng	99
70) o-Xylene	18.60	91	2797690	23.533	ng	99
71) n-Nonane	18.80	43	1399941	27.138	ng	98
72) 1,1,2,2-Tetrachloroethane	18.58	83	1395584	25.566	ng	99
74) Cumene	19.13	105	3621766	23.658	ng	99
75) alpha-Pinene	19.48	93	1864797	24.689	ng	99
76) n-Propylbenzene	19.58	91	4345178	24.770	ng	98
77) 3-Ethyltoluene	19.67	105	3549757	23.453	ng	99
78) 4-Ethyltoluene	19.71	105	3533608	24.488	ng	99
79) 1,3,5-Trimethylbenzene	19.77	105	2964182	23.058	ng	99
80) alpha-Methylstyrene	19.91	118	1549037	22.326	ng	99
81) 2-Ethyltoluene	19.94	105	3543922	23.869	ng	98
82) 1,2,4-Trimethylbenzene	20.14	105	3097229	24.244	ng	98
83) n-Decane	20.23	57	1566069	28.453	ng	96
84) Benzyl Chloride	20.25	91	2734137	25.246	ng	97
85) 1,3-Dichlorobenzene	20.27	146	1817766	22.373	ng	100
86) 1,4-Dichlorobenzene	20.33	146	1823376	22.449	ng	100
87) sec-Butylbenzene	20.37	105	3991840	23.974	ng	99
88) 4-Isopropyltoluene (p-...	20.51	119	3773026	24.170	ng	99
89) 1,2,3-Trimethylbenzene	20.51	105	3167446	25.058	ng	98
90) 1,2-Dichlorobenzene	20.63	146	1773966	22.935	ng	100
91) d-Limonene	20.64	68	1152073	26.345	ng	92
92) 1,2-Dibromo-3-Chloropr...	21.01	157	671630	24.205	ng	94
93) n-Undecane	21.33	57	1596296	28.012	ng	96
94) 1,2,4-Trichlorobenzene	22.14	180	1391464	23.855	ng	100
95) Naphthalene	22.24	128	4284442	23.529	ng	100
96) n-Dodecane	22.24	57	1505027	29.434	ng	96
97) Hexachlorobutadiene	22.56	225	900752	21.879	ng	100
98) Cyclohexanone	18.30	55	1011371	24.541	ng	93
99) tert-Butylbenzene	20.14	119	2979679	23.053	ng	99
100) n-Butylbenzene	20.88	91	3236483	25.157	ng	98

(#)=qualifier out of range (m)=manual integration (+)=signals summed

```
Acq On       : 31 Dec 2019   2:14
Sample       : CCVend R16123019_25ng
Misc         : S31-10161904/S31-12061902 (1/4)
ALS Vial     : 2      Sample Multiplier: 1
```

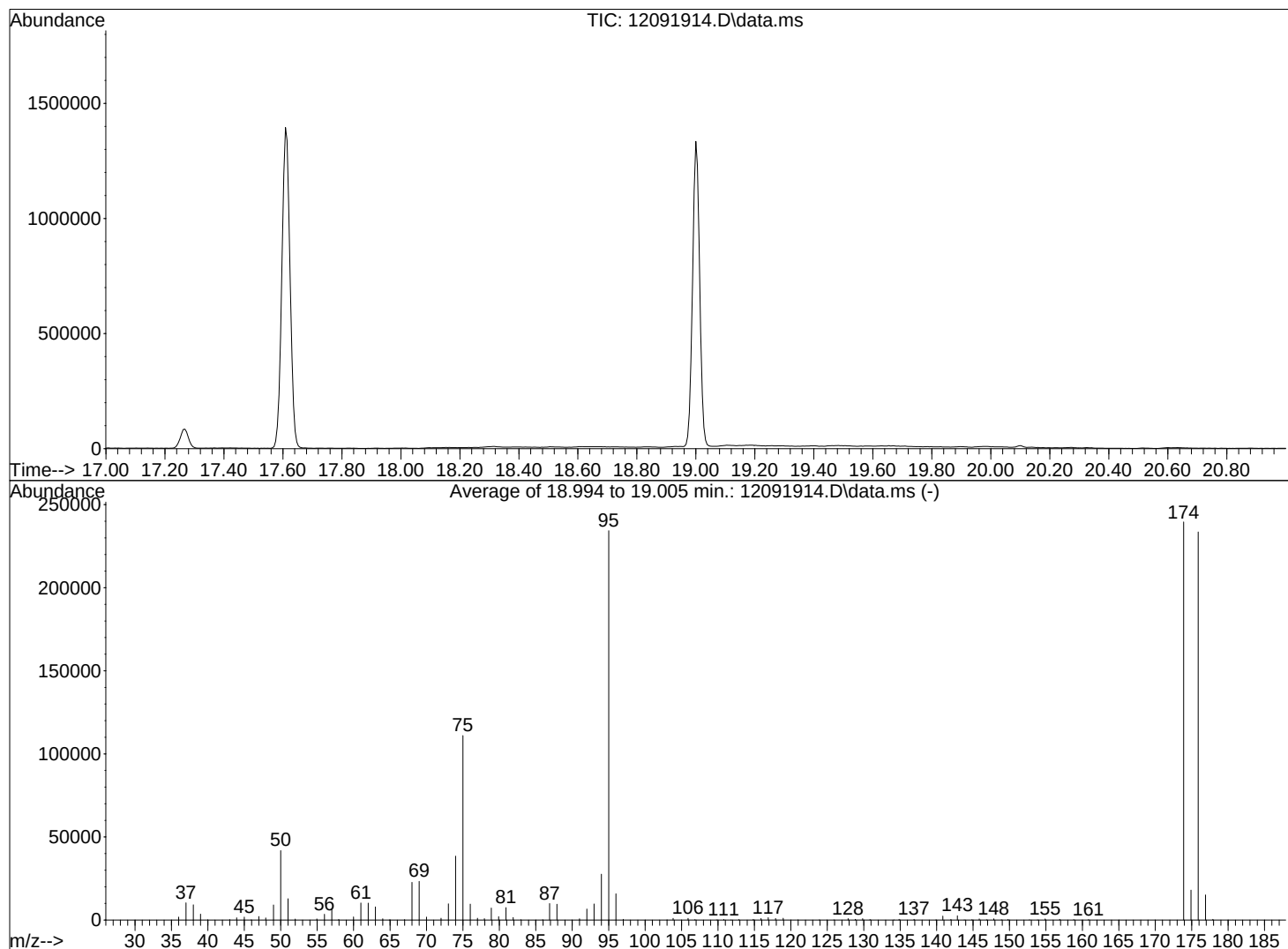
Quant Time: Dec 31 09:02:51 2019
Quant Method : I:\MS16\METHODS\R16120919.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Dec 10 09:44:38 2019
Response via : Initial Calibration
DataAcq Meth:TO15.M



Data Path : I:\MS16\DATA\2019_12\09\
 Data File : 12091914.D
 Acq On : 9 Dec 2019 17:41
 Operator : LH
 Sample : 12.5ng T015 BFB
 Misc : S31-10161904
 ALS Vial : 2 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS16\METHODS\R16120919.M
 Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 Last Update : Tue Dec 10 09:37:30 2019



AutoFind: Scans 2820, 2821, 2822; Background Corrected with Scan 2812

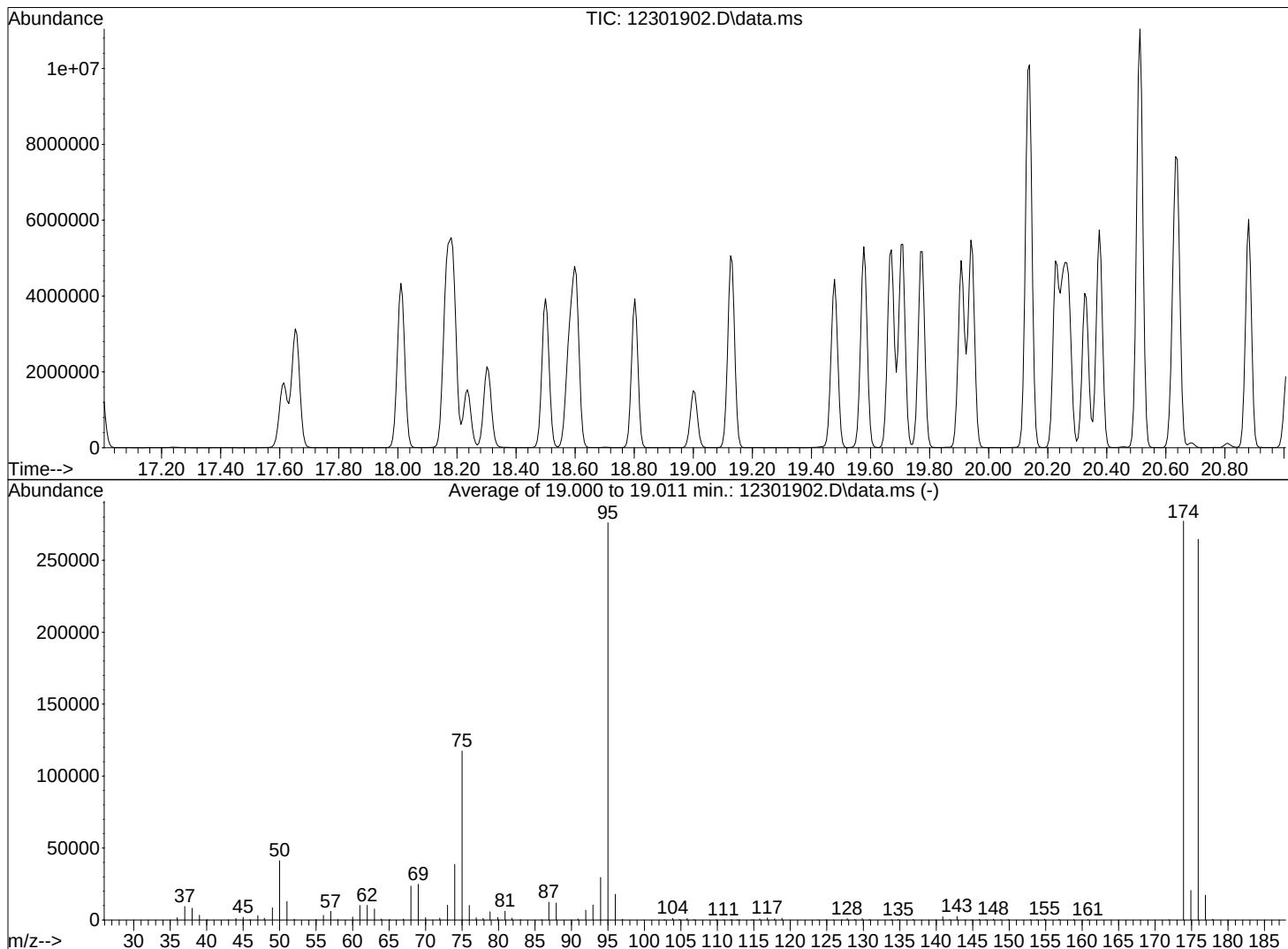
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	17.8	41813	PASS
75	95	30	66	47.4	111005	PASS
95	95	100	100	100.0	234325	PASS
96	95	5	9	6.7	15804	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	102.2	239595	PASS
175	174	4	9	7.5	18005	PASS
176	174	93	101	97.5	233600	PASS
177	176	5	9	6.5	15136	PASS

LH 12/10/19

Data Path : I:\MS16\DATA\2019_12\30\
 Data File : 12301902.D
 Acq On : 30 Dec 2019 4:06
 Operator : SC
 Sample : CCV R16123019_25ng
 Misc : S31-10161904/S31-12061902 (1/4)
 ALS Vial : 2 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS16\METHODS\R16120919.M
 Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 Last Update : Tue Dec 10 09:44:38 2019



AutoFind: Scans 2821, 2822, 2823; Background Corrected with Scan 2812

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	14.9	41184	PASS
75	95	30	66	42.6	117531	PASS
95	95	100	100	100.0	276075	PASS
96	95	5	9	6.5	17872	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	100.4	277184	PASS
175	174	4	9	7.4	20541	PASS
176	174	93	101	95.5	264619	PASS
177	176	5	9	6.5	17220	PASS

LH 12/30/19

Injection Log

Directory: J:\MS16\DATA\2019_12\09\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
14	12/9/19 17:41	12091914.D	12.5ng TO15 BFB	S31-10161904	LH	2	passed
15	12/9/19 18:14	12091915.D	0.1ng TO15 ICAL STD	S31-10161904/S31-12061908 (1/4)	LH	8	
16	12/9/19 18:46	12091916.D	0.2ng TO15 ICAL STD	S31-10161904/S31-12061908 (1/4)	LH	8	
17	12/9/19 19:19	12091917.D	0.5ng TO15 ICAL STD	S31-10161904/S31-12061909 (1/4)	LH	8	
18	12/9/19 19:52	12091918.D	1.0ng TO15 ICAL STD	S31-10161904/S31-12061909 (1/4)	LH	8	
19	12/9/19 20:25	12091919.D	5.0ng TO15 ICAL STD	S31-10161904/S31-12061909 (1/4)	LH	8	
20	12/9/19 20:58	12091920.D	25ng TO15 ICAL STD	S31-10161904/S31-12061902 (1/4)	LH	2	R16120919.M
21	12/9/19 21:31	12091921.D	50ng TO15 ICAL STD	S31-10161904/S31-12061902 (1/4)	LH	2	
22	12/9/19 22:04	12091922.D	100ng TO15 ICAL STD	S31-10161904/S31-12061902 (1/4)	LH	2	
23	12/9/19 22:37	12091923.D	25ng TO15 ICV STD	S31-10161904/S31-11261902 (12/25)	LH	2	passed
24	12/9/19 23:09	12091924.D	12.5ng TO15 BFB	S31-10161904	LH	2	passed
25	12/9/19 23:42	12091925.D	0.4ng TO15 Custom ICAL STD	S31-10161904/S31-11211906 (12/20)	LH	4	
26	12/10/19 0:15	12091926.D	1.0ng TO15 Custom ICAL STD	S31-10161904/S31-11211906 (12/20)	LH	4	
27	12/10/19 0:48	12091927.D	2.5ng TO15 Custom ICAL STD	S31-10161904/S31-11211906 (12/20)	LH	4	
28	12/10/19 1:21	12091928.D	5.0ng TO15 Custom ICAL STD	S31-10161904/S31-11211906 (12/20)	LH	4	
29	12/10/19 1:54	12091929.D	25ng TO15 Custom ICAL STD	S31-10161904/S31-11141905 (12/13)	LH	3	C16120919.M
30	12/10/19 2:27	12091930.D	50ng TO15 Custom ICAL STD	S31-10161904/S31-11141905 (12/13)	LH	3	
31	12/10/19 3:00	12091931.D	100ng TO15 Custom ICAL STD	S31-10161904/S31-11141905 (12/13)	LH	3	
32	12/10/19 3:34	12091932.D	25ng TO15 Custom ICV STD	S31-10161904/S31-11211907 (12/20)	LH	5	passed

ICAL R16120919.M passed for all compounds 0.1ng-100ng, except: ehanol 1.0ng-500ng, vinyl acetate 5.0ng-500ng, ethyl acetate 1.0ng-200ng, undecane and dodecane 0.5ng-100ng.

LH 12/11/19

Injection Log

Directory: I:\MS16\DATA\2019_12\30\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	12/30/19 3:32	12301901.D	CCV C16123019_25ng	S31-10161904/S31-12111908 (1/9)	SC	2	passed
2	12/30/19 4:06	12301902.D	CCV R16123019_25ng	S31-10161904/S31-12061902 (1/4)	SC	2	passed
3	12/30/19 4:39	12301903.D	Blank (100mL)	S31-10161904	SC	2	
4	12/30/19 5:12	12301904.D	MB R16123019_1000mL	S31-10161904/AS01319	SC	2	passed
5	12/30/19 5:45	12301905.D	LCS R16123019_25ng	S31-10161904/S31-12191903 (1/17)	SC	2	passed
6	12/30/19 6:19	12301906.D	LCSD R16123019_25ng	S31-10161904/S31-12191903 (1/17)	SC	2	passed
7	12/30/19 6:52	12301907.D	Blank (100mL)	S31-10161904	SC	2	
8	12/30/19 9:37	12301908.D	P1907651-006dil (100mL)	S31-10161904	LH	14	
9	12/30/19 10:10	12301909.D	P1907651-009dil (100mL)	S31-10161904	LH	1	
10	12/30/19 10:42	12301910.D	P1907651-010dil (50mL)	S31-10161904	LH	4	
11	12/30/19 11:17	12301911.D	P1907900-001 (1000mL)	S31-10161904	LH	5	
12	12/30/19 11:50	12301912.D	P1907900-002 (4.0mL)	S31-10161904	LH	1	over diluted
13	12/30/19 12:23	12301913.D	P1907900-002 (6.0mL)	S31-10161904	LH	1	
14	12/30/19 13:04	12301914.D	P1907900-003 (50mL)	S31-10161904	LH	6	
15	12/30/19 13:37	12301915.D	P1907651-013 (1000mL)	S31-10161904	LH	7	
16	12/30/19 14:11	12301916.D	P1907651-014 (1000mL)	S31-10161904	LH	8	
17	12/30/19 14:44	12301917.D	P1907438-001 (1.0mL)	S31-10161904	LH	1	
18	12/30/19 15:27	12301918.D	P1907520-001 (1.0mL)	S31-10161904	LH	1	over diluted
19	12/30/19 16:00	12301919.D	P1907520-001 (2.5mL)	S31-10161904	LH	1	
20	12/30/19 16:35	12301920.D	P1907520-002 (400mL)	S31-10161904	LH	9	
21	12/30/19 17:15	12301921.D	P1907413-001 (1000mL)	S31-10161904	LH	1	
22	12/30/19 17:48	12301922.D	P1907510-001 (4.0mL)	S31-10161904	LH	1	
23	12/30/19 18:21	12301923.D	Blank (100mL)	S31-10161904	LH	2	
24	12/30/19 18:55	12301924.D	P1907413-002 (1000mL)	S31-10161904	LH	11	
25	12/30/19 19:28	12301925.D	P1907651-015 (1000mL)	S31-10161904	LH	12	
26	12/30/19 20:03	12301926.D	P1907651-015dup (1000mL)	S31-10161904	LH	12	passed
27	12/30/19 20:38	12301927.D	P1907651-016 (1000mL)	S31-10161904	LH	13	
28	12/30/19 21:12	12301928.D	P1907651-017 (1000mL)	S31-10161904	LH	14	
29	12/30/19 21:47	12301929.D	P1907651-018 (1000mL)	S31-10161904	LH	15	
30	12/30/19 22:21	12301930.D	P1907651-019 (1000mL)	S31-10161904	LH	16	
31	12/30/19 22:55	12301931.D	P1907461-001 (1000mL)	S31-10161904	LH	4	
32	12/30/19 23:27	12301932.D	P1907461-001dil (100mL)	S31-10161904	LH	4	
33	12/31/19 0:01	12301933.D	P1907461-002 (1000mL)	S31-10161904	LH	5	
34	12/31/19 0:34	12301934.D	P1907461-002dil (100mL)	S31-10161904	LH	5	
35	12/31/19 1:07	12301935.D	P1907592-001 (1000mL)	S31-10161904	LH	6	
36	12/31/19 1:41	12301936.D	P1907592-003 (1000mL)	S31-10161904	LH	7	
37	12/31/19 2:14	12301937.D	CCVend R16123019_25ng	S31-10161904/S31-12061902 (1/4)	LH	2	passed
					LH 12/31/19		

SIMIVALLEY QC Certification

Conditioner: P-Conditioner-10

Cycles: 30

Batch: 24493

Batch Started By: DALLIN.JONES on 11/1/19 0951
Finished Cleaning By: DALLIN.JONES on 11/1/19 0955

Container IDs	Cleaned Date	QC Date Analyzed	QC Results	Initial Vacuum		Final Vacuum		Comments
				Vacuum	Date/Time	Vacuum	Date/Time	
SC01782	11/1/19	11/1/19	Pass w/ Conditions	-14.3	11/1/19 0955	-14.0	11/13/19 0439	RTORRES MS21_11011909.D
SC01729	11/1/19	11/1/19	Pass w/ Conditions	-14.3	11/1/19 0955	-14.0	11/13/19 0439	RTORRES
SC01880	11/1/19	11/1/19	Pass w/ Conditions	-14.3	11/1/19 0955	-14.0	11/13/19 0439	RTORRES
SC02265	11/1/19	11/1/19	Pass w/ Conditions	-14.3	11/1/19 0955	-14.0	11/13/19 0439	RTORRES
SC00803	11/1/19	11/1/19	Pass w/ Conditions	-14.3	11/1/19 0955	-14.0	11/22/19 1040	RTORRES
SC02081	11/1/19	11/1/19	Pass w/ Conditions	-14.3	11/1/19 0955	-14.0	11/13/19 0439	RTORRES
SC02103	11/1/19	11/1/19	Pass w/ Conditions	-14.3	11/1/19 0955	-14.0	11/13/19 0439	RTORRES
SC01640	11/1/19	11/1/19	Pass w/ Conditions	-14.3	11/1/19 0955	-14.0	11/13/19 0439	RTORRES
SSC00460	11/1/19	11/1/19	Pass w/ Conditions	-14.3	11/1/19 0955	-14.0	11/13/19 0439	RTORRES
SC00661	11/1/19	11/1/19	Pass w/ Conditions	-14.3	11/1/19 0955	-14.0	11/11/19 1220	RTORRES GC22_11/11/19

Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)

Exceptions:

COMPONENTID Date / Time MODULE USER COMMENTS

Batch Comment:

* QC Canister

Data Path : I:\MS21\DATA\2019_11\01\
 Data File : 11011909.D
 Acq On : 1 Nov 2019 2:20 pm
 Operator : RVT
 Sample : 110119_SC01782_24493
 Misc : LL+TICS (Sig #1); S31-09041909 (Sig #2)
 ALS Vial : 4 Sample Multiplier: 1

RVT 11/4/19

Quant Time: Nov 02 07:47:02 2019
 Quant Method : I:\MS21\Methods\F21091019.M
 Quant Title : EPA T0-15
 QLast Update : Wed Sep 11 08:54:53 2019
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS1)	7.505	130	54228	1000.00	pg	0.00
37) 1,4-Difluorobenzene (IS2)	9.742	114	176965	1000.00	pg	0.00
56) Chlorobenzene-d5 (IS3)	14.678	117	165805	1000.00	pg	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.323	65	118659	1555.82	pg	0.00
Spiked Amount 1000.000			Recovery	=	155.58%	
57) Toluene-d8 (SS2)	12.585	98	164358	809.92	pg	0.00
Spiked Amount 1000.000			Recovery	=	80.99%	
74) Bromofluorobenzene (SS3)	16.122	174	76420	1455.33	pg	0.00
Spiked Amount 1000.000			Recovery	=	145.53%	

Target Compounds						Qvalue
2] * Propene	3.505	42	2460	36.39	pg	# 55
3] * Dichlorodifluoromethane	3.557	85	796	4.30	pg	# 94
4] * Chloromethane	3.690	50	1680	10.46	pg	# 71
5] * 1,2-Dichloro-1,1,2,2...	3.775	85	73	0.42	pg	# 42
6] * Vinyl Chloride	3.860	62	53	0.34	pg	# 1
7] * 1,3-Butadiene	3.981	54	134	1.20	pg	# 13
8] * Bromomethane	4.198	94	87	0.71	pg	# 13
9] * Chloroethane	4.334	64	79	0.98	pg	# 40
10] * Ethanol	4.401	45	53729	899.88	pg	# 95
11] * Acetonitrile	4.578	41	969	7.58	pg	# 1
12] * Acrolein	4.682	56	873	18.83	pg	# 92
13] * Acetone	4.792	58	23111	348.20	pg	# 63
14] * Trichlorofluoromethane	4.943	101	203	1.51	pg	# 69
15] * 2-Propanol (Isopropa...	4.991	45	1889	15.06	pg	# 78
16] * Acrylonitrile	5.145	53	71	0.96	pg	# 94
18] tert-Butanol	5.499	59	1111	10.23	pg	# 90
19] * Methylene Chloride	5.538	84	336	4.26	pg	# 95
21] * Trichlorotrifluoroet...	5.781	151	113	1.72	pg	# 19
22] * Carbon Disulfide	5.810	76	7294	19.19	pg	# 98
26] * Vinyl Acetate	6.665	86	586	48.68	pg	# 9
27] * 2-Butanone (MEK)	6.932	72	2529	58.64	pg	# 98
29] DIPE	7.595	45	613	3.57	pg	# 44
30] * Ethyl Acetate	7.595	61	649	35.78	pg	# 92
31] * n-Hexane	7.602	57	64	0.77	pg	# 57
32] * Chloroform	7.641	83	228	1.77	pg	# 98
34] * Tetrahydrofuran	8.107	71	153	5.16	pg	# 47
39] * Benzene	9.300	78	1106	4.52	pg	# 90
40] Isopropyl Acetate	9.216	61	69	2.56	pg	# 21
41] 1-Butanol	9.253	56	3159	93.21	pg	# 45
48] * 1,4-Dioxane	10.602	88	105	2.16	pg	# 92
49] Isooctane	10.595	56	90	0.99	pg	# 33
51] * n-Heptane	11.002	71	363	2.73	pg	# 51
53] * 4-Methyl-2-pentanone	11.675	58	716	12.11	pg	# 96
58] * Toluene	12.699	91	3536	13.63	pg	# 100
59] * 2-Hexanone	13.037	58	539	14.86	pg	# 87
64] * Tetrachloroethene	14.002	166	500	7.02	pg	# 99
65] * Chlorobenzene	14.729	112	85	0.52	pg	# 53
66] * Ethylbenzene	15.118	91	152	0.69	pg	# 43
67] * m- & p-Xylenes	15.289	91	139	0.85	pg	# 62
69] Cyclohexanone	15.431	98	282	9.66	pg	# 71
71] * o-Xylene	15.722	91	82	0.48	pg	# 30
72] * n-Nonane	15.956	57	59	0.90	pg	# 34
77] * n-Propylbenzene	16.702	91	77	0.33	pg	# 54
79] * 4-Ethyltoluene	16.891	105	51	0.31	pg	# 45

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Data Path : I:\MS21\DATA\2019_11\01\
 Data File : 11011909.D
 Acq On : 1 Nov 2019 2:20 pm
 Operator : RVT
 Sample : 110119_SC01782_24493
 Misc : LL+TICS (Sig #1); S31-09041909 (Sig #2)
 ALS Vial : 4 Sample Multiplier: 1

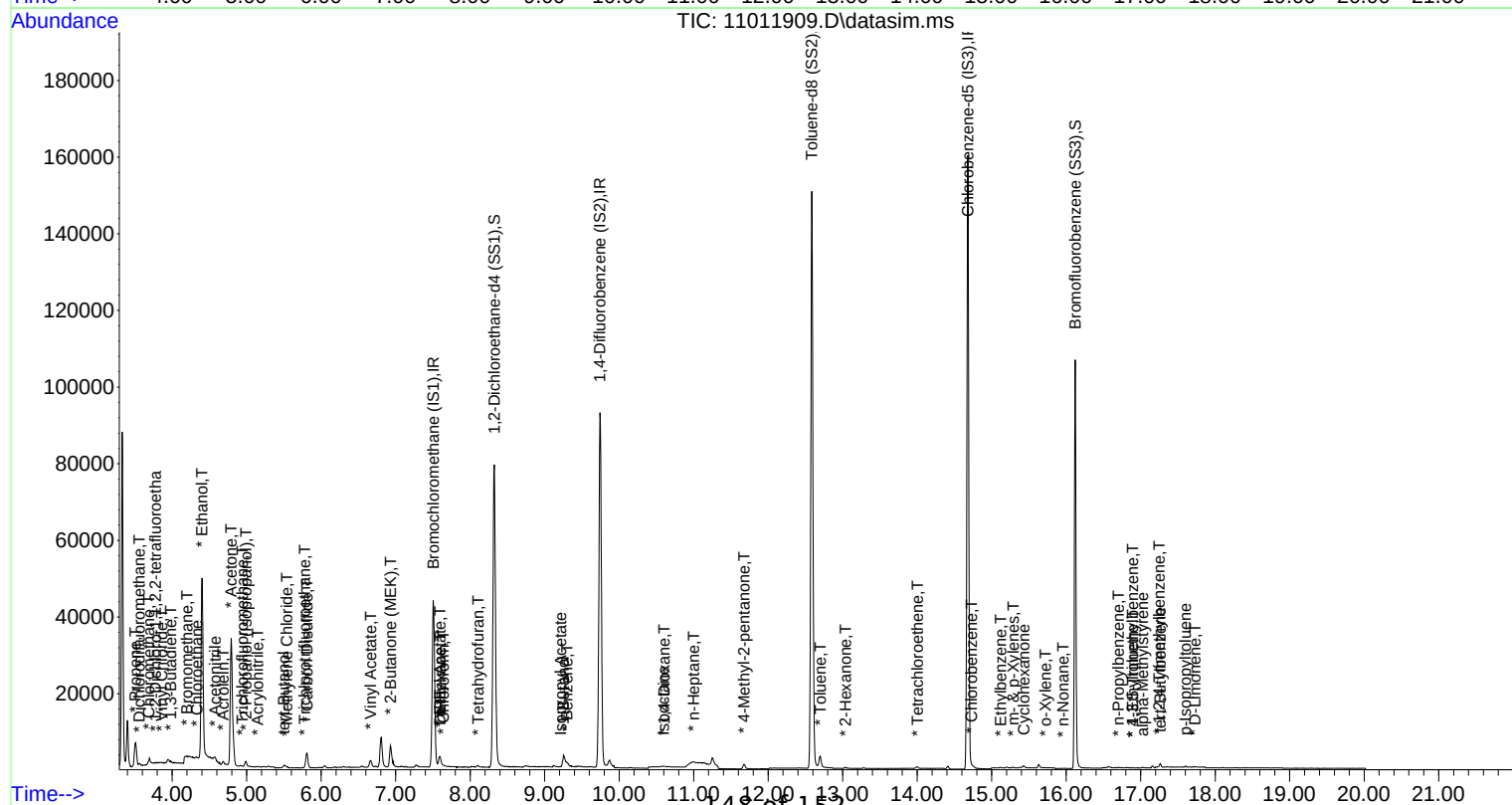
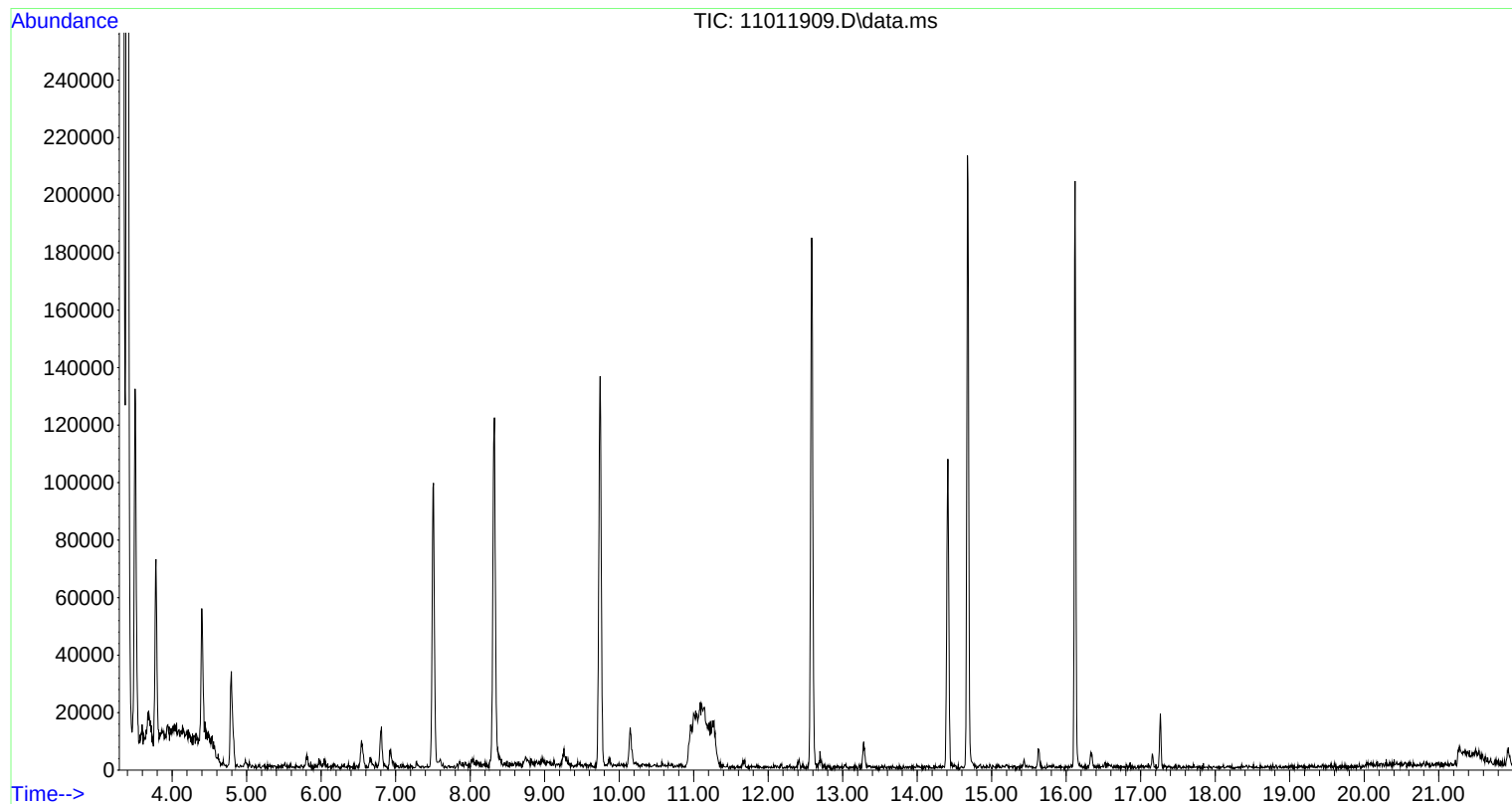
Quant Time: Nov 02 07:47:02 2019
 Quant Method : I:\MS21\Methods\F21091019.M
 Quant Title : EPA T0-15
 QLast Update : Wed Sep 11 08:54:53 2019
 Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
80]	* 1,3,5-Trimethylbenzene	16.891	105	51	0.32	pg	# 29
81]	alpha-Methylstyrene	17.027	118	93	1.31	pg	# 24
83]	tert-Butylbenzene	17.261	134	397	10.34	pg	# 1
84]	* 1,2,4-Trimethylbenzene	17.251	105	85	0.56	pg	# 66
91]	p-Isopropyltoluene	17.601	134	57	1.23	pg	# 48
93]	* D-Limonene	17.726	68	73	1.28	pg	91

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2019_11\01\
Data File : 11011909.D
Acq On : 1 Nov 2019 2:20 pm
Operator : RVT
Sample : 110119_SC01782_24493
Misc : LL+TICS (Sig #1); S31-09041909 (Sig #2)
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Nov 02 07:47:02 2019
Quant Method : I:\MS21\Methods\F21091019.M
Quant Title : EPA T0-15
QLast Update : Wed Sep 11 08:54:53 2019
Response via : Initial Calibration



SIMIVALLEY QC Certification

Conditioner: P-Conditioner-03

Cycles: 30

Batch: 24505

Batch Started By: RTORRES on 11/5/19 0731
Finished Cleaning By: RTORRES on 11/5/19 0731

Container IDs	Cleaned Date	QC Date Analyzed	QC Results		Initial Vacuum		Final Vacuum		Comments
					Vacuum	Date/Time	Vacuum	Date/Time	
AC02015	11/5/19	11/7/19	Pass w/ Conditions		-14.3	11/5/19 0731	RTORRES	11/19/19 0332	RTORRES MS21_11071905.D
AS01278	11/5/19	11/7/19	Pass w/ Conditions		-14.3	11/5/19 0731	RTORRES	11/19/19 0332	RTORRES
AS01153	11/5/19	11/7/19	Pass w/ Conditions		-14.3	11/5/19 0731	RTORRES	11/19/19 0332	RTORRES
AC02241	11/5/19	11/7/19	Pass w/ Conditions		-14.3	11/5/19 0731	RTORRES	11/18/19 1205	RTORRES
AS01037	11/5/19	11/7/19	Pass w/ Conditions		-14.3	11/5/19 0731	RTORRES	11/18/19 1201	RTORRES
AS01413	11/5/19	11/7/19	Pass w/ Conditions		-14.3	11/5/19 0731	RTORRES	11/19/19 0332	RTORRES
AC02123	11/5/19	11/7/19	Pass w/ Conditions		-14.3	11/5/19 0731	RTORRES	11/18/19 1201	RTORRES
AC02356	11/5/19	11/7/19	Pass w/ Conditions		-14.3	11/5/19 0731	RTORRES	11/18/19 1205	RTORRES
AS00384	11/5/19	11/7/19	Pass w/ Conditions		-14.3	11/5/19 0731	RTORRES	11/19/19 0332	RTORRES
AC02111	11/5/19	11/7/19	Pass w/ Conditions		-14.3	11/5/19 0731	RTORRES	11/18/19 1219	RTORRES
AC01834	11/5/19	11/7/19	Pass w/ Conditions		-14.3	11/5/19 0731	RTORRES	11/13/19 0339	RTORRES
AC02389	11/5/19	11/7/19	Pass w/ Conditions		-14.3	11/5/19 0731	RTORRES	11/18/19 1205	RTORRES
SSC00083	11/5/19	11/7/19	Pass w/ Conditions		-14.3	11/5/19 0731	RTORRES	11/22/19 1040	RTORRES
AC02324	11/5/19	11/7/19	Pass w/ Conditions		-14.3	11/5/19 0731	RTORRES	11/18/19 1205	RTORRES

Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS

Batch Comment:

* QC Canister

Data Path : I:\MS21\DATA\2019_11\07\
 Data File : 11071905.D
 Acq On : 7 Nov 2019 11:08 am
 Operator : SM
 Sample : 110719_AC02015_24505
 Misc : LL+TICS (Sig #1); S31-09041909 (Sig #2)
 ALS Vial : 11 Sample Multiplier: 1

J.C. 12/11/19

Quant Time: Nov 07 12:05:50 2019
 Quant Method : I:\MS21\Methods\F21091019.M
 Quant Title : EPA TO-15
 QLast Update : Wed Sep 11 08:54:53 2019
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS1)	7.511	130	88061	1000.00	pg	0.00
37) 1,4-Difluorobenzene (IS2)	9.748	114	279088	1000.00	pg	0.00
56) Chlorobenzene-d5 (IS3)	14.678	117	235148	1000.00	pg	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.323	65	130847	1056.48	pg	0.00
Spiked Amount 1000.000			Recovery	=	105.65%	
57) Toluene-d8 (SS2)	12.585	98	238171	827.55	pg	0.00
Spiked Amount 1000.000			Recovery	=	82.75%	
74) Bromofluorobenzene (SS3)	16.122	174	96144	1291.02	pg	0.00
Spiked Amount 1000.000			Recovery	=	129.10%	

Target Compounds						Qvalue
2] * Propene	3.518	42	9680	88.17	pg	# 1
3] * Dichlorodifluoromethane	3.561	85	16449	54.68	pg	99
4] * Chloromethane	3.690	50	7566	29.02	pg	98
5] * 1,2-Dichloro-1,1,2,2...	3.775	85	658	2.30	pg	# 84
7] * 1,3-Butadiene	3.981	54	569	3.14	pg	# 13
8] * Bromomethane	4.188	94	647	3.23	pg	95
9] * Chloroethane	4.328	64	108	0.82	pg	# 47
10] * Ethanol	4.406	45	65358	674.08	pg	96
11] * Acetonitrile	4.573	41	12447	59.92	pg	98
12] * Acrolein	4.682	56	2400	31.88	pg	91
13] * Acetone	4.792	58	91959	853.19	pg	89
14] * Trichlorofluoromethane	4.931	101	9665	44.15	pg	100
15] * 2-Propanol (Isopropa...	4.991	45	29740	146.03	pg	# 83
16] * Acrylonitrile	5.145	53	237	1.97	pg	# 81
18] tert-Butanol	5.518	59	1610	9.13	pg	92
19] * Methylene Chloride	5.538	84	13619	106.37	pg	98
20] * 3-Chloro-1-propene (...)	5.649	41	57	0.58	pg	# 27
21] * Trichlorotrifluoroet...	5.781	151	1218	11.45	pg	98
22] * Carbon Disulfide	5.805	76	19829	32.13	pg	100
23] * trans-1,2-Dichloroet...	6.369	96	55	0.50	pg	# 18
25] * Methyl tert-Butyl Ether	6.640	73	69	0.31	pg	# 1
26] * Vinyl Acetate	6.665	86	635	32.49	pg	97
27] * 2-Butanone (MEK)	6.932	72	2803	40.02	pg	93
29] DIPE	7.595	45	6414	23.01	pg	# 49
30] * Ethyl Acetate	7.595	61	7040	239.00	pg	88
31] * n-Hexane	7.595	57	2708	20.04	pg	97
32] * Chloroform	7.641	83	906	4.34	pg	84
34] * Tetrahydrofuran	8.102	71	795	16.50	pg	94
36] * 1,2-Dichloroethane	8.449	62	103	0.75	pg	# 1
39] * Benzene	9.310	78	24128	62.57	pg	99
40] Isopropyl Acetate	9.310	61	108	2.54	pg	# 21
41] 1-Butanol	9.263	56	2395	44.81	pg	# 63
42] * Carbon Tetrachloride	9.492	117	1297	10.19	pg	100
43] * Cyclohexane	9.649	84	771	6.52	pg	97
46] * Bromodichloromethane	10.547	83	108	0.72	pg	94
48] * 1,4-Dioxane	10.602	88	187	2.44	pg	# 1
49] Isooctane	10.671	56	2860	19.92	pg	78
50] * Methyl Methacrylate	10.857	69	424	4.10	pg	# 69
51] * n-Heptane	10.995	71	2537	12.08	pg	93
53] * 4-Methyl-2-pentanone	11.680	58	879	9.42	pg	93
58] * Toluene	12.699	91	26235	71.29	pg	99
59] * 2-Hexanone	13.042	58	191	3.71	pg	# 60
62] * n-Butyl Acetate	13.785	56	371	10.42	pg	91
63] * n-Octane	13.893	85	238	4.33	pg	# 68

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Data Path : I:\MS21\DATA\2019_11\07\
 Data File : 11071905.D
 Acq On : 7 Nov 2019 11:08 am
 Operator : SM
 Sample : 110719_AC02015_24505
 Misc : LL+TICS (Sig #1); S31-09041909 (Sig #2)
 ALS Vial : 11 Sample Multiplier: 1

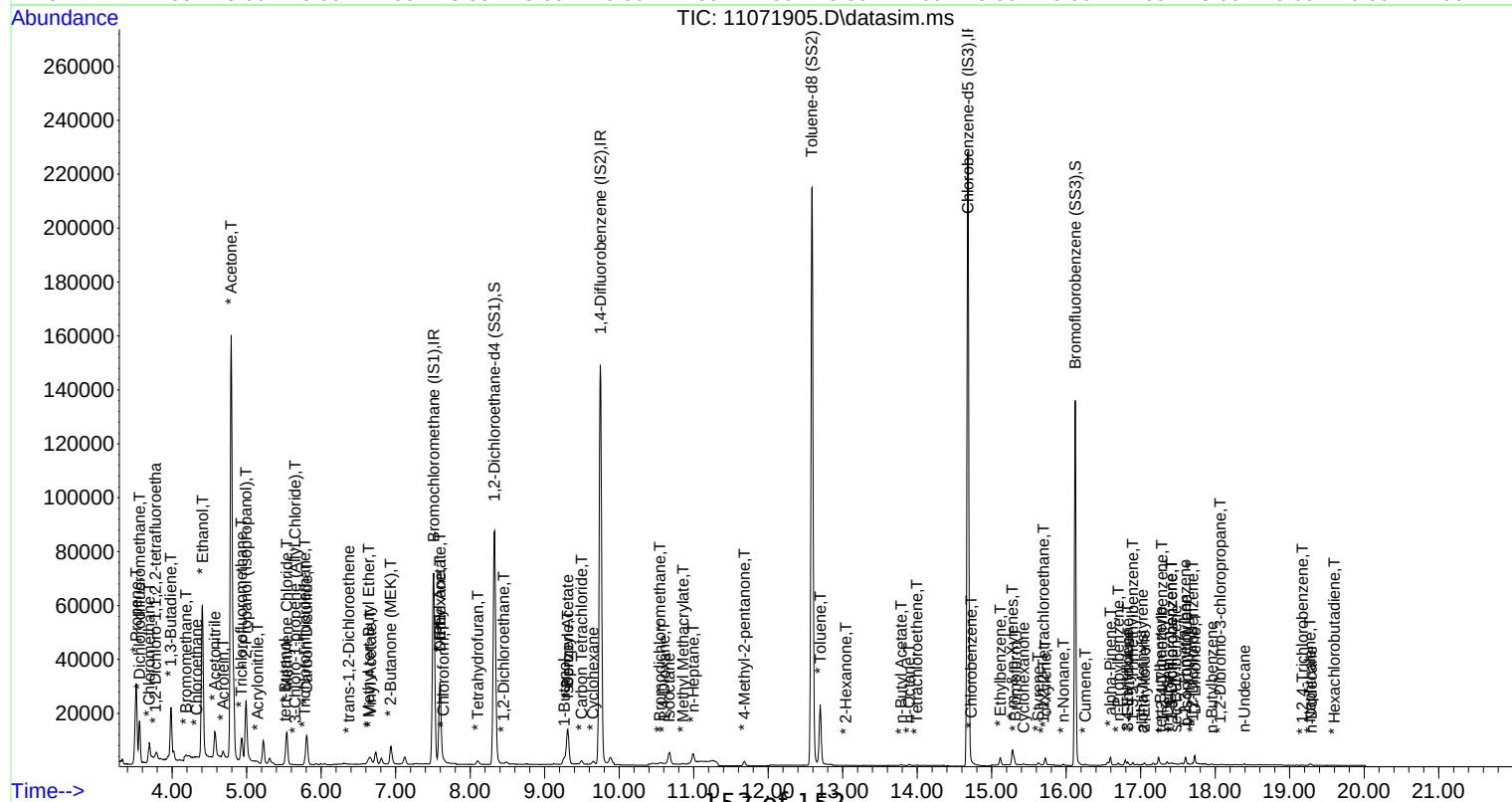
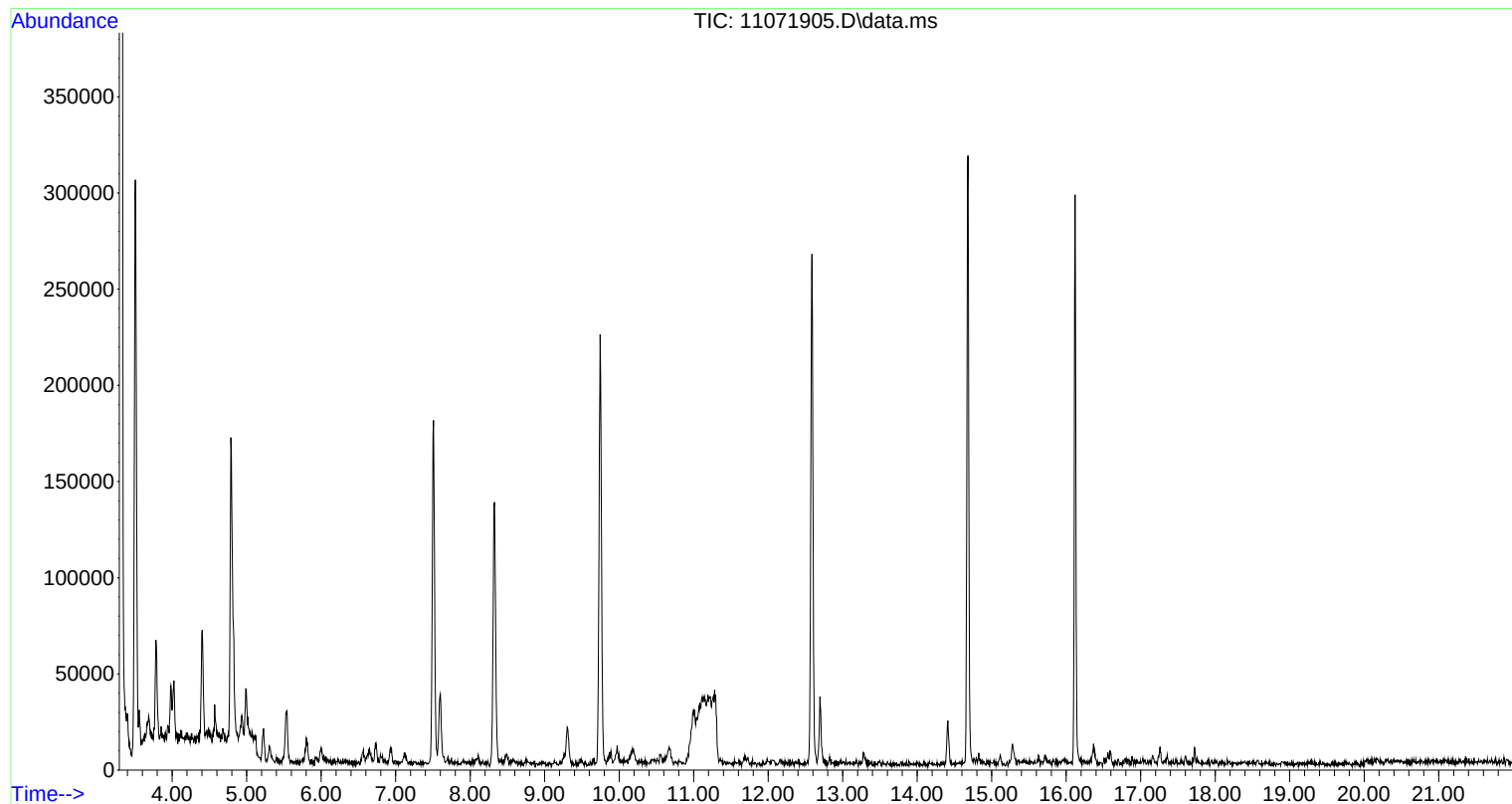
Quant Time: Nov 07 12:05:50 2019
 Quant Method : I:\MS21\Methods\F21091019.M
 Quant Title : EPA T0-15
 QLast Update : Wed Sep 11 08:54:53 2019
 Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
64]	* Tetrachloroethene	13.992	166	83	0.82	pg	# 29
65]	* Chlorobenzene	14.723	112	210	0.90	pg	92
66]	* Ethylbenzene	15.118	91	3176	10.12	pg	96
67]	* m- & p-Xylenes	15.277	91	7418	31.91	pg	97
68]	* Bromoform	15.317	173	60	1.10	pg	# 26
69]	Cyclohexanone	15.426	98	232	5.60	pg	95
70]	* Styrene	15.625	104	638	4.57	pg	93
71]	* o-Xylene	15.722	91	2602	10.78	pg	99
72]	* n-Nonane	15.961	57	408	4.40	pg	# 82
73]	* 1,1,2,2-Tetrachloroe...	15.694	83	141	0.80	pg	87
75]	* Cumene	16.256	105	375	1.18	pg	97
76]	* alpha-Pinene	16.595	93	1901	12.71	pg	91
77]	* n-Propylbenzene	16.702	91	818	2.51	pg	99
78]	3-Ethyltoluene	16.828	105	754	2.95	pg	99
79]	* 4-Ethyltoluene	16.828	105	748	3.25	pg	96
80]	* 1,3,5-Trimethylbenzene	16.891	105	581	2.54	pg	87
81]	alpha-Methylstyrene	17.022	118	68	0.68	pg	# 61
82]	2-Ethyltoluene	17.046	105	727	2.61	pg	95
83]	tert-Butylbenzene	17.267	134	233	4.28	pg	# 1
84]	* 1,2,4-Trimethylbenzene	17.283	105	74	0.34	pg	# 24
86]	* 1,3-Dichlorobenzene	17.413	146	410	3.40	pg	92
87]	* 1,4-Dichlorobenzene	17.413	146	410	4.10	pg	94
88]	n-Decane	17.359	85	184	5.62	pg	79
89]	sec-Butylbenzene	17.472	105	211	0.65	pg	# 65
90]	1,2,3-Trimethylbenzene	17.596	105	684	3.03	pg	# 81
91]	p-Isopropyltoluene	17.607	134	442	6.70	pg	92
92]	* 1,2-Dichlorobenzene	17.699	146	160	1.20	pg	# 74
93]	* D-Limonene	17.726	68	1395	17.28	pg	84
94]	n-Butylbenzene	17.955	134	203	4.53	pg	# 5
95]	* 1,2-Dibromo-3-chloro...	18.066	157	62	1.79	pg	# 66
96]	n-Undecane	18.392	85	131	8.45	pg	95
97]	* 1,2,4-Trichlorobenzene	19.172	180	150	5.67	pg	85
98]	* Naphthalene	19.271	128	571	8.31	pg	95
99]	n-Dodecane	19.289	85	85	27.89	pg	# 36
100]	* Hexachlorobutadiene	19.600	225	82	1.28	pg	# 45

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2019_11\07\
Data File : 11071905.D
Acq On : 7 Nov 2019 11:08 am
Operator : SM
Sample : 110719_AC02015_24505
Misc : LL+TICS (Sig #1); S31-09041909 (Sig #2)
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Nov 07 12:05:50 2019
Quant Method : I:\MS21\Methods\F21091019.M
Quant Title : EPA T0-15
QLast Update : Wed Sep 11 08:54:53 2019
Response via : Initial Calibration



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Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

LABORATORY REPORT

June 5, 2020

Todd Calhoun
Trinity Analysis & Development Corp.
1002 N. Eglin Pkwy.
Shalimar, FL 32579

RE: DDMT / 10A023.310

Dear Todd:

Enclosed are the results of the sample submitted to our laboratory on May 14, 2020. For your reference, this analysis has been assigned our service request number P2002631.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Hayden Akers at 4:32 pm, Jun 05, 2020

For Kate Kaneko
Project Manager



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: Trinity Analysis & Development Corp.
Project: DDMT / 10A023.310

Service Request No: P2002631

CASE NARRATIVE

The sample was received intact under chain of custody on May 14, 2020 and was stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample at the time of sample receipt.

Volatile Organic Compound Analysis

The sample was analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The container was cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory



2655 Park Center Dr., Suite A
 Simi Valley, CA 93065
 T: +1 805 526 7161
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-007
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946
Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.		

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Trinity Analysis & Development Corp.
Project ID: DDMT / 10A023.310

Service Request: P2002631

Date Received: 5/14/2020
Time Received: 10:00

TO-15 - VOC Cans

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)
ODSVE-EFF-Y9Q3	P2002631-001	Air	5/11/2020	10:10	SSC00073	-0.13	3.98

X



Air - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161

Page 1 of 1

Company Name & Address (Reporting Information) Trinity ADC 1002 Eglin Way Shelimer, FL 32579 Project Manager TODD CALHOUN				Requested Turnaround Time in Business Days (Surcharges) please circle 1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard				ALS Project No. 10026031		
Project Name DDCT				ALS Contact:						
Project Number 10A023.310				Analysis Method						
P.O. # / Billing Information PO# 8516										
Sampler (Print & Sign) Cody Miller										
Client Sample ID DDSE-EEF-4903		Laboratory ID Number 1	Date Collected 5/11/2010	Time Collected 1010	Canister ID (Bar code # - AC, SC, etc.) SS00073	Flow Controller ID (Bar code # - FC #) -	Canister Start Pressure "Hg -26.5	Canister End Pressure "Hg/psig -1	Sample Volume 6L	Comments e.g. Actual Preservative or specific instructions
Report Tier Levels - please select Tier I - Results (Default if not specified) _____ Tier II (Results + QC Summaries) _____ Tier III (Results + QC & Calibration Summaries) _____ Tier IV (Data Validation Package) 10% Surcharge _____ Relinquished by: (Signature) _____ Relinquished by: (Signature) _____										
Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT Received by: (Signature) _____ Received by: (Signature) _____ Date: 5/11/2010 Time: 1500 Date: 5/11/2010 Time: 1000 Cooler / Blank Temperature °C										

Client: <u>Trinity Analysis & Development Corp.</u>	Work order: <u>P2002631</u>
Project: <u>DDMT / 10A023.310</u>	
Sample(s) received on: 05/14/20	Date opened: 05/14/20 by: DENISE.POSADA

		Yes	No	N/A
1	Were sample containers properly marked with client sample ID?	☒	☐	☐
2	Did sample containers arrive in good condition?	☒	☐	☐
3	Were chain-of-custody papers used and filled out?	☒	☐	☐
4	Did sample container labels and/or tags agree with custody papers?	☒	☐	☐
5	Was sample volume received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper temperature (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were custody seals on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? _____ Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate preservation , according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are pH preserved?	☐	☐	☒
	Were VOA vials checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it?	☐	☐	☒
10	Tubes: Are the tubes capped and intact?	☐	☐	☒
11	Badges: Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

[illegible]

Explain any discrepancies: (include lab sample ID numbers):

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: ODSVE-EFF-Y9Q3

Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

ALS Sample ID: P2002631-001

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sampling Media: 6.0 L Silonite Canister

Test Notes:

Container ID: SSC00073

Date Collected: 5/11/20

Date Received: 5/14/20

Date Analyzed: 5/20/20

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -0.13

Final Pressure (psig): 3.98

Container Dilution Factor: 1.28

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	1.7	0.39	0.24	0.097	B
75-71-8	Dichlorodifluoromethane (CFC 12)	2.0	0.14	0.083	0.023	
74-87-3	Chloromethane	0.064	0.33	0.20	0.053	J
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.059	0.097	0.059	0.015	U
75-01-4	Vinyl Chloride	0.14	0.27	0.085	0.029	J
106-99-0	1,3-Butadiene	0.19	0.31	0.19	0.051	U
74-83-9	Bromomethane	0.056	0.18	0.056	0.024	U
75-00-3	Chloroethane	0.16	0.26	0.16	0.032	U
64-17-5	Ethanol	35	3.5	0.56	0.25	B
75-05-8	Acetonitrile	0.53	0.40	0.24	0.099	
107-02-8	Acrolein	0.73	0.56	0.17	0.084	
67-64-1	Acetone	11	2.9	1.5	0.65	
75-69-4	Trichlorofluoromethane	0.27	0.12	0.073	0.018	
67-63-0	2-Propanol (Isopropyl Alcohol)	2.8	1.1	0.33	0.11	
107-13-1	Acrylonitrile	0.19	0.31	0.19	0.065	U
75-35-4	1,1-Dichloroethene	0.50	0.17	0.055	0.024	
75-09-2	Methylene Chloride	0.078	0.20	0.12	0.055	J
107-05-1	3-Chloro-1-propene (Allyl Chloride)	0.070	0.22	0.070	0.029	U
76-13-1	Trichlorotrifluoroethane	3.7	0.090	0.028	0.013	
75-15-0	Carbon Disulfide	4.8	0.45	0.22	0.066	
156-60-5	trans-1,2-Dichloroethene	0.27	0.17	0.055	0.024	
75-34-3	1,1-Dichloroethane	0.26	0.17	0.10	0.025	
1634-04-4	Methyl tert-Butyl Ether	0.060	0.19	0.060	0.022	U
108-05-4	Vinyl Acetate	3.6	2.0	0.98	0.44	
78-93-3	2-Butanone (MEK)	0.55	0.48	0.14	0.048	

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

B = Analyte detected in both the sample and associated method blank.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: ODSVE-EFF-Y9Q3

Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

ALS Sample ID: P2002631-001

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sampling Media: 6.0 L Silonite Canister

Test Notes:

Container ID: SSC00073

Date Collected: 5/11/20

Date Received: 5/14/20

Date Analyzed: 5/20/20

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -0.13

Final Pressure (psig): 3.98

Container Dilution Factor: 1.28

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	26	0.17	0.055	0.024	
141-78-6	Ethyl Acetate	34	0.39	0.23	0.099	
110-54-3	n-Hexane	0.15	0.20	0.12	0.040	J
67-66-3	Chloroform	5.0	0.14	0.045	0.019	
109-99-9	Tetrahydrofuran (THF)	0.040	0.24	0.074	0.029	J
107-06-2	1,2-Dichloroethane	0.054	0.17	0.054	0.019	U
71-55-6	1,1,1-Trichloroethane	0.22	0.13	0.040	0.015	
71-43-2	Benzene	0.17	0.21	0.068	0.031	J
56-23-5	Carbon Tetrachloride	0.48	0.11	0.035	0.015	
110-82-7	Cyclohexane	0.092	0.41	0.13	0.056	J
78-87-5	1,2-Dichloropropane	0.047	0.15	0.047	0.018	U
75-27-4	Bromodichloromethane	0.032	0.10	0.032	0.015	U
79-01-6	Trichloroethene	22	0.13	0.041	0.017	
123-91-1	1,4-Dioxane	0.060	0.19	0.060	0.022	U
80-62-6	Methyl Methacrylate	0.20	0.34	0.20	0.059	U
142-82-5	n-Heptane	0.10	0.17	0.10	0.027	J
10061-01-5	cis-1,3-Dichloropropene	0.048	0.15	0.048	0.023	U
108-10-1	4-Methyl-2-pentanone	0.071	0.17	0.053	0.023	J
10061-02-6	trans-1,3-Dichloropropene	0.090	0.15	0.090	0.031	U
79-00-5	1,1,2-Trichloroethane	0.024	0.13	0.040	0.013	J
108-88-3	Toluene	1.9	0.18	0.058	0.022	
591-78-6	2-Hexanone	0.054	0.17	0.053	0.021	J
124-48-1	Dibromochloromethane	0.026	0.081	0.026	0.011	U
106-93-4	1,2-Dibromoethane	0.028	0.090	0.028	0.010	U
123-86-4	n-Butyl Acetate	0.089	0.15	0.046	0.020	J

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: ODSVE-EFF-Y9Q3
Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631
 ALS Sample ID: P2002631-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sampling Media: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00073

Date Collected: 5/11/20
Date Received: 5/14/20
Date Analyzed: 5/20/20
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -0.13

Final Pressure (psig): 3.98

Container Dilution Factor: 1.28

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	0.054	0.15	0.088	0.033	J
127-18-4	Tetrachloroethene	2.5	0.098	0.032	0.013	
108-90-7	Chlorobenzene	0.047	0.15	0.047	0.020	U
100-41-4	Ethylbenzene	0.045	0.16	0.050	0.022	J
179601-23-1	m,p-Xylenes	0.16	0.32	0.10	0.041	J
75-25-2	Bromoform	0.040	0.067	0.040	0.014	U
100-42-5	Styrene	0.038	0.16	0.096	0.026	J
95-47-6	o-Xylene	0.069	0.16	0.050	0.023	J
111-84-2	n-Nonane	0.078	0.13	0.078	0.022	U
79-34-5	1,1,2,2-Tetrachloroethane	0.19	0.10	0.032	0.014	
98-82-8	Cumene	0.044	0.14	0.044	0.020	U
80-56-8	alpha-Pinene	0.024	0.12	0.074	0.019	J
103-65-1	n-Propylbenzene	0.044	0.14	0.044	0.020	U
622-96-8	4-Ethyltoluene	0.083	0.14	0.083	0.022	U
108-67-8	1,3,5-Trimethylbenzene	0.031	0.14	0.044	0.020	J
95-63-6	1,2,4-Trimethylbenzene	0.12	0.14	0.044	0.019	J
100-44-7	Benzyl Chloride	0.079	0.27	0.079	0.030	U
541-73-1	1,3-Dichlorobenzene	0.036	0.12	0.036	0.017	U
106-46-7	1,4-Dichlorobenzene	0.068	0.12	0.068	0.017	U
95-50-1	1,2-Dichlorobenzene	0.036	0.12	0.036	0.017	U
5989-27-5	d-Limonene	0.046	0.12	0.074	0.025	J
96-12-8	1,2-Dibromo-3-chloropropane	0.042	0.070	0.042	0.013	U
120-82-1	1,2,4-Trichlorobenzene	0.055	0.093	0.055	0.022	U
91-20-3	Naphthalene	0.064	0.13	0.076	0.032	J
87-68-3	Hexachlorobutadiene	0.038	0.064	0.038	0.013	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.
 LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
 J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Method Blank

Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

ALS Sample ID: P200520-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Silonite Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 5/20/20

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.11	0.31	0.19	0.076	J
75-71-8	Dichlorodifluoromethane (CFC 12)	0.065	0.11	0.065	0.018	U
74-87-3	Chloromethane	0.16	0.26	0.16	0.042	U
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.046	0.076	0.046	0.012	U
75-01-4	Vinyl Chloride	0.067	0.21	0.067	0.022	U
106-99-0	1,3-Butadiene	0.14	0.24	0.14	0.040	U
74-83-9	Bromomethane	0.044	0.14	0.044	0.019	U
75-00-3	Chloroethane	0.12	0.20	0.12	0.025	U
64-17-5	Ethanol	0.27	2.8	0.44	0.20	J
75-05-8	Acetonitrile	0.19	0.32	0.19	0.077	U
107-02-8	Acrolein	0.14	0.44	0.14	0.065	U
67-64-1	Acetone	1.1	2.2	1.1	0.51	U
75-69-4	Trichlorofluoromethane	0.057	0.094	0.057	0.014	U
67-63-0	2-Propanol (Isopropyl Alcohol)	0.26	0.85	0.26	0.090	U
107-13-1	Acrylonitrile	0.15	0.24	0.15	0.051	U
75-35-4	1,1-Dichloroethene	0.043	0.14	0.043	0.019	U
75-09-2	Methylene Chloride	0.092	0.15	0.092	0.043	U
107-05-1	3-Chloro-1-propene (Allyl Chloride)	0.054	0.17	0.054	0.023	U
76-13-1	Trichlorotrifluoroethane	0.022	0.070	0.022	0.0099	U
75-15-0	Carbon Disulfide	0.17	0.35	0.17	0.051	U
156-60-5	trans-1,2-Dichloroethene	0.043	0.14	0.043	0.019	U
75-34-3	1,1-Dichloroethane	0.082	0.14	0.082	0.019	U
1634-04-4	Methyl tert-Butyl Ether	0.047	0.15	0.047	0.017	U
108-05-4	Vinyl Acetate	0.77	1.5	0.77	0.34	U
78-93-3	2-Butanone (MEK)	0.11	0.37	0.11	0.037	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Method Blank

Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

ALS Sample ID: P200520-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Silonite Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 5/20/20

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	0.043	0.13	0.043	0.019	U
141-78-6	Ethyl Acetate	0.18	0.31	0.18	0.078	U
110-54-3	n-Hexane	0.091	0.15	0.091	0.031	U
67-66-3	Chloroform	0.035	0.11	0.035	0.015	U
109-99-9	Tetrahydrofuran (THF)	0.058	0.19	0.058	0.023	U
107-06-2	1,2-Dichloroethane	0.042	0.13	0.042	0.015	U
71-55-6	1,1,1-Trichloroethane	0.031	0.099	0.031	0.012	U
71-43-2	Benzene	0.053	0.17	0.053	0.024	U
56-23-5	Carbon Tetrachloride	0.027	0.084	0.027	0.012	U
110-82-7	Cyclohexane	0.099	0.32	0.099	0.044	U
78-87-5	1,2-Dichloropropane	0.037	0.12	0.037	0.014	U
75-27-4	Bromodichloromethane	0.025	0.081	0.025	0.011	U
79-01-6	Trichloroethene	0.032	0.10	0.032	0.013	U
123-91-1	1,4-Dioxane	0.047	0.15	0.047	0.017	U
80-62-6	Methyl Methacrylate	0.16	0.27	0.16	0.046	U
142-82-5	n-Heptane	0.078	0.13	0.078	0.021	U
10061-01-5	cis-1,3-Dichloropropene	0.037	0.11	0.037	0.018	U
108-10-1	4-Methyl-2-pentanone	0.041	0.13	0.041	0.018	U
10061-02-6	trans-1,3-Dichloropropene	0.071	0.12	0.071	0.024	U
79-00-5	1,1,2-Trichloroethane	0.031	0.099	0.031	0.0099	U
108-88-3	Toluene	0.045	0.14	0.045	0.017	U
591-78-6	2-Hexanone	0.042	0.13	0.042	0.016	U
124-48-1	Dibromochloromethane	0.020	0.063	0.020	0.0082	U
106-93-4	1,2-Dibromoethane	0.022	0.070	0.022	0.0081	U
123-86-4	n-Butyl Acetate	0.036	0.12	0.036	0.015	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: Method Blank
Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631
 ALS Sample ID: P200520-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Simon Cao
Sampling Media: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 5/20/20
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	0.069	0.12	0.069	0.026	U
127-18-4	Tetrachloroethene	0.025	0.077	0.025	0.010	U
108-90-7	Chlorobenzene	0.037	0.12	0.037	0.015	U
100-41-4	Ethylbenzene	0.039	0.12	0.039	0.017	U
179601-23-1	m,p-Xylenes	0.078	0.25	0.078	0.032	U
75-25-2	Bromoform	0.031	0.052	0.031	0.011	U
100-42-5	Styrene	0.075	0.12	0.075	0.020	U
95-47-6	o-Xylene	0.039	0.12	0.039	0.018	U
111-84-2	n-Nonane	0.061	0.10	0.061	0.017	U
79-34-5	1,1,2,2-Tetrachloroethane	0.025	0.079	0.025	0.011	U
98-82-8	Cumene	0.035	0.11	0.035	0.016	U
80-56-8	alpha-Pinene	0.057	0.097	0.057	0.015	U
103-65-1	n-Propylbenzene	0.035	0.11	0.035	0.016	U
622-96-8	4-Ethyltoluene	0.065	0.11	0.065	0.017	U
108-67-8	1,3,5-Trimethylbenzene	0.035	0.11	0.035	0.016	U
95-63-6	1,2,4-Trimethylbenzene	0.035	0.11	0.035	0.015	U
100-44-7	Benzyl Chloride	0.062	0.21	0.062	0.023	U
541-73-1	1,3-Dichlorobenzene	0.028	0.090	0.028	0.013	U
106-46-7	1,4-Dichlorobenzene	0.053	0.090	0.053	0.014	U
95-50-1	1,2-Dichlorobenzene	0.028	0.090	0.028	0.013	U
5989-27-5	d-Limonene	0.057	0.097	0.057	0.020	U
96-12-8	1,2-Dibromo-3-chloropropane	0.033	0.055	0.033	0.010	U
120-82-1	1,2,4-Trichlorobenzene	0.043	0.073	0.043	0.018	U
91-20-3	Naphthalene	0.059	0.099	0.059	0.025	U
87-68-3	Hexachlorobutadiene	0.030	0.050	0.030	0.010	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.
 LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

Client: Trinity Analysis & Development Corp.
Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Simon Cao
Sampling Media: 6.0 L Silonite Canister(s)
Test Notes:

Date(s) Collected: 5/11/20
Date(s) Received: 5/14/20
Date(s) Analyzed: 5/20/20

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4	Toluene-d8	Bromofluorobenzene	Acceptance Limits	Data Qualifier
		Percent Recovered	Percent Recovered	Percent Recovered		
Method Blank	P200520-MB	95	101	103	70-130	
Lab Control Sample	P200520-LCS	96	100	106	70-130	
Duplicate Lab Control Sample	P200520-DLCS	97	99	104	70-130	
ODSVE-EFF-Y9Q3	P2002631-001	93	98	106	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Duplicate Lab Control Sample

Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

ALS Sample ID: P200520-DLCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Silonite Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 5/20/20

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount		Result		% Recovery		DOD		RPD	RPD	Data
		LCS / DLCS		LCS	DLCS	LCS	DLCS	Acceptance				
		ppbV		ppbV	ppbV			Limits			Limit	Qualifier
115-07-1	Propene	122		126	123	103	101	57-136		2	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	42.5		39.1	38.1	92	90	59-128		2	25	
74-87-3	Chloromethane	103		90.5	92.8	88	90	59-132		2	25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	29.5		25.3	24.5	86	83	63-121		4	25	
75-01-4	Vinyl Chloride	83.0		72.1	70.2	87	85	64-127		2	25	
106-99-0	1,3-Butadiene	95.9		85.1	83.0	89	87	66-134		2	25	
74-83-9	Bromomethane	54.6		48.2	47.7	88	87	63-134		1	25	
75-00-3	Chloroethane	81.1		73.0	72.0	90	89	63-127		1	25	
64-17-5	Ethanol	563		514	521	91	93	59-125		2	25	
75-05-8	Acetonitrile	128		115	118	90	92	63-132		2	25	
107-02-8	Acrolein	89.9		82.9	83.7	92	93	62-126		1	25	
67-64-1	Acetone	450		434	419	96	93	58-128		3	25	
75-69-4	Trichlorofluoromethane	37.7		34.3	33.5	91	89	62-126		2	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	172		164	167	95	97	52-125		2	25	
107-13-1	Acrylonitrile	97.7		92.1	93.7	94	96	71-137		2	25	
75-35-4	1,1-Dichloroethene	54.0		50.7	50.0	94	93	61-133		1	25	
75-09-2	Methylene Chloride	60.5		55.4	54.9	92	91	62-115		1	25	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	68.4		64.9	65.5	95	96	71-131		1	25	
76-13-1	Trichlorotrifluoroethane	28.2		27.0	26.5	96	94	66-126		2	25	
75-15-0	Carbon Disulfide	68.1		62.9	62.1	92	91	57-134		1	25	
156-60-5	trans-1,2-Dichloroethene	54.0		50.1	49.5	93	92	67-124		1	25	
75-34-3	1,1-Dichloroethane	52.4		48.1	47.6	92	91	68-126		1	25	
1634-04-4	Methyl tert-Butyl Ether	59.4		51.1	50.5	86	85	66-126		1	25	
108-05-4	Vinyl Acetate	303		292	285	96	94	56-139		2	25	
78-93-3	2-Butanone (MEK)	71.9		69.5	69.8	97	97	67-130		0	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Duplicate Lab Control Sample

Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

ALS Sample ID: P200520-DLCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Silonite Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 5/20/20

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		DOD	RPD	RPD	Data
		LCS / DLCS ppbV	LCS ppbV	DLCS ppbV	LCS	DLCS	Acceptance Limits			
156-59-2	cis-1,2-Dichloroethene	53.5	50.0	49.7	93	93	70-121	0	25	
141-78-6	Ethyl Acetate	120	123	120	103	100	65-128	3	25	
110-54-3	n-Hexane	61.3	60.8	59.0	99	96	63-120	3	25	
67-66-3	Chloroform	43.8	41.2	40.6	94	93	68-123	1	25	
109-99-9	Tetrahydrofuran (THF)	74.6	67.8	67.4	91	90	64-123	1	25	
107-06-2	1,2-Dichloroethane	52.9	48.2	47.3	91	89	65-128	2	25	
71-55-6	1,1,1-Trichloroethane	39.2	36.6	36.3	93	93	68-125	0	25	
71-43-2	Benzene	65.8	62.6	61.4	95	93	69-119	2	25	
56-23-5	Carbon Tetrachloride	33.1	31.2	30.8	94	93	68-132	1	25	
110-82-7	Cyclohexane	123	120	115	98	93	70-117	5	25	
78-87-5	1,2-Dichloropropane	46.3	44.8	44.3	97	96	69-123	1	25	
75-27-4	Bromodichloromethane	32.6	30.6	30.0	94	92	72-128	2	25	
79-01-6	Trichloroethene	40.2	38.1	37.1	95	92	71-123	3	25	
123-91-1	1,4-Dioxane	60.0	56.8	56.2	95	94	71-122	1	25	
80-62-6	Methyl Methacrylate	105	105	102	100	97	70-128	3	25	
142-82-5	n-Heptane	52.2	50.3	49.7	96	95	69-123	1	25	
10061-01-5	cis-1,3-Dichloropropene	47.2	47.7	47.0	101	100	70-128	1	25	
108-10-1	4-Methyl-2-pentanone	51.8	51.6	52.1	100	101	67-130	1	25	
10061-02-6	trans-1,3-Dichloropropene	46.7	48.1	47.6	103	102	75-133	1	25	
79-00-5	1,1,2-Trichloroethane	39.2	37.8	37.3	96	95	73-119	1	25	
108-88-3	Toluene	56.3	56.0	54.9	99	98	66-119	1	25	
591-78-6	2-Hexanone	52.7	56.2	55.4	107	105	62-128	2	25	
124-48-1	Dibromochloromethane	25.1	25.9	25.4	103	101	70-130	2	25	
106-93-4	1,2-Dibromoethane	27.9	28.2	27.6	101	99	74-122	2	25	
123-86-4	n-Butyl Acetate	45.9	49.9	49.0	109	107	65-134	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Duplicate Lab Control Sample

Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

ALS Sample ID: P200520-DLCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Silonite Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 5/20/20

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		DOD	RPD	RPD	Data
		LCS / DLCS ppbV	LCS ppbV	DLCS ppbV	LCS	DLCS	Acceptance Limits			
111-65-9	n-Octane	46.3	47.7	46.5	103	100	69-121	3	25	
127-18-4	Tetrachloroethene	30.7	31.3	30.4	102	99	66-124	3	25	
108-90-7	Chlorobenzene	46.5	45.1	44.1	97	95	70-119	2	25	
100-41-4	Ethylbenzene	48.8	51.5	49.9	106	102	70-124	4	25	
179601-23-1	m,p-Xylenes	98.1	103	99.0	105	101	61-134	4	25	
75-25-2	Bromoform	20.7	22.0	21.2	106	102	66-139	4	25	
100-42-5	Styrene	49.8	55.8	53.2	112	107	73-127	5	25	
95-47-6	o-Xylene	49.3	50.4	47.7	102	97	67-125	5	25	
111-84-2	n-Nonane	40.8	44.2	42.1	108	103	63-128	5	25	
79-34-5	1,1,2,2-Tetrachloroethane	31.2	33.4	32.0	107	103	65-127	4	25	
98-82-8	Cumene	43.5	45.5	43.4	105	100	68-124	5	25	
80-56-8	alpha-Pinene	38.1	39.4	37.4	103	98	62-136	5	25	
103-65-1	n-Propylbenzene	43.6	47.3	45.1	108	103	69-123	5	25	
622-96-8	4-Ethyltoluene	42.7	45.7	44.3	107	104	67-129	3	25	
108-67-8	1,3,5-Trimethylbenzene	43.1	46.0	44.0	107	102	67-130	5	25	
95-63-6	1,2,4-Trimethylbenzene	43.1	49.1	46.9	114	109	66-132	4	25	
100-44-7	Benzyl Chloride	41.3	43.0	41.4	104	100	50-147	4	25	
541-73-1	1,3-Dichlorobenzene	35.6	39.1	37.2	110	104	65-130	6	25	
106-46-7	1,4-Dichlorobenzene	35.6	41.1	39.0	115	110	60-131	4	25	
95-50-1	1,2-Dichlorobenzene	35.6	40.0	38.3	112	108	63-129	4	25	
5989-27-5	d-Limonene	38.1	40.0	38.7	105	102	65-136	3	25	
96-12-8	1,2-Dibromo-3-chloropropane	22.1	24.6	23.8	111	108	73-133	3	25	
120-82-1	1,2,4-Trichlorobenzene	29.1	35.4	34.0	122	117	55-142	4	25	
91-20-3	Naphthalene	40.5	52.2	50.3	129	124	57-138	4	25	
87-68-3	Hexachlorobutadiene	20.1	21.6	20.7	107	103	56-138	4	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Trinity Analysis & Development Corp.
Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

Method Blank Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Simon Cao
Sampling Media: 6.0 L Silonite Canister(s)
Test Notes:

Lab File ID: 05202004.D
Date Analyzed: 5/20/20
Time Analyzed: 05:40

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P200520-LCS	05202005.D	06:14
Duplicate Lab Control Sample	P200520-DLCS	05202006.D	06:47
ODSVE-EFF-Y9Q3	P2002631-001	05202031.D	22:22

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Trinity Analysis & Development Corp.
Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

Internal Standard Area and RT Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Simon Cao
Sampling Media: 6.0 L Silonite Canister(s)
Test Notes:

Lab File ID: 05202002.D
Date Analyzed: 5/20/20
Time Analyzed: 04:33

	IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
	AREA	#	RT	#	AREA	#
24 Hour Standard	279375	11.15	1207159	13.27	564170	17.58
Upper Limit	391125	11.48	1690023	13.60	789838	17.91
Lower Limit	167625	10.82	724295	12.94	338502	17.25

Client Sample ID						
01	Method Blank	257545	11.13	1122958	13.26	508958
02	Lab Control Sample	266609	11.15	1166509	13.28	536197
03	Duplicate Lab Control Sample	280698	11.16	1219953	13.28	563274
04	ODSVE-EFF-Y9Q3	291852	11.14	1243532	13.27	588882
05						
06						
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

IS1 (BCM) = Bromochloromethane

IS2 (DFB) = 1,4-Difluorobenzene

IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area

AREA LOWER LIMIT = 60% of internal standard area

RT UPPER LIMIT = 0.33 minutes of internal standard RT

RT LOWER LIMIT = 0.33 minutes of internal standard RT

Column used to flag values outside QC limits with an I.

I = Internal standard not within the specified limits.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: ODSVE-EFF-Y9Q3

Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

ALS Sample ID: P2002631-001

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sampling Media: 6.0 L Silonite Canister

Test Notes:

Container ID: SSC00073

Date Collected: 5/11/20

Date Received: 5/14/20

Date Analyzed: 5/20/20

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -0.13

Final Pressure (psig): 3.98

Container Dilution Factor: 1.28

CAS #	Compound	Result µg/m ³	LOQ µg/m ³	LOD µg/m ³	MDL µg/m ³	Data Qualifier
115-07-1	Propene	2.8	0.68	0.41	0.17	B
75-71-8	Dichlorodifluoromethane (CFC 12)	10	0.68	0.41	0.11	
74-87-3	Chloromethane	0.13	0.68	0.41	0.11	J
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.41	0.68	0.41	0.11	U
75-01-4	Vinyl Chloride	0.36	0.69	0.22	0.073	J
106-99-0	1,3-Butadiene	0.41	0.68	0.41	0.11	U
74-83-9	Bromomethane	0.22	0.69	0.22	0.095	U
75-00-3	Chloroethane	0.41	0.69	0.41	0.084	U
64-17-5	Ethanol	67	6.7	1.1	0.47	B
75-05-8	Acetonitrile	0.89	0.68	0.41	0.17	
107-02-8	Acrolein	1.7	1.3	0.40	0.19	
67-64-1	Acetone	25	6.8	3.5	1.5	
75-69-4	Trichlorofluoromethane	1.5	0.68	0.41	0.10	
67-63-0	2-Propanol (Isopropyl Alcohol)	6.9	2.7	0.81	0.28	
107-13-1	Acrylonitrile	0.41	0.68	0.41	0.14	U
75-35-4	1,1-Dichloroethene	2.0	0.69	0.22	0.095	
75-09-2	Methylene Chloride	0.27	0.68	0.41	0.19	J
107-05-1	3-Chloro-1-propene (Allyl Chloride)	0.22	0.69	0.22	0.092	U
76-13-1	Trichlorotrifluoroethane	28	0.69	0.22	0.097	
75-15-0	Carbon Disulfide	15	1.4	0.69	0.20	
156-60-5	trans-1,2-Dichloroethene	1.1	0.69	0.22	0.095	
75-34-3	1,1-Dichloroethane	1.1	0.70	0.42	0.10	
1634-04-4	Methyl tert-Butyl Ether	0.22	0.69	0.22	0.081	U
108-05-4	Vinyl Acetate	13	6.9	3.5	1.5	
78-93-3	2-Butanone (MEK)	1.6	1.4	0.41	0.14	

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

B = Analyte detected in both the sample and associated method blank.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: ODSVE-EFF-Y9Q3

Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

ALS Sample ID: P2002631-001

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sampling Media: 6.0 L Silonite Canister

Test Notes:

Container ID: SSC00073

Date Collected: 5/11/20

Date Received: 5/14/20

Date Analyzed: 5/20/20

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -0.13

Final Pressure (psig): 3.98

Container Dilution Factor: 1.28

CAS #	Compound	Result µg/m ³	LOQ µg/m ³	LOD µg/m ³	MDL µg/m ³	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	100	0.68	0.22	0.096	
141-78-6	Ethyl Acetate	120	1.4	0.83	0.36	
110-54-3	n-Hexane	0.52	0.69	0.41	0.14	J
67-66-3	Chloroform	24	0.69	0.22	0.091	
109-99-9	Tetrahydrofuran (THF)	0.12	0.70	0.22	0.086	J
107-06-2	1,2-Dichloroethane	0.22	0.69	0.22	0.076	U
71-55-6	1,1,1-Trichloroethane	1.2	0.69	0.22	0.084	
71-43-2	Benzene	0.53	0.68	0.22	0.099	J
56-23-5	Carbon Tetrachloride	3.0	0.68	0.22	0.095	
110-82-7	Cyclohexane	0.31	1.4	0.44	0.19	J
78-87-5	1,2-Dichloropropane	0.22	0.69	0.22	0.084	U
75-27-4	Bromodichloromethane	0.22	0.69	0.22	0.099	U
79-01-6	Trichloroethene	120	0.69	0.22	0.092	
123-91-1	1,4-Dioxane	0.22	0.69	0.22	0.081	U
80-62-6	Methyl Methacrylate	0.83	1.4	0.83	0.24	U
142-82-5	n-Heptane	0.42	0.69	0.41	0.11	J
10061-01-5	cis-1,3-Dichloropropene	0.22	0.67	0.22	0.11	U
108-10-1	4-Methyl-2-pentanone	0.29	0.68	0.22	0.093	J
10061-02-6	trans-1,3-Dichloropropene	0.41	0.68	0.41	0.14	U
79-00-5	1,1,2-Trichloroethane	0.13	0.69	0.22	0.069	J
108-88-3	Toluene	7.0	0.69	0.22	0.083	
591-78-6	2-Hexanone	0.22	0.69	0.22	0.084	J
124-48-1	Dibromochloromethane	0.22	0.69	0.22	0.090	U
106-93-4	1,2-Dibromoethane	0.22	0.69	0.22	0.079	U
123-86-4	n-Butyl Acetate	0.42	0.70	0.22	0.093	J

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: ODSVE-EFF-Y9Q3
Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631
 ALS Sample ID: P2002631-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sampling Media: 6.0 L Silonite Canister
Test Notes:
Container ID: SSC00073

Date Collected: 5/11/20
Date Received: 5/14/20
Date Analyzed: 5/20/20
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -0.13

Final Pressure (psig): 3.98

Container Dilution Factor: 1.28

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
111-65-9	n-Octane	0.25	0.69	0.41	0.15	J
127-18-4	Tetrachloroethene	17	0.67	0.22	0.088	
108-90-7	Chlorobenzene	0.22	0.69	0.22	0.091	U
100-41-4	Ethylbenzene	0.20	0.69	0.22	0.096	J
179601-23-1	m,p-Xylenes	0.71	1.4	0.44	0.18	J
75-25-2	Bromoform	0.41	0.69	0.41	0.14	U
100-42-5	Styrene	0.16	0.68	0.41	0.11	J
95-47-6	o-Xylene	0.30	0.69	0.22	0.099	J
111-84-2	n-Nonane	0.41	0.69	0.41	0.11	U
79-34-5	1,1,2,2-Tetrachloroethane	1.3	0.69	0.22	0.095	
98-82-8	Cumene	0.22	0.69	0.22	0.099	U
80-56-8	alpha-Pinene	0.13	0.69	0.41	0.10	J
103-65-1	n-Propylbenzene	0.22	0.69	0.22	0.099	U
622-96-8	4-Ethyltoluene	0.41	0.69	0.41	0.11	U
108-67-8	1,3,5-Trimethylbenzene	0.15	0.68	0.22	0.099	J
95-63-6	1,2,4-Trimethylbenzene	0.57	0.69	0.22	0.095	J
100-44-7	Benzyl Chloride	0.41	1.4	0.41	0.15	U
541-73-1	1,3-Dichlorobenzene	0.22	0.69	0.22	0.10	U
106-46-7	1,4-Dichlorobenzene	0.41	0.69	0.41	0.10	U
95-50-1	1,2-Dichlorobenzene	0.22	0.69	0.22	0.10	U
5989-27-5	d-Limonene	0.26	0.69	0.41	0.14	J
96-12-8	1,2-Dibromo-3-chloropropane	0.41	0.68	0.41	0.13	U
120-82-1	1,2,4-Trichlorobenzene	0.41	0.69	0.41	0.17	U
91-20-3	Naphthalene	0.34	0.67	0.40	0.17	J
87-68-3	Hexachlorobutadiene	0.41	0.68	0.41	0.14	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.
 LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
 J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Method Blank

Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

ALS Sample ID: P200520-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Silonite Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 5/20/20

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	LOQ µg/m ³	LOD µg/m ³	MDL µg/m ³	Data Qualifier
115-07-1	Propene	0.19	0.53	0.32	0.13	J
75-71-8	Dichlorodifluoromethane (CFC 12)	0.32	0.53	0.32	0.087	U
74-87-3	Chloromethane	0.32	0.53	0.32	0.086	U
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.32	0.53	0.32	0.084	U
75-01-4	Vinyl Chloride	0.17	0.54	0.17	0.057	U
106-99-0	1,3-Butadiene	0.32	0.53	0.32	0.088	U
74-83-9	Bromomethane	0.17	0.54	0.17	0.074	U
75-00-3	Chloroethane	0.32	0.54	0.32	0.066	U
64-17-5	Ethanol	0.51	5.2	0.83	0.37	J
75-05-8	Acetonitrile	0.32	0.53	0.32	0.13	U
107-02-8	Acrolein	0.31	1.0	0.31	0.15	U
67-64-1	Acetone	2.7	5.3	2.7	1.2	U
75-69-4	Trichlorofluoromethane	0.32	0.53	0.32	0.081	U
67-63-0	2-Propanol (Isopropyl Alcohol)	0.63	2.1	0.63	0.22	U
107-13-1	Acrylonitrile	0.32	0.53	0.32	0.11	U
75-35-4	1,1-Dichloroethene	0.17	0.54	0.17	0.074	U
75-09-2	Methylene Chloride	0.32	0.53	0.32	0.15	U
107-05-1	3-Chloro-1-propene (Allyl Chloride)	0.17	0.54	0.17	0.072	U
76-13-1	Trichlorotrifluoroethane	0.17	0.54	0.17	0.076	U
75-15-0	Carbon Disulfide	0.54	1.1	0.54	0.16	U
156-60-5	trans-1,2-Dichloroethene	0.17	0.54	0.17	0.074	U
75-34-3	1,1-Dichloroethane	0.33	0.55	0.33	0.078	U
1634-04-4	Methyl tert-Butyl Ether	0.17	0.54	0.17	0.063	U
108-05-4	Vinyl Acetate	2.7	5.4	2.7	1.2	U
78-93-3	2-Butanone (MEK)	0.32	1.1	0.32	0.11	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.
LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Method Blank

Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

ALS Sample ID: P200520-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Silonite Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 5/20/20

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	LOQ µg/m³	LOD µg/m³	MDL µg/m³	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	0.17	0.53	0.17	0.075	U
141-78-6	Ethyl Acetate	0.65	1.1	0.65	0.28	U
110-54-3	n-Hexane	0.32	0.54	0.32	0.11	U
67-66-3	Chloroform	0.17	0.54	0.17	0.071	U
109-99-9	Tetrahydrofuran (THF)	0.17	0.55	0.17	0.067	U
107-06-2	1,2-Dichloroethane	0.17	0.54	0.17	0.059	U
71-55-6	1,1,1-Trichloroethane	0.17	0.54	0.17	0.066	U
71-43-2	Benzene	0.17	0.53	0.17	0.077	U
56-23-5	Carbon Tetrachloride	0.17	0.53	0.17	0.074	U
110-82-7	Cyclohexane	0.34	1.1	0.34	0.15	U
78-87-5	1,2-Dichloropropane	0.17	0.54	0.17	0.066	U
75-27-4	Bromodichloromethane	0.17	0.54	0.17	0.077	U
79-01-6	Trichloroethene	0.17	0.54	0.17	0.072	U
123-91-1	1,4-Dioxane	0.17	0.54	0.17	0.063	U
80-62-6	Methyl Methacrylate	0.65	1.1	0.65	0.19	U
142-82-5	n-Heptane	0.32	0.54	0.32	0.085	U
10061-01-5	cis-1,3-Dichloropropene	0.17	0.52	0.17	0.083	U
108-10-1	4-Methyl-2-pentanone	0.17	0.53	0.17	0.073	U
10061-02-6	trans-1,3-Dichloropropene	0.32	0.53	0.32	0.11	U
79-00-5	1,1,2-Trichloroethane	0.17	0.54	0.17	0.054	U
108-88-3	Toluene	0.17	0.54	0.17	0.065	U
591-78-6	2-Hexanone	0.17	0.54	0.17	0.066	U
124-48-1	Dibromochloromethane	0.17	0.54	0.17	0.070	U
106-93-4	1,2-Dibromoethane	0.17	0.54	0.17	0.062	U
123-86-4	n-Butyl Acetate	0.17	0.55	0.17	0.073	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: Method Blank
Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631
 ALS Sample ID: P200520-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Simon Cao
Sampling Media: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 5/20/20
Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	LOQ µg/m ³	LOD µg/m ³	MDL µg/m ³	Data Qualifier
111-65-9	n-Octane	0.32	0.54	0.32	0.12	U
127-18-4	Tetrachloroethene	0.17	0.52	0.17	0.069	U
108-90-7	Chlorobenzene	0.17	0.54	0.17	0.071	U
100-41-4	Ethylbenzene	0.17	0.54	0.17	0.075	U
179601-23-1	m,p-Xylenes	0.34	1.1	0.34	0.14	U
75-25-2	Bromoform	0.32	0.54	0.32	0.11	U
100-42-5	Styrene	0.32	0.53	0.32	0.086	U
95-47-6	o-Xylene	0.17	0.54	0.17	0.077	U
111-84-2	n-Nonane	0.32	0.54	0.32	0.089	U
79-34-5	1,1,2,2-Tetrachloroethane	0.17	0.54	0.17	0.074	U
98-82-8	Cumene	0.17	0.54	0.17	0.077	U
80-56-8	alpha-Pinene	0.32	0.54	0.32	0.082	U
103-65-1	n-Propylbenzene	0.17	0.54	0.17	0.077	U
622-96-8	4-Ethyltoluene	0.32	0.54	0.32	0.085	U
108-67-8	1,3,5-Trimethylbenzene	0.17	0.53	0.17	0.077	U
95-63-6	1,2,4-Trimethylbenzene	0.17	0.54	0.17	0.074	U
100-44-7	Benzyl Chloride	0.32	1.1	0.32	0.12	U
541-73-1	1,3-Dichlorobenzene	0.17	0.54	0.17	0.080	U
106-46-7	1,4-Dichlorobenzene	0.32	0.54	0.32	0.082	U
95-50-1	1,2-Dichlorobenzene	0.17	0.54	0.17	0.079	U
5989-27-5	d-Limonene	0.32	0.54	0.32	0.11	U
96-12-8	1,2-Dibromo-3-chloropropane	0.32	0.53	0.32	0.10	U
120-82-1	1,2,4-Trichlorobenzene	0.32	0.54	0.32	0.13	U
91-20-3	Naphthalene	0.31	0.52	0.31	0.13	U
87-68-3	Hexachlorobutadiene	0.32	0.53	0.32	0.11	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.
 LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

Client: Trinity Analysis & Development Corp.
Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Simon Cao
Sampling Media: 6.0 L Silonite Canister(s)
Test Notes:

Date(s) Collected: 5/11/20
Date(s) Received: 5/14/20
Date(s) Analyzed: 5/20/20

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4	Toluene-d8	Bromofluorobenzene	Acceptance Limits	Data Qualifier
		Percent Recovered	Percent Recovered	Percent Recovered		
Method Blank	P200520-MB	95	101	103	70-130	
Lab Control Sample	P200520-LCS	96	100	106	70-130	
Duplicate Lab Control Sample	P200520-DLCS	97	99	104	70-130	
ODSVE-EFF-Y9Q3	P2002631-001	94	97	106	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Duplicate Lab Control Sample

Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

ALS Sample ID: P200520-DLCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Silonite Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 5/20/20

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		DOD	RPD	RPD	Data
		LCS / DLCS µg/m³	LCS µg/m³	DLCS µg/m³	LCS	DLCS	Acceptance Limits			
115-07-1	Propene	210	216	212	103	101	57-136	2	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	193	188	92	90	59-128	2	25	
74-87-3	Chloromethane	212	187	192	88	91	59-132	3	25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	206	177	171	86	83	63-121	4	25	
75-01-4	Vinyl Chloride	212	184	179	87	84	64-127	4	25	
106-99-0	1,3-Butadiene	212	188	184	89	87	66-134	2	25	
74-83-9	Bromomethane	212	187	185	88	87	63-134	1	25	
75-00-3	Chloroethane	214	192	190	90	89	63-127	1	25	
64-17-5	Ethanol	1,060	967	980	91	92	59-125	1	25	
75-05-8	Acetonitrile	214	193	198	90	93	63-132	3	25	
107-02-8	Acrolein	206	190	192	92	93	62-126	1	25	
67-64-1	Acetone	1,070	1030	996	96	93	58-128	3	25	
75-69-4	Trichlorofluoromethane	212	193	188	91	89	62-126	2	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	422	402	410	95	97	52-125	2	25	
107-13-1	Acrylonitrile	212	200	203	94	96	71-137	2	25	
75-35-4	1,1-Dichloroethene	214	201	198	94	93	61-133	1	25	
75-09-2	Methylene Chloride	210	192	191	91	91	62-115	0	25	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	214	203	205	95	96	71-131	1	25	
76-13-1	Trichlorotrifluoroethane	216	207	203	96	94	66-126	2	25	
75-15-0	Carbon Disulfide	212	196	193	92	91	57-134	1	25	
156-60-5	trans-1,2-Dichloroethene	214	199	196	93	92	67-124	1	25	
75-34-3	1,1-Dichloroethane	212	194	192	92	91	68-126	1	25	
1634-04-4	Methyl tert-Butyl Ether	214	184	182	86	85	66-126	1	25	
108-05-4	Vinyl Acetate	1,070	1030	1000	96	93	56-139	3	25	
78-93-3	2-Butanone (MEK)	212	205	206	97	97	67-130	0	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Duplicate Lab Control Sample

Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

ALS Sample ID: P200520-DLCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Silonite Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 5/20/20

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		DOD	RPD	RPD	Data
		LCS / DLCS µg/m³	LCS µg/m³	DLCS µg/m³	LCS	DLCS	Acceptance Limits			
156-59-2	cis-1,2-Dichloroethene	212	198	197	93	93	70-121	0	25	
141-78-6	Ethyl Acetate	432	445	432	103	100	65-128	3	25	
110-54-3	n-Hexane	216	214	208	99	96	63-120	3	25	
67-66-3	Chloroform	214	201	198	94	93	68-123	1	25	
109-99-9	Tetrahydrofuran (THF)	220	200	199	91	90	64-123	1	25	
107-06-2	1,2-Dichloroethane	214	195	191	91	89	65-128	2	25	
71-55-6	1,1,1-Trichloroethane	214	200	198	93	93	68-125	0	25	
71-43-2	Benzene	210	200	196	95	93	69-119	2	25	
56-23-5	Carbon Tetrachloride	208	196	193	94	93	68-132	1	25	
110-82-7	Cyclohexane	422	414	397	98	94	70-117	4	25	
78-87-5	1,2-Dichloropropane	214	207	204	97	95	69-123	2	25	
75-27-4	Bromodichloromethane	218	205	201	94	92	72-128	2	25	
79-01-6	Trichloroethene	216	204	200	94	93	71-123	1	25	
123-91-1	1,4-Dioxane	216	205	202	95	94	71-122	1	25	
80-62-6	Methyl Methacrylate	430	431	418	100	97	70-128	3	25	
142-82-5	n-Heptane	214	206	203	96	95	69-123	1	25	
10061-01-5	cis-1,3-Dichloropropene	214	216	213	101	100	70-128	1	25	
108-10-1	4-Methyl-2-pentanone	212	212	213	100	100	67-130	0	25	
10061-02-6	trans-1,3-Dichloropropene	212	218	216	103	102	75-133	1	25	
79-00-5	1,1,2-Trichloroethane	214	206	203	96	95	73-119	1	25	
108-88-3	Toluene	212	211	207	100	98	66-119	2	25	
591-78-6	2-Hexanone	216	230	227	106	105	62-128	0.9	25	
124-48-1	Dibromochloromethane	214	221	216	103	101	70-130	2	25	
106-93-4	1,2-Dibromoethane	214	216	212	101	99	74-122	2	25	
123-86-4	n-Butyl Acetate	218	237	233	109	107	65-134	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Duplicate Lab Control Sample

Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

ALS Sample ID: P200520-DLCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Simon Cao

Sampling Media: 6.0 L Silonite Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 5/20/20

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		DOD	RPD	RPD	Data
		LCS / DLCS µg/m³	LCS µg/m³	DLCS µg/m³	LCS	DLCS	Acceptance Limits			
111-65-9	n-Octane	216	223	217	103	100	69-121	3	25	
127-18-4	Tetrachloroethene	208	212	206	102	99	66-124	3	25	
108-90-7	Chlorobenzene	214	207	203	97	95	70-119	2	25	
100-41-4	Ethylbenzene	212	224	217	106	102	70-124	4	25	
179601-23-1	m,p-Xylenes	426	448	430	105	101	61-134	4	25	
75-25-2	Bromoform	214	228	219	107	102	66-139	5	25	
100-42-5	Styrene	212	237	227	112	107	73-127	5	25	
95-47-6	o-Xylene	214	219	207	102	97	67-125	5	25	
111-84-2	n-Nonane	214	232	221	108	103	63-128	5	25	
79-34-5	1,1,2,2-Tetrachloroethane	214	229	220	107	103	65-127	4	25	
98-82-8	Cumene	214	223	213	104	100	68-124	4	25	
80-56-8	alpha-Pinene	212	219	208	103	98	62-136	5	25	
103-65-1	n-Propylbenzene	214	233	221	109	103	69-123	6	25	
622-96-8	4-Ethyltoluene	210	225	217	107	103	67-129	4	25	
108-67-8	1,3,5-Trimethylbenzene	212	226	216	107	102	67-130	5	25	
95-63-6	1,2,4-Trimethylbenzene	212	241	231	114	109	66-132	4	25	
100-44-7	Benzyl Chloride	214	222	214	104	100	50-147	4	25	
541-73-1	1,3-Dichlorobenzene	214	235	223	110	104	65-130	6	25	
106-46-7	1,4-Dichlorobenzene	214	247	235	115	110	60-131	4	25	
95-50-1	1,2-Dichlorobenzene	214	240	230	112	107	63-129	5	25	
5989-27-5	d-Limonene	212	223	215	105	101	65-136	4	25	
96-12-8	1,2-Dibromo-3-chloropropane	214	238	230	111	107	73-133	4	25	
120-82-1	1,2,4-Trichlorobenzene	216	263	252	122	117	55-142	4	25	
91-20-3	Naphthalene	212	274	263	129	124	57-138	4	25	
87-68-3	Hexachlorobutadiene	214	231	221	108	103	56-138	5	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Trinity Analysis & Development Corp.
Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

Method Blank Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Simon Cao
Sampling Media: 6.0 L Silonite Canister(s)
Test Notes:

Lab File ID: 05202004.D
Date Analyzed: 5/20/20
Time Analyzed: 05:40

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P200520-LCS	05202005.D	06:14
Duplicate Lab Control Sample	P200520-DLCS	05202006.D	06:47
ODSVE-EFF-Y9Q3	P2002631-001	05202031.D	22:22

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Trinity Analysis & Development Corp.
Client Project ID: DDMT / 10A023.310

ALS Project ID: P2002631

Internal Standard Area and RT Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Simon Cao
Sampling Media: 6.0 L Silonite Canister(s)
Test Notes:

Lab File ID: 05202002.D
Date Analyzed: 5/20/20
Time Analyzed: 04:33

	IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
	AREA	#	RT	#	AREA	#
24 Hour Standard	279375	11.15	1207159	13.27	564170	17.58
Upper Limit	391125	11.48	1690023	13.60	789838	17.91
Lower Limit	167625	10.82	724295	12.94	338502	17.25

Client Sample ID						
01	Method Blank	257545	11.13	1122958	13.26	508958
02	Lab Control Sample	266609	11.15	1166509	13.28	536197
03	Duplicate Lab Control Sample	280698	11.16	1219953	13.28	563274
04	ODSVE-EFF-Y9Q3	291852	11.14	1243532	13.27	588882
05						
06						
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

IS1 (BCM) = Bromochloromethane

IS2 (DFB) = 1,4-Difluorobenzene

IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area

AREA LOWER LIMIT = 60% of internal standard area

RT UPPER LIMIT = 0.33 minutes of internal standard RT

RT LOWER LIMIT = 0.33 minutes of internal standard RT

Column used to flag values outside QC limits with an I.

I = Internal standard not within the specified limits.

Data File : I:\MS16\DATA\2020_05\20\05202031.D
 Acq On : 20 May 2020 22:22
 Sample : P2002631-001 (1000mL)
 Misc : S31-02112001

Vial: 14
 Operator: LH
 Inst : GCMS-16

Quant Time: May 22 20:10:03 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 5/22/20

QLast Update : Fri May 01 18:22:00 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.14	130	291852	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.27	114	1243532	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.58	82	588882	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.00	65	463072	11.708	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	93.68%
57) Toluene-d8 (SS2)	15.72	98	1216330	12.186	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	97.52%
73) Bromofluorobenzene (SS3)	18.97	174	475968	13.252	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	106.00%

Target Compounds

						Qvalue
2) Propene	4.09	42	75231	2.226	ng	98
3) Dichlorodifluoromethan...	4.25	85	514951	7.789	ng	100
4) Chloromethane	4.52	50	5322	0.103	ng	95
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	2863	0.072	ng	97
6) Vinyl Chloride	4.95	62	15995	0.282	ng	97
7) 1,3-Butadiene	5.22	54	1975	N.D.		
8) Bromomethane	5.65	94	529	N.D.		
9) Chloroethane	5.97	64	563	N.D.		
10) Ethanol	6.36	45	1360207	52.113	ng	100
11) Acetonitrile	6.62	41	41641	0.698	ng	97
12) Acrolein	6.79	56	27009	1.310	ng	98
13) Acetone	7.01	58	519371	19.897	ng	91
14) Trichlorofluoromethane	7.24	101	69666	1.192	ng	100
15) 2-Propanol (Isopropanol)	7.51	45	427096	5.406	ng	99
16) Acrylonitrile	0.00	53	0	N.D.	d	
17) 1,1-Dichloroethene	8.19	96	47448	1.549	ng	98
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.40	84	7195	0.212	ng	99
20) 3-Chloro-1-propene (Al...	8.57	41	185	N.D.		
21) Trichlorotrifluoroethane	8.84	151	613569	22.242	ng	97
22) Carbon Disulfide	8.68	76	1425068	11.721	ng	100
23) trans-1,2-Dichloroethene	9.68	61	39526	0.847	ng	100
24) 1,1-Dichloroethane	9.94	63	45755	0.826	ng	100
25) Methyl tert-Butyl Ether	10.10	73	3955	N.D.		
26) Vinyl Acetate	10.18	86	80258	9.871	ng	# 30
27) 2-Butanone (MEK)	10.47	72	28453	1.278	ng	98
28) cis-1,2-Dichloroethene	10.96	61	3735639	81.886	ng	100
29) Diisopropyl Ether	0.00	87	0	N.D.	d	
30) Ethyl Acetate	11.27	61	1231356	95.928	ng	93
31) n-Hexane	11.26	57	22467	0.404	ng	# 90
32) Chloroform	11.31	83	1110971	19.123	ng	99
34) Tetrahydrofuran (THF)	11.76	72	1993	0.092	ng	# 64
35) Ethyl tert-Butyl Ether	11.89	87	1067	N.D.		
36) 1,2-Dichloroethane	12.11	62	1802	N.D.		
38) 1,1,1-Trichloroethane	12.40	97	46904	0.936	ng	99
39) Isopropyl Acetate	0.00	61	0	N.D.	d	
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	12.87	78	55544	0.417	ng	99
42) Carbon Tetrachloride	13.03	117	107317	2.366	ng	99
43) Cyclohexane	13.16	84	12246	0.246	ng	92
44) tert-Amyl Methyl Ether	13.45	73	2703	N.D.		
45) 1,2-Dichloropropane	13.73	63	666	N.D.		
46) Bromodichloromethane	13.92	83	2220	N.D.		
47) Trichloroethene	13.97	130	3161149	91.708	ng	100
48) 1,4-Dioxane	0.00	88	0	N.D.	d	
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	
50) Methyl Methacrylate	0.00	100	0	N.D.	d	

Data File : I:\MS16\DATA\2020_05\20\05202031.D
 Acq On : 20 May 2020 22:22
 Sample : P2002631-001 (1000mL)
 Misc : S31-02112001

Vial: 14
 Operator: LH
 Inst : GCMS-16

Quant Time: May 22 20:10:03 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)

QLast Update : Fri May 01 18:22:00 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

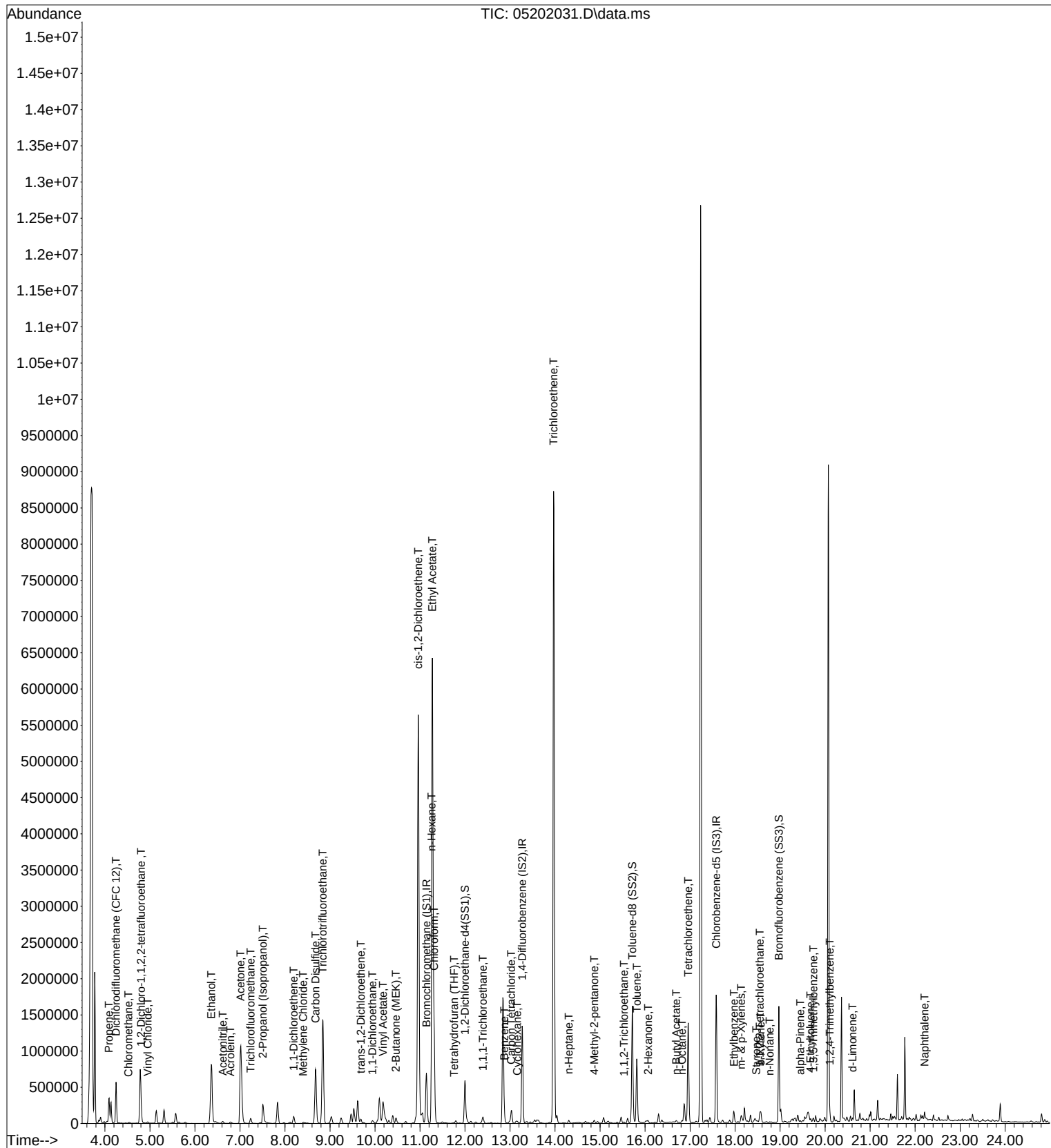
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.30	71	10164	0.326	ng	85
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	14.88	58	6716	0.226	ng	# 3
54) trans-1,3-Dichloropropene	15.32	75	503	N.D.		
55) 1,1,2-Trichloroethane	15.53	97	3183	0.104	ng	91
58) Toluene	15.82	91	705105	5.480	ng	99
59) 2-Hexanone	16.07	43	12226	0.173	ng	# 71
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.69	43	25252	0.332	ng	95
63) n-Octane	16.82	57	5226	0.196	ng	95
64) Tetrachloroethene	16.96	166	474036	13.044	ng	99
65) Chlorobenzene	17.62	112	1374	N.D.		
66) Ethylbenzene	17.98	91	21980	0.153	ng	99
67) m- & p-Xylenes	18.14	91	62731	0.551	ng	99
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.47	104	10676	0.125	ng	97
70) o-Xylene	18.57	91	26967	0.233	ng	99
71) n-Nonane	18.77	43	4956	0.081	ng	95
72) 1,1,2,2-Tetrachloroethane	18.55	83	58479	1.020	ng	96
74) Cumene	19.10	105	5288	N.D.		
75) alpha-Pinene	19.45	93	7950	0.105	ng	99
76) n-Propylbenzene	19.55	91	8042	N.D.		
77) 3-Ethyltoluene	0.00	105	0	N.D. d		
78) 4-Ethyltoluene	19.68	105	9801	0.074	ng	92
79) 1,3,5-Trimethylbenzene	19.74	105	13848	0.120	ng	89
80) alpha-Methylstyrene	19.88	118	2140	N.D.		
81) 2-Ethyltoluene	0.00	105	0	N.D. d		
82) 1,2,4-Trimethylbenzene	20.10	105	51408	0.442	ng	92
83) n-Decane	0.00	57	0	N.D. d		
84) Benzyl Chloride	20.15	91	541	N.D.		
85) 1,3-Dichlorobenzene	20.24	146	508	N.D.		
86) 1,4-Dichlorobenzene	20.30	146	1576	N.D.		
87) sec-Butylbenzene	20.35	105	1520	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D. d		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D. d		
90) 1,2-Dichlorobenzene	20.60	146	375	N.D.		
91) d-Limonene	20.61	68	9258	0.202	ng	79
92) 1,2-Dibromo-3-Chloropr...	20.91	157	326	N.D.		
93) n-Undecane	0.00	57	0	N.D. d		
94) 1,2,4-Trichlorobenzene	22.11	180	347	N.D.		
95) Naphthalene	22.21	128	37327	0.263	ng	85
96) n-Dodecane	0.00	57	0	N.D. d		
97) Hexachlorobutadiene	22.52	225	1033	N.D.		
98) Cyclohexanone	0.00	55	0	N.D. d		
99) tert-Butylbenzene	0.00	119	0	N.D. d		
100) n-Butylbenzene	0.00	91	0	N.D. d		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File : I:\MS16\DATA\2020_05\20\05202031.D
Acq On : 20 May 2020 22:22
Sample : P2002631-001 (1000mL)
Misc : S31-02112001

Vial: 14
Operator: LH
Inst : GCMS-16

Quant Time: May 22 20:10:03 2020
Quant Method : I:\MS16\METHODS\R16050120.M
Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)
QLast Update : Fri May 01 18:22:00 2020
Response via : Initial Calibration
DataAcq Meth:T015.M



Data File : I:\MS16\DATA\2020_05\20\05202031.D
 Acq On : 20 May 2020 22:22
 Sample : P2002631-001 (1000mL)
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Vial: 14
 Operator: LH
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Quant Time: May 22 20:10:03 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)

QLast Update : Fri May 01 18:22:00 2020

LH 5/22/20

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.14	130	291852	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.27	114	1243532	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.58	82	588882	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.00	65	463072	11.708	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	93.68%
57) Toluene-d8 (SS2)	15.72	98	1216330	12.186	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	97.52%
73) Bromofluorobenzene (SS3)	18.97	174	475968	13.252	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	106.00%

Target Compounds

						Qvalue
2) Propene	4.09	42	75231	2.226	ng	98
3) Dichlorodifluoromethan...	4.25	85	514951	7.789	ng	100
4) Chloromethane	4.52	50	5322	0.103	ng	95
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	2863	0.072	ng	97
6) Vinyl Chloride	4.95	62	15995	0.282	ng	97
10) Ethanol	6.36	45	1360207	52.113	ng	100
11) Acetonitrile	6.62	41	41641	0.698	ng	97
12) Acrolein	6.79	56	27009	1.310	ng	98
13) Acetone	7.01	58	519371	19.897	ng	91
14) Trichlorofluoromethane	7.24	101	69666	1.192	ng	100
15) 2-Propanol (Isopropanol)	7.51	45	427096	5.406	ng	99
17) 1,1-Dichloroethene	8.19	96	47448	1.549	ng	98
19) Methylene Chloride	8.40	84	7195	0.212	ng	99
21) Trichlorotrifluoroethane	8.84	151	613569	22.242	ng	97
22) Carbon Disulfide	8.68	76	1425068	11.721	ng	100
23) trans-1,2-Dichloroethene	9.68	61	39526	0.847	ng	100
24) 1,1-Dichloroethane	9.94	63	45755	0.826	ng	100
26) Vinyl Acetate	10.18	86	80258	9.871	ng	# 30
27) 2-Butanone (MEK)	10.47	72	28453	1.278	ng	98
28) cis-1,2-Dichloroethene	10.96	61	3735639	81.886	ng	100
30) Ethyl Acetate	11.27	61	1231356	95.928	ng	93
31) n-Hexane	11.26	57	22467	0.404	ng	# 90
32) Chloroform	11.31	83	1110971	19.123	ng	99
34) Tetrahydrofuran (THF)	11.76	72	1993	0.092	ng	# 64
38) 1,1,1-Trichloroethane	12.40	97	46904	0.936	ng	99
41) Benzene	12.87	78	55544	0.417	ng	99
42) Carbon Tetrachloride	13.03	117	107317	2.366	ng	99
43) Cyclohexane	13.16	84	12246	0.246	ng	92
47) Trichloroethene	13.97	130	3161149	91.708	ng	100
51) n-Heptane	14.30	71	10164	0.326	ng	85
53) 4-Methyl-2-pentanone	14.88	58	6716	0.226	ng	# 3
55) 1,1,2-Trichloroethane	15.53	97	3183	0.104	ng	91
58) Toluene	15.82	91	705105	5.480	ng	99
59) 2-Hexanone	16.07	43	12226	0.173	ng	# 71
62) n-Butyl Acetate	16.69	43	25252	0.332	ng	95
63) n-Octane	16.82	57	5226	0.196	ng	95
64) Tetrachloroethene	16.96	166	474036	13.044	ng	99
66) Ethylbenzene	17.98	91	21980	0.153	ng	99
67) m- & p-Xylenes	18.14	91	62731	0.551	ng	99
69) Styrene	18.47	104	10676	0.125	ng	97
70) o-Xylene	18.57	91	26967	0.233	ng	99
71) n-Nonane	18.77	43	4956	0.081	ng	95
72) 1,1,2,2-Tetrachloroethane	18.55	83	58479	1.020	ng	96
75) alpha-Pinene	19.45	93	7950	0.105	ng	99
78) 4-Ethyltoluene	19.68	105	9801	0.074	ng	92
79) 1,3,5-Trimethylbenzene	19.74	105	13848	0.120	ng	89
82) 1,2,4-Trimethylbenzene	20.10	105	51408	0.442	ng	92

Data File : I:\MS16\DATA\2020_05\20\05202031.D
Acq On : 20 May 2020 22:22
Sample : P2002631-001 (1000mL)
Misc : S31-02112001

Vial: 14
Operator: LH
Inst : GCMS-16

Quant Time: May 22 20:10:03 2020
Quant Method : I:\MS16\METHODS\R16050120.M
Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)
QLast Update : Fri May 01 18:22:00 2020
Response via : Initial Calibration
DataAcq Meth:T015.M

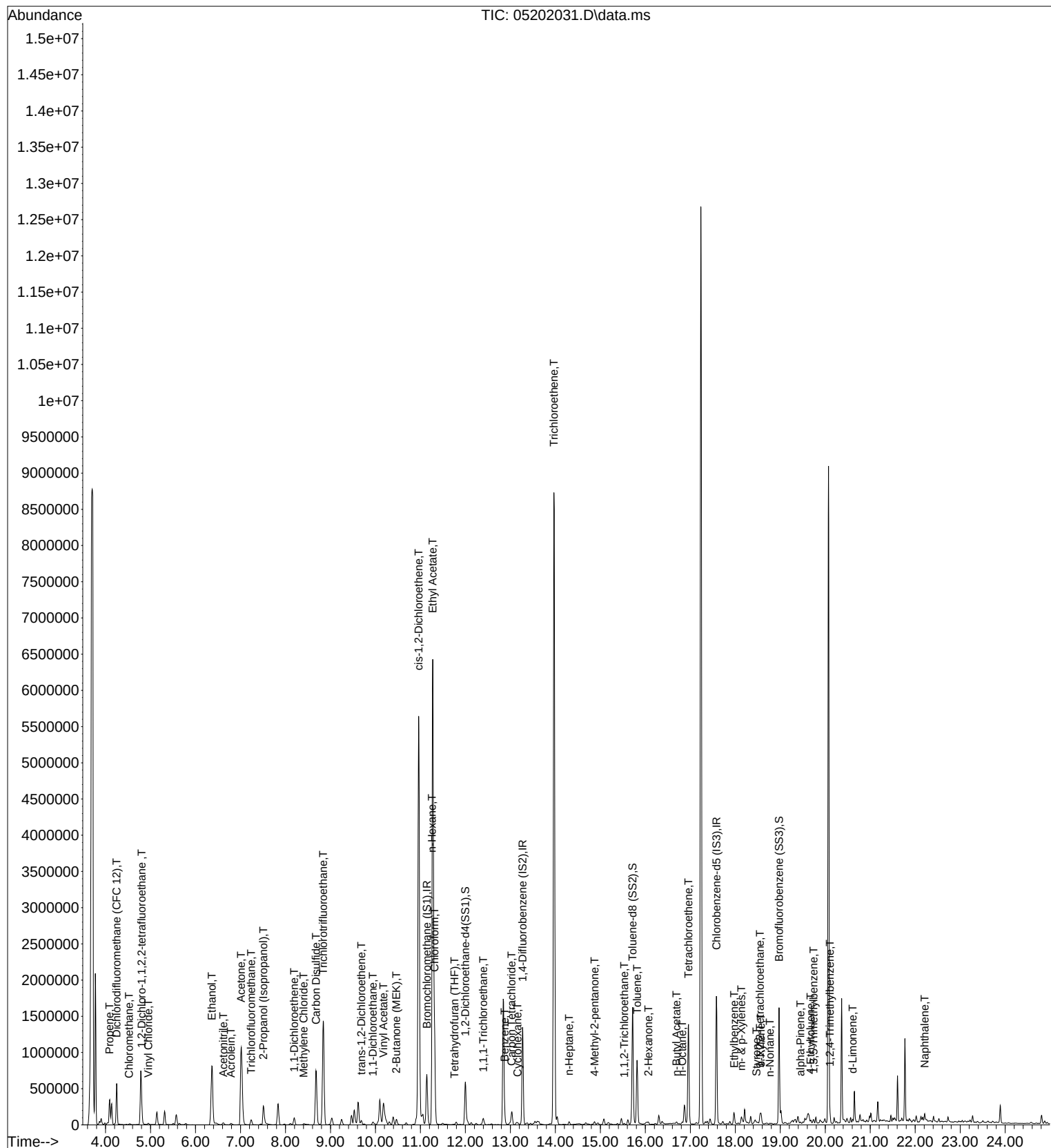
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
91) d-Limonene	20.61	68	9258	0.202	ng	79
95) Naphthalene	22.21	128	37327	0.263	ng	85

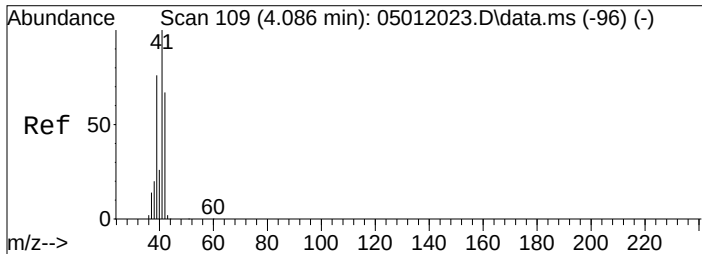
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File : I:\MS16\DATA\2020_05\20\05202031.D
Acq On : 20 May 2020 22:22
Sample : P2002631-001 (1000mL)
Misc : S31-02112001

Vial: 14
Operator: LH
Inst : GCMS-16

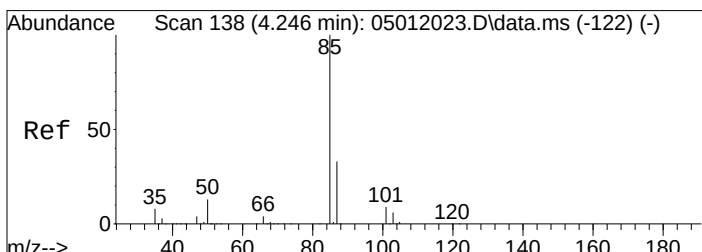
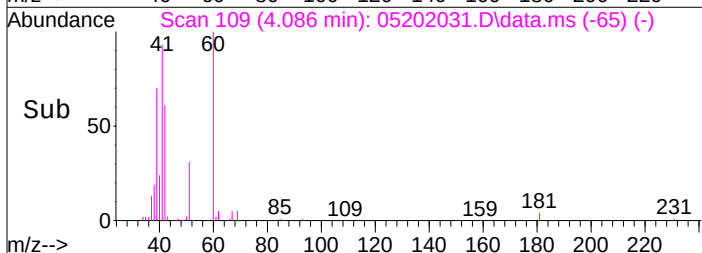
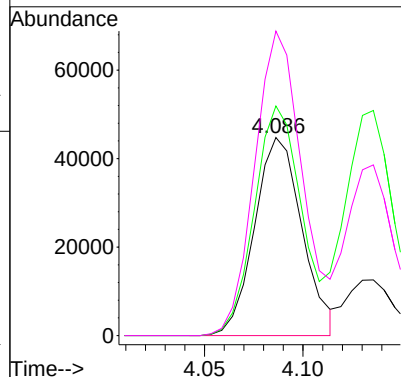
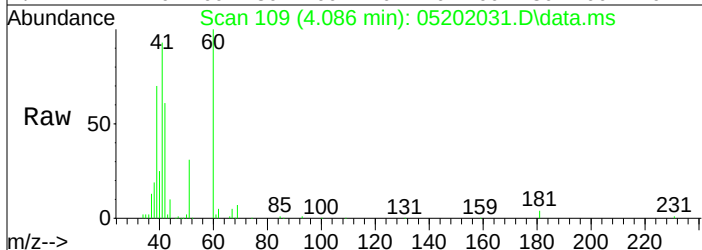
Quant Time: May 22 20:10:03 2020
Quant Method : I:\MS16\METHODS\R16050120.M
Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)
QLast Update : Fri May 01 18:22:00 2020
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DataAcq Meth:T015.M





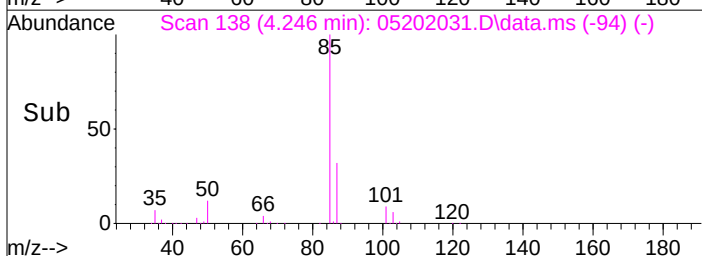
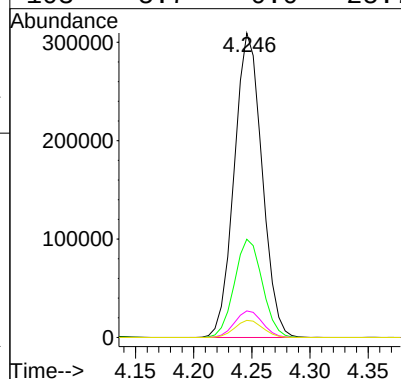
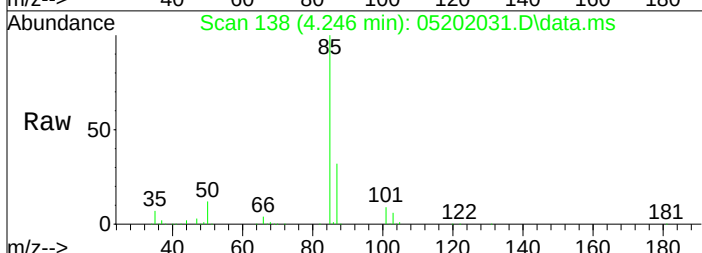
#2
 Propene
 Concen: 2.23 ng
 RT: 4.09 min Scan# 109
 Delta R.T. -0.006 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

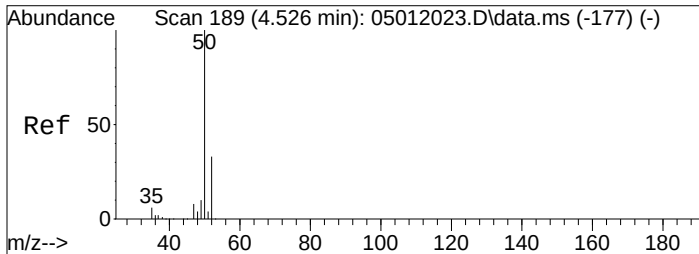
Tgt Ion:	42	Resp:	75231
Ion Ratio		Lower	Upper
42	100		
39	114.0	96.1	136.1
41	154.8	131.9	171.9



#3
 Dichlorodifluoromethane (CFC 12)
 Concen: 7.79 ng
 RT: 4.25 min Scan# 138
 Delta R.T. -0.006 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

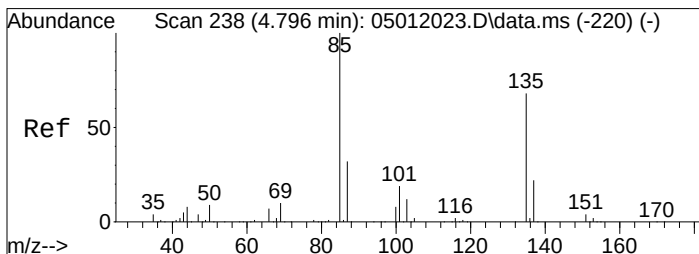
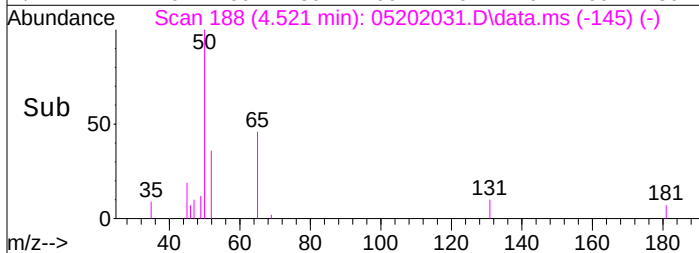
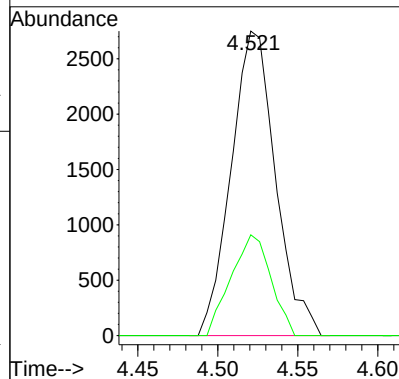
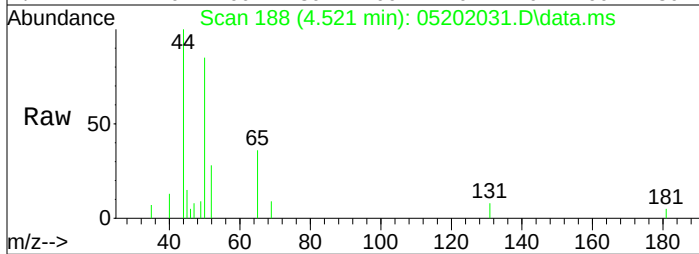
Tgt Ion:	85	Resp:	514951
Ion Ratio		Lower	Upper
85	100		
87	32.4	12.4	52.4
101	8.8	0.0	28.8
103	5.7	0.0	25.7





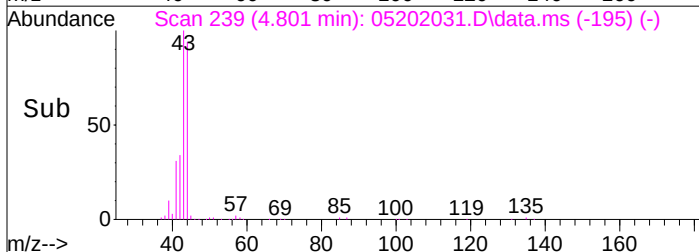
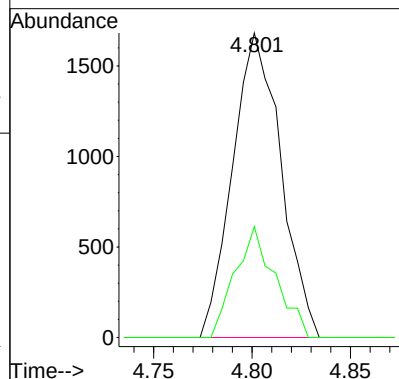
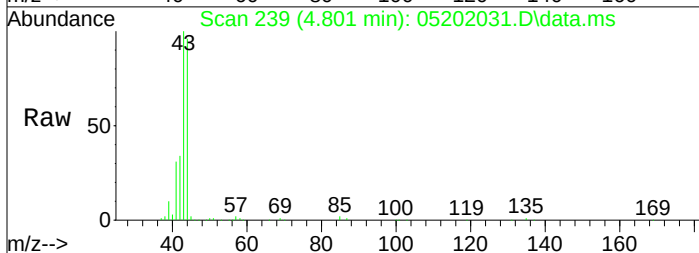
#4
Chloromethane
Concen: 0.10 ng
RT: 4.52 min Scan# 188
Delta R.T. -0.011 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

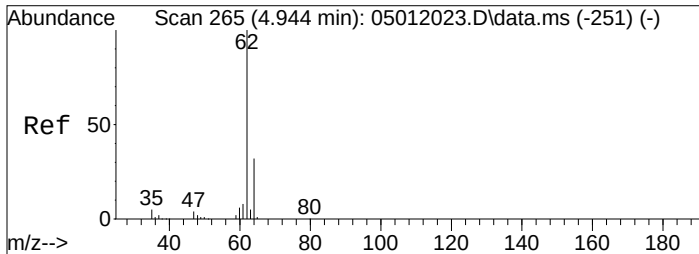
Tgt Ion: 50 Resp: 5322
Ion Ratio Lower Upper
50 100
52 29.7 12.5 52.5



#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.07 ng
RT: 4.80 min Scan# 239
Delta R.T. -0.006 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

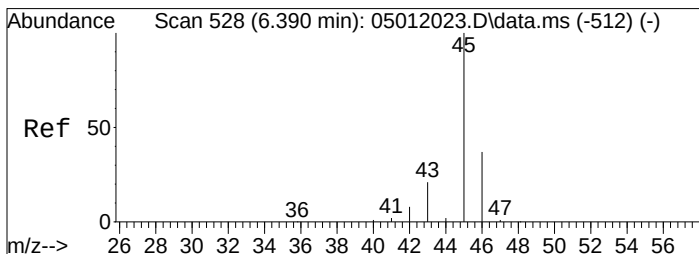
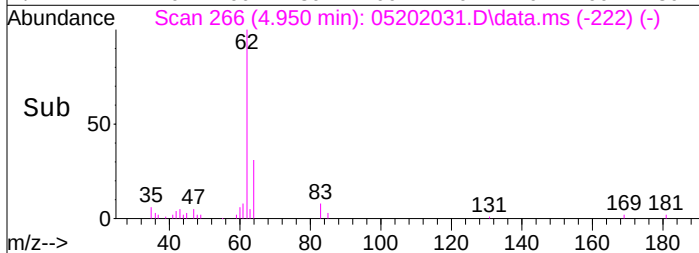
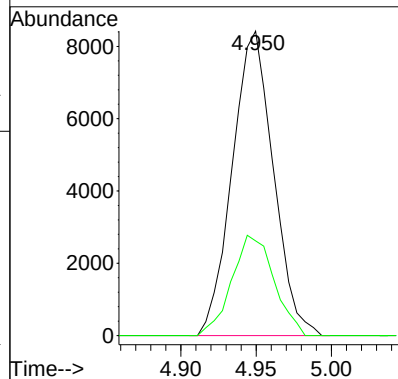
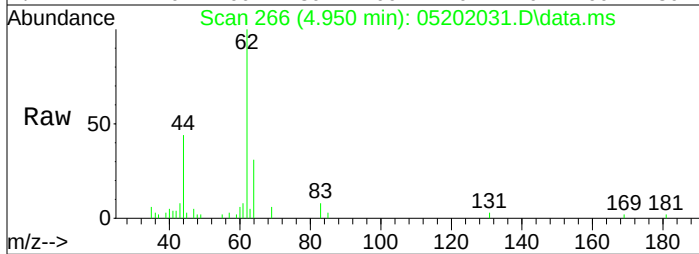
Tgt Ion: 135 Resp: 2863
Ion Ratio Lower Upper
135 100
137 30.2 12.1 52.1





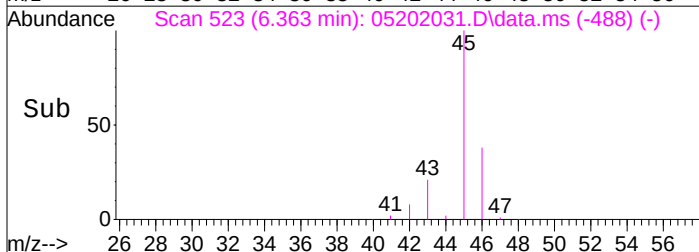
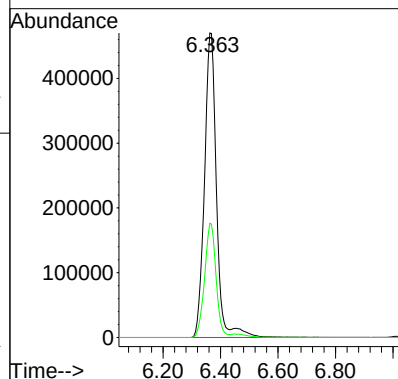
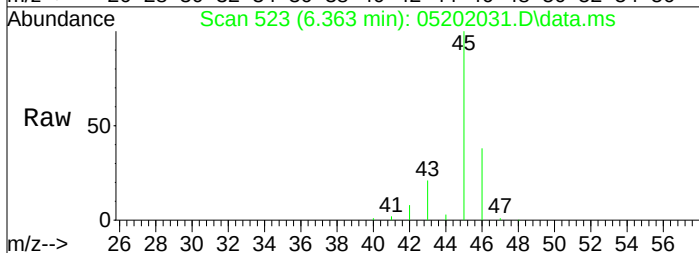
#6
Vinyl Chloride
Concen: 0.28 ng
RT: 4.95 min Scan# 266
Delta R.T. -0.006 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

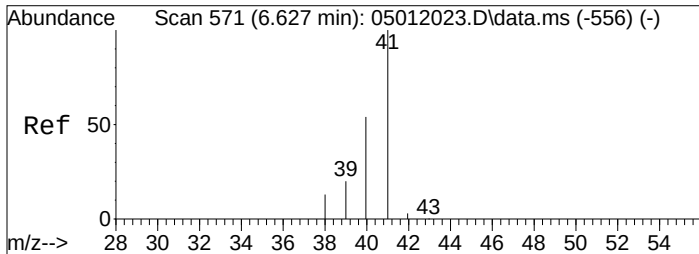
Tgt Ion: 62 Resp: 15995
Ion Ratio Lower Upper
62 100
64 33.8 12.1 52.1



#10
Ethanol
Concen: 52.11 ng
RT: 6.36 min Scan# 523
Delta R.T. -0.055 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

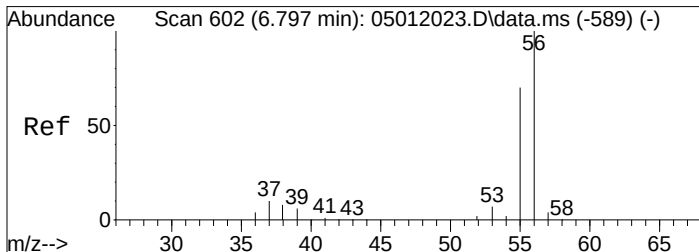
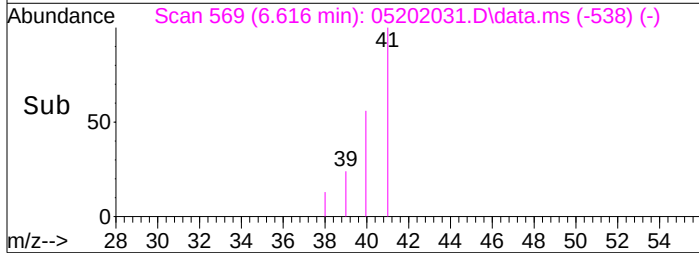
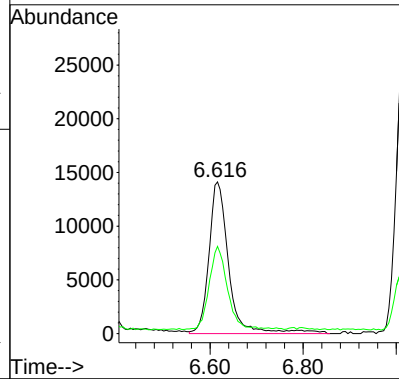
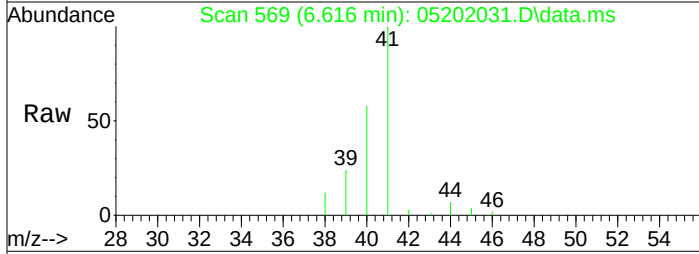
Tgt Ion: 45 Resp: 1360207
Ion Ratio Lower Upper
45 100
46 37.4 17.2 57.2





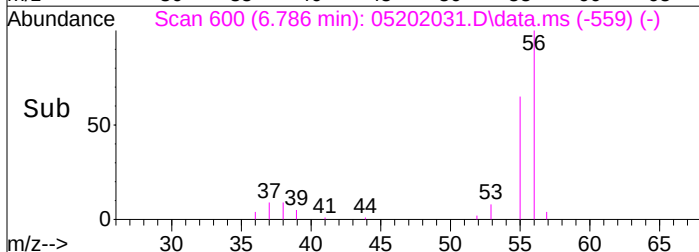
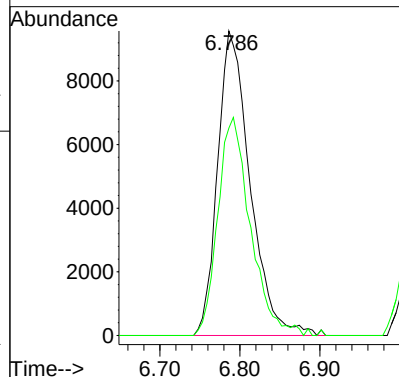
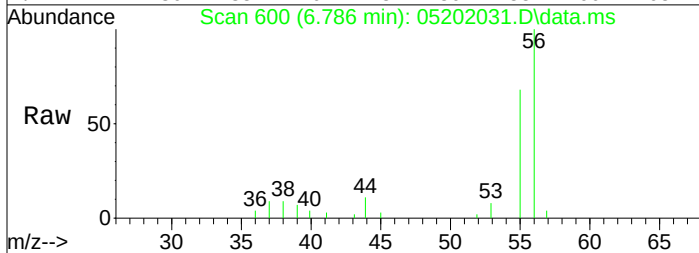
#11
Acetonitrile
Concen: 0.70 ng
RT: 6.62 min Scan# 569
Delta R.T. -0.028 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

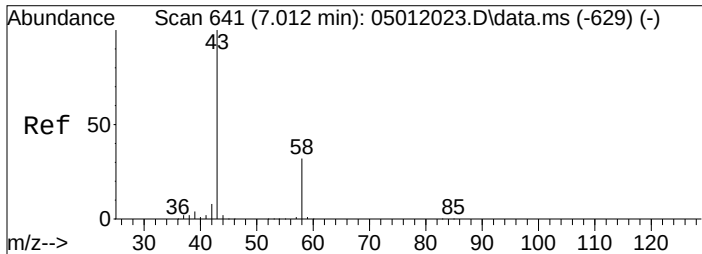
Tgt Ion: 41 Resp: 41641
Ion Ratio Lower Upper
41 100
40 51.4 33.6 73.6



#12
Acrolein
Concen: 1.31 ng
RT: 6.79 min Scan# 600
Delta R.T. -0.022 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

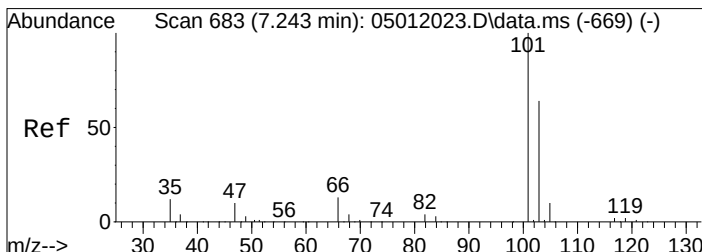
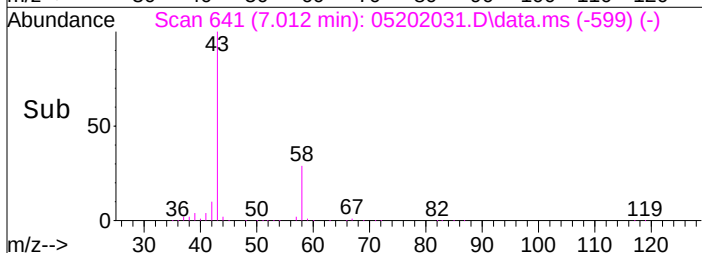
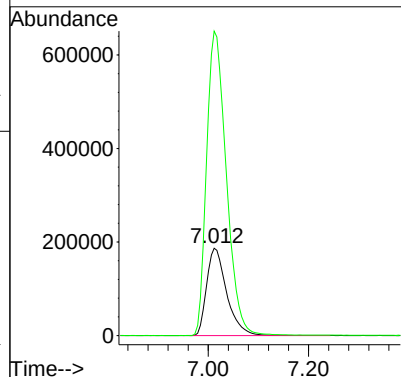
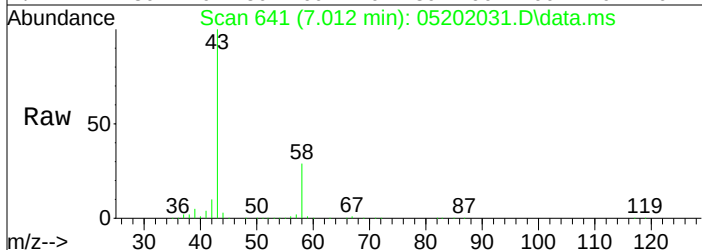
Tgt Ion: 56 Resp: 27009
Ion Ratio Lower Upper
56 100
55 71.9 50.2 90.2





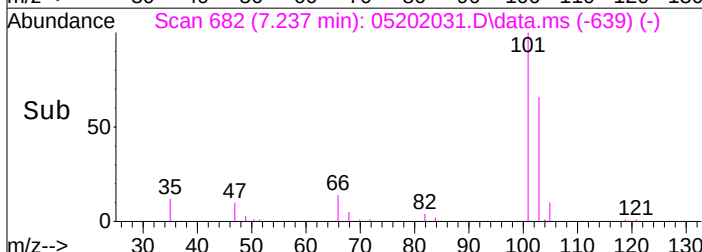
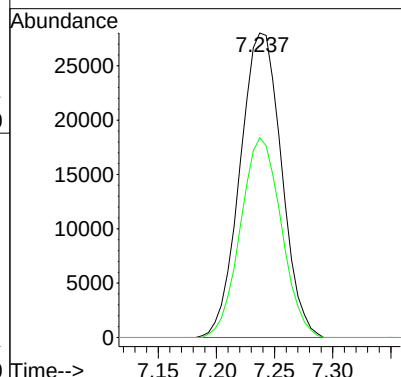
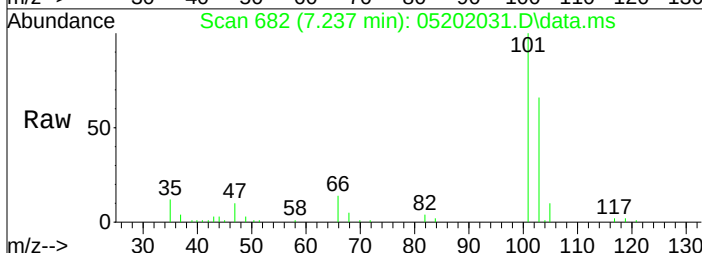
#13
Acetone
Concen: 19.90 ng
RT: 7.01 min Scan# 641
Delta R.T. -0.017 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

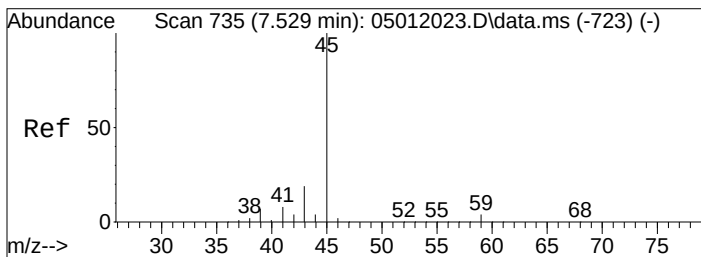
Tgt Ion	Ratio	Lower	Upper
58	100		
43	343.7	294.4	354.4



#14
Trichlorofluoromethane
Concen: 1.19 ng
RT: 7.24 min Scan# 682
Delta R.T. -0.011 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

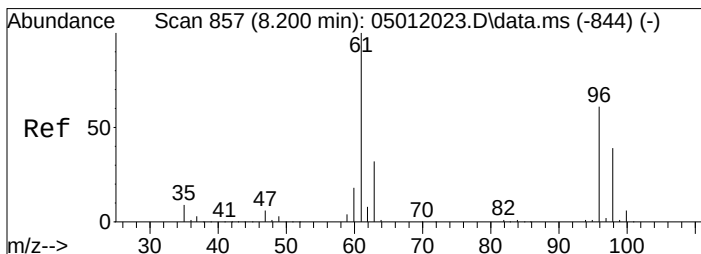
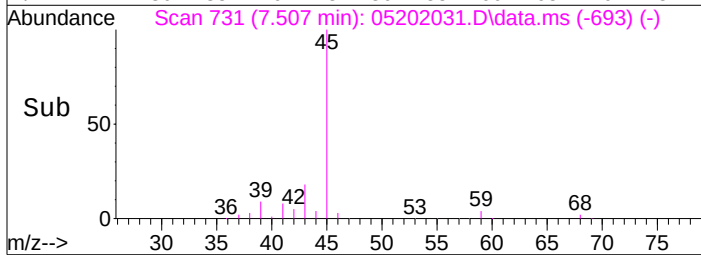
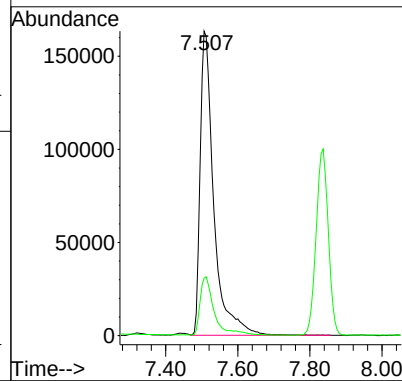
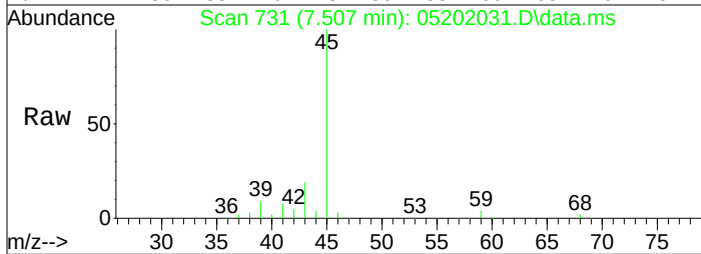
Tgt Ion	Ratio	Lower	Upper
101	100		
103	64.4	44.4	84.4





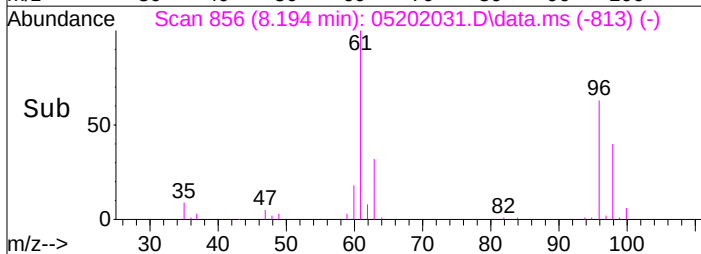
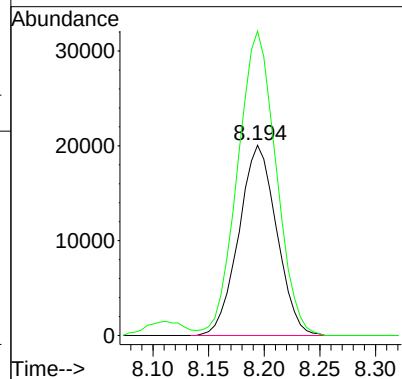
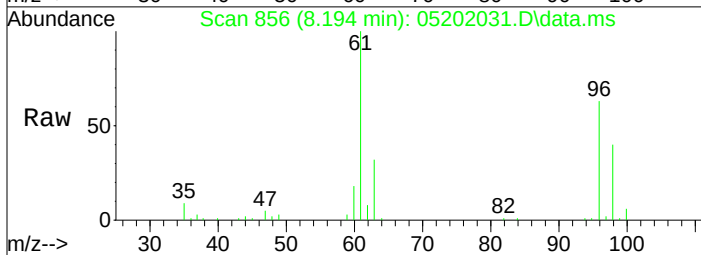
#15
 2-Propanol (Isopropanol)
 Concen: 5.41 ng
 RT: 7.51 min Scan# 731
 Delta R.T. -0.039 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

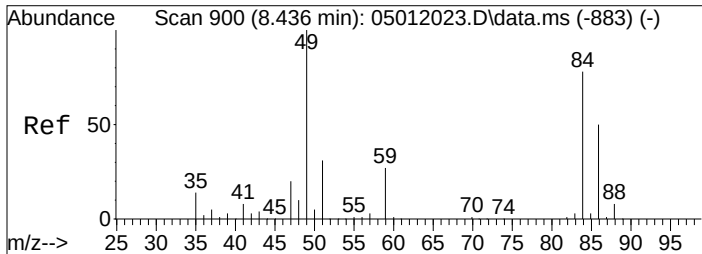
Tgt Ion: 45 Resp: 427096
 Ion Ratio Lower Upper
 45 100
 43 19.9 0.0 39.5



#17
 1,1-Dichloroethene
 Concen: 1.55 ng
 RT: 8.19 min Scan# 856
 Delta R.T. -0.011 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

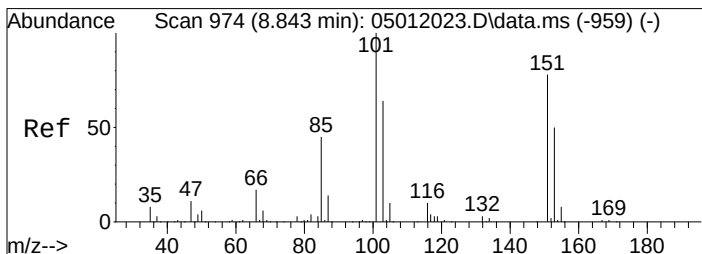
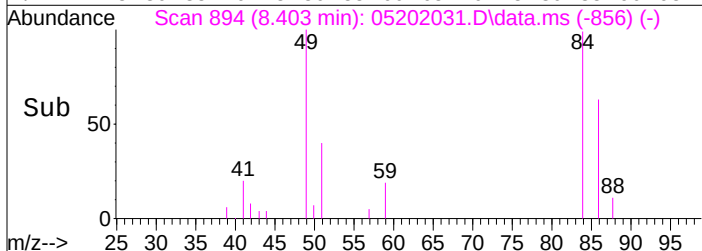
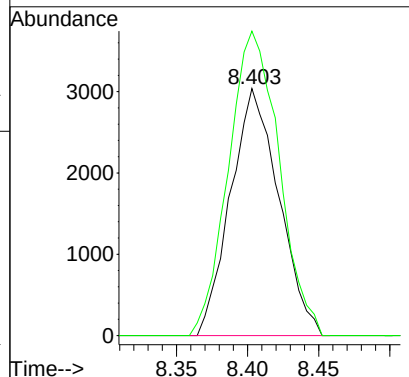
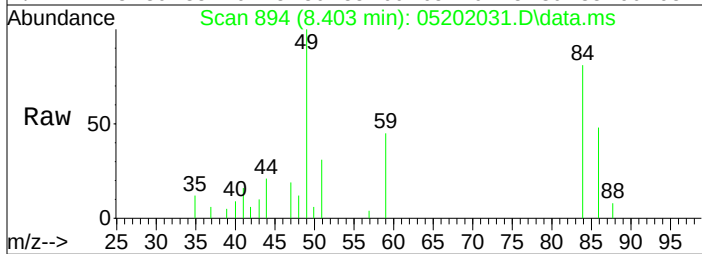
Tgt Ion: 96 Resp: 47448
 Ion Ratio Lower Upper
 96 100
 61 162.4 144.7 184.7





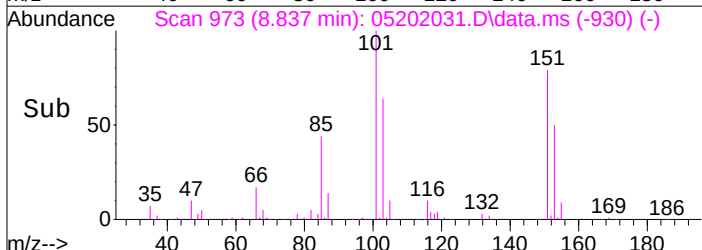
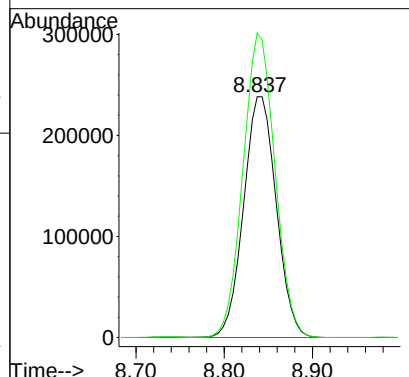
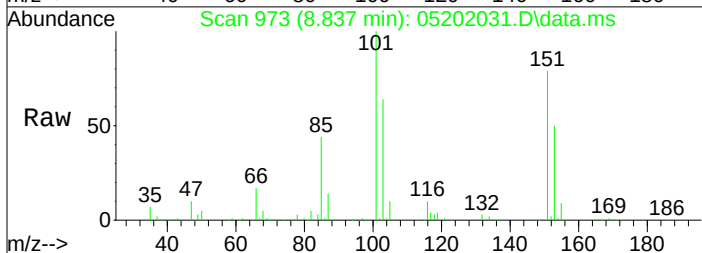
#19
Methylene Chloride
Concen: 0.21 ng
RT: 8.40 min Scan# 894
Delta R.T. -0.039 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

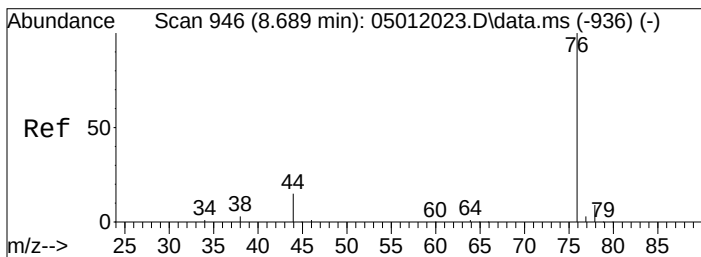
Tgt Ion	84	Resp	7195
Ion Ratio	Lower	Upper	
84	100		
49	128.9	104.8	154.8



#21
Trichlorotrifluoroethane
Concen: 22.24 ng
RT: 8.84 min Scan# 973
Delta R.T. -0.011 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

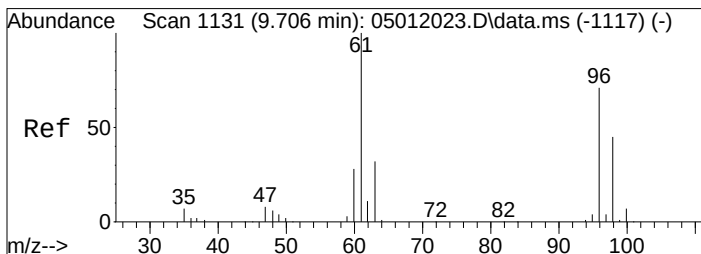
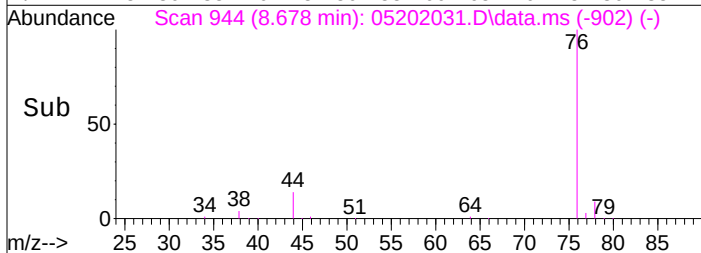
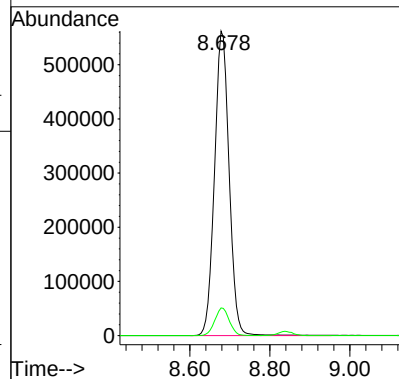
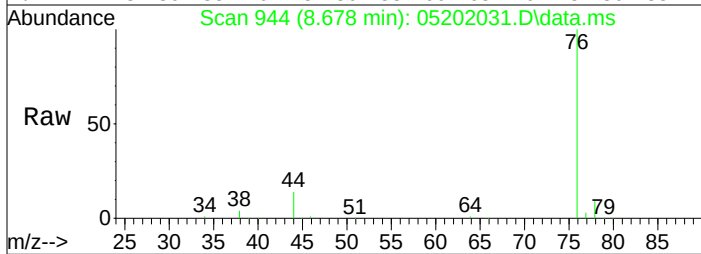
Tgt Ion	151	Resp	613569
Ion Ratio	Lower	Upper	
151	100		
101	123.9	107.3	147.3





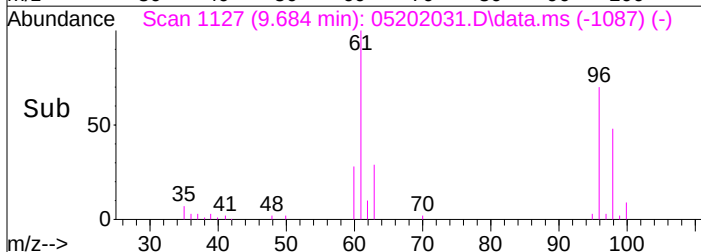
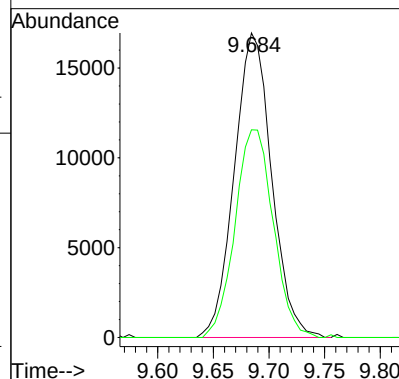
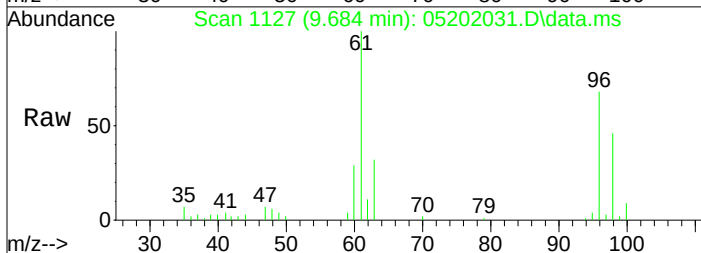
#22
Carbon Disulfide
Concen: 11.72 ng
RT: 8.68 min Scan# 944
Delta R.T. -0.017 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

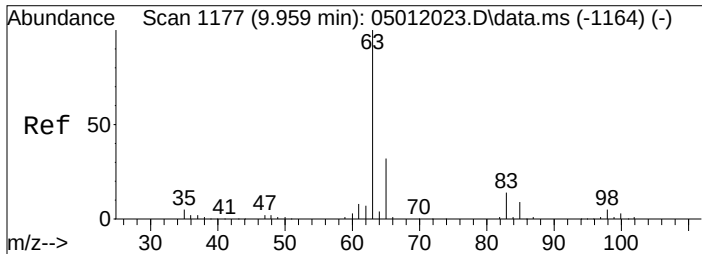
Tgt Ion: 76 Resp: 1425068
Ion Ratio Lower Upper
76 100
78 9.0 0.0 29.2



#23
trans-1,2-Dichloroethene
Concen: 0.85 ng
RT: 9.68 min Scan# 1127
Delta R.T. -0.028 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

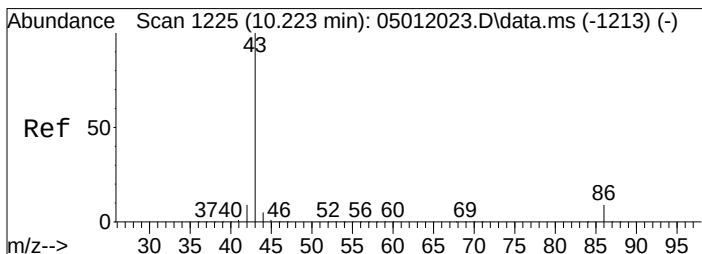
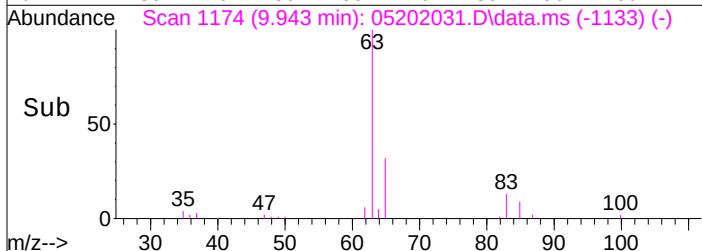
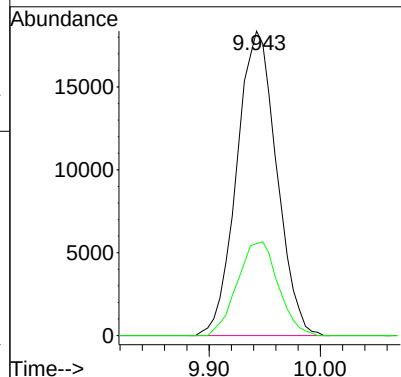
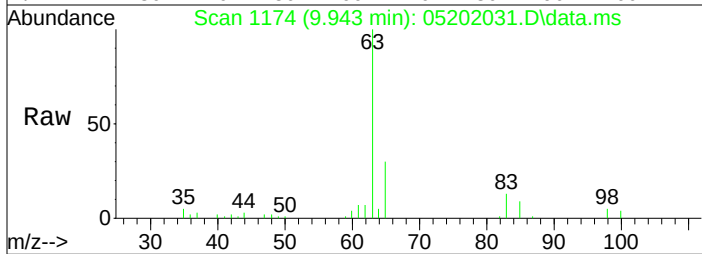
Tgt Ion: 61 Resp: 39526
Ion Ratio Lower Upper
61 100
96 69.9 50.3 90.3





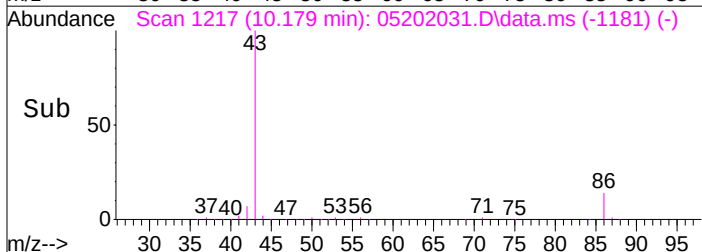
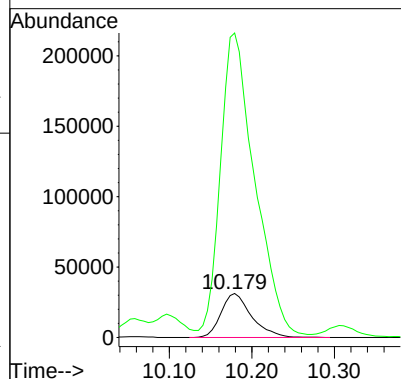
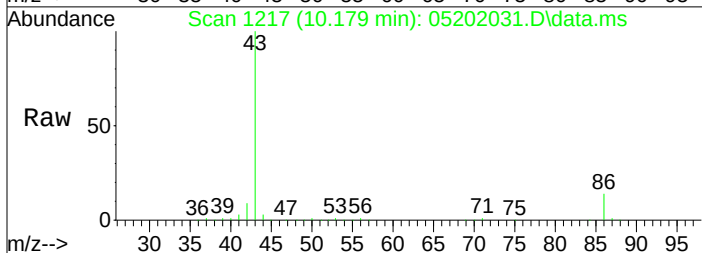
#24
 1,1-Dichloroethane
 Concen: 0.83 ng
 RT: 9.94 min Scan# 1174
 Delta R.T. -0.022 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

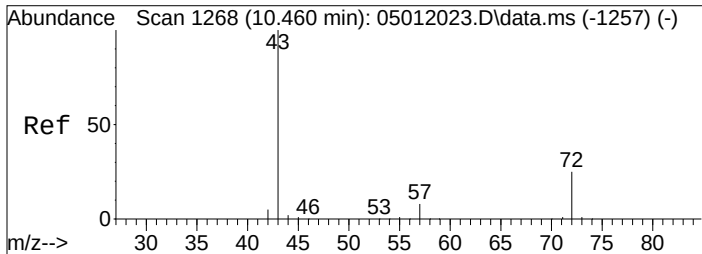
Tgt Ion	Ratio	Resp	Lower	Upper
63	100			
65	31.6		11.8	51.8



#26
 Vinyl Acetate
 Concen: 9.87 ng
 RT: 10.18 min Scan# 1217
 Delta R.T. -0.050 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

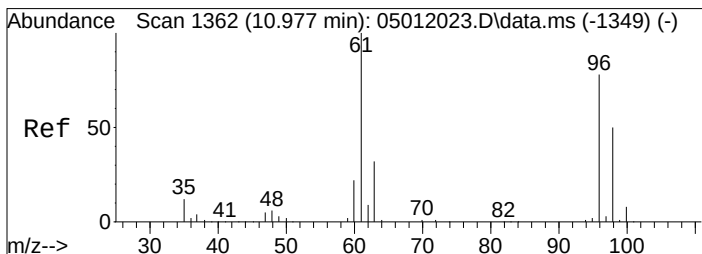
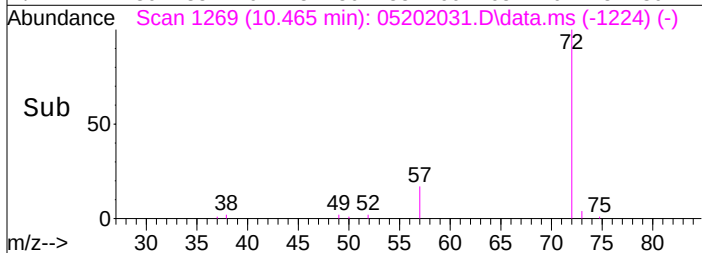
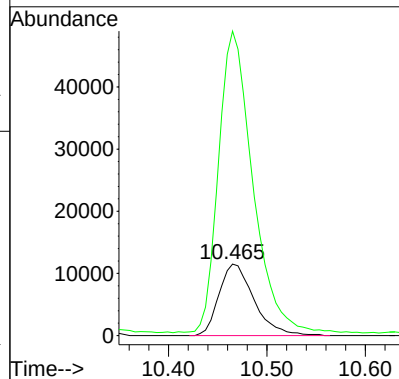
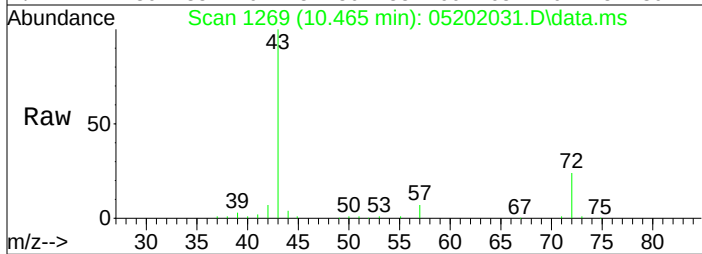
Tgt Ion	Ratio	Resp	Lower	Upper
86	100			
43	783.7		1103.0	1143.0#





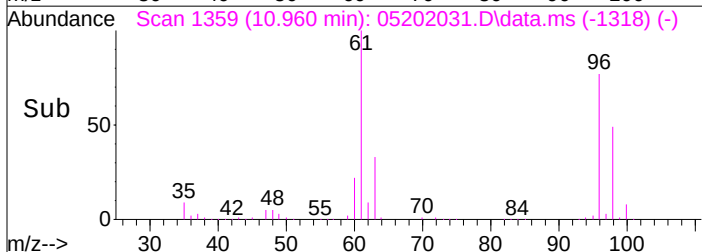
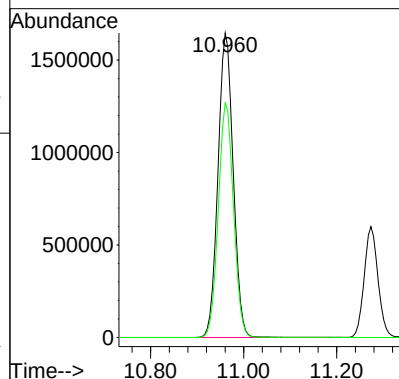
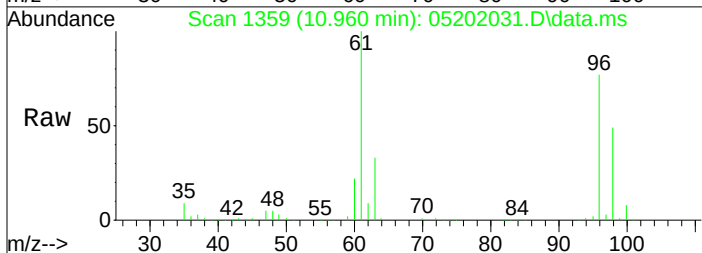
#27
 2-Butanone (MEK)
 Concen: 1.28 ng
 RT: 10.47 min Scan# 1269
 Delta R.T. -0.000 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

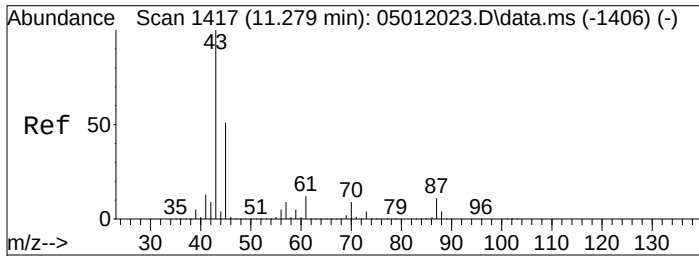
Tgt Ion: 72 Resp: 28453
 Ion Ratio Lower Upper
 72 100
 43 415.3 389.7 429.7



#28
 cis-1,2-Dichloroethene
 Concen: 81.89 ng
 RT: 10.96 min Scan# 1359
 Delta R.T. -0.022 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

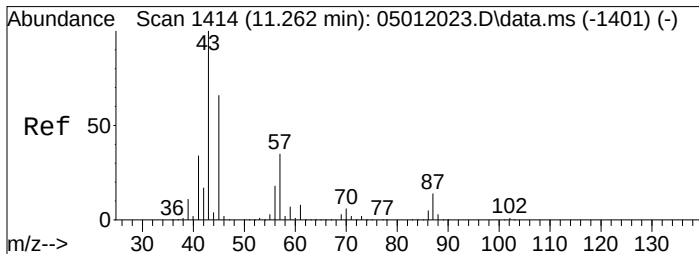
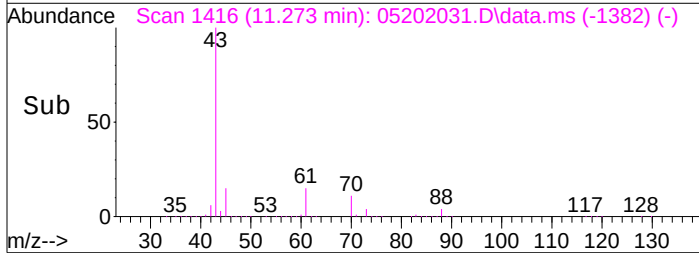
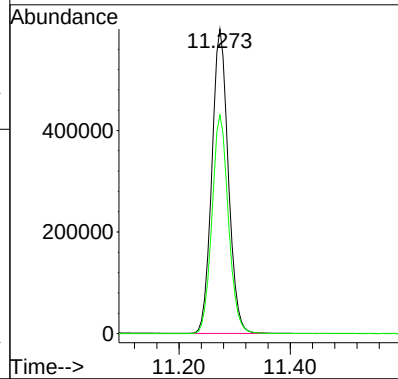
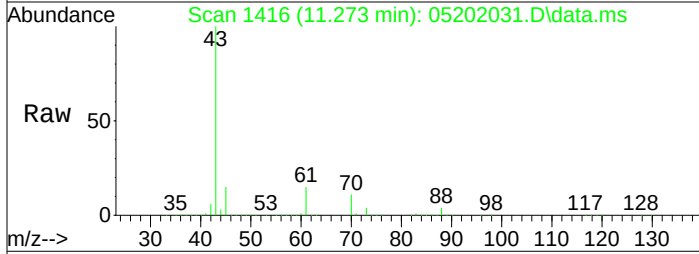
Tgt Ion: 61 Resp: 3735639
 Ion Ratio Lower Upper
 61 100
 96 77.2 57.6 97.6





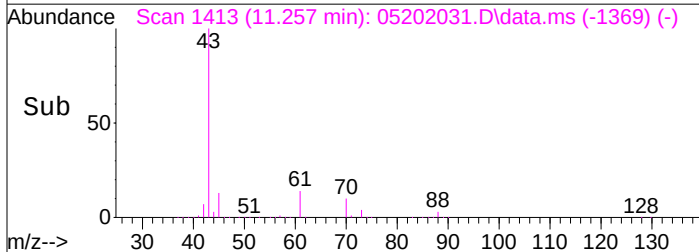
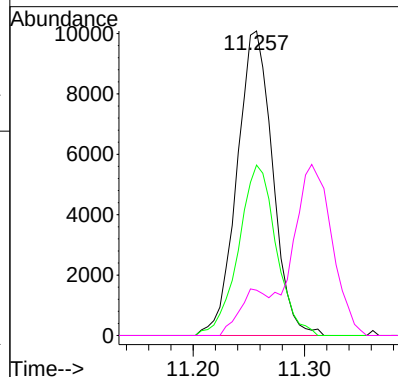
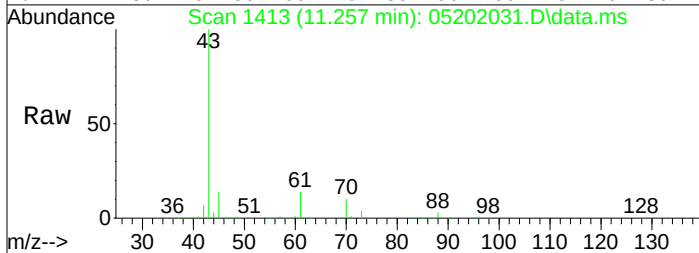
#30
Ethyl Acetate
Concen: 95.93 ng
RT: 11.27 min Scan# 1416
Delta R.T. -0.011 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

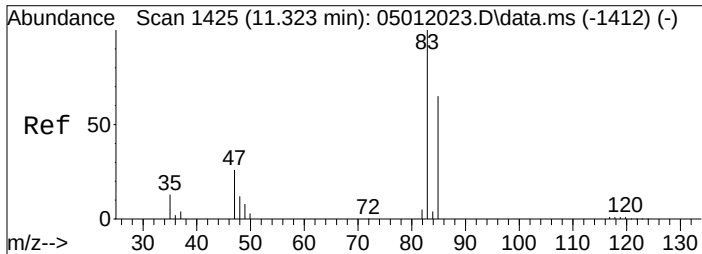
Tgt Ion: 61 Resp: 1231356
Ion Ratio Lower Upper
61 100
70 72.0 57.9 97.9



#31
n-Hexane
Concen: 0.40 ng
RT: 11.26 min Scan# 1413
Delta R.T. -0.006 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

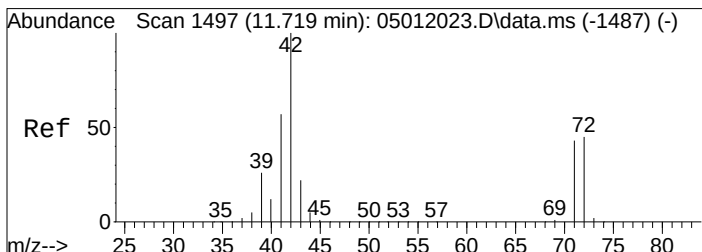
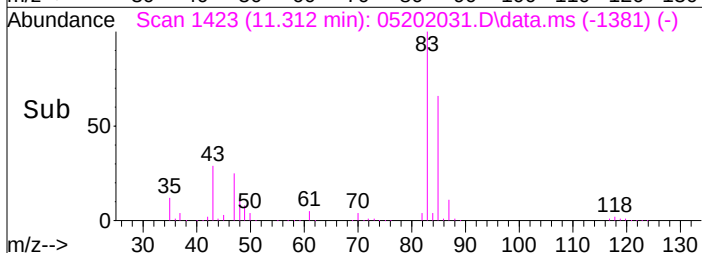
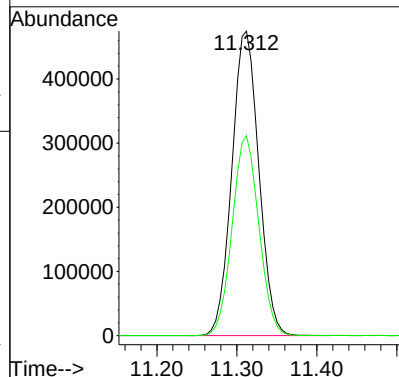
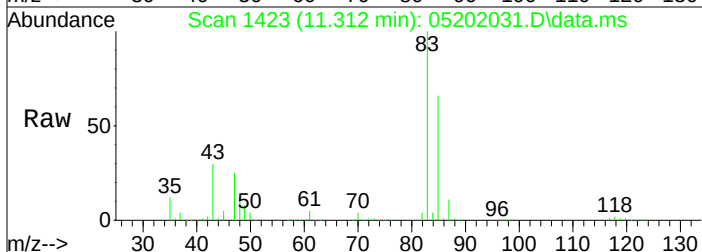
Tgt Ion: 57 Resp: 22467
Ion Ratio Lower Upper
57 100
56 59.0 41.4 62.0
86 12.2 12.4 18.6#





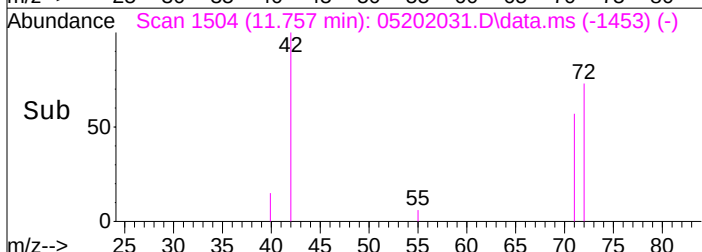
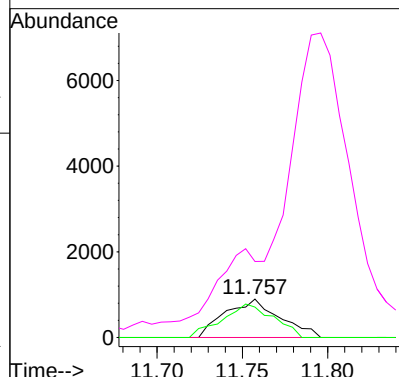
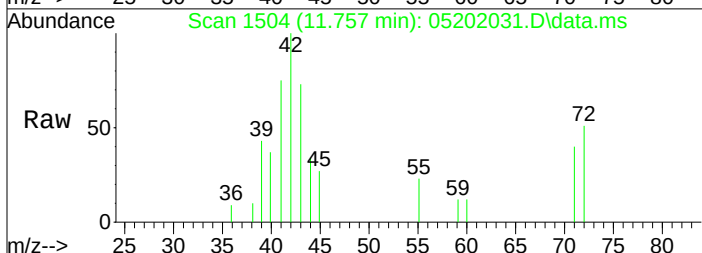
#32
Chloroform
Concen: 19.12 ng
RT: 11.31 min Scan# 1423
Delta R.T. -0.017 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

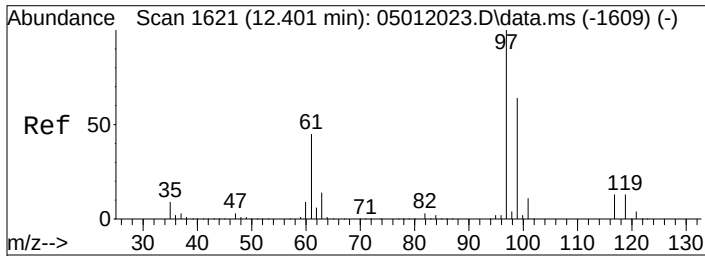
Tgt Ion: 83 Resp: 1110971
Ion Ratio Lower Upper
83 100
85 64.9 45.5 85.5



#34
Tetrahydrofuran (THF)
Concen: 0.09 ng
RT: 11.76 min Scan# 1504
Delta R.T. 0.033 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

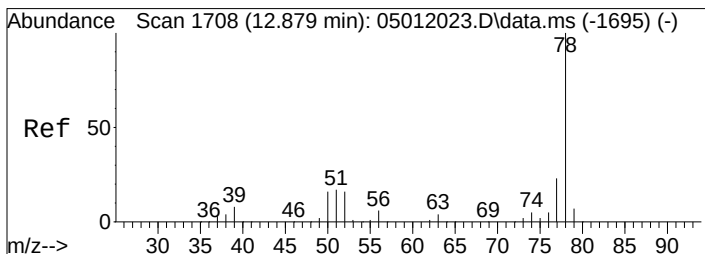
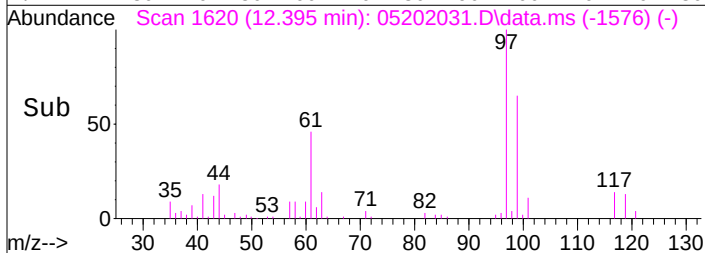
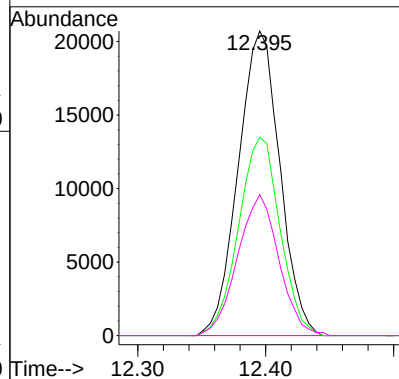
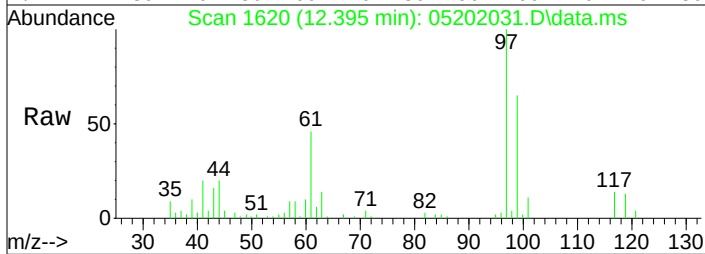
Tgt Ion: 72 Resp: 1993
Ion Ratio Lower Upper
72 100
71 81.9 77.0 117.0
42 152.5 204.6 244.6#





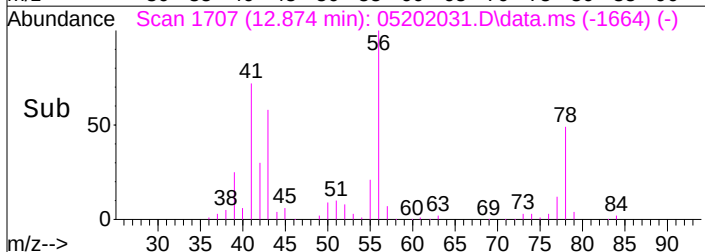
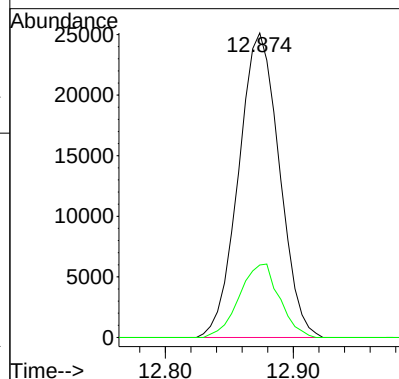
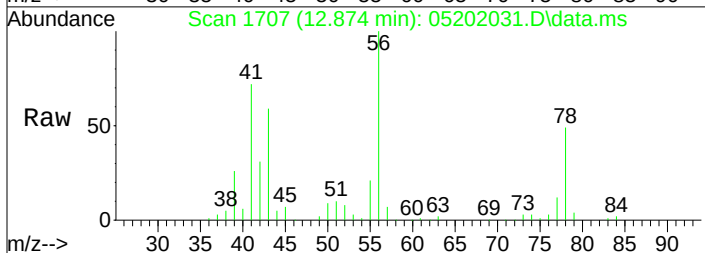
#38
 1,1,1-Trichloroethane
 Concen: 0.94 ng
 RT: 12.40 min Scan# 1620
 Delta R.T. -0.006 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

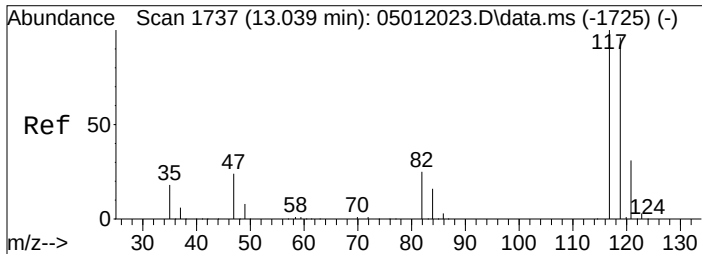
Tgt Ion:	97	Resp:	46904
Ion Ratio		Lower	Upper
97	100		
99	65.0	44.5	84.5
61	46.0	24.7	64.7



#41
 Benzene
 Concen: 0.42 ng
 RT: 12.87 min Scan# 1707
 Delta R.T. -0.011 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

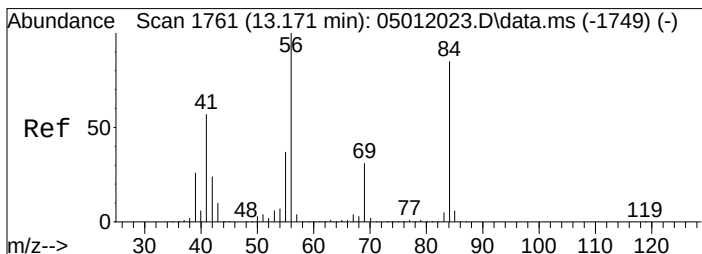
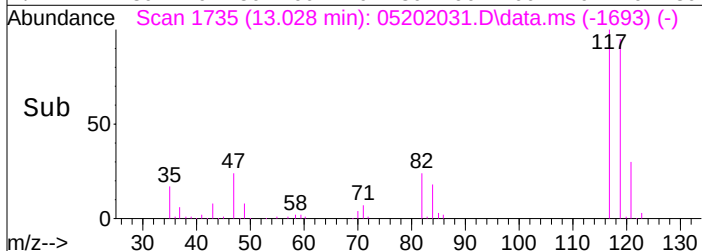
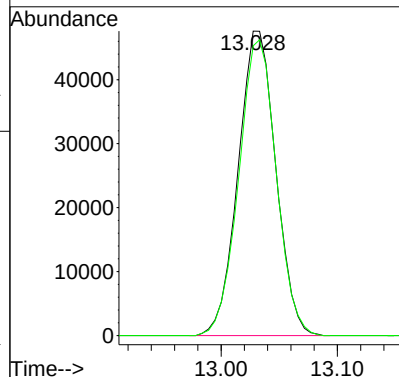
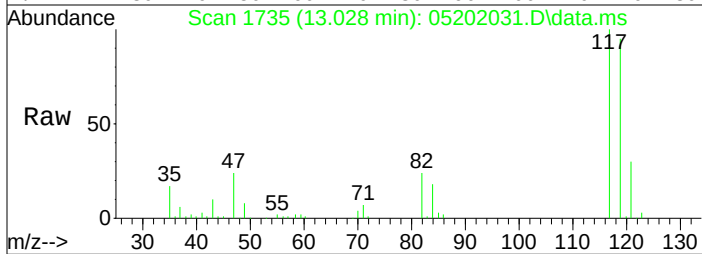
Tgt Ion:	78	Resp:	55544
Ion Ratio		Lower	Upper
78	100		
77	23.7	3.4	43.4





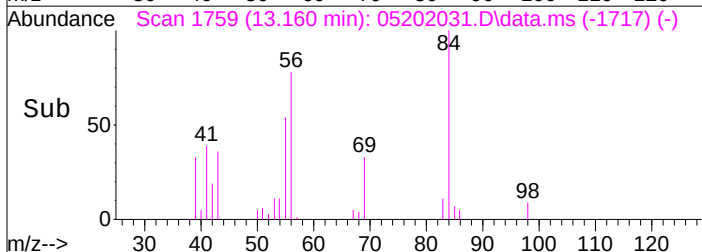
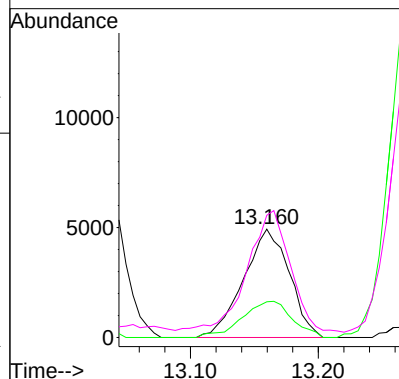
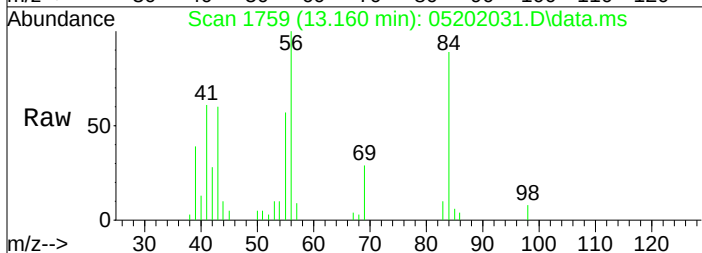
#42
Carbon Tetrachloride
Concen: 2.37 ng
RT: 13.03 min Scan# 1735
Delta R.T. -0.017 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

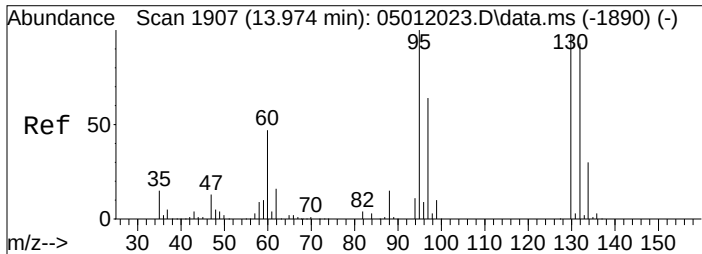
Tgt Ion	Ratio	Lower	Upper
117	100		
119	96.7	76.2	116.2



#43
Cyclohexane
Concen: 0.25 ng
RT: 13.16 min Scan# 1759
Delta R.T. -0.017 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

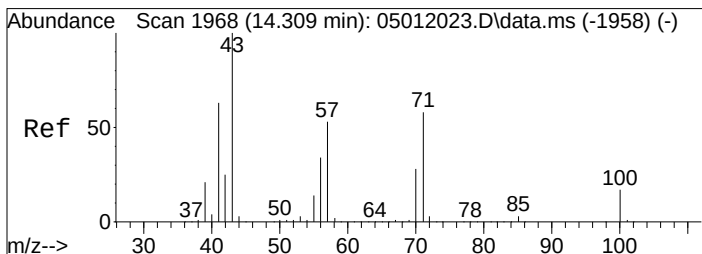
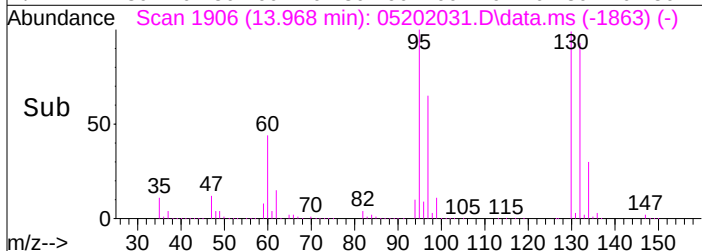
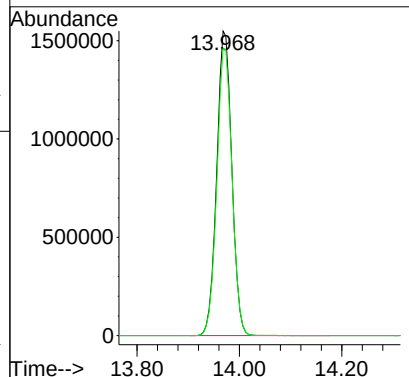
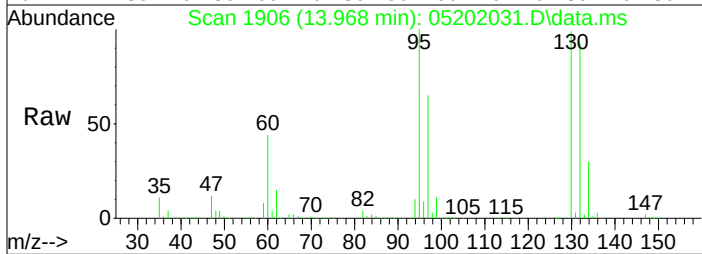
Tgt Ion	Ratio	Lower	Upper
84	100		
69	36.3	16.5	56.5
56	106.4	97.4	137.4





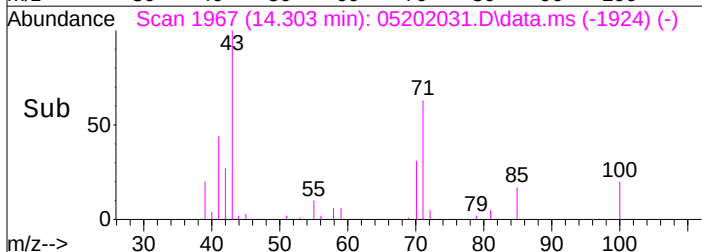
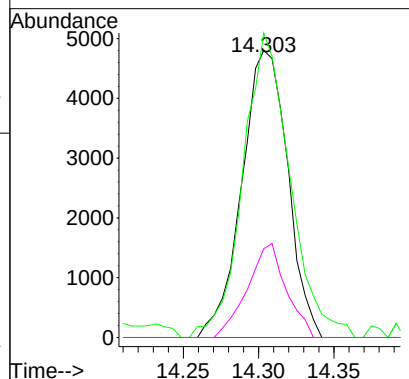
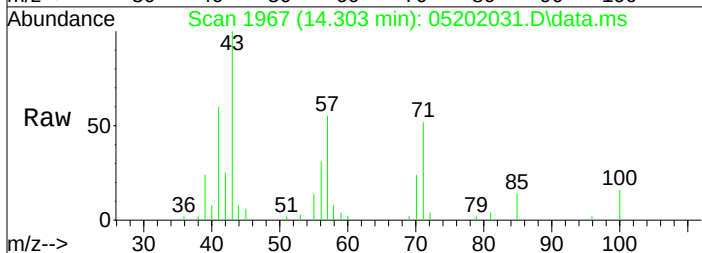
#47
 Trichloroethene
 Concen: 91.71 ng
 RT: 13.97 min Scan# 1906
 Delta R.T. -0.011 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

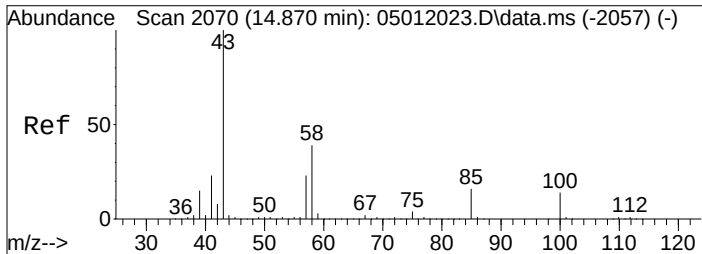
Tgt Ion: 130 Resp: 3161149
 Ion Ratio Lower Upper
 130 100
 132 95.2 74.9 114.9



#51
 n-Heptane
 Concen: 0.33 ng
 RT: 14.30 min Scan# 1967
 Delta R.T. -0.011 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

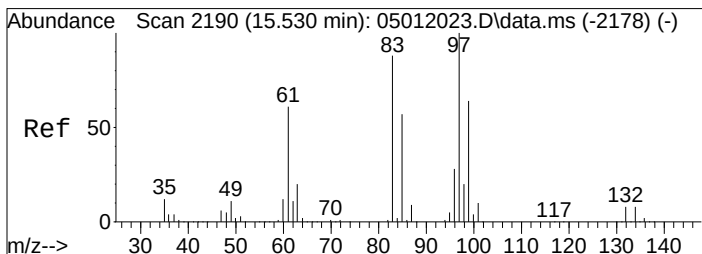
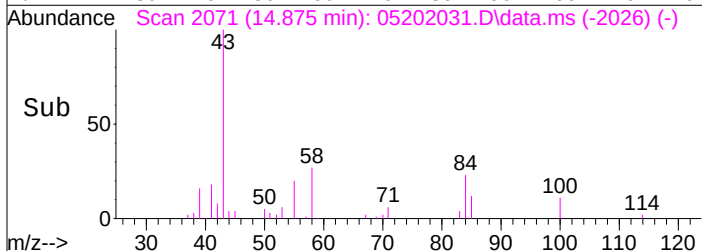
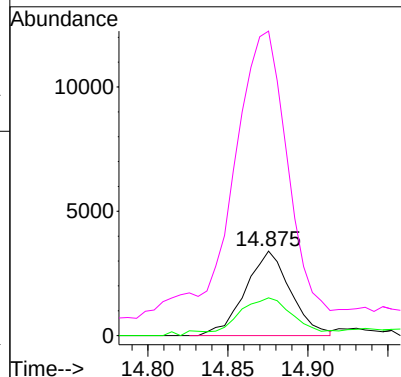
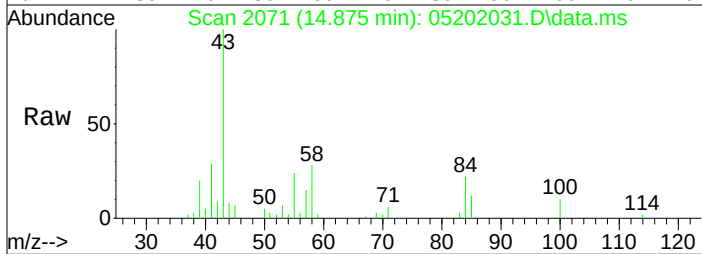
Tgt Ion: 71 Resp: 10164
 Ion Ratio Lower Upper
 71 100
 57 108.9 71.0 111.0
 100 27.6 8.4 48.4





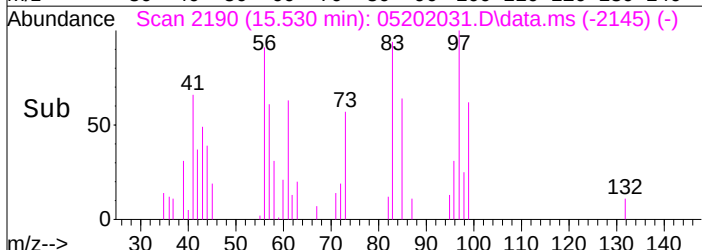
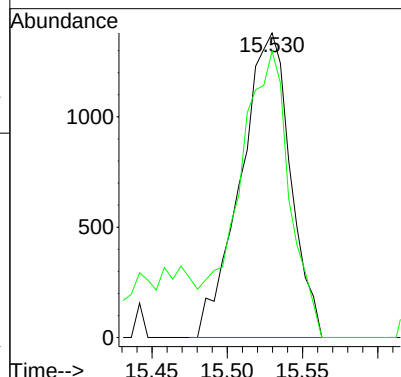
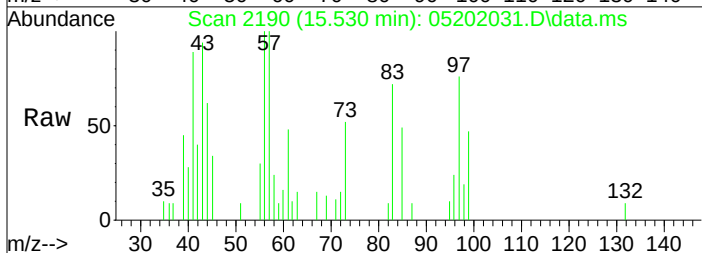
#53
 4-Methyl-2-pentanone
 Concen: 0.23 ng
 RT: 14.88 min Scan# 2071
 Delta R.T. -0.000 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

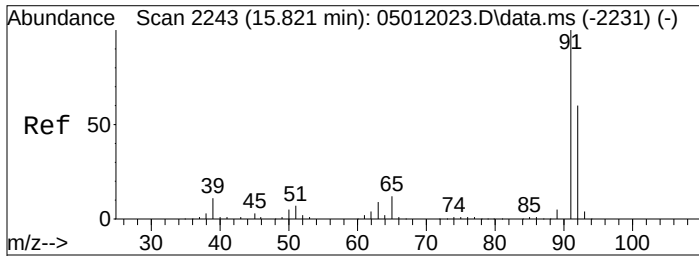
Tgt Ion:	58	Resp:	6716
Ion Ratio	Lower	Upper	
58	100		
85	57.4	35.4	53.2#
43	448.4	203.3	304.9#



#55
 1,1,2-Trichloroethane
 Concen: 0.10 ng
 RT: 15.53 min Scan# 2190
 Delta R.T. -0.000 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

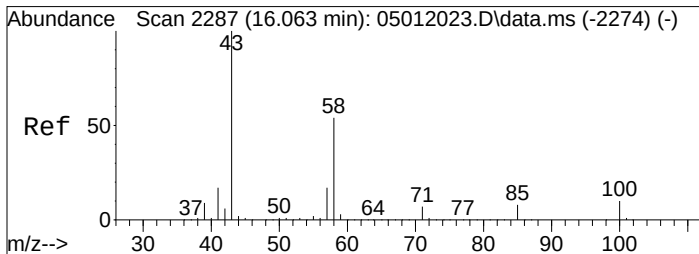
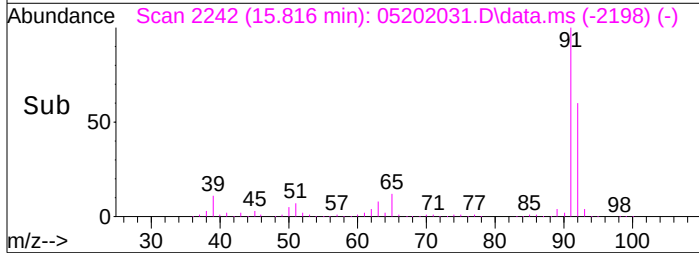
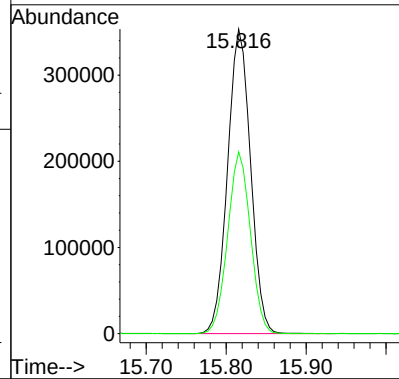
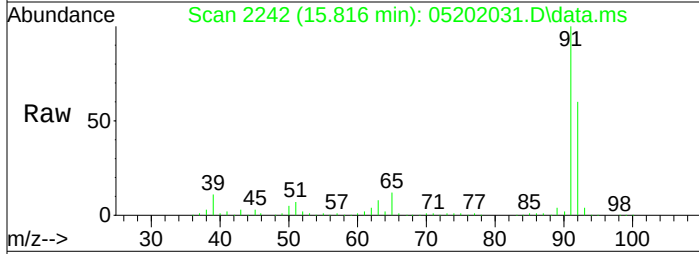
Tgt Ion:	97	Resp:	3183
Ion Ratio	Lower	Upper	
97	100		
83	96.2	67.5	107.5





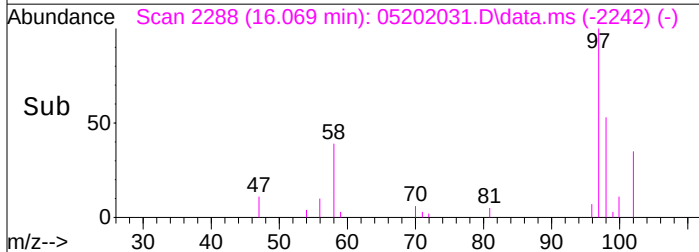
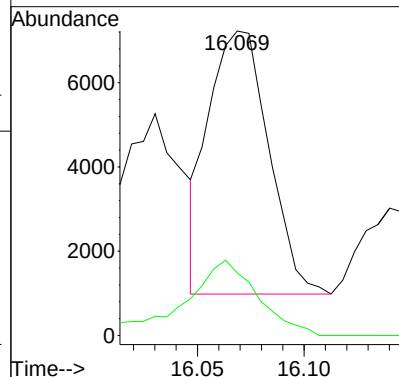
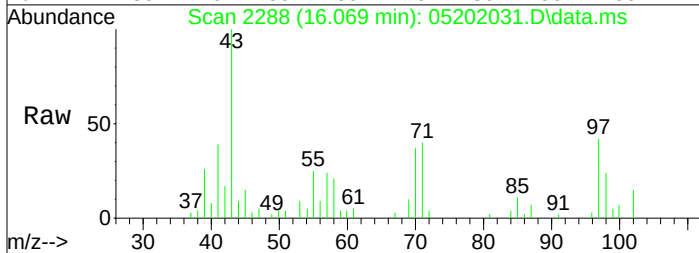
#58
Toluene
Concen: 5.48 ng
RT: 15.82 min Scan# 2242
Delta R.T. -0.006 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

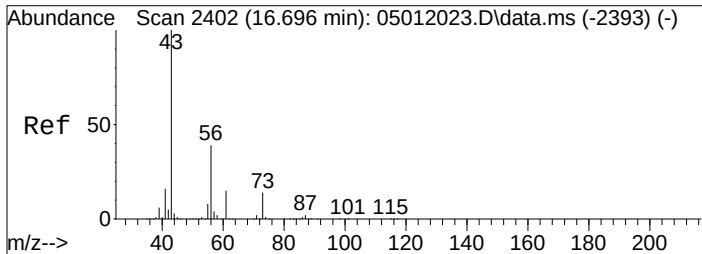
Tgt Ion: 91 Resp: 705105
Ion Ratio Lower Upper
91 100
92 59.0 39.4 79.4



#59
2-Hexanone
Concen: 0.17 ng
RT: 16.07 min Scan# 2288
Delta R.T. 0.005 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

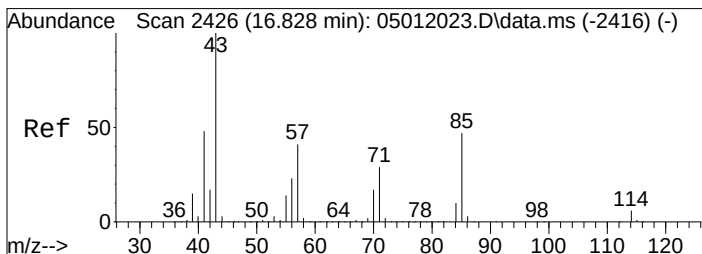
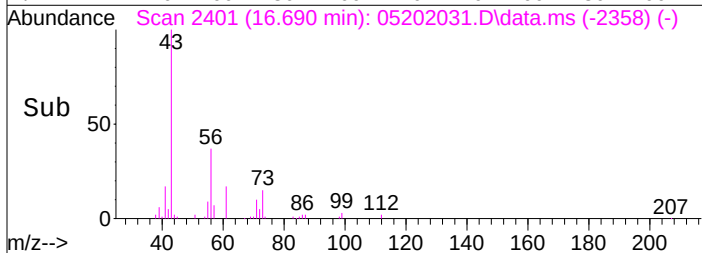
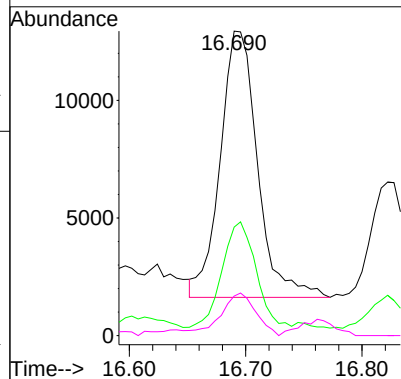
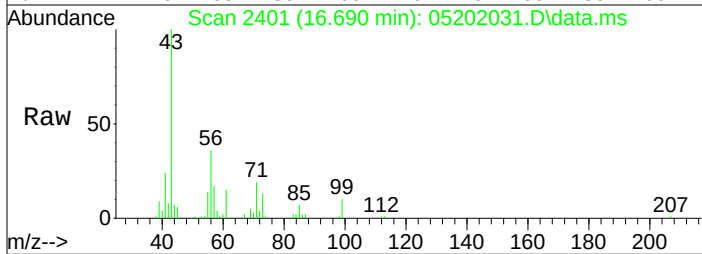
Tgt Ion: 43 Resp: 12226
Ion Ratio Lower Upper
43 100
58 33.9 34.5 74.5#





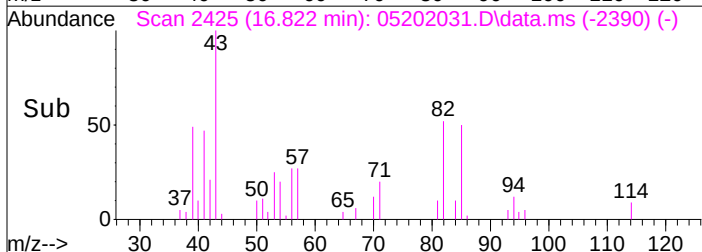
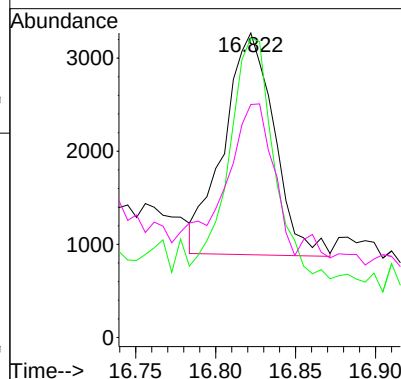
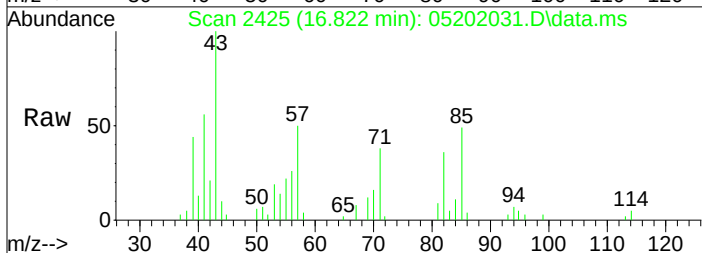
#62
n-Butyl Acetate
Concen: 0.33 ng
RT: 16.69 min Scan# 2401
Delta R.T. -0.011 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

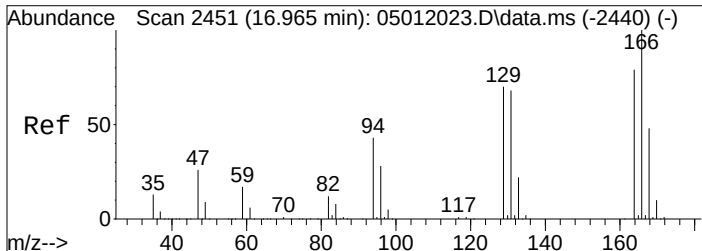
Tgt Ion:	43	Resp:	25252
Ion Ratio		Lower	Upper
43	100		
56	35.7	19.2	59.2
73	14.9	0.0	34.4



#63
n-Octane
Concen: 0.20 ng
RT: 16.82 min Scan# 2425
Delta R.T. -0.006 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

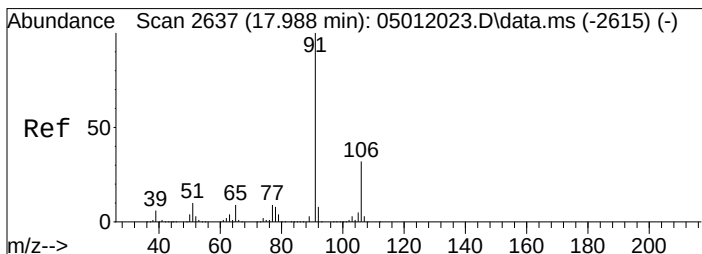
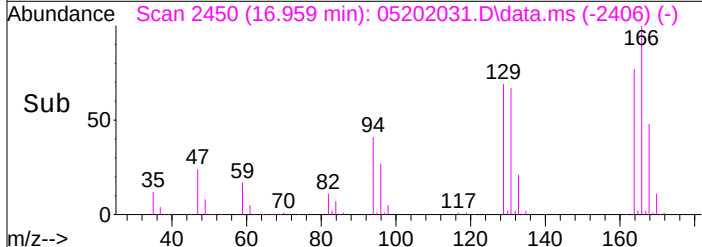
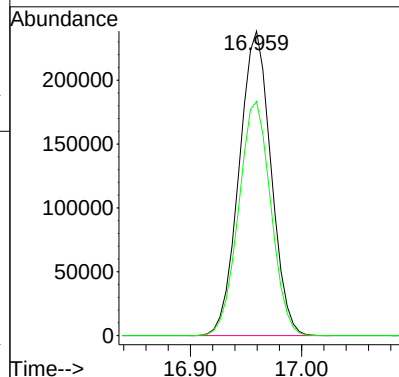
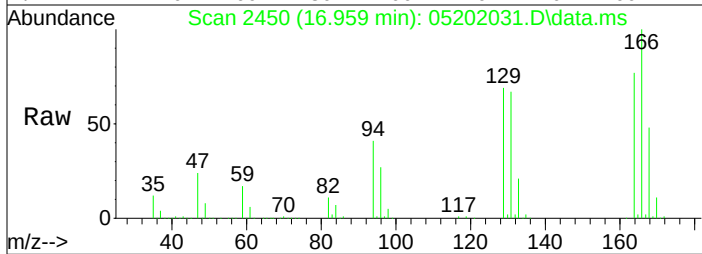
Tgt Ion:	57	Resp:	5226
Ion Ratio		Lower	Upper
57	100		
85	116.7	91.0	136.4
71	63.9	56.2	84.2





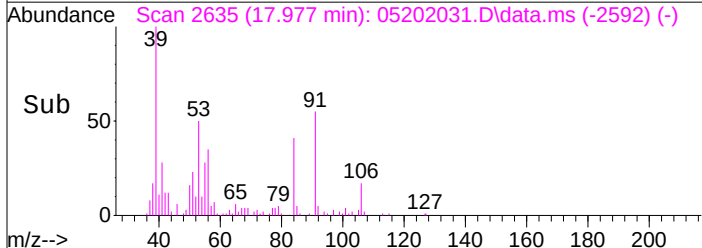
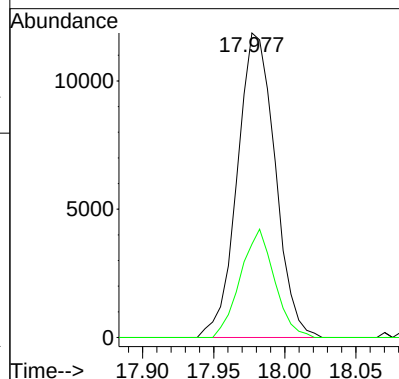
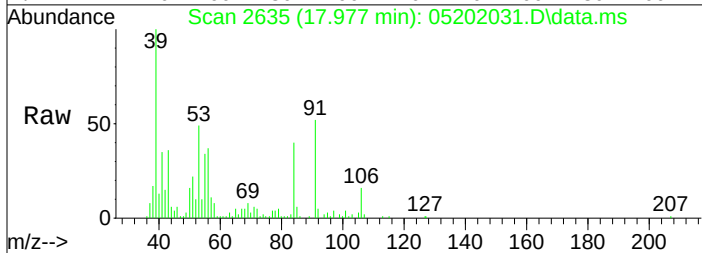
#64
Tetrachloroethene
Concen: 13.04 ng
RT: 16.96 min Scan# 2450
Delta R.T. -0.006 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

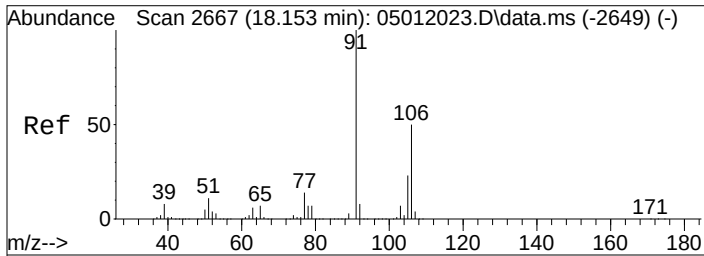
Tgt Ion: 166 Resp: 474036
Ion Ratio Lower Upper
166 100
164 77.6 58.4 98.4



#66
Ethylbenzene
Concen: 0.15 ng
RT: 17.98 min Scan# 2635
Delta R.T. -0.011 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

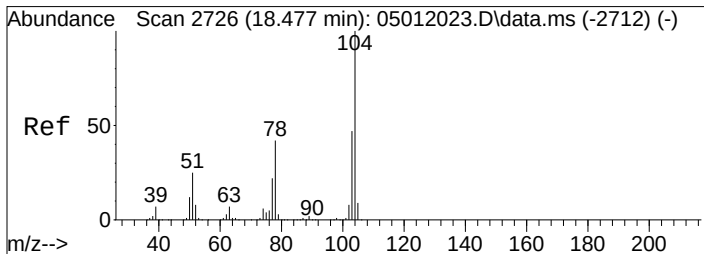
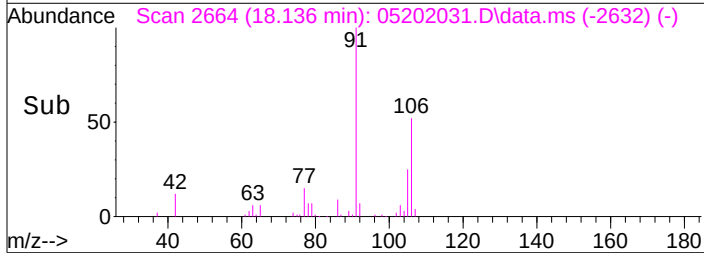
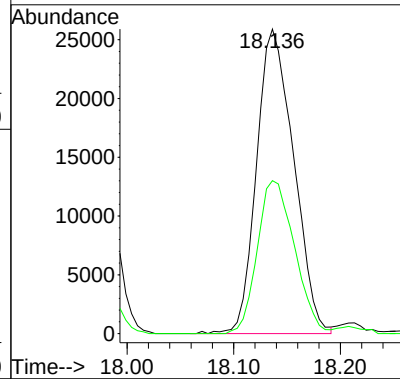
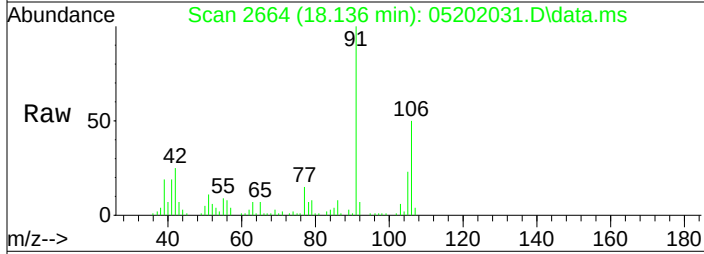
Tgt Ion: 91 Resp: 21980
Ion Ratio Lower Upper
91 100
106 32.1 11.6 51.6





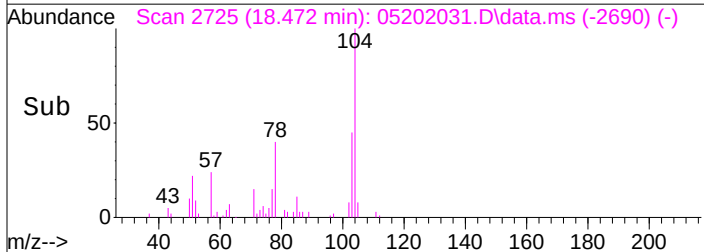
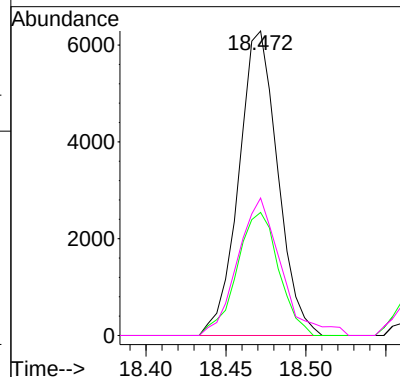
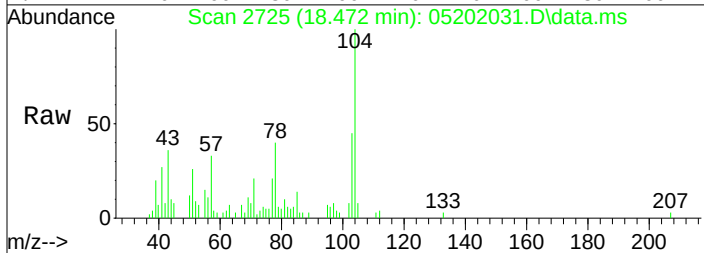
#67
m- & p-Xylenes
Concen: 0.55 ng
RT: 18.14 min Scan# 2664
Delta R.T. -0.022 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

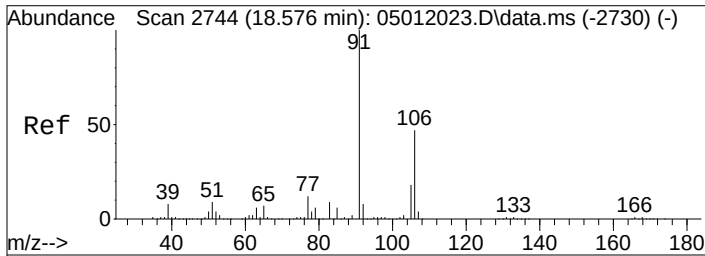
Tgt Ion: 91 Resp: 62731
Ion Ratio Lower Upper
91 100
106 50.3 29.7 69.7



#69
Styrene
Concen: 0.12 ng
RT: 18.47 min Scan# 2725
Delta R.T. -0.006 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

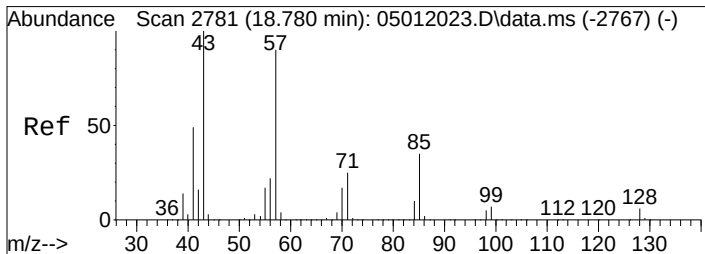
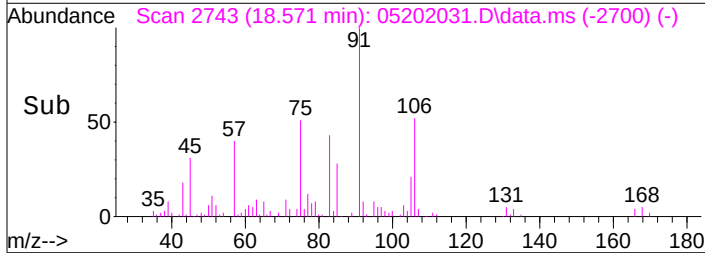
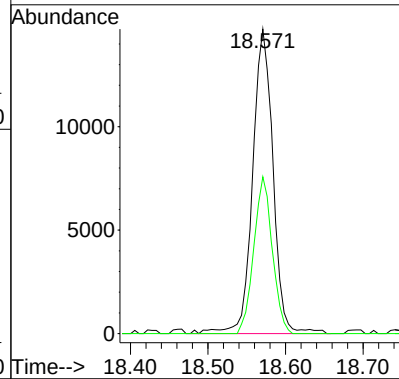
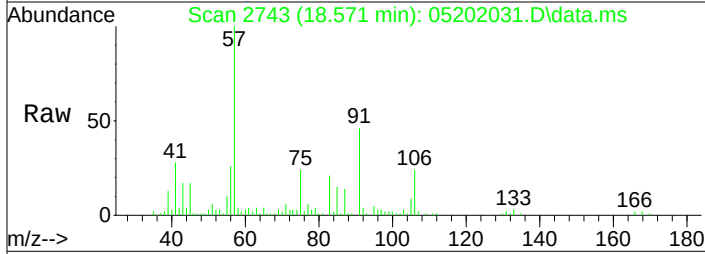
Tgt Ion: 104 Resp: 10676
Ion Ratio Lower Upper
104 100
78 43.4 22.5 62.5
103 50.1 27.0 67.0





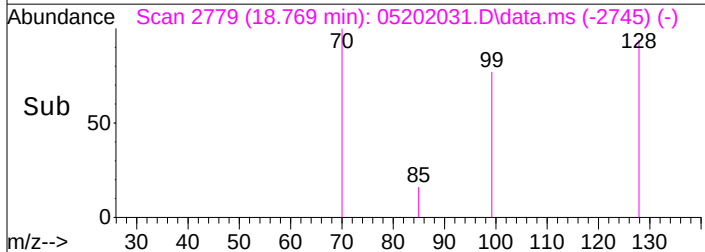
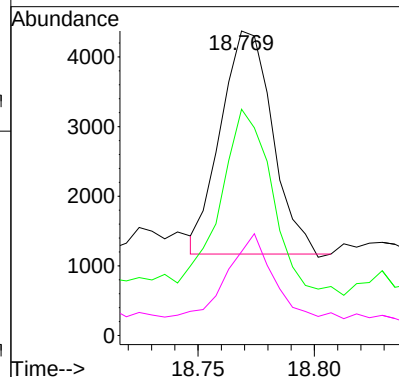
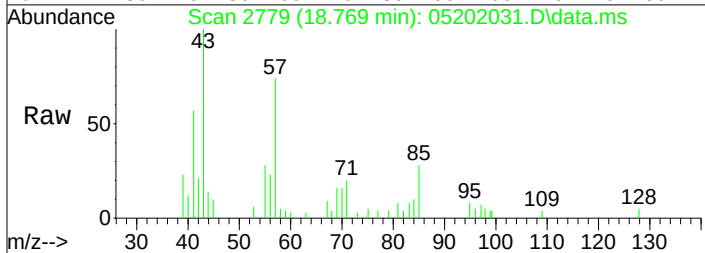
#70
o-Xylene
Concen: 0.23 ng
RT: 18.57 min Scan# 2743
Delta R.T. -0.011 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

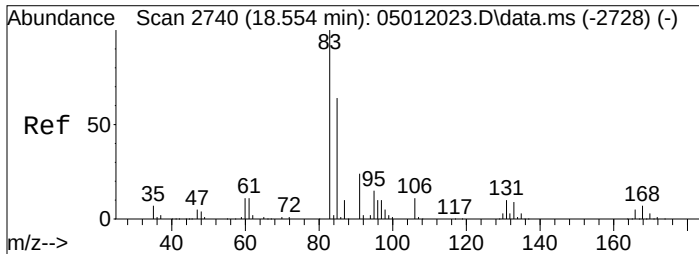
Tgt Ion: 91 Resp: 26967
Ion Ratio Lower Upper
91 100
106 46.5 27.5 67.5



#71
n-Nonane
Concen: 0.08 ng
RT: 18.77 min Scan# 2779
Delta R.T. -0.011 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

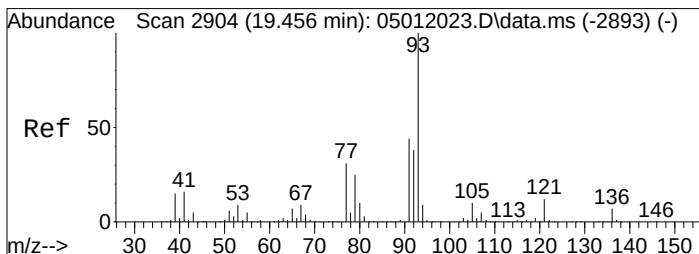
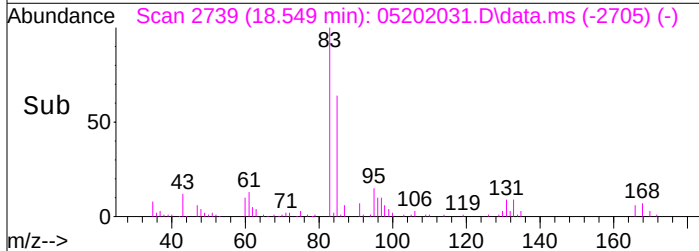
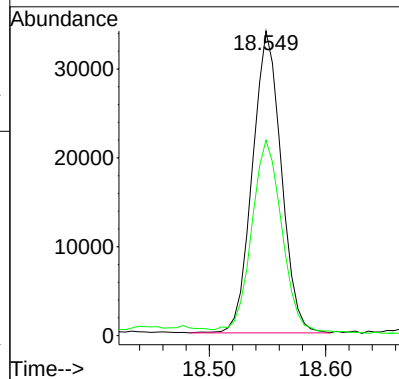
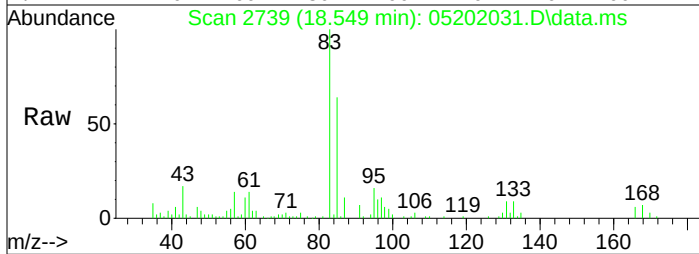
Tgt Ion: 43 Resp: 4956
Ion Ratio Lower Upper
43 100
57 85.0 69.0 109.0
85 39.5 14.6 54.6





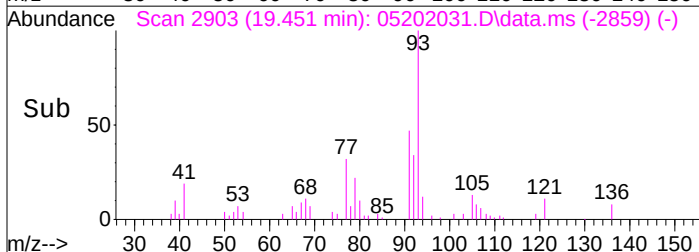
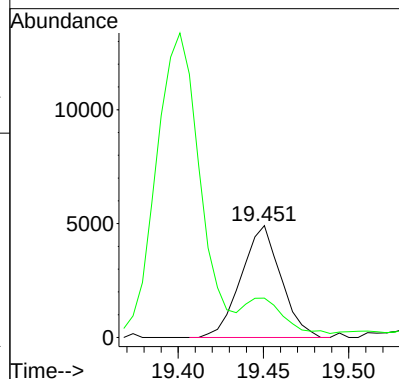
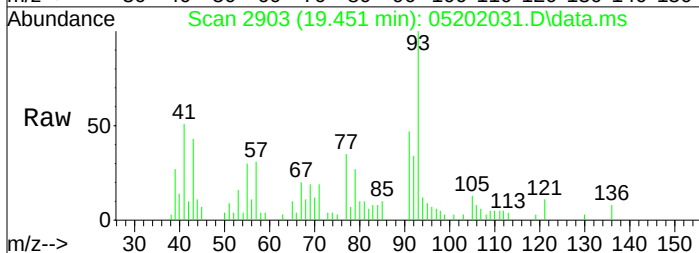
#72
 1,1,2,2-Tetrachloroethane
 Concen: 1.02 ng
 RT: 18.55 min Scan# 2739
 Delta R.T. -0.011 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

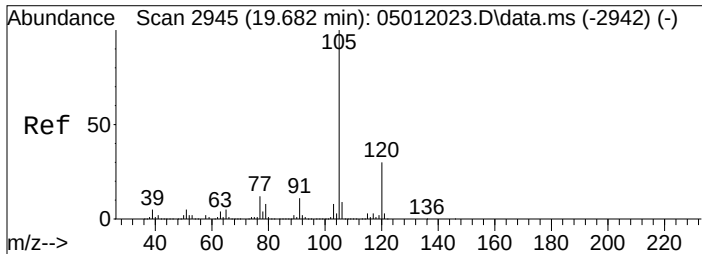
Tgt Ion: 83 Resp: 58479
 Ion Ratio Lower Upper
 83 100
 85 67.8 44.9 84.9



#75
 alpha-Pinene
 Concen: 0.11 ng
 RT: 19.45 min Scan# 2903
 Delta R.T. -0.006 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

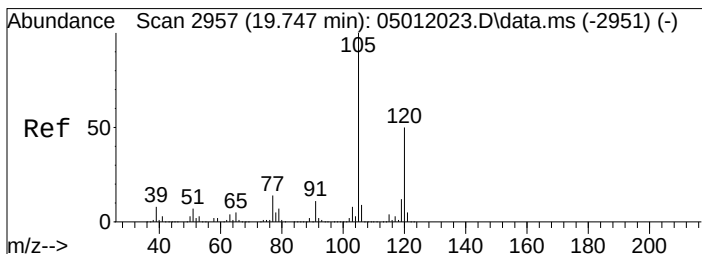
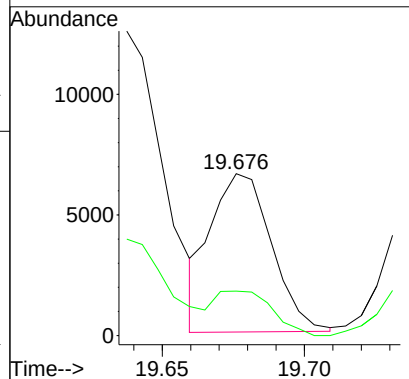
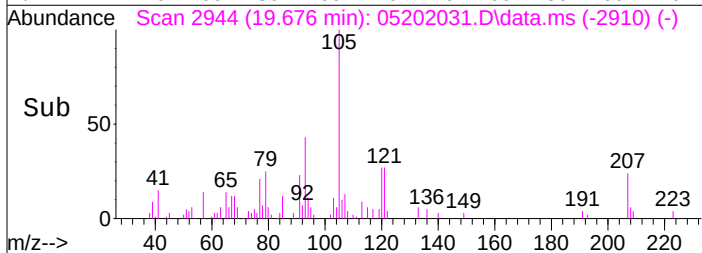
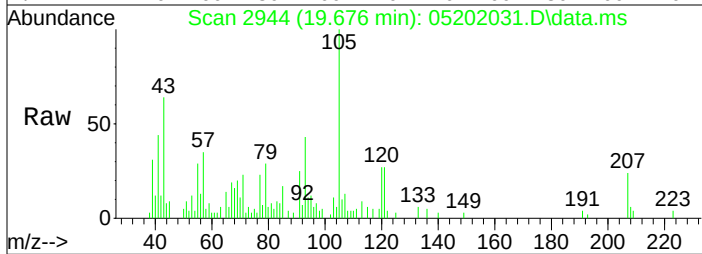
Tgt Ion: 93 Resp: 7950
 Ion Ratio Lower Upper
 93 100
 77 30.6 11.2 51.2





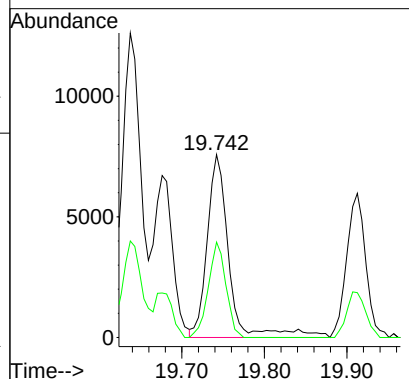
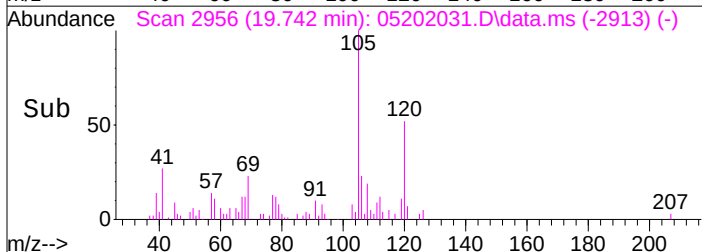
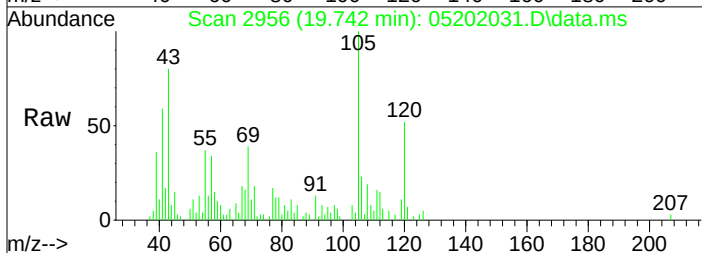
#78
 4-Ethyltoluene
 Concen: 0.07 ng
 RT: 19.68 min Scan# 2944
 Delta R.T. -0.011 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

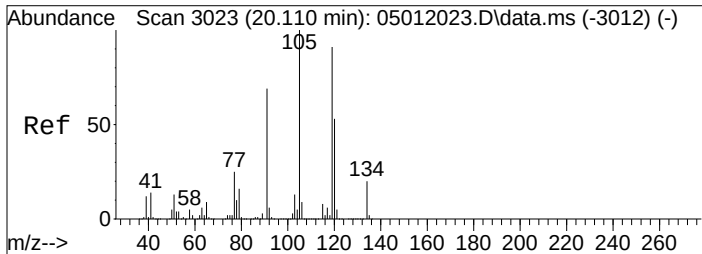
Tgt Ion	105	120	Resp	9801	Lower	Upper
Ion Ratio	100	25.8			10.4	50.4



#79
 1,3,5-Trimethylbenzene
 Concen: 0.12 ng
 RT: 19.74 min Scan# 2956
 Delta R.T. -0.011 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

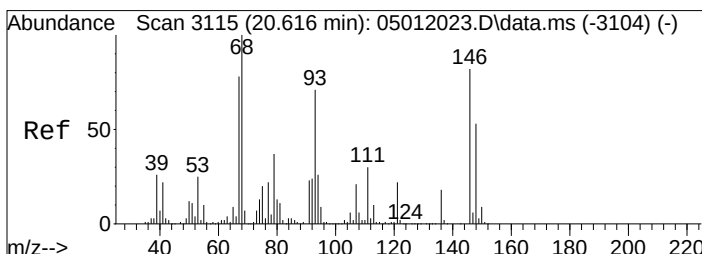
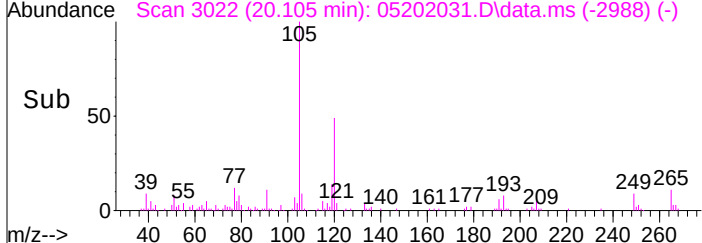
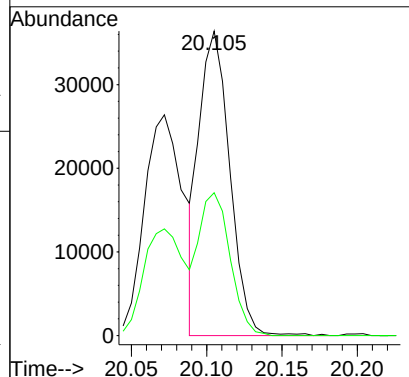
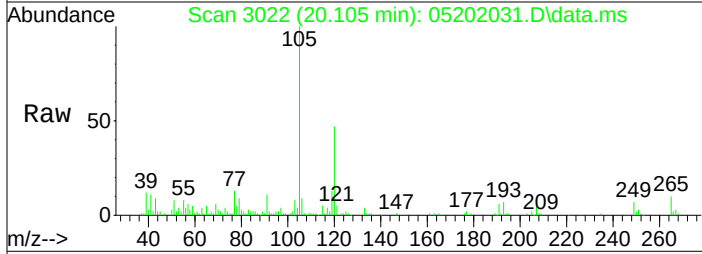
Tgt Ion	105	120	Resp	13848	Lower	Upper
Ion Ratio	100	42.3			29.9	69.9





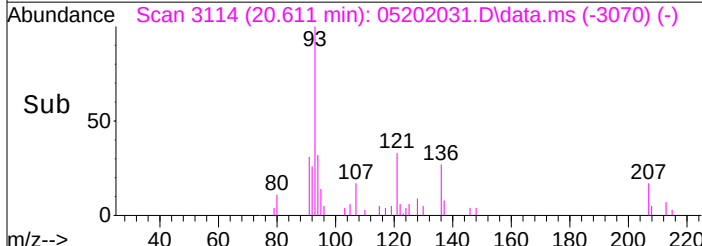
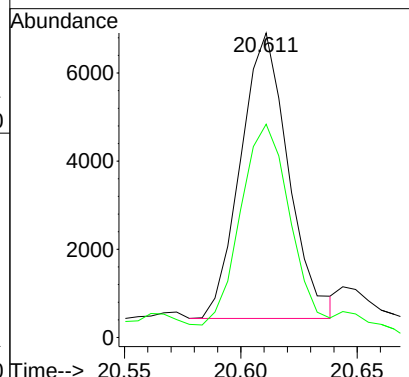
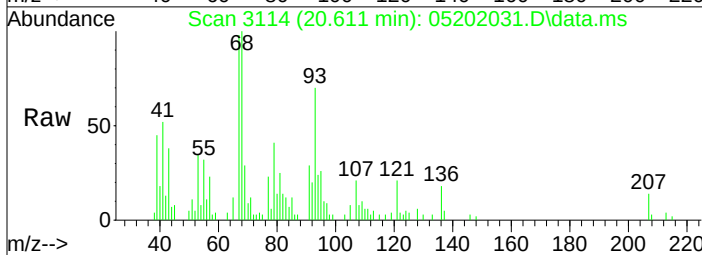
#82
 1,2,4-Trimethylbenzene
 Concen: 0.44 ng
 RT: 20.10 min Scan# 3022
 Delta R.T. -0.011 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

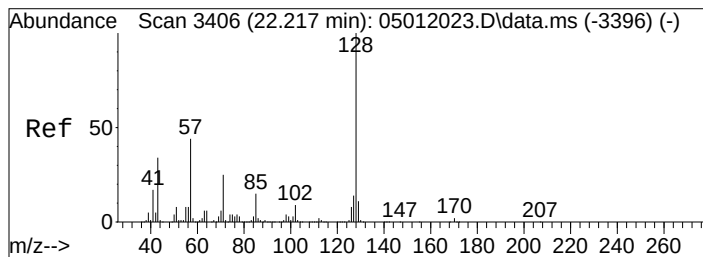
Tgt Ion	Ratio	Resp	Lower	Upper
105	100	51408		
120	47.9	33.6		73.6



#91
 d-Limonene
 Concen: 0.20 ng
 RT: 20.61 min Scan# 3114
 Delta R.T. -0.006 min
 Lab File: 05202031.D
 Acq: 20 May 2020 22:22

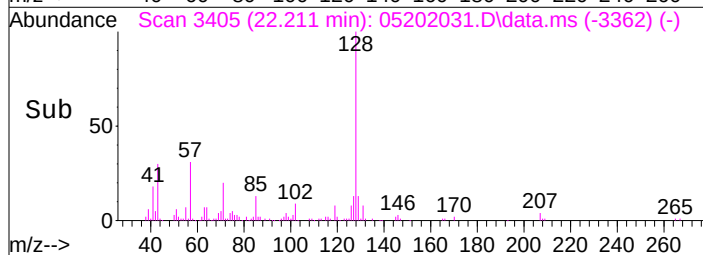
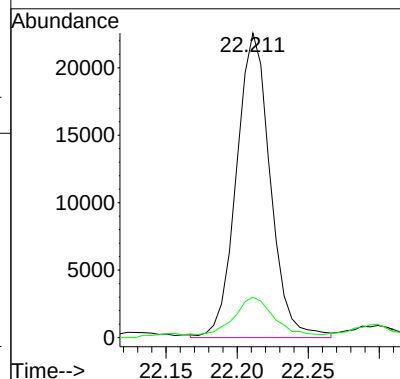
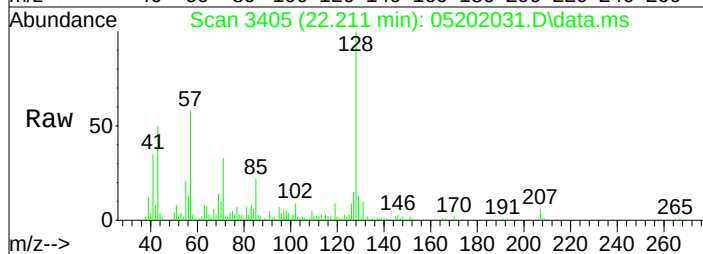
Tgt Ion	Ratio	Resp	Lower	Upper
68	100	9258		
93	88.6	51.1		91.1





#95
Naphthalene
Concen: 0.26 ng
RT: 22.21 min Scan# 3405
Delta R.T. -0.011 min
Lab File: 05202031.D
Acq: 20 May 2020 22:22

Tgt Ion:128 Resp: 37327
Ion Ratio Lower Upper
128 100
129 16.5 0.0 31.0



Data File : I:\MS16\DATA\2020_05\20\05202004.D
 Acq On : 20 May 2020 5:40
 Sample : MB R16052020_1000mL
 Misc : S31-02112001/AS01319

Vial: 2
 Operator: SC
 Inst : GCMS-16

Quant Time: May 20 06:41:23 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 18:22:00 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

5/20/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.13	130	257545	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.26	114	1122958	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.58	82	508958	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	11.99	65	415023	11.891	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.12%
57) Toluene-d8 (SS2)	15.71	98	1086174	12.591	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	100.72%
73) Bromofluorobenzene (SS3)	18.97	174	399630	12.874	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	102.96%

Target Compounds

						Qvalue
2) Propene	4.14	42	5738	0.192	ng	96
3) Dichlorodifluoromethan...	0.00	85	0	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	6.33	45	11753	0.510	ng	90
11) Acetonitrile	6.60	41	4170	0.079	ng	88
12) Acrolein	6.81	56	310	N.D.		
13) Acetone	7.05	58	3373	0.146	ng	# 77
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	7.55	45	1521	N.D.		
16) Acrylonitrile	7.76	53	1127	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.		
19) Methylene Chloride	0.00	84	0	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	0.00	151	0	N.D.		
22) Carbon Disulfide	8.69	76	861	N.D.		
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	0.00	72	0	N.D.		
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.		
31) n-Hexane	0.00	57	0	N.D.		
32) Chloroform	0.00	83	0	N.D.		
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	12.88	56	1537	0.055	ng	88
41) Benzene	12.87	78	749	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	13.27	84	735	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.		
47) Trichloroethene	0.00	130	0	N.D.		
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.		
50) Methyl Methacrylate	14.19	100	307	N.D.		

Data File : I:\MS16\DATA\2020_05\20\05202004.D
 Acq On : 20 May 2020 5:40
 Sample : MB R16052020_1000mL
 Misc : S31-02112001/AS01319

Vial: 2
 Operator: SC
 Inst : GCMS-16

Quant Time: May 20 06:41:23 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)

QLast Update : Fri May 01 18:22:00 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

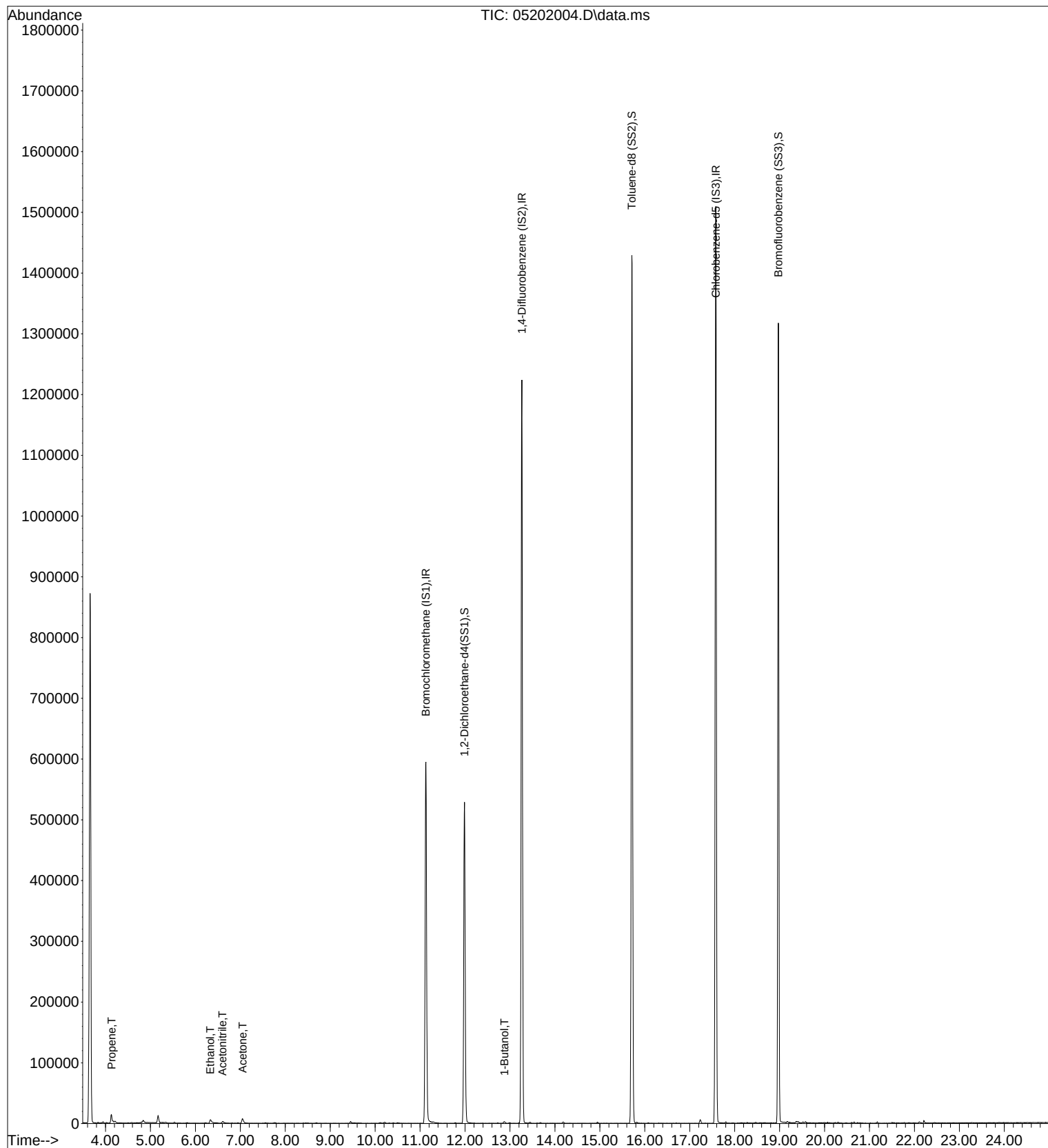
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	15.82	91	813	N.D.		
59) 2-Hexanone	16.08	43	699	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	16.69	43	640	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	0.00	166	0	N.D.		
65) Chlorobenzene	17.62	112	118	N.D.		
66) Ethylbenzene	17.97	91	559	N.D.		
67) m- & p-Xylenes	18.14	91	1896	N.D.		
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.47	104	471	N.D.		
70) o-Xylene	18.57	91	851	N.D.		
71) n-Nonane	0.00	43	0	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	19.20	105	187	N.D.		
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	19.58	91	1878	N.D.		
77) 3-Ethyltoluene	19.64	105	446	N.D.		
78) 4-Ethyltoluene	19.68	105	629	N.D.		
79) 1,3,5-Trimethylbenzene	19.79	105	611	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	19.92	105	452	N.D.		
82) 1,2,4-Trimethylbenzene	20.10	105	985	N.D.		
83) n-Decane	20.37	57	241	N.D.		
84) Benzyl Chloride	20.22	91	592	N.D.		
85) 1,3-Dichlorobenzene	20.24	146	767	N.D.		
86) 1,4-Dichlorobenzene	20.30	146	1065	N.D.		
87) sec-Butylbenzene	20.21	105	435	N.D.		
88) 4-Isopropyltoluene (p-...	20.49	119	254	N.D.		
89) 1,2,3-Trimethylbenzene	20.47	105	172	N.D.		
90) 1,2-Dichlorobenzene	20.60	146	441	N.D.		
91) d-Limonene	20.62	68	255	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	21.17	57	776	N.D.		
94) 1,2,4-Trichlorobenzene	22.11	180	887	N.D.		
95) Naphthalene	22.21	128	3710	N.D.		
96) n-Dodecane	22.14	57	252	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	18.28	55	396	N.D.		
99) tert-Butylbenzene	20.10	119	108	N.D.		
100) n-Butylbenzene	20.85	91	425	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File : I:\MS16\DATA\2020_05\20\05202004.D
Acq On : 20 May 2020 5:40
Sample : MB R16052020_1000mL
Misc : S31-02112001/AS01319

Vial: 2
Operator: SC
Inst : GCMS-16

Quant Time: May 20 06:41:23 2020
Quant Method : I:\MS16\METHODS\R16050120.M
Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
QLast Update : Fri May 01 18:22:00 2020
Response via : Initial Calibration
DataAcq Meth:T015.M



Data File : I:\MS16\DATA\2020_05\20\05202005.D

Vial: 2

Acq On : 20 May 2020 6:14

Operator: SC

Sample : LCS R16052020_25ng

Inst : GCMS-16

Misc : S31-02112001/S34-04292005 (5/28)

Quant Time: May 20 06:41:25 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 18:22:00 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

107 5/20/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.15	130	266609	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.28	114	1166509	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.58	82	536197	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.00	65	433998	12.012	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	96.08%
57) Toluene-d8 (SS2)	15.72	98	1134446	12.482	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	99.84%
73) Bromofluorobenzene (SS3)	18.97	174	433930	13.269	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	106.16%

Target Compounds

						Qvalue
2) Propene	4.08	42	834862	27.037	ng	100
3) Dichlorodifluoromethan...	4.25	85	1460586	24.184	ng	100
4) Chloromethane	4.53	50	1105438	23.363	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	798536	22.130	ng	100
6) Vinyl Chloride	4.94	62	1194203	23.016	ng	99
7) 1,3-Butadiene	5.21	54	1010001	23.526	ng	99
8) Bromomethane	5.65	94	641155	23.392	ng	100
9) Chloroethane	5.98	64	493147	24.059	ng	100
10) Ethanol	6.38	45	2883459	120.934	ng	100
11) Acetonitrile	6.62	41	1315269	24.139	ng	100
12) Acrolein	6.80	56	447582	23.757	ng	100
13) Acetone	7.01	58	3072006	128.831	ng	99
14) Trichlorofluoromethane	7.24	101	1285231	24.079	ng	100
15) 2-Propanol (Isopropanol)	7.52	45	3625992	50.242	ng	99
16) Acrylonitrile	7.77	53	973032	24.962	ng	100
17) 1,1-Dichloroethene	8.20	96	702245	25.098	ng	100
18) 2-Methyl-2-Propanol (t...	8.39	59	3060202	45.482	ng	99
19) Methylene Chloride	8.44	84	744842	24.029	ng	98
20) 3-Chloro-1-propene (Al...	8.59	41	1080580	25.374	ng	99
21) Trichlorotrifluoroethane	8.84	151	652403	25.889	ng	97
22) Carbon Disulfide	8.69	76	2720604	24.494	ng	100
23) trans-1,2-Dichloroethene	9.71	61	1058079	24.834	ng	100
24) 1,1-Dichloroethane	9.96	63	1229423	24.306	ng	100
25) Methyl tert-Butyl Ether	10.05	73	1833050	23.040	ng	100
26) Vinyl Acetate	10.22	86	954759	128.543	ng	# 90
27) 2-Butanone (MEK)	10.46	72	520997	25.620	ng	95
28) cis-1,2-Dichloroethene	10.98	61	1031705	24.757	ng	99
29) Diisopropyl Ether	11.27	87	681203	23.680	ng	# 88
30) Ethyl Acetate	11.28	61	651784	55.585	ng	98
31) n-Hexane	11.26	57	1362679	26.793	ng	100
32) Chloroform	11.32	83	1335498	25.165	ng	100
34) Tetrahydrofuran (THF)	11.72	72	495408	24.978	ng	97
35) Ethyl tert-Butyl Ether	11.86	87	892688	25.679	ng	97
36) 1,2-Dichloroethane	12.12	62	1024502	24.366	ng	100
38) 1,1,1-Trichloroethane	12.40	97	1173781	24.983	ng	100
39) Isopropyl Acetate	12.83	61	1101978	53.621	ng	97
40) 1-Butanol	12.85	56	1637483	56.003	ng	98
41) Benzene	12.88	78	3124254	24.975	ng	100
42) Carbon Tetrachloride	13.04	117	1043168	24.516	ng	100
43) Cyclohexane	13.17	84	2413656	51.777	ng	98
44) tert-Amyl Methyl Ether	13.51	73	2186844	26.070	ng	100
45) 1,2-Dichloropropane	13.73	63	749047	25.854	ng	99
46) Bromodichloromethane	13.92	83	1084556	25.654	ng	100
47) Trichloroethene	13.97	130	826434	25.559	ng	100
48) 1,4-Dioxane	13.95	88	644561	25.583	ng	99
49) 2,2,4-Trimethylpentane...	14.04	57	3129665	25.710	ng	98
50) Methyl Methacrylate	14.18	100	669069	53.913	ng	97

Data File : I:\MS16\DATA\2020_05\20\05202005.D

Vial: 2

Acq On : 20 May 2020 6:14

Operator: SC

Sample : LCS R16052020_25ng

Inst : GCMS-16

Misc : S31-02112001/S34-04292005 (5/28)

Quant Time: May 20 06:41:25 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 18:22:00 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.31	71	753098	25.744	ng	99
52) cis-1,3-Dichloropropene	14.84	75	1344990	27.040	ng	100
53) 4-Methyl-2-pentanone	14.87	58	737309	26.440	ng	98
54) trans-1,3-Dichloropropene	15.35	75	1161486	27.291	ng	100
55) 1,1,2-Trichloroethane	15.52	97	740101	25.760	ng	99
58) Toluene	15.82	91	3091122	26.385	ng	100
59) 2-Hexanone	16.06	43	1846842	28.770	ng	99
60) Dibromochloromethane	16.22	129	925664	27.594	ng	100
61) 1,2-Dibromoethane	16.48	107	872063	27.048	ng	100
62) n-Butyl Acetate	16.70	43	2053760	29.619	ng	99
63) n-Octane	16.82	57	674716	27.819	ng	98
64) Tetrachloroethene	16.96	166	878326	26.543	ng	100
65) Chlorobenzene	17.62	112	2090466	25.933	ng	99
66) Ethylbenzene	17.98	91	3653920	27.971	ng	100
67) m- & p-Xylenes	18.15	91	5804318	56.008	ng	98
68) Bromoform	18.21	173	827307	28.448	ng	100
69) Styrene	18.47	104	2311769	29.659	ng	100
70) o-Xylene	18.58	91	2879441	27.368	ng	100
71) n-Nonane	18.77	43	1618318	28.990	ng	98
72) 1,1,2,2-Tetrachloroethane	18.55	83	1494504	28.633	ng	100
74) Cumene	19.10	105	3606976	27.935	ng	99
75) alpha-Pinene	19.45	93	1889518	27.426	ng	99
76) n-Propylbenzene	19.55	91	4461276	29.084	ng	99
77) 3-Ethyltoluene	19.64	105	3669342	29.361	ng	100
78) 4-Ethyltoluene	19.68	105	3404349	28.074	ng	100
79) 1,3,5-Trimethylbenzene	19.75	105	2975009	28.255	ng	100
80) alpha-Methylstyrene	19.88	118	1562532	26.328	ng	91
81) 2-Ethyltoluene	19.91	105	3545516	28.762	ng	99
82) 1,2,4-Trimethylbenzene	20.11	105	3193005	30.171	ng	99
83) n-Decane	20.20	57	1661080	28.058	ng	99
84) Benzyl Chloride	20.22	91	2742961	27.808	ng	100
85) 1,3-Dichlorobenzene	20.24	146	1802909	29.338	ng	100
86) 1,4-Dichlorobenzene	20.30	146	1851993	30.882	ng	100
87) sec-Butylbenzene	20.35	105	3948670	28.744	ng	100
88) 4-Isopropyltoluene (p-...	20.48	119	3746617	28.800	ng	99
89) 1,2,3-Trimethylbenzene	20.48	105	3144885	28.394	ng	99
90) 1,2-Dichlorobenzene	20.61	146	1767673	30.043	ng	100
91) d-Limonene	20.61	68	1164319	27.856	ng	99
92) 1,2-Dibromo-3-Chloropr...	20.98	157	658739	29.693	ng	98
93) n-Undecane	21.30	57	1716299	31.323	ng	98
94) 1,2,4-Trichlorobenzene	22.11	180	1340324	32.845	ng	100
95) Naphthalene	22.21	128	4417057	34.199	ng	100
96) n-Dodecane	22.21	57	1815862	38.276	ng	98
97) Hexachlorobutadiene	22.53	225	813896	28.833	ng	99
98) Cyclohexanone	18.27	55	1052570	25.667	ng	98
99) tert-Butylbenzene	20.11	119	2987024	28.677	ng	100
100) n-Butylbenzene	20.85	91	3288696	30.521	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Vial: 2
Operator: SC
Inst : GCMS-16

Quant Time: May 20 06:41:25 2020

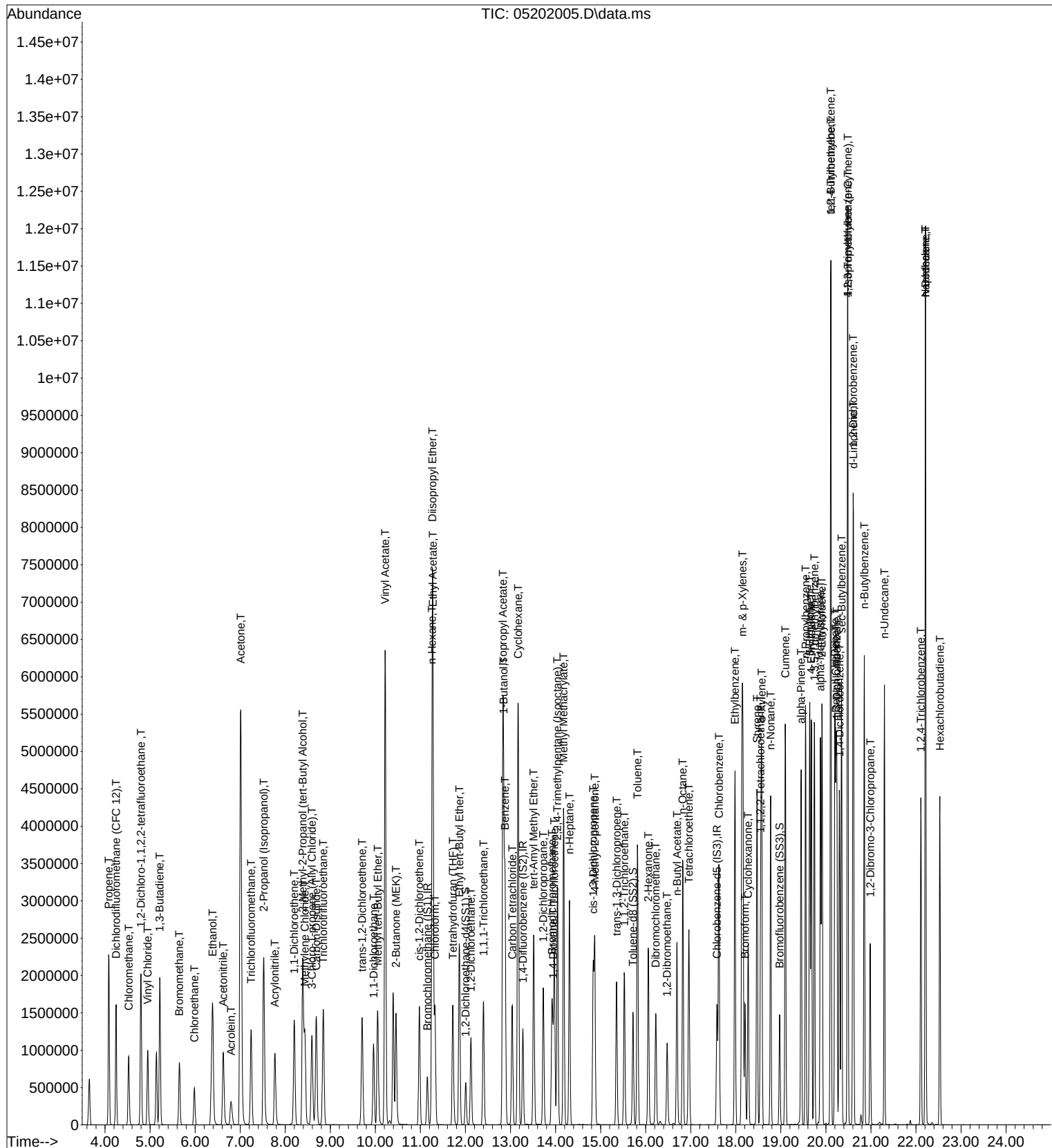
Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP V0A-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 18:22:00 2020

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File : I:\MS16\DATA\2020_05\20\05202006.D
 Acq On : 20 May 2020 6:47
 Sample : LCSD R16052020_25ng
 Misc : S31-02112001/S34-04292005 (5/28)

Vial: 2
 Operator: SC
 Inst : GCMS-16

Quant Time: May 20 08:34:37 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 18:22:00 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

5/20/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	280698	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.28	114	1219953	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.58	82	563274	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.00	65	459007	12.066	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	96.56%
57) Toluene-d8 (SS2)	15.72	98	1184027	12.402	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	99.20%
73) Bromofluorobenzene (SS3)	18.97	174	446504	12.997	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	104.00%

Target Compounds

						Qvalue
2) Propene	4.09	42	859755	26.445	ng	99
3) Dichlorodifluoromethan...	4.25	85	1495513	23.519	ng	100
4) Chloromethane	4.53	50	1193019	23.949	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	813630	21.417	ng	100
6) Vinyl Chloride	4.95	62	1224317	22.412	ng	100
7) 1,3-Butadiene	5.22	54	1037409	22.952	ng	99
8) Bromomethane	5.65	94	667751	23.139	ng	100
9) Chloroethane	5.99	64	512119	23.731	ng	100
10) Ethanol	6.40	45	3076667	122.560	ng	100
11) Acetonitrile	6.63	41	1416576	24.693	ng	100
12) Acrolein	6.80	56	475530	23.974	ng	100
13) Acetone	7.02	58	3124188	124.443	ng	100
14) Trichlorofluoromethane	7.25	101	1322996	23.542	ng	100
15) 2-Propanol (Isopropanol)	7.53	45	3895822	51.271	ng	99
16) Acrylonitrile	7.78	53	1042706	25.407	ng	100
17) 1,1-Dichloroethene	8.20	96	730167	24.786	ng	100
18) 2-Methyl-2-Propanol (t...	8.39	59	3523387	49.738	ng	99
19) Methylene Chloride	8.44	84	777432	23.822	ng	97
20) 3-Chloro-1-propene (Al...	8.60	41	1148402	25.613	ng	98
21) Trichlorotrifluoroethane	8.85	151	674223	25.412	ng	98
22) Carbon Disulfide	8.69	76	2827802	24.182	ng	100
23) trans-1,2-Dichloroethene	9.71	61	1100259	24.528	ng	100
24) 1,1-Dichloroethane	9.96	63	1280784	24.051	ng	100
25) Methyl tert-Butyl Ether	10.05	73	1903765	22.728	ng	99
26) Vinyl Acetate	10.22	86	980809	125.422	ng	# 90
27) 2-Butanone (MEK)	10.46	72	550494	25.712	ng	94
28) cis-1,2-Dichloroethene	10.98	61	1080451	24.625	ng	99
29) Diisopropyl Ether	11.27	87	701444	23.160	ng	# 89
30) Ethyl Acetate	11.28	61	666420	53.980	ng	97
31) n-Hexane	11.26	57	1390989	25.977	ng	99
32) Chloroform	11.32	83	1384021	24.770	ng	100
34) Tetrahydrofuran (THF)	11.72	72	518359	24.824	ng	96
35) Ethyl tert-Butyl Ether	11.87	87	937335	25.610	ng	97
36) 1,2-Dichloroethane	12.13	62	1059485	23.933	ng	100
38) 1,1,1-Trichloroethane	12.40	97	1216722	24.762	ng	100
39) Isopropyl Acetate	12.83	61	1104732	51.400	ng	95
40) 1-Butanol	12.85	56	1649417	53.940	ng	98
41) Benzene	12.88	78	3205261	24.500	ng	100
42) Carbon Tetrachloride	13.04	117	1075954	24.179	ng	100
43) Cyclohexane	13.17	84	2418220	49.603	ng	99
44) tert-Amyl Methyl Ether	13.52	73	2282839	26.022	ng	100
45) 1,2-Dichloropropane	13.73	63	774452	25.560	ng	100
46) Bromodichloromethane	13.92	83	1111841	25.147	ng	100
47) Trichloroethene	13.97	130	843462	24.943	ng	100
48) 1,4-Dioxane	13.95	88	666759	25.305	ng	99
49) 2,2,4-Trimethylpentane...	14.04	57	3236354	25.422	ng	98
50) Methyl Methacrylate	14.18	100	678950	52.312	ng	97

Data File : I:\MS16\DATA\2020_05\20\05202006.D
 Acq On : 20 May 2020 6:47
 Sample : LCSD R16052020_25ng
 Misc : S31-02112001/S34-04292005 (5/28)

Vial: 2
 Operator: SC
 Inst : GCMS-16

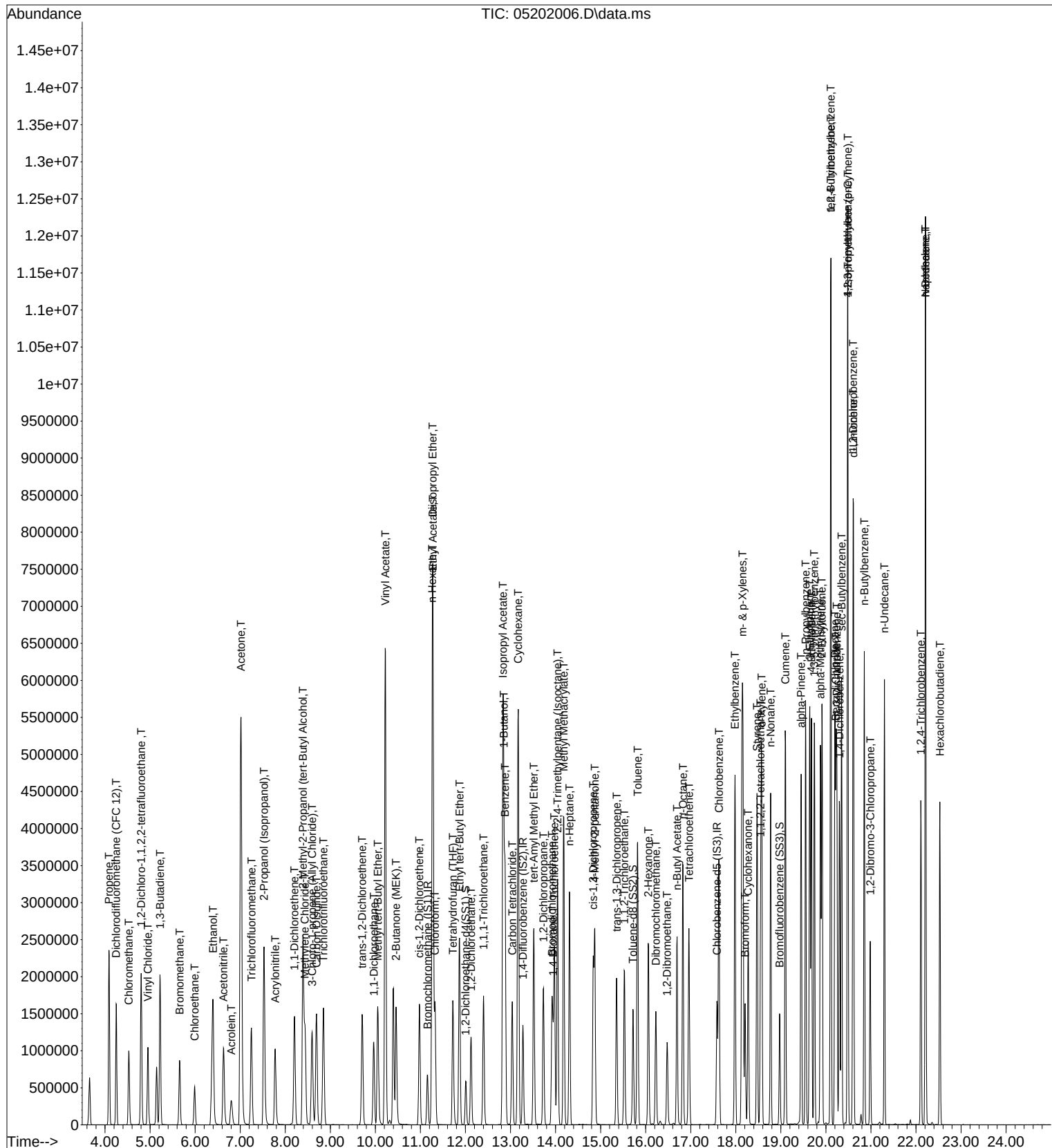
Quant Time: May 20 08:34:37 2020
 Quant Method : I:\MS16\METHODS\R16050120.M
 Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)
 QLast Update : Fri May 01 18:22:00 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.31	71	778059	25.432	ng	98
52) cis-1,3-Dichloropropene	14.84	75	1387636	26.675	ng	100
53) 4-Methyl-2-pentanone	14.87	58	777422	26.657	ng	98
54) trans-1,3-Dichloropropene	15.35	75	1201723	27.000	ng	100
55) 1,1,2-Trichloroethane	15.52	97	763256	25.402	ng	100
58) Toluene	15.82	91	3179128	25.832	ng	100
59) 2-Hexanone	16.06	43	1913970	28.382	ng	99
60) Dibromochloromethane	16.23	129	952727	27.035	ng	100
61) 1,2-Dibromoethane	16.48	107	898670	26.533	ng	100
62) n-Butyl Acetate	16.70	43	2120505	29.111	ng	99
63) n-Octane	16.83	57	691601	27.144	ng	98
64) Tetrachloroethene	16.96	166	894413	25.730	ng	100
65) Chlorobenzene	17.62	112	2146838	25.352	ng	100
66) Ethylbenzene	17.98	91	3719665	27.105	ng	100
67) m- & p-Xylenes	18.15	91	5849891	53.734	ng	98
68) Bromoform	18.21	173	836384	27.377	ng	100
69) Styrene	18.47	104	2318799	28.319	ng	100
70) o-Xylene	18.58	91	2861873	25.894	ng	100
71) n-Nonane	18.77	43	1618121	27.593	ng	97
72) 1,1,2,2-Tetrachloroethane	18.55	83	1507498	27.494	ng	100
74) Cumene	19.10	105	3619472	26.685	ng	100
75) alpha-Pinene	19.45	93	1885494	26.052	ng	99
76) n-Propylbenzene	19.55	91	4459046	27.672	ng	100
77) 3-Ethyltoluene	19.64	105	3674804	27.991	ng	100
78) 4-Ethyltoluene	19.68	105	3463271	27.187	ng	100
79) 1,3,5-Trimethylbenzene	19.74	105	2990309	27.035	ng	99
80) alpha-Methylstyrene	19.88	118	1571618	25.209	ng	92
81) 2-Ethyltoluene	19.91	105	3572308	27.586	ng	100
82) 1,2,4-Trimethylbenzene	20.11	105	3204354	28.823	ng	99
83) n-Decane	20.20	57	1664857	26.770	ng	99
84) Benzyl Chloride	20.22	91	2774839	26.779	ng	100
85) 1,3-Dichlorobenzene	20.24	146	1802351	27.919	ng	100
86) 1,4-Dichlorobenzene	20.30	146	1847531	29.327	ng	100
87) sec-Butylbenzene	20.35	105	3972721	27.529	ng	100
88) 4-Isopropyltoluene (p-...	20.48	119	3789590	27.730	ng	99
89) 1,2,3-Trimethylbenzene	20.48	105	3168696	27.234	ng	99
90) 1,2-Dichlorobenzene	20.61	146	1779298	28.787	ng	100
91) d-Limonene	20.61	68	1182026	26.920	ng	98
92) 1,2-Dibromo-3-Chloropr...	20.98	157	669173	28.713	ng	97
93) n-Undecane	21.30	57	1740866	30.244	ng	98
94) 1,2,4-Trichlorobenzene	22.11	180	1351395	31.524	ng	100
95) Naphthalene	22.21	128	4468138	32.931	ng	100
96) n-Dodecane	22.21	57	1834745	36.815	ng	98
97) Hexachlorobutadiene	22.53	225	820036	27.654	ng	100
98) Cyclohexanone	18.27	55	1094191	25.400	ng	98
99) tert-Butylbenzene	20.11	119	3007284	27.483	ng	100
100) n-Butylbenzene	20.85	91	3307402	29.219	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Vial: 2
Operator: SC
Inst : GCMS-16

Quant Time: May 20 08:34:37 2020
Quant Method : I:\MS16\METHODS\R16050120.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri May 01 18:22:00 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Method Path : I:\MS16\METHODS\

Method File : R16050120.M

Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 5/1/20

Last Update : Fri May 01 18:22:00 2020

Response Via : Initial Calibration

Calibration Files

0.1 =05012018.D 0.2 =05012019.D 0.5 =05012020.D 1.0 =05012021.D 5.0 =05012022.D 25 =05012023.D
 100 =03112009.D

	Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
1) IR	Bromochloromethane...	-----ISTD-----									
2) T	Propene	1.611	1.539	1.503	1.380	1.499	1.474	1.430	1.147	1.448	9.66
3) T	Dichlorodifluo...	3.202	3.003	3.068	2.842	3.010	2.737	2.537	2.254	2.832	11.03
4) T	Chloromethane	2.604	2.435	2.388	2.238	2.356	2.193	2.172	1.361	2.218	16.88
5) T	1,2-Dichloro-1...	1.897	1.683	1.822	1.625	1.745	1.600	1.555	1.607	1.692	7.08
6) T	Vinyl Chloride	2.717	2.540	2.556	2.389	2.585	2.348	2.256	2.069	2.433	8.56
7) T	1,3-Butadiene	2.247	2.061	2.143	1.977	2.145	1.964	1.905	1.660	2.013	9.02
8) T	Bromomethane	1.419	1.343	1.315	1.211	1.293	1.245	1.264	1.190	1.285	5.79
9) T	Chloroethane	1.050	0.952	0.985	0.919	0.990	0.943	0.960	0.887	0.961	5.13
10) T	Ethanol	1.410	1.184	1.009	0.940	1.092	1.112	1.151	1.046	1.118	12.66
11) T	Acetonitrile	3.482	2.840	2.383	2.251	2.529	2.471	2.438	2.042	2.555	17.16
12) T	Acrolein	1.059	0.868	0.880	0.829	0.918	0.879	0.863	0.770	0.883	9.44
13) T	Acetone	1.252	1.110	1.062	0.988	1.109	1.131	1.179	1.113	1.118	6.92
14) T	Trichlorofluor...	2.713	2.523	2.575	2.359	2.565	2.454	2.411	2.421	2.503	4.58
15) T	2-Propanol (Is...	3.870	3.534	3.450	3.257	3.738	3.508	3.156	2.557	3.384	12.00
16) T	Acrylonitrile	2.202	1.897	1.701	1.617	1.893	1.829	1.828	1.654	1.828	10.12
17) T	1,1-Dichloroet...	1.408	1.288	1.314	1.236	1.342	1.312	1.299	1.297	1.312	3.73
18) T	2-Methyl-2-Pro...	3.534	3.198	3.325	3.089	3.578	3.200	2.158		3.155	15.06
19) T	Methylene Chlo...	1.693	1.502	1.403	1.354	1.469	1.431	1.419	1.356	1.453	7.53
20) T	3-Chloro-1-pro...	2.223	1.929	1.964	1.905	2.142	2.028	2.036	1.746	1.997	7.37
21) T	Trichlorotrifl...	1.264	1.065	1.154	1.097	1.218	1.201	1.208	1.246	1.182	5.97
22) T	Carbon Disulfide	6.112	5.388	5.148	4.831	5.368	5.134	5.024	4.656	5.208	8.48
23) T	trans-1,2-Dich...	2.284	2.004	1.981	1.860	2.050	1.980	1.964	1.858	1.998	6.70
24) T	1,1-Dichloroet...	2.569	2.334	2.469	2.238	2.450	2.380	2.330	2.202	2.371	5.15
25) T	Methyl tert-Bu...	4.195	3.994	4.129	3.762	3.968	3.534	3.241	3.018	3.730	11.49
26) T	Vinyl Acetate			0.280	0.275	0.355	0.375	0.393	0.412	0.348	16.73
27) T	2-Butanone (MEK)	1.010	0.938	0.937	0.883	1.007	0.953	0.956	0.944	0.953	4.27
28) T	cis-1,2-Dichlo...	2.186	1.950	1.950	1.831	2.014	1.928	1.927	1.846	1.954	5.66
29) T	Diisopropyl Ether	1.400	1.264	1.362	1.283	1.461	1.320	1.346	1.353	1.349	4.68
30) T	Ethyl Acetate	0.528	0.515	0.507	0.480	0.567	0.596	0.638	0.567	0.550	9.48
31) T	n-Hexane	2.506	2.242	2.328	2.176	2.400	2.485	2.588	2.351	2.385	5.82
32) T	Chloroform	2.635	2.393	2.541	2.359	2.618	2.470	2.464	2.425	2.488	4.07
33) S	1,2-Dichloroet...	1.759	1.788	1.757	1.756	1.704	1.635	1.616	1.538	1.694	5.22
34) T	Tetrahydrofura...	1.068	0.962	0.909	0.857	0.954	0.901	0.903	0.885	0.930	7.02
35) T	Ethyl tert-But...	1.603	1.564	1.583	1.487	1.688	1.661	1.680	1.772	1.630	5.43
36) T	1,2-Dichloroet...	2.204	2.065	2.007	1.843	2.020	1.911	1.892	1.830	1.971	6.45

37) IR	1,4-Difluorobenzen...	-----ISTD-----									
38) T	1,1,1-Trichlor...	0.520	0.477	0.504	0.469	0.521	0.513	0.513	0.511	0.503	3.91
39) T	Isopropyl Acetate	0.217	0.187	0.204	0.189	0.226	0.238	0.254	0.247	0.220	11.50
40) T	1-Butanol	0.335	0.286	0.247	0.231	0.307	0.333	0.362	0.405	0.313	18.51
41) T	Benzene	1.454	1.263	1.288	1.194	1.366	1.343	1.417	1.400	1.340	6.50
42) T	Carbon Tetrach...	0.446	0.414	0.449	0.410	0.482	0.473	0.477	0.496	0.456	6.99
43) T	Cyclohexane	0.491	0.450	0.481	0.443	0.512	0.523	0.544	0.553	0.500	8.14
44) T	tert-Amyl Meth...	0.895	0.829	0.881	0.824	0.950	0.934	0.955	0.923	0.899	5.70
45) T	1,2-Dichloropr...	0.322	0.296	0.311	0.288	0.327	0.317	0.320	0.303	0.310	4.42
46) T	Bromodichlorom...	0.443	0.421	0.437	0.406	0.477	0.479	0.482	0.480	0.453	6.69
47) T	Trichloroethene	0.348	0.318	0.331	0.303	0.355	0.355	0.366	0.396	0.346	8.37
48) T	1,4-Dioxane	0.278	0.250	0.253	0.238	0.274	0.278	0.286	0.303	0.270	7.97
49) T	2,2,4-Trimethy...	1.365	1.266	1.317	1.213	1.370	1.328	1.346	1.231	1.304	4.63
50) T	Methyl Methacr...	0.126	0.113	0.118	0.116	0.138	0.143	0.149	0.161	0.133	13.21
51) T	n-Heptane	0.325	0.297	0.306	0.286	0.318	0.310	0.324	0.342	0.313	5.60
52) T	cis-1,3-Dichlo...	0.535	0.486	0.494	0.468	0.562	0.566	0.581	0.572	0.533	8.30
53) T	4-Methyl-2-pen...	0.303	0.265	0.287	0.272	0.314	0.311	0.319	0.318	0.299	7.10
54) T	trans-1,3-Dich...	0.418	0.389	0.410	0.399	0.496	0.508	0.521	0.506	0.456	12.35

55)	T	1,1,2-Trichlor...	0.300	0.292	0.301	0.279	0.324	0.321	0.324	0.323	0.308	5.60
56)	IR	Chlorobenzene-d5 (...)	-----ISTD-----									
57)	S	Toluene-d8 (SS2)	2.112	2.125	2.110	2.107	2.097	2.123	2.090	2.186	2.119	1.40
58)	T	Toluene	3.003	2.567	2.666	2.473	2.815	2.802	2.780	2.744	2.731	5.97
59)	T	2-Hexanone	1.547	1.361	1.410	1.339	1.614	1.583	1.602	1.515	1.497	7.42
60)	T	Dibromochlorom...	0.735	0.677	0.704	0.667	0.834	0.868	0.864	0.909	0.782	12.37
61)	T	1,2-Dibromoethane	0.757	0.686	0.705	0.663	0.792	0.804	0.797	0.809	0.752	7.82
62)	T	n-Butyl Acetate	1.611	1.401	1.545	1.456	1.756	1.742	1.751	1.671	1.616	8.55
63)	T	n-Octane	0.572	0.504	0.542	0.504	0.578	0.591	0.613	0.620	0.565	7.95
64)	T	Tetrachloroethene	0.764	0.679	0.700	0.653	0.778	0.829	0.838	0.931	0.771	12.10
65)	T	Chlorobenzene	1.873	1.701	1.737	1.609	1.870	1.882	2.340	2.020	1.879	12.02
66)	T	Ethylbenzene	3.030	2.763	2.965	2.768	3.264	3.313	3.301	2.958	3.045	7.41
67)	T	m- & p-Xylenes	2.416	2.101	2.285	2.203	2.562	2.656	2.741	2.363	2.416	9.24
68)	T	Bromoform			0.523	0.502	0.708	0.751	0.755	0.828	0.678	19.74
69)	T	Styrene	1.554	1.405	1.689	1.594	2.029	2.068	2.060	2.138	1.817	15.77
70)	T	o-Xylene	2.442	2.173	2.312	2.170	2.597	2.662	2.680	2.586	2.453	8.61
71)	T	n-Nonane	1.287	1.140	1.243	1.181	1.387	1.412	1.455	1.306	1.301	8.60
72)	T	1,1,2,2-Tetrac...	1.206	1.074	1.114	1.057	1.298	1.323	1.337	1.325	1.217	9.86
73)	S	Bromofluoroben...	0.715	0.714	0.725	0.724	0.787	0.802	0.783	0.849	0.762	6.56
74)	T	Cumene	3.035	2.729	2.906	2.711	3.284	3.320	3.265	2.830	3.010	8.41
75)	T	alpha-Pinene	1.511	1.362	1.446	1.393	1.701	1.785	1.795	1.856	1.606	12.43
76)	T	n-Propylbenzene	3.631	3.223	3.513	3.346	3.994	4.033	3.904	2.964	3.576	10.84
77)	T	3-Ethyltoluene	2.929	2.407	2.714	2.579	3.163	3.387	3.232	2.897	2.913	11.58
78)	T	4-Ethyltoluene	2.513	2.455	2.758	2.630	3.275	3.167	3.181	2.637	2.827	11.64
79)	T	1,3,5-Trimethy...	2.364	2.022	2.272	2.212	2.706	2.770	2.730	2.561	2.455	11.29
80)	T	alpha-Methylst...			1.138	1.116	1.443	1.485	1.469	1.649	1.384	15.29
81)	T	2-Ethyltoluene	2.821	2.480	2.756	2.582	3.185	3.223	3.148	2.796	2.874	9.82
82)	T	1,2,4-Trimethy...	2.215	1.944	2.255	2.185	2.813	3.050	2.878	2.397	2.467	16.03
83)	T	n-Decane			1.125	1.102	1.410	1.517	1.611	1.515	1.380	15.65
84)	T	Benzyl Chloride				1.519	2.279	2.600	2.687	2.413	2.300	20.21
85)	T	1,3-Dichlorobe...	1.252	1.034	1.264	1.221	1.626	1.660	1.639	1.766	1.433	18.79
86)	T	1,4-Dichlorobe...	1.206	1.004	1.283	1.196	1.601	1.620	1.581	1.693	1.398	18.29
87)	T	sec-Butylbenzene	3.179	2.829	3.093	2.947	3.632	3.636	3.486	2.818	3.203	10.67
88)	T	4-Isopropyltol...			2.761	2.656	3.414	3.547	3.227	2.590	3.033	13.68
89)	T	1,2,3-Trimethy...			2.234	2.175	2.830	3.061	2.870	2.323	2.582	14.77
90)	T	1,2-Dichlorobe...	1.199	1.054	1.223	1.173	1.569	1.646	1.594	1.513	1.372	16.90
91)	T	d-Limonene	0.811	0.750	0.867	0.867	1.070	1.169	1.205	1.057	0.974	17.65
92)	T	1,2-Dibromo-3-...			0.388	0.391	0.568	0.581	0.581	0.595	0.517	19.22
93)	T	n-Undecane			0.906	0.866	1.357	1.474	1.565	1.496	1.277	24.32
94)	T	1,2,4-Trichlor...			0.655	0.635	1.013	1.144	1.183	1.078	0.951	25.70
95)	T	Naphthalene			2.173	2.044	3.472	3.864	3.717	2.796	3.011	26.24
96)	T	n-Dodecane			0.500	0.482	1.251	1.474	1.554	1.375	1.106	44.05
97)	T	Hexachlorobuta...			0.463	0.446	0.622	0.725	0.766	0.927	0.658	28.24
98)	T	Cyclohexanone	1.048	0.943	0.832	0.804	0.983	0.979	0.980	1.079	0.956	10.00
99)	T	tert-Butylbenzene	2.363	2.071	2.240	2.164	2.722	2.855	2.658	2.351	2.428	11.70
100)	T	n-Butylbenzene	2.187	1.921	2.417	2.334	2.916	2.966	2.883	2.471	2.512	15.09

(#) = Out of Range

R16050120.M Fri May 01 18:44:38 2020

1ng/L Std. ID: S34-04272015
4ng/L Std. ID: S34-05012002
20ng/L Std. ID: S34-05012002

40ng/L Std. ID: S31-04282003
200ng/L Std. ID: S31-04282003
1000ng/L Std. ID: S31-04282003

Primary Source Standards Concentrations (Working & Initial Calibration)

LM 5/1/20

Dilution Factors:														Working STD Conc. (ng/L):																											
		1		5		25		50		250		1000		Injection (L):		ICAL Points:																									
Compounds		Source Std. mg/m ³		1000ng/L		200ng/L		40ng/L		20ng/L		4ng/L		1ng/L				4		0.050		0.0250		0.050		20		200		0.125		200		0.25		200		50ng		100ng	
Propene		1.06	1060	212	42.4	21.2	4.24	21.2	4.24	212	42.4	21.2	4.24	1.06	0.106		0.050		0.0250		0.050		1ng		1.06		26.50		53.0		26.50		53.0		106						
Dichlorodifluoromethane		1.06	1060	212	42.4	21.2	4.24	21.2	4.24	212	42.4	21.2	4.24	1.06	0.106		0.212		0.530		0.530		1.06		1.06		26.50		53.0		26.50		53.0		106						
Chloromethane		1.06	1060	212	42.4	21.2	4.24	21.2	4.24	212	42.4	21.2	4.24	1.06	0.106		0.212		0.530		0.530		1.06		1.06		26.50		53.0		26.50		53.0		106						
Freon-114		1.05	1050	210	42.0	21.0	4.20	21.0	4.20	210	42.0	21.0	4.20	1.05	0.105		0.210		0.525		0.525		1.05		1.05		26.25		52.5		26.25		52.5		105						
Vinyl Chloride		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	216	43.2	21.6	4.32	1.08	0.108		0.216		0.540		0.540		1.08		1.08		27.00		54.0		27.00		54.0		108						
1,3-Butadiene		1.06	1060	212	42.4	21.2	4.24	21.2	4.24	212	42.4	21.2	4.24	1.06	0.106		0.212		0.530		0.530		1.06		1.06		26.50		53.0		26.50		53.0		106						
Bromomethane		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	216	43.2	21.6	4.32	1.08	0.108		0.216		0.540		0.540		1.08		1.08		27.00		54.0		27.00		54.0		108						
Chloroethane		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	216	43.2	21.6	4.32	1.08	0.108		0.216		0.540		0.540		1.08		1.08		27.00		54.0		27.00		54.0		108						
Ethanol		5.21	5210	1042	208.4	104.2	20.84	104.2	20.84	1042	208.4	104.2	20.84	5.21	0.521		1.042		2.605		2.605		5.21		5.21		130.25		260.5		130.25		260.5		521						
Acetonitrile		1.05	1050	210	42.0	21.0	4.20	21.0	4.20	210	42.0	21.0	4.20	1.05	0.105		0.210		0.525		0.525		1.05		1.05		26.25		52.5		26.25		52.5		105						
Acrolein		1.03	1030	206	41.2	20.6	4.12	20.6	4.12	206	41.2	20.6	4.12	1.03	0.103		0.206		0.515		0.515		1.03		1.03		25.75		51.5		25.75		51.5		103						
Acetone		5.33	5330	1066	213.2	106.6	21.32	106.6	21.32	1066	213.2	106.6	21.32	5.33	0.533		1.066		2.665		2.665		5.33		5.33		133.25		266.5		133.25		266.5		533						
Trichlorofluoromethane		1.06	1060	212	42.4	21.2	4.24	21.2	4.24	212	42.4	21.2	4.24	1.06	0.106		0.212		0.530		0.530		1.06		1.06		26.50		53.0		26.50		53.0		106						
Isopropanol		2.10	2100	420	84.0	42.0	8.40	42.0	8.40	420	84.0	42.0	8.40	2.10	0.210		0.420		1.050		1.050		2.10		2.10		52.50		105.0		52.50		105.0		210						
Acrylonitrile		1.05	1050	210	42.0	21.0	4.20	21.0	4.20	210	42.0	21.0	4.20	1.05	0.105		0.210		0.525		0.525		1.05		1.05		26.25		52.5		26.25		52.5		105						
1,1-Dichloroethene		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	216	43.2	21.6	4.32	1.08	0.108		0.216		0.540		0.540		1.08		1.08		27.00		54.0		27.00		54.0		108						
tert-Butanol		2.16	2160	432	86.4	43.2	8.64	43.2	8.64	432	86.4	43.2	8.64	2.16	0.216		0.432		1.080		1.080		2.16		2.16		54.00		108.0		54.00		108.0		216						
Methylene Chloride		1.06	1060	212	42.4	21.2	4.24	21.2	4.24	212	42.4	21.2	4.24	1.06	0.106		0.212		0.530		0.530		1.06		1.06		26.50		53.0		26.50		53.0		106						
Vinyl Chloride		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	216	43.2	21.6	4.32	1.08	0.108		0.216		0.540		0.540		1.08		1.08		27.00		54.0		27.00		54.0		108						
1,1,1-Trichloroethane		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	216	43.2	21.6	4.32	1.08	0.108		0.216		0.540		0.540		1.08		1.08		27.00		54.0		27.00		54.0		108						
Carbon Disulfide		1.07	1070	214	42.8	21.4	4.28	21.4	4.28	214	42.8	21.4	4.28	1.07	0.107		0.214		0.535		0.535		1.07		1.07		26.75		53.5		26.75		53.5		107						
trans-1,2-Dichloroethene		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	216	43.2	21.6	4.32	1.08	0.108		0.216		0.540		0.540		1.08		1.08		27.00		54.0		27.00		54.0		108						
1,1-Dichloroethane		1.09	1090	218	43.6	21.8	4.36	21.8	4.36	218	43.6	21.8	4.36	1.09	0.109		0.218		0.545		0.545		1.09		1.09		27.25		54.5		27.25		54.5		109						
Methyl tert-Butyl Ether		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	216	43.2	21.6	4.32	1.08	0.108		0.216		0.540		0.540		1.08		1.08		27.00		54.0		27.00		54.0		108						
Vinyl Acetate		5.35	5350	1070	214.0	107.0	21.40	107.0	21.40	1070	214.0	107.0	21.40	5.35	0.535		1.070		2.675		2.675		5.35		5.35		133.75		267.5		133.75		267.5		535						
2-Butanone		1.06	1060	212	42.4	21.2	4.24	21.2	4.24	212	42.4	21.2	4.24	1.06	0.106		0.212		0.530		0.530		1.06		1.06		26.50		53.0		26.50		53.0		106						
cis-1,2-Dichloroethene		1.06	1060	212	42.4	21.2	4.24	21.2	4.24	212	42.4	21.2	4.24	1.06	0.106		0.212		0.530		0.530		1.06		1.06		26.50		53.0		26.50		53.0		106						
Diisopropyl Ether		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	216	43.2	21.6	4.32	1.08	0.108		0.216		0.540		0.540		1.08		1.08		27.00		54.0		27.00		54.0		108						
Ethyl Acetate		2.17	2170	434	86.8	43.4	8.68	43.4	8.68	434	86.8	43.4	8.68	2.17	0.217		0.434		1.085		1.085		2.17		2.17		54.25		108.5		54.25		108.5		217						
n-Hexane		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	216	43.2	21.6	4.32	1.08	0.108		0.216		0.540		0.540		1.08		1.08		27.00		54.0		27.00		54.0		108						
Chloroform		1.07	1070	214	42.8	21.4	4.28	21.4	4.28	214	42.8	21.4	4.28	1.07	0.107		0.214		0.535		0.535		1.07		1.07		26.75		53.5		26.75		53.5		107						
Tetrahydrofuran		1.09	1090	218	43.6	21.8	4.36	21.8	4.36	218	43.6	21.8	4.36	1.09	0.109		0.218		0.545		0.545		1.09		1.09		27.25		54.5		27.25		54.5		109						
Ethyl tert-Buyl Ether		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	216	43.2	21.6	4.32	1.08	0.108		0.216		0.540		0.540		1.08		1.08		27.00		54.0		27.00		54.0		108						
1,2-Dichloroethane		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	216	43.2	21.6	4.32	1.08	0.108		0.216		0.540		0.540		1.08		1.08		27.00		54.0		27.00		54.0		108						
1,1,1-Trichloroethane		1.07	1070	214	42.8	21.4	4.28	21.4	4.28	214	42.8	21.4	4.28	1.07	0.107		0.214		0.535		0.535		1.07		1.07		26.75		53.5		26.75		53.5		107						
Isopropyl Acetate		2.11	2110	422	84.4	42.2	8.44	42.2	8.44	422	84.4	42.2	8.44	2.11	0.211		0.422		1.055		1.055		2.11		2.11		52.75		105.5		52.75		105.5		211						
1-Butanol		2.08	2080	416	83.2	41.6	8.32	41.6	8.32	416	83.2	41.6	8.32	2.08	0.208		0.416		1.040		1.040		2.08		2.08		52.00		104.0		52.00		104.0		208						
Benzene		1.06	1060	212	42.4	21.2	4.24	21.2	4.24	212	42.4	21.2	4.24	1.06	0.106		0.212		0.530		0.530		1.06		1.06		26.50		53.0		26.50		53.0		106						
Carbon Tetrachloride		1.05	1050	210	42.0	21.0	4.20	21.0	4.20	210	42.0	21.0	4.20	1.05	0.105		0.210		0.525		0.525		1.05		1.05		26.25		52.5		26.25		52.5		105						
Cyclohexane		2.12	2120	424	84.8	42.4	8.48	42.4	8.48	424	84.8	42.4	8.48	2.12	0.212		0.424		1.060		1.060		2.12		2.12		53.00		106.0		53.00		106.0		212						
tert-Amyl Methyl Ether		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	216	43.2	21.6	4.32	1.08	0.108		0.216		0.540		0.540		1.08		1.08		27.00		54.0		27.00		54.0		108						
1,2-Dichloropropane		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	216	43.2	21.6	4.32	1.08	0.108		0.216		0.540		0.540		1.08		1.08		27.00		54.0		27.00		54.0		108						
Bromodichloromethane		1.08	1080	216	43.2	21.6	4.32	21.6	4.32	216	43.2	21.6	4.32	1.08	0.108		0.216		0.540		0.540		1.08		1.08		27.00		54.0		27.00		54.0		108						
Trichloroethene		1.07	1070	214	42.8	21.4	4.28	21.4	4.28	214	42.8	21.4	4.28	1.07	0.107		0.214		0.535		0.535		1.07		1.07		26.75		53.5		26.75		53.5		107						
1,4-Dioxane		1.08	1080	216	43.2	21.6	4.32																																		

LN 5/1/20

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID: S34-04272015 4ng/L Std. ID: S34-05012002 20ng/L Std. ID: S34-05012002			40ng/L Std. ID: S31-04292003 200ng/L Std. ID: S31-04292003 1000ng/L Std. ID: S31-04292003						
Dilution Factors:			Primary Working Standards						
	Source Std. mg/m ³	1000ng/L	200ng/L	40ng/L	20ng/L	50	250	1000	
Compounds									
cis-1,3-Dichloropropene	1.04	1040	208	41.6	20.8	4.16	1.04		
4-Methyl-2-pentanone	1.06	1060	212	42.4	21.2	4.24	1.06		
trans-1,3-Dichloropropene	1.06	1060	212	42.4	21.2	4.24	1.06		
1,1,2-Trichloroethane	1.07	1070	214	42.8	21.4	4.28	1.07		
Toluene	1.07	1070	214	42.8	21.4	4.28	1.07		
2-Hexanone	1.07	1070	214	42.8	21.4	4.28	1.07		
Dibromochloromethane	1.07	1070	214	42.8	21.4	4.28	1.07		
1,2-Dibromoethane	1.07	1070	214	42.8	21.4	4.28	1.07		
n-Butyl Acetate	1.09	1090	218	43.6	21.8	4.36	1.09		
n-Octane	1.08	1080	216	43.2	21.6	4.32	1.08		
Tetrachloroethene	1.04	1040	208	41.6	20.8	4.16	1.04		
Chlorobenzene	1.07	1070	214	42.8	21.4	4.28	1.07		
Ethylbenzene	1.07	1070	214	42.8	21.4	4.28	1.07		
m- & p-Xylene	2.14	2140	428	85.6	42.8	8.56	2.14		
Bromolform	1.07	1070	214	42.8	21.4	4.28	1.07		
Styrene	1.06	1060	212	42.4	21.2	4.24	1.06		
o-Xylene	1.07	1070	214	42.8	21.4	4.28	1.07		
n-Nonane	1.07	1070	214	42.8	21.4	4.28	1.07		
1,1,2,2-Tetrachloroethane	1.07	1070	214	42.8	21.4	4.28	1.07		
Camphene	1.08	1080	216	43.2	21.6	4.32	1.08		
alpha-Phiene	1.07	1070	214	42.8	21.4	4.28	1.07		
n-Propylbenzene	1.08	1080	216	43.2	21.6	4.32	1.08		
3-Ethyltoluene	1.06	1060	212	42.4	21.2	4.24	1.06		
4-Ethyltoluene	1.08	1080	216	43.2	21.6	4.32	1.08		
1,3,5-Trimethylbenzene	1.06	1060	212	42.4	21.2	4.24	1.06		
alpha-Methylstyrene	1.07	1070	214	42.8	21.4	4.28	1.07		
2-Ethyltoluene	1.08	1080	216	43.2	21.6	4.32	1.08		
1,2,4-Trimethylbenzene	1.07	1070	214	42.8	21.4	4.28	1.07		
n-Decane	1.07	1070	214	42.8	21.4	4.28	1.07		
Benzyl Chloride	1.08	1080	216	43.2	21.6	4.32	1.08		
1,3-Dichlorobenzene	1.07	1070	214	42.8	21.4	4.28	1.07		
1,4-Dichlorobenzene	1.07	1070	214	42.8	21.4	4.28	1.07		
sec-Butylbenzene	1.07	1070	214	42.8	21.4	4.28	1.07		
p-Isopropyltoluene	1.09	1090	218	43.6	21.8	4.36	1.09		
1,2,3-Trimethylbenzene	1.09	1090	218	43.6	21.8	4.36	1.09		
1,2-Dichlorobenzene	1.07	1070	214	42.8	21.4	4.28	1.07		
d-Limonene	1.08	1080	216	43.2	21.6	4.32	1.08		
1,2-Dibromo-3-chloropropane	1.05	1050	210	42.0	21.0	4.20	1.05		
n-Undecane	1.08	1080	216	43.2	21.6	4.32	1.08		
1,2,4-Trichlorobenzene	1.07	1070	214	42.8	21.4	4.28	1.07		
Naphthalene	1.03	1030	206	41.2	20.6	4.12	1.03		
n-Dodecane	1.04	1040	208	41.6	20.8	4.16	1.04		
Hexachloro-1,3-butadiene	1.06	1060	212	42.4	21.2	4.24	1.06		
Methacrylonitrile	1.06	1060	212	42.4	21.2	4.24	1.06		
Cyclohexanone	1.00	1000	200	40.0	20.0	4.00	1.00		
tert-Butylbenzene	1.07	1070	214	42.8	21.4	4.28	1.07		
n-Butylbenzene	1.07	1070	214	42.8	21.4	4.28	1.07		

Working STD Conc.(ng/L):										
4	4	20	20	200	200	200	200	200	200	200
0.025	0.050	0.0250	0.050	0.025	0.050	0.025	0.050	0.025	0.050	0.25
0.10g	0.2ng	0.5ng	1ng	5ng	25ng	5ng	1ng	5ng	25ng	50ng
0.104	0.208	0.520	1.04	5.20	26.00	5.20	1.04	5.20	26.00	52.0
0.106	0.212	0.530	1.06	5.30	26.50	5.30	1.06	5.30	26.50	53.0
0.106	0.212	0.530	1.06	5.30	26.50	5.30	1.06	5.30	26.50	53.0
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.108	0.216	0.540	1.08	5.40	27.00	5.40	1.08	5.40	27.00	54.0
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.108	0.216	0.540	1.08	5.40	27.00	5.40	1.08	5.40	27.00	54.0
0.106	0.212	0.530	1.06	5.30	26.50	5.30	1.06	5.30	26.50	53.0
0.108	0.216	0.540	1.08	5.40	27.00	5.40	1.08	5.40	27.00	54.0
0.106	0.212	0.530	1.06	5.30	26.50	5.30	1.06	5.30	26.50	53.0
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.108	0.216	0.540	1.08	5.40	27.00	5.40	1.08	5.40	27.00	54.0
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5
0.107	0.214	0.535	1.07	5.35	26.75	5.35	1.07	5.35	26.75	53.5

Method : I:\MS16\METHODS\R16050120.M (RTE Integrator)
 Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 Last Update : Fri May 01 18:22:00 2020
 Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	0.1	0	13	I:\MS16\DATA\2020_05\01\05012018.D
2	0.2	0	13	I:\MS16\DATA\2020_05\01\05012019.D
3	0.5	1	13	I:\MS16\DATA\2020_05\01\05012020.D
4	1.0	1	13	I:\MS16\DATA\2020_05\01\05012021.D
5	5.0	5	13	I:\MS16\DATA\2020_05\01\05012022.D
6	25	27	13	I:\MS16\DATA\2020_05\01\05012023.D
7	50	53	13	I:\MS16\DATA\2020_05\01\05012024.D
8	100	106	13	I:\MS16\DATA\2020_03\11\03112009.D

#	ID	Update Time	Quant Time	Acquisition Time
1	0.1	May 01 17:28 2020	May 01 17:26 2020	1 May 2020 14:09
2	0.2	May 01 17:28 2020	May 01 17:26 2020	1 May 2020 14:42
3	0.5	May 01 17:28 2020	May 01 17:26 2020	1 May 2020 15:16
4	1.0	May 01 17:29 2020	May 01 17:26 2020	1 May 2020 15:51
5	5.0	May 01 17:29 2020	May 01 17:26 2020	1 May 2020 16:25
6	25	May 01 17:29 2020	May 01 17:26 2020	1 May 2020 16:59
7	50	May 01 18:22 2020	May 01 18:21 2020	1 May 2020 17:33
8	100	May 01 17:01 2020	Mar 11 10:34 2020	11 Mar 2020 4:52

R16050120.M

Fri May 01 18:52:03 2020

LH 5/1/20

Data File : I:\MS16\DATA\2020_05\01\05012018.D
 Acq On : 1 May 2020 14:09
 Sample : 0.1ng T015 ICAL STD
 Misc : S31-02112001/S34-04272015 (5/26)

Vial: 6
 Operator: LH
 Inst : GCMS-16

Quant Time: May 01 17:26:08 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 17:25:50 2020

Response via : Initial Calibration

LH 5/1/20

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.13	130	289278	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.26	114	1281029	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.58	82	612084	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	11.99	65	508980	12.744	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.92%
57) Toluene-d8 (SS2)	15.72	98	1292505	11.971	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.76%
73) Bromofluorobenzene (SS3)	18.98	174	437866	11.415	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	91.28%

Target Compounds

						Qvalue
2) Propene	4.13	42	3951	0.128	ng	96
3) Dichlorodifluoromethan...	4.28	85	7854	0.120	ng	99
4) Chloromethane	4.55	50	6389	0.124	ng	98
5) 1,2-Dichloro-1,1,2,2-t...	4.83	135	4609	0.112	ng	98
6) Vinyl Chloride	4.97	62	6791	0.124	ng	98
7) 1,3-Butadiene	5.24	54	5512	0.135	ng	93
8) Bromomethane	5.66	94	3547	0.129	ng	100
9) Chloroethane	5.99	64	2625	0.124	ng	97
10) Ethanol	6.32	45	16999	0.700	ng	96
11) Acetonitrile	6.59	41	8460	0.157	ng	84
12) Acrolein	6.79	56	2525	0.141	ng	97
13) Acetone	7.01	58	15440	0.650	ng	# 85
14) Trichlorofluoromethane	7.25	101	6656	0.116	ng	97
15) 2-Propanol (Isopropanol)	7.50	45	18806	0.266	ng	91
16) Acrylonitrile	7.74	53	5351	0.149	ng	99
17) 1,1-Dichloroethene	8.21	96	3518	0.123	ng	97
18) 2-Methyl-2-Propanol (t...	8.40	59	17666	0.282	ng	93
19) Methylene Chloride	8.40	84	4154	0.134	ng	94
20) 3-Chloro-1-propene (Al...	8.58	41	5555	0.137	ng	88
21) Trichlorotrifluoroethane	8.84	151	3158	0.114	ng	96
22) Carbon Disulfide	8.69	76	15135	0.136	ng	97
23) trans-1,2-Dichloroethene	9.68	61	5709	0.137	ng	99
24) 1,1-Dichloroethane	9.93	63	6480	0.122	ng	98
25) Methyl tert-Butyl Ether	10.09	73	10484	0.124	ng	100
26) Vinyl Acetate	10.21	86	3501	0.438	ng	# 69
27) 2-Butanone (MEK)	10.48	72	2477	0.126	ng	# 74
28) cis-1,2-Dichloroethene	10.95	61	5362	0.125	ng	95
29) Diisopropyl Ether	11.29	87	3500	0.113	ng	# 86
30) Ethyl Acetate	11.28	61	2653	0.229	ng	98
31) n-Hexane	11.26	57	6264	0.117	ng	97
32) Chloroform	11.30	83	6525	0.114	ng	100
34) Tetrahydrofuran (THF)	11.75	72	2693	0.133	ng	91
35) Ethyl tert-Butyl Ether	11.87	87	4007	0.109	ng	93
36) 1,2-Dichloroethane	12.11	62	5509	0.123	ng	98
38) 1,1,1-Trichloroethane	12.39	97	5705	0.113	ng	98
39) Isopropyl Acetate	12.84	61	4697	0.226	ng	# 91
40) 1-Butanol	12.85	56	7144	0.220	ng	93
41) Benzene	12.87	78	15792	0.120	ng	98
42) Carbon Tetrachloride	13.03	117	4803	0.106	ng	98
43) Cyclohexane	13.17	84	10671	0.211	ng	98
44) tert-Amyl Methyl Ether	13.53	73	9904	0.115	ng	97
45) 1,2-Dichloropropane	13.72	63	3569	0.117	ng	99
46) Bromodichloromethane	13.91	83	4900	0.109	ng	98
47) Trichloroethene	13.96	130	3818	0.102	ng	96
48) 1,4-Dioxane	13.96	88	3076	0.120	ng	99
49) 2,2,4-Trimethylpentane...	14.05	57	14967	0.118	ng	97
50) Methyl Methacrylate	14.18	100	2774	0.218	ng	96

Data File : I:\MS16\DATA\2020_05\01\05012018.D
 Acq On : 1 May 2020 14:09
 Sample : 0.1ng T015 ICAL STD
 Misc : S31-02112001/S34-04272015 (5/26)

Vial: 6
 Operator: LH
 Inst : GCMS-16

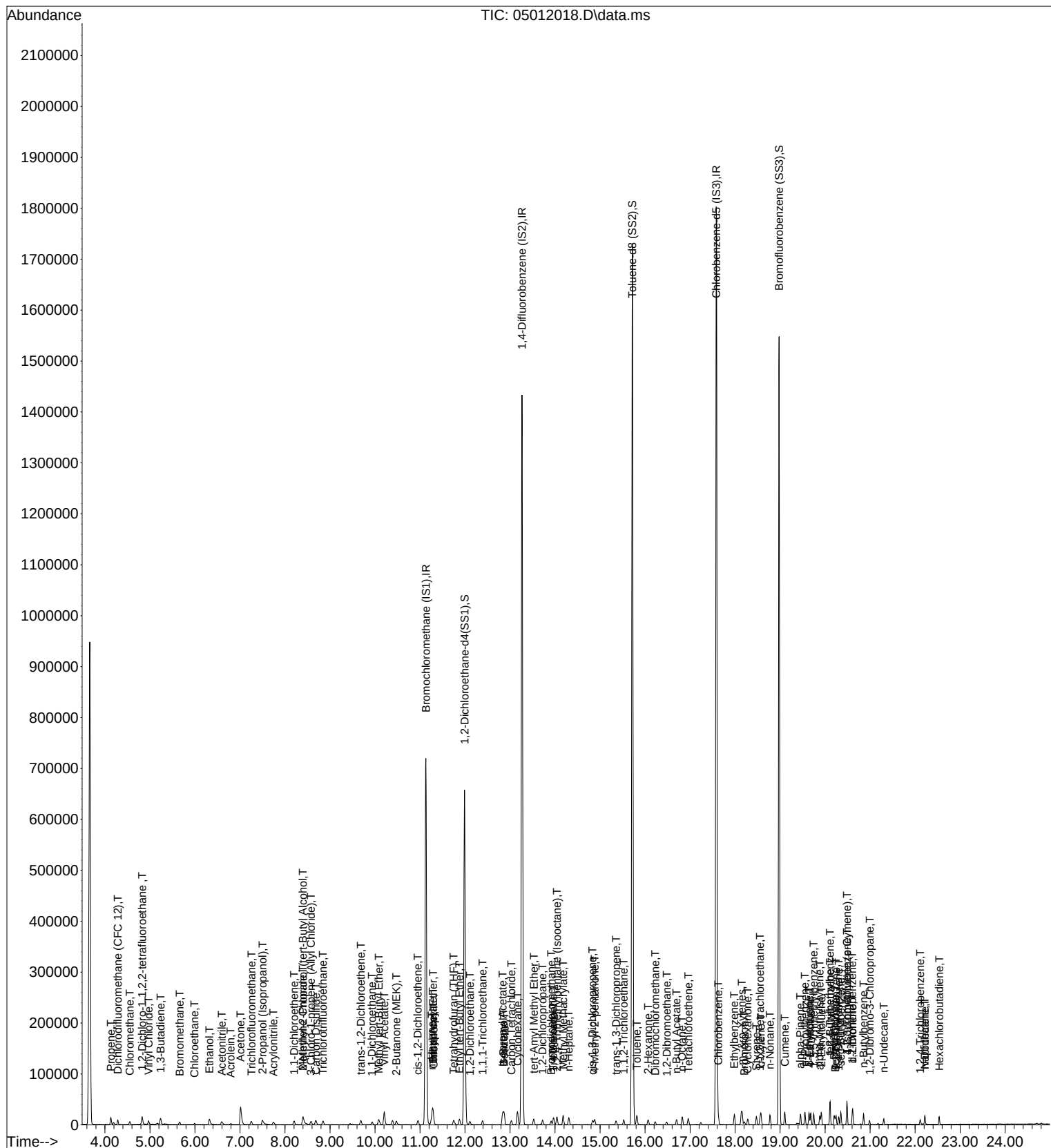
Quant Time: May 01 17:26:08 2020
 Quant Method : I:\MS16\METHODS\R16050120.M
 Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 QLast Update : Fri May 01 17:25:50 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.30	71	3595	0.117	ng	97
52) cis-1,3-Dichloropropene	14.83	75	5704	0.116	ng	96
53) 4-Methyl-2-pentanone	14.88	58	3296	0.119	ng	93
54) trans-1,3-Dichloropropene	15.35	75	4544	0.099	ng	98
55) 1,1,2-Trichloroethane	15.52	97	3290	0.107	ng	92
58) Toluene	15.82	91	15732	0.118	ng	98
59) 2-Hexanone	16.07	43	8108	0.120	ng	95
60) Dibromochloromethane	16.23	129	3850	0.107	ng	98
61) 1,2-Dibromoethane	16.48	107	3967	0.115	ng	99
62) n-Butyl Acetate	16.70	43	8599	0.119	ng	100
63) n-Octane	16.82	57	3026	0.113	ng	95
64) Tetrachloroethene	16.96	166	3889	0.104	ng	96
65) Chlorobenzene	17.62	112	9815	0.109	ng	97
66) Ethylbenzene	17.98	91	15876	0.108	ng	99
67) m- & p-Xylenes	18.15	91	25313	0.213	ng	97
68) Bromoform	18.21	173	2794	0.087	ng	97
69) Styrene	18.47	104	8068	0.087	ng	98
70) o-Xylene	18.58	91	12796	0.107	ng	97
71) n-Nonane	18.77	43	6742	0.112	ng	94
72) 1,1,2,2-Tetrachloroethane	18.55	83	6321	0.110	ng	99
74) Cumene	19.10	105	16051	0.107	ng	99
75) alpha-Pinene	19.45	93	7915	0.104	ng	98
76) n-Propylbenzene	19.55	91	19200	0.109	ng	96
77) 3-Ethyltoluene	19.64	105	15205	0.102	ng	95
78) 4-Ethyltoluene	19.68	105	13291	0.094	ng	97
79) 1,3,5-Trimethylbenzene	19.75	105	12270	0.097	ng	98
80) alpha-Methylstyrene	19.88	118	5286	0.077	ng	90
81) 2-Ethyltoluene	19.92	105	14918	0.102	ng	98
82) 1,2,4-Trimethylbenzene	20.11	105	11607	0.089	ng	98
83) n-Decane	20.20	57	5622	0.088	ng	96
84) Benzyl Chloride	20.23	91	6198	0.059	ng	94
85) 1,3-Dichlorobenzene	20.24	146	6559	0.093	ng	97
86) 1,4-Dichlorobenzene	20.30	146	6317	0.090	ng	95
87) sec-Butylbenzene	20.35	105	16656	0.102	ng	97
88) 4-Isopropyltoluene (p-...	20.48	119	14335	0.094	ng	98
89) 1,2,3-Trimethylbenzene	20.48	105	11912	0.091	ng	98
90) 1,2-Dichlorobenzene	20.61	146	6284	0.088	ng	97
91) d-Limonene	20.61	68	4287	0.084	ng	100
92) 1,2-Dibromo-3-Chloropr...	20.99	157	1904	0.078	ng	# 68
93) n-Undecane	21.30	57	3299	0.050	ng	96
94) 1,2,4-Trichlorobenzene	22.11	180	2902	0.065	ng	95
95) Naphthalene	22.22	128	9207	0.061	ng	99
96) n-Dodecane	22.22	57	1759	0.027	ng	84
97) Hexachlorobutadiene	22.54	225	2672	0.079	ng	98
98) Cyclohexanone	18.28	55	5130	0.112	ng	96
99) tert-Butylbenzene	20.11	119	12381	0.098	ng	100
100) n-Butylbenzene	20.85	91	11459	0.087	ng	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Vial: 6
Operator: LH
Inst : GCMS-16

Quant Time: May 01 17:26:08 2020
Quant Method : I:\MS16\METHODS\R16050120.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Fri May 01 17:25:50 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Data File : I:\MS16\DATA\2020_05\01\05012019.D
 Acq On : 1 May 2020 14:42
 Sample : 0.2ng T015 ICAL STD
 Misc : S31-02112001/S34-04272015 (5/26)

Vial: 6
 Operator: LH
 Inst : GCMS-16

Quant Time: May 01 17:26:10 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 17:25:50 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

LH 5/1/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.13	130	281203	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.26	114	1265644	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.58	82	605249	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	11.99	65	502682	12.948	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	103.60%
57) Toluene-d8 (SS2)	15.72	98	1286177	12.047	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	96.40%
73) Bromofluorobenzene (SS3)	18.98	174	432138	11.393	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	91.12%

Target Compounds

						Qvalue
2) Propene	4.12	42	7340	0.244	ng	98
3) Dichlorodifluoromethan...	4.28	85	14321	0.225	ng	98
4) Chloromethane	4.54	50	11611	0.231	ng	98
5) 1,2-Dichloro-1,1,2,2-t...	4.82	135	7949	0.198	ng	100
6) Vinyl Chloride	4.97	62	12344	0.232	ng	98
7) 1,3-Butadiene	5.22	54	9830	0.247	ng	96
8) Bromomethane	5.65	94	6528	0.244	ng	95
9) Chloroethane	5.98	64	4628	0.226	ng	98
10) Ethanol	6.31	45	27749	1.175	ng	96
11) Acetonitrile	6.59	41	13417	0.257	ng	87
12) Acrolein	6.79	56	4024	0.232	ng	98
13) Acetone	7.01	58	26616	1.152	ng	88
14) Trichlorofluoromethane	7.25	101	12031	0.215	ng	96
15) 2-Propanol (Isopropanol)	7.48	45	33389	0.485	ng	93
16) Acrylonitrile	7.74	53	8962	0.257	ng	98
17) 1,1-Dichloroethene	8.20	96	6259	0.225	ng	97
18) 2-Methyl-2-Propanol (t...	8.39	59	31078	0.511	ng	95
19) Methylene Chloride	8.40	84	7162	0.238	ng	95
20) 3-Chloro-1-propene (Al...	8.57	41	9375	0.238	ng	97
21) Trichlorotrifluoroethane	8.85	151	5174	0.193	ng	91
22) Carbon Disulfide	8.68	76	25939	0.240	ng	98
23) trans-1,2-Dichloroethene	9.69	61	9736	0.240	ng	99
24) 1,1-Dichloroethane	9.93	63	11448	0.222	ng	100
25) Methyl tert-Butyl Ether	10.07	73	19408	0.236	ng	100
26) Vinyl Acetate	10.20	86	6257	0.806	ng	# 65
27) 2-Butanone (MEK)	10.47	72	4473	0.235	ng	# 85
28) cis-1,2-Dichloroethene	10.95	61	9299	0.222	ng	95
29) Diisopropyl Ether	11.27	87	6141	0.203	ng	# 89
30) Ethyl Acetate	11.28	61	5026	0.447	ng	94
31) n-Hexane	11.26	57	10892	0.209	ng	100
32) Chloroform	11.30	83	11522	0.207	ng	100
34) Tetrahydrofuran (THF)	11.74	72	4717	0.239	ng	96
35) Ethyl tert-Butyl Ether	11.87	87	7599	0.213	ng	99
36) 1,2-Dichloroethane	12.11	62	10033	0.231	ng	97
38) 1,1,1-Trichloroethane	12.39	97	10336	0.208	ng	99
39) Isopropyl Acetate	12.84	61	8005	0.390	ng	# 82
40) 1-Butanol	12.85	56	12049	0.376	ng	93
41) Benzene	12.87	78	27102	0.208	ng	100
42) Carbon Tetrachloride	13.03	117	8801	0.196	ng	99
43) Cyclohexane	13.17	84	19302	0.386	ng	99
44) tert-Amyl Methyl Ether	13.52	73	18140	0.213	ng	97
45) 1,2-Dichloropropane	13.72	63	6464	0.215	ng	100
46) Bromodichloromethane	13.91	83	9202	0.208	ng	97
47) Trichloroethene	13.97	130	6883	0.185	ng	99
48) 1,4-Dioxane	13.96	88	5469	0.215	ng	98
49) 2,2,4-Trimethylpentane...	14.04	57	27442	0.219	ng	99
50) Methyl Methacrylate	14.18	100	4902	0.390	ng	92

Data File : I:\MS16\DATA\2020_05\01\05012019.D
 Acq On : 1 May 2020 14:42
 Sample : 0.2ng T015 ICAL STD
 Misc : S31-02112001/S34-04272015 (5/26)

Vial: 6
 Operator: LH
 Inst : GCMS-16

Quant Time: May 01 17:26:10 2020
 Quant Method : I:\MS16\METHODS\R16050120.M
 Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 QLast Update : Fri May 01 17:25:50 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.31	71	6485	0.213	ng	99
52) cis-1,3-Dichloropropene	14.84	75	10229	0.211	ng	99
53) 4-Methyl-2-pentanone	14.88	58	5691	0.207	ng	91
54) trans-1,3-Dichloropropene	15.35	75	8360	0.185	ng	96
55) 1,1,2-Trichloroethane	15.52	97	6328	0.209	ng	98
58) Toluene	15.82	91	26600	0.201	ng	99
59) 2-Hexanone	16.06	43	14103	0.211	ng	96
60) Dibromochloromethane	16.23	129	7014	0.198	ng	97
61) 1,2-Dibromoethane	16.48	107	7112	0.208	ng	98
62) n-Butyl Acetate	16.70	43	14786	0.207	ng	99
63) n-Octane	16.82	57	5273	0.199	ng	99
64) Tetrachloroethene	16.96	166	6836	0.184	ng	98
65) Chlorobenzene	17.62	112	17628	0.198	ng	99
66) Ethylbenzene	17.98	91	28627	0.197	ng	98
67) m- & p-Xylenes	18.15	91	43549	0.370	ng	100
68) Bromoform	18.21	173	4948	0.156	ng	97
69) Styrene	18.47	104	14427	0.157	ng	98
70) o-Xylene	18.58	91	22519	0.191	ng	99
71) n-Nonane	18.77	43	11811	0.198	ng	96
72) 1,1,2,2-Tetrachloroethane	18.55	83	11124	0.196	ng	98
74) Cumene	19.10	105	28539	0.192	ng	97
75) alpha-Pinene	19.45	93	14109	0.187	ng	97
76) n-Propylbenzene	19.55	91	33704	0.194	ng	96
77) 3-Ethyltoluene	19.64	105	24706	0.167	ng	95
78) 4-Ethyltoluene	19.68	105	25673	0.184	ng	92
79) 1,3,5-Trimethylbenzene	19.75	105	20755	0.166	ng	100
80) alpha-Methylstyrene	19.88	118	9566	0.141	ng	98
81) 2-Ethyltoluene	19.92	105	25934	0.179	ng	98
82) 1,2,4-Trimethylbenzene	20.11	105	20144	0.156	ng	100
83) n-Decane	20.20	57	9540	0.150	ng	99
84) Benzyl Chloride	20.22	91	10864	0.105	ng	96
85) 1,3-Dichlorobenzene	20.24	146	10709	0.154	ng	98
86) 1,4-Dichlorobenzene	20.30	146	10405	0.150	ng	99
87) sec-Butylbenzene	20.35	105	29313	0.182	ng	98
88) 4-Isopropyltoluene (p-...	20.49	119	25509	0.168	ng	98
89) 1,2,3-Trimethylbenzene	20.48	105	20308	0.157	ng	97
90) 1,2-Dichlorobenzene	20.61	146	10926	0.154	ng	99
91) d-Limonene	20.61	68	7844	0.156	ng	98
92) 1,2-Dibromo-3-Chloropr...	20.99	157	3246	0.134	ng	# 68
93) n-Undecane	21.30	57	5419	0.083	ng	99
94) 1,2,4-Trichlorobenzene	22.11	180	4530	0.103	ng	98
95) Naphthalene	22.22	128	12645	0.085	ng	100
96) n-Dodecane	22.22	57	2203	0.035	ng	95
97) Hexachlorobutadiene	22.54	225	4472	0.134	ng	100
98) Cyclohexanone	18.28	55	9134	0.201	ng	98
99) tert-Butylbenzene	20.11	119	21458	0.172	ng	100
100) n-Butylbenzene	20.85	91	19904	0.152	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Vial: 6
Operator: LH
Inst : GCMS-16

Quant Time: May 01 17:26:10 2020

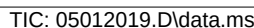
Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP V0A-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 17:25:50 2020

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File : I:\MS16\DATA\2020_05\01\05012020.D

Vial: 13

Acq On : 1 May 2020 15:16

Operator: LH

Sample : 0.5ng T015 ICAL STD

Inst : GCMS-16

Misc : S31-02112001/S34-05012002 (5/30)

Quant Time: May 01 17:26:12 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 17:25:50 2020

LH 5/1/20

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.13	130	282762	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.26	114	1246042	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.58	82	597894	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	11.99	65	496699	12.724	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.76%
57) Toluene-d8 (SS2)	15.72	98	1261623	11.962	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.68%
73) Bromofluorobenzene (SS3)	18.98	174	433440	11.568	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	92.56%

Target Compounds

						Qvalue
2) Propene	4.12	42	18019	0.595	ng	100
3) Dichlorodifluoromethan...	4.27	85	36783	0.574	ng	100
4) Chloromethane	4.54	50	28625	0.567	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.82	135	21643	0.536	ng	98
6) Vinyl Chloride	4.96	62	31225	0.584	ng	99
7) 1,3-Butadiene	5.22	54	25691	0.642	ng	97
8) Bromomethane	5.65	94	16060	0.596	ng	100
9) Chloroethane	5.98	64	12037	0.584	ng	100
10) Ethanol	6.32	45	59441	2.504	ng	99
11) Acetonitrile	6.58	41	28303	0.538	ng	92
12) Acrolein	6.78	56	10249	0.587	ng	99
13) Acetone	7.00	58	64034	2.757	ng	90
14) Trichlorofluoromethane	7.24	101	30869	0.549	ng	99
15) 2-Propanol (Isopropanol)	7.49	45	81950	1.184	ng	94
16) Acrylonitrile	7.74	53	20199	0.576	ng	99
17) 1,1-Dichloroethene	8.19	96	16045	0.574	ng	99
18) 2-Methyl-2-Propanol (t...	8.38	59	81236	1.327	ng	97
19) Methylene Chloride	8.40	84	16818	0.555	ng	93
20) 3-Chloro-1-propene (Al...	8.57	41	23985	0.605	ng	100
21) Trichlorotrifluoroethane	8.84	151	14094	0.522	ng	90
22) Carbon Disulfide	8.68	76	62306	0.573	ng	100
23) trans-1,2-Dichloroethene	9.68	61	24198	0.594	ng	98
24) 1,1-Dichloroethane	9.94	63	30445	0.588	ng	98
25) Methyl tert-Butyl Ether	10.06	73	50440	0.609	ng	100
26) Vinyl Acetate	10.20	86	16921	2.167	ng	# 71
27) 2-Butanone (MEK)	10.46	72	11237	0.586	ng	# 91
28) cis-1,2-Dichloroethene	10.95	61	23378	0.555	ng	97
29) Diisopropyl Ether	11.27	87	16633	0.547	ng	# 80
30) Ethyl Acetate	11.28	61	12444	1.100	ng	99
31) n-Hexane	11.26	57	28441	0.542	ng	99
32) Chloroform	11.30	83	30757	0.550	ng	100
34) Tetrahydrofuran (THF)	11.74	72	11211	0.565	ng	97
35) Ethyl tert-Butyl Ether	11.87	87	19341	0.539	ng	95
36) 1,2-Dichloroethane	12.11	62	24513	0.560	ng	98
38) 1,1,1-Trichloroethane	12.39	97	26870	0.549	ng	98
39) Isopropyl Acetate	12.83	61	21414	1.060	ng	94
40) 1-Butanol	12.85	56	25610	0.811	ng	84
41) Benzene	12.87	78	68060	0.531	ng	99
42) Carbon Tetrachloride	13.03	117	23499	0.531	ng	100
43) Cyclohexane	13.17	84	50782	1.030	ng	99
44) tert-Amyl Methyl Ether	13.52	73	47408	0.566	ng	98
45) 1,2-Dichloropropane	13.73	63	16720	0.564	ng	98
46) Bromodichloromethane	13.91	83	23539	0.540	ng	99
47) Trichloroethene	13.97	130	17666	0.483	ng	98
48) 1,4-Dioxane	13.95	88	13607	0.544	ng	98
49) 2,2,4-Trimethylpentane...	14.04	57	70232	0.570	ng	98
50) Methyl Methacrylate	14.18	100	12679	1.026	ng	89

Data File : I:\MS16\DATA\2020_05\01\05012020.D
 Acq On : 1 May 2020 15:16
 Sample : 0.5ng T015 ICAL STD
 Misc : S31-02112001/S34-05012002 (5/30)

Vial: 13
 Operator: LH
 Inst : GCMS-16

Quant Time: May 01 17:26:12 2020
 Quant Method : I:\MS16\METHODS\R16050120.M
 Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 QLast Update : Fri May 01 17:25:50 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.30	71	16470	0.549	ng	99
52) cis-1,3-Dichloropropene	14.83	75	25622	0.537	ng	100
53) 4-Methyl-2-pentanone	14.88	58	15185	0.562	ng	96
54) trans-1,3-Dichloropropene	15.35	75	21678	0.488	ng	100
55) 1,1,2-Trichloroethane	15.52	97	16061	0.538	ng	99
58) Toluene	15.82	91	68212	0.522	ng	99
59) 2-Hexanone	16.06	43	36076	0.547	ng	97
60) Dibromochloromethane	16.22	129	18007	0.513	ng	100
61) 1,2-Dibromoethane	16.48	107	18032	0.535	ng	99
62) n-Butyl Acetate	16.70	43	40268	0.571	ng	99
63) n-Octane	16.83	57	14009	0.536	ng	98
64) Tetrachloroethene	16.96	166	17406	0.474	ng	98
65) Chlorobenzene	17.62	112	44455	0.505	ng	99
66) Ethylbenzene	17.98	91	75877	0.529	ng	99
67) m- & p-Xylenes	18.15	91	116955	1.007	ng	99
68) Bromoform	18.21	173	13392	0.426	ng	100
69) Styrene	18.47	104	42807	0.472	ng	99
70) o-Xylene	18.58	91	59151	0.509	ng	98
71) n-Nonane	18.77	43	31809	0.539	ng	98
72) 1,1,2,2-Tetrachloroethane	18.55	83	28515	0.507	ng	100
74) Cumene	19.10	105	75062	0.513	ng	98
75) alpha-Pinene	19.45	93	36992	0.496	ng	98
76) n-Propylbenzene	19.56	91	90744	0.529	ng	97
77) 3-Ethyltoluene	19.64	105	68792	0.472	ng	99
78) 4-Ethyltoluene	19.68	105	71240	0.516	ng	99
79) 1,3,5-Trimethylbenzene	19.75	105	57590	0.466	ng	100
80) alpha-Methylstyrene	19.88	118	29121	0.435	ng	98
81) 2-Ethyltoluene	19.92	105	71176	0.498	ng	98
82) 1,2,4-Trimethylbenzene	20.11	105	57697	0.454	ng	98
83) n-Decane	20.20	57	28801	0.460	ng	98
84) Benzyl Chloride	20.23	91	38679	0.379	ng	97
85) 1,3-Dichlorobenzene	20.24	146	32341	0.470	ng	99
86) 1,4-Dichlorobenzene	20.30	146	32829	0.480	ng	98
87) sec-Butylbenzene	20.35	105	79152	0.499	ng	98
88) 4-Isopropyltoluene (p-...	20.48	119	71971	0.481	ng	98
89) 1,2,3-Trimethylbenzene	20.48	105	58236	0.457	ng	97
90) 1,2-Dichlorobenzene	20.61	146	31295	0.447	ng	100
91) d-Limonene	20.62	68	22394	0.451	ng	99
92) 1,2-Dibromo-3-Chloropr...	20.99	157	9748	0.406	ng	# 80
93) n-Undecane	21.30	57	23411	0.364	ng	98
94) 1,2,4-Trichlorobenzene	22.11	180	16758	0.385	ng	99
95) Naphthalene	22.22	128	53528	0.365	ng	100
96) n-Dodecane	22.22	57	12440	0.198	ng	98
97) Hexachlorobutadiene	22.54	225	11744	0.356	ng	99
98) Cyclohexanone	18.28	55	19899	0.444	ng	97
99) tert-Butylbenzene	20.11	119	57329	0.464	ng	99
100) n-Butylbenzene	20.85	91	61839	0.478	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Vial: 13
Operator: LH
Inst : GCMS-16

Quant Time: May 01 17:26:12 2020

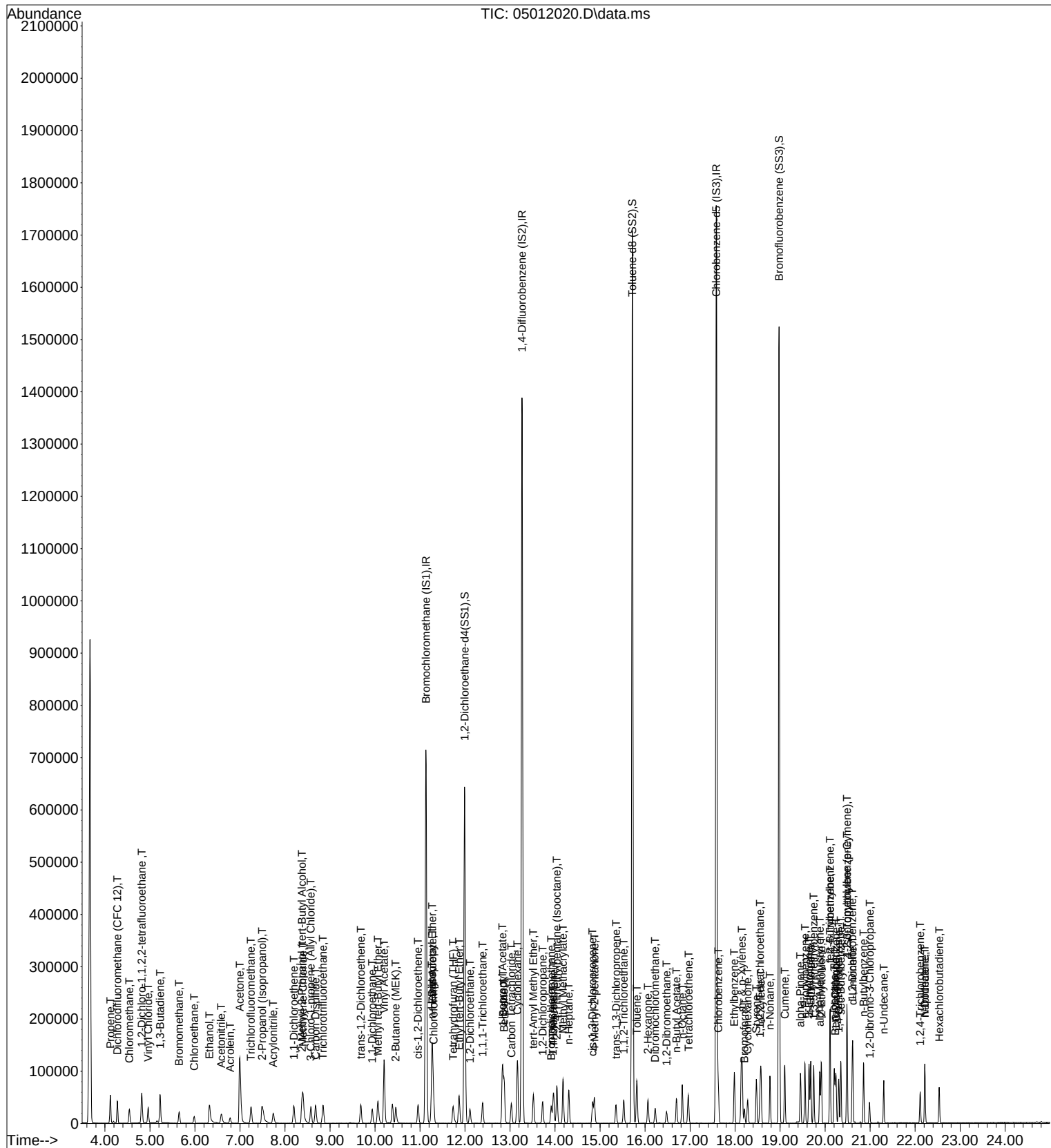
Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP V0A-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 17:25:50 2020

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File : I:\MS16\DATA\2020_05\01\05012021.D

Vial: 13

Acq On : 1 May 2020 15:51

Operator: LH

Sample : 1.0ng T015 ICAL STD

Inst : GCMS-16

Misc : S31-02112001/S34-05012002 (5/30)

Quant Time: May 01 17:26:14 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 17:25:50 2020

LH 5/1/20

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.13	130	283099	12.500	ng	-0.03
37) 1,4-Difluorobenzene (IS2)	13.26	114	1255557	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.58	82	599231	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	11.99	65	497020	12.717	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.76%
57) Toluene-d8 (SS2)	15.72	98	1262658	11.945	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.60%
73) Bromofluorobenzene (SS3)	18.98	174	433746	11.550	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	92.40%

Target Compounds

						Qvalue
2) Propene	4.11	42	33126	1.093	ng	99
3) Dichlorodifluoromethan...	4.27	85	68235	1.064	ng	99
4) Chloromethane	4.53	50	53718	1.062	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	38642	0.956	ng	99
6) Vinyl Chloride	4.96	62	58432	1.092	ng	100
7) 1,3-Butadiene	5.22	54	47465	1.185	ng	98
8) Bromomethane	5.64	94	29630	1.099	ng	100
9) Chloroethane	5.98	64	22473	1.088	ng	99
10) Ethanol	6.32	45	110869	4.665	ng	99
11) Acetonitrile	6.58	41	53541	1.017	ng	100
12) Acrolein	6.78	56	19340	1.106	ng	100
13) Acetone	6.98	58	119315	5.130	ng	90
14) Trichlorofluoromethane	7.24	101	56632	1.006	ng	99
15) 2-Propanol (Isopropanol)	7.48	45	154892	2.235	ng	96
16) Acrylonitrile	7.74	53	38461	1.095	ng	99
17) 1,1-Dichloroethene	8.19	96	30236	1.080	ng	97
18) 2-Methyl-2-Propanol (t...	8.36	59	151128	2.466	ng	98
19) Methylene Chloride	8.40	84	32502	1.072	ng	97
20) 3-Chloro-1-propene (Al...	8.57	41	46601	1.174	ng	98
21) Trichlorotrifluoroethane	8.84	151	26828	0.993	ng	96
22) Carbon Disulfide	8.68	76	117066	1.075	ng	99
23) trans-1,2-Dichloroethene	9.68	61	45490	1.115	ng	97
24) 1,1-Dichloroethane	9.94	63	55243	1.065	ng	99
25) Methyl tert-Butyl Ether	10.06	73	92006	1.109	ng	99
26) Vinyl Acetate	10.20	86	33295	4.258	ng	# 76
27) 2-Butanone (MEK)	10.46	72	21197	1.105	ng	96
28) cis-1,2-Dichloroethene	10.96	61	43960	1.043	ng	97
29) Diisopropyl Ether	11.27	87	31384	1.031	ng	# 79
30) Ethyl Acetate	11.27	61	23578	2.083	ng	97
31) n-Hexane	11.26	57	53227	1.014	ng	99
32) Chloroform	11.30	83	57167	1.020	ng	98
34) Tetrahydrofuran (THF)	11.73	72	21166	1.066	ng	97
35) Ethyl tert-Butyl Ether	11.87	87	36365	1.013	ng	97
36) 1,2-Dichloroethane	12.11	62	45068	1.029	ng	100
38) 1,1,1-Trichloroethane	12.39	97	50409	1.021	ng	98
39) Isopropyl Acetate	12.83	61	40161	1.973	ng	# 92
40) 1-Butanol	12.84	56	48310	1.519	ng	82
41) Benzene	12.87	78	127091	0.984	ng	100
42) Carbon Tetrachloride	13.03	117	43210	0.970	ng	98
43) Cyclohexane	13.17	84	94431	1.902	ng	98
44) tert-Amyl Methyl Ether	13.52	73	89386	1.060	ng	98
45) 1,2-Dichloropropane	13.73	63	31276	1.047	ng	99
46) Bromodichloromethane	13.91	83	44019	1.002	ng	99
47) Trichloroethene	13.97	130	32599	0.885	ng	100
48) 1,4-Dioxane	13.95	88	25788	1.023	ng	99
49) 2,2,4-Trimethylpentane...	14.04	57	130371	1.050	ng	98
50) Methyl Methacrylate	14.18	100	24994	2.007	ng	96

Data File : I:\MS16\DATA\2020_05\01\05012021.D
 Acq On : 1 May 2020 15:51
 Sample : 1.0ng T015 ICAL STD
 Misc : S31-02112001/S34-05012002 (5/30)

Vial: 13
 Operator: LH
 Inst : GCMS-16

Quant Time: May 01 17:26:14 2020
 Quant Method : I:\MS16\METHODS\R16050120.M
 Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 QLast Update : Fri May 01 17:25:50 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.31	71	31052	1.028	ng	99
52) cis-1,3-Dichloropropene	14.83	75	48884	1.016	ng	100
53) 4-Methyl-2-pentanone	14.87	58	28992	1.064	ng	98
54) trans-1,3-Dichloropropene	15.35	75	42499	0.949	ng	99
55) 1,1,2-Trichloroethane	15.52	97	29976	0.997	ng	99
58) Toluene	15.82	91	126852	0.968	ng	100
59) 2-Hexanone	16.06	43	68688	1.039	ng	98
60) Dibromochloromethane	16.22	129	34198	0.973	ng	100
61) 1,2-Dibromoethane	16.48	107	33986	1.006	ng	99
62) n-Butyl Acetate	16.70	43	76066	1.076	ng	98
63) n-Octane	16.83	57	26077	0.995	ng	99
64) Tetrachloroethene	16.96	166	32577	0.886	ng	100
65) Chlorobenzene	17.62	112	82545	0.935	ng	98
66) Ethylbenzene	17.98	91	142006	0.988	ng	99
67) m- & p-Xylenes	18.15	91	225991	1.941	ng	98
68) Bromoform	18.21	173	25763	0.818	ng	100
69) Styrene	18.47	104	80976	0.891	ng	99
70) o-Xylene	18.58	91	111310	0.955	ng	99
71) n-Nonane	18.77	43	60557	1.023	ng	97
72) 1,1,2,2-Tetrachloroethane	18.55	83	54222	0.963	ng	99
74) Cumene	19.10	105	140371	0.956	ng	99
75) alpha-Pinene	19.45	93	71471	0.956	ng	99
76) n-Propylbenzene	19.55	91	173225	1.008	ng	98
77) 3-Ethyltoluene	19.64	105	131045	0.897	ng	99
78) 4-Ethyltoluene	19.68	105	136161	0.983	ng	99
79) 1,3,5-Trimethylbenzene	19.75	105	112385	0.908	ng	99
80) alpha-Methylstyrene	19.88	118	57239	0.853	ng	99
81) 2-Ethyltoluene	19.92	105	133665	0.933	ng	99
82) 1,2,4-Trimethylbenzene	20.11	105	112073	0.879	ng	99
83) n-Decane	20.20	57	56537	0.900	ng	99
84) Benzyl Chloride	20.23	91	78621	0.769	ng	97
85) 1,3-Dichlorobenzene	20.24	146	62650	0.909	ng	99
86) 1,4-Dichlorobenzene	20.30	146	61324	0.895	ng	100
87) sec-Butylbenzene	20.35	105	151180	0.950	ng	98
88) 4-Isopropyltoluene (p-...	20.48	119	138806	0.925	ng	99
89) 1,2,3-Trimethylbenzene	20.48	105	113653	0.890	ng	99
90) 1,2-Dichlorobenzene	20.61	146	60175	0.857	ng	99
91) d-Limonene	20.62	68	44904	0.903	ng	98
92) 1,2-Dibromo-3-Chloropr...	20.98	157	19657	0.817	ng	85
93) n-Undecane	21.30	57	44833	0.696	ng	99
94) 1,2,4-Trichlorobenzene	22.11	180	32560	0.746	ng	100
95) Naphthalene	22.22	128	100929	0.687	ng	100
96) n-Dodecane	22.21	57	24009	0.380	ng	99
97) Hexachlorobutadiene	22.54	225	22641	0.684	ng	99
98) Cyclohexanone	18.28	55	38554	0.858	ng	99
99) tert-Butylbenzene	20.11	119	111007	0.897	ng	99
100) n-Butylbenzene	20.85	91	119734	0.924	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Vial: 13
Operator: LH
Inst : GCMS-16

Quant Time: May 01 17:26:14 2020

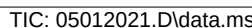
Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP V0A-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 17:25:50 2020

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File : I:\MS16\DATA\2020_05\01\05012022.D

Vial: 2

Acq On : 1 May 2020 16:25

Operator: LH

Sample : 5.0ng T015 ICAL STD

Inst : GCMS-16

Misc : S31-02112001/S34-04292003 (5/28)

Quant Time: May 01 17:26:16 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 17:25:50 2020

LH 5/1/20

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.14	130	303798	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.27	114	1318017	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.59	82	623963	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.00	65	517657	12.342	ng	-0.01
Spiked Amount	12.500	Range	70 - 130	Recovery	=	98.72%
57) Toluene-d8 (SS2)	15.72	98	1308528	11.889	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.12%
73) Bromofluorobenzene (SS3)	18.98	174	490919	12.554	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	100.40%

Target Compounds

						Qvalue
2) Propene	4.09	42	193048	5.934	ng	100
3) Dichlorodifluoromethan...	4.25	85	387745	5.637	ng	100
4) Chloromethane	4.52	50	303525	5.594	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	222610	5.132	ng	100
6) Vinyl Chloride	4.94	62	339270	5.907	ng	100
7) 1,3-Butadiene	5.21	54	276281	6.430	ng	99
8) Bromomethane	5.64	94	169682	5.863	ng	98
9) Chloroethane	5.97	64	129957	5.865	ng	100
10) Ethanol	6.35	45	691643	27.117	ng	100
11) Acetonitrile	6.60	41	322707	5.712	ng	100
12) Acrolein	6.78	56	114887	6.125	ng	99
13) Acetone	6.99	58	718205	28.778	ng	93
14) Trichlorofluoromethane	7.24	101	330361	5.469	ng	100
15) 2-Propanol (Isopropanol)	7.50	45	953934	12.829	ng	99
16) Acrylonitrile	7.75	53	241513	6.410	ng	100
17) 1,1-Dichloroethene	8.19	96	176135	5.860	ng	97
18) 2-Methyl-2-Propanol (t...	8.36	59	939029	14.278	ng	99
19) Methylene Chloride	8.42	84	189273	5.818	ng	97
20) 3-Chloro-1-propene (Al...	8.58	41	281181	6.602	ng	99
21) Trichlorotrifluoroethane	8.84	151	159827	5.511	ng	97
22) Carbon Disulfide	8.68	76	697922	5.971	ng	100
23) trans-1,2-Dichloroethene	9.70	61	269106	6.148	ng	99
24) 1,1-Dichloroethane	9.95	63	324467	5.829	ng	100
25) Methyl tert-Butyl Ether	10.05	73	520731	5.850	ng	100
26) Vinyl Acetate	10.21	86	230843	27.513	ng	# 86
27) 2-Butanone (MEK)	10.45	72	129697	6.298	ng	97
28) cis-1,2-Dichloroethene	10.97	61	259456	5.737	ng	98
29) Diisopropyl Ether	11.27	87	191800	5.871	ng	# 79
30) Ethyl Acetate	11.27	61	149560	12.310	ng	98
31) n-Hexane	11.26	57	314981	5.592	ng	99
32) Chloroform	11.31	83	340357	5.661	ng	99
34) Tetrahydrofuran (THF)	11.72	72	126370	5.930	ng	99
35) Ethyl tert-Butyl Ether	11.86	87	221593	5.751	ng	97
36) 1,2-Dichloroethane	12.11	62	265122	5.640	ng	100
38) 1,1,1-Trichloroethane	12.40	97	293872	5.672	ng	100
39) Isopropyl Acetate	12.83	61	250912	11.741	ng	# 94
40) 1-Butanol	12.84	56	336318	10.073	ng	93
41) Benzene	12.87	78	763486	5.631	ng	100
42) Carbon Tetrachloride	13.03	117	266893	5.707	ng	100
43) Cyclohexane	13.17	84	572113	10.975	ng	100
44) tert-Amyl Methyl Ether	13.52	73	541195	6.112	ng	99
45) 1,2-Dichloropropane	13.73	63	186128	5.938	ng	99
46) Bromodichloromethane	13.92	83	271708	5.892	ng	100
47) Trichloroethene	13.97	130	200472	5.185	ng	100
48) 1,4-Dioxane	13.95	88	156033	5.899	ng	100
49) 2,2,4-Trimethylpentane...	14.04	57	772648	5.931	ng	99
50) Methyl Methacrylate	14.18	100	156609	11.977	ng	97

Data File : I:\MS16\DATA\2020_05\01\05012022.D
 Acq On : 1 May 2020 16:25
 Sample : 5.0ng T015 ICAL STD
 Misc : S31-02112001/S34-04292003 (5/28)

Vial: 2
 Operator: LH
 Inst : GCMS-16

Quant Time: May 01 17:26:16 2020
 Quant Method : I:\MS16\METHODS\R16050120.M
 Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 QLast Update : Fri May 01 17:25:50 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.31	71	180946	5.706	ng	99
52) cis-1,3-Dichloropropene	14.84	75	308293	6.105	ng	100
53) 4-Methyl-2-pentanone	14.87	58	175513	6.138	ng	97
54) trans-1,3-Dichloropropene	15.35	75	277438	5.899	ng	100
55) 1,1,2-Trichloroethane	15.52	97	182608	5.786	ng	99
58) Toluene	15.82	91	751701	5.508	ng	100
59) 2-Hexanone	16.06	43	431067	6.262	ng	99
60) Dibromochloromethane	16.23	129	222764	6.086	ng	99
61) 1,2-Dibromoethane	16.48	107	211443	6.008	ng	100
62) n-Butyl Acetate	16.70	43	477782	6.493	ng	100
63) n-Octane	16.83	57	155673	5.704	ng	100
64) Tetrachloroethene	16.96	166	201840	5.271	ng	100
65) Chlorobenzene	17.62	112	499525	5.435	ng	100
66) Ethylbenzene	17.98	91	871724	5.827	ng	99
67) m- & p-Xylenes	18.15	91	1368621	11.288	ng	100
68) Bromoform	18.21	173	189068	5.768	ng	100
69) Styrene	18.47	104	536906	5.670	ng	100
70) o-Xylene	18.58	91	693423	5.713	ng	100
71) n-Nonane	18.77	43	370451	6.012	ng	98
72) 1,1,2,2-Tetrachloroethane	18.55	83	346585	5.910	ng	100
74) Cumene	19.10	105	885174	5.792	ng	99
75) alpha-Pinene	19.45	93	454351	5.834	ng	100
76) n-Propylbenzene	19.55	91	1076654	6.015	ng	99
77) 3-Ethyltoluene	19.64	105	836770	5.500	ng	95
78) 4-Ethyltoluene	19.68	105	882656	6.121	ng	95
79) 1,3,5-Trimethylbenzene	19.75	105	715909	5.552	ng	99
80) alpha-Methylstyrene	19.88	118	385478	5.515	ng	100
81) 2-Ethyltoluene	19.92	105	858573	5.755	ng	100
82) 1,2,4-Trimethylbenzene	20.11	105	751354	5.662	ng	98
83) n-Decane	20.20	57	376639	5.759	ng	99
84) Benzyl Chloride	20.23	91	614231	5.773	ng	99
85) 1,3-Dichlorobenzene	20.24	146	434270	6.049	ng	100
86) 1,4-Dichlorobenzene	20.30	146	427551	5.990	ng	100
87) sec-Butylbenzene	20.35	105	969884	5.855	ng	99
88) 4-Isopropyltoluene (p-...	20.48	119	928906	5.944	ng	98
89) 1,2,3-Trimethylbenzene	20.48	105	769774	5.787	ng	98
90) 1,2-Dichlorobenzene	20.61	146	419115	5.732	ng	100
91) d-Limonene	20.62	68	288464	5.570	ng	99
92) 1,2-Dibromo-3-Chloropr...	20.98	157	148727	5.940	ng	97
93) n-Undecane	21.30	57	365721	5.450	ng	100
94) 1,2,4-Trichlorobenzene	22.11	180	270469	5.951	ng	99
95) Naphthalene	22.22	128	892593	5.833	ng	100
96) n-Dodecane	22.22	57	324655	4.939	ng	99
97) Hexachlorobutadiene	22.54	225	164461	4.774	ng	100
98) Cyclohexanone	18.27	55	245365	5.243	ng	99
99) tert-Butylbenzene	20.11	119	727041	5.643	ng	100
100) n-Butylbenzene	20.85	91	778801	5.771	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Vial: 2
Operator: LH
Inst : GCMS-16

Quant Time: May 01 17:26:16 2020

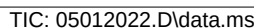
Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP V0A-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 17:25:50 2020

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File : I:\MS16\DATA\2020_05\01\05012023.D
 Acq On : 1 May 2020 16:59
 Sample : 25ng T015 ICAL STD
 Misc : S31-02112001/S34-04292003 (5/28)

Vial: 2
 Operator: LH
 Inst : GCMS-16

Quant Time: May 01 17:26:18 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 17:25:50 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

LH 5/1/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	286303	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.28	114	1228912	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.59	82	571123	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.01	65	468097	11.843	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	94.72%
57) Toluene-d8 (SS2)	15.72	98	1212242	12.033	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	96.24%
73) Bromofluorobenzene (SS3)	18.98	174	458310	12.805	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	102.40%

Target Compounds

						Qvalue
2) Propene	4.09	42	894762	29.187	ng	100
3) Dichlorodifluoromethan...	4.25	85	1661240	25.625	ng	100
4) Chloromethane	4.53	50	1331334	26.035	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	962170	23.538	ng	100
6) Vinyl Chloride	4.94	62	1452200	26.828	ng	100
7) 1,3-Butadiene	5.21	54	1192249	29.444	ng	100
8) Bromomethane	5.65	94	769909	28.228	ng	100
9) Chloroethane	5.98	64	583429	27.941	ng	100
10) Ethanol	6.39	45	3316498	137.974	ng	100
11) Acetonitrile	6.63	41	1485800	27.907	ng	100
12) Acrolein	6.80	56	518321	29.321	ng	100
13) Acetone	7.01	58	3451253	146.739	ng	100
14) Trichlorofluoromethane	7.24	101	1489634	26.165	ng	100
15) 2-Propanol (Isopropanol)	7.53	45	4218436	60.200	ng	100
16) Acrylonitrile	7.77	53	1099575	30.969	ng	100
17) 1,1-Dichloroethene	8.20	96	811190	28.639	ng	100
18) 2-Methyl-2-Propanol (t...	8.39	59	3958148	63.861	ng	100
19) Methylene Chloride	8.44	84	868569	28.330	ng	100
20) 3-Chloro-1-propene (Al...	8.59	41	1253954	31.243	ng	100
21) Trichlorotrifluoroethane	8.84	151	743004	27.185	ng	100
22) Carbon Disulfide	8.69	76	3145335	28.555	ng	100
23) trans-1,2-Dichloroethene	9.71	61	1224632	29.687	ng	100
24) 1,1-Dichloroethane	9.96	63	1485162	28.313	ng	100
25) Methyl tert-Butyl Ether	10.05	73	2185564	26.052	ng	100
26) Vinyl Acetate	10.22	86	1147538	145.128	ng	100
27) 2-Butanone (MEK)	10.46	72	578422	29.805	ng	100
28) cis-1,2-Dichloroethene	10.98	61	1170190	27.455	ng	100
29) Diisopropyl Ether	11.27	87	816119	26.509	ng	100
30) Ethyl Acetate	11.28	61	740753	64.696	ng	100
31) n-Hexane	11.26	57	1536846	28.951	ng	100
32) Chloroform	11.32	83	1513438	26.712	ng	100
34) Tetrahydrofuran (THF)	11.72	72	562319	27.999	ng	100
35) Ethyl tert-Butyl Ether	11.87	87	1027494	28.295	ng	100
36) 1,2-Dichloroethane	12.12	62	1181488	26.670	ng	100
38) 1,1,1-Trichloroethane	12.40	97	1349990	27.947	ng	100
39) Isopropyl Acetate	12.84	61	1233560	61.905	ng	100
40) 1-Butanol	12.85	56	1704801	54.762	ng	100
41) Benzene	12.88	78	3498072	27.670	ng	100
42) Carbon Tetrachloride	13.04	117	1221860	28.021	ng	100
43) Cyclohexane	13.17	84	2724355	56.049	ng	100
44) tert-Amyl Methyl Ether	13.52	73	2480433	30.042	ng	100
45) 1,2-Dichloropropane	13.73	63	842781	28.835	ng	100
46) Bromodichloromethane	13.92	83	1270274	29.545	ng	100
47) Trichloroethene	13.97	130	932766	25.873	ng	100
48) 1,4-Dioxane	13.95	88	738598	29.950	ng	100
49) 2,2,4-Trimethylpentane...	14.05	57	3492402	28.751	ng	100
50) Methyl Methacrylate	14.18	100	756519	62.050	ng	100

Data File : I:\MS16\DATA\2020_05\01\05012023.D

Vial: 2

Acq On : 1 May 2020 16:59

Operator: LH

Sample : 25ng T015 ICAL STD

Inst : GCMS-16

Misc : S31-02112001/S34-04292003 (5/28)

Quant Time: May 01 17:26:18 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)

QLast Update : Fri May 01 17:25:50 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

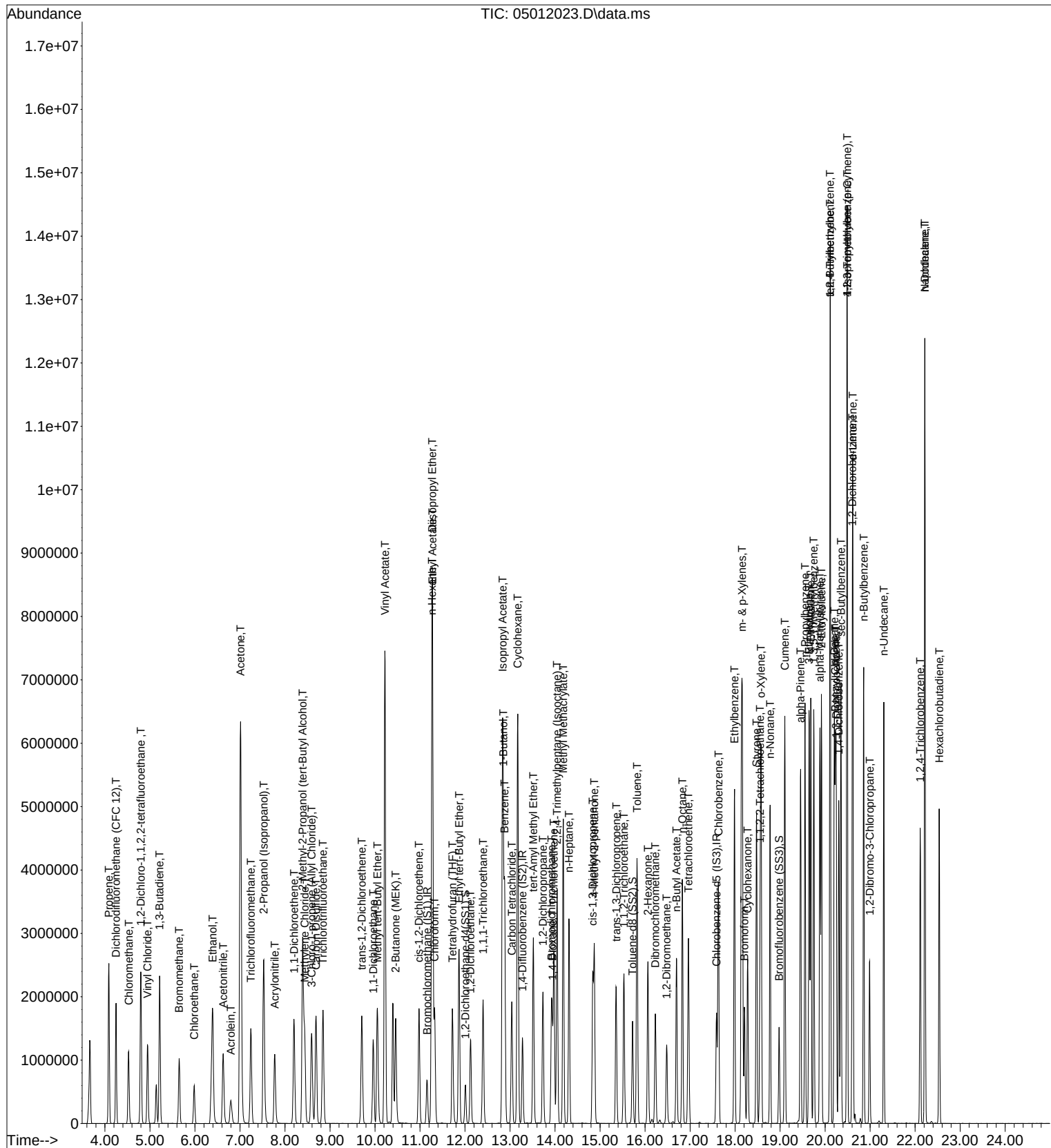
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.31	71	823934	27.865	ng	100
52) cis-1,3-Dichloropropene	14.84	75	1447687	30.747	ng	100
53) 4-Methyl-2-pentanone	14.87	58	811075	30.423	ng	100
54) trans-1,3-Dichloropropene	15.36	75	1324553	30.205	ng	100
55) 1,1,2-Trichloroethane	15.53	97	843984	28.682	ng	100
58) Toluene	15.82	91	3424256	27.410	ng	100
59) 2-Hexanone	16.06	43	1935226	30.714	ng	100
60) Dibromochloromethane	16.23	129	1060385	31.652	ng	100
61) 1,2-Dibromoethane	16.48	107	982343	30.496	ng	100
62) n-Butyl Acetate	16.70	43	2168912	32.203	ng	100
63) n-Octane	16.83	57	728475	29.163	ng	100
64) Tetrachloroethene	16.96	166	984776	28.099	ng	100
65) Chlorobenzene	17.63	112	2300188	27.341	ng	100
66) Ethylbenzene	17.99	91	4049520	29.572	ng	100
67) m- & p-Xylenes	18.15	91	6491657	58.495	ng	100
68) Bromoform	18.21	173	917591	30.583	ng	100
69) Styrene	18.48	104	2503836	28.891	ng	100
70) o-Xylene	18.58	91	3253541	29.284	ng	100
71) n-Nonane	18.78	43	1726340	30.608	ng	100
72) 1,1,2,2-Tetrachloroethane	18.55	83	1616722	30.117	ng	100
74) Cumene	19.10	105	4096128	29.280	ng	100
75) alpha-Pinene	19.46	93	2182133	30.613	ng	100
76) n-Propylbenzene	19.56	91	4975591	30.367	ng	100
77) 3-Ethyltoluene	19.64	105	4101218	29.451	ng	100
78) 4-Ethyltoluene	19.68	105	3906607	29.596	ng	100
79) 1,3,5-Trimethylbenzene	19.75	105	3353822	28.417	ng	100
80) alpha-Methylstyrene	19.88	118	1815476	28.379	ng	100
81) 2-Ethyltoluene	19.92	105	3976342	29.119	ng	100
82) 1,2,4-Trimethylbenzene	20.11	105	3727437	30.689	ng	100
83) n-Decane	20.20	57	1854354	30.977	ng	100
84) Benzyl Chloride	20.23	91	3206821	32.930	ng	100
85) 1,3-Dichlorobenzene	20.25	146	2028248	30.866	ng	100
86) 1,4-Dichlorobenzene	20.30	146	1980369	30.311	ng	100
87) sec-Butylbenzene	20.35	105	4443941	29.308	ng	100
88) 4-Isopropyltoluene (p-...	20.49	119	4416603	30.875	ng	100
89) 1,2,3-Trimethylbenzene	20.49	105	3810515	31.296	ng	100
90) 1,2-Dichlorobenzene	20.61	146	2012317	30.068	ng	100
91) d-Limonene	20.62	68	1441613	30.414	ng	100
92) 1,2-Dibromo-3-Chloropr...	20.99	157	697199	30.419	ng	100
93) n-Undecane	21.30	57	1818070	29.597	ng	100
94) 1,2,4-Trichlorobenzene	22.11	180	1398370	33.614	ng	100
95) Naphthalene	22.22	128	4546028	32.455	ng	100
96) n-Dodecane	22.22	57	1750966	29.104	ng	100
97) Hexachlorobutadiene	22.54	225	878145	27.851	ng	100
98) Cyclohexanone	18.28	55	1117925	26.097	ng	100
99) tert-Butylbenzene	20.11	119	3489996	29.594	ng	100
100) n-Butylbenzene	20.86	91	3625532	29.353	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File : I:\MS16\DATA\2020_05\01\05012023.D
Acq On : 1 May 2020 16:59
Sample : 25ng T015 ICAL STD
Misc : S31-02112001/S34-04292003 (5/28)

Vial: 2
Operator: LH
Inst : GCMS-16

Quant Time: May 01 17:26:18 2020
Quant Method : I:\MS16\METHODS\R16050120.M
Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)
QLast Update : Fri May 01 17:25:50 2020
Response via : Initial Calibration
DataAcq Meth:T015.M



Data File : I:\MS16\DATA\2020_05\01\05012024.D

Vial: 2

Acq On : 1 May 2020 17:33

Operator: LH

Sample : 50ng T015 ICAL STD

Inst : GCMS-16

Misc : S31-02112001/S34-04292003 (5/28)

Quant Time: May 01 18:21:41 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 17:29:13 2020

LH 5/1/20

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.16	130	296329	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.28	114	1261474	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.59	82	593519	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.01	65	478735	11.900	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.20%
57) Toluene-d8 (SS2)	15.72	98	1240425	12.243	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	97.92%
73) Bromofluorobenzene (SS3)	18.98	174	464734	12.717	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.76%

Target Compounds

						Qvalue
2) Propene	4.09	42	1796953	52.860	ng	99
3) Dichlorodifluoromethan...	4.25	85	3187990	47.567	ng	100
4) Chloromethane	4.53	50	2729050	52.530	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	1935925	47.940	ng	100
6) Vinyl Chloride	4.96	62	2887895	50.326	ng	100
7) 1,3-Butadiene	5.22	54	2393303	50.778	ng	99
8) Bromomethane	5.66	94	1618002	53.561	ng	100
9) Chloroethane	5.99	64	1229227	54.539	ng	99
10) Ethanol	6.42	45	7106079	270.958	ng	100
11) Acetonitrile	6.64	41	3034898	50.934	ng	100
12) Acrolein	6.81	56	1054165	50.758	ng	100
13) Acetone	7.03	58	7450473	282.417	ng	# 85
14) Trichlorofluoromethane	7.25	101	3028815	50.994	ng	100
15) 2-Propanol (Isopropanol)	7.55	45	7855441	98.616	ng	99
16) Acrylonitrile	7.78	53	2274854	52.994	ng	100
17) 1,1-Dichloroethene	8.21	96	1662670	53.624	ng	99
18) 2-Methyl-2-Propanol (t...	8.41	59	5524708	78.677	ng	100
19) Methylene Chloride	8.44	84	1782729	52.018	ng	100
20) 3-Chloro-1-propene (Al...	8.60	41	2606826	55.998	ng	100
21) Trichlorotrifluoroethane	8.85	151	1546599	55.362	ng	98
22) Carbon Disulfide	8.69	76	6372275	51.854	ng	100
23) trans-1,2-Dichloroethene	9.71	61	2513808	53.485	ng	99
24) 1,1-Dichloroethane	9.96	63	3010944	53.864	ng	100
25) Methyl tert-Butyl Ether	10.05	73	4149230	46.527	ng	100
26) Vinyl Acetate	10.23	86	2491407	314.423	ng	# 57
27) 2-Butanone (MEK)	10.47	72	1200800	53.091	ng	100
28) cis-1,2-Dichloroethene	10.98	61	2420682	52.524	ng	99
29) Diisopropyl Ether	11.27	87	1723473	53.021	ng	# 93
30) Ethyl Acetate	11.28	61	1642236	125.490	ng	100
31) n-Hexane	11.26	57	3312834	58.268	ng	100
32) Chloroform	11.33	83	3125242	52.888	ng	100
34) Tetrahydrofuran (THF)	11.72	72	1166647	53.025	ng	100
35) Ethyl tert-Butyl Ether	11.87	87	2150206	55.497	ng	100
36) 1,2-Dichloroethane	12.13	62	2421427	51.847	ng	100
38) 1,1,1-Trichloroethane	12.40	97	2767260	54.541	ng	100
39) Isopropyl Acetate	12.84	61	2703577	121.791	ng	# 89
40) 1-Butanol	12.86	56	3801241	117.283	ng	94
41) Benzene	12.88	78	7578608	55.786	ng	100
42) Carbon Tetrachloride	13.04	117	2525594	54.795	ng	100
43) Cyclohexane	13.18	84	5820559	114.692	ng	99
44) tert-Amyl Methyl Ether	13.52	73	5201775	57.533	ng	99
45) 1,2-Dichloropropane	13.73	63	1741280	55.926	ng	99
46) Bromodichloromethane	13.92	83	2627252	57.456	ng	100
47) Trichloroethene	13.98	130	1973429	56.342	ng	100
48) 1,4-Dioxane	13.95	88	1556720	57.092	ng	99
49) 2,2,4-Trimethylpentane...	14.05	57	7264805	55.532	ng	98
50) Methyl Methacrylate	14.19	100	1612357	118.946	ng	99

Data File : I:\MS16\DATA\2020_05\01\05012024.D

Vial: 2

Acq On : 1 May 2020 17:33

Operator: LH

Sample : 50ng T015 ICAL STD

Inst : GCMS-16

Misc : S31-02112001/S34-04292003 (5/28)

Quant Time: May 01 18:21:41 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 17:29:13 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.31	71	1767254	55.726	ng	100
52) cis-1,3-Dichloropropene	14.84	75	3046439	56.787	ng	100
53) 4-Methyl-2-pentanone	14.88	58	1706203	56.697	ng	99
54) trans-1,3-Dichloropropene	15.36	75	2784226	60.799	ng	100
55) 1,1,2-Trichloroethane	15.53	97	1746966	56.334	ng	99
58) Toluene	15.82	91	7061705	54.313	ng	99
59) 2-Hexanone	16.06	43	4070739	57.784	ng	99
60) Dibromochloromethane	16.23	129	2194267	59.071	ng	100
61) 1,2-Dibromoethane	16.48	107	2025699	56.837	ng	100
62) n-Butyl Acetate	16.70	43	4530163	59.421	ng	99
63) n-Octane	16.83	57	1570654	58.903	ng	100
64) Tetrachloroethene	16.97	166	2068921	56.346	ng	100
65) Chlorobenzene	17.63	112	4832830	53.780	ng	100
66) Ethylbenzene	17.99	91	8386382	57.841	ng	99
67) m- & p-Xylenes	18.16	91	13925432	121.021	ng	98
68) Bromoform	18.21	173	1918060	63.108	ng	100
69) Styrene	18.48	104	5183954	59.571	ng	99
70) o-Xylene	18.58	91	6807386	58.156	ng	100
71) n-Nonane	18.78	43	3697140	60.502	ng	98
72) 1,1,2,2-Tetrachloroethane	18.56	83	3397226	58.901	ng	100
74) Cumene	19.10	105	8370559	58.039	ng	99
75) alpha-Pinene	19.46	93	4559119	59.324	ng	99
76) n-Propylbenzene	19.56	91	10009459	58.692	ng	98
77) 3-Ethyltoluene	19.65	105	8132559	58.352	ng	99
78) 4-Ethyltoluene	19.69	105	8156559	59.940	ng	99
79) 1,3,5-Trimethylbenzene	19.75	105	6870991	58.237	ng	99
80) alpha-Methylstyrene	19.89	118	3732298	60.194	ng	98
81) 2-Ethyltoluene	19.92	105	8070320	58.450	ng	99
82) 1,2,4-Trimethylbenzene	20.12	105	7311702	61.264	ng	100
83) n-Decane	20.20	57	4092282	67.333	ng	100
84) Benzyl Chloride	20.23	91	6890327	76.746	ng	99
85) 1,3-Dichlorobenzene	20.25	146	4163439	60.293	ng	100
86) 1,4-Dichlorobenzene	20.31	146	4017198	59.763	ng	100
87) sec-Butylbenzene	20.35	105	8855378	57.530	ng	98
88) 4-Isopropyltoluene (p-...	20.49	119	8351171	59.057	ng	98
89) 1,2,3-Trimethylbenzene	20.49	105	7426933	62.512	ng	99
90) 1,2-Dichlorobenzene	20.61	146	4049033	60.984	ng	100
91) d-Limonene	20.62	68	3089607	66.195	ng	98
92) 1,2-Dibromo-3-Chloropr...	20.99	157	1448206	64.485	ng	98
93) n-Undecane	21.30	57	4012904	76.685	ng	100
94) 1,2,4-Trichlorobenzene	22.12	180	3005308	77.697	ng	99
95) Naphthalene	22.22	128	9089253	72.417	ng	99
96) n-Dodecane	22.22	57	3837089	87.820	ng	99
97) Hexachlorobutadiene	22.54	225	1927632	64.992	ng	100
98) Cyclohexanone	18.28	55	2325790	50.761	ng	99
99) tert-Butylbenzene	20.12	119	6753035	57.139	ng	100
100) n-Butylbenzene	20.86	91	7324522	61.000	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File : I:\MS16\DATA\2020_05\01\05012025.D

Vial: 2

Acq On : 1 May 2020 18:07

Operator: LH

Sample : 100ng T015 ICAL STD

Inst : GCMS-16

Misc : S31-02112001/S34-04292003 (5/28)

Quant Time: May 01 18:32:42 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 18:22:00 2020

LH 5/1/20

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.17	130	307101	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.29	114	1302649	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.59	82	623928	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.02	65	496605	11.932	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.44%
57) Toluene-d8 (SS2)	15.73	98	1277690	12.082	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	96.64%
73) Bromofluorobenzene (SS3)	18.98	174	482815	12.688	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.52%

Target Compounds

						Qvalue
2) Propene	4.09	42	2805564	78.878	ng	99
3) Dichlorodifluoromethan...	4.25	85	5430136	78.055	ng	99
4) Chloromethane	4.53	50	5012802	91.976	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.81	135	3608284	86.813	ng	100
6) Vinyl Chloride	4.96	62	5582487	93.407	ng	100
7) 1,3-Butadiene	5.24	54	4618053	93.386	ng	97
8) Bromomethane	5.67	94	3307082	104.747	ng	100
9) Chloroethane	6.00	64	2534746	107.357	ng	100
10) Ethanol	6.47	45	15131456	550.944	ng	99
11) Acetonitrile	6.67	41	6424952	102.369	ng	100
12) Acrolein	6.82	56	2202179	101.477	ng	100
13) Acetone	7.05	58	15042025	547.644	ng	# 56
14) Trichlorofluoromethane	7.25	101	6310121	102.633	ng	100
15) 2-Propanol (Isopropanol)	7.58	45	15078880	181.384	ng	98
16) Acrylonitrile	7.80	53	4844904	107.901	ng	100
17) 1,1-Dichloroethene	8.22	96	3526226	109.408	ng	99
18) 2-Methyl-2-Propanol (t...	8.43	59	5971963	83.578	ng	99
19) Methylene Chloride	8.45	84	3794776	106.281	ng	99
20) 3-Chloro-1-propene (Al...	8.61	41	5538474	112.906	ng	99
21) Trichlorotrifluoroethane	8.85	151	3229354	111.251	ng	98
22) Carbon Disulfide	8.71	76	13073755	102.186	ng	99
23) trans-1,2-Dichloroethene	9.72	61	5348726	108.987	ng	100
24) 1,1-Dichloroethane	9.97	63	6355885	109.091	ng	100
25) Methyl tert-Butyl Ether	10.06	73	6522340	71.172	ng	99
26) Vinyl Acetate	10.25	86	4839363	598.679	ng	# 3
27) 2-Butanone (MEK)	10.48	72	2544981	108.649	ng	97
28) cis-1,2-Dichloroethene	10.99	61	5160701	107.507	ng	99
29) Diisopropyl Ether	11.28	87	3334523	100.633	ng	# 74
30) Ethyl Acetate	11.30	61	3181460	235.544	ng	97
31) n-Hexane	11.26	57	6466041	110.371	ng	100
32) Chloroform	11.34	83	6496904	106.280	ng	100
34) Tetrahydrofuran (THF)	11.73	72	2481850	108.635	ng	99
35) Ethyl tert-Butyl Ether	11.87	87	4598768	114.847	ng	98
36) 1,2-Dichloroethane	12.13	62	5046702	104.202	ng	100
38) 1,1,1-Trichloroethane	12.41	97	5801042	110.565	ng	100
39) Isopropyl Acetate	12.85	61	5612819	244.569	ng	# 65
40) 1-Butanol	12.88	56	7686632	235.415	ng	89
41) Benzene	12.89	78	15377837	110.081	ng	99
42) Carbon Tetrachloride	13.04	117	5341272	112.408	ng	99
43) Cyclohexane	13.18	84	11703238	224.817	ng	99
44) tert-Amyl Methyl Ether	13.52	73	10906653	116.431	ng	98
45) 1,2-Dichloropropane	13.74	63	3747744	115.837	ng	100
46) Bromodichloromethane	13.93	83	5488917	116.263	ng	100
47) Trichloroethene	13.98	130	4190784	116.061	ng	99
48) 1,4-Dioxane	13.96	88	3428858	121.871	ng	97
49) 2,2,4-Trimethylpentane...	14.05	57	14950897	109.987	ng	97
50) Methyl Methacrylate	14.19	100	3386785	244.382	ng	98

Data File : I:\MS16\DATA\2020_05\01\05012025.D
 Acq On : 1 May 2020 18:07
 Sample : 100ng T015 ICAL STD
 Misc : S31-02112001/S34-04292003 (5/28)

Vial: 2
 Operator: LH
 Inst : GCMS-16

Quant Time: May 01 18:32:42 2020
 Quant Method : I:\MS16\METHODS\R16050120.M
 Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 QLast Update : Fri May 01 18:22:00 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

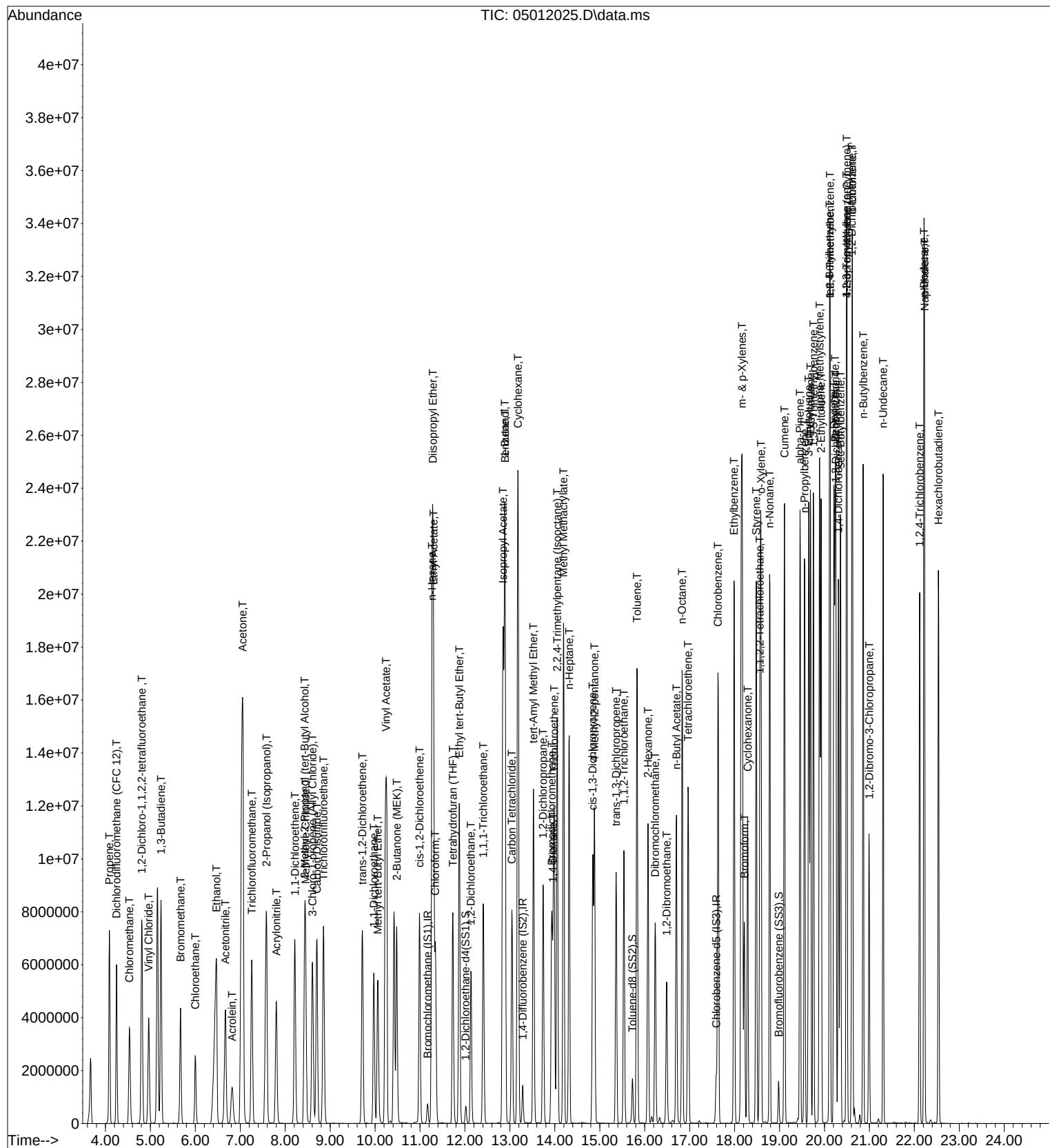
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.32	71	3860770	118.183	ng	99
52) cis-1,3-Dichloropropene	14.84	75	6512364	117.244	ng	99
53) 4-Methyl-2-pentanone	14.88	58	3720592	119.475	ng	94
54) trans-1,3-Dichloropropene	15.36	75	5980136	125.830	ng	100
55) 1,1,2-Trichloroethane	15.54	97	3694486	115.151	ng	98
58) Toluene	15.83	91	14122055	103.594	ng	97
59) 2-Hexanone	16.07	43	8538604	114.309	ng	97
60) Dibromochloromethane	16.23	129	4599117	117.821	ng	98
61) 1,2-Dibromoethane	16.49	107	4236452	112.921	ng	99
62) n-Butyl Acetate	16.71	43	9464801	117.306	ng	97
63) n-Octane	16.83	57	3422153	121.258	ng	99
64) Tetrachloroethene	16.96	166	4251324	110.411	ng	98
65) Chlorobenzene	17.63	112	10058959	107.240	ng	99
66) Ethylbenzene	17.99	91	15775647	103.782	ng	94
67) m- & p-Xylenes	18.16	91	24994911	207.270	ng	97
68) Bromoform	18.22	173	4017610	126.792	ng	100
69) Styrene	18.48	104	10371248	114.347	ng	96
70) o-Xylene	18.59	91	13044798	106.553	ng	98
71) n-Nonane	18.78	43	7415015	114.154	ng	95
72) 1,1,2,2-Tetrachloroethane	18.56	83	6995233	115.177	ng	100
74) Cumene	19.11	105	14928599	99.362	ng	93
75) alpha-Pinene	19.46	93	9103677	113.559	ng	97
76) n-Propylbenzene	19.56	91	16348034	91.592	ng	88
77) 3-Ethyltoluene	19.65	105	15320091	105.349	ng	94
78) 4-Ethyltoluene	19.69	105	13577066	96.220	ng	91
79) 1,3,5-Trimethylbenzene	19.75	105	12866248	105.014	ng	96
80) alpha-Methylstyrene	19.89	118	7332836	114.848	ng	89
81) 2-Ethyltoluene	19.92	105	14549504	101.431	ng	94
82) 1,2,4-Trimethylbenzene	20.12	105	11677289	94.825	ng	99
83) n-Decane	20.21	57	7901549	123.258	ng	99
84) Benzyl Chloride	20.24	91	12745970	134.347	ng	96
85) 1,3-Dichlorobenzene	20.25	146	7870539	110.067	ng	99
86) 1,4-Dichlorobenzene	20.31	146	7896122	113.154	ng	100
87) sec-Butylbenzene	20.36	105	15000490	93.840	ng	91
88) 4-Isopropyltoluene (p-...	20.50	119	12758034	87.765	ng	95
89) 1,2,3-Trimethylbenzene	20.49	105	11655993	95.082	ng	99
90) 1,2-Dichlorobenzene	20.61	146	7018237	102.510	ng	100
91) d-Limonene	20.62	68	5329834	109.584	ng	99
92) 1,2-Dibromo-3-Chloropr...	21.00	157	2996254	126.618	ng	94
93) n-Undecane	21.30	57	7881239	143.443	ng	98
94) 1,2,4-Trichlorobenzene	22.12	180	6156917	147.306	ng	99
95) Naphthalene	22.23	128	14689712	111.271	ng	97
96) n-Dodecane	22.22	57	6472005	144.069	ng	99
97) Hexachlorobutadiene	22.54	225	3985864	130.408	ng	100
98) Cyclohexanone	18.29	55	4951545	103.767	ng	97
99) tert-Butylbenzene	20.12	119	10982141	90.608	ng	99
100) n-Butylbenzene	20.86	91	12973286	103.470	ng	92

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File : I:\MS16\DATA\2020_05\01\05012025.D
Acq On : 1 May 2020 18:07
Sample : 100ng T015 ICAL STD
Misc : S31-02112001/S34-04292003 (5/28)

Vial: 2
Operator: LH
Inst : GCMS-16

Quant Time: May 01 18:32:42 2020
Quant Method : I:\MS16\METHODS\R16050120.M
Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)
QLast Update : Fri May 01 18:22:00 2020
Response via : Initial Calibration
DataAcq Meth:T015.M



Data File : I:\MS16\DATA\2020_05\01\05012026.D

Vial: 2

Acq On : 1 May 2020 18:41

Operator: LH

Sample : 25ng T015 ICV STD

Inst : GCMS-16

Misc : S31-02112001/S34-04302003 (5/29)

Quant Time: May 01 19:07:38 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 18:22:00 2020

Response via : Initial Calibration

LH 5/1/20

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.15	130	306012	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.28	114	1305280	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.59	82	605237	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.00	65	502495	12.117	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	96.96%
57) Toluene-d8 (SS2)	15.72	98	1272559	12.405	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	99.20%
73) Bromofluorobenzene (SS3)	18.98	174	479316	12.985	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	103.84%

Target Compounds

						Qvalue
2) Propene	4.08	42	966787	27.278	ng	100
3) Dichlorodifluoromethan...	4.23	85	1760370	25.394	ng	100
4) Chloromethane	4.52	50	1357331	24.993	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.79	135	976267	23.572	ng	100
6) Vinyl Chloride	4.94	62	1467519	24.642	ng	99
7) 1,3-Butadiene	5.21	54	1260843	25.588	ng	100
8) Bromomethane	5.64	94	787063	25.018	ng	99
9) Chloroethane	5.97	64	602406	25.605	ng	99
10) Ethanol	6.38	45	3553289	129.837	ng	100
11) Acetonitrile	6.62	41	1622424	25.942	ng	100
12) Acrolein	6.79	56	555653	25.696	ng	100
13) Acetone	7.01	58	3611891	131.968	ng	99
14) Trichlorofluoromethane	7.24	101	1552897	25.347	ng	100
15) 2-Propanol (Isopropanol)	7.52	45	4510536	54.450	ng	99
16) Acrylonitrile	7.77	53	1180769	26.391	ng	100
17) 1,1-Dichloroethene	8.19	96	847883	26.401	ng	100
18) 2-Methyl-2-Propanol (t...	8.39	59	4343249	56.240	ng	99
19) Methylene Chloride	8.43	84	892462	25.084	ng	99
20) 3-Chloro-1-propene (Al...	8.58	41	1276351	26.112	ng	100
21) Trichlorotrifluoroethane	8.84	151	781006	27.001	ng	99
22) Carbon Disulfide	8.68	76	3274656	25.686	ng	100
23) trans-1,2-Dichloroethene	9.70	61	1280278	26.180	ng	100
24) 1,1-Dichloroethane	9.96	63	1484365	25.568	ng	100
25) Methyl tert-Butyl Ether	10.05	73	2264086	24.794	ng	100
26) Vinyl Acetate	10.22	86	1192344	139.859	ng	100
27) 2-Butanone (MEK)	10.45	72	609878	26.129	ng	99
28) cis-1,2-Dichloroethene	10.98	61	1232559	25.768	ng	100
29) Diisopropyl Ether	11.27	87	824575	24.973	ng	# 95
30) Ethyl Acetate	11.27	61	776633	57.704	ng	100
31) n-Hexane	11.26	57	1581365	27.089	ng	100
32) Chloroform	11.32	83	1591321	26.124	ng	100
34) Tetrahydrofuran (THF)	11.72	72	595371	26.153	ng	100
35) Ethyl tert-Butyl Ether	11.86	87	1068978	26.791	ng	99
36) 1,2-Dichloroethane	12.12	62	1234056	25.571	ng	100
38) 1,1,1-Trichloroethane	12.40	97	1423725	27.081	ng	100
39) Isopropyl Acetate	12.83	61	1293737	56.259	ng	97
40) 1-Butanol	12.85	56	2086238	63.765	ng	94
41) Benzene	12.88	78	3590944	25.654	ng	100
42) Carbon Tetrachloride	13.04	117	1259961	26.463	ng	100
43) Cyclohexane	13.17	84	2795016	53.584	ng	99
44) tert-Amyl Methyl Ether	13.52	73	2599327	27.692	ng	100
45) 1,2-Dichloropropane	13.73	63	867296	26.753	ng	99
46) Bromodichloromethane	13.92	83	1295074	27.376	ng	100
47) Trichloroethene	13.97	130	967338	26.736	ng	100
48) 1,4-Dioxane	13.95	88	775383	27.504	ng	100
49) 2,2,4-Trimethylpentane...	14.04	57	3603157	26.453	ng	100
50) Methyl Methacrylate	14.18	100	775781	55.866	ng	99

Data File : I:\MS16\DATA\2020_05\01\05012026.D

Vial: 2

Acq On : 1 May 2020 18:41

Operator: LH

Sample : 25ng T015 ICV STD

Inst : GCMS-16

Misc : S31-02112001/S34-04302003 (5/29)

Quant Time: May 01 19:07:38 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 18:22:00 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.31	71	851667	26.018	ng	100
52) cis-1,3-Dichloropropene	14.84	75	1585771	28.492	ng	100
53) 4-Methyl-2-pentanone	14.87	58	872253	27.953	ng	100
54) trans-1,3-Dichloropropene	15.35	75	1387054	29.127	ng	100
55) 1,1,2-Trichloroethane	15.53	97	867139	26.973	ng	100
58) Toluene	15.82	91	3509323	26.538	ng	100
59) 2-Hexanone	16.06	43	2142962	29.574	ng	100
60) Dibromochloromethane	16.23	129	1094576	28.907	ng	100
61) 1,2-Dibromoethane	16.48	107	1019112	28.003	ng	100
62) n-Butyl Acetate	16.70	43	2398863	30.649	ng	100
63) n-Octane	16.83	57	741607	27.089	ng	100
64) Tetrachloroethene	16.96	166	1010020	27.041	ng	99
65) Chlorobenzene	17.62	112	2369161	26.038	ng	100
66) Ethylbenzene	17.98	91	4140285	28.079	ng	100
67) m- & p-Xylenes	18.15	91	6646028	56.814	ng	100
68) Bromoform	18.21	173	952116	29.005	ng	100
69) Styrene	18.48	104	2615334	29.726	ng	100
70) o-Xylene	18.58	91	3318680	27.945	ng	100
71) n-Nonane	18.77	43	1768593	28.068	ng	100
72) 1,1,2,2-Tetrachloroethane	18.55	83	1670094	28.347	ng	100
74) Cumene	19.10	105	4140007	28.406	ng	100
75) alpha-Pinene	19.45	93	2192080	28.188	ng	99
76) n-Propylbenzene	19.55	91	5034559	29.078	ng	100
77) 3-Ethyltoluene	19.64	105	4294103	30.440	ng	100
78) 4-Ethyltoluene	19.68	105	3790629	27.694	ng	100
79) 1,3,5-Trimethylbenzene	19.75	105	3430468	28.864	ng	100
80) alpha-Methylstyrene	19.88	118	1874877	27.988	ng	100
81) 2-Ethyltoluene	19.92	105	4065181	29.215	ng	99
82) 1,2,4-Trimethylbenzene	20.11	105	3770591	31.564	ng	100
83) n-Decane	20.20	57	1887277	28.242	ng	100
84) Benzyl Chloride	20.23	91	3366173	30.233	ng	100
85) 1,3-Dichlorobenzene	20.25	146	2073075	29.887	ng	100
86) 1,4-Dichlorobenzene	20.30	146	2047327	30.245	ng	100
87) sec-Butylbenzene	20.35	105	4505729	29.057	ng	100
88) 4-Isopropyltoluene (p-...	20.49	119	4352844	29.644	ng	100
89) 1,2,3-Trimethylbenzene	20.48	105	3682695	29.457	ng	100
90) 1,2-Dichlorobenzene	20.61	146	2035560	30.650	ng	100
91) d-Limonene	20.62	68	1446579	30.661	ng	100
92) 1,2-Dibromo-3-Chloropr...	20.99	157	709248	28.322	ng	99
93) n-Undecane	21.30	57	1877490	30.357	ng	99
94) 1,2,4-Trichlorobenzene	22.11	180	1445626	31.384	ng	100
95) Naphthalene	22.22	128	4860431	33.339	ng	100
96) n-Dodecane	22.22	57	1815131	33.896	ng	100
97) Hexachlorobutadiene	22.54	225	900762	28.271	ng	99
98) Cyclohexanone	18.28	55	1308763	28.274	ng	99
99) tert-Butylbenzene	20.11	119	3490399	29.687	ng	100
100) n-Butylbenzene	20.86	91	3725548	30.631	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File : I:\MS16\DATA\2020_05\01\05012026.D
Acq On : 1 May 2020 18:41
Sample : 25ng T015 ICV STD
Misc : S31-02112001/S34-04302003 (5/29)

Vial: 2
Operator: LH
Inst : GCMS-16

Quant Time: May 01 19:07:38 2020

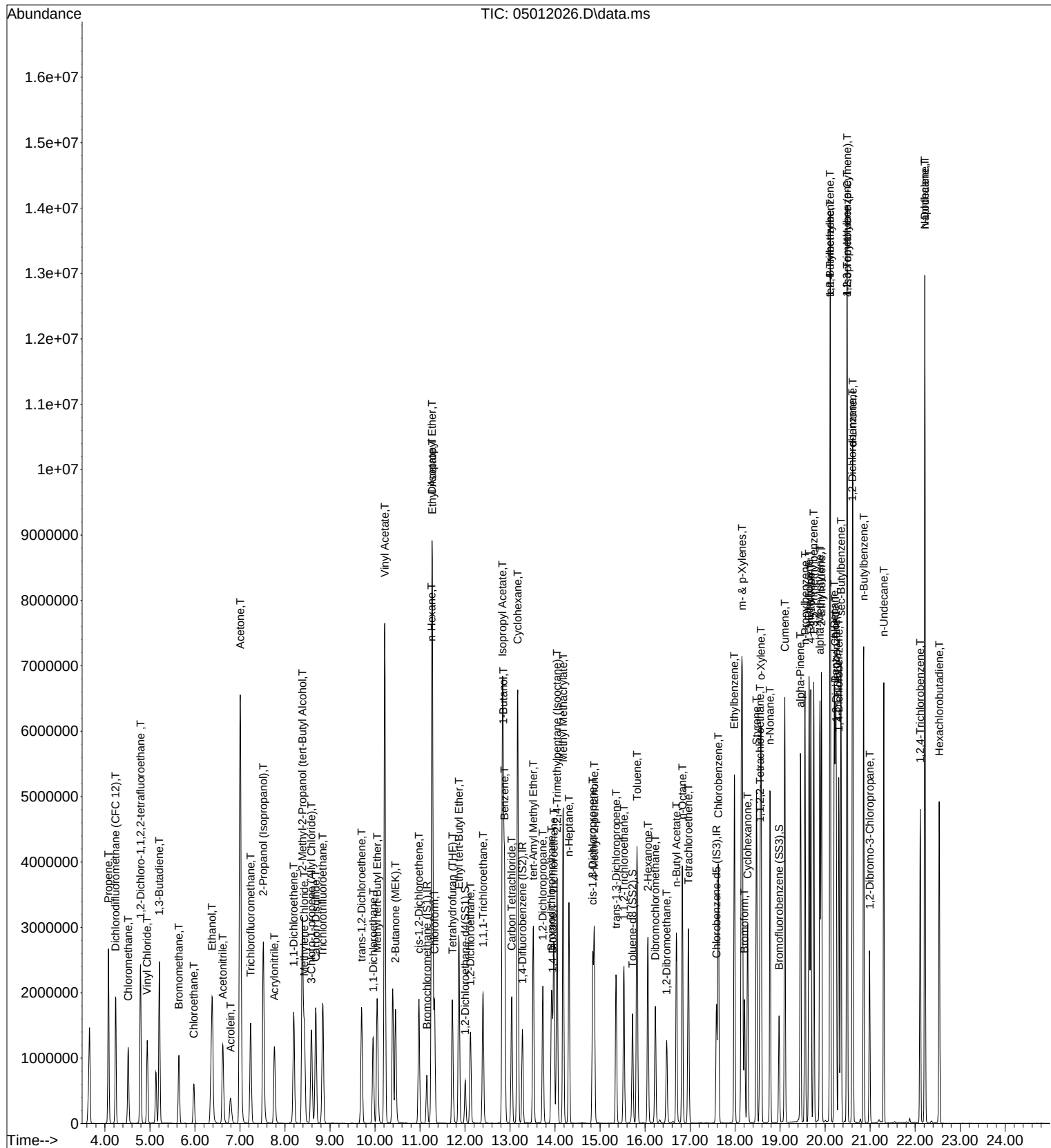
Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 18:22:00 2020

Response via : Initial Calibration

DataAcq Meth:T015.M



Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: 05012026.D

Acq. Method File: TO15.M

Data File Path: I:\MS16\DATA\2020_05\01\

Sample Name: 25ng TO15 ICV STD

Operator: LH

Misc Info: S31-02112001/S34-04302003 (

Date Acquired: 5/1/2020

18:41

Instrument Name: GCMS-16

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
2)	Propene	4.08	27.3	26.25	104	51	133	*	*
3)	Dichlorodifluoromethane (CFC 12)	4.23	25.4	26.25	97	64	115	*	*
4)	Chloromethane	4.52	25.0	26.50	94	49	127	*	*
5)	1,2-Dichloro-1,1,2,2-tetrafluoroethane	4.79	23.6	25.75	92	65	114	*	*
6)	Vinyl Chloride	4.94	24.6	26.50	93	61	129	*	*
7)	1,3-Butadiene	5.21	25.6	26.50	97	54	140	*	*
8)	Bromomethane	5.64	25.0	26.50	94	68	120	*	*
9)	Chloroethane	5.97	25.6	26.75	96	63	123	*	*
10)	Ethanol	6.38	130	132.50	98	49	134	*	*
11)	Acetonitrile	6.62	25.9	26.75	97	50	137	*	*
12)	Acrolein	6.79	25.7	25.75	100	62	128	*	*
13)	Acetone	7.01	132	133.50	99	56	125	*	*
14)	Trichlorofluoromethane	7.24	25.3	26.50	95	64	115	*	*
15)	2-Propanol (Isopropanol)	7.52	54.5	52.75	103	57	133	*	*
16)	Acrylonitrile	7.77	26.4	26.50	100	64	136	*	*
17)	1,1-Dichloroethene	8.19	26.4	26.75	99	68	115	*	*
18)	2-Methyl-2-Propanol (tert-Butyl Alcohol)	8.39	56.2	53.75	105	56	132	*	*
19)	Methylene Chloride	8.43	25.1	26.25	96	68	114	*	*
20)	3-Chloro-1-propene (Allyl Chloride)	8.58	26.1	26.75	98	55	139	*	*
21)	Trichlorotrifluoroethane	8.84	27.0	27.00	100	65	115	*	*
22)	Carbon Disulfide	8.68	25.7	26.50	97	68	113	*	*
23)	trans-1,2-Dichloroethene	9.70	26.2	26.75	98	65	122	*	*
24)	1,1-Dichloroethane	9.96	25.6	26.50	97	63	118	*	*
25)	Methyl tert-Butyl Ether	10.05	24.8	26.75	93	57	131	*	*
26)	Vinyl Acetate	10.22	140	133.25	105	71	128	*	*
27)	2-Butanone (MEK)	10.45	26.1	26.50	98	67	123	*	*
28)	cis-1,2-Dichloroethene	10.98	25.8	26.50	97	64	120	*	*
29)	Diisopropyl Ether	11.27	25.0	27.00	93	62	121	*	*
30)	Ethyl Acetate	11.27	57.7	54.00	107	64	131	*	*
31)	n-Hexane	11.26	27.1	27.00	100	58	125	*	*
32)	Chloroform	11.32	26.1	26.75	98	65	114	*	*
34)	Tetrahydrofuran (THF)	11.72	26.2	27.50	95	65	115	*	*
35)	Ethyl tert-Butyl Ether	11.86	26.8	26.75	100	61	130	*	*
36)	1,2-Dichloroethane	12.12	25.6	26.75	96	59	120	*	*
38)	1,1,1-Trichloroethane	12.40	27.1	26.75	101	66	115	*	*
39)	Isopropyl Acetate	12.83	56.3	52.50	107	65	129	*	*
40)	1-Butanol	12.85	63.8	53.25	120	58	140	*	*
41)	Benzene	12.88	25.7	26.25	98	66	109	*	*
42)	Carbon Tetrachloride	13.04	26.5	26.00	102	66	119	*	*
43)	Cyclohexane	13.17	53.6	52.75	102	67	117	*	*
44)	tert-Amyl Methyl Ether	13.52	27.7	26.75	104	62	133	*	*
45)	1,2-Dichloropropane	13.73	26.8	26.75	100	66	119	*	*
46)	Bromodichloromethane	13.92	27.4	27.25	101	71	119	*	*
47)	Trichloroethene	13.97	26.7	27.00	99	70	114	*	*
48)	1,4-Dioxane	13.95	27.5	27.00	102	71	117	*	*
49)	2,2,4-Trimethylpentane (Isooctane)	14.04	26.5	26.75	99	61	122	*	*

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **05012026.D**

Data File Path: **I:\MS16\DATA\2020_05\01**

Operator: **LH**

Date Acquired: **5/1/2020**

18:41

TO15.M

Sample Name: **25ng TO15 ICV STD**

Misc Info: **S31-02112001/S34-04302003 (**

Instrument Name: **GCMS-16**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
50)	Methyl Methacrylate	14.18	55.9	53.75	104	76	121	*	*
51)	n-Heptane	14.31	26.0	26.75	97	66	119	*	*
52)	cis-1,3-Dichloropropene	14.84	28.5	26.75	107	72	125	*	*
53)	4-Methyl-2-pentanone	14.87	28.0	26.50	106	68	130	*	*
54)	trans-1,3-Dichloropropene	15.35	29.1	26.50	110	71	132	*	*
55)	1,1,2-Trichloroethane	15.53	27.0	26.75	101	70	117	*	*
58)	Toluene	15.82	26.5	26.50	100	67	113	*	*
59)	2-Hexanone	16.06	29.6	27.00	110	62	135	*	*
60)	Dibromochloromethane	16.23	28.9	26.75	108	73	126	*	*
61)	1,2-Dibromoethane	16.48	28.0	26.75	105	71	122	*	*
62)	n-Butyl Acetate	16.70	30.6	27.25	112	65	134	*	*
63)	n-Octane	16.83	27.1	27.00	100	63	120	*	*
64)	Tetrachloroethene	16.96	27.0	26.00	104	64	120	*	*
65)	Chlorobenzene	17.62	26.0	26.75	97	65	116	*	*
66)	Ethylbenzene	17.98	28.1	26.50	106	65	117	*	*
67)	m- & p-Xylenes	18.15	56.8	53.25	107	64	121	*	*
68)	Bromoform	18.21	29.0	26.75	108	72	130	*	*
69)	Styrene	18.48	29.7	26.50	112	72	126	*	*
70)	o-Xylene	18.58	27.9	26.75	104	64	120	*	*
71)	n-Nonane	18.77	28.1	26.75	105	56	132	*	*
72)	1,1,2,2-Tetrachloroethane	18.55	28.3	26.75	106	66	122	*	*
74)	Cumene	19.10	28.4	26.75	106	64	121	*	*
75)	alpha-Pinene	19.45	28.2	26.50	106	62	136	*	*
76)	n-Propylbenzene	19.55	29.1	26.75	109	65	123	*	*
77)	3-Ethyltoluene	19.64	30.4	26.75	114	62	123	*	*
78)	4-Ethyltoluene	19.68	27.7	26.25	106	71	126	*	*
79)	1,3,5-Trimethylbenzene	19.75	28.9	26.50	109	65	120	*	*
80)	alpha-Methylstyrene	19.88	28.0	26.50	106	70	132	*	*
81)	2-Ethyltoluene	19.92	29.2	26.75	109	66	121	*	*
82)	1,2,4-Trimethylbenzene	20.11	31.6	26.50	119	63	129	*	*
83)	n-Decane	20.20	28.2	26.75	105	61	131	*	*
84)	Benzyl Chloride	20.23	30.2	26.75	113	66	138	*	*
85)	1,3-Dichlorobenzene	20.25	29.9	26.75	112	65	127	*	*
86)	1,4-Dichlorobenzene	20.30	30.2	26.75	113	66	125	*	*
87)	sec-Butylbenzene	20.35	29.1	26.50	110	68	123	*	*
88)	4-Isopropyltoluene (p-Cymene)	20.49	29.6	27.25	109	61	129	*	*
89)	1,2,3-Trimethylbenzene	20.48	29.5	27.00	109	60	134	*	*
90)	1,2-Dichlorobenzene	20.61	30.6	26.75	114	67	128	*	*
91)	d-Limonene	20.62	30.7	26.50	116	65	136	*	*
92)	1,2-Dibromo-3-Chloropropane	20.99	28.3	26.75	106	73	133	*	*
93)	n-Undecane	21.30	30.4	27.00	113	64	131	*	*
94)	1,2,4-Trichlorobenzene	22.11	31.4	27.00	116	62	140	*	*
95)	Naphthalene	22.22	33.3	26.50	126	57	149	*	*
96)	n-Dodecane	22.22	33.9	26.50	128	41	181	*	*
97)	Hexachlorobutadiene	22.54	28.3	26.75	106	57	129	*	*
98)	Cyclohexanone	18.28	28.3	25.25	112	61	131	*	*
99)	tert-Butylbenzene	20.11	29.7	26.50	112	62	130	*	*
100)	n-Butylbenzene	20.86	30.6	26.75	114	67	124	*	*

Bold = 75 Compound List

Data File : I:\MS16\DATA\2020_05\20\05202002.D

Vial: 2

Acq On : 20 May 2020 4:33

Operator: SC

Sample : CCV R16052020_25ng

Inst : GCMS-16

Misc : S31-02112001/S34-04292003 (5/28)

Quant Time: May 20 06:41:20 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Fri May 01 18:22:00 2020

Response via : Initial Calibration

DataAcq Meth:TO15.M

5/20/20

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min

Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 IR	Bromochloromethane (IS1)	1.000	1.000	0.0	98	-0.01
2 T	Propene	1.448	1.380	4.7	91	0.00
3 T	Dichlorodifluoromethane (CF	2.832	2.469	12.8	88	0.00
4 T	Chloromethane	2.218	1.928	13.1	86	0.00
5 T	1,2-Dichloro-1,1,2,2-tetra	1.692	1.386	18.1	85	-0.01
6 T	Vinyl Chloride	2.433	2.001	17.8	83	-0.01
7 T	1,3-Butadiene	2.013	1.678	16.6	83	-0.01
8 T	Bromomethane	1.285	1.114	13.3	87	-0.01
9 T	Chloroethane	0.961	0.848	11.8	88	0.00
10 T	Ethanol	1.118	0.979	12.4	86	-0.04
11 T	Acetonitrile	2.555	2.225	12.9	88	-0.02
12 T	Acrolein	0.883	0.725	17.9	81	-0.01
13 T	Acetone	1.118	1.023	8.5	88	-0.02
14 T	Trichlorofluoromethane	2.503	2.165	13.5	86	0.00
15 T	2-Propanol (Isopropanol)	3.384	3.076	9.1	86	-0.03
16 T	Acrylonitrile	1.828	1.663	9.0	89	-0.02
17 T	1,1-Dichloroethene	1.312	1.161	11.5	86	0.00
18 T	2-Methyl-2-Propanol (tert-B	3.155	2.523	20.0	77	-0.03
19 T	Methylene Chloride	1.453	1.260	13.3	86	-0.01
20 T	3-Chloro-1-propene (Allyl C	1.997	1.863	6.7	90	-0.01
21 T	Trichlorotrifluoroethane	1.182	1.082	8.5	88	0.00
22 T	Carbon Disulfide	5.208	4.572	12.2	87	0.00
23 T	trans-1,2-Dichloroethene	1.998	1.739	13.0	86	-0.01
24 T	1,1-Dichloroethane	2.371	2.094	11.7	86	0.00
25 T	Methyl tert-Butyl Ether	3.730	3.065	17.8	85	0.00
26 T	Vinyl Acetate	0.348	0.254	27.0	66	-0.01
27 T	2-Butanone (MEK)	0.953	0.875	8.2	90	-0.01
28 T	cis-1,2-Dichloroethene	1.954	1.725	11.7	87	0.00
29 T	Diisopropyl Ether	1.349	1.118	17.1	83	0.00
30 T	Ethyl Acetate	0.550	0.516	6.2	84	-0.01
31 T	n-Hexane	2.385	2.210	7.3	87	0.00
32 T	Chloroform	2.488	2.193	11.9	87	0.00
33 S	1,2-Dichloroethane-d4(SS1)	1.694	1.618	4.5	97	0.00
34 T	Tetrahydrofuran (THF)	0.930	0.802	13.8	87	0.00
35 T	Ethyl tert-Butyl Ether	1.630	1.480	9.2	87	0.00
36 T	1,2-Dichloroethane	1.971	1.672	15.2	85	0.00
37 IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	98	0.00
38 T	1,1,1-Trichloroethane	0.503	0.446	11.3	85	0.00
39 T	Isopropyl Acetate	0.220	0.204	7.3	84	0.00
40 T	1-Butanol	0.313	0.259	17.3	76	-0.02
41 T	Benzene	1.340	1.213	9.5	89	0.00
42 T	Carbon Tetrachloride	0.456	0.408	10.5	85	-0.01
43 T	Cyclohexane	0.500	0.464	7.2	87	-0.01
44 T	tert-Amyl Methyl Ether	0.899	0.830	7.7	87	0.00
45 T	1,2-Dichloropropane	0.310	0.282	9.0	87	0.00
46 T	Bromodichloromethane	0.453	0.409	9.7	84	0.00
47 T	Trichloroethene	0.346	0.313	9.5	87	0.00
48 T	1,4-Dioxane	0.270	0.237	12.2	84	-0.01
49 T	2,2,4-Trimethylpentane (Iso	1.304	1.200	8.0	89	0.00
50 T	Methyl Methacrylate	0.133	0.125	6.0	86	-0.01
51 T	n-Heptane	0.313	0.287	8.3	91	0.00
52 T	cis-1,3-Dichloropropene	0.533	0.488	8.4	85	0.00
53 T	4-Methyl-2-pentanone	0.299	0.275	8.0	87	-0.01
54 T	trans-1,3-Dichloropropene	0.456	0.436	4.4	84	0.00
55 T	1,1,2-Trichloroethane	0.308	0.283	8.1	87	0.00

Data File : I:\MS16\DATA\2020_05\20\05202002.D

Vial: 2

Acq On : 20 May 2020 4:33

Operator: SC

Sample : CCV R16052020_25ng

Inst : GCMS-16

Misc : S31-02112001/S34-04292003 (5/28)

Quant Time: May 20 06:41:20 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)

QLast Update : Fri May 01 18:22:00 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
56	IR Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	99	0.00
57	S Toluene-d8 (SS2)	2.119	2.061	2.7	96	0.00
58	T Toluene	2.731	2.496	8.6	88	0.00
59	T 2-Hexanone	1.497	1.393	6.9	87	0.00
60	T Dibromochloromethane	0.782	0.765	2.2	87	0.00
61	T 1,2-Dibromoethane	0.752	0.706	6.1	87	0.00
62	T n-Butyl Acetate	1.616	1.420	12.1	81	0.00
63	T n-Octane	0.565	0.539	4.6	90	0.00
64	T Tetrachloroethene	0.771	0.731	5.2	87	0.00
65	T Chlorobenzene	1.879	1.687	10.2	89	0.00
66	T Ethylbenzene	3.045	2.992	1.7	89	0.00
67	T m- & p-Xylenes	2.416	2.286	5.4	85	-0.01
68	T Bromoform	0.678	0.664	2.1	87	-0.01
69	T Styrene	1.817	1.824	-0.4	87	0.00
70	T o-Xylene	2.453	2.343	4.5	87	0.00
71	T n-Nonane	1.301	1.306	-0.4	91	0.00
72	T 1,1,2,2-Tetrachloroethane	1.217	1.185	2.6	89	-0.01
73	S Bromofluorobenzene (SS3)	0.762	0.799	-4.9	98	0.00
74	T Cumene	3.010	2.916	3.1	87	0.00
75	T alpha-Pinene	1.606	1.554	3.2	86	0.00
76	T n-Propylbenzene	3.576	3.544	0.9	87	0.00
77	T 3-Ethyltoluene	2.913	2.908	0.2	85	0.00
78	T 4-Ethyltoluene	2.827	2.766	2.2	86	-0.01
79	T 1,3,5-Trimethylbenzene	2.455	2.405	2.0	86	-0.01
80	T alpha-Methylstyrene	1.384	1.209	12.6	80	0.00
81	T 2-Ethyltoluene	2.874	2.823	1.8	87	0.00
82	T 1,2,4-Trimethylbenzene	2.467	2.531	-2.6	82	0.00
83	T n-Decane	1.380	1.323	4.1	86	0.00
84	T Benzyl Chloride	2.300	1.907	17.1	72	-0.01
85	T 1,3-Dichlorobenzene	1.433	1.398	2.4	83	0.00
86	T 1,4-Dichlorobenzene	1.398	1.409	-0.8	86	-0.01
87	T sec-Butylbenzene	3.203	3.171	1.0	86	0.00
88	T 4-Isopropyltoluene (p-Cymen	3.033	2.963	2.3	83	0.00
89	T 1,2,3-Trimethylbenzene	2.582	2.541	1.6	82	0.00
90	T 1,2-Dichlorobenzene	1.372	1.382	-0.7	83	-0.01
91	T d-Limonene	0.974	0.947	2.8	80	0.00
92	T 1,2-Dibromo-3-Chloropropane	0.517	0.504	2.5	86	0.00
93	T n-Undecane	1.277	1.294	-1.3	87	0.00
94	T 1,2,4-Trichlorobenzene	0.951	0.940	1.2	81	-0.01
95	T Naphthalene	3.011	2.874	4.5	73	-0.01
96	T n-Dodecane	1.106	1.206	-9.0	81	0.00
97	T Hexachlorobutadiene	0.658	0.647	1.7	88	0.00
98	T Cyclohexanone	0.956	0.764	20.1	77	-0.01
99	T tert-Butylbenzene	2.428	2.408	0.8	83	0.00
100	T n-Butylbenzene	2.512	2.563	-2.0	85	0.00

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

Data File : I:\MS16\DATA\2020_05\20\05202002.D

Vial: 2

Acq On : 20 May 2020 4:33

Operator: SC

Sample : CCV R16052020_25ng

Inst : GCMS-16

Misc : S31-02112001/S34-04292003 (5/28)

Quant Time: May 20 06:41:20 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 18:22:00 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

5/20/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.15	130	279375	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.27	114	1207159	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.58	82	564170	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.00	65	452020	11.939	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	95.52%
57) Toluene-d8 (SS2)	15.72	98	1162685	12.159	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	97.28%
73) Bromofluorobenzene (SS3)	18.97	174	450760	13.100	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	104.80%

Target Compounds

						Qvalue
2) Propene	4.09	42	817140	25.254	ng	99
3) Dichlorodifluoromethan...	4.25	85	1462246	23.105	ng	100
4) Chloromethane	4.53	50	1141766	23.029	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	813402	21.512	ng	100
6) Vinyl Chloride	4.94	62	1207237	22.204	ng	100
7) 1,3-Butadiene	5.21	54	993958	22.095	ng	99
8) Bromomethane	5.65	94	672515	23.415	ng	100
9) Chloroethane	5.98	64	511895	23.833	ng	99
10) Ethanol	6.38	45	2850966	114.107	ng	100
11) Acetonitrile	6.62	41	1305187	22.859	ng	100
12) Acrolein	6.80	56	417378	21.142	ng	100
13) Acetone	7.01	58	3045342	121.877	ng	99
14) Trichlorofluoromethane	7.24	101	1282323	22.927	ng	100
15) 2-Propanol (Isopropanol)	7.52	45	3609598	47.729	ng	99
16) Acrylonitrile	7.76	53	975800	23.889	ng	100
17) 1,1-Dichloroethene	8.20	96	700423	23.889	ng	100
18) 2-Methyl-2-Propanol (t...	8.38	59	3045588	43.197	ng	100
19) Methylene Chloride	8.43	84	746507	22.982	ng	98
20) 3-Chloro-1-propene (Al...	8.59	41	1124512	25.199	ng	99
21) Trichlorotrifluoroethane	8.84	151	653167	24.735	ng	98
22) Carbon Disulfide	8.69	76	2733216	23.483	ng	100
23) trans-1,2-Dichloroethene	9.70	61	1049387	23.505	ng	100
24) 1,1-Dichloroethane	9.96	63	1275506	24.065	ng	100
25) Methyl tert-Butyl Ether	10.05	73	1849577	22.186	ng	99
26) Vinyl Acetate	10.22	86	760377	97.695	ng	# 87
27) 2-Butanone (MEK)	10.45	72	518503	24.332	ng	95
28) cis-1,2-Dichloroethene	10.98	61	1021565	23.393	ng	99
29) Diisopropyl Ether	11.27	87	674702	22.383	ng	# 91
30) Ethyl Acetate	11.27	61	625087	50.872	ng	98
31) n-Hexane	11.26	57	1333442	25.020	ng	99
32) Chloroform	11.32	83	1311104	23.576	ng	100
34) Tetrahydrofuran (THF)	11.72	72	488439	23.502	ng	97
35) Ethyl tert-Butyl Ether	11.86	87	893076	24.517	ng	97
36) 1,2-Dichloroethane	12.12	62	1009260	22.907	ng	99
38) 1,1,1-Trichloroethane	12.40	97	1152676	23.707	ng	100
39) Isopropyl Acetate	12.83	61	1040648	48.931	ng	100
40) 1-Butanol	12.85	56	1301830	43.024	ng	96
41) Benzene	12.88	78	3105254	23.987	ng	100
42) Carbon Tetrachloride	13.03	117	1033635	23.474	ng	100
43) Cyclohexane	13.16	84	2374683	49.226	ng	98
44) tert-Amyl Methyl Ether	13.51	73	2164569	24.935	ng	99
45) 1,2-Dichloropropane	13.73	63	736178	24.554	ng	100
46) Bromodichloromethane	13.92	83	1065326	24.350	ng	100
47) Trichloroethene	13.97	130	808013	24.148	ng	100
48) 1,4-Dioxane	13.94	88	616955	23.663	ng	99
49) 2,2,4-Trimethylpentane...	14.04	57	3100847	24.616	ng	98
50) Methyl Methacrylate	14.18	100	648530	50.498	ng	98

Data File : I:\MS16\DATA\2020_05\20\05202002.D

Vial: 2

Acq On : 20 May 2020 4:33

Operator: SC

Sample : CCV R16052020_25ng

Inst : GCMS-16

Misc : S31-02112001/S34-04292003 (5/28)

Quant Time: May 20 06:41:20 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)

QLast Update : Fri May 01 18:22:00 2020

Response via : Initial Calibration

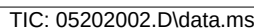
DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.31	71	747290	24.685	ng	98
52) cis-1,3-Dichloropropene	14.84	75	1225207	23.803	ng	100
53) 4-Methyl-2-pentanone	14.86	58	704146	24.400	ng	98
54) trans-1,3-Dichloropropene	15.35	75	1114702	25.310	ng	100
55) 1,1,2-Trichloroethane	15.52	97	731839	24.615	ng	100
58) Toluene	15.82	91	3013657	24.449	ng	100
59) 2-Hexanone	16.06	43	1682073	24.904	ng	99
60) Dibromochloromethane	16.22	129	923588	26.167	ng	100
61) 1,2-Dibromoethane	16.48	107	852317	25.125	ng	100
62) n-Butyl Acetate	16.70	43	1746781	23.943	ng	99
63) n-Octane	16.82	57	656686	25.733	ng	98
64) Tetrachloroethene	16.96	166	858238	24.650	ng	100
65) Chlorobenzene	17.62	112	2036935	24.016	ng	100
66) Ethylbenzene	17.98	91	3612694	26.284	ng	100
67) m- & p-Xylenes	18.15	91	5520088	50.624	ng	100
68) Bromoform	18.20	173	801515	26.194	ng	100
69) Styrene	18.47	104	2181457	26.599	ng	99
70) o-Xylene	18.58	91	2828759	25.553	ng	100
71) n-Nonane	18.77	43	1577028	26.850	ng	98
72) 1,1,2,2-Tetrachloroethane	18.55	83	1430818	26.054	ng	100
74) Cumene	19.10	105	3553995	26.160	ng	100
75) alpha-Pinene	19.45	93	1876364	25.885	ng	99
76) n-Propylbenzene	19.55	91	4319232	26.762	ng	99
77) 3-Ethyltoluene	19.64	105	3477532	26.446	ng	100
78) 4-Ethyltoluene	19.68	105	3371086	26.421	ng	100
79) 1,3,5-Trimethylbenzene	19.74	105	2876338	25.963	ng	100
80) alpha-Methylstyrene	19.88	118	1459975	23.381	ng	91
81) 2-Ethyltoluene	19.91	105	3439567	26.519	ng	100
82) 1,2,4-Trimethylbenzene	20.11	105	3055427	27.439	ng	99
83) n-Decane	20.20	57	1597211	25.641	ng	99
84) Benzyl Chloride	20.22	91	2323468	22.387	ng	100
85) 1,3-Dichlorobenzene	20.24	146	1688283	26.111	ng	99
86) 1,4-Dichlorobenzene	20.30	146	1700613	26.952	ng	99
87) sec-Butylbenzene	20.35	105	3828378	26.486	ng	100
88) 4-Isopropyltoluene (p-...	20.48	119	3644672	26.628	ng	99
89) 1,2,3-Trimethylbenzene	20.48	105	3125316	26.818	ng	100
90) 1,2-Dichlorobenzene	20.60	146	1668242	26.948	ng	100
91) d-Limonene	20.61	68	1154412	26.249	ng	99
92) 1,2-Dibromo-3-Chloropr...	20.98	157	597502	25.597	ng	98
93) n-Undecane	21.30	57	1577033	27.355	ng	98
94) 1,2,4-Trichlorobenzene	22.11	180	1135009	26.435	ng	100
95) Naphthalene	22.21	128	3339729	24.576	ng	100
96) n-Dodecane	22.21	57	1414774	28.343	ng	99
97) Hexachlorobutadiene	22.53	225	773275	26.036	ng	100
98) Cyclohexanone	18.27	55	861675	19.970	ng	98
99) tert-Butylbenzene	20.11	119	2907713	26.531	ng	100
100) n-Butylbenzene	20.85	91	3094068	27.291	ng	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Vial: 2
Operator: SC
Inst : GCMS-16

Quant Time: May 20 06:41:20 2020



Data File : I:\MS16\DATA\2020_05\20\05202033.D
 Acq On : 20 May 2020 23:29
 Sample : CCVend R16052020_25ng
 Misc : S31-02112001/S34-04292003 (5/28)

Vial: 2
 Operator: LH
 Inst : GCMS-16

Quant Time: May 21 05:50:58 2020
 Quant Method : I:\MS16\METHODS\R16050120.M
 Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)
 QLast Update : Fri May 01 18:22:00 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

5/21/20

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 IR	Bromochloromethane (IS1)	1.000	1.000	0.0	101	-0.01
2 T	Propene	1.448	1.363	5.9	93	0.00
3 T	Dichlorodifluoromethane (CF	2.832	2.450	13.5	90	0.00
4 T	Chloromethane	2.218	1.880	15.2	86	0.00
5 T	1,2-Dichloro-1,1,2,2-tetra	1.692	1.393	17.7	88	-0.01
6 T	Vinyl Chloride	2.433	1.980	18.6	85	0.00
7 T	1,3-Butadiene	2.013	1.650	18.0	85	0.00
8 T	Bromomethane	1.285	1.104	14.1	89	0.00
9 T	Chloroethane	0.961	0.831	13.5	89	0.00
10 T	Ethanol	1.118	0.964	13.8	87	-0.03
11 T	Acetonitrile	2.555	2.177	14.8	89	-0.02
12 T	Acrolein	0.883	0.709	19.7	81	-0.01
13 T	Acetone	1.118	1.012	9.5	90	-0.02
14 T	Trichlorofluoromethane	2.503	2.143	14.4	88	0.00
15 T	2-Propanol (Isopropanol)	3.384	3.007	11.1	86	-0.03
16 T	Acrylonitrile	1.828	1.621	11.3	89	-0.01
17 T	1,1-Dichloroethene	1.312	1.150	12.3	88	0.00
18 T	2-Methyl-2-Propanol (tert-B	3.155	2.325	26.3	73	-0.02
19 T	Methylene Chloride	1.453	1.244	14.4	87	0.00
20 T	3-Chloro-1-propene (Allyl C	1.997	1.804	9.7	90	-0.01
21 T	Trichlorotrifluoroethane	1.182	1.074	9.1	90	0.00
22 T	Carbon Disulfide	5.208	4.494	13.7	88	0.00
23 T	trans-1,2-Dichloroethene	1.998	1.720	13.9	87	0.00
24 T	1,1-Dichloroethane	2.371	2.069	12.7	88	0.00
25 T	Methyl tert-Butyl Ether	3.730	3.077	17.5	88	0.00
26 T	Vinyl Acetate	0.348	0.250	28.2	67	-0.01
27 T	2-Butanone (MEK)	0.953	0.855	10.3	90	-0.01
28 T	cis-1,2-Dichloroethene	1.954	1.697	13.2	89	0.00
29 T	Diisopropyl Ether	1.349	1.106	18.0	84	0.00
30 T	Ethyl Acetate	0.550	0.505	8.2	85	0.00
31 T	n-Hexane	2.385	2.158	9.5	87	0.00
32 T	Chloroform	2.488	2.167	12.9	88	0.00
33 S	1,2-Dichloroethane-d4(SS1)	1.694	1.581	6.7	97	0.00
34 T	Tetrahydrofuran (THF)	0.930	0.788	15.3	88	0.00
35 T	Ethyl tert-Butyl Ether	1.630	1.470	9.8	89	0.00
36 T	1,2-Dichloroethane	1.971	1.644	16.6	87	0.00
37 IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	99	0.00
38 T	1,1,1-Trichloroethane	0.503	0.452	10.1	88	0.00
39 T	Isopropyl Acetate	0.220	0.204	7.3	85	0.00
40 T	1-Butanol	0.313	0.255	18.5	76	-0.02
41 T	Benzene	1.340	1.217	9.2	90	0.00
42 T	Carbon Tetrachloride	0.456	0.416	8.8	87	0.00
43 T	Cyclohexane	0.500	0.465	7.0	88	0.00
44 T	tert-Amyl Methyl Ether	0.899	0.836	7.0	89	0.00
45 T	1,2-Dichloropropane	0.310	0.282	9.0	88	0.00
46 T	Bromodichloromethane	0.453	0.414	8.6	86	0.00
47 T	Trichloroethene	0.346	0.318	8.1	89	0.00
48 T	1,4-Dioxane	0.270	0.237	12.2	85	-0.01
49 T	2,2,4-Trimethylpentane (Iso	1.304	1.197	8.2	90	0.00
50 T	Methyl Methacrylate	0.133	0.126	5.3	88	-0.01
51 T	n-Heptane	0.313	0.287	8.3	92	0.00
52 T	cis-1,3-Dichloropropene	0.533	0.496	6.9	87	0.00
53 T	4-Methyl-2-pentanone	0.299	0.269	10.0	86	0.00
54 T	trans-1,3-Dichloropropene	0.456	0.439	3.7	86	0.00
55 T	1,1,2-Trichloroethane	0.308	0.286	7.1	89	0.00

Data File : I:\MS16\DATA\2020_05\20\05202033.D
 Acq On : 20 May 2020 23:29
 Sample : CCVend R16052020_25ng
 Misc : S31-02112001/S34-04292003 (5/28)

Vial: 2
 Operator: LH
 Inst : GCMS-16

Quant Time: May 21 05:50:58 2020
 Quant Method : I:\MS16\METHODS\R16050120.M
 Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 QLast Update : Fri May 01 18:22:00 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
56	IR Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	103	0.00
57	S Toluene-d8 (SS2)	2.119	2.047	3.4	99	0.00
58	T Toluene	2.731	2.451	10.3	90	0.00
59	T 2-Hexanone	1.497	1.312	12.4	85	0.00
60	T Dibromochloromethane	0.782	0.747	4.5	89	0.00
61	T 1,2-Dibromoethane	0.752	0.691	8.1	89	0.00
62	T n-Butyl Acetate	1.616	1.332	17.6	79	0.00
63	T n-Octane	0.565	0.522	7.6	91	0.00
64	T Tetrachloroethene	0.771	0.731	5.2	91	0.00
65	T Chlorobenzene	1.879	1.654	12.0	90	0.00
66	T Ethylbenzene	3.045	2.890	5.1	90	0.00
67	T m- & p-Xylenes	2.416	2.285	5.4	89	-0.01
68	T Bromoform	0.678	0.658	2.9	90	0.00
69	T Styrene	1.817	1.769	2.6	88	0.00
70	T o-Xylene	2.453	2.275	7.3	88	0.00
71	T n-Nonane	1.301	1.248	4.1	91	0.00
72	T 1,1,2,2-Tetrachloroethane	1.217	1.154	5.2	90	-0.01
73	S Bromofluorobenzene (SS3)	0.762	0.824	-8.1	106	0.00
74	T Cumene	3.010	2.848	5.4	88	0.00
75	T alpha-Pinene	1.606	1.503	6.4	87	0.00
76	T n-Propylbenzene	3.576	3.450	3.5	88	0.00
77	T 3-Ethyltoluene	2.913	2.842	2.4	86	0.00
78	T 4-Ethyltoluene	2.827	2.705	4.3	88	-0.01
79	T 1,3,5-Trimethylbenzene	2.455	2.346	4.4	87	0.00
80	T alpha-Methylstyrene	1.384	1.172	15.3	81	0.00
81	T 2-Ethyltoluene	2.874	2.742	4.6	88	0.00
82	T 1,2,4-Trimethylbenzene	2.467	2.458	0.4	83	0.00
83	T n-Decane	1.380	1.270	8.0	86	0.00
84	T Benzyl Chloride	2.300	1.839	20.0	73	-0.01
85	T 1,3-Dichlorobenzene	1.433	1.364	4.8	85	0.00
86	T 1,4-Dichlorobenzene	1.398	1.376	1.6	87	-0.01
87	T sec-Butylbenzene	3.203	3.082	3.8	87	0.00
88	T 4-Isopropyltoluene (p-Cymen	3.033	2.915	3.9	85	0.00
89	T 1,2,3-Trimethylbenzene	2.582	2.477	4.1	83	0.00
90	T 1,2-Dichlorobenzene	1.372	1.356	1.2	85	-0.01
91	T d-Limonene	0.974	0.912	6.4	80	0.00
92	T 1,2-Dibromo-3-Chloropropane	0.517	0.502	2.9	89	0.00
93	T n-Undecane	1.277	1.249	2.2	87	0.00
94	T 1,2,4-Trichlorobenzene	0.951	0.939	1.3	85	-0.01
95	T Naphthalene	3.011	2.833	5.9	75	-0.01
96	T n-Dodecane	1.106	1.192	-7.8	83	-0.01
97	T Hexachlorobutadiene	0.658	0.645	2.0	91	0.00
98	T Cyclohexanone	0.956	0.729	23.7	77	-0.01
99	T tert-Butylbenzene	2.428	2.360	2.8	85	0.00
100	T n-Butylbenzene	2.512	2.479	1.3	86	0.00

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

Data File : I:\MS16\DATA\2020_05\20\05202033.D
 Acq On : 20 May 2020 23:29
 Sample : CCVend R16052020_25ng
 Misc : S31-02112001/S34-04292003 (5/28)

Vial: 2
 Operator: LH
 Inst : GCMS-16

Quant Time: May 21 05:50:58 2020

Quant Method : I:\MS16\METHODS\R16050120.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Fri May 01 18:22:00 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

5/21/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.15	130	288134	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.28	114	1221521	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.58	82	588004	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.00	65	455491	11.665	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	93.28%
57) Toluene-d8 (SS2)	15.72	98	1203573	12.076	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	96.64%
73) Bromofluorobenzene (SS3)	18.97	174	484347	13.506	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	108.08%

Target Compounds

						Qvalue
2) Propene	4.09	42	832775	24.954	ng	99
3) Dichlorodifluoromethan...	4.25	85	1496712	22.930	ng	100
4) Chloromethane	4.53	50	1148159	22.453	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.80	135	842935	21.615	ng	100
6) Vinyl Chloride	4.95	62	1232318	21.977	ng	100
7) 1,3-Butadiene	5.22	54	1007977	21.725	ng	99
8) Bromomethane	5.65	94	686860	23.187	ng	99
9) Chloroethane	5.98	64	517159	23.346	ng	100
10) Ethanol	6.38	45	2892795	112.262	ng	100
11) Acetonitrile	6.62	41	1317365	22.371	ng	100
12) Acrolein	6.80	56	420587	20.657	ng	100
13) Acetone	7.01	58	3108104	120.608	ng	97
14) Trichlorofluoromethane	7.24	101	1309280	22.697	ng	100
15) 2-Propanol (Isopropanol)	7.52	45	3639482	46.661	ng	99
16) Acrylonitrile	7.77	53	980868	23.283	ng	99
17) 1,1-Dichloroethene	8.20	96	715969	23.677	ng	99
18) 2-Methyl-2-Propanol (t...	8.39	59	2893497	39.792	ng	99
19) Methylene Chloride	8.44	84	759869	22.683	ng	99
20) 3-Chloro-1-propene (Al...	8.59	41	1122646	24.392	ng	100
21) Trichlorotrifluoroethane	8.84	151	668651	24.551	ng	97
22) Carbon Disulfide	8.69	76	2771149	23.085	ng	100
23) trans-1,2-Dichloroethene	9.71	61	1070222	23.243	ng	99
24) 1,1-Dichloroethane	9.96	63	1299778	23.778	ng	100
25) Methyl tert-Butyl Ether	10.05	73	1915195	22.274	ng	100
26) Vinyl Acetate	10.22	86	769425	95.852	ng	# 92
27) 2-Butanone (MEK)	10.45	72	522420	23.771	ng	96
28) cis-1,2-Dichloroethene	10.98	61	1036825	23.021	ng	100
29) Diisopropyl Ether	11.27	87	688399	22.143	ng	96
30) Ethyl Acetate	11.28	61	631986	49.870	ng	98
31) n-Hexane	11.26	57	1343159	24.436	ng	99
32) Chloroform	11.32	83	1336306	23.299	ng	100
34) Tetrahydrofuran (THF)	11.72	72	494836	23.086	ng	98
35) Ethyl tert-Butyl Ether	11.86	87	915099	24.358	ng	99
36) 1,2-Dichloroethane	12.12	62	1023388	22.521	ng	100
38) 1,1,1-Trichloroethane	12.40	97	1182085	24.026	ng	99
39) Isopropyl Acetate	12.83	61	1051570	48.864	ng	98
40) 1-Butanol	12.85	56	1297497	42.377	ng	97
41) Benzene	12.88	78	3151005	24.054	ng	100
42) Carbon Tetrachloride	13.04	117	1067282	23.953	ng	100
43) Cyclohexane	13.17	84	2408592	49.342	ng	99
44) tert-Amyl Methyl Ether	13.52	73	2205924	25.113	ng	99
45) 1,2-Dichloropropane	13.73	63	743442	24.505	ng	100
46) Bromodichloromethane	13.92	83	1092828	24.685	ng	100
47) Trichloroethene	13.97	130	832206	24.578	ng	100
48) 1,4-Dioxane	13.94	88	625031	23.691	ng	100
49) 2,2,4-Trimethylpentane...	14.04	57	3128260	24.542	ng	98
50) Methyl Methacrylate	14.18	100	663512	51.057	ng	99

Data File : I:\MS16\DATA\2020_05\20\05202033.D
 Acq On : 20 May 2020 23:29
 Sample : CCVend R16052020_25ng
 Misc : S31-02112001/S34-04292003 (5/28)

Vial: 2
 Operator: LH
 Inst : GCMS-16

Quant Time: May 21 05:50:58 2020
 Quant Method : I:\MS16\METHODS\R16050120.M
 Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)
 QLast Update : Fri May 01 18:22:00 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

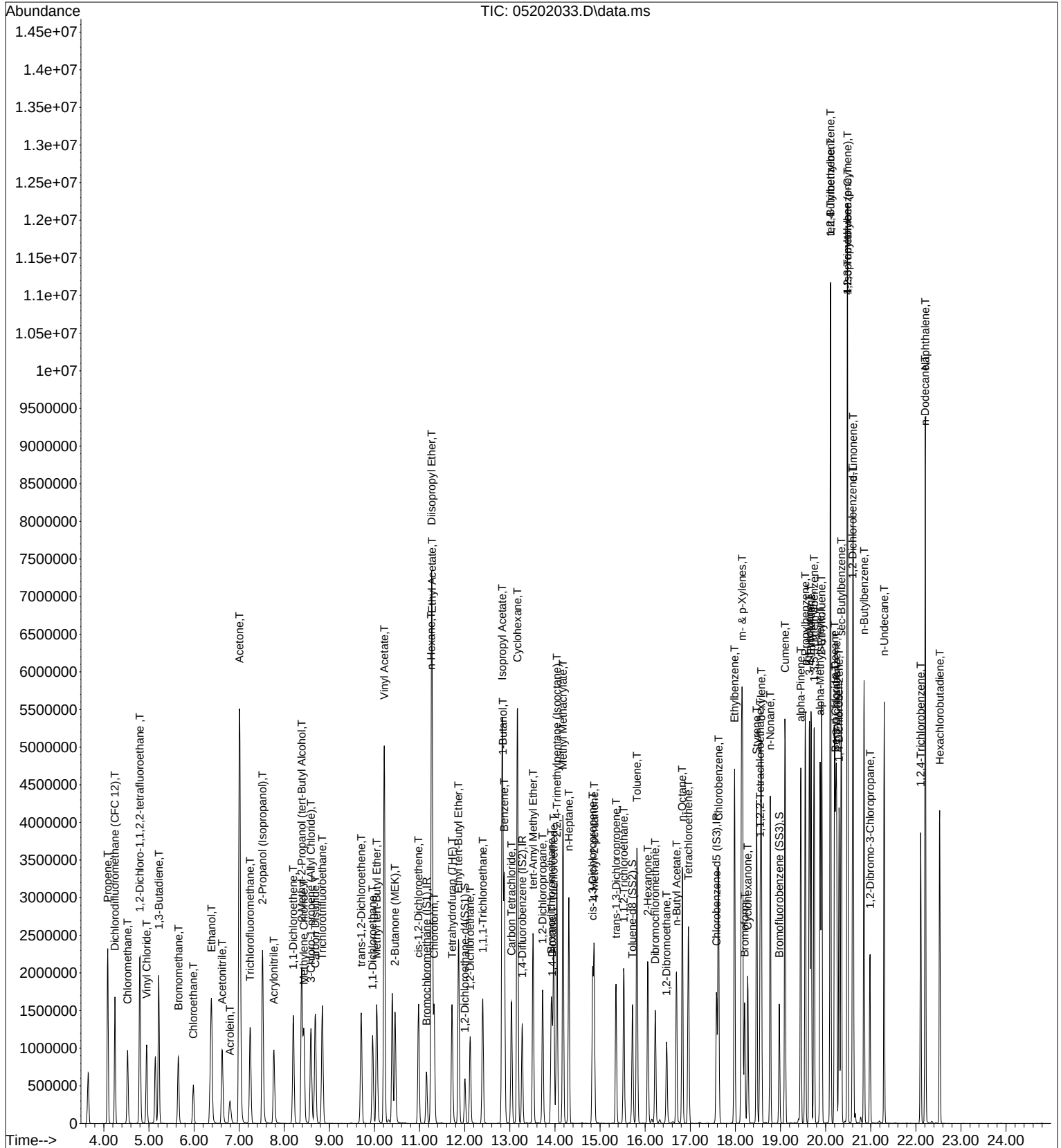
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.31	71	758432	24.758	ng	99
52) cis-1,3-Dichloropropene	14.84	75	1259390	24.179	ng	100
53) 4-Methyl-2-pentanone	14.87	58	696425	23.849	ng	99
54) trans-1,3-Dichloropropene	15.35	75	1135791	25.486	ng	100
55) 1,1,2-Trichloroethane	15.52	97	748022	24.863	ng	99
58) Toluene	15.82	91	3083704	24.003	ng	100
59) 2-Hexanone	16.06	43	1650753	23.449	ng	100
60) Dibromochloromethane	16.22	129	940570	25.568	ng	100
61) 1,2-Dibromoethane	16.48	107	869641	24.596	ng	100
62) n-Butyl Acetate	16.70	43	1707987	22.462	ng	100
63) n-Octane	16.82	57	663316	24.939	ng	99
64) Tetrachloroethene	16.96	166	894542	24.651	ng	99
65) Chlorobenzene	17.62	112	2081170	23.543	ng	100
66) Ethylbenzene	17.98	91	3637038	25.389	ng	100
67) m- & p-Xylenes	18.15	91	5749958	50.595	ng	99
68) Bromoform	18.21	173	827593	25.950	ng	100
69) Styrene	18.47	104	2205751	25.805	ng	99
70) o-Xylene	18.58	91	2862132	24.807	ng	100
71) n-Nonane	18.77	43	1570330	25.652	ng	99
72) 1,1,2,2-Tetrachloroethane	18.55	83	1452626	25.379	ng	100
74) Cumene	19.10	105	3617777	25.550	ng	100
75) alpha-Pinene	19.45	93	1891878	25.041	ng	99
76) n-Propylbenzene	19.55	91	4382054	26.051	ng	100
77) 3-Ethyltoluene	19.64	105	3542409	25.848	ng	100
78) 4-Ethyltoluene	19.68	105	3436170	25.840	ng	100
79) 1,3,5-Trimethylbenzene	19.75	105	2924787	25.331	ng	100
80) alpha-Methylstyrene	19.88	118	1474311	22.653	ng	91
81) 2-Ethyltoluene	19.91	105	3482986	25.765	ng	100
82) 1,2,4-Trimethylbenzene	20.11	105	3092477	26.646	ng	98
83) n-Decane	20.20	57	1598543	24.623	ng	99
84) Benzyl Chloride	20.22	91	2336012	21.596	ng	100
85) 1,3-Dichlorobenzene	20.24	146	1716126	25.466	ng	100
86) 1,4-Dichlorobenzene	20.30	146	1731922	26.335	ng	100
87) sec-Butylbenzene	20.35	105	3878146	25.743	ng	100
88) 4-Isopropyltoluene (p-...	20.48	119	3737226	26.197	ng	99
89) 1,2,3-Trimethylbenzene	20.48	105	3175550	26.145	ng	99
90) 1,2-Dichlorobenzene	20.60	146	1705744	26.437	ng	100
91) d-Limonene	20.61	68	1158086	25.266	ng	100
92) 1,2-Dibromo-3-Chloropr...	20.98	157	619699	25.472	ng	95
93) n-Undecane	21.30	57	1586685	26.406	ng	99
94) 1,2,4-Trichlorobenzene	22.11	180	1182062	26.415	ng	100
95) Naphthalene	22.21	128	3431708	24.229	ng	100
96) n-Dodecane	22.21	57	1457398	28.013	ng	99
97) Hexachlorobutadiene	22.53	225	803463	25.956	ng	100
98) Cyclohexanone	18.27	55	857058	19.058	ng	98
99) tert-Butylbenzene	20.11	119	2969407	25.996	ng	100
100) n-Butylbenzene	20.85	91	3118865	26.395	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File : I:\MS16\DATA\2020_05\20\05202033.D
Acq On : 20 May 2020 23:29
Sample : CCVend R16052020_25ng
Misc : S31-02112001/S34-04292003 (5/28)

Vial: 2
Operator: LH
Inst : GCMS-16

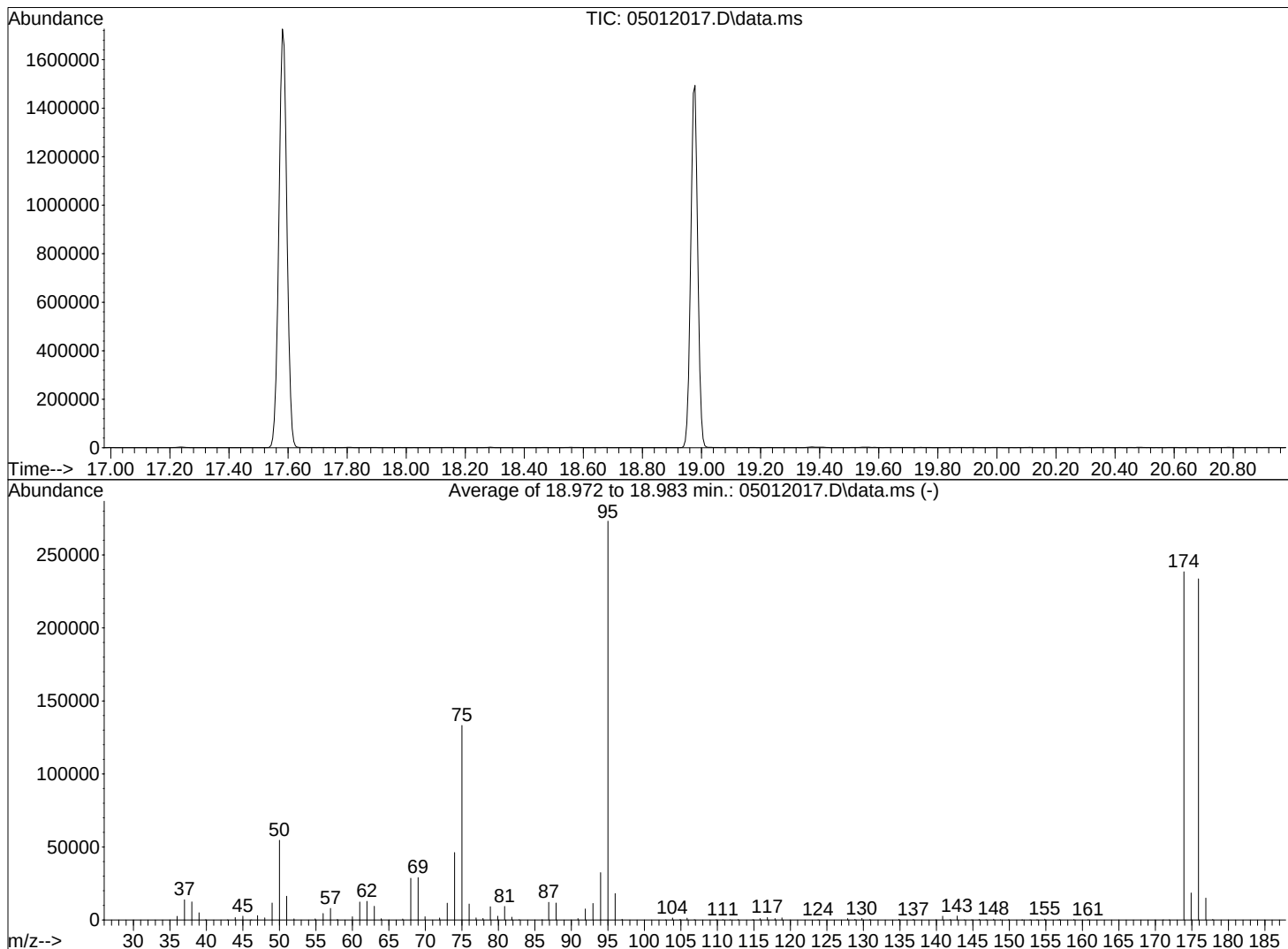
Quant Time: May 21 05:50:58 2020
Quant Method : I:\MS16\METHODS\R16050120.M
Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
QLast Update : Fri May 01 18:22:00 2020
Response via : Initial Calibration
DataAcq Meth:T015.M



Data Path : I:\MS16\DATA\2020_05\01\
 Data File : 05012017.D
 Acq On : 1 May 2020 13:35
 Operator : LH
 Sample : 12.5ng T015 BFB
 Misc : S31-02112001
 ALS Vial : 2 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS16\METHODS\R16050120.M
 Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 Last Update : Fri May 01 17:25:50 2020



AutoFind: Scans 2816, 2817, 2818; Background Corrected with Scan 2808

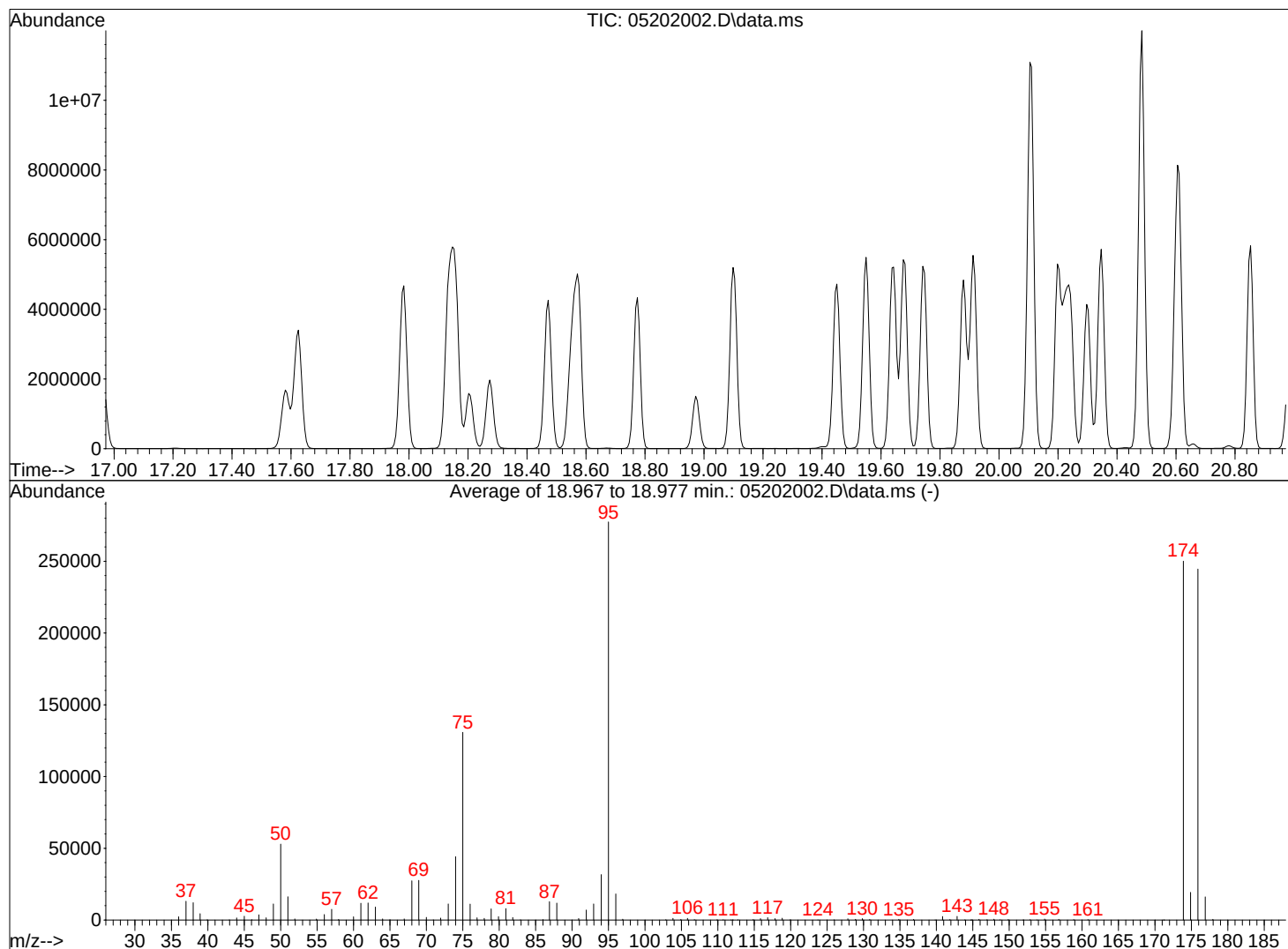
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	20.0	54576	PASS
75	95	30	66	48.8	133227	PASS
95	95	100	100	100.0	273088	PASS
96	95	5	9	6.6	18099	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	87.3	238485	PASS
175	174	4	9	7.8	18527	PASS
176	174	93	101	98.0	233621	PASS
177	176	5	9	6.4	15004	PASS

LH 5/1/20

Data Path : I:\MS16\DATA\2020_05\20\
 Data File : 05202002.D
 Acq On : 20 May 2020 4:33
 Operator : SC
 Sample : CCV R16052020_25ng
 Misc : S31-02112001/S34-04292003 (5/28)
 ALS Vial : 2 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS16\METHODS\R16050120.M
 Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 Last Update : Fri May 01 18:22:00 2020



AutoFind: Scans 2815, 2816, 2817; Background Corrected with Scan 2807

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	19.1	52877	PASS
75	95	30	66	47.1	130768	PASS
95	95	100	100	100.0	277419	PASS
96	95	5	9	6.6	18213	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	120	90.2	250133	PASS
175	174	4	9	7.7	19243	PASS
176	174	93	101	97.8	244544	PASS
177	176	5	9	6.6	16124	PASS

DA 5/20/20

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
17	5/1/20 13:35	05012017.D	12.5ng TO15 BFB	S31-02112001	LH	2	
18	5/1/20 14:09	05012018.D	0.1ng TO15 ICAL STD	S31-02112001/S34-04272015 (5/26)	LH	6	
19	5/1/20 14:42	05012019.D	0.2ng TO15 ICAL STD	S31-02112001/S34-04272015 (5/26)	LH	6	
20	5/1/20 15:16	05012020.D	0.5ng TO15 ICAL STD	S31-02112001/S34-05012002 (5/30)	LH	13	
21	5/1/20 15:51	05012021.D	1.0ng TO15 ICAL STD	S31-02112001/S34-05012002 (5/30)	LH	13	
22	5/1/20 16:25	05012022.D	5.0ng TO15 ICAL STD	S31-02112001/S34-04292003 (5/28)	LH	2	
23	5/1/20 16:59	05012023.D	25ng TO15 ICAL STD	S31-02112001/S34-04292003 (5/28)	LH	2	
24	5/1/20 17:33	05012024.D	50ng TO15 ICAL STD	S31-02112001/S34-04292003 (5/28)	LH	2	
25	5/1/20 18:07	05012025.D	100ng TO15 ICAL STD	S31-02112001/S34-04292003 (5/28)	LH	2	
26	5/1/20 18:41	05012026.D	25ng TO15 ICV STD	S31-02112001/S34-04302003 (5/29)	LH	2	
	ICAL R16050120.M passed for all compounds 0.1ng-100ng, except: tert butanol 0.1ng-50ng, vinyl acetate 2.5ng-500ng, bromoform,						
	alpha-methylstyrene, n-decane, 4-isopropyltolune, 1,2,3-trimethylbenzene, 1,2-dibromo-3-chloropropane, n-undecane, 1,2,4-trichlorobenzene,						
	naphthalene, n-dodecane, hexachlorobutadiene 0.5ng-100ng, benzyl chloride 1.0ng-100ng.						

LH 5/4/20

Injection Log

Directory: I:\MS16\DATA\2020_05\20\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	5/20/20 3:59	05202001.D	CCV C16052020_25ng	S31-02112001/S34-04272003 (5/26)	SC	3	Passed
2	5/20/20 4:33	05202002.D	CCV R16052020_25ng	S31-02112001/S34-04292003 (5/28)	SC	2	Passed
3	5/20/20 5:06	05202003.D	Blank (100mL)	S31-02112001	SC	2	
4	5/20/20 5:40	05202004.D	MB R16052020_1000mL	S31-02112001/AS01319	SC	2	Passed
5	5/20/20 6:14	05202005.D	LCS R16052020_25ng	S31-02112001/S34-04292005 (5/28)	SC	2	Passed
6	5/20/20 6:47	05202006.D	LCSD R16052020_25ng	S31-02112001/S34-04292005 (5/28)	SC	2	Passed
7	5/20/20 7:21	05202007.D	Blank (100mL)	S31-02112001	SC	2	
8	5/20/20 7:55	05202008.D	Conf. 2275-005 (200mL)	S31-02112001	SC	13	
9	5/20/20 9:12	05202009.D	P2002596-006 (120mL)	S31-02112001	LH	9	
10	5/20/20 9:45	05202010.D	P2002596-007 (400mL)	S31-02112001	LH	10	
11	5/20/20 10:19	05202011.D	P2002596-007dil (40mL)	S31-02112001	LH	10	
12	5/20/20 10:52	05202012.D	P2002596-006dil (40mL)	S31-02112001	LH	9	
13	5/20/20 11:26	05202013.D	P2002589-001 (15mL)	S31-02112001	LH	6	
14	5/20/20 12:23	05202014.D	P2002604-001 (400mL) pf2	S31-02112001	LH	4	
15	5/20/20 12:57	05202015.D	P2002604-002 (400mL)	S31-02112001	LH	5	
16	5/20/20 13:31	05202016.D	P2002604-003 (400mL)	S31-02112001	LH	6	
17	5/20/20 14:05	05202017.D	P2002604-004 (400mL)	S31-02112001	LH	7	
18	5/20/20 14:39	05202018.D	P2002604-005 (400mL)	S31-02112001	LH	8	
19	5/20/20 15:28	05202019.D	P2002604-006 (150mL)	S31-02112001	LH	9	
20	5/20/20 16:02	05202020.D	P2002604-007 (25mL)	S31-02112001	LH	10	
21	5/20/20 16:36	05202021.D	P2002604-007dup (25mL)	S31-02112001	LH	10	Passed
22	5/20/20 17:09	05202022.D	P2002604-008 (400mL)	S31-02112001	LH	11	
23	5/20/20 17:43	05202023.D	P2002604-009 (400mL)	S31-02112001	LH	12	
24	5/20/20 18:17	05202024.D	P2002604-010 (400mL)	S31-02112001	LH	13	
25	5/20/20 18:53	05202025.D	P2002577-002 (100mL)	S31-02112001	LH	5	
26	5/20/20 19:27	05202026.D	P2002577-011 (400mL)	S31-02112001	LH	6	
27	5/20/20 20:01	05202027.D	P2002577-011dil (40mL)	S31-02112001	LH	14	
28	5/20/20 20:40	05202028.D	P2002604-011 (400mL)	S31-02112001	LH	14	
29	5/20/20 21:14	05202029.D	P2002604-012 (400mL)	S31-02112001	LH	15	
30	5/20/20 21:48	05202030.D	P2002604-013 (400mL)	S31-02112001	LH	16	
31	5/20/20 22:22	05202031.D	P2002631-001 (1000mL)	S31-02112001	LH	14	
32	5/20/20 22:56	05202032.D	P2002631-001dil (100mL)	S31-02112001	LH	14	
33	5/20/20 23:29	05202033.D	CCVend R16052020_25ng	S31-02112001/S34-04292003 (5/28)	LH	2	Passed

ADA 5/21/20

SIMIVALLEY QC Certification

Conditioner: P-Conditioner-02

Cycles: 30

Batch: 25385

Batch Started By: ANAKLOWYCZ on 3/31/20 0905
Finished Cleaning By: on

Container IDs	Cleaned Date	QC Date Analyzed	QC Results	Initial Vacuum		Final Vacuum		Comments
				Vacuum	Date/Time	Vacuum	Date/Time	
SSC00039	3/31/20	3/31/20	Pass w/ Conditions	-14.3				
SC01704	3/31/20	3/31/20	Pass w/ Conditions	-14.3		-14.0	4/2/20 1046	RTORRES
SC00133	3/31/20	3/31/20	Pass w/ Conditions	-14.3		-14.0	4/2/20 1046	RTORRES
SSC00490	3/31/20	3/31/20	Pass w/ Conditions	-14.3				
SC01854	3/31/20	3/31/20	Pass w/ Conditions	-14.3		-14.0	4/2/20 1046	RTORRES
SC00267	3/31/20	3/31/20	Pass w/ Conditions	-14.3		-14.0	4/14/20 1137	RTORRES
SC02036	3/31/20	3/31/20	Pass w/ Conditions	-14.3		-14.0	4/2/20 1046	RTORRES
SSC00073	3/31/20	3/31/20	Pass w/ Conditions	-14.3		-14.0	4/2/20 1037	RTORRES
SC01652	3/31/20	3/31/20	Pass w/ Conditions	-14.3		-14.0	4/14/20 1137	RTORRES
SC00374	3/31/20	3/31/20	Pass w/ Conditions	-14.3		-14.0	4/9/20 0935	RTORRES

Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS

Batch Comment:

* QC Canister

Data Path : I:\MS21\DATA\2020_03\31\
 Data File : 03312019.D
 Acq On : 31 Mar 2020 4:24 pm
 Operator : WA/RVT/JC
 Sample : 033120_SC00267_25385
 Misc : LL+TICS (Sig #1); S34-03272001 (Sig #2)
 ALS Vial : 2 Sample Multiplier: 1

RVT 4/3/20

Quant Time: Apr 01 09:01:23 2020
 Quant Method : I:\MS21\Methods\F21033120.M
 Quant Title : EPA TO-15
 QLast Update : Wed Apr 01 05:58:09 2020
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS1)	7.509	130	95207	1000.00	pg	0.00
37) 1,4-Difluorobenzene (IS2)	9.751	114	383558	1000.00	pg	0.00
56) Chlorobenzene-d5 (IS3)	14.677	117	315446	1000.00	pg	0.00
System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.326	65	121315	997.34	pg	0.00
Spiked Amount 1000.000			Recovery	=	99.73%	
57) Toluene-d8 (SS2)	12.583	98	379612	963.11	pg	0.00
Spiked Amount 1000.000			Recovery	=	96.31%	
74) Bromofluorobenzene (SS3)	16.120	174	108806	982.22	pg	-0.03
Spiked Amount 1000.000			Recovery	=	98.22%	
Target Compounds						Qvalue
2] * Propene	3.501	42	8334	84.88	pg	# 62
3] * Dichlorodifluoromethane	3.565	85	394	1.56	pg	93
4] * Chloromethane	3.690	50	973	7.16	pg	90
6] * Vinyl Chloride	3.870	62	92	0.64	pg	# 42
7] * 1,3-Butadiene	3.976	54	249	2.46	pg	# 13
8] * Bromomethane	4.198	94	76	0.63	pg	# 74
9] * Chloroethane	4.323	64	661	9.25	pg	89
10] * Ethanol	4.412	45	10289	189.66	pg	100
11] * Acetonitrile	4.578	41	904	9.35	pg	# 67
12] * Acrolein	4.687	56	4816	76.57	pg	94
13] * Acetone	4.812	58	130554	1611.85	pg	# 36
14] * Trichlorofluoromethane	4.931	101	294	1.31	pg	# 17
15] * 2-Propanol (Isopropa...	5.002	45	21724	120.16	pg	95
16] * Acrylonitrile	5.157	53	457	4.43	pg	# 75
17] * 1,1-Dichloroethene	5.435	96	170	1.29	pg	# 18
18] tert-Butanol	5.523	59	3152	12.36	pg	94
19] * Methylene Chloride	5.537	84	394	2.99	pg	96
20] * 3-Chloro-1-propene (...)	5.639	41	107	0.95	pg	# 26
22] * Carbon Disulfide	5.805	76	25698	58.72	pg	98
23] * trans-1,2-Dichloroet...	6.369	96	81	0.64	pg	# 18
25] * Methyl tert-Butyl Ether	6.575	73	62	0.20	pg	# 56
26] * Vinyl Acetate	6.665	86	5803	190.97	pg	# 31
27] * 2-Butanone (MEK)	6.937	72	20875	262.15	pg	97
28] * cis-1,2-Dichloroethene	7.341	96	107	0.78	pg	# 18
29] DIPE	7.607	45	664	2.03	pg	# 69
30] * Ethyl Acetate	7.607	61	485	14.26	pg	95
31] * n-Hexane	7.594	57	3231	19.40	pg	92
32] * Chloroform	7.646	83	138	0.68	pg	92
34] * Tetrahydrofuran	8.110	71	592	9.38	pg	# 57
36] * 1,2-Dichloroethane	8.452	62	156	1.09	pg	# 42
39] * Benzene	9.314	78	2926	6.33	pg	97
40] Isopropyl Acetate	9.251	61	139	2.28	pg	# 68
41] 1-Butanol	9.267	56	15440	133.27	pg	# 67
42] * Carbon Tetrachloride	9.491	117	58	0.39	pg	# 2
43] * Cyclohexane	9.652	84	680	3.96	pg	89
44] TAME	10.038	87	56	0.63	pg	# 1
46] * Bromodichloromethane	10.600	83	100	0.62	pg	96
47] * Trichloroethene	10.579	130	165	1.05	pg	# 65
48] * 1,4-Dioxane	10.614	88	2782	24.23	pg	100
49] Isooctane	10.669	56	373	2.17	pg	97
50] * Methyl Methacrylate	10.917	69	1536	10.76	pg	# 66
51] * n-Heptane	10.993	71	2240	16.70	pg	95
52] * cis-1,3-Dichloropropene	11.589	75	184	1.28	pg	93
53] * 4-Methyl-2-pentanone	11.679	58	4502	42.03	pg	99

Data Path : I:\MS21\DATA\2020_03\31\
 Data File : 03312019.D
 Acq On : 31 Mar 2020 4:24 pm
 Operator : WA/RVT/JC
 Sample : 033120_SC00267_25385
 Misc : LL+TICS (Sig #1); S34-03272001 (Sig #2)
 ALS Vial : 2 Sample Multiplier: 1

Quant Time: Apr 01 09:01:23 2020
 Quant Method : I:\MS21\Methods\F21033120.M
 Quant Title : EPA T0-15
 QLast Update : Wed Apr 01 05:58:09 2020
 Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
54]	* trans-1,3-Dichloropr...	12.183	75	298	2.75	pg	# 73
55]	* 1,1,2-Trichloroethane	12.367	97	160	1.39	pg	95
58]	* Toluene	12.697	91	4022	7.88	pg	99
59]	* 2-Hexanone	13.035	58	5484	61.01	pg	97
60]	* Dibromochloromethane	13.143	129	105	0.99	pg	92
61]	* 1,2-Dibromoethane	13.427	107	362	3.06	pg	98
62]	* n-Butyl Acetate	13.809	56	615	9.60	pg	# 42
63]	* n-Octane	13.902	85	1417	13.29	pg	96
64]	* Tetrachloroethene	14.000	166	1064	6.32	pg	94
65]	* Chlorobenzene	14.727	112	861	2.62	pg	97
66]	* Ethylbenzene	15.116	91	1699	3.33	pg	95
67]	* m- & p-Xylenes	15.282	91	4901	12.51	pg	97
68]	* Bromoform	15.321	173	150	2.09	pg	90
69]	Cyclohexanone	15.430	98	2449	32.26	pg	87
70]	* Styrene	15.624	104	1531	6.16	pg	98
71]	* o-Xylene	15.715	91	2091	5.08	pg	95
72]	* n-Nonane	15.960	57	1437	9.43	pg	92
73]	* 1,1,2,2-Tetrachloroe...	15.698	83	705	3.71	pg	# 80
75]	* Cumene	16.254	105	955	1.79	pg	97
76]	* alpha-Pinene	16.593	93	202	0.72	pg	89
77]	* n-Propylbenzene	16.700	91	2248	4.20	pg	95
78]	3-Ethyltoluene	16.826	105	1781	3.91	pg	99
79]	* 4-Ethyltoluene	16.826	105	1781	4.37	pg	99
80]	* 1,3,5-Trimethylbenzene	16.894	105	1590	3.90	pg	99
81]	alpha-Methylstyrene	17.025	118	934	5.99	pg	85
82]	2-Ethyltoluene	17.049	105	1801	3.79	pg	99
83]	tert-Butylbenzene	17.260	134	176	1.77	pg	# 1
84]	* 1,2,4-Trimethylbenzene	17.238	105	4567	12.66	pg	91
85]	* Benzyl Chloride	17.352	126	176	8.27	pg	91
86]	* 1,3-Dichlorobenzene	17.357	146	1828	10.13	pg	98
87]	* 1,4-Dichlorobenzene	17.416	146	2140	12.72	pg	97
88]	n-Decane	17.352	85	502	10.12	pg	80
89]	sec-Butylbenzene	17.238	105	4567	12.66	pg	# 60
90]	1,2,3-Trimethylbenzene	17.594	105	1947	5.31	pg	97
91]	p-Isopropyltoluene	17.605	134	443	3.91	pg	98
92]	* 1,2-Dichlorobenzene	17.702	146	1841	9.60	pg	98
93]	* D-Limonene	17.724	68	938	7.80	pg	94
94]	n-Butylbenzene	17.952	134	761	10.31	pg	87
95]	* 1,2-Dibromo-3-chloro...	18.070	157	439	8.79	pg	94
96]	n-Undecane	18.390	85	300	14.57	pg	90
97]	* 1,2,4-Trichlorobenzene	19.180	180	2117	95.34	pg	99
98]	* Naphthalene	19.289	128	6441	93.75	pg	99
99]	n-Dodecane	19.307	85	207	42.20	pg	79
100]	* Hexachlorobutadiene	19.628	225	500	5.56	pg	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed



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Simi Valley, CA 93065
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LABORATORY REPORT

July 29, 2020

Todd Calhoun
Trinity Analysis & Development Corp.
1002 N. Eglin Pkwy.
Shalimar, FL 32579

RE: DDMT / 10A023

Dear Todd:

Enclosed are the results of the sample submitted to our laboratory on July 10, 2020. For your reference, this analysis has been assigned our service request number P2003839.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Kate Kaneko
Jul 29, 2020, 11:40 am

Kate Kaneko
Project Manager



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: Trinity Analysis & Development Corp.
Project: DDMT / 10A023

Service Request No: P2003839

CASE NARRATIVE

The sample was received intact under chain of custody on July 10, 2020 and was stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the sample at the time of sample receipt.

Volatile Organic Compound Analysis

The sample was analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The minimum criterion for Freon-114 was not met in the Continuing Calibration Verification (CCVs). In accordance with ALS Environmental standard operating procedures, a Method Reporting Limit (MRL) check standard containing the analyte of concern was analyzed each day of analysis. Because the sensitivity was shown to be adequate to detect the compound in question and the compound was not detected in the field sample, the data quality has not been significantly affected. No further corrective action was necessary.

The container was cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.



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 Simi Valley, CA 93065
 T: +1 805 526 7161
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-007
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946
Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.		

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: Trinity Analysis & Development Corp.
Project ID: DDMT / 10A023

Service Request: P2003839

Date Received: 7/10/2020
Time Received: 11:00

TO-15 - VOC Cans

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)
ODSVE-EFF-Y9Q4	P2003839-001	Air	7/7/2020	09:00	SC00689	-0.87	3.84

X

Page 1 of 1

5 of 115

Client: <u>Trinity Analysis & Development Corp.</u>	Work order: <u>P2003839</u>
Project: <u>DDMT / 10A023</u>	
Sample(s) received on: 07/10/20	Date opened: 07/10/20 by: <u>ADAVID</u>

		Yes	No	N/A
1	Were sample containers properly marked with client sample ID?	☒	☐	☐
2	Did sample containers arrive in good condition?	☒	☐	☐
3	Were chain-of-custody papers used and filled out?	☒	☐	☐
4	Did sample container labels and/or tags agree with custody papers?	☒	☐	☐
5	Was sample volume received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper temperature (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
8	Were custody seals on outside of cooler/Box/Container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
9	Do containers have appropriate preservation , according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are pH preserved?	☐	☐	☒
	Were VOA vials checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it?	☐	☐	☒
10	Tubes: Are the tubes capped and intact?	☐	☐	☒
11	Badges: Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

[illegible]

Explain any discrepancies: (include lab sample ID numbers):

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: ODSVE-EFF-Y9Q4

Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

ALS Sample ID: P2003839-001

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13

Analyst: Wida Ang

Sampling Media: 6.0 L Summa Canister

Test Notes:

Container ID: SC00689

Date Collected: 7/7/20

Date Received: 7/10/20

Date Analyzed: 7/23/20

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -0.87

Final Pressure (psig): 3.84

Container Dilution Factor: 1.34

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.32	0.41	0.25	0.10	J
75-71-8	Dichlorodifluoromethane (CFC 12)	1.2	0.14	0.087	0.024	
74-87-3	Chloromethane	0.21	0.34	0.21	0.056	U
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.061	0.10	0.061	0.016	U, V
75-01-4	Vinyl Chloride	0.37	0.28	0.089	0.030	
106-99-0	1,3-Butadiene	0.19	0.32	0.19	0.053	U
74-83-9	Bromomethane	0.059	0.19	0.059	0.026	U
75-00-3	Chloroethane	0.16	0.27	0.16	0.034	U
64-17-5	Ethanol	24	3.7	0.59	0.26	
75-05-8	Acetonitrile	1.2	0.42	0.26	0.10	
107-02-8	Acrolein	0.34	0.58	0.18	0.088	J
67-64-1	Acetone	4.6	3.0	1.5	0.68	
75-69-4	Trichlorofluoromethane	0.28	0.13	0.076	0.019	
67-63-0	2-Propanol (Isopropyl Alcohol)	0.29	1.1	0.34	0.12	J
107-13-1	Acrylonitrile	0.20	0.33	0.20	0.068	U
75-35-4	1,1-Dichloroethene	0.68	0.18	0.057	0.025	
75-09-2	Methylene Chloride	0.064	0.20	0.12	0.058	J
107-05-1	3-Chloro-1-propene (Allyl Chloride)	0.073	0.23	0.073	0.031	U
76-13-1	Trichlorotrifluoroethane	5.4	0.094	0.030	0.013	
75-15-0	Carbon Disulfide	4.2	0.47	0.23	0.069	
156-60-5	trans-1,2-Dichloroethene	0.43	0.18	0.057	0.025	
75-34-3	1,1-Dichloroethane	0.44	0.18	0.11	0.026	
1634-04-4	Methyl tert-Butyl Ether	0.063	0.20	0.063	0.023	U
108-05-4	Vinyl Acetate	0.85	2.1	1.0	0.46	J
78-93-3	2-Butanone (MEK)	0.51	0.50	0.15	0.050	

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

V = The continuing calibration verification and ending CCV standard was outside (biased low) the specified limits for this compound.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: ODSVE-EFF-Y9Q4

Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

ALS Sample ID: P2003839-001

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13

Analyst: Wida Ang

Sampling Media: 6.0 L Summa Canister

Test Notes:

Container ID: SC00689

Date Collected: 7/7/20

Date Received: 7/10/20

Date Analyzed: 7/23/20

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -0.87

Final Pressure (psig): 3.84

Container Dilution Factor: 1.34

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	34	0.18	0.057	0.025	
141-78-6	Ethyl Acetate	0.24	0.41	0.24	0.10	U
110-54-3	n-Hexane	0.072	0.21	0.12	0.042	J
67-66-3	Chloroform	6.3	0.15	0.047	0.019	
109-99-9	Tetrahydrofuran (THF)	0.040	0.25	0.077	0.030	J
107-06-2	1,2-Dichloroethane	0.052	0.18	0.056	0.020	J
71-55-6	1,1,1-Trichloroethane	0.29	0.13	0.042	0.016	
71-43-2	Benzene	0.076	0.22	0.071	0.032	J
56-23-5	Carbon Tetrachloride	0.48	0.11	0.036	0.016	
110-82-7	Cyclohexane	0.14	0.43	0.13	0.058	J
78-87-5	1,2-Dichloropropane	0.049	0.16	0.049	0.019	U
75-27-4	Bromodichloromethane	0.034	0.11	0.034	0.015	U
79-01-6	Trichloroethene	25	0.13	0.042	0.018	
123-91-1	1,4-Dioxane	0.063	0.20	0.063	0.023	U
80-62-6	Methyl Methacrylate	0.21	0.36	0.21	0.062	U
142-82-5	n-Heptane	0.10	0.18	0.10	0.028	U
10061-01-5	cis-1,3-Dichloropropene	0.050	0.15	0.050	0.025	U
108-10-1	4-Methyl-2-pentanone	0.056	0.17	0.056	0.024	U
10061-02-6	trans-1,3-Dichloropropene	0.094	0.16	0.094	0.032	U
79-00-5	1,1,2-Trichloroethane	0.025	0.13	0.042	0.013	J
108-88-3	Toluene	0.18	0.19	0.060	0.023	J
591-78-6	2-Hexanone	0.045	0.18	0.056	0.022	J
124-48-1	Dibromochloromethane	0.027	0.085	0.027	0.011	U
106-93-4	1,2-Dibromoethane	0.030	0.094	0.030	0.011	U
123-86-4	n-Butyl Acetate	0.048	0.16	0.048	0.021	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: ODSVE-EFF-Y9Q4

Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

ALS Sample ID: P2003839-001

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13

Analyst: Wida Ang

Sampling Media: 6.0 L Summa Canister

Test Notes:

Container ID: SC00689

Date Collected: 7/7/20

Date Received: 7/10/20

Date Analyzed: 7/23/20

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -0.87

Final Pressure (psig): 3.84

Container Dilution Factor: 1.34

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	0.092	0.15	0.092	0.034	U
127-18-4	Tetrachloroethene	2.6	0.10	0.034	0.014	
108-90-7	Chlorobenzene	0.049	0.16	0.049	0.021	U
100-41-4	Ethylbenzene	0.052	0.17	0.052	0.023	U
179601-23-1	m,p-Xylenes	0.048	0.34	0.10	0.043	J
75-25-2	Bromoform	0.041	0.070	0.041	0.014	U
100-42-5	Styrene	0.10	0.17	0.10	0.027	U
95-47-6	o-Xylene	0.052	0.17	0.052	0.024	U
111-84-2	n-Nonane	0.082	0.14	0.082	0.023	U
79-34-5	1,1,2,2-Tetrachloroethane	0.17	0.11	0.033	0.014	
98-82-8	Cumene	0.046	0.15	0.046	0.021	U
80-56-8	alpha-Pinene	0.077	0.13	0.077	0.020	U
103-65-1	n-Propylbenzene	0.046	0.15	0.046	0.021	U
622-96-8	4-Ethyltoluene	0.087	0.15	0.087	0.023	U
108-67-8	1,3,5-Trimethylbenzene	0.046	0.14	0.046	0.021	U
95-63-6	1,2,4-Trimethylbenzene	0.046	0.15	0.046	0.020	U
100-44-7	Benzyl Chloride	0.083	0.28	0.083	0.031	U
541-73-1	1,3-Dichlorobenzene	0.038	0.12	0.038	0.018	U
106-46-7	1,4-Dichlorobenzene	0.071	0.12	0.071	0.018	U
95-50-1	1,2-Dichlorobenzene	0.038	0.12	0.038	0.018	U
5989-27-5	d-Limonene	0.033	0.13	0.077	0.026	J
96-12-8	1,2-Dibromo-3-chloropropane	0.044	0.074	0.044	0.014	U
120-82-1	1,2,4-Trichlorobenzene	0.058	0.098	0.058	0.023	U
91-20-3	Naphthalene	0.079	0.13	0.079	0.033	U
87-68-3	Hexachlorobutadiene	0.040	0.067	0.040	0.014	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Method Blank

Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

ALS Sample ID: P200722-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13

Analyst: Wida Ang

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 7/22/20

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
115-07-1	Propene	0.19	0.31	0.19	0.076	U
75-71-8	Dichlorodifluoromethane (CFC 12)	0.065	0.11	0.065	0.018	U
74-87-3	Chloromethane	0.16	0.26	0.16	0.042	U
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.046	0.076	0.046	0.012	U, V
75-01-4	Vinyl Chloride	0.067	0.21	0.067	0.022	U
106-99-0	1,3-Butadiene	0.14	0.24	0.14	0.040	U
74-83-9	Bromomethane	0.044	0.14	0.044	0.019	U
75-00-3	Chloroethane	0.12	0.20	0.12	0.025	U
64-17-5	Ethanol	0.44	2.8	0.44	0.20	U
75-05-8	Acetonitrile	0.19	0.32	0.19	0.077	U
107-02-8	Acrolein	0.14	0.44	0.14	0.065	U
67-64-1	Acetone	1.1	2.2	1.1	0.51	U
75-69-4	Trichlorofluoromethane	0.057	0.094	0.057	0.014	U
67-63-0	2-Propanol (Isopropyl Alcohol)	0.26	0.85	0.26	0.090	U
107-13-1	Acrylonitrile	0.15	0.24	0.15	0.051	U
75-35-4	1,1-Dichloroethene	0.043	0.14	0.043	0.019	U
75-09-2	Methylene Chloride	0.092	0.15	0.092	0.043	U
107-05-1	3-Chloro-1-propene (Allyl Chloride)	0.054	0.17	0.054	0.023	U
76-13-1	Trichlorotrifluoroethane	0.022	0.070	0.022	0.0099	U
75-15-0	Carbon Disulfide	0.17	0.35	0.17	0.051	U
156-60-5	trans-1,2-Dichloroethene	0.043	0.14	0.043	0.019	U
75-34-3	1,1-Dichloroethane	0.082	0.14	0.082	0.019	U
1634-04-4	Methyl tert-Butyl Ether	0.047	0.15	0.047	0.017	U
108-05-4	Vinyl Acetate	0.77	1.5	0.77	0.34	U
78-93-3	2-Butanone (MEK)	0.11	0.37	0.11	0.037	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

V = The continuing calibration verification and ending CCV standard was outside (biased low) the specified limits for this compound.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Method Blank

Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

ALS Sample ID: P200722-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13

Analyst: Wida Ang

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 7/22/20

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	0.043	0.13	0.043	0.019	U
141-78-6	Ethyl Acetate	0.18	0.31	0.18	0.078	U
110-54-3	n-Hexane	0.091	0.15	0.091	0.031	U
67-66-3	Chloroform	0.035	0.11	0.035	0.015	U
109-99-9	Tetrahydrofuran (THF)	0.058	0.19	0.058	0.023	U
107-06-2	1,2-Dichloroethane	0.042	0.13	0.042	0.015	U
71-55-6	1,1,1-Trichloroethane	0.031	0.099	0.031	0.012	U
71-43-2	Benzene	0.053	0.17	0.053	0.024	U
56-23-5	Carbon Tetrachloride	0.027	0.084	0.027	0.012	U
110-82-7	Cyclohexane	0.099	0.32	0.099	0.044	U
78-87-5	1,2-Dichloropropane	0.037	0.12	0.037	0.014	U
75-27-4	Bromodichloromethane	0.025	0.081	0.025	0.011	U
79-01-6	Trichloroethene	0.032	0.10	0.032	0.013	U
123-91-1	1,4-Dioxane	0.047	0.15	0.047	0.017	U
80-62-6	Methyl Methacrylate	0.16	0.27	0.16	0.046	U
142-82-5	n-Heptane	0.078	0.13	0.078	0.021	U
10061-01-5	cis-1,3-Dichloropropene	0.037	0.11	0.037	0.018	U
108-10-1	4-Methyl-2-pentanone	0.041	0.13	0.041	0.018	U
10061-02-6	trans-1,3-Dichloropropene	0.071	0.12	0.071	0.024	U
79-00-5	1,1,2-Trichloroethane	0.031	0.099	0.031	0.0099	U
108-88-3	Toluene	0.045	0.14	0.045	0.017	U
591-78-6	2-Hexanone	0.042	0.13	0.042	0.016	U
124-48-1	Dibromochloromethane	0.020	0.063	0.020	0.0082	U
106-93-4	1,2-Dibromoethane	0.022	0.070	0.022	0.0081	U
123-86-4	n-Butyl Acetate	0.036	0.12	0.036	0.015	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Method Blank

Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

ALS Sample ID: P200722-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13

Analyst: Wida Ang

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 7/22/20

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result ppbV	LOQ ppbV	LOD ppbV	MDL ppbV	Data Qualifier
111-65-9	n-Octane	0.069	0.12	0.069	0.026	U
127-18-4	Tetrachloroethene	0.025	0.077	0.025	0.010	U
108-90-7	Chlorobenzene	0.037	0.12	0.037	0.015	U
100-41-4	Ethylbenzene	0.039	0.12	0.039	0.017	U
179601-23-1	m,p-Xylenes	0.078	0.25	0.078	0.032	U
75-25-2	Bromoform	0.031	0.052	0.031	0.011	U
100-42-5	Styrene	0.075	0.12	0.075	0.020	U
95-47-6	o-Xylene	0.039	0.12	0.039	0.018	U
111-84-2	n-Nonane	0.061	0.10	0.061	0.017	U
79-34-5	1,1,2,2-Tetrachloroethane	0.025	0.079	0.025	0.011	U
98-82-8	Cumene	0.035	0.11	0.035	0.016	U
80-56-8	alpha-Pinene	0.057	0.097	0.057	0.015	U
103-65-1	n-Propylbenzene	0.035	0.11	0.035	0.016	U
622-96-8	4-Ethyltoluene	0.065	0.11	0.065	0.017	U
108-67-8	1,3,5-Trimethylbenzene	0.035	0.11	0.035	0.016	U
95-63-6	1,2,4-Trimethylbenzene	0.035	0.11	0.035	0.015	U
100-44-7	Benzyl Chloride	0.062	0.21	0.062	0.023	U
541-73-1	1,3-Dichlorobenzene	0.028	0.090	0.028	0.013	U
106-46-7	1,4-Dichlorobenzene	0.053	0.090	0.053	0.014	U
95-50-1	1,2-Dichlorobenzene	0.028	0.090	0.028	0.013	U
5989-27-5	d-Limonene	0.057	0.097	0.057	0.020	U
96-12-8	1,2-Dibromo-3-chloropropane	0.033	0.055	0.033	0.010	U
120-82-1	1,2,4-Trichlorobenzene	0.043	0.073	0.043	0.018	U
91-20-3	Naphthalene	0.059	0.099	0.059	0.025	U
87-68-3	Hexachlorobutadiene	0.030	0.050	0.030	0.010	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

Client: Trinity Analysis & Development Corp.
Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sampling Media: 6.0 L Summa Canister(s)
Test Notes:

Date(s) Collected: 7/7/20
Date(s) Received: 7/10/20
Date(s) Analyzed: 7/22 - 7/23/20

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4	Toluene-d8	Bromofluorobenzene	Acceptance Limits	Data Qualifier
		Percent Recovered	Percent Recovered	Percent Recovered		
Method Blank	P200722-MB	80	99	101	70-130	
Lab Control Sample	P200722-LCS	80	100	104	70-130	
Duplicate Lab Control Sample	P200722-DLCS	79	99	105	70-130	
ODSVE-EFF-Y9Q4	P2003839-001	81	98	101	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Duplicate Lab Control Sample

Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

ALS Sample ID: P200722-DLCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13

Analyst: Wida Ang

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 7/23/20

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		DOD		RPD	RPD	Data Qualifier
		LCS / DLCS	LCS	DLCS	LCS	DLCS	Acceptance	RPD			
		ppbV	ppbV	ppbV	Limits	Limit					
115-07-1	Propene	122	122	120	100	98	57-136	2	25		
75-71-8	Dichlorodifluoromethane (CFC 12)	42.5	35.0	34.6	82	81	59-128	1	25		
74-87-3	Chloromethane	103	106	102	103	99	59-132	4	25		
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	29.5	19.1	18.5	65	63	63-121	3	25		
75-01-4	Vinyl Chloride	83.0	65.4	63.4	79	76	64-127	4	25		
106-99-0	1,3-Butadiene	95.9	90.3	86.5	94	90	66-134	4	25		
74-83-9	Bromomethane	54.6	52.8	51.2	97	94	63-134	3	25		
75-00-3	Chloroethane	81.1	90.3	87.5	111	108	63-127	3	25		
64-17-5	Ethanol	563	484	470	86	83	59-125	4	25		
75-05-8	Acetonitrile	128	138	135	108	105	63-132	3	25		
107-02-8	Acrolein	89.9	105	101	117	112	62-126	4	25		
67-64-1	Acetone	450	390	381	87	85	58-128	2	25		
75-69-4	Trichlorofluoromethane	37.7	30.5	29.8	81	79	62-126	3	25		
67-63-0	2-Propanol (Isopropyl Alcohol)	172	163	158	95	92	52-125	3	25		
107-13-1	Acrylonitrile	97.7	115	113	118	116	71-137	2	25		
75-35-4	1,1-Dichloroethene	54.0	52.6	51.5	97	95	61-133	2	25		
75-09-2	Methylene Chloride	60.5	57.5	56.1	95	93	62-115	2	25		
107-05-1	3-Chloro-1-propene (Allyl Chloride)	68.4	62.9	61.3	92	90	71-131	2	25		
76-13-1	Trichlorotrifluoroethane	28.2	26.3	25.6	93	91	66-126	2	25		
75-15-0	Carbon Disulfide	68.1	62.0	60.4	91	89	57-134	2	25		
156-60-5	trans-1,2-Dichloroethene	54.0	54.2	52.8	100	98	67-124	2	25		
75-34-3	1,1-Dichloroethane	52.4	51.7	50.3	99	96	68-126	3	25		
1634-04-4	Methyl tert-Butyl Ether	59.4	57.2	55.3	96	93	66-126	3	25		
108-05-4	Vinyl Acetate	303	232	226	77	75	56-139	3	25		
78-93-3	2-Butanone (MEK)	71.9	66.7	65.1	93	91	67-130	2	25		

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Duplicate Lab Control Sample

Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

ALS Sample ID: P200722-DLCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13

Analyst: Wida Ang

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 7/23/20

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		DOD	RPD	RPD	Data
		LCS / DLCS ppbV	LCS ppbV	DLCS ppbV	LCS	DLCS	Acceptance Limits			
156-59-2	cis-1,2-Dichloroethene	53.5	50.8	49.6	95	93	70-121	2	25	
141-78-6	Ethyl Acetate	120	101	98.2	84	82	65-128	2	25	
110-54-3	n-Hexane	61.3	55.3	53.8	90	88	63-120	2	25	
67-66-3	Chloroform	43.8	37.6	37.0	86	84	68-123	2	25	
109-99-9	Tetrahydrofuran (THF)	74.6	75.2	73.2	101	98	64-123	3	25	
107-06-2	1,2-Dichloroethane	52.9	39.8	38.7	75	73	65-128	3	25	
71-55-6	1,1,1-Trichloroethane	39.2	33.1	32.8	84	84	68-125	0	25	
71-43-2	Benzene	65.8	58.4	57.7	89	88	69-119	1	25	
56-23-5	Carbon Tetrachloride	33.1	27.2	26.7	82	81	68-132	1	25	
110-82-7	Cyclohexane	123	111	109	90	89	70-117	1	25	
78-87-5	1,2-Dichloropropane	46.3	48.3	47.6	104	103	69-123	1	25	
75-27-4	Bromodichloromethane	32.6	27.5	27.2	84	83	72-128	1	25	
79-01-6	Trichloroethene	40.2	35.7	35.0	89	87	71-123	2	25	
123-91-1	1,4-Dioxane	60.0	56.9	56.0	95	93	71-122	2	25	
80-62-6	Methyl Methacrylate	105	98.9	96.8	94	92	70-128	2	25	
142-82-5	n-Heptane	52.2	50.8	49.8	97	95	69-123	2	25	
10061-01-5	cis-1,3-Dichloropropene	47.2	47.3	46.5	100	99	70-128	1	25	
108-10-1	4-Methyl-2-pentanone	51.8	52.1	51.2	101	99	67-130	2	25	
10061-02-6	trans-1,3-Dichloropropene	46.7	45.1	44.3	97	95	75-133	2	25	
79-00-5	1,1,2-Trichloroethane	39.2	37.3	37.1	95	95	73-119	0	25	
108-88-3	Toluene	56.3	51.8	50.7	92	90	66-119	2	25	
591-78-6	2-Hexanone	52.7	44.2	43.4	84	82	62-128	2	25	
124-48-1	Dibromochloromethane	25.1	23.0	22.4	92	89	70-130	3	25	
106-93-4	1,2-Dibromoethane	27.9	26.9	26.3	96	94	74-122	2	25	
123-86-4	n-Butyl Acetate	45.9	40.2	39.3	88	86	65-134	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Duplicate Lab Control Sample

Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

ALS Sample ID: P200722-DLCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13

Analyst: Wida Ang

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 7/23/20

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		DOD	RPD	RPD	Data
		LCS / DLCS ppbV	LCS ppbV	DLCS ppbV	LCS	DLCS	Acceptance Limits			
111-65-9	n-Octane	46.3	43.5	42.4	94	92	69-121	2	25	
127-18-4	Tetrachloroethene	30.7	27.9	27.3	91	89	66-124	2	25	
108-90-7	Chlorobenzene	46.5	42.2	41.2	91	89	70-119	2	25	
100-41-4	Ethylbenzene	48.8	44.0	43.1	90	88	70-124	2	25	
179601-23-1	m,p-Xylenes	98.1	82.2	80.5	84	82	61-134	2	25	
75-25-2	Bromoform	20.7	18.0	17.6	87	85	66-139	2	25	
100-42-5	Styrene	49.8	47.1	46.0	95	92	73-127	3	25	
95-47-6	o-Xylene	49.3	41.4	40.5	84	82	67-125	2	25	
111-84-2	n-Nonane	40.8	35.3	34.4	87	84	63-128	4	25	
79-34-5	1,1,2,2-Tetrachloroethane	31.2	27.4	27.0	88	87	65-127	1	25	
98-82-8	Cumene	43.5	38.5	37.7	89	87	68-124	2	25	
80-56-8	alpha-Pinene	38.1	34.3	33.6	90	88	62-136	2	25	
103-65-1	n-Propylbenzene	43.6	38.2	37.5	88	86	69-123	2	25	
622-96-8	4-Ethyltoluene	42.7	34.9	34.0	82	80	67-129	2	25	
108-67-8	1,3,5-Trimethylbenzene	43.1	36.9	36.0	86	84	67-130	2	25	
95-63-6	1,2,4-Trimethylbenzene	43.1	32.4	31.7	75	74	66-132	1	25	
100-44-7	Benzyl Chloride	41.3	33.5	32.8	81	79	50-147	3	25	
541-73-1	1,3-Dichlorobenzene	35.6	29.6	29.1	83	82	65-130	1	25	
106-46-7	1,4-Dichlorobenzene	35.6	31.3	30.8	88	87	60-131	1	25	
95-50-1	1,2-Dichlorobenzene	35.6	29.4	28.8	83	81	63-129	2	25	
5989-27-5	d-Limonene	38.1	31.0	30.2	81	79	65-136	3	25	
96-12-8	1,2-Dibromo-3-chloropropane	22.1	20.5	20.1	93	91	73-133	2	25	
120-82-1	1,2,4-Trichlorobenzene	29.1	28.0	27.6	96	95	55-142	1	25	
91-20-3	Naphthalene	40.5	35.6	35.0	88	86	57-138	2	25	
87-68-3	Hexachlorobutadiene	20.1	19.3	19.0	96	95	56-138	1	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Trinity Analysis & Development Corp.
Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

Method Blank Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sampling Media: 6.0 L Summa Canister(s)
Test Notes:

Lab File ID: 07222003.D
Date Analyzed: 7/22/20
Time Analyzed: 16:37

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P200722-LCS	07222004.D	17:11
Duplicate Lab Control Sample	P200722-DLCS	07222016.D	00:33
ODSVE-EFF-Y9Q4	P2003839-001	07222026.D	06:26

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: Trinity Analysis & Development Corp.
Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

Internal Standard Area and RT Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sampling Media: 6.0 L Summa Canister(s)
Test Notes:

Lab File ID: 07222001.D
Date Analyzed: 7/22/20
Time Analyzed: 15:30

	IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
	AREA	#	RT	#	AREA	#
24 Hour Standard	160396	11.20	700473	13.32	304315	17.63
Upper Limit	224554	11.53	980662	13.65	426041	17.96
Lower Limit	96238	10.87	420284	12.99	182589	17.30

Client Sample ID		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA	#	RT	#	AREA	#
01	Method Blank	159558	11.18	700052	13.31	311052	17.63
02	Lab Control Sample	159156	11.21	696741	13.32	303688	17.63
03	Duplicate Lab Control Sample	158057	11.20	684149	13.32	300731	17.63
04	ODSVE-EFF-Y9Q4	161696	11.19	702005	13.32	316811	17.63
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (BCM) = Bromochloromethane

IS2 (DFB) = 1,4-Difluorobenzene

IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area

AREA LOWER LIMIT = 60% of internal standard area

RT UPPER LIMIT = 0.33 minutes of internal standard RT

RT LOWER LIMIT = 0.33 minutes of internal standard RT

Column used to flag values outside QC limits with an I.

I = Internal standard not within the specified limits.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: ODSVE-EFF-Y9Q4

Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

ALS Sample ID: P2003839-001

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13

Analyst: Wida Ang

Sampling Media: 6.0 L Summa Canister

Test Notes:

Container ID: SC00689

Date Collected: 7/7/20

Date Received: 7/10/20

Date Analyzed: 7/23/20

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -0.87

Final Pressure (psig): 3.84

Container Dilution Factor: 1.34

CAS #	Compound	Result µg/m ³	LOQ µg/m ³	LOD µg/m ³	MDL µg/m ³	Data Qualifier
115-07-1	Propene	0.55	0.71	0.43	0.17	J
75-71-8	Dichlorodifluoromethane (CFC 12)	5.9	0.71	0.43	0.12	
74-87-3	Chloromethane	0.43	0.71	0.43	0.12	U
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.43	0.71	0.43	0.11	U, V
75-01-4	Vinyl Chloride	0.94	0.72	0.23	0.076	
106-99-0	1,3-Butadiene	0.43	0.71	0.43	0.12	U
74-83-9	Bromomethane	0.23	0.72	0.23	0.099	U
75-00-3	Chloroethane	0.43	0.72	0.43	0.088	U
64-17-5	Ethanol	45	7.0	1.1	0.50	
75-05-8	Acetonitrile	2.0	0.71	0.43	0.17	
107-02-8	Acrolein	0.78	1.3	0.42	0.20	J
67-64-1	Acetone	11	7.1	3.6	1.6	
75-69-4	Trichlorofluoromethane	1.6	0.71	0.43	0.11	
67-63-0	2-Propanol (Isopropyl Alcohol)	0.72	2.8	0.84	0.29	J
107-13-1	Acrylonitrile	0.43	0.71	0.43	0.15	U
75-35-4	1,1-Dichloroethene	2.7	0.72	0.23	0.099	
75-09-2	Methylene Chloride	0.22	0.71	0.43	0.20	J
107-05-1	3-Chloro-1-propene (Allyl Chloride)	0.23	0.72	0.23	0.096	U
76-13-1	Trichlorotrifluoroethane	41	0.72	0.23	0.10	
75-15-0	Carbon Disulfide	13	1.5	0.72	0.21	
156-60-5	trans-1,2-Dichloroethene	1.7	0.72	0.23	0.099	
75-34-3	1,1-Dichloroethane	1.8	0.74	0.44	0.10	
1634-04-4	Methyl tert-Butyl Ether	0.23	0.72	0.23	0.084	U
108-05-4	Vinyl Acetate	3.0	7.2	3.6	1.6	J
78-93-3	2-Butanone (MEK)	1.5	1.5	0.43	0.15	

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

V = The continuing calibration verification and ending CCV standard was outside (biased low) the specified limits for this compound.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: ODSVE-EFF-Y9Q4

Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

ALS Sample ID: P2003839-001

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13

Analyst: Wida Ang

Sampling Media: 6.0 L Summa Canister

Test Notes:

Container ID: SC00689

Date Collected: 7/7/20

Date Received: 7/10/20

Date Analyzed: 7/23/20

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -0.87

Final Pressure (psig): 3.84

Container Dilution Factor: 1.34

CAS #	Compound	Result µg/m ³	LOQ µg/m ³	LOD µg/m ³	MDL µg/m ³	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	130	0.71	0.23	0.10	
141-78-6	Ethyl Acetate	0.87	1.5	0.87	0.38	U
110-54-3	n-Hexane	0.25	0.72	0.43	0.15	J
67-66-3	Chloroform	31	0.72	0.23	0.095	
109-99-9	Tetrahydrofuran (THF)	0.12	0.74	0.23	0.090	J
107-06-2	1,2-Dichloroethane	0.21	0.72	0.23	0.079	J
71-55-6	1,1,1-Trichloroethane	1.6	0.72	0.23	0.088	
71-43-2	Benzene	0.24	0.71	0.23	0.10	J
56-23-5	Carbon Tetrachloride	3.0	0.71	0.23	0.099	
110-82-7	Cyclohexane	0.49	1.5	0.46	0.20	J
78-87-5	1,2-Dichloropropane	0.23	0.72	0.23	0.088	U
75-27-4	Bromodichloromethane	0.23	0.72	0.23	0.10	U
79-01-6	Trichloroethene	130	0.72	0.23	0.096	
123-91-1	1,4-Dioxane	0.23	0.72	0.23	0.084	U
80-62-6	Methyl Methacrylate	0.87	1.5	0.87	0.25	U
142-82-5	n-Heptane	0.43	0.72	0.43	0.11	U
10061-01-5	cis-1,3-Dichloropropene	0.23	0.70	0.23	0.11	U
108-10-1	4-Methyl-2-pentanone	0.23	0.71	0.23	0.098	U
10061-02-6	trans-1,3-Dichloropropene	0.43	0.71	0.43	0.15	U
79-00-5	1,1,2-Trichloroethane	0.14	0.72	0.23	0.072	J
108-88-3	Toluene	0.68	0.72	0.23	0.087	J
591-78-6	2-Hexanone	0.19	0.72	0.23	0.088	J
124-48-1	Dibromochloromethane	0.23	0.72	0.23	0.094	U
106-93-4	1,2-Dibromoethane	0.23	0.72	0.23	0.083	U
123-86-4	n-Butyl Acetate	0.23	0.74	0.23	0.098	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: ODSVE-EFF-Y9Q4

Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

ALS Sample ID: P2003839-001

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13

Analyst: Wida Ang

Sampling Media: 6.0 L Summa Canister

Test Notes:

Container ID: SC00689

Date Collected: 7/7/20

Date Received: 7/10/20

Date Analyzed: 7/23/20

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -0.87

Final Pressure (psig): 3.84

Container Dilution Factor: 1.34

CAS #	Compound	Result µg/m ³	LOQ µg/m ³	LOD µg/m ³	MDL µg/m ³	Data Qualifier
111-65-9	n-Octane	0.43	0.72	0.43	0.16	U
127-18-4	Tetrachloroethene	18	0.70	0.23	0.092	
108-90-7	Chlorobenzene	0.23	0.72	0.23	0.095	U
100-41-4	Ethylbenzene	0.23	0.72	0.23	0.10	U
179601-23-1	m,p-Xylenes	0.21	1.5	0.46	0.19	J
75-25-2	Bromoform	0.43	0.72	0.43	0.15	U
100-42-5	Styrene	0.43	0.71	0.43	0.12	U
95-47-6	o-Xylene	0.23	0.72	0.23	0.10	U
111-84-2	n-Nonane	0.43	0.72	0.43	0.12	U
79-34-5	1,1,2,2-Tetrachloroethane	1.2	0.72	0.23	0.099	
98-82-8	Cumene	0.23	0.72	0.23	0.10	U
80-56-8	alpha-Pinene	0.43	0.72	0.43	0.11	U
103-65-1	n-Propylbenzene	0.23	0.72	0.23	0.10	U
622-96-8	4-Ethyltoluene	0.43	0.72	0.43	0.11	U
108-67-8	1,3,5-Trimethylbenzene	0.23	0.71	0.23	0.10	U
95-63-6	1,2,4-Trimethylbenzene	0.23	0.72	0.23	0.099	U
100-44-7	Benzyl Chloride	0.43	1.5	0.43	0.16	U
541-73-1	1,3-Dichlorobenzene	0.23	0.72	0.23	0.11	U
106-46-7	1,4-Dichlorobenzene	0.43	0.72	0.43	0.11	U
95-50-1	1,2-Dichlorobenzene	0.23	0.72	0.23	0.11	U
5989-27-5	d-Limonene	0.18	0.72	0.43	0.15	J
96-12-8	1,2-Dibromo-3-chloropropane	0.43	0.71	0.43	0.13	U
120-82-1	1,2,4-Trichlorobenzene	0.43	0.72	0.43	0.17	U
91-20-3	Naphthalene	0.42	0.70	0.42	0.17	U
87-68-3	Hexachlorobutadiene	0.43	0.71	0.43	0.15	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

J = The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Method Blank

Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

ALS Sample ID: P200722-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13

Analyst: Wida Ang

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 7/22/20

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	LOQ µg/m ³	LOD µg/m ³	MDL µg/m ³	Data Qualifier
115-07-1	Propene	0.32	0.53	0.32	0.13	U
75-71-8	Dichlorodifluoromethane (CFC 12)	0.32	0.53	0.32	0.087	U
74-87-3	Chloromethane	0.32	0.53	0.32	0.086	U
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	0.32	0.53	0.32	0.084	U, V
75-01-4	Vinyl Chloride	0.17	0.54	0.17	0.057	U
106-99-0	1,3-Butadiene	0.32	0.53	0.32	0.088	U
74-83-9	Bromomethane	0.17	0.54	0.17	0.074	U
75-00-3	Chloroethane	0.32	0.54	0.32	0.066	U
64-17-5	Ethanol	0.83	5.2	0.83	0.37	U
75-05-8	Acetonitrile	0.32	0.53	0.32	0.13	U
107-02-8	Acrolein	0.31	1.0	0.31	0.15	U
67-64-1	Acetone	2.7	5.3	2.7	1.2	U
75-69-4	Trichlorofluoromethane	0.32	0.53	0.32	0.081	U
67-63-0	2-Propanol (Isopropyl Alcohol)	0.63	2.1	0.63	0.22	U
107-13-1	Acrylonitrile	0.32	0.53	0.32	0.11	U
75-35-4	1,1-Dichloroethene	0.17	0.54	0.17	0.074	U
75-09-2	Methylene Chloride	0.32	0.53	0.32	0.15	U
107-05-1	3-Chloro-1-propene (Allyl Chloride)	0.17	0.54	0.17	0.072	U
76-13-1	Trichlorotrifluoroethane	0.17	0.54	0.17	0.076	U
75-15-0	Carbon Disulfide	0.54	1.1	0.54	0.16	U
156-60-5	trans-1,2-Dichloroethene	0.17	0.54	0.17	0.074	U
75-34-3	1,1-Dichloroethane	0.33	0.55	0.33	0.078	U
1634-04-4	Methyl tert-Butyl Ether	0.17	0.54	0.17	0.063	U
108-05-4	Vinyl Acetate	2.7	5.4	2.7	1.2	U
78-93-3	2-Butanone (MEK)	0.32	1.1	0.32	0.11	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

V = The continuing calibration verification and ending CCV standard was outside (biased low) the specified limits for this compound.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Method Blank

Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

ALS Sample ID: P200722-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13

Analyst: Wida Ang

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 7/22/20

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	LOQ µg/m ³	LOD µg/m ³	MDL µg/m ³	Data Qualifier
156-59-2	cis-1,2-Dichloroethene	0.17	0.53	0.17	0.075	U
141-78-6	Ethyl Acetate	0.65	1.1	0.65	0.28	U
110-54-3	n-Hexane	0.32	0.54	0.32	0.11	U
67-66-3	Chloroform	0.17	0.54	0.17	0.071	U
109-99-9	Tetrahydrofuran (THF)	0.17	0.55	0.17	0.067	U
107-06-2	1,2-Dichloroethane	0.17	0.54	0.17	0.059	U
71-55-6	1,1,1-Trichloroethane	0.17	0.54	0.17	0.066	U
71-43-2	Benzene	0.17	0.53	0.17	0.077	U
56-23-5	Carbon Tetrachloride	0.17	0.53	0.17	0.074	U
110-82-7	Cyclohexane	0.34	1.1	0.34	0.15	U
78-87-5	1,2-Dichloropropane	0.17	0.54	0.17	0.066	U
75-27-4	Bromodichloromethane	0.17	0.54	0.17	0.077	U
79-01-6	Trichloroethene	0.17	0.54	0.17	0.072	U
123-91-1	1,4-Dioxane	0.17	0.54	0.17	0.063	U
80-62-6	Methyl Methacrylate	0.65	1.1	0.65	0.19	U
142-82-5	n-Heptane	0.32	0.54	0.32	0.085	U
10061-01-5	cis-1,3-Dichloropropene	0.17	0.52	0.17	0.083	U
108-10-1	4-Methyl-2-pentanone	0.17	0.53	0.17	0.073	U
10061-02-6	trans-1,3-Dichloropropene	0.32	0.53	0.32	0.11	U
79-00-5	1,1,2-Trichloroethane	0.17	0.54	0.17	0.054	U
108-88-3	Toluene	0.17	0.54	0.17	0.065	U
591-78-6	2-Hexanone	0.17	0.54	0.17	0.066	U
124-48-1	Dibromochloromethane	0.17	0.54	0.17	0.070	U
106-93-4	1,2-Dibromoethane	0.17	0.54	0.17	0.062	U
123-86-4	n-Butyl Acetate	0.17	0.55	0.17	0.073	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 3 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Method Blank

Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

ALS Sample ID: P200722-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13

Analyst: Wida Ang

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 7/22/20

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	LOQ µg/m ³	LOD µg/m ³	MDL µg/m ³	Data Qualifier
111-65-9	n-Octane	0.32	0.54	0.32	0.12	U
127-18-4	Tetrachloroethene	0.17	0.52	0.17	0.069	U
108-90-7	Chlorobenzene	0.17	0.54	0.17	0.071	U
100-41-4	Ethylbenzene	0.17	0.54	0.17	0.075	U
179601-23-1	m,p-Xylenes	0.34	1.1	0.34	0.14	U
75-25-2	Bromoform	0.32	0.54	0.32	0.11	U
100-42-5	Styrene	0.32	0.53	0.32	0.086	U
95-47-6	o-Xylene	0.17	0.54	0.17	0.077	U
111-84-2	n-Nonane	0.32	0.54	0.32	0.089	U
79-34-5	1,1,2,2-Tetrachloroethane	0.17	0.54	0.17	0.074	U
98-82-8	Cumene	0.17	0.54	0.17	0.077	U
80-56-8	alpha-Pinene	0.32	0.54	0.32	0.082	U
103-65-1	n-Propylbenzene	0.17	0.54	0.17	0.077	U
622-96-8	4-Ethyltoluene	0.32	0.54	0.32	0.085	U
108-67-8	1,3,5-Trimethylbenzene	0.17	0.53	0.17	0.077	U
95-63-6	1,2,4-Trimethylbenzene	0.17	0.54	0.17	0.074	U
100-44-7	Benzyl Chloride	0.32	1.1	0.32	0.12	U
541-73-1	1,3-Dichlorobenzene	0.17	0.54	0.17	0.080	U
106-46-7	1,4-Dichlorobenzene	0.32	0.54	0.32	0.082	U
95-50-1	1,2-Dichlorobenzene	0.17	0.54	0.17	0.079	U
5989-27-5	d-Limonene	0.32	0.54	0.32	0.11	U
96-12-8	1,2-Dibromo-3-chloropropane	0.32	0.53	0.32	0.10	U
120-82-1	1,2,4-Trichlorobenzene	0.32	0.54	0.32	0.13	U
91-20-3	Naphthalene	0.31	0.52	0.31	0.13	U
87-68-3	Hexachlorobutadiene	0.32	0.53	0.32	0.11	U

U = Undetected at the limit of detection: The associated data value is the limit of detection, adjusted by any dilution factor used in the analysis.

LOQ = Limit of Quantitation - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 3

Client: Trinity Analysis & Development Corp.
Client Sample ID: Duplicate Lab Control Sample
Client Project ID: DDMT / 10A023

ALS Project ID: P2003839
 ALS Sample ID: P200722-DLCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Wida Ang
Sampling Media: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 7/23/20
Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		DOD	RPD	RPD	Data
		LCS / DLCS µg/m³	LCS µg/m³	DLCS µg/m³	LCS	DLCS	Acceptance Limits			
115-07-1	Propene	210	210	206	100	98	57-136	2	25	
75-71-8	Dichlorodifluoromethane (CFC 12)	210	173	171	82	81	59-128	1	25	
74-87-3	Chloromethane	212	218	210	103	99	59-132	4	25	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC 114)	206	133	129	65	63	63-121	3	25	
75-01-4	Vinyl Chloride	212	167	162	79	76	64-127	4	25	
106-99-0	1,3-Butadiene	212	200	191	94	90	66-134	4	25	
74-83-9	Bromomethane	212	205	199	97	94	63-134	3	25	
75-00-3	Chloroethane	214	238	231	111	108	63-127	3	25	
64-17-5	Ethanol	1,060	912	885	86	83	59-125	4	25	
75-05-8	Acetonitrile	214	232	227	108	106	63-132	2	25	
107-02-8	Acrolein	206	240	232	117	113	62-126	3	25	
67-64-1	Acetone	1,070	926	906	87	85	58-128	2	25	
75-69-4	Trichlorofluoromethane	212	171	167	81	79	62-126	3	25	
67-63-0	2-Propanol (Isopropyl Alcohol)	422	400	388	95	92	52-125	3	25	
107-13-1	Acrylonitrile	212	249	244	117	115	71-137	2	25	
75-35-4	1,1-Dichloroethene	214	208	204	97	95	61-133	2	25	
75-09-2	Methylene Chloride	210	200	195	95	93	62-115	2	25	
107-05-1	3-Chloro-1-propene (Allyl Chloride)	214	197	192	92	90	71-131	2	25	
76-13-1	Trichlorotrifluoroethane	216	201	196	93	91	66-126	2	25	
75-15-0	Carbon Disulfide	212	193	188	91	89	57-134	2	25	
156-60-5	trans-1,2-Dichloroethene	214	215	209	100	98	67-124	2	25	
75-34-3	1,1-Dichloroethane	212	209	204	99	96	68-126	3	25	
1634-04-4	Methyl tert-Butyl Ether	214	206	199	96	93	66-126	3	25	
108-05-4	Vinyl Acetate	1,070	816	794	76	74	56-139	3	25	
78-93-3	2-Butanone (MEK)	212	197	192	93	91	67-130	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 2 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Duplicate Lab Control Sample

Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

ALS Sample ID: P200722-DLCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13

Analyst: Wida Ang

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 7/23/20

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		DOD	RPD	RPD	Data
		LCS / DLCS µg/m³	LCS µg/m³	DLCS µg/m³	LCS	DLCS	Acceptance Limits			
156-59-2	cis-1,2-Dichloroethene	212	202	196	95	92	70-121	3	25	
141-78-6	Ethyl Acetate	432	363	354	84	82	65-128	2	25	
110-54-3	n-Hexane	216	195	189	90	88	63-120	2	25	
67-66-3	Chloroform	214	184	181	86	85	68-123	1	25	
109-99-9	Tetrahydrofuran (THF)	220	222	216	101	98	64-123	3	25	
107-06-2	1,2-Dichloroethane	214	161	157	75	73	65-128	3	25	
71-55-6	1,1,1-Trichloroethane	214	180	179	84	84	68-125	0	25	
71-43-2	Benzene	210	186	184	89	88	69-119	1	25	
56-23-5	Carbon Tetrachloride	208	171	168	82	81	68-132	1	25	
110-82-7	Cyclohexane	422	381	375	90	89	70-117	1	25	
78-87-5	1,2-Dichloropropane	214	223	220	104	103	69-123	1	25	
75-27-4	Bromodichloromethane	218	184	182	84	83	72-128	1	25	
79-01-6	Trichloroethene	216	192	188	89	87	71-123	2	25	
123-91-1	1,4-Dioxane	216	205	202	95	94	71-122	1	25	
80-62-6	Methyl Methacrylate	430	405	396	94	92	70-128	2	25	
142-82-5	n-Heptane	214	208	204	97	95	69-123	2	25	
10061-01-5	cis-1,3-Dichloropropene	214	215	211	100	99	70-128	1	25	
108-10-1	4-Methyl-2-pentanone	212	213	210	100	99	67-130	1	25	
10061-02-6	trans-1,3-Dichloropropene	212	204	201	96	95	75-133	1	25	
79-00-5	1,1,2-Trichloroethane	214	204	202	95	94	73-119	1	25	
108-88-3	Toluene	212	195	191	92	90	66-119	2	25	
591-78-6	2-Hexanone	216	181	178	84	82	62-128	2	25	
124-48-1	Dibromochloromethane	214	196	191	92	89	70-130	3	25	
106-93-4	1,2-Dibromoethane	214	207	202	97	94	74-122	3	25	
123-86-4	n-Butyl Acetate	218	191	187	88	86	65-134	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Page 3 of 3

Client: Trinity Analysis & Development Corp.

Client Sample ID: Duplicate Lab Control Sample

Client Project ID: DDMT / 10A023

ALS Project ID: P2003839

ALS Sample ID: P200722-DLCS

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13

Analyst: Wida Ang

Sampling Media: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 7/23/20

Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount	Result		% Recovery		DOD	RPD	RPD	Data
		LCS / DLCS µg/m³	LCS µg/m³	DLCS µg/m³	LCS	DLCS	Acceptance Limits			
111-65-9	n-Octane	216	203	198	94	92	69-121	2	25	
127-18-4	Tetrachloroethene	208	189	185	91	89	66-124	2	25	
108-90-7	Chlorobenzene	214	194	189	91	88	70-119	3	25	
100-41-4	Ethylbenzene	212	191	187	90	88	70-124	2	25	
179601-23-1	m,p-Xylenes	426	357	349	84	82	61-134	2	25	
75-25-2	Bromoform	214	186	182	87	85	66-139	2	25	
100-42-5	Styrene	212	200	196	94	92	73-127	2	25	
95-47-6	o-Xylene	214	180	176	84	82	67-125	2	25	
111-84-2	n-Nonane	214	185	180	86	84	63-128	2	25	
79-34-5	1,1,2,2-Tetrachloroethane	214	188	185	88	86	65-127	2	25	
98-82-8	Cumene	214	189	185	88	86	68-124	2	25	
80-56-8	alpha-Pinene	212	191	187	90	88	62-136	2	25	
103-65-1	n-Propylbenzene	214	188	184	88	86	69-123	2	25	
622-96-8	4-Ethyltoluene	210	171	167	81	80	67-129	1	25	
108-67-8	1,3,5-Trimethylbenzene	212	181	177	85	83	67-130	2	25	
95-63-6	1,2,4-Trimethylbenzene	212	159	156	75	74	66-132	1	25	
100-44-7	Benzyl Chloride	214	173	170	81	79	50-147	3	25	
541-73-1	1,3-Dichlorobenzene	214	178	175	83	82	65-130	1	25	
106-46-7	1,4-Dichlorobenzene	214	188	185	88	86	60-131	2	25	
95-50-1	1,2-Dichlorobenzene	214	176	173	82	81	63-129	1	25	
5989-27-5	d-Limonene	212	172	168	81	79	65-136	3	25	
96-12-8	1,2-Dibromo-3-chloropropane	214	198	195	93	91	73-133	2	25	
120-82-1	1,2,4-Trichlorobenzene	216	208	205	96	95	55-142	1	25	
91-20-3	Naphthalene	212	187	184	88	87	57-138	1	25	
87-68-3	Hexachlorobutadiene	214	206	202	96	94	56-138	2	25	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Data File : I:\MS13\DATA\2020_07\22\07222026.D
 Acq On : 23 Jul 2020 6:26
 Sample : P2003839-001 (1000mL)
 Misc : S34-06182001

Vial: 8
 Operator: WA
 Inst : MS13

Quant Time: Jul 23 09:58:37 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Wed Jun 24 06:33:38 2020

Response via : Initial Calibration

DataAcq Meth:TO15.M

7/23/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.19	130	161696	12.500	ng	0.01
37) 1,4-Difluorobenzene (IS2)	13.32	114	702005	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.63	82	316811	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.04	65	216817	10.166	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	81.36%
57) Toluene-d8 (SS2)	15.76	98	781017	12.192	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	97.52%
73) Bromofluorobenzene (SS3)	19.02	174	256655	12.686	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.52%

Target Compounds

						Qvalue
2) Propene	4.18	42	6649	0.409	ng	93
3) Dichlorodifluoromethan...	4.33	85	150978	4.401	ng	99
4) Chloromethane	4.60	50	1621	0.077	ng	85
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	1348	0.057	ng	83
6) Vinyl Chloride	5.02	62	19405	0.703	ng	99
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.	d	
10) Ethanol	6.41	45	395207	33.276	ng	99
11) Acetonitrile	6.68	41	36550	1.482	ng	97
12) Acrolein	6.89	56	4935	0.580	ng	92
13) Acetone	7.09	58	95734	8.130	ng	97
14) Trichlorofluoromethane	7.30	101	34580	1.161	ng	100
15) 2-Propanol (Isopropanol)	7.60	45	19495	0.536	ng	99
16) Acrylonitrile	0.00	53	0	N.D.	d	
17) 1,1-Dichloroethene	8.26	96	29990	2.024	ng	93
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.	d	
19) Methylene Chloride	8.47	84	2616	0.166	ng	91
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.	d	
21) Trichlorotrifluoroethane	8.90	151	451401	30.966	ng	99
22) Carbon Disulfide	8.75	76	575348	9.761	ng	99
23) trans-1,2-Dichloroethene	9.74	61	25789	1.286	ng	99
24) 1,1-Dichloroethane	10.00	63	33117	1.338	ng	100
25) Methyl tert-Butyl Ether	10.14	73	267	N.D.		
26) Vinyl Acetate	10.23	86	10314	2.229	ng	# 48
27) 2-Butanone (MEK)	10.53	72	12060	1.115	ng	94
28) cis-1,2-Dichloroethene	11.01	61	2002358	99.938	ng	97
29) Diisopropyl Ether	0.00	87	0	N.D.	d	
30) Ethyl Acetate	0.00	61	0	N.D.	d	
31) n-Hexane	11.30	57	4719	0.190	ng	# 12
32) Chloroform	11.35	83	633233	23.087	ng	99
34) Tetrahydrofuran (THF)	11.86	72	859	0.089	ng	# 41
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	12.16	62	3442	0.156	ng	100
38) 1,1,1-Trichloroethane	12.44	97	29936	1.192	ng	96
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.	d	
41) Benzene	12.92	78	11341	0.180	ng	100
42) Carbon Tetrachloride	13.08	117	54384	2.262	ng	98
43) Cyclohexane	13.22	84	9092	0.367	ng	94
44) tert-Amyl Methyl Ether	13.53	73	890	N.D.		
45) 1,2-Dichloropropane	13.77	63	179	N.D.		
46) Bromodichloromethane	13.90	83	414	N.D.		
47) Trichloroethene	14.02	130	1808651	99.301	ng	99
48) 1,4-Dioxane	0.00	88	0	N.D.	d	
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.	d	
50) Methyl Methacrylate	14.35	100	167	N.D.		

Data File : I:\MS13\DATA\2020_07\22\07222026.D
 Acq On : 23 Jul 2020 6:26
 Sample : P2003839-001 (1000mL)
 Misc : S34-06182001

Vial: 8
 Operator: WA
 Inst : MS13

Quant Time: Jul 23 09:58:37 2020
 Quant Method : I:\MS13\METHODS\R13062320.M
 Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)
 QLast Update : Wed Jun 24 06:33:38 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

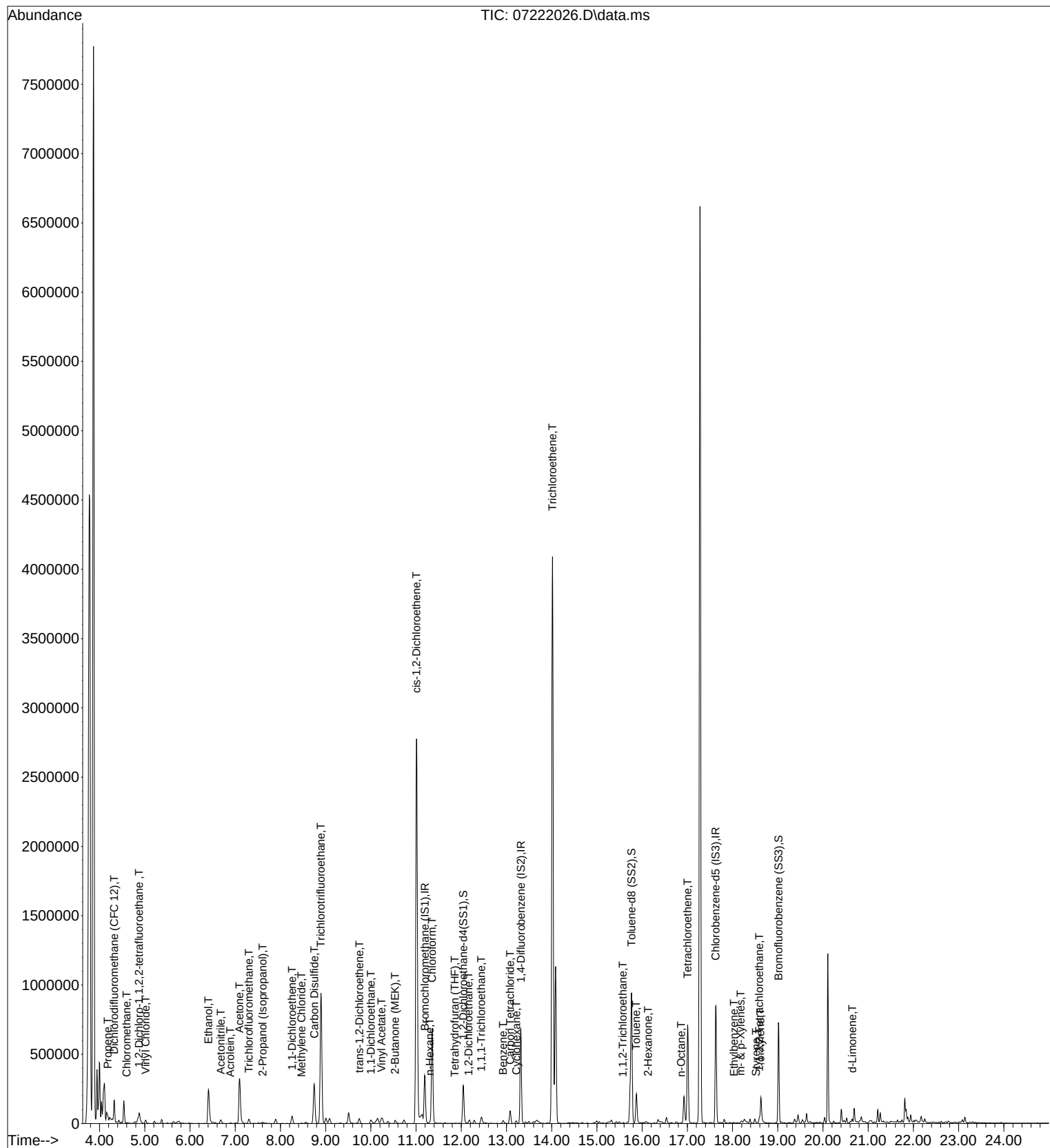
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.	d	
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.	d	
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	15.57	97	1513	0.102	ng	95
58) Toluene	15.87	91	33178	0.507	ng	99
59) 2-Hexanone	16.13	43	4675	0.139	ng	94
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	0.00	43	0	N.D.	d	
63) n-Octane	16.86	57	1249	0.097	ng	# 68
64) Tetrachloroethene	17.01	166	280442	13.344	ng	99
65) Chlorobenzene	17.67	112	564	N.D.		
66) Ethylbenzene	18.03	91	5200	0.070	ng	96
67) m- & p-Xylenes	18.18	91	9395	0.156	ng	98
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	18.52	104	2589	0.056	ng	91
70) o-Xylene	18.62	91	3962	0.065	ng	96
71) n-Nonane	18.82	43	985	N.D.		
72) 1,1,2,2-Tetrachloroethane	18.59	83	24704	0.884	ng	91
74) Cumene	19.15	105	540	N.D.		
75) alpha-Pinene	19.49	93	757	N.D.		
76) n-Propylbenzene	19.59	91	1310	N.D.		
77) 3-Ethyltoluene	19.69	105	1742	N.D.		
78) 4-Ethyltoluene	19.71	105	1019	N.D.		
79) 1,3,5-Trimethylbenzene	19.78	105	766	N.D.		
80) alpha-Methylstyrene	19.92	118	947	N.D.		
81) 2-Ethyltoluene	19.95	105	693	N.D.		
82) 1,2,4-Trimethylbenzene	20.15	105	2693	N.D.		
83) n-Decane	0.00	57	0	N.D.	d	
84) Benzyl Chloride	20.26	91	434	N.D.		
85) 1,3-Dichlorobenzene	20.28	146	123	N.D.		
86) 1,4-Dichlorobenzene	20.35	146	747	N.D.		
87) sec-Butylbenzene	20.53	105	1899	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.	d	
89) 1,2,3-Trimethylbenzene	20.53	105	1899	N.D.		
90) 1,2-Dichlorobenzene	20.64	146	201	N.D.		
91) d-Limonene	20.65	68	3371	0.138	ng	87
92) 1,2-Dibromo-3-Chloropr...	20.95	157	126	N.D.		
93) n-Undecane	0.00	57	0	N.D.	d	
94) 1,2,4-Trichlorobenzene	0.00	180	0	N.D.		
95) Naphthalene	22.26	128	4402	N.D.		
96) n-Dodecane	0.00	57	0	N.D.	d	
97) Hexachlorobutadiene	22.57	225	577	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.	d	
99) tert-Butylbenzene	0.00	119	0	N.D.	d	
100) n-Butylbenzene	0.00	91	0	N.D.	d	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File : I:\MS13\DATA\2020_07\22\07222026.D
Acq On : 23 Jul 2020 6:26
Sample : P2003839-001 (1000mL)
Misc : S34-06182001

Vial: 8
Operator: WA
Inst : MS13

Quant Time: Jul 23 09:58:37 2020
Quant Method : I:\MS13\METHODS\R13062320.M
Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)
QLast Update : Wed Jun 24 06:33:38 2020
Response via : Initial Calibration
DataAcq Meth:T015.M



Data File : I:\MS13\DATA\2020_07\22\07222026.D
 Acq On : 23 Jul 2020 6:26
 Sample : P2003839-001 (1000mL)
 Misc : S34-06182001

Vial: 8
 Operator: WA
 Inst : MS13

Quant Time: Jul 23 09:58:37 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Wed Jun 24 06:33:38 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

7/23/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.19	130	161696	12.500	ng	0.01
37) 1,4-Difluorobenzene (IS2)	13.32	114	702005	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.63	82	316811	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.04	65	216817	10.166	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	81.36%	
57) Toluene-d8 (SS2)	15.76	98	781017	12.192	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	97.52%	
73) Bromofluorobenzene (SS3)	19.02	174	256655	12.686	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	101.52%	

Target Compounds

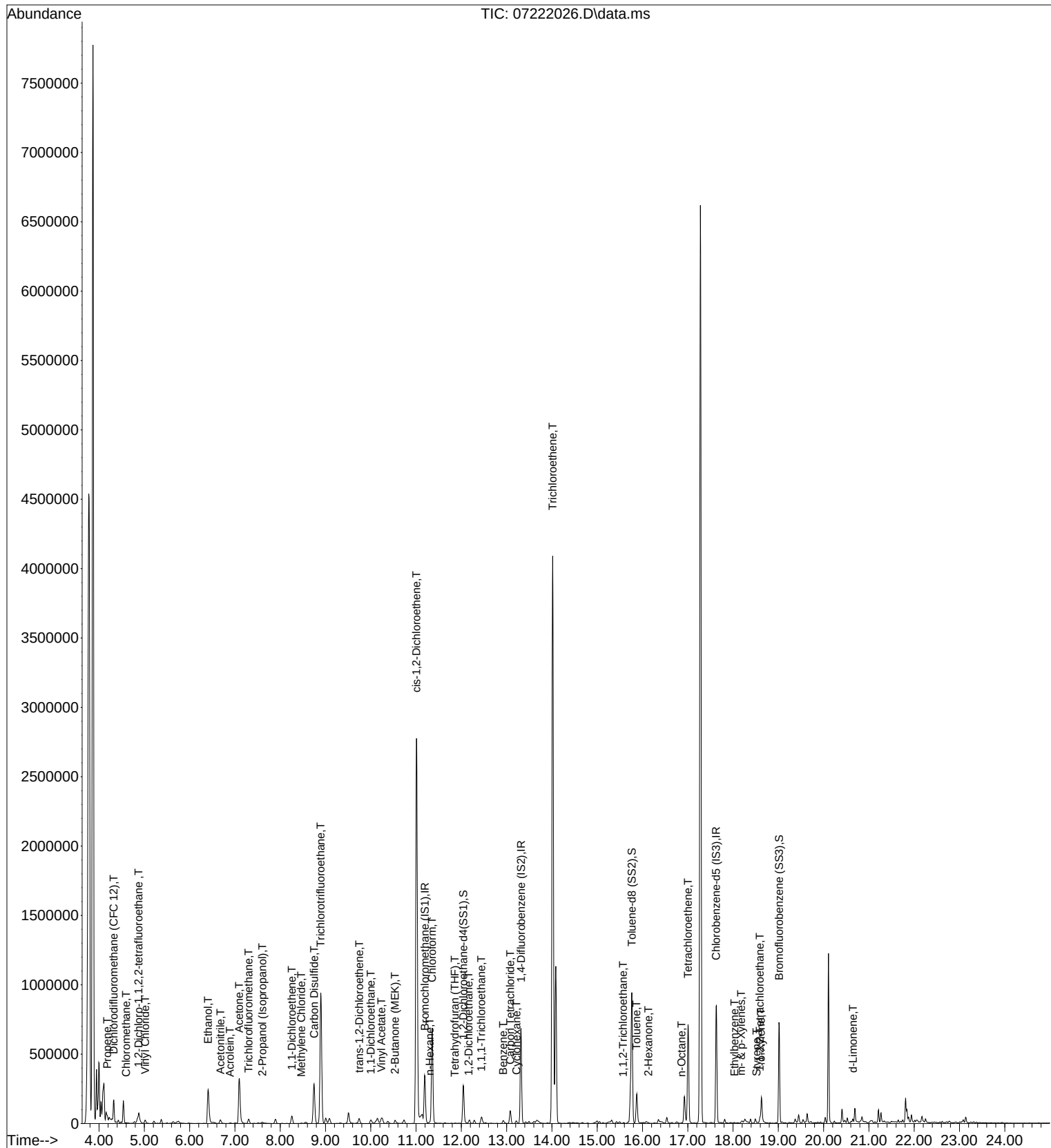
						Qvalue
2) Propene	4.18	42	6649	0.409	ng	93
3) Dichlorodifluoromethan...	4.33	85	150978	4.401	ng	99
4) Chloromethane	4.60	50	1621	0.077	ng	85
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	1348	0.057	ng	83
6) Vinyl Chloride	5.02	62	19405	0.703	ng	99
10) Ethanol	6.41	45	395207	33.276	ng	99
11) Acetonitrile	6.68	41	36550	1.482	ng	97
12) Acrolein	6.89	56	4935	0.580	ng	92
13) Acetone	7.09	58	95734	8.130	ng	97
14) Trichlorofluoromethane	7.30	101	34580	1.161	ng	100
15) 2-Propanol (Isopropanol)	7.60	45	19495	0.536	ng	99
17) 1,1-Dichloroethene	8.26	96	29990	2.024	ng	93
19) Methylene Chloride	8.47	84	2616	0.166	ng	91
21) Trichlorotrifluoroethane	8.90	151	451401	30.966	ng	99
22) Carbon Disulfide	8.75	76	575348	9.761	ng	99
23) trans-1,2-Dichloroethene	9.74	61	25789	1.286	ng	99
24) 1,1-Dichloroethane	10.00	63	33117	1.338	ng	100
26) Vinyl Acetate	10.23	86	10314	2.229	ng	# 48
27) 2-Butanone (MEK)	10.53	72	12060	1.115	ng	94
28) cis-1,2-Dichloroethene	11.01	61	2002358	99.938	ng	97
31) n-Hexane	11.30	57	4719	0.190	ng	# 12
32) Chloroform	11.35	83	633233	23.087	ng	99
34) Tetrahydrofuran (THF)	11.86	72	859	0.089	ng	# 41
36) 1,2-Dichloroethane	12.16	62	3442	0.156	ng	100
38) 1,1,1-Trichloroethane	12.44	97	29936	1.192	ng	96
41) Benzene	12.92	78	11341	0.180	ng	100
42) Carbon Tetrachloride	13.08	117	54384	2.262	ng	98
43) Cyclohexane	13.22	84	9092	0.367	ng	94
47) Trichloroethene	14.02	130	1808651	99.301	ng	99
55) 1,1,2-Trichloroethane	15.57	97	1513	0.102	ng	95
58) Toluene	15.87	91	33178	0.507	ng	99
59) 2-Hexanone	16.13	43	4675	0.139	ng	94
63) n-Octane	16.86	57	1249	0.097	ng	# 68
64) Tetrachloroethene	17.01	166	280442	13.344	ng	99
66) Ethylbenzene	18.03	91	5200	0.070	ng	96
67) m- & p-Xylenes	18.18	91	9395	0.156	ng	98
69) Styrene	18.52	104	2589	0.056	ng	91
70) o-Xylene	18.62	91	3962	0.065	ng	96
72) 1,1,2,2-Tetrachloroethane	18.59	83	24704	0.884	ng	91
91) d-Limonene	20.65	68	3371	0.138	ng	87

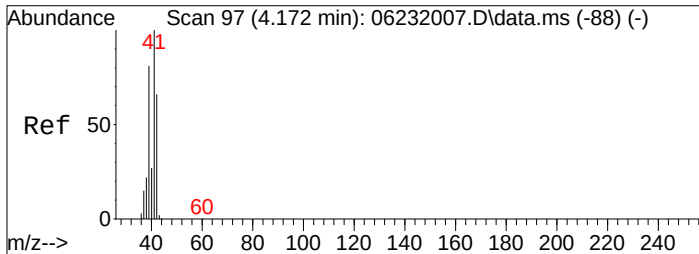
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File : I:\MS13\DATA\2020_07\22\07222026.D
Acq On : 23 Jul 2020 6:26
Sample : P2003839-001 (1000mL)
Misc : S34-06182001

Vial: 8
Operator: WA
Inst : MS13

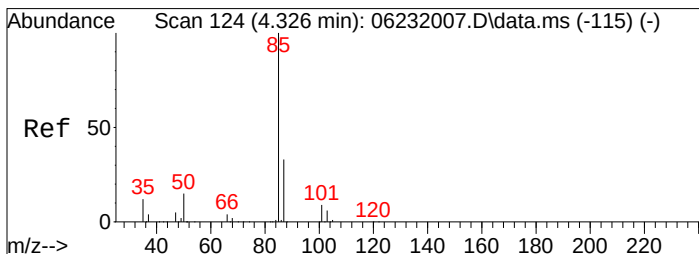
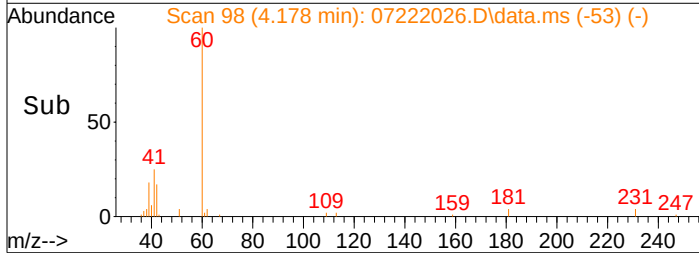
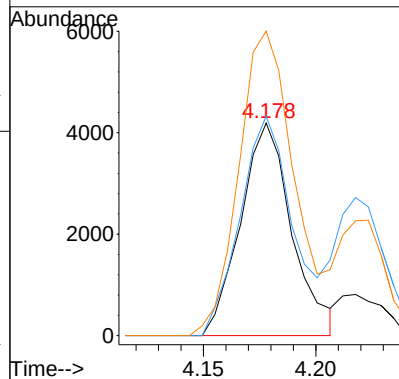
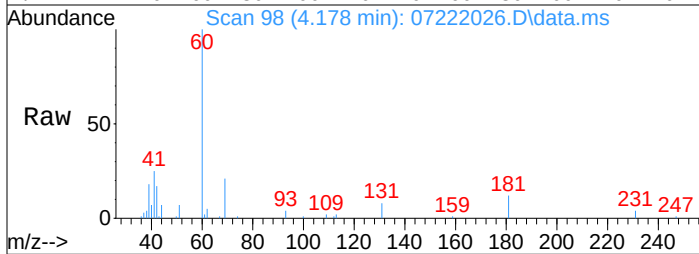
Quant Time: Jul 23 09:58:37 2020
Quant Method : I:\MS13\METHODS\R13062320.M
Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)
QLast Update : Wed Jun 24 06:33:38 2020
Response via : Initial Calibration
DataAcq Meth:T015.M





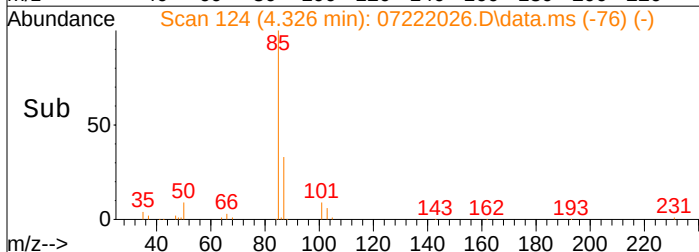
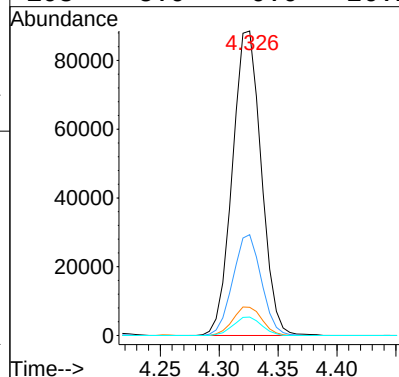
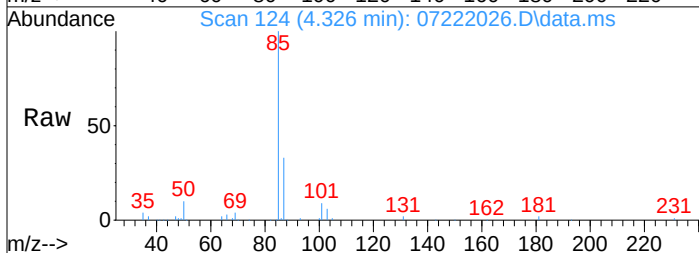
#2
 Propene
 Concen: 0.41 ng
 RT: 4.18 min Scan# 98
 Delta R.T. 0.006 min
 Lab File: 07222026.D
 Acq: 23 Jul 2020 6:26

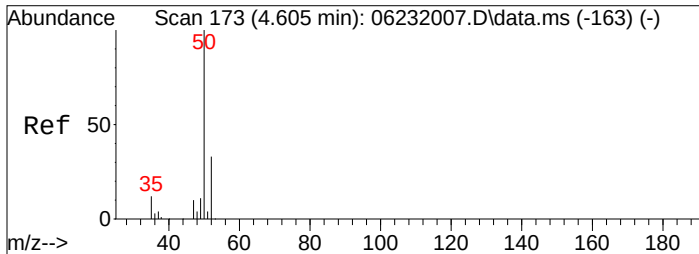
Tgt Ion: 42 Resp: 6649
 Ion Ratio Lower Upper
 42 100
 39 105.8 102.6 142.6
 41 151.6 131.4 171.4



#3
 Dichlorodifluoromethane (CFC 12)
 Concen: 4.40 ng
 RT: 4.33 min Scan# 124
 Delta R.T. 0.026 min
 Lab File: 07222026.D
 Acq: 23 Jul 2020 6:26

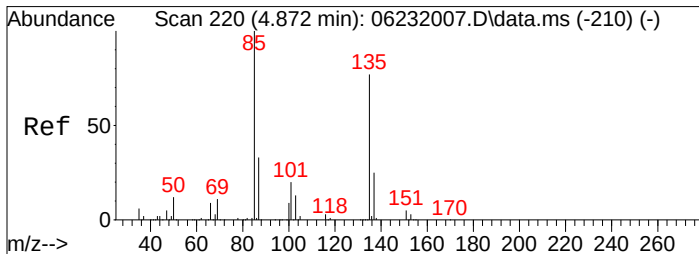
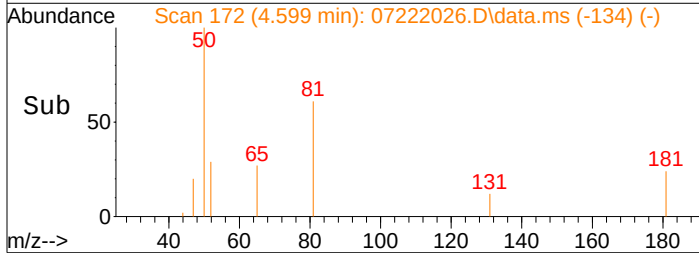
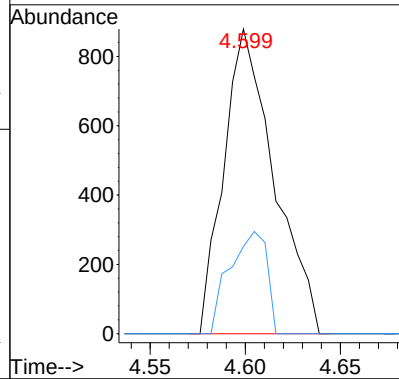
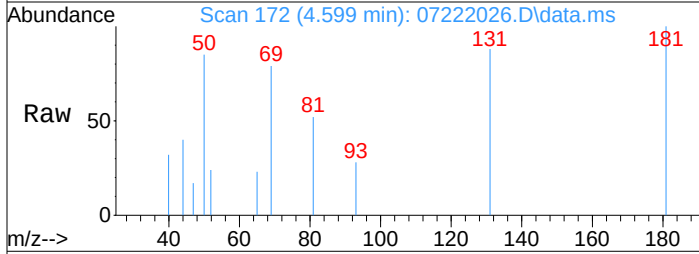
Tgt Ion: 85 Resp: 150978
 Ion Ratio Lower Upper
 85 100
 87 32.7 13.0 53.0
 101 9.4 0.0 29.3
 103 5.9 0.0 26.1





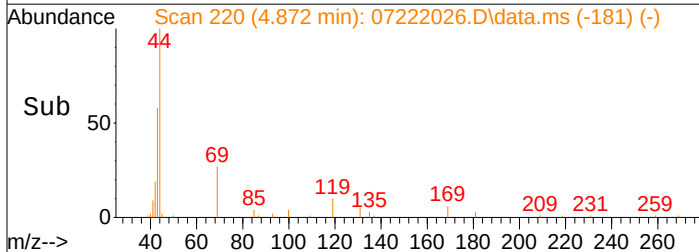
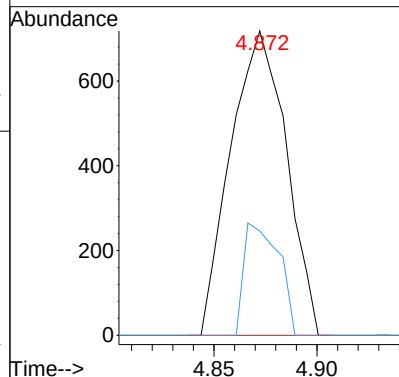
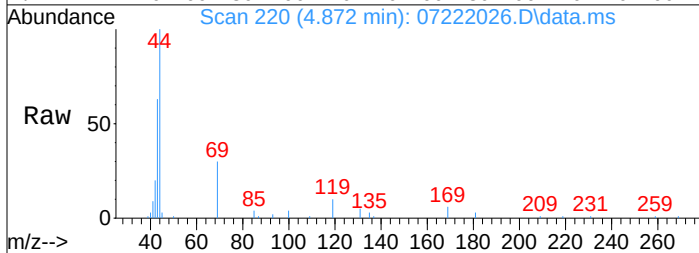
#4
Chloromethane
Concen: 0.08 ng
RT: 4.60 min Scan# 172
Delta R.T. -0.034 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

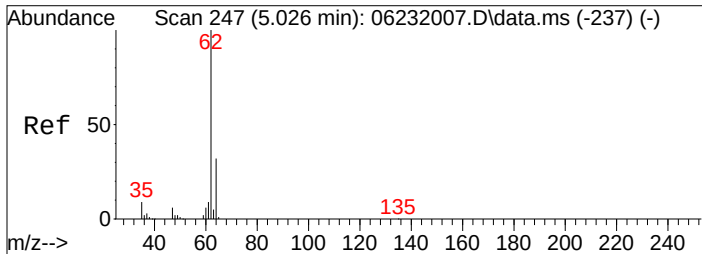
Tgt Ion: 50 Resp: 1621
Ion Ratio Lower Upper
50 100
52 24.8 13.2 53.2



#5
1,2-Dichloro-1,1,2,2-tetrafluoroethane
Concen: 0.06 ng
RT: 4.87 min Scan# 220
Delta R.T. -0.029 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

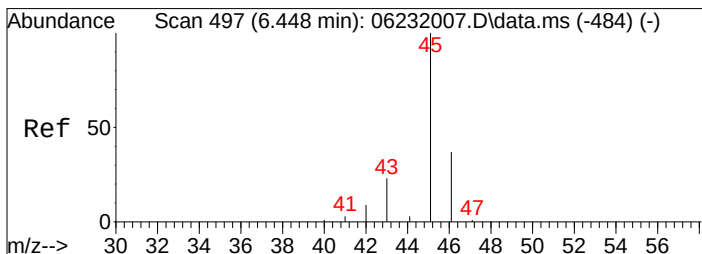
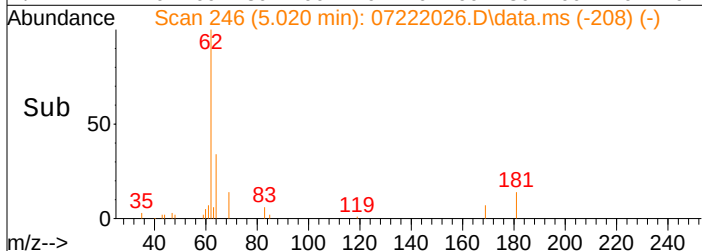
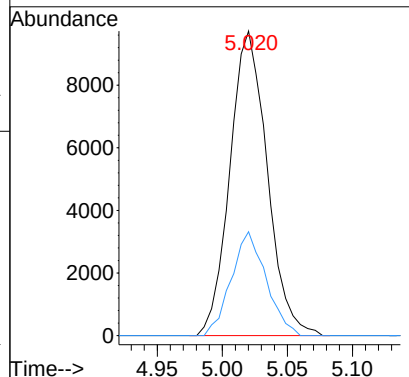
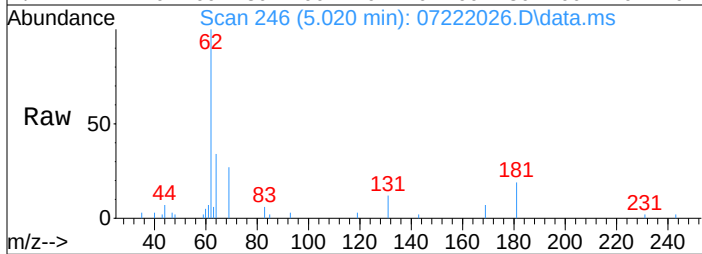
Tgt Ion: 135 Resp: 1348
Ion Ratio Lower Upper
135 100
137 23.0 12.4 52.4





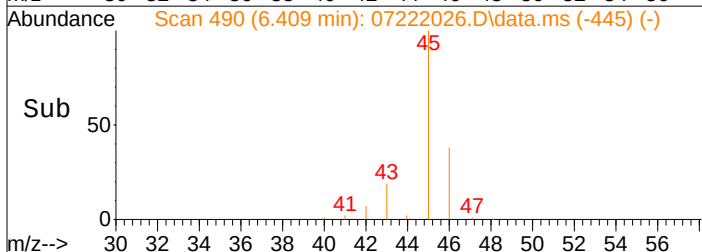
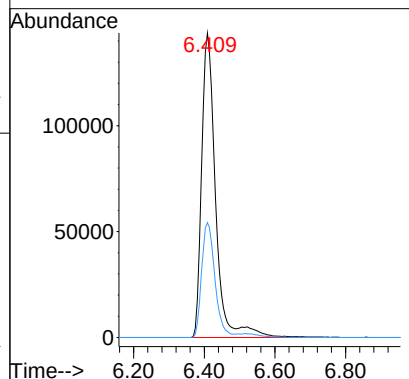
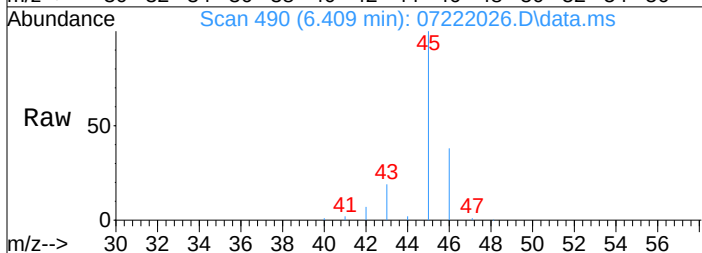
#6
 Vinyl Chloride
 Concen: 0.70 ng
 RT: 5.02 min Scan# 246
 Delta R.T. -0.034 min
 Lab File: 07222026.D
 Acq: 23 Jul 2020 6:26

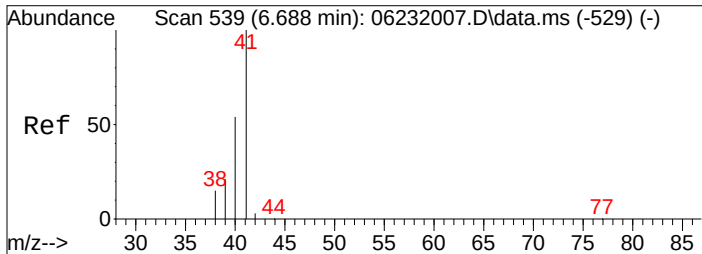
Tgt Ion:	62	Resp:	19405
Ion Ratio		Lower	Upper
62	100		
64	31.9	12.4	52.4



#10
 Ethanol
 Concen: 33.28 ng
 RT: 6.41 min Scan# 490
 Delta R.T. 0.006 min
 Lab File: 07222026.D
 Acq: 23 Jul 2020 6:26

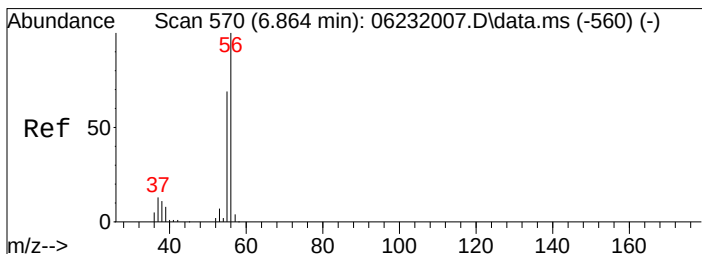
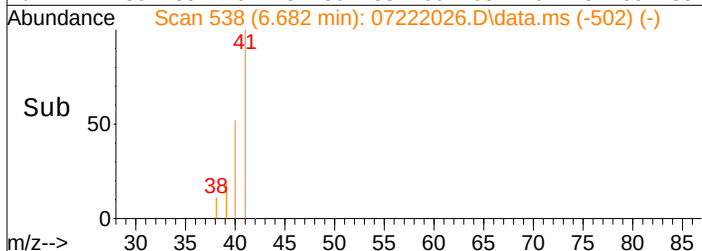
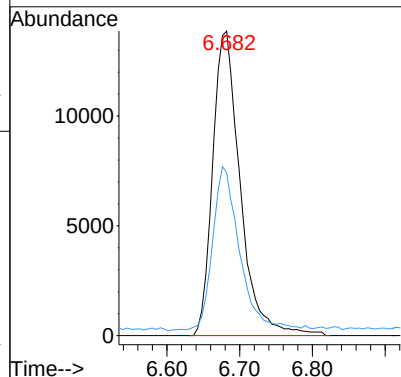
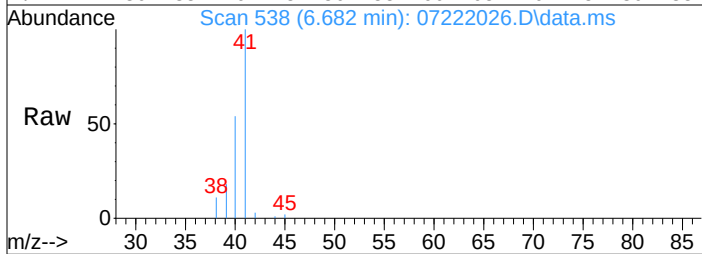
Tgt Ion:	45	Resp:	395207
Ion Ratio		Lower	Upper
45	100		
46	37.8	17.2	57.2





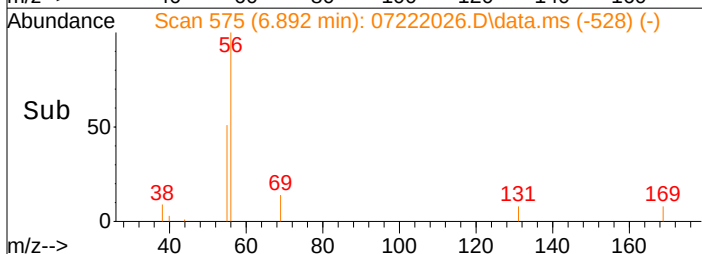
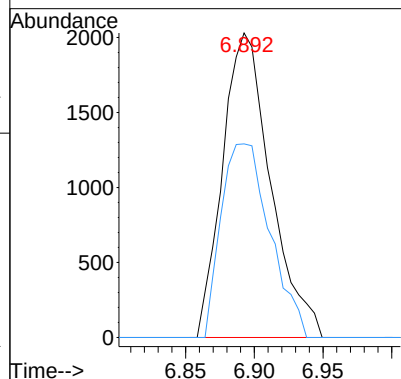
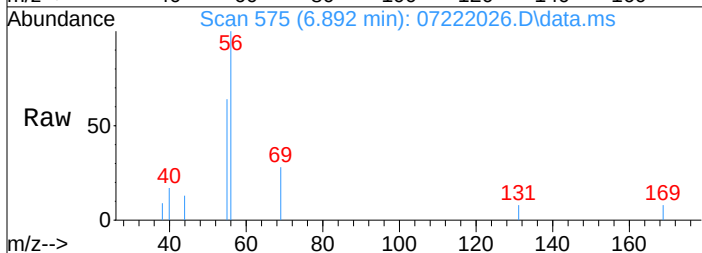
#11
Acetonitrile
Concen: 1.48 ng
RT: 6.68 min Scan# 538
Delta R.T. 0.006 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

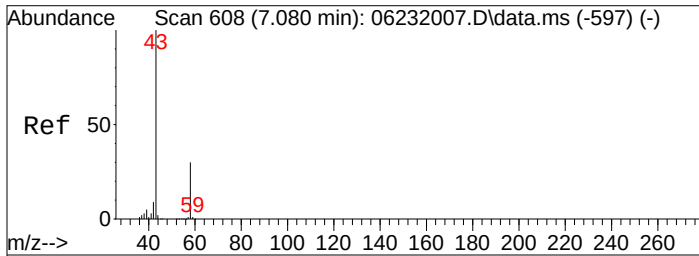
Tgt Ion: 41 Resp: 36550
Ion Ratio Lower Upper
41 100
40 57.0 34.7 74.7



#12
Acrolein
Concen: 0.58 ng
RT: 6.89 min Scan# 575
Delta R.T. 0.017 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

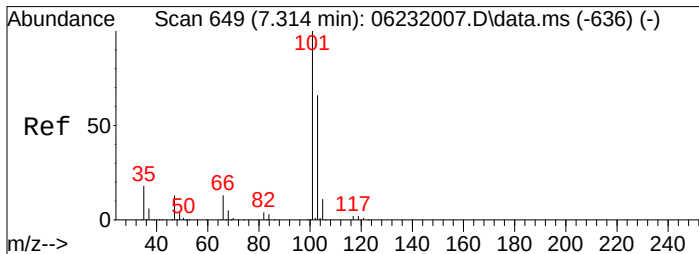
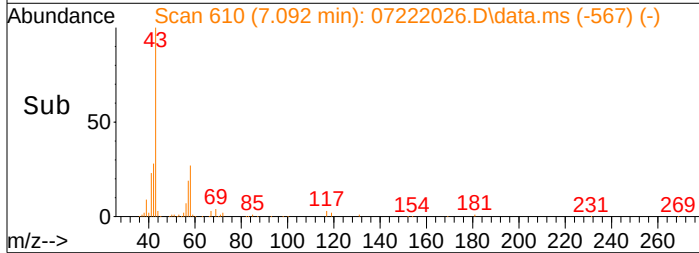
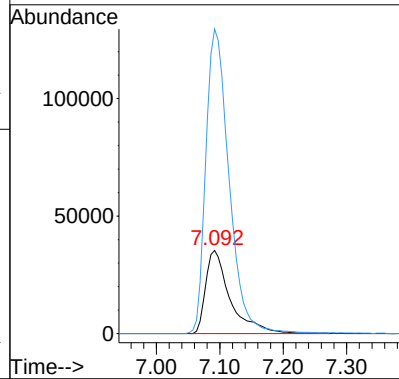
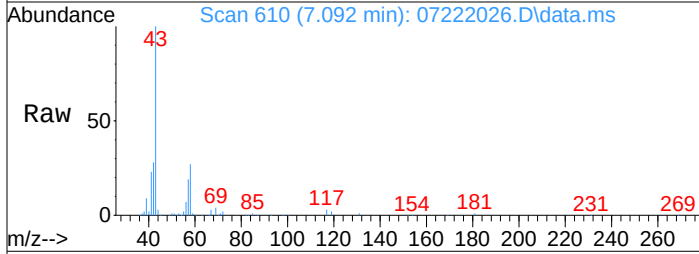
Tgt Ion: 56 Resp: 4935
Ion Ratio Lower Upper
56 100
55 64.5 50.7 90.7





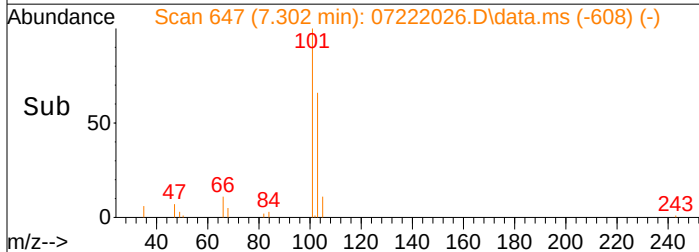
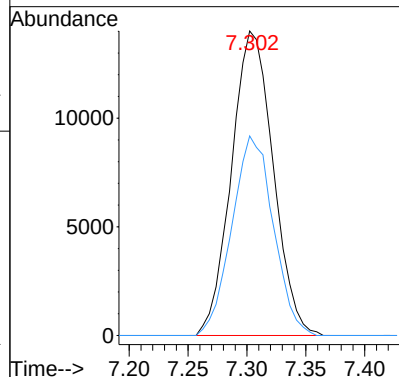
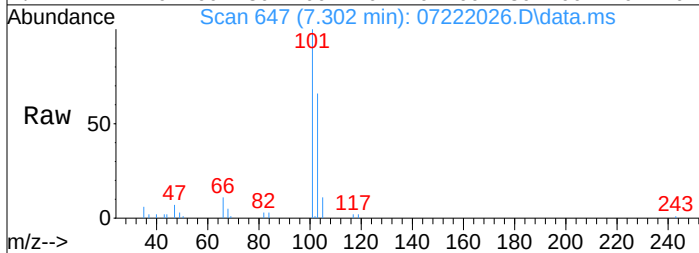
#13
Acetone
Concen: 8.13 ng
RT: 7.09 min Scan# 610
Delta R.T. -0.006 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

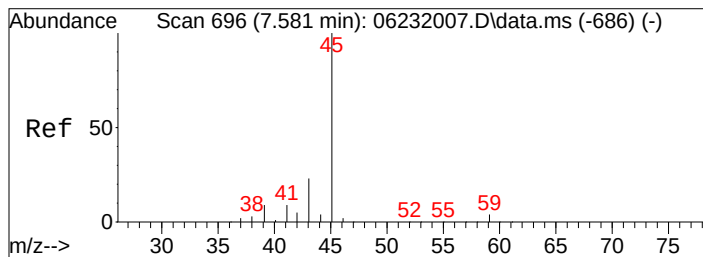
Tgt Ion: 58 Resp: 95734
Ion Ratio Lower Upper
58 100
43 346.6 311.1 371.1



#14
Trichlorofluoromethane
Concen: 1.16 ng
RT: 7.30 min Scan# 647
Delta R.T. -0.028 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

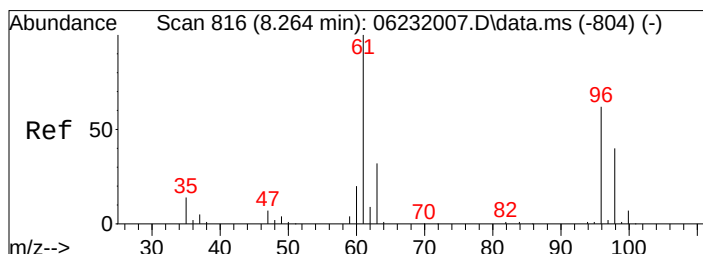
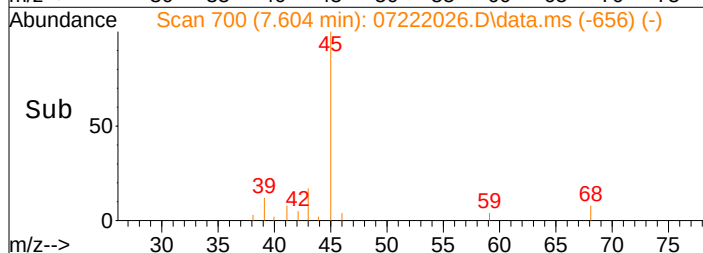
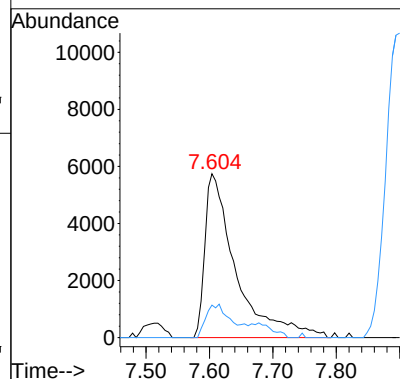
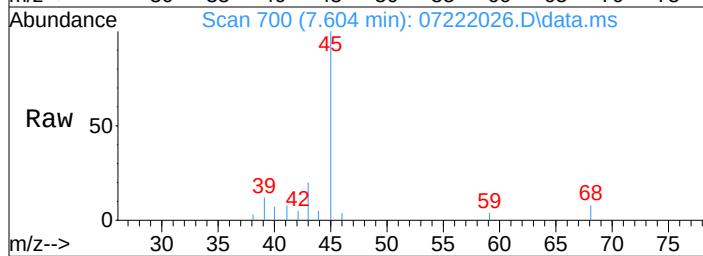
Tgt Ion: 101 Resp: 34580
Ion Ratio Lower Upper
101 100
103 65.0 45.2 85.2





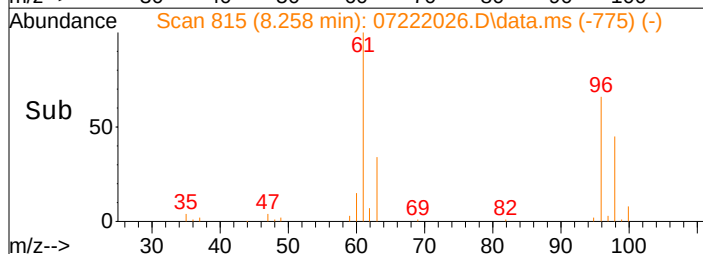
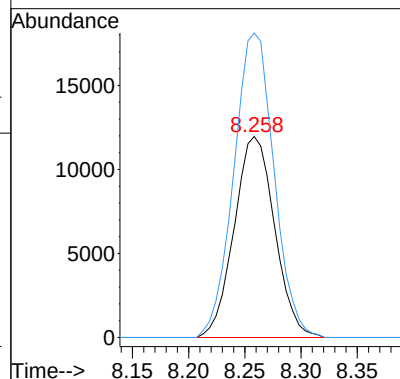
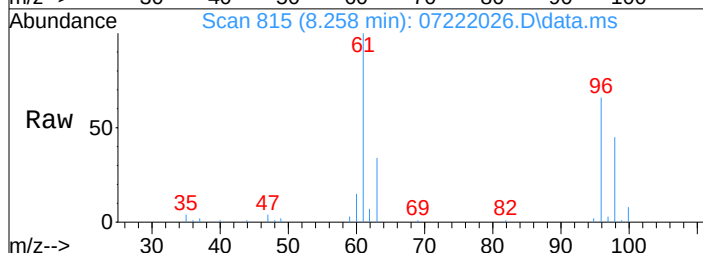
#15
2-Propanol (Isopropanol)
Concen: 0.54 ng
RT: 7.60 min Scan# 700
Delta R.T. 0.000 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

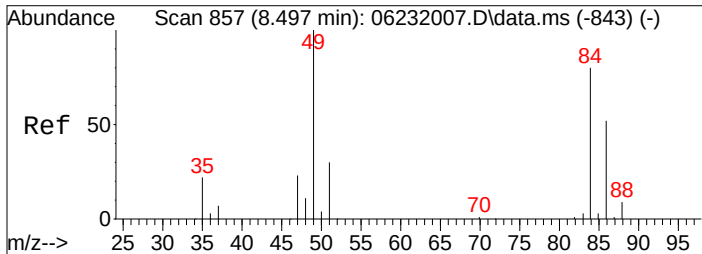
Tgt Ion: 45 Resp: 19495
Ion Ratio Lower Upper
45 100
43 23.2 2.8 42.8



#17
1,1-Dichloroethene
Concen: 2.02 ng
RT: 8.26 min Scan# 815
Delta R.T. -0.023 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

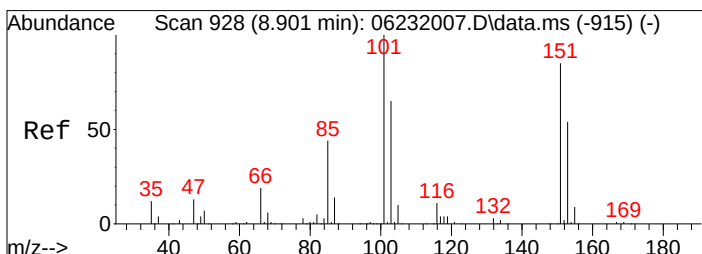
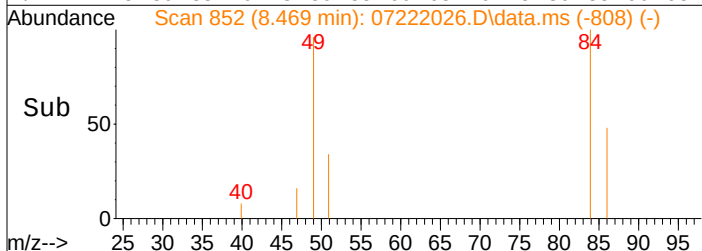
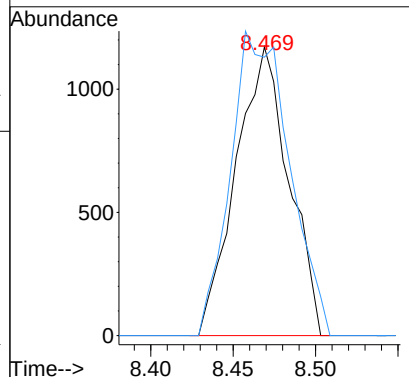
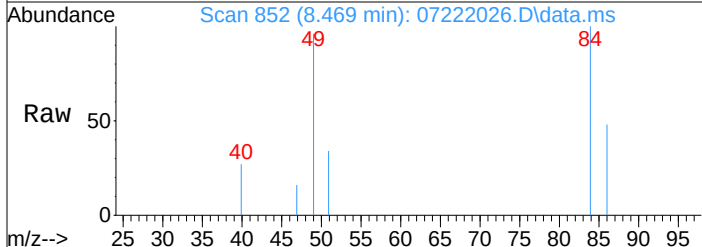
Tgt Ion: 96 Resp: 29990
Ion Ratio Lower Upper
96 100
61 150.8 140.0 180.0





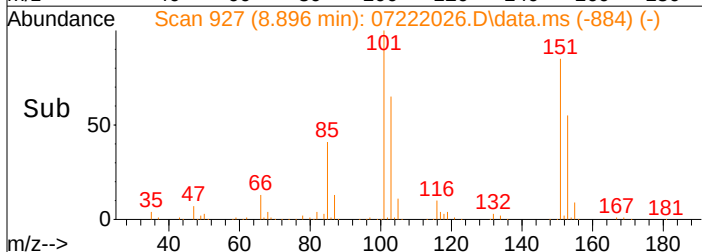
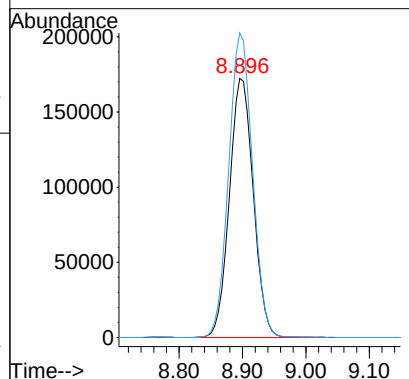
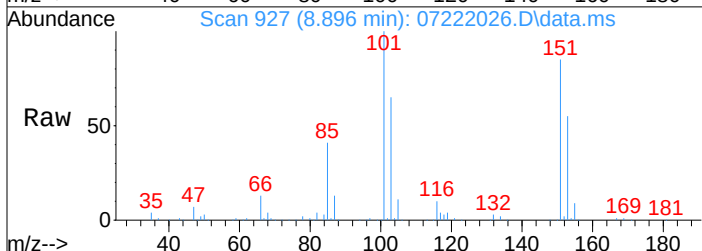
#19
Methylene Chloride
Concen: 0.17 ng
RT: 8.47 min Scan# 852
Delta R.T. 0.000 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

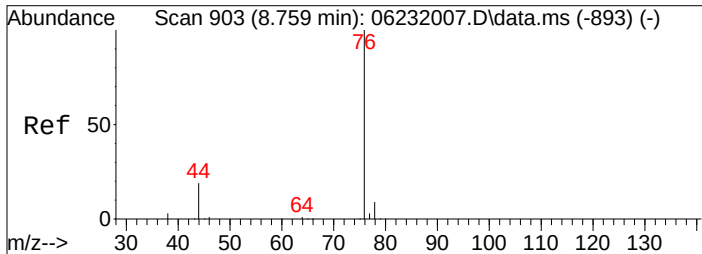
Tgt Ion: 84 Resp: 2616
Ion Ratio Lower Upper
84 100
49 116.6 102.1 152.1



#21
Trichlorotrifluoroethane
Concen: 30.97 ng
RT: 8.90 min Scan# 927
Delta R.T. -0.006 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

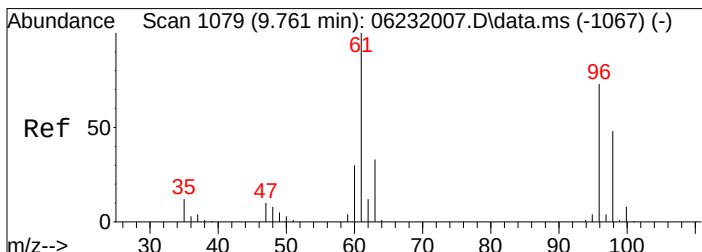
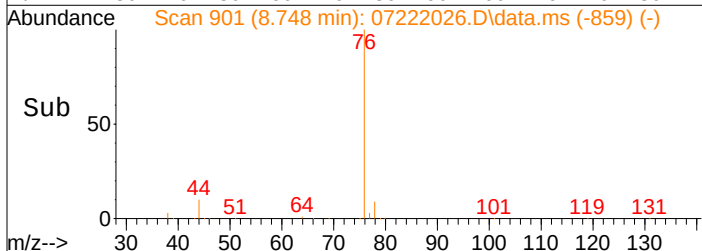
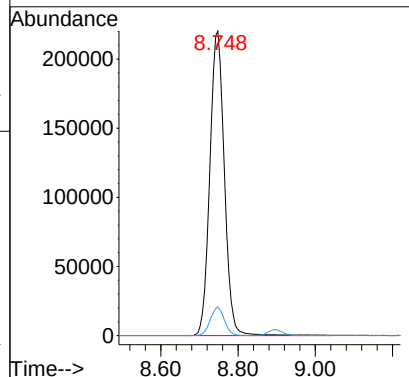
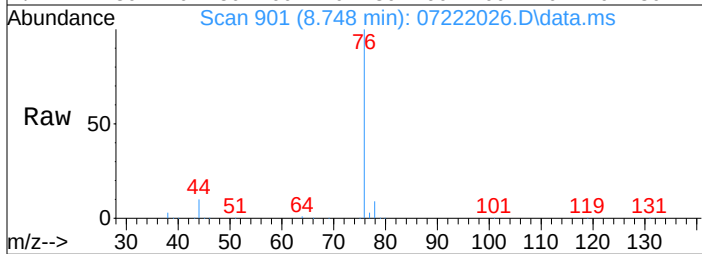
Tgt Ion: 151 Resp: 451401
Ion Ratio Lower Upper
151 100
101 117.3 96.6 136.6





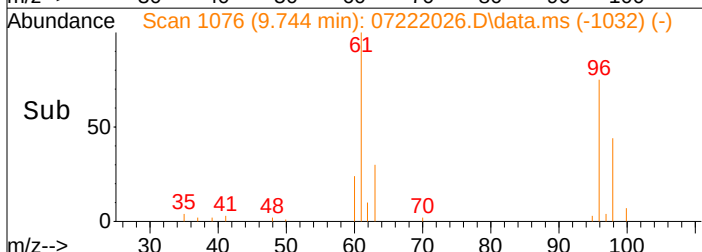
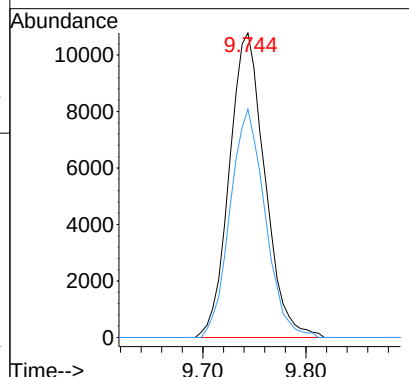
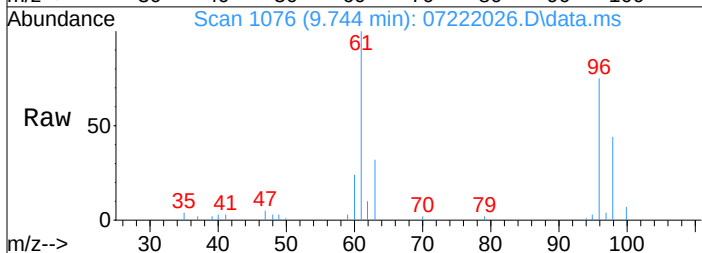
#22
Carbon Disulfide
Concen: 9.76 ng
RT: 8.75 min Scan# 901
Delta R.T. -0.011 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

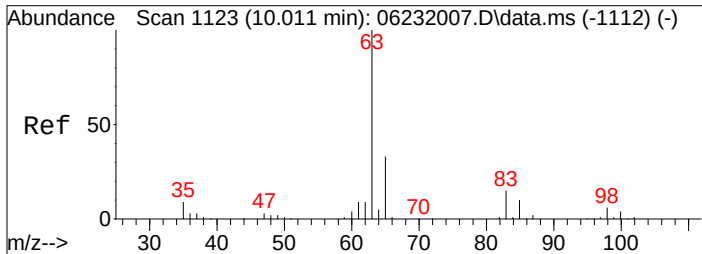
Tgt Ion: 76 Resp: 575348
Ion Ratio Lower Upper
76 100
78 9.1 0.0 29.3



#23
trans-1,2-Dichloroethene
Concen: 1.29 ng
RT: 9.74 min Scan# 1076
Delta R.T. 0.000 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

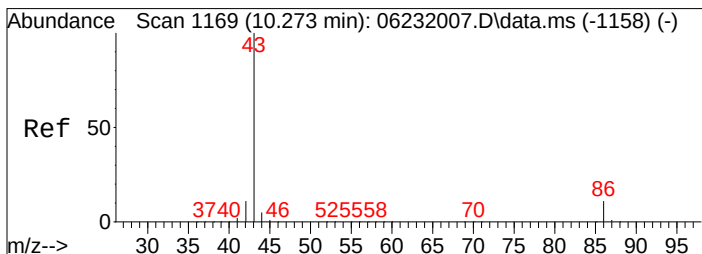
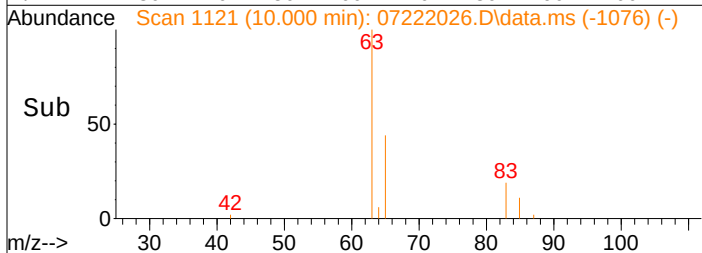
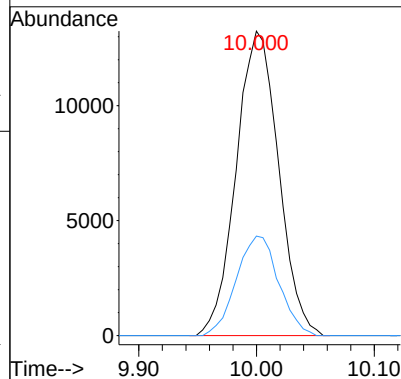
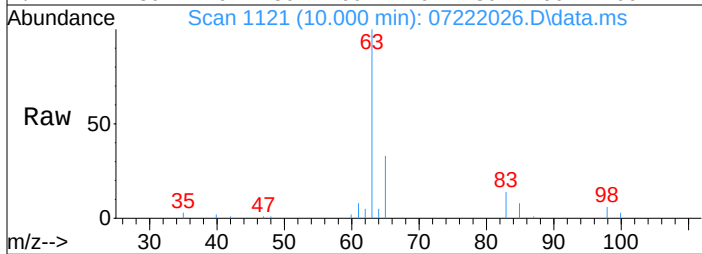
Tgt Ion: 61 Resp: 25789
Ion Ratio Lower Upper
61 100
96 74.0 54.6 94.6





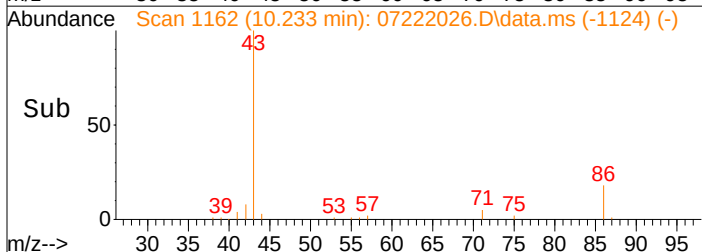
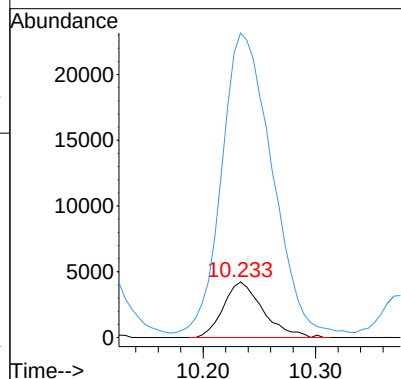
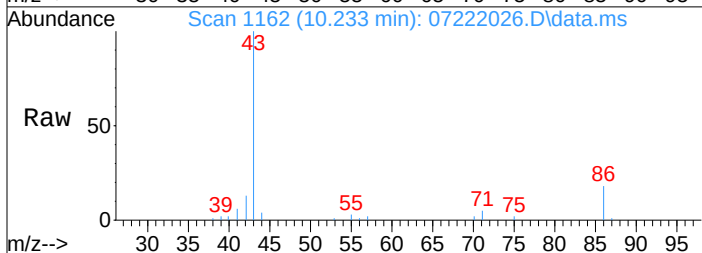
#24
1,1-Dichloroethane
Concen: 1.34 ng
RT: 10.00 min Scan# 1121
Delta R.T. 0.006 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

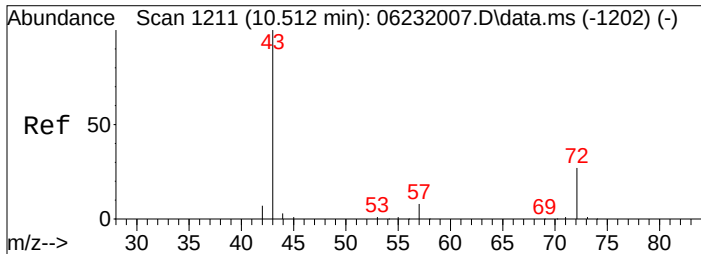
Tgt Ion: 63 Resp: 33117
Ion Ratio Lower Upper
63 100
65 32.6 12.4 52.4



#26
Vinyl Acetate
Concen: 2.23 ng
RT: 10.23 min Scan# 1162
Delta R.T. -0.034 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

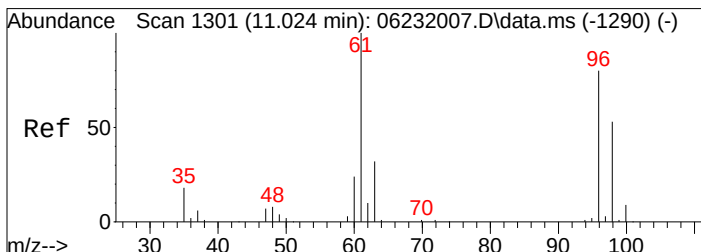
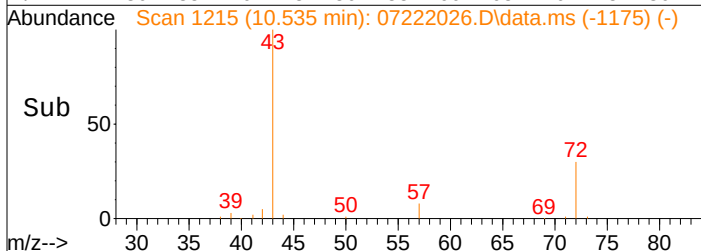
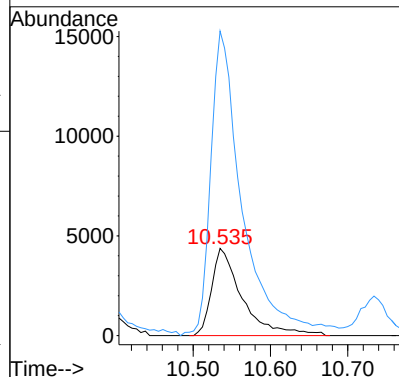
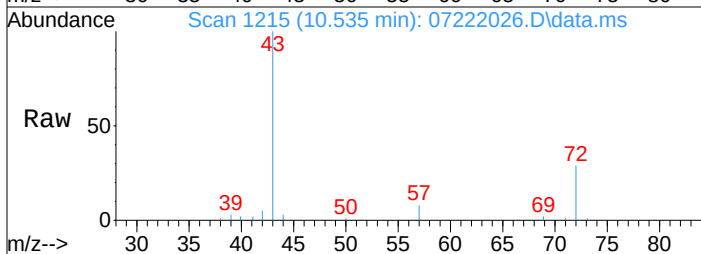
Tgt Ion: 86 Resp: 10314
Ion Ratio Lower Upper
86 100
43 710.5 912.3 952.3#





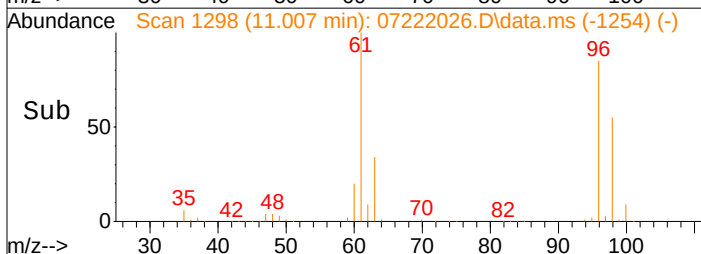
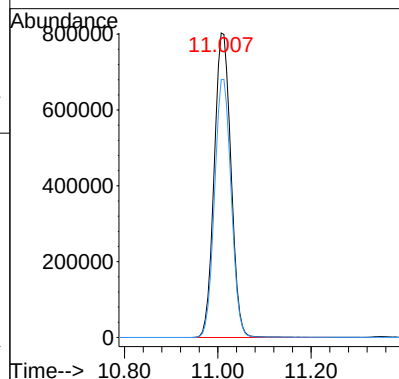
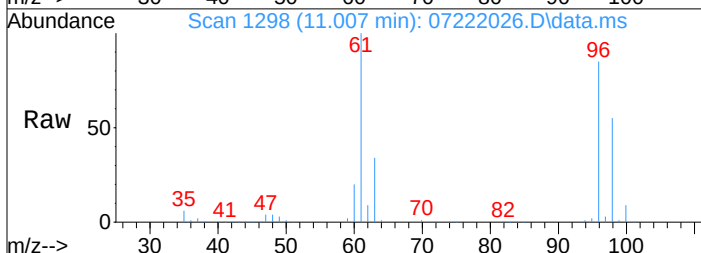
#27
2-Butanone (MEK)
Concen: 1.12 ng
RT: 10.53 min Scan# 1215
Delta R.T. -0.022 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

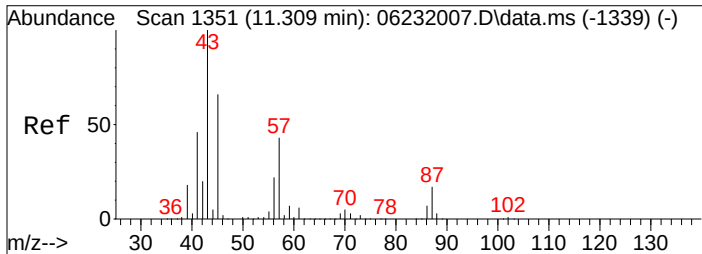
Tgt Ion: 72 Resp: 12060
Ion Ratio Lower Upper
72 100
43 364.1 357.5 397.5



#28
cis-1,2-Dichloroethene
Concen: 99.94 ng
RT: 11.01 min Scan# 1298
Delta R.T. 0.000 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

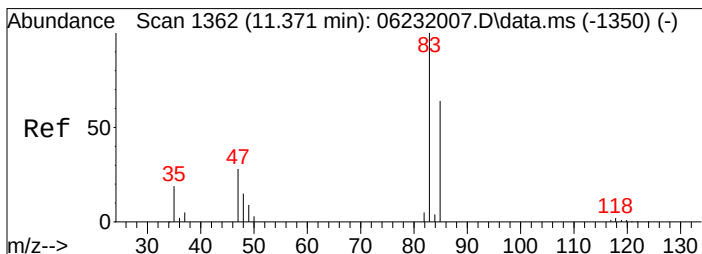
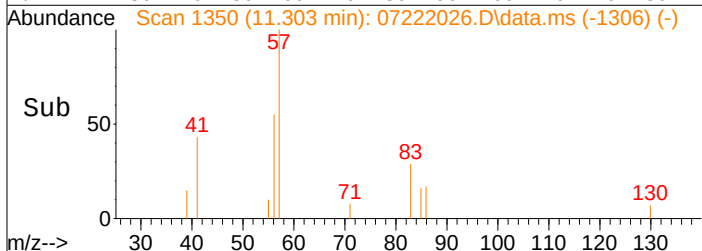
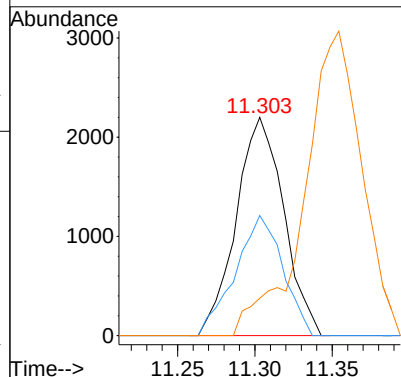
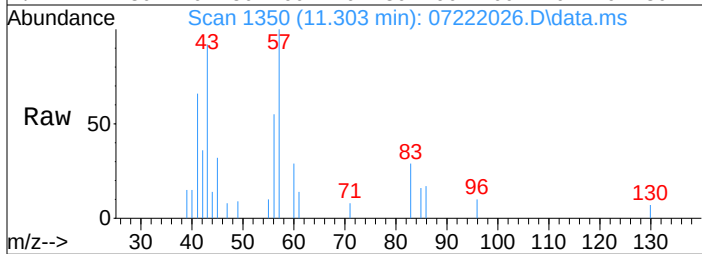
Tgt Ion: 61 Resp: 2002358
Ion Ratio Lower Upper
61 100
96 84.1 61.1 101.1





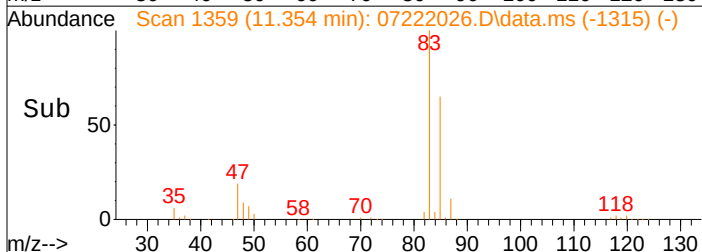
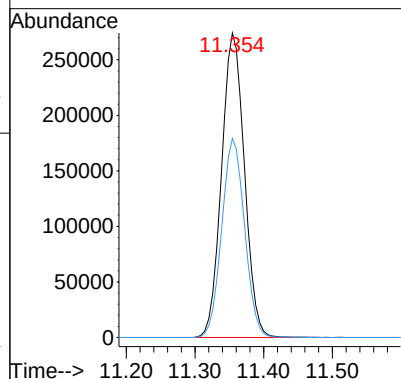
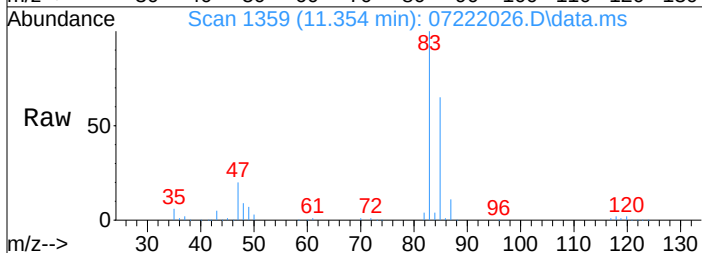
#31
 n-Hexane
 Concen: 0.19 ng
 RT: 11.30 min Scan# 1350
 Delta R.T. 0.000 min
 Lab File: 07222026.D
 Acq: 23 Jul 2020 6:26

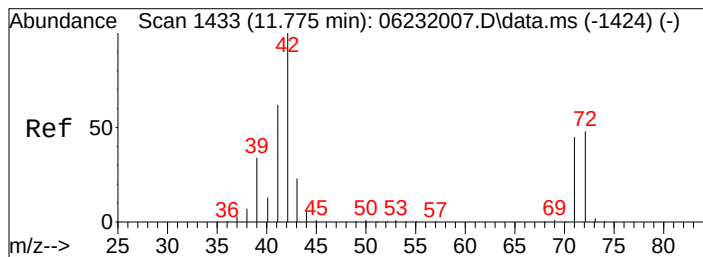
Tgt Ion:	57	Resp:	4719
Ion Ratio	Lower	Upper	
57	100		
56	54.8	41.7	62.5
86	166.0	14.1	21.1#



#32
 Chloroform
 Concen: 23.09 ng
 RT: 11.35 min Scan# 1359
 Delta R.T. 0.000 min
 Lab File: 07222026.D
 Acq: 23 Jul 2020 6:26

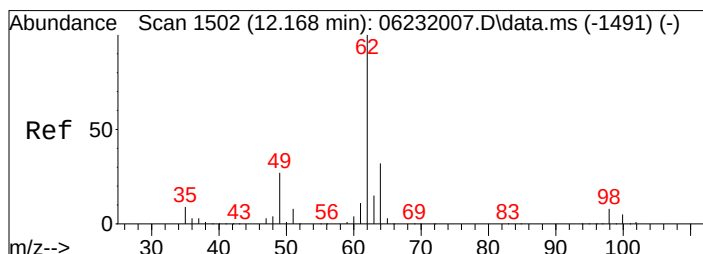
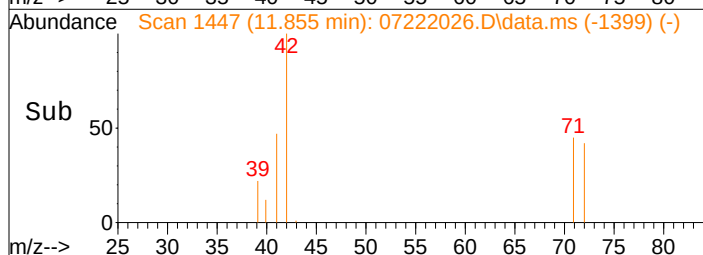
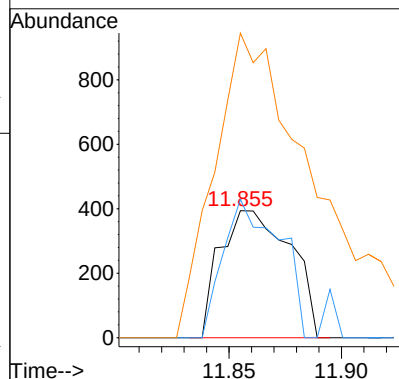
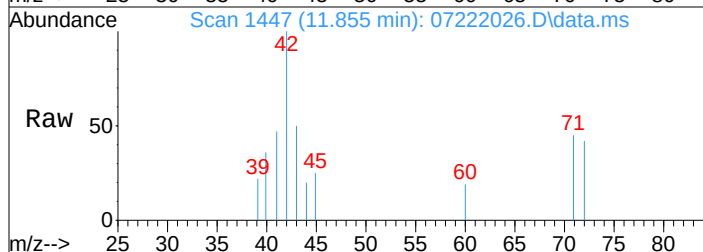
Tgt Ion:	83	Resp:	633233
Ion Ratio	Lower	Upper	
83	100		
85	65.3	46.3	86.3





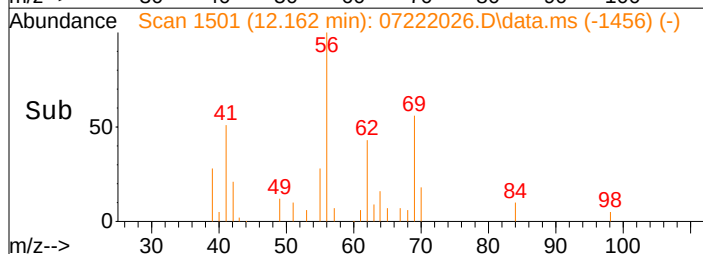
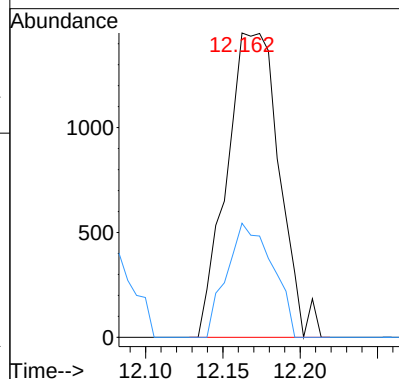
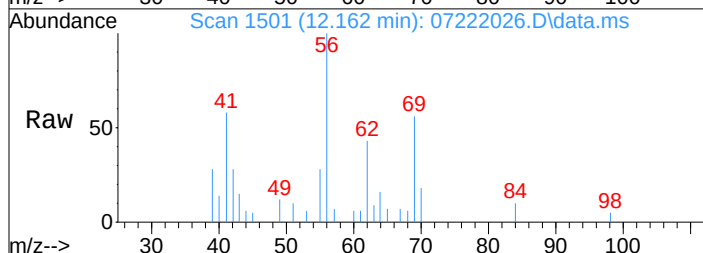
#34
Tetrahydrofuran (THF)
Concen: 0.09 ng
RT: 11.86 min Scan# 1447
Delta R.T. 0.023 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

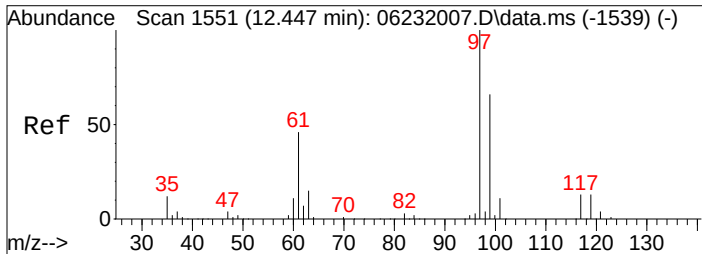
Tgt Ion: 72 Resp: 859
Ion Ratio Lower Upper
72 100
71 87.8 76.2 116.2
42 337.6 189.4 229.4#



#36
1,2-Dichloroethane
Concen: 0.16 ng
RT: 12.16 min Scan# 1501
Delta R.T. 0.006 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

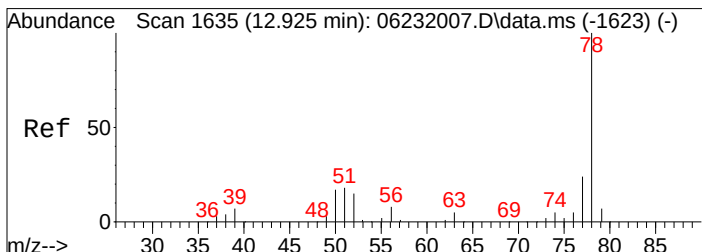
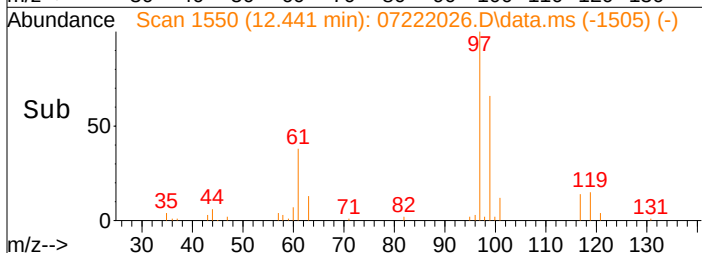
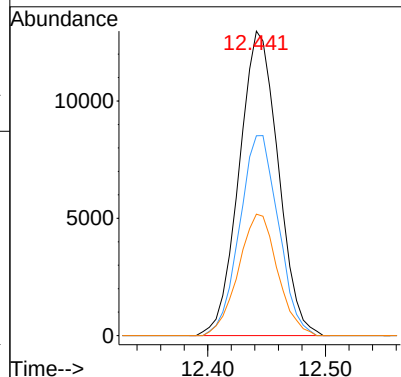
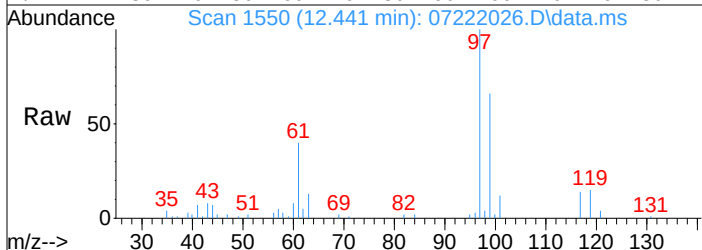
Tgt Ion: 62 Resp: 3442
Ion Ratio Lower Upper
62 100
64 32.6 12.4 52.4





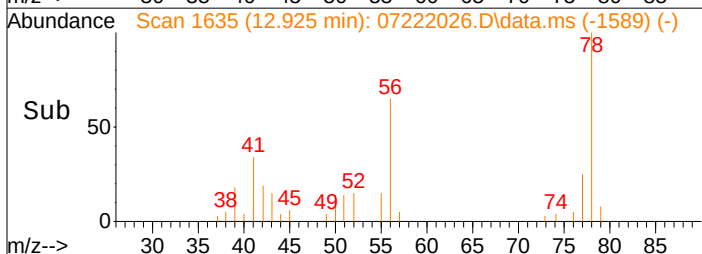
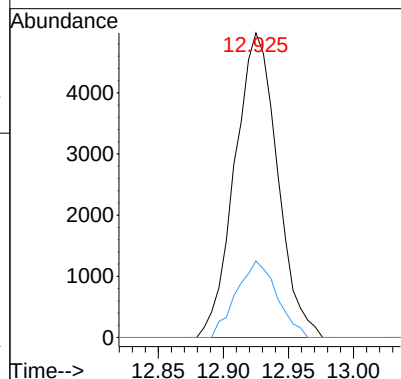
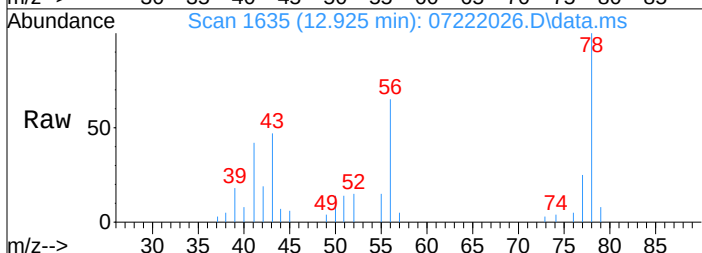
#38
 1,1,1-Trichloroethane
 Concen: 1.19 ng
 RT: 12.44 min Scan# 1550
 Delta R.T. 0.006 min
 Lab File: 07222026.D
 Acq: 23 Jul 2020 6:26

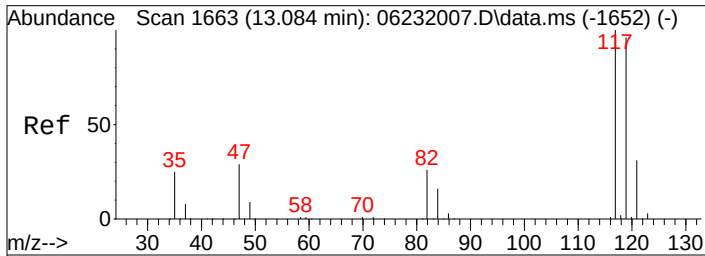
Tgt Ion:	97	Resp:	29936
Ion Ratio		Lower	Upper
97	100		
99	65.1	45.3	85.3
61	40.0	26.2	66.2



#41
 Benzene
 Concen: 0.18 ng
 RT: 12.92 min Scan# 1635
 Delta R.T. 0.011 min
 Lab File: 07222026.D
 Acq: 23 Jul 2020 6:26

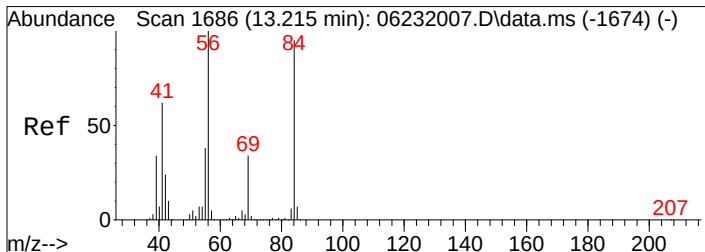
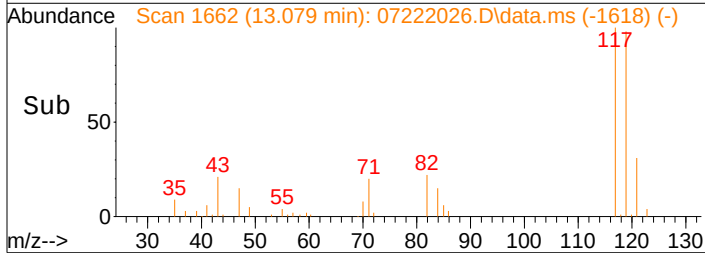
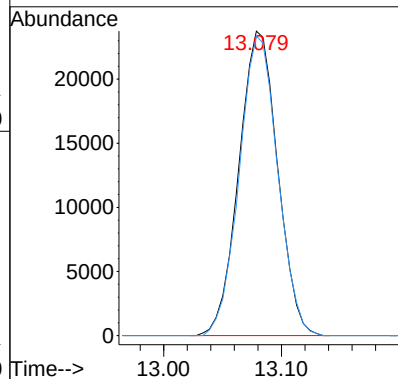
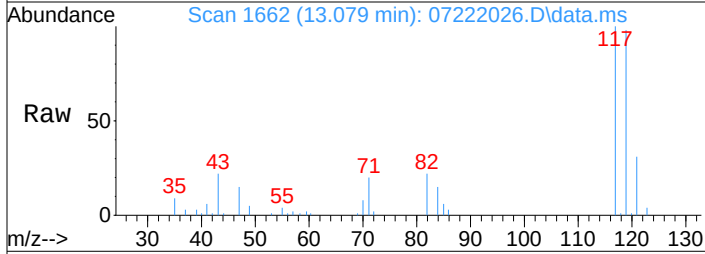
Tgt Ion:	78	Resp:	11341
Ion Ratio		Lower	Upper
78	100		
77	24.0	4.2	44.2





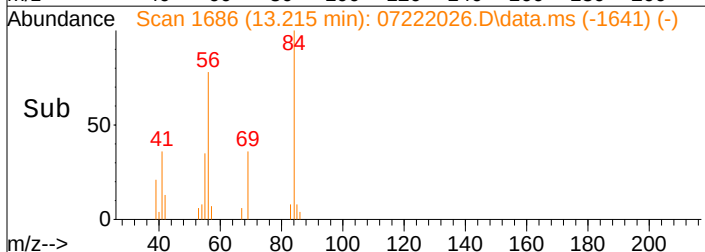
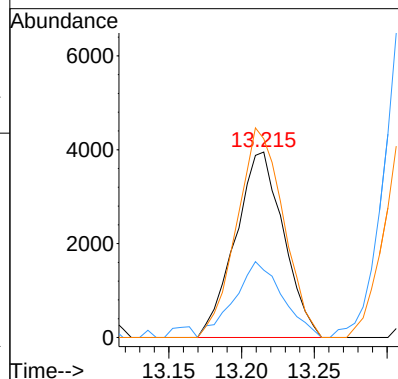
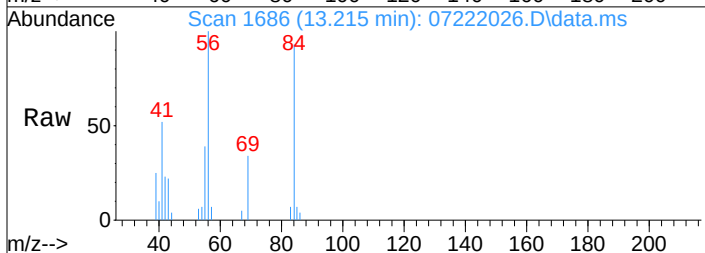
#42
Carbon Tetrachloride
Concen: 2.26 ng
RT: 13.08 min Scan# 1662
Delta R.T. 0.000 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

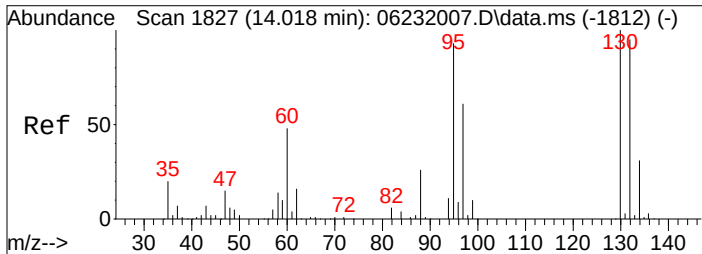
Tgt Ion: 117 Resp: 54384
Ion Ratio Lower Upper
117 100
119 97.5 75.7 115.7



#43
Cyclohexane
Concen: 0.37 ng
RT: 13.22 min Scan# 1686
Delta R.T. 0.006 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

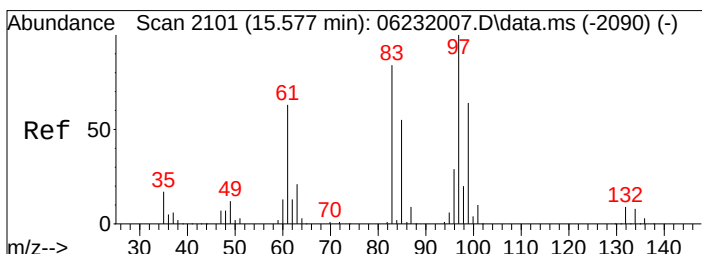
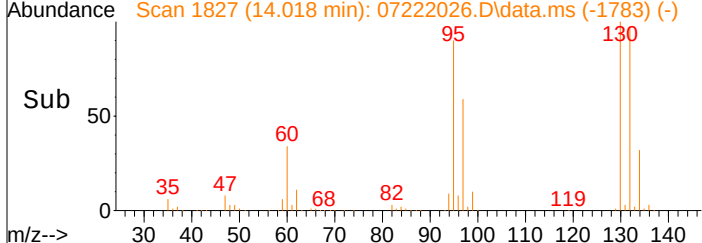
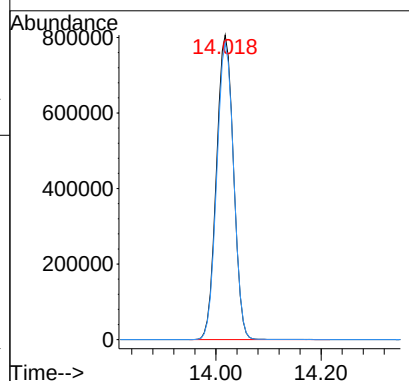
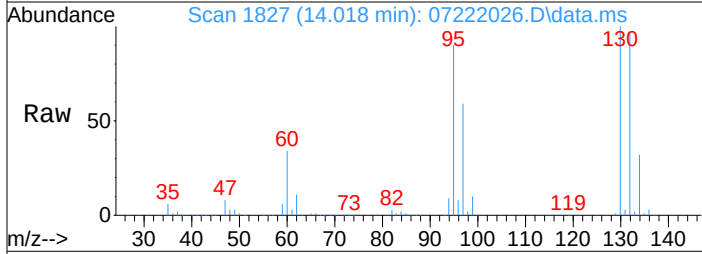
Tgt Ion: 84 Resp: 9092
Ion Ratio Lower Upper
84 100
69 40.9 15.0 55.0
56 109.3 84.9 124.9





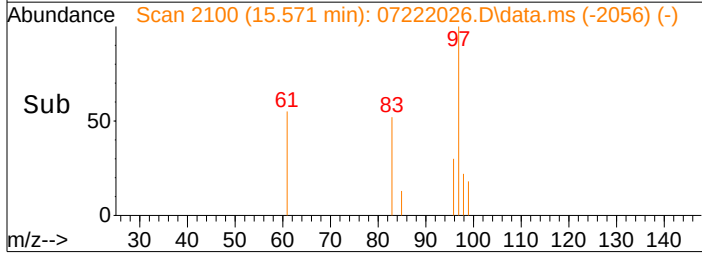
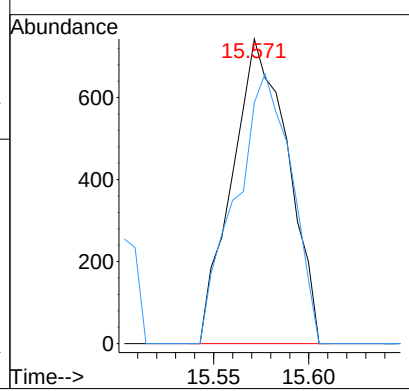
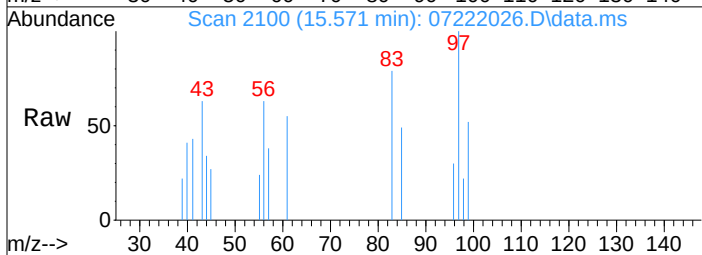
#47
 Trichloroethene
 Concen: 99.30 ng
 RT: 14.02 min Scan# 1827
 Delta R.T. -0.000 min
 Lab File: 07222026.D
 Acq: 23 Jul 2020 6:26

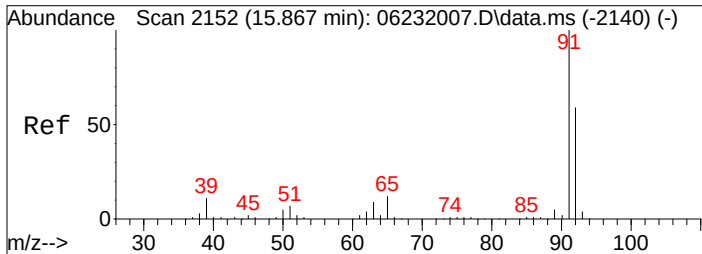
Tgt Ion: 130	Resp: 1808651
Ion Ratio	Lower Upper
130	100
132	96.8 75.5 115.5



#55
 1,1,2-Trichloroethane
 Concen: 0.10 ng
 RT: 15.57 min Scan# 2100
 Delta R.T. 0.000 min
 Lab File: 07222026.D
 Acq: 23 Jul 2020 6:26

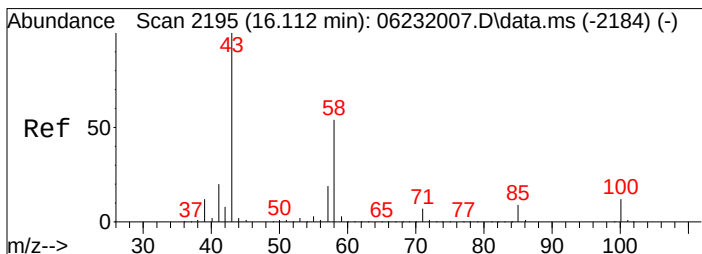
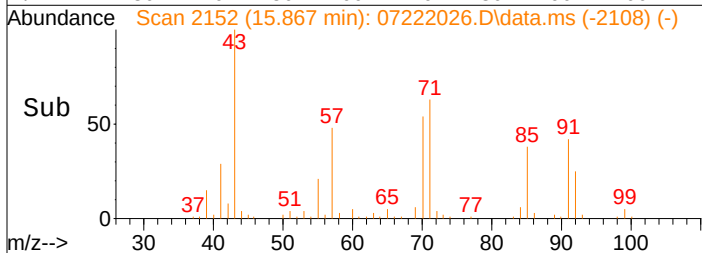
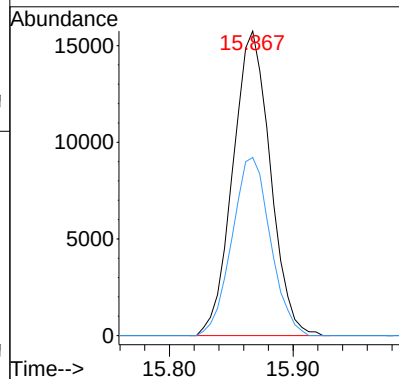
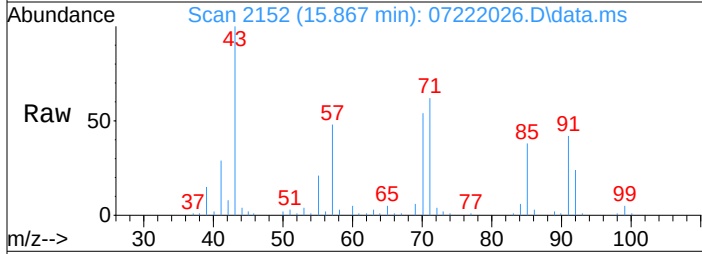
Tgt Ion: 97	Resp: 1513
Ion Ratio	Lower Upper
97	100
83	89.2 64.5 104.5





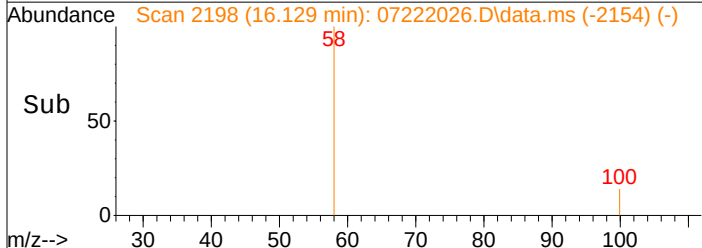
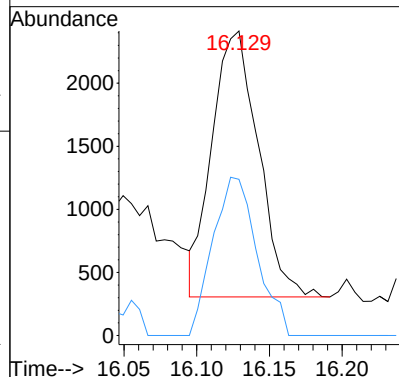
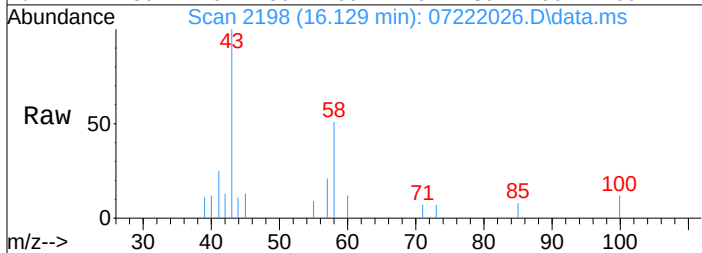
#58
Toluene
Concen: 0.51 ng
RT: 15.87 min Scan# 2152
Delta R.T. 0.000 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

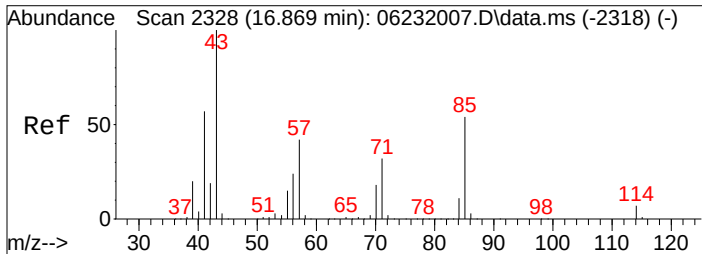
Tgt Ion: 91 Resp: 33178
Ion Ratio Lower Upper
91 100
92 59.9 39.0 79.0



#59
2-Hexanone
Concen: 0.14 ng
RT: 16.13 min Scan# 2198
Delta R.T. 0.000 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

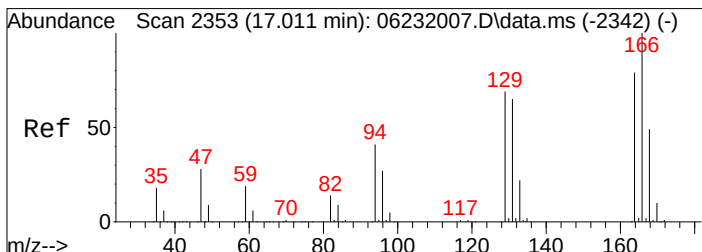
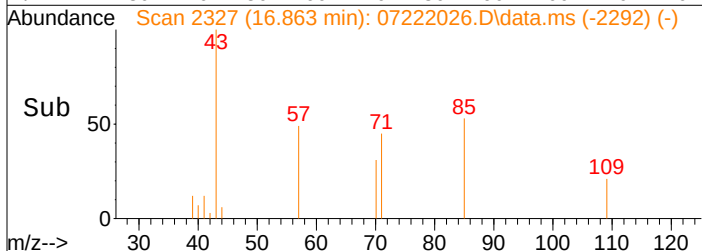
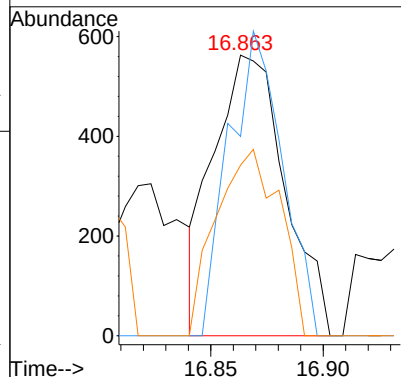
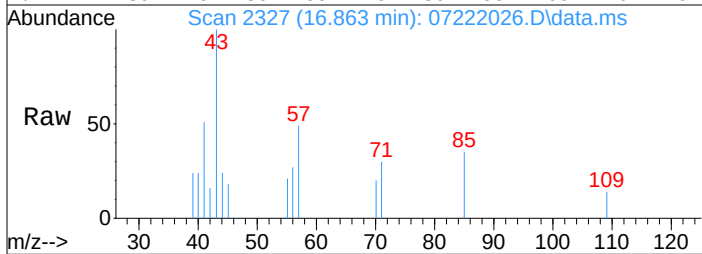
Tgt Ion: 43 Resp: 4675
Ion Ratio Lower Upper
43 100
58 56.6 32.7 72.7





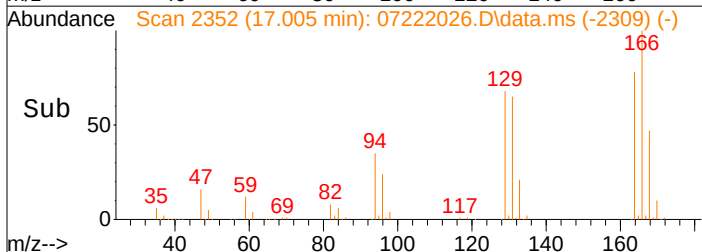
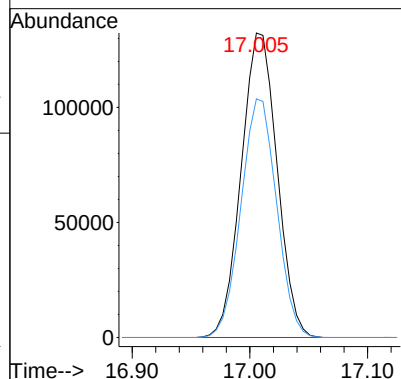
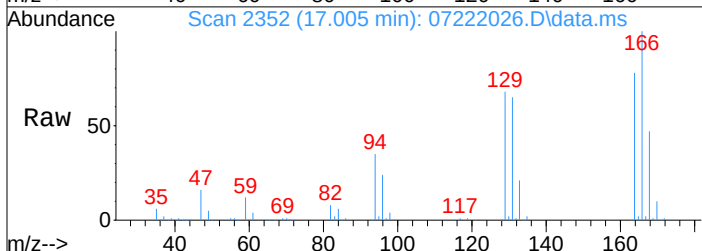
#63
n-Octane
Concen: 0.10 ng
RT: 16.86 min Scan# 2327
Delta R.T. 0.000 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

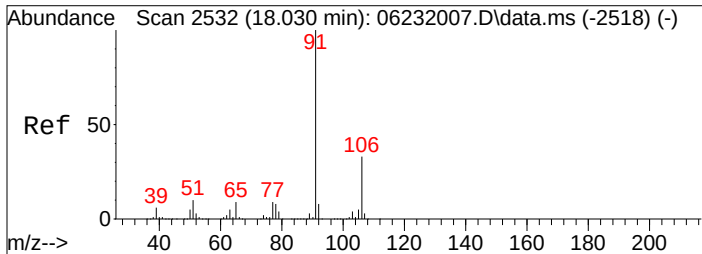
Tgt Ion:	57	Resp:	1249
Ion Ratio		Lower	Upper
57	100		
85	81.3	101.7	152.5#
71	59.1	60.0	90.0#



#64
Tetrachloroethene
Concen: 13.34 ng
RT: 17.01 min Scan# 2352
Delta R.T. -0.006 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

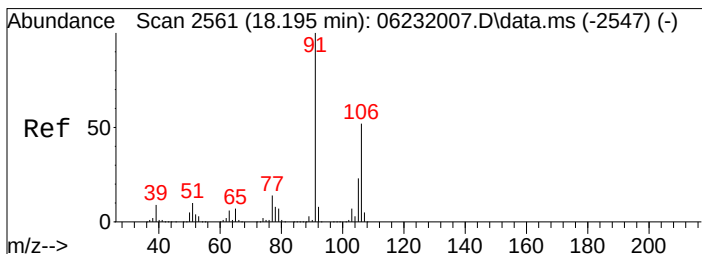
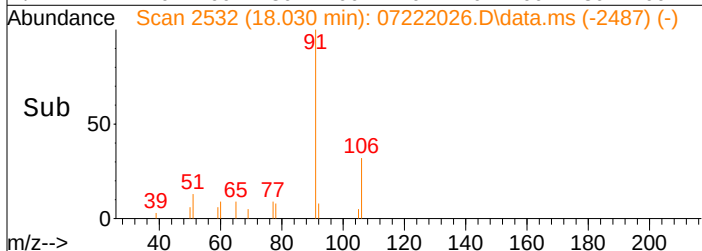
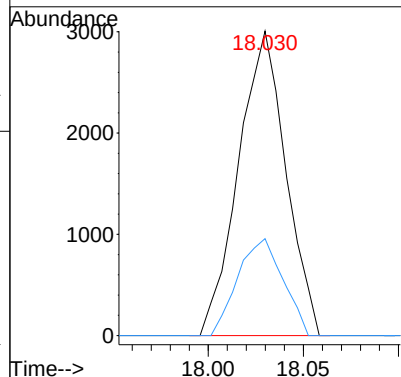
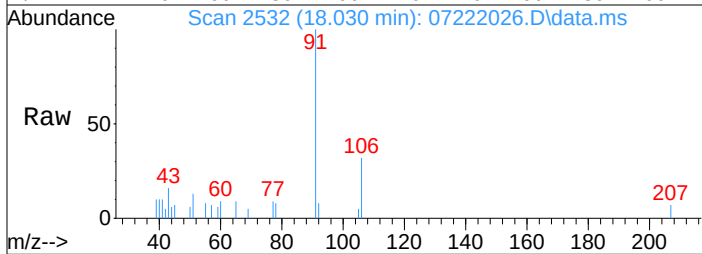
Tgt Ion:	166	Resp:	280442
Ion Ratio		Lower	Upper
166	100		
164	77.9	58.6	98.6





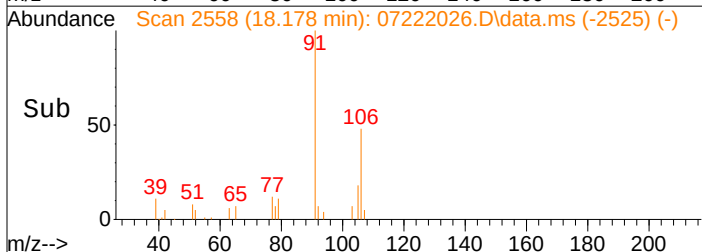
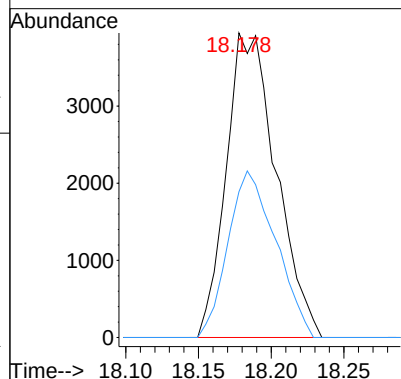
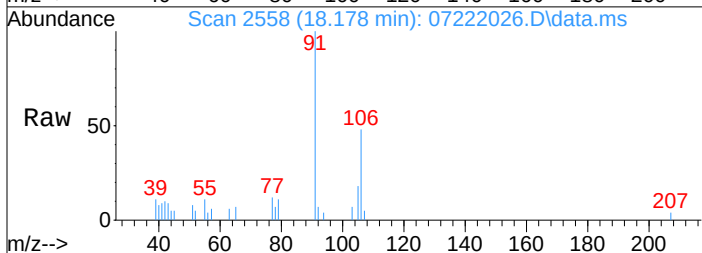
#66
Ethylbenzene
Concen: 0.07 ng
RT: 18.03 min Scan# 2532
Delta R.T. 0.006 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

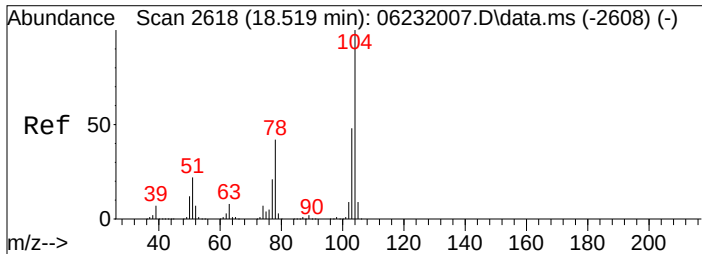
Tgt Ion:	91	Resp:	5200
Ion Ratio	Lower	Upper	
91	100		
106	30.5	12.6	52.6



#67
m- & p-Xylenes
Concen: 0.16 ng
RT: 18.18 min Scan# 2558
Delta R.T. -0.011 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

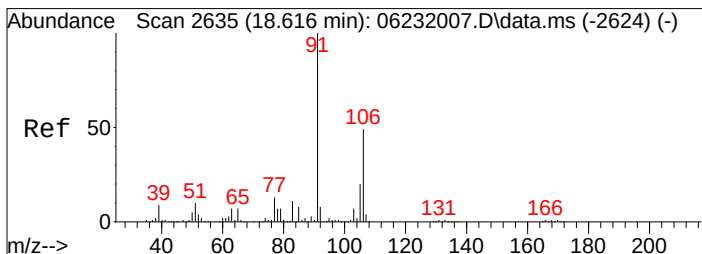
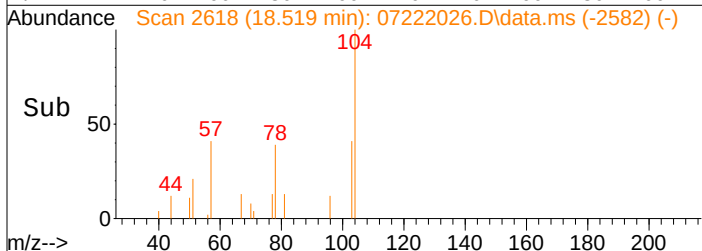
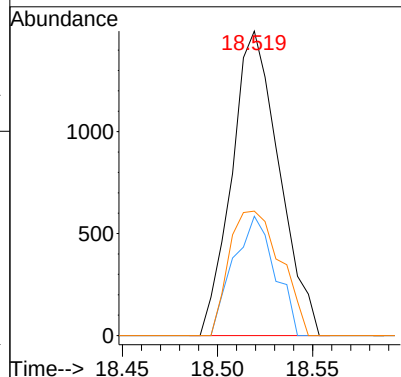
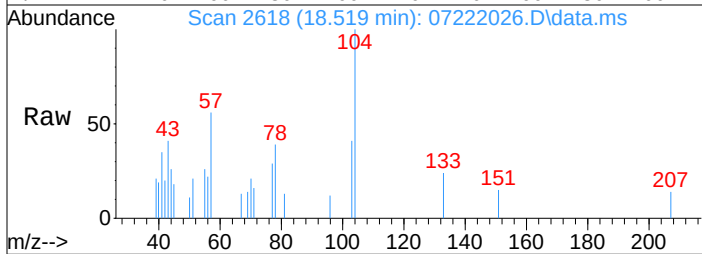
Tgt Ion:	91	Resp:	9395
Ion Ratio	Lower	Upper	
91	100		
106	52.4	31.3	71.3





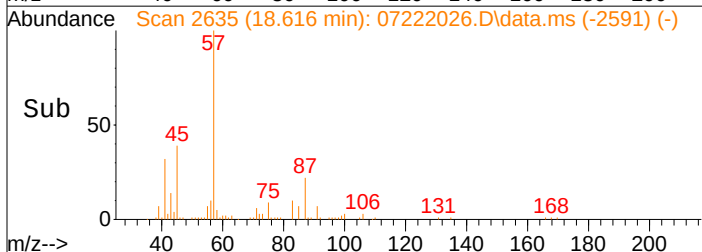
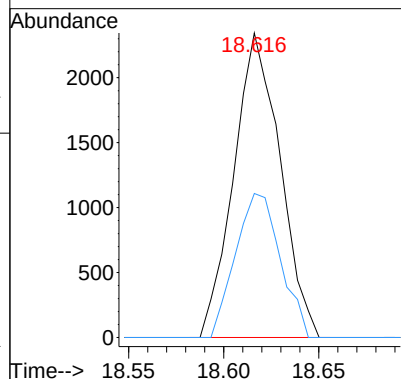
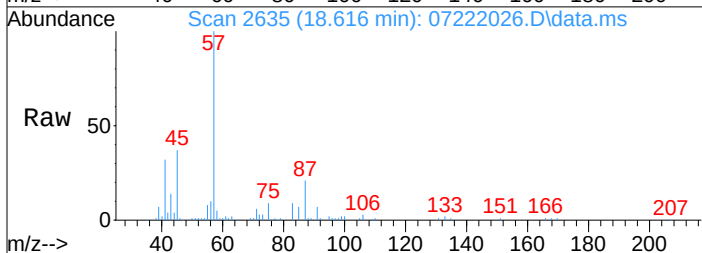
#69
Styrene
Concen: 0.06 ng
RT: 18.52 min Scan# 2618
Delta R.T. 0.006 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

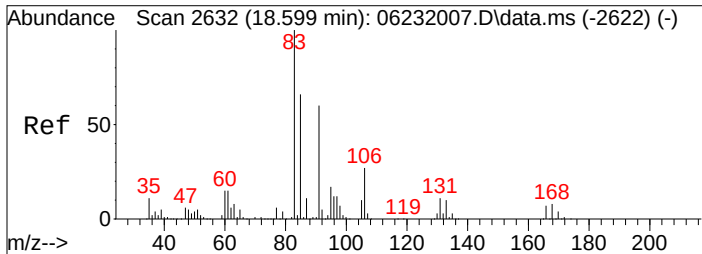
Tgt Ion:	104	Resp:	2589
Ion Ratio		Lower	Upper
104	100		
78	34.3	22.5	62.5
103	44.3	27.9	67.9



#70
o-Xylene
Concen: 0.07 ng
RT: 18.62 min Scan# 2635
Delta R.T. 0.000 min
Lab File: 07222026.D
Acq: 23 Jul 2020 6:26

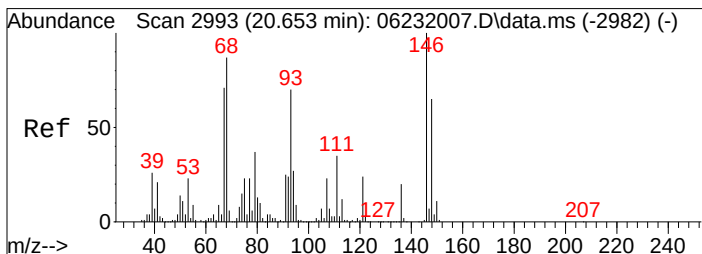
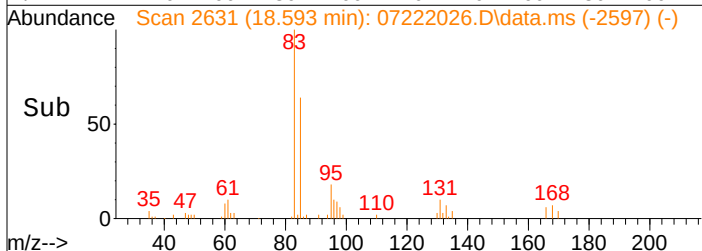
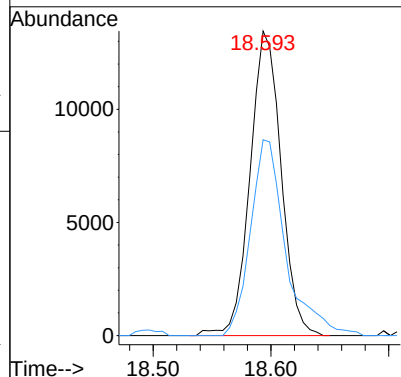
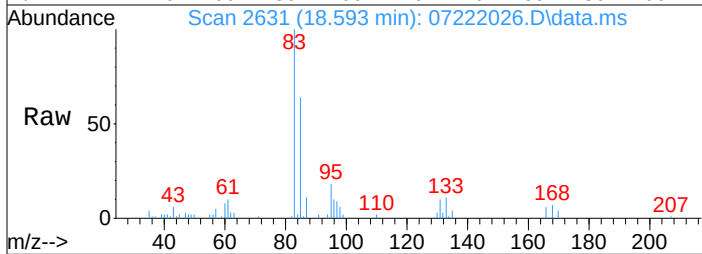
Tgt Ion:	91	Resp:	3962
Ion Ratio		Lower	Upper
91	100		
106	45.9	28.7	68.7





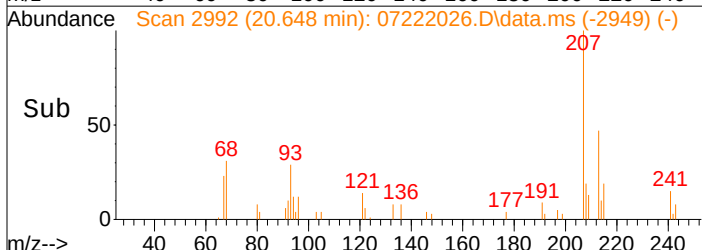
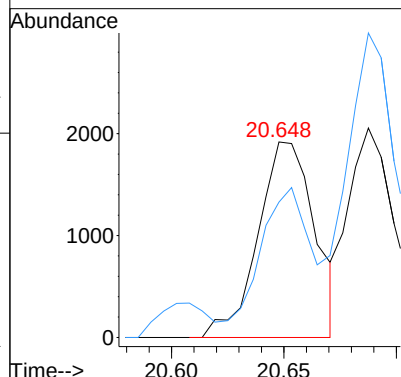
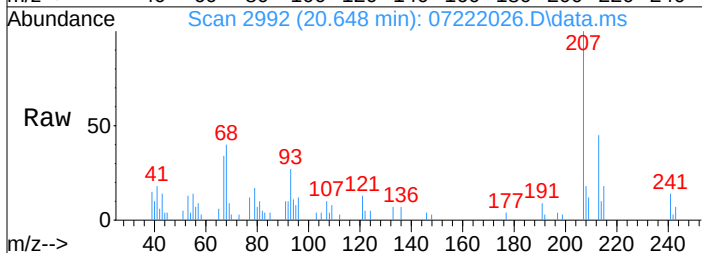
#72
 1,1,2,2-Tetrachloroethane
 Concen: 0.88 ng
 RT: 18.59 min Scan# 2631
 Delta R.T. -0.006 min
 Lab File: 07222026.D
 Acq: 23 Jul 2020 6:26

Tgt Ion: 83 Resp: 24704
 Ion Ratio Lower Upper
 83 100
 85 73.0 45.5 85.5



#91
 d-Limonene
 Concen: 0.14 ng
 RT: 20.65 min Scan# 2992
 Delta R.T. -0.006 min
 Lab File: 07222026.D
 Acq: 23 Jul 2020 6:26

Tgt Ion: 68 Resp: 3371
 Ion Ratio Lower Upper
 68 100
 93 68.0 59.6 99.6



Data File : I:\MS13\DATA\2020_07\22\07222003.D
 Acq On : 22 Jul 2020 16:37
 Sample : MB R13072220_1000mL
 Misc : S34-06182001/AC01837

Vial: 1
 Operator: WA
 Inst : MS13

Quant Time: Jul 22 18:02:55 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)

LH 7/22/20

QLast Update : Wed Jun 24 06:33:38 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.18	130	159558	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.31	114	700052	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.63	82	311052	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.04	65	210022	9.979	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	79.84%	
57) Toluene-d8 (SS2)	15.76	98	776734	12.349	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.80%	
73) Bromofluorobenzene (SS3)	19.02	174	249713	12.572	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	100.56%	

Target Compounds

						Qvalue
2) Propene	4.22	42	545	N.D.		
3) Dichlorodifluoromethan...	0.00	85	0	N.D.		
4) Chloromethane	0.00	50	0	N.D.		
5) 1,2-Dichloro-1,1,2,2-t...	0.00	135	0	N.D.		
6) Vinyl Chloride	0.00	62	0	N.D.		
7) 1,3-Butadiene	0.00	54	0	N.D.		
8) Bromomethane	0.00	94	0	N.D.		
9) Chloroethane	0.00	64	0	N.D.		
10) Ethanol	0.00	45	0	N.D.	d	
11) Acetonitrile	0.00	41	0	N.D.		
12) Acrolein	0.00	56	0	N.D.		
13) Acetone	7.17	58	1321	0.114	ng	100
14) Trichlorofluoromethane	0.00	101	0	N.D.		
15) 2-Propanol (Isopropanol)	7.70	45	1233	N.D.		
16) Acrylonitrile	0.00	53	0	N.D.		
17) 1,1-Dichloroethene	0.00	96	0	N.D.		
18) 2-Methyl-2-Propanol (t...	0.00	59	0	N.D.		
19) Methylene Chloride	0.00	84	0	N.D.		
20) 3-Chloro-1-propene (Al...	0.00	41	0	N.D.		
21) Trichlorotrifluoroethane	0.00	151	0	N.D.		
22) Carbon Disulfide	8.77	76	3267	0.056	ng	# 74
23) trans-1,2-Dichloroethene	0.00	61	0	N.D.		
24) 1,1-Dichloroethane	0.00	63	0	N.D.		
25) Methyl tert-Butyl Ether	0.00	73	0	N.D.		
26) Vinyl Acetate	0.00	86	0	N.D.		
27) 2-Butanone (MEK)	0.00	72	0	N.D.		
28) cis-1,2-Dichloroethene	0.00	61	0	N.D.		
29) Diisopropyl Ether	0.00	87	0	N.D.		
30) Ethyl Acetate	0.00	61	0	N.D.		
31) n-Hexane	0.00	57	0	N.D.		
32) Chloroform	0.00	83	0	N.D.		
34) Tetrahydrofuran (THF)	0.00	72	0	N.D.		
35) Ethyl tert-Butyl Ether	0.00	87	0	N.D.		
36) 1,2-Dichloroethane	0.00	62	0	N.D.		
38) 1,1,1-Trichloroethane	0.00	97	0	N.D.		
39) Isopropyl Acetate	0.00	61	0	N.D.		
40) 1-Butanol	0.00	56	0	N.D.		
41) Benzene	12.93	78	120	N.D.		
42) Carbon Tetrachloride	0.00	117	0	N.D.		
43) Cyclohexane	13.31	84	193	N.D.		
44) tert-Amyl Methyl Ether	0.00	73	0	N.D.		
45) 1,2-Dichloropropane	0.00	63	0	N.D.		
46) Bromodichloromethane	0.00	83	0	N.D.		
47) Trichloroethene	0.00	130	0	N.D.		
48) 1,4-Dioxane	0.00	88	0	N.D.		
49) 2,2,4-Trimethylpentane...	0.00	57	0	N.D.		
50) Methyl Methacrylate	0.00	100	0	N.D.		

Data File : I:\MS13\DATA\2020_07\22\07222003.D
 Acq On : 22 Jul 2020 16:37
 Sample : MB R13072220_1000mL
 Misc : S34-06182001/AC01837

Vial: 1
 Operator: WA
 Inst : MS13

Quant Time: Jul 22 18:02:55 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)

QLast Update : Wed Jun 24 06:33:38 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

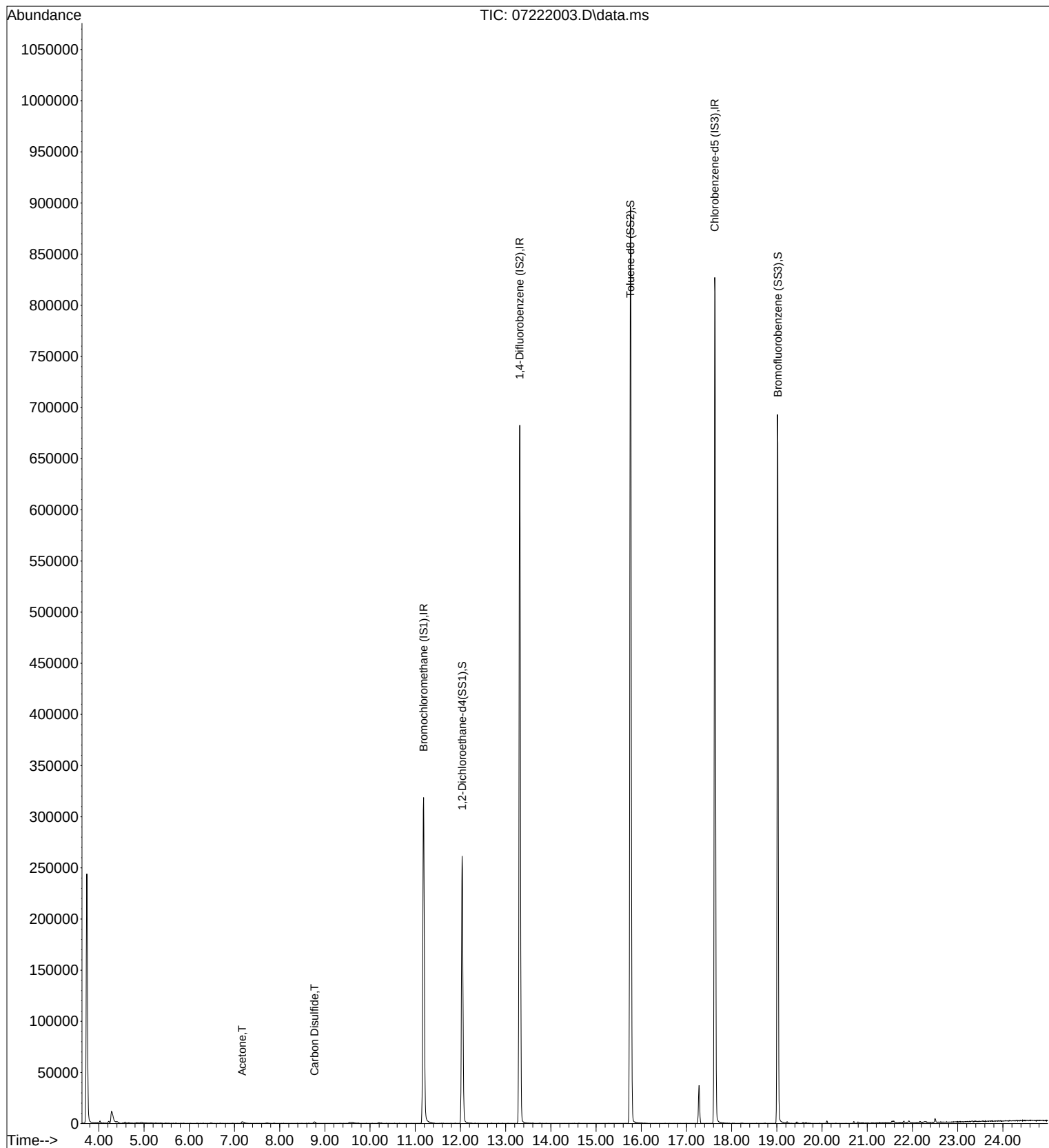
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	0.00	71	0	N.D.		
52) cis-1,3-Dichloropropene	0.00	75	0	N.D.		
53) 4-Methyl-2-pentanone	0.00	58	0	N.D.		
54) trans-1,3-Dichloropropene	0.00	75	0	N.D.		
55) 1,1,2-Trichloroethane	0.00	97	0	N.D.		
58) Toluene	0.00	91	0	N.D.		
59) 2-Hexanone	0.00	43	0	N.D.		
60) Dibromochloromethane	0.00	129	0	N.D.		
61) 1,2-Dibromoethane	0.00	107	0	N.D.		
62) n-Butyl Acetate	0.00	43	0	N.D.		
63) n-Octane	0.00	57	0	N.D.		
64) Tetrachloroethene	0.00	166	0	N.D.		
65) Chlorobenzene	0.00	112	0	N.D.		
66) Ethylbenzene	18.05	91	113	N.D.		
67) m- & p-Xylenes	18.21	91	243	N.D.		
68) Bromoform	0.00	173	0	N.D.		
69) Styrene	0.00	104	0	N.D.		
70) o-Xylene	0.00	91	0	N.D.		
71) n-Nonane	0.00	43	0	N.D.		
72) 1,1,2,2-Tetrachloroethane	0.00	83	0	N.D.		
74) Cumene	19.02	105	174	N.D.		
75) alpha-Pinene	0.00	93	0	N.D.		
76) n-Propylbenzene	19.57	91	1056	N.D.		
77) 3-Ethyltoluene	19.73	105	116	N.D.		
78) 4-Ethyltoluene	19.73	105	116	N.D.		
79) 1,3,5-Trimethylbenzene	19.73	105	116	N.D.		
80) alpha-Methylstyrene	0.00	118	0	N.D.		
81) 2-Ethyltoluene	19.73	105	116	N.D.		
82) 1,2,4-Trimethylbenzene	0.00	105	0	N.D.		
83) n-Decane	0.00	57	0	N.D.		
84) Benzyl Chloride	0.00	91	0	N.D.		
85) 1,3-Dichlorobenzene	0.00	146	0	N.D.		
86) 1,4-Dichlorobenzene	0.00	146	0	N.D.		
87) sec-Butylbenzene	0.00	105	0	N.D.		
88) 4-Isopropyltoluene (p-...	0.00	119	0	N.D.		
89) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.		
90) 1,2-Dichlorobenzene	0.00	146	0	N.D.		
91) d-Limonene	0.00	68	0	N.D.		
92) 1,2-Dibromo-3-Chloropr...	0.00	157	0	N.D.		
93) n-Undecane	0.00	57	0	N.D.		
94) 1,2,4-Trichlorobenzene	22.17	180	713	N.D.		
95) Naphthalene	22.28	128	2211	N.D.		
96) n-Dodecane	22.26	57	220	N.D.		
97) Hexachlorobutadiene	0.00	225	0	N.D.		
98) Cyclohexanone	0.00	55	0	N.D.		
99) tert-Butylbenzene	0.00	119	0	N.D.		
100) n-Butylbenzene	0.00	91	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File : I:\MS13\DATA\2020_07\22\07222003.D
Acq On : 22 Jul 2020 16:37
Sample : MB R13072220_1000mL
Misc : S34-06182001/AC01837

Vial: 1
Operator: WA
Inst : MS13

Quant Time: Jul 22 18:02:55 2020
Quant Method : I:\MS13\METHODS\R13062320.M
Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
QLast Update : Wed Jun 24 06:33:38 2020
Response via : Initial Calibration
DataAcq Meth:T015.M



Data File : I:\MS13\DATA\2020_07\22\07222004.D
 Acq On : 22 Jul 2020 17:11
 Sample : LCS R13072220_25ng
 Misc : S34-06182001/S34-07152002 (8/13)

Vial: 1
 Operator: WA
 Inst : MS13

Quant Time: Jul 22 17:59:41 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)

QLast Update : Wed Jun 24 06:33:38 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

LH 7/22/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.21	130	159156	12.500	ng	0.02
37) 1,4-Difluorobenzene (IS2)	13.32	114	696741	12.500	ng	0.01
56) Chlorobenzene-d5 (IS3)	17.63	82	303688	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.05	65	209617	9.985	ng	0.02
Spiked Amount	12.500	Range 70 - 130	Recovery	=	79.84%	
57) Toluene-d8 (SS2)	15.76	98	764659	12.452	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.60%	
73) Bromofluorobenzene (SS3)	19.02	174	252691	13.030	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	104.24%	

Target Compounds

						Qvalue
2) Propene	4.17	42	419531	26.188	ng	91
3) Dichlorodifluoromethan...	4.33	85	730082	21.623	ng	100
4) Chloromethane	4.60	50	564302	27.269	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	387765	16.658	ng	100
6) Vinyl Chloride	5.02	62	567850	20.903	ng	100
7) 1,3-Butadiene	5.29	54	454891	24.970	ng	89
8) Bromomethane	5.73	94	355145	25.620	ng	100
9) Chloroethane	6.06	64	289267	29.787	ng	99
10) Ethanol	6.44	45	1331962	113.939	ng	99
11) Acetonitrile	6.69	41	702861	28.955	ng	97
12) Acrolein	6.86	56	251342	29.993	ng	98
13) Acetone	7.07	58	1341535	115.749	ng	# 66
14) Trichlorofluoromethane	7.31	101	627581	21.410	ng	100
15) 2-Propanol (Isopropanol)	7.58	45	1790455	49.996	ng	88
16) Acrylonitrile	7.83	53	516110	31.131	ng	97
17) 1,1-Dichloroethene	8.26	96	379823	26.048	ng	91
18) 2-Methyl-2-Propanol (t...	8.44	59	1851276	50.549	ng	91
19) Methylene Chloride	8.50	84	388223	24.977	ng	89
20) 3-Chloro-1-propene (Al...	8.65	41	529737	24.602	ng	98
21) Trichlorotrifluoroethane	8.90	151	361012	25.161	ng	99
22) Carbon Disulfide	8.75	76	1398857	24.110	ng	100
23) trans-1,2-Dichloroethene	9.76	61	529934	26.844	ng	99
24) 1,1-Dichloroethane	10.01	63	636705	26.137	ng	99
25) Methyl tert-Butyl Ether	10.11	73	1150458	25.758	ng	98
26) Vinyl Acetate	10.27	86	464844	102.056	ng	# 88
27) 2-Butanone (MEK)	10.51	72	261833	24.596	ng	# 87
28) cis-1,2-Dichloroethene	11.02	61	496770	25.190	ng	97
29) Diisopropyl Ether	11.32	87	321304	21.056	ng	# 89
30) Ethyl Acetate	11.33	61	268731	45.433	ng	99
31) n-Hexane	11.30	57	597019	24.369	ng	99
32) Chloroform	11.37	83	619725	22.955	ng	99
34) Tetrahydrofuran (THF)	11.78	72	261927	27.718	ng	96
35) Ethyl tert-Butyl Ether	11.91	87	463671	25.430	ng	98
36) 1,2-Dichloroethane	12.17	62	436134	20.131	ng	99
38) 1,1,1-Trichloroethane	12.45	97	561819	22.537	ng	95
39) Isopropyl Acetate	12.87	61	467445	45.385	ng	# 67
40) 1-Butanol	12.90	56	717459	42.351	ng	# 80
41) Benzene	12.92	78	1458027	23.309	ng	98
42) Carbon Tetrachloride	13.08	117	510156	21.377	ng	99
43) Cyclohexane	13.22	84	1172050	47.609	ng	96
44) tert-Amyl Methyl Ether	13.56	73	1069393	24.985	ng	93
45) 1,2-Dichloropropane	13.77	63	375606	27.913	ng	100
46) Bromodichloromethane	13.97	83	492841	23.040	ng	100
47) Trichloroethene	14.02	130	432991	23.952	ng	100
48) 1,4-Dioxane	13.99	88	332770	25.620	ng	96
49) 2,2,4-Trimethylpentane...	14.09	57	1537663	26.826	ng	79
50) Methyl Methacrylate	14.23	100	333832	50.614	ng	98

Data File : I:\MS13\DATA\2020_07\22\07222004.D
 Acq On : 22 Jul 2020 17:11
 Sample : LCS R13072220_25ng
 Misc : S34-06182001/S34-07152002 (8/13)

Vial: 1
 Operator: WA
 Inst : MS13

Quant Time: Jul 22 17:59:41 2020
 Quant Method : I:\MS13\METHODS\R13062320.M
 Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)
 QLast Update : Wed Jun 24 06:33:38 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.35	71	390280	25.992	ng	99
52) cis-1,3-Dichloropropene	14.88	75	655695	26.852	ng	100
53) 4-Methyl-2-pentanone	14.92	58	346669	26.667	ng	82
54) trans-1,3-Dichloropropene	15.40	75	562158	25.556	ng	100
55) 1,1,2-Trichloroethane	15.58	97	375074	25.460	ng	100
58) Toluene	15.87	91	1530319	24.387	ng	99
59) 2-Hexanone	16.11	43	732000	22.647	ng	86
60) Dibromochloromethane	16.28	129	450092	24.471	ng	100
61) 1,2-Dibromoethane	16.53	107	431079	25.863	ng	100
62) n-Butyl Acetate	16.74	43	832935	23.850	ng	90
63) n-Octane	16.87	57	312480	25.419	ng	98
64) Tetrachloroethene	17.01	166	475524	23.604	ng	99
65) Chlorobenzene	17.67	112	1050067	24.273	ng	100
66) Ethylbenzene	18.03	91	1702882	23.879	ng	100
67) m- & p-Xylenes	18.19	91	2571371	44.594	ng	99
68) Bromoform	18.25	173	410068	23.255	ng	100
69) Styrene	18.51	104	1111398	25.038	ng	97
70) o-Xylene	18.62	91	1310991	22.487	ng	99
71) n-Nonane	18.82	43	632568	23.108	ng	91
72) 1,1,2,2-Tetrachloroethane	18.59	83	630177	23.532	ng	99
74) Cumene	19.14	105	1712687	23.634	ng	99
75) alpha-Pinene	19.49	93	876521	23.907	ng	92
76) n-Propylbenzene	19.59	91	2005134	23.466	ng	98
77) 3-Ethyltoluene	19.68	105	1785009	24.741	ng	99
78) 4-Ethyltoluene	19.72	105	1540345	21.416	ng	100
79) 1,3,5-Trimethylbenzene	19.79	105	1414000	22.643	ng	98
80) alpha-Methylstyrene	19.92	118	786609	23.240	ng	94
81) 2-Ethyltoluene	19.95	105	1656898	22.952	ng	100
82) 1,2,4-Trimethylbenzene	20.15	105	1371761	19.875	ng	100
83) n-Decane	20.24	57	713681	24.464	ng	98
84) Benzyl Chloride	20.27	91	1251890	21.641	ng	99
85) 1,3-Dichlorobenzene	20.28	146	891496	22.254	ng	100
86) 1,4-Dichlorobenzene	20.34	146	912031	23.541	ng	100
87) sec-Butylbenzene	20.39	105	1871260	22.992	ng	98
88) 4-Isopropyltoluene (p-...	20.52	119	1696104	20.268	ng	95
89) 1,2,3-Trimethylbenzene	20.52	105	1344010	19.366	ng	99
90) 1,2-Dichlorobenzene	20.64	146	854119	22.062	ng	99
91) d-Limonene	20.65	68	504198	21.554	ng	94
92) 1,2-Dibromo-3-Chloropr...	21.03	157	336554	24.782	ng	# 76
93) n-Undecane	21.34	57	757152	26.304	ng	99
94) 1,2,4-Trichlorobenzene	22.15	180	728935	25.954	ng	100
95) Naphthalene	22.26	128	2082196	23.339	ng	99
96) n-Dodecane	22.25	57	681127	23.656	ng	98
97) Hexachlorobutadiene	22.58	225	479540	25.720	ng	100
98) Cyclohexanone	18.33	55	491651	22.996	ng	# 89
99) tert-Butylbenzene	20.15	119	1347759	19.893	ng	99
100) n-Butylbenzene	20.89	91	1483567	22.648	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File : I:\MS13\DATA\2020_07\22\07222016.D
 Acq On : 23 Jul 2020 00:33
 Sample : LCSD R13072220_25ng
 Misc : S34-06182001/S34-07152002 (8/13)

Vial: 7
 Operator: WA
 Inst : MS13

Quant Time: Jul 23 02:50:39 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

7/23/20

QLast Update : Wed Jun 24 06:33:38 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.20	130	158057	12.500	ng	0.02
37) 1,4-Difluorobenzene (IS2)	13.32	114	684149	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.63	82	300731	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.05	65	207185	9.938	ng	0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	79.52%
57) Toluene-d8 (SS2)	15.76	98	752239	12.370	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	98.96%
73) Bromofluorobenzene (SS3)	19.02	174	252262	13.136	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	105.12%

Target Compounds

						Qvalue
2) Propene	4.16	42	410035	25.773	ng	91
3) Dichlorodifluoromethan...	4.32	85	715879	21.350	ng	100
4) Chloromethane	4.60	50	539296	26.242	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	373834	16.171	ng	100
6) Vinyl Chloride	5.02	62	546400	20.253	ng	99
7) 1,3-Butadiene	5.28	54	432423	23.902	ng	89
8) Bromomethane	5.72	94	342218	24.860	ng	100
9) Chloroethane	6.04	64	278303	28.857	ng	100
10) Ethanol	6.44	45	1284144	110.612	ng	98
11) Acetonitrile	6.68	41	683372	28.347	ng	96
12) Acrolein	6.86	56	241462	29.014	ng	98
13) Acetone	7.07	58	1303051	113.211	ng	# 67
14) Trichlorofluoromethane	7.30	101	608281	20.896	ng	100
15) 2-Propanol (Isopropanol)	7.57	45	1725721	48.523	ng	88
16) Acrylonitrile	7.83	53	502834	30.541	ng	97
17) 1,1-Dichloroethene	8.26	96	369444	25.512	ng	91
18) 2-Methyl-2-Propanol (t...	8.44	59	1783558	49.039	ng	91
19) Methylene Chloride	8.49	84	375617	24.334	ng	90
20) 3-Chloro-1-propene (Al...	8.65	41	512976	23.989	ng	98
21) Trichlorotrifluoroethane	8.90	151	349497	24.528	ng	99
22) Carbon Disulfide	8.75	76	1354703	23.512	ng	100
23) trans-1,2-Dichloroethene	9.76	61	513169	26.176	ng	99
24) 1,1-Dichloroethane	10.01	63	615445	25.440	ng	100
25) Methyl tert-Butyl Ether	10.10	73	1105012	24.912	ng	98
26) Vinyl Acetate	10.27	86	449185	99.304	ng	# 89
27) 2-Butanone (MEK)	10.51	72	253495	23.978	ng	# 87
28) cis-1,2-Dichloroethene	11.02	61	480803	24.550	ng	97
29) Diisopropyl Ether	11.31	87	302710	19.975	ng	# 93
30) Ethyl Acetate	11.33	61	259781	44.225	ng	99
31) n-Hexane	11.30	57	575981	23.673	ng	98
32) Chloroform	11.37	83	605584	22.587	ng	100
34) Tetrahydrofuran (THF)	11.78	72	253094	26.969	ng	96
35) Ethyl tert-Butyl Ether	11.91	87	443773	24.508	ng	98
36) 1,2-Dichloroethane	12.17	62	421009	19.568	ng	99
38) 1,1,1-Trichloroethane	12.45	97	546662	22.332	ng	95
39) Isopropyl Acetate	12.87	61	449177	44.414	ng	# 68
40) 1-Butanol	12.90	56	691288	41.557	ng	# 80
41) Benzene	12.93	78	1414849	23.035	ng	98
42) Carbon Tetrachloride	13.08	117	492553	21.019	ng	99
43) Cyclohexane	13.22	84	1132830	46.863	ng	96
44) tert-Amyl Methyl Ether	13.56	73	1027207	24.441	ng	93
45) 1,2-Dichloropropane	13.77	63	363466	27.508	ng	100
46) Bromodichloromethane	13.97	83	478493	22.781	ng	100
47) Trichloroethene	14.02	130	416979	23.491	ng	100
48) 1,4-Dioxane	13.99	88	321521	25.210	ng	96
49) 2,2,4-Trimethylpentane...	14.09	57	1483578	26.359	ng	79
50) Methyl Methacrylate	14.23	100	320908	49.550	ng	98

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 Acq On : 23 Jul 2020 00:33
 Sample : LCSD R13072220_25ng
 Misc : S34-06182001/S34-07152002 (8/13)

Vial: 7
 Operator: WA
 Inst : MS13

Quant Time: Jul 23 02:50:39 2020
 Quant Method : I:\MS13\METHODS\R13062320.M
 Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)
 QLast Update : Wed Jun 24 06:33:38 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.35	71	376002	25.502	ng	99
52) cis-1,3-Dichloropropene	14.88	75	632347	26.372	ng	100
53) 4-Methyl-2-pentanone	14.92	58	334600	26.213	ng	82
54) trans-1,3-Dichloropropene	15.40	75	543166	25.147	ng	100
55) 1,1,2-Trichloroethane	15.58	97	365476	25.265	ng	100
58) Toluene	15.87	91	1483972	23.881	ng	99
59) 2-Hexanone	16.11	43	711068	22.216	ng	86
60) Dibromochloromethane	16.28	129	434255	23.842	ng	100
61) 1,2-Dibromoethane	16.53	107	416094	25.209	ng	100
62) n-Butyl Acetate	16.74	43	806929	23.333	ng	91
63) n-Octane	16.87	57	301288	24.749	ng	97
64) Tetrachloroethene	17.01	166	460667	23.091	ng	100
65) Chlorobenzene	17.67	112	1014366	23.679	ng	100
66) Ethylbenzene	18.02	91	1653245	23.411	ng	100
67) m- & p-Xylenes	18.19	91	2493687	43.672	ng	99
68) Bromoform	18.25	173	396952	22.732	ng	100
69) Styrene	18.51	104	1075501	24.468	ng	97
70) o-Xylene	18.62	91	1267517	21.955	ng	99
71) n-Nonane	18.82	43	610370	22.517	ng	91
72) 1,1,2,2-Tetrachloroethane	18.59	83	613914	23.150	ng	99
74) Cumene	19.15	105	1662969	23.174	ng	99
75) alpha-Pinene	19.49	93	848178	23.362	ng	93
76) n-Propylbenzene	19.59	91	1948715	23.030	ng	98
77) 3-Ethyltoluene	19.68	105	1736438	24.304	ng	99
78) 4-Ethyltoluene	19.72	105	1489189	20.908	ng	100
79) 1,3,5-Trimethylbenzene	19.79	105	1366832	22.103	ng	98
80) alpha-Methylstyrene	19.92	118	760434	22.687	ng	94
81) 2-Ethyltoluene	19.95	105	1599763	22.379	ng	99
82) 1,2,4-Trimethylbenzene	20.15	105	1329532	19.452	ng	100
83) n-Decane	20.24	57	688835	23.844	ng	98
84) Benzyl Chloride	20.27	91	1216965	21.244	ng	100
85) 1,3-Dichlorobenzene	20.28	146	867771	21.875	ng	100
86) 1,4-Dichlorobenzene	20.34	146	886775	23.114	ng	100
87) sec-Butylbenzene	20.39	105	1815632	22.528	ng	98
88) 4-Isopropyltoluene (p-...	20.52	119	1648859	19.897	ng	95
89) 1,2,3-Trimethylbenzene	20.52	105	1305877	19.001	ng	99
90) 1,2-Dichlorobenzene	20.64	146	828951	21.622	ng	99
91) d-Limonene	20.65	68	486761	21.013	ng	95
92) 1,2-Dibromo-3-Chloropr...	21.02	157	327110	24.324	ng	# 76
93) n-Undecane	21.34	57	736410	25.835	ng	99
94) 1,2,4-Trichlorobenzene	22.15	180	713135	25.642	ng	100
95) Naphthalene	22.26	128	2027945	22.954	ng	99
96) n-Dodecane	22.25	57	661501	23.201	ng	98
97) Hexachlorobutadiene	22.58	225	466567	25.270	ng	100
98) Cyclohexanone	18.33	55	477470	22.553	ng	# 88
99) tert-Butylbenzene	20.15	119	1310672	19.536	ng	99
100) n-Butylbenzene	20.89	91	1452403	22.390	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

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Acq On : 23 Jul 2020 00:33
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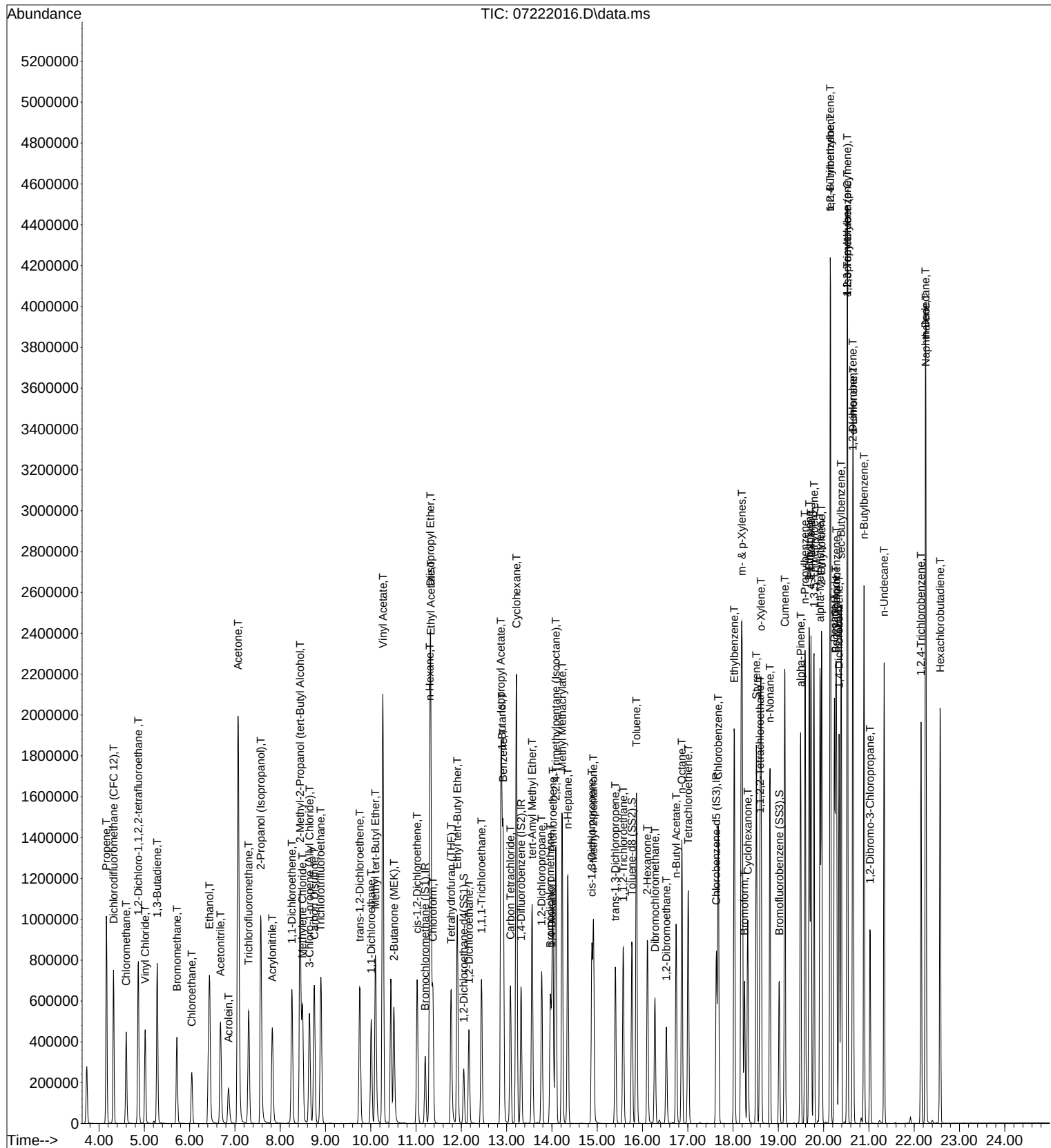
Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Wed Jun 24 06:33:38 2020

Response via : Initial Calibration

DataAcq Meth:T015.M



Method Path : I:\MS13\METHODS\

Method File : R13062320.M

Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

LH 6/24/20

Last Update : Wed Jun 24 06:33:38 2020

Response Via : Initial Calibration

Calibration Files

0.1 =06232011.D 0.2 =06232003.D 0.5 =06232004.D 1.0 =06232005.D 5.0 =06232006.D 25 =06232007.D 100 =06232009.D

	Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
1) IR	Bromochloromethane...	-----ISTD-----									
2) T	Propene	1.090	1.204	1.254	1.250	1.087	1.145	1.301	1.737	1.258	16.58
3) T	Dichlorodifluo...	2.470	2.587	2.723	2.684	2.568	2.605	2.713	2.864	2.652	4.54
4) T	Chloromethane	1.826	1.774	1.747	1.532	1.808	1.667	1.538	1.110	1.625	14.59
5) T	1,2-Dichloro-1...	1.545	1.727	1.886	1.918	1.816	1.846	1.911	1.977	1.828	7.50
6) T	Vinyl Chloride	2.022	2.073	2.292	2.186	2.111	2.098	2.130	2.158	2.134	3.82
7) T	1,3-Butadiene	1.030	1.175	1.565	1.629	1.204	1.288	1.730	1.824	1.431	20.46
8) T	Bromomethane	0.934	1.046	1.087	1.094	1.072	1.102	1.145	1.229	1.089	7.71
9) T	Chloroethane	0.689	0.686	0.776	0.777	0.759	0.762	0.792	0.861	0.763	7.38
10) T	Ethanol	0.902	0.746	0.978	0.886	0.834	0.936	1.007	1.057	0.918	10.82
11) T	Acetonitrile	1.979	1.794	1.979	1.835	1.792	1.877	1.934	2.063	1.907	5.15
12) T	Acrolein	0.540	0.607	0.630	0.656	0.675	0.687	0.717	0.752	0.658	10.06
13) T	Acetone	0.792	0.797	0.883	0.858	0.815	0.973	1.075	1.089	0.910	13.29
14) T	Trichlorofluor...	2.045	2.090	2.355	2.304	2.241	2.320	2.421	2.641	2.302	8.16
15) T	2-Propanol (Is...	2.595	2.683	2.863	2.672	2.840	3.080	3.106	2.662	2.813	6.95
16) T	Acrylonitrile	0.910	1.083	1.294	1.291	1.322	1.429	1.492	1.596	1.302	16.96
17) T	1,1-Dichloroet...	1.025	1.067	1.166	1.138	1.102	1.156	1.199	1.310	1.145	7.62
18) T	2-Methyl-2-Pro...	2.604	2.762	2.910	2.788	2.975	3.338	3.362	2.272	2.876	12.61
19) T	Methylene Chlo...	1.118	1.122	1.238	1.163	1.143	1.210	1.303	1.469	1.221	9.73
20) T	3-Chloro-1-pro...	1.778	1.697	1.671	1.588	1.600	1.660	1.709	1.827	1.691	4.83
21) T	Trichlorotrifl...	1.040	1.004	1.090	1.095	1.131	1.153	1.194	1.307	1.127	8.39
22) T	Carbon Disulfide	5.927	4.945	4.471	4.219	4.016	4.138	4.231	4.507	4.557	13.70
23) T	trans-1,2-Dich...	1.288	1.369	1.560	1.560	1.546	1.600	1.674	1.806	1.550	10.50
24) T	1,1-Dichloroet...	1.800	1.756	1.920	1.925	1.884	1.938	1.994	2.089	1.913	5.46
25) T	Methyl tert-Bu...	3.045	3.206	3.420	3.484	3.498	3.658	3.844	3.910	3.508	8.43
26) T	Vinyl Acetate			0.269	0.283	0.311	0.399	0.451	0.433	0.358	22.29
27) T	2-Butanone (MEK)			0.792	0.765	0.765	0.834	0.884	0.976	0.836	9.84
28) T	cis-1,2-Dichlo...	1.434	1.360	1.532	1.544	1.511	1.586	1.651	1.772	1.549	8.18
29) T	Diisopropyl Ether	0.876	0.980	1.102	1.126	1.201	1.318	1.496	1.489	1.198	18.75
30) T	Ethyl Acetate			0.370	0.388	0.403	0.503	0.564	0.558	0.465	18.92
31) T	n-Hexane	1.474	1.691	1.791	1.761	1.806	2.170	2.375	2.325	1.924	16.89
32) T	Chloroform	1.787	1.888	2.065	2.100	2.085	2.216	2.329	2.493	2.120	10.72
33) S	1,2-Dichloroet...	1.648	1.673	1.653	1.640	1.649	1.649	1.646	1.633	1.649	0.71
34) T	Tetrahydrofura...	0.700	0.655	0.743	0.745	0.722	0.743	0.775	0.856	0.742	7.85
35) T	Ethyl tert-But...	1.085	1.217	1.352	1.379	1.386	1.518	1.653	1.866	1.432	17.15
36) T	1,2-Dichloroet...	1.523	1.537	1.711	1.688	1.682	1.753	1.809	1.911	1.702	7.61

37) IR	1,4-Difluorobenzen...	-----ISTD-----									
38) T	1,1,1-Trichlor...	0.378	0.405	0.434	0.447	0.440	0.465	0.485	0.525	0.447	10.24
39) T	Isopropyl Acetate			0.158	0.153	0.165	0.198	0.216	0.220	0.185	16.19
40) T	1-Butanol			0.230	0.228	0.262	0.340	0.384	0.381	0.304	24.01
41) T	Benzene	0.950	0.970	1.055	1.026	1.051	1.193	1.358	1.374	1.122	14.89
42) T	Carbon Tetrach...	0.370	0.367	0.398	0.399	0.417	0.457	0.483	0.534	0.428	13.65
43) T	Cyclohexane	0.369	0.370	0.407	0.402	0.416	0.485	0.539	0.545	0.442	16.20
44) T	tert-Amyl Meth...	0.644	0.688	0.735	0.723	0.743	0.816	0.870	0.925	0.768	12.33
45) T	1,2-Dichloropr...	0.207	0.208	0.247	0.239	0.240	0.251	0.259	0.280	0.241	10.12
46) T	Bromodichlorom...	0.333	0.328	0.360	0.355	0.377	0.413	0.436	0.467	0.384	13.10
47) T	Trichloroethene	0.254	0.268	0.301	0.302	0.307	0.344	0.381	0.437	0.324	18.64
48) T	1,4-Dioxane	0.182	0.196	0.216	0.219	0.222	0.248	0.271	0.310	0.233	17.89
49) T	2,2,4-Trimethy...	0.927	0.959	1.019	0.984	0.992	1.062	1.122	1.162	1.028	7.90
50) T	Methyl Methacr...	0.086	0.090	0.106	0.107	0.110	0.133	0.149	0.165	0.118	23.58
51) T	n-Heptane	0.233	0.226	0.253	0.252	0.256	0.284	0.309	0.343	0.269	14.87
52) T	cis-1,3-Dichlo...	0.361	0.359	0.408	0.416	0.433	0.478	0.504	0.546	0.438	15.23
53) T	4-Methyl-2-pen...	0.180	0.200	0.228	0.230	0.236	0.250	0.266	0.292	0.233	15.28
54) T	trans-1,3-Dich...	0.318	0.316	0.367	0.369	0.396	0.439	0.459	0.493	0.395	16.39

55)	T	1,1,2-Trichlor...	0.225	0.233	0.258	0.257	0.257	0.276	0.290	0.319	0.264	11.57
56)	IR	Chlorobenzene-d5 (... -ISTD-----										
57)	S	Toluene-d8 (SS2)	2.585	2.578	2.527	2.574	2.560	2.500	2.481	2.415	2.528	2.35
58)	T	Toluene	2.408	2.285	2.559	2.534	2.503	2.671	2.842	2.863	2.583	7.77
59)	T	2-Hexanone	1.208	1.154	1.291	1.336	1.339	1.398	1.459	1.457	1.330	8.28
60)	T	Dibromochlorom...	0.647	0.627	0.689	0.705	0.752	0.814	0.870	0.954	0.757	15.11
61)	T	1,2-Dibromoethane	0.581	0.580	0.664	0.665	0.700	0.730	0.758	0.811	0.686	11.83
62)	T	n-Butyl Acetate	1.337	1.285	1.403	1.434	1.436	1.498	1.549	1.558	1.437	6.71
63)	T	n-Octane			0.450	0.448	0.464	0.512	0.561	0.601	0.506	12.58
64)	T	Tetrachloroethene	0.754	0.692	0.775	0.766	0.787	0.853	0.940	1.068	0.829	14.65
65)	T	Chlorobenzene	1.660	1.540	1.676	1.722	1.711	1.846	1.993	2.098	1.781	10.44
66)	T	Ethylbenzene	2.662	2.539	2.810	2.813	2.833	3.155	3.406	3.265	2.935	10.39
67)	T	m- & p-Xylenes	2.088	1.981	2.144	2.168	2.277	2.732	2.976	2.621	2.373	15.04
68)	T	Bromoform			0.548	0.566	0.643	0.771	0.862	0.964	0.726	23.14
69)	T	Styrene	1.553	1.449	1.576	1.642	1.782	2.061	2.254	2.299	1.827	18.24
70)	T	o-Xylene	2.056	1.972	2.143	2.197	2.287	2.689	2.997	2.856	2.400	16.28
71)	T	n-Nonane	0.956	0.991	1.058	1.068	1.109	1.244	1.335	1.253	1.127	12.05
72)	T	1,1,2,2-Tetrac...	0.914	0.906	0.987	1.011	1.062	1.232	1.351	1.356	1.102	16.81
73)	S	Bromofluoroben...	0.775	0.769	0.794	0.786	0.802	0.823	0.821	0.814	0.798	2.57
74)	T	Cumene	2.603	2.460	2.759	2.806	2.908	3.355	3.655	3.316	2.983	13.91
75)	T	alpha-Pinene	1.188	1.217	1.367	1.396	1.412	1.706	1.909	1.877	1.509	18.83
76)	T	n-Propylbenzene	3.161	3.024	3.263	3.313	3.466	4.005	4.218	3.685	3.517	11.95
77)	T	3-Ethyltoluene	2.453	2.331	2.621	2.639	2.807	3.550	3.787	3.570	2.970	19.29
78)	T	4-Ethyltoluene	2.618	2.432	2.692	2.721	2.930	3.363	3.755	3.173	2.960	14.92
79)	T	1,3,5-Trimethy...	2.250	2.018	2.273	2.314	2.446	2.962	3.288	3.011	2.570	17.64
80)	T	alpha-Methylst...	1.113	1.069	1.185	1.238	1.298	1.593	1.815	1.835	1.393	22.25
81)	T	2-Ethyltoluene	2.492	2.389	2.601	2.692	2.883	3.481	3.794	3.439	2.971	17.75
82)	T	1,2,4-Trimethy...			2.254	2.315	2.623	3.571	3.671	2.613	2.841	21.94
83)	T	n-Decane	0.973	0.949	1.030	1.054	1.159	1.409	1.563	1.468	1.201	20.25
84)	T	Benzyl Chloride			1.669	1.720	2.134	2.772	3.149	2.843	2.381	26.29
85)	T	1,3-Dichlorobe...	1.513	1.219	1.323	1.337	1.529	1.907	2.221	2.141	1.649	23.58
86)	T	1,4-Dichlorobe...	1.535	1.178	1.294	1.316	1.499	1.796	2.053	2.087	1.595	21.82
87)	T	sec-Butylbenzene	2.837	2.779	3.025	3.054	3.333	3.925	4.223	3.625	3.350	15.76
88)	T	4-Isopropyltol...			2.870	2.958	3.263	4.418	4.299	2.859	3.445	21.02
89)	T	1,2,3-Trimethy...			2.256	2.351	2.654	3.652	3.688	2.539	2.857	22.59
90)	T	1,2-Dichlorobe...	1.451	1.185	1.269	1.349	1.498	1.977	2.244	1.776	1.594	23.30
91)	T	d-Limonene	0.735	0.885	0.866	0.917	0.910	1.154	1.254	0.981	0.963	17.28
92)	T	1,2-Dibromo-3-...	0.505	0.417	0.462	0.475	0.527	0.611	0.689	0.785	0.559	22.56
93)	T	n-Undecane	0.979	0.967	1.041	1.049	1.124	1.370	1.528	1.422	1.185	18.63
94)	T	1,2,4-Trichlor...	1.490	0.805	0.868	0.869	0.989	1.206	1.440	1.582	1.156	27.22
95)	T	Naphthalene	5.482	2.594	2.708	2.676	3.198	4.370	4.763	3.588	3.672	29.60
96)	T	n-Dodecane	1.238	0.928	0.974	1.002	1.066	1.477	1.593	1.203	1.185	20.49
97)	T	Hexachlorobuta...	0.735	0.576	0.628	0.628	0.648	0.807	0.997	1.120	0.767	25.58
98)	T	Cyclohexanone	0.837	0.750	0.852	0.857	0.831	0.923	0.970	1.022	0.880	9.83
99)	T	tert-Butylbenzene			2.242	2.306	2.578	3.509	3.558	2.538	2.789	21.21
100)	T	n-Butylbenzene	2.398	2.347	2.410	2.445	2.623	3.090	3.340	2.918	2.696	13.88

(#) = Out of Range

R13062320.M Wed Jun 24 18:25:58 2020

1ng/L Std. ID: S34-06012007
4ng/L Std. ID: S34-06012001
20ng/L Std. ID:

40ng/L Std. ID: S34-06192001
200ng/L Std. ID: S34-06192001
1000ng/L Std. ID:

Primary Source Standards Concentrations (Working & Initial Calibration)

6/24/20

Dilution Factors:										Working STD Conc. (ng/L):															
		1		5		25		50		250		1000		4		4		4		200		200		200	
Source Std.		1000ng/L		200ng/L		40ng/L		20ng/L		4ng/L		1ng/L		0.025		0.050		0.1250		0.250		0.125		0.25	
mg/m ³		1000ng/L		200ng/L		40ng/L		20ng/L		4ng/L		1ng/L		0.1ng		0.2ng		0.5ng		1ng		25ng		50ng	
Compounds		1000ng/L		200ng/L		40ng/L		20ng/L		4ng/L		1ng/L		0.1ng		0.2ng		0.5ng		1ng		25ng		50ng	
Propene	1.06	1060	212	42.4	21.2	4.24	2.12	4.24	1.06	106	106	0.106	0.212	0.530	1.06	0.212	0.530	1.06	0.212	0.530	1.06	26.50	53.0	106ng	
Dichlorodifluoromethane	1.06	1060	212	42.4	21.2	4.24	2.12	4.24	1.06	106	106	0.106	0.212	0.530	1.06	0.212	0.530	1.06	0.212	0.530	1.06	26.50	53.0	106	
Chloromethane	1.06	1060	212	42.4	21.2	4.24	2.12	4.24	1.06	106	106	0.106	0.212	0.530	1.06	0.212	0.530	1.06	0.212	0.530	1.06	26.50	53.0	106	
Freon-114	1.05	1050	210	42.0	21.0	4.20	2.10	4.20	1.05	105	105	0.105	0.210	0.525	1.05	0.210	0.525	1.05	0.210	0.525	1.05	26.25	52.5	105	
Vinyl Chloride	1.08	1080	216	43.2	21.6	4.32	2.16	4.32	1.08	108	108	0.108	0.216	0.540	1.08	0.216	0.540	1.08	0.216	0.540	1.08	27.00	54.0	108	
1,3-Butadiene	1.06	1060	212	42.4	21.2	4.24	2.12	4.24	1.06	106	106	0.106	0.212	0.530	1.06	0.212	0.530	1.06	0.212	0.530	1.06	26.50	53.0	106	
Bromomethane	1.08	1080	216	43.2	21.6	4.32	2.16	4.32	1.08	108	108	0.108	0.216	0.540	1.08	0.216	0.540	1.08	0.216	0.540	1.08	27.00	54.0	108	
Chloroethane	1.08	1080	216	43.2	21.6	4.32	2.16	4.32	1.08	108	108	0.108	0.216	0.540	1.08	0.216	0.540	1.08	0.216	0.540	1.08	27.00	54.0	108	
Ethanol	5.21	5210	1042	208.4	104.2	20.84	10.42	20.84	5.21	521	521	0.521	1.042	2.605	5.21	1.042	2.605	5.21	1.042	2.605	5.21	130.25	260.5	521	
Acetonitrile	1.05	1050	210	42.0	21.0	4.20	2.10	4.20	1.05	105	105	0.105	0.210	0.525	1.05	0.210	0.525	1.05	0.210	0.525	1.05	26.25	52.5	105	
Acrolein	1.03	1030	206	41.2	20.6	4.12	2.06	4.12	1.03	103	103	0.103	0.206	0.515	1.03	0.206	0.515	1.03	0.206	0.515	1.03	25.75	51.5	103	
Acetone	5.33	5330	1066	213.2	106.6	21.32	10.66	21.32	5.33	533	533	0.533	1.066	2.665	5.33	1.066	2.665	5.33	1.066	2.665	5.33	133.25	266.5	533	
Trichlorofluoromethane	1.06	1060	212	42.4	21.2	4.24	2.12	4.24	1.06	106	106	0.106	0.212	0.530	1.06	0.212	0.530	1.06	0.212	0.530	1.06	26.50	53.0	106	
Isopropanol	2.10	2100	420	84.0	42.0	8.40	4.20	8.40	2.10	210	210	0.210	0.420	1.050	2.10	0.420	1.050	2.10	0.420	1.050	2.10	52.50	105.0	210	
Acrylonitrile	1.05	1050	210	42.0	21.0	4.20	2.10	4.20	1.05	105	105	0.105	0.210	0.525	1.05	0.210	0.525	1.05	0.210	0.525	1.05	26.25	52.5	105	
1,1-Dichloroethene	1.08	1080	216	43.2	21.6	4.32	2.16	4.32	1.08	108	108	0.108	0.216	0.540	1.08	0.216	0.540	1.08	0.216	0.540	1.08	27.00	54.0	108	
tert-Butanol	2.16	2160	432	86.4	43.2	8.64	4.32	8.64	2.16	216	216	0.216	0.432	1.080	2.16	0.432	1.080	2.16	0.432	1.080	2.16	54.0	108.0	216	
Methylene Chloride	1.06	1060	212	42.4	21.2	4.24	2.12	4.24	1.06	106	106	0.106	0.212	0.530	1.06	0.212	0.530	1.06	0.212	0.530	1.06	26.50	53.0	106	
Ethyl Chloride	1.08	1080	216	43.2	21.6	4.32	2.16	4.32	1.08	108	108	0.108	0.216	0.540	1.08	0.216	0.540	1.08	0.216	0.540	1.08	27.00	54.0	108	
1,1,1-Trichloroethane	1.08	1080	216	43.2	21.6	4.32	2.16	4.32	1.08	108	108	0.108	0.216	0.540	1.08	0.216	0.540	1.08	0.216	0.540	1.08	27.00	54.0	108	
Carbon Disulfide	1.07	1070	214	42.8	21.4	4.28	2.14	4.28	1.07	107	107	0.107	0.214	0.535	1.07	0.214	0.535	1.07	0.214	0.535	1.07	26.75	53.5	107	
trans-1,2-Dichloroethene	1.08	1080	216	43.2	21.6	4.32	2.16	4.32	1.08	108	108	0.108	0.216	0.540	1.08	0.216	0.540	1.08	0.216	0.540	1.08	27.00	54.0	108	
1,1-Dichloroethane	1.09	1090	218	43.6	21.8	4.36	2.18	4.36	1.09	109	109	0.109	0.218	0.545	1.09	0.218	0.545	1.09	0.218	0.545	1.09	27.25	54.5	109	
Methyl tert-Butyl Ether	1.08	1080	216	43.2	21.6	4.32	2.16	4.32	1.08	108	108	0.108	0.216	0.540	1.08	0.216	0.540	1.08	0.216	0.540	1.08	27.00	54.0	108	
Vinyl Acetate	5.35	5350	1070	214.0	107.0	21.40	10.70	21.40	5.35	535	535	0.535	1.070	2.675	5.35	1.070	2.675	5.35	1.070	2.675	5.35	133.75	267.5	535	
2-Butanone	1.06	1060	212	42.4	21.2	4.24	2.12	4.24	1.06	106	106	0.106	0.212	0.530	1.06	0.212	0.530	1.06	0.212	0.530	1.06	26.50	53.0	106	
cis-1,2-Dichloroethene	1.06	1060	212	42.4	21.2	4.24	2.12	4.24	1.06	106	106	0.106	0.212	0.530	1.06	0.212	0.530	1.06	0.212	0.530	1.06	26.50	53.0	106	
Diisopropyl Ether	1.08	1080	216	43.2	21.6	4.32	2.16	4.32	1.08	108	108	0.108	0.216	0.540	1.08	0.216	0.540	1.08	0.216	0.540	1.08	27.00	54.0	108	
Ethyl Acetate	2.17	2170	434	86.8	43.4	8.68	4.34	8.68	2.17	217	217	0.217	0.434	1.085	2.17	0.434	1.085	2.17	0.434	1.085	2.17	54.25	108.5	217	
n-Hexane	1.08	1080	216	43.2	21.6	4.32	2.16	4.32	1.08	108	108	0.108	0.216	0.540	1.08	0.216	0.540	1.08	0.216	0.540	1.08	27.00	54.0	108	
Chloroform	1.07	1070	214	42.8	21.4	4.28	2.14	4.28	1.07	107	107	0.107	0.214	0.535	1.07	0.214	0.535	1.07	0.214	0.535	1.07	26.75	53.5	107	
Tetrahydrofuran	1.09	1090	218	43.6	21.8	4.36	2.18	4.36	1.09	109	109	0.109	0.218	0.545	1.09	0.218	0.545	1.09	0.218	0.545	1.09	27.25	54.5	109	
Ethyl tert-Butyl Ether	1.08	1080	216	43.2	21.6	4.32	2.16	4.32	1.08	108	108	0.108	0.216	0.540	1.08	0.216	0.540	1.08	0.216	0.540	1.08	27.00	54.0	108	
1,2-Dichloroethane	1.08	1080	216	43.2	21.6	4.32	2.16	4.32	1.08	108	108	0.108	0.216	0.540	1.08	0.216	0.540	1.08	0.216	0.540	1.08	27.00	54.0	108	
1,1,1-Trichloroethane	1.07	1070	214	42.8	21.4	4.28	2.14	4.28	1.07	107	107	0.107	0.214	0.535	1.07	0.214	0.535	1.07	0.214	0.535	1.07	26.75	53.5	107	
Isopropyl Acetate	2.11	2110	422	84.4	42.2	8.44	4.22	8.44	2.11	211	211	0.211	0.422	1.055	2.11	0.422	1.055	2.11	0.422	1.055	2.11	52.75	105.5	211	
1-Butanol	2.08	2080	416	83.2	41.6	8.32	4.16	8.32	2.08	208	208	0.208	0.416	1.040	2.08	0.416	1.040	2.08	0.416	1.040	2.08	52.00	104.0	208	
Benzene	1.06	1060	212	42.4	21.2	4.24	2.12	4.24	1.06	106	106	0.106	0.212	0.530	1.06	0.212	0.530	1.06	0.212	0.530	1.06	26.50	53.0	106	
Carbon Tetrachloride	1.05	1050	210	42.0	21.0	4.20	2.10	4.20	1.05	105	105	0.105	0.210	0.525	1.05	0.210	0.525	1.05	0.210	0.525	1.05	26.25	52.5	105	
Cyclohexane	2.12	2120	424	84.8	42.4	8.48	4.24	8.48	2.12	212	212	0.212	0.424	1.060	2.12	0.424	1.060	2.12	0.424	1.060	2.12	53.00	106.0	212	
tert-Amyl Methyl Ether	1.08	1080	216	43.2	21.6	4.32	2.16	4.32	1.08	108	108	0.108	0.216	0.540	1.08	0.216	0.540	1.08	0.216	0.540	1.08	27.00	54.0	108	
1,2-Dichloropropane	1.08	1080	216	43.2	21.6	4.32	2.16	4.32	1.08	108	108	0.108	0.216	0.540	1.08	0.216	0.540	1.08	0.216	0.540	1.08	27.00	54.0	108	
Bromodichloromethane	1.08	1080	216	43.2	21.6	4.32	2.16	4.32	1.08	108	108	0.108	0.216	0.540	1.08	0.216	0.540	1.08	0.216	0.540	1.08	27.00	54.0	108	
Trichloroethene	1.07	1070	214	42.8	21.4	4.28	2.14	4.28	1.07	107	107	0.107	0.214	0.535	1.07	0.214	0.535	1.07	0.214	0.535	1.07	26.75	53.5	107	
1,4-Dioxane	1.08	1080	216	43.2	21.6	4.32	2.16	4.32	1.08	108	108	0.108	0.216	0.540	1.08	0.216	0.540	1.08	0.216	0.540	1.08	27.00	54.0	108	
Isocutane	1.07	1070	214	42.8	21.4	4.28	2.14	4.28	1.07	107	107	0.107	0.214	0.535	1.07	0.214	0.535	1.07	0.214	0.535	1.07	26.75	53.5	107	
Methyl Methacrylate	2.15	2150	430	86.0	43.0	8.60	4.30	8.60	2.15	215	215	0.215	0.430	1.075	2.15	0.430	1.075	2.15	0.430	1.075	2.15	53.75	107.5	215	
n-Heptane	1.08	1080	216	43.2	21.6	4.32	2.16	4.32	1.08	108	108	0.108	0.216	0.540	1.08	0.216	0.540	1.08	0.216	0.540	1.08	27.00	54.0	108	

Primary Source Standards Concentrations (Working & Initial Calibration)

1ng/L Std. ID: S34-06012007										40ng/L Std. ID: S34-06192001									
20ng/L Std. ID:										100ng/L Std. ID:									
Dilution Factors:		1		5		25		50		250		1000		Working STD Conc.(ng/L):					
		Source Std. mg/m ³		Primary Working Standards															
Compounds		1000ng/L	200ng/L	40ng/L	20ng/L	4ng/L	1ng/L												
cis-1,3-Dichloropropene	1.04	1040	208	41.6	20.8	4.16	1.04												
4-Methyl-2-pentanone	1.06	1060	212	42.4	21.2	4.24	1.06												
trans-1,3-Dichloropropene	1.06	1060	212	42.4	21.2	4.24	1.06												
1,1,2-Trichloroethane	1.07	1070	214	42.8	21.4	4.28	1.07												
Toluene	1.07	1070	214	42.8	21.4	4.28	1.07												
2-Hexanone	1.07	1070	214	42.8	21.4	4.28	1.07												
Dibromochloromethane	1.07	1070	214	42.8	21.4	4.28	1.07												
1,2-Dibromoethane	1.07	1070	214	42.8	21.4	4.28	1.07												
n-Butyl Acetate	1.09	1090	218	43.6	21.8	4.36	1.09												
n-Octane	1.08	1080	216	43.2	21.6	4.32	1.08												
Tetrachloroethene	1.04	1040	208	41.6	20.8	4.16	1.04												
Chlorobenzene	1.07	1070	214	42.8	21.4	4.28	1.07												
Ethylbenzene	1.07	1070	214	42.8	21.4	4.28	1.07												
m-&p-Xylene	2.14	2140	428	85.6	42.8	8.56	2.14												
Bromolorm	1.07	1070	214	42.8	21.4	4.28	1.07												
Styrene	1.06	1060	212	42.4	21.2	4.24	1.06												
o-Xylene	1.07	1070	214	42.8	21.4	4.28	1.07												
Nonane	1.07	1070	214	42.8	21.4	4.28	1.07												
1,1,2,2-Tetrachloroethane	1.07	1070	214	42.8	21.4	4.28	1.07												
Camphene	1.08	1080	216	43.2	21.6	4.32	1.08												
alpha-Phene	1.07	1070	214	42.8	21.4	4.28	1.07												
Isopropylbenzene	1.08	1080	216	43.2	21.6	4.32	1.08												
3-Ethyltoluene	1.06	1060	212	42.4	21.2	4.24	1.06												
4-Ethyltoluene	1.08	1080	216	43.2	21.6	4.32	1.08												
1,3,5-Trimethylbenzene	1.06	1060	212	42.4	21.2	4.24	1.06												
alpha-Methylstyrene	1.07	1070	214	42.8	21.4	4.28	1.07												
2-Ethyltoluene	1.08	1080	216	43.2	21.6	4.32	1.08												
1,2,4-Trimethylbenzene	1.07	1070	214	42.8	21.4	4.28	1.07												
n-Decane	1.07	1070	214	42.8	21.4	4.28	1.07												
Benzyl Chloride	1.08	1080	216	43.2	21.6	4.32	1.08												
1,3-Dichlorobenzene	1.07	1070	214	42.8	21.4	4.28	1.07												
1,4-Dichlorobenzene	1.07	1070	214	42.8	21.4	4.28	1.07												
sec-Butylbenzene	1.07	1070	214	42.8	21.4	4.28	1.07												
p-Isopropyltoluene	1.09	1090	218	43.6	21.8	4.36	1.09												
1,2,3-Trimethylbenzene	1.09	1090	218	43.6	21.8	4.36	1.09												
1,2-Dichlorobenzene	1.07	1070	214	42.8	21.4	4.28	1.07												
d-Limonene	1.08	1080	216	43.2	21.6	4.32	1.08												
1,2-Dibromo-3-chloropropane	1.05	1050	210	42.0	21.0	4.20	1.05												
n-Undecane	1.08	1080	216	43.2	21.6	4.32	1.08												
1,2,4-Trichlorobenzene	1.07	1070	214	42.8	21.4	4.28	1.07												
Naphthalene	1.03	1030	206	41.2	20.6	4.12	1.03												
n-Dodecane	1.04	1040	208	41.6	20.8	4.16	1.04												
Hexachloro-1,3-butadiene	1.06	1060	212	42.4	21.2	4.24	1.06												
Methacrylonitrile	1.06	1060	212	42.4	21.2	4.24	1.06												
Cyclohexanone	1.00	1000	200	40.0	20.0	4.00	1.00												
tert-Butylbenzene	1.07	1070	214	42.8	21.4	4.28	1.07												
n-Butylbenzene	1.07	1070	214	42.8	21.4	4.28	1.07												

Method : I:\MS13\METHODS\R13062320.M (RTE Integrator)
 Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 Last Update : Wed Jun 24 06:33:38 2020
 Response via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	0.1	0	13	I:\MS13\DATA\2020_06\23\06232011.D
2	0.2	0	13	I:\MS13\DATA\2020_06\23\06232003.D
3	0.5	1	13	I:\MS13\DATA\2020_06\23\06232004.D
4	1.0	1	13	I:\MS13\DATA\2020_06\23\06232005.D
5	5.0	5	13	I:\MS13\DATA\2020_06\23\06232006.D
6	25	27	13	I:\MS13\DATA\2020_06\23\06232007.D
7	50	53	13	I:\MS13\DATA\2020_06\23\06232008.D
8	100	106	13	I:\MS13\DATA\2020_06\23\06232009.D

DA 6/24/20

#	ID	Update Time	Quant Time	Acquisition Time
1	0.1	Jun 24 06:29 2020	Jun 24 06:27 2020	23 Jun 2020 19:22
2	0.2	Jun 24 06:31 2020	Jun 23 17:48 2020	23 Jun 2020 14:49
3	0.5	Jun 24 06:33 2020	Jun 23 17:48 2020	23 Jun 2020 15:23
4	1.0	Jun 23 18:03 2020	Jun 23 17:48 2020	23 Jun 2020 15:57
5	5.0	Jun 23 18:04 2020	Jun 23 17:48 2020	23 Jun 2020 16:31
6	25	Jun 23 18:06 2020	Jun 23 17:48 2020	23 Jun 2020 17:05
7	50	Jun 23 18:08 2020	Jun 23 18:08 2020	23 Jun 2020 17:40
8	100	Jun 23 18:56 2020	Jun 23 18:55 2020	23 Jun 2020 18:14

R13062320.M

Wed Jun 24 10:33:16 2020

Data File : I:\MS13\DATA\2020_06\23\06232011.D
 Acq On : 23 Jun 2020 19:22
 Sample : 0.1ng R13062320 ICAL STD
 Misc : S34-06182001

Vial: 12
 Operator: WA
 Inst : MS13

Quant Time: Jun 24 06:27:51 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Jun 23 18:56:28 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

6/24/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.18	130	152061	12.500	ng	-0.04
37) 1,4-Difluorobenzene (IS2)	13.31	114	654294	12.500	ng	-0.02
56) Chlorobenzene-d5 (IS3)	17.63	82	284932	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.04	65	250602	12.467	ng	-0.03
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.76%	
57) Toluene-d8 (SS2)	15.76	98	736492	12.829	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	102.64%	
73) Bromofluorobenzene (SS3)	19.02	174	220908	12.138	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	97.12%	

Target Compounds

						Qvalue
2) Propene	4.21	42	1405	0.084	ng	95
3) Dichlorodifluoromethan...	4.36	85	3185	0.096	ng	# 91
4) Chloromethane	4.63	50	2354	0.117	ng	97
5) 1,2-Dichloro-1,1,2,2-t...	4.89	135	1973	0.084	ng	95
6) Vinyl Chloride	5.04	62	2656	0.097	ng	96
7) 1,3-Butadiene	5.31	54	1328	0.074	ng	# 84
8) Bromomethane	5.73	94	1227	0.089	ng	87
9) Chloroethane	6.07	64	905	0.092	ng	# 42
10) Ethanol	6.40	45	5715m	0.509	ng	
11) Acetonitrile	6.67	41	2528	0.101	ng	# 62
12) Acrolein	6.88	56	677	0.081	ng	# 72
13) Acetone	7.10	58	5138	0.442	ng	# 76
14) Trichlorofluoromethane	7.31	101	2637	0.091	ng	99
15) 2-Propanol (Isopropanol)	7.60	45	6629	0.190	ng	96
16) Acrylonitrile	7.81	53	1162	0.069	ng	90
17) 1,1-Dichloroethene	8.26	96	1346	0.093	ng	92
18) 2-Methyl-2-Propanol (t...	8.51	59	6841	0.193	ng	91
19) Methylene Chloride	8.46	84	1441	0.092	ng	96
20) 3-Chloro-1-propene (Al...	8.64	41	2336	0.110	ng	74
21) Trichlorotrifluoroethane	8.90	151	1367	0.097	ng	98
22) Carbon Disulfide	8.75	76	7715	0.131	ng	93
23) trans-1,2-Dichloroethene	9.74	61	1692	0.085	ng	95
24) 1,1-Dichloroethane	9.99	63	2387	0.099	ng	88
25) Methyl tert-Butyl Ether	10.16	73	4000	0.093	ng	89
26) Vinyl Acetate	10.26	86	1462	0.369	ng	# 36
27) 2-Butanone (MEK)	10.56	72	491	0.051	ng	# 1
28) cis-1,2-Dichloroethene	11.01	61	1849	0.093	ng	98
29) Diisopropyl Ether	11.34	87	1151	0.078	ng	# 84
30) Ethyl Acetate	11.35	61	845	0.159	ng	# 76
31) n-Hexane	11.30	57	1937	0.080	ng	# 89
32) Chloroform	11.35	83	2326	0.086	ng	97
34) Tetrahydrofuran (THF)	11.84	72	928	0.100	ng	# 76
35) Ethyl tert-Butyl Ether	11.93	87	1426	0.082	ng	# 86
36) 1,2-Dichloroethane	12.16	62	2001	0.093	ng	98
38) 1,1,1-Trichloroethane	12.43	97	2116	0.087	ng	95
39) Isopropyl Acetate	12.89	61	1376	0.147	ng	# 64
40) 1-Butanol	12.94	56	2460	0.165	ng	# 66
41) Benzene	12.91	78	5273	0.087	ng	97
42) Carbon Tetrachloride	13.07	117	2032	0.089	ng	97
43) Cyclohexane	13.21	84	4100	0.173	ng	95
44) tert-Amyl Methyl Ether	13.59	73	3639	0.090	ng	94
45) 1,2-Dichloropropane	13.77	63	1173	0.089	ng	94
46) Bromodichloromethane	13.96	83	1882	0.091	ng	87
47) Trichloroethene	14.02	130	1425	0.080	ng	92
48) 1,4-Dioxane	14.04	88	1030	0.082	ng	89
49) 2,2,4-Trimethylpentane...	14.08	57	5190	0.093	ng	98
50) Methyl Methacrylate	14.24	100	970	0.154	ng	# 88

Data File : I:\MS13\DATA\2020_06\23\06232011.D
 Acq On : 23 Jun 2020 19:22
 Sample : 0.1ng R13062320 ICAL STD
 Misc : S34-06182001

Vial: 12
 Operator: WA
 Inst : MS13

Quant Time: Jun 24 06:27:51 2020
 Quant Method : I:\MS13\METHODS\R13062320.M
 Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)
 QLast Update : Tue Jun 23 18:56:28 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

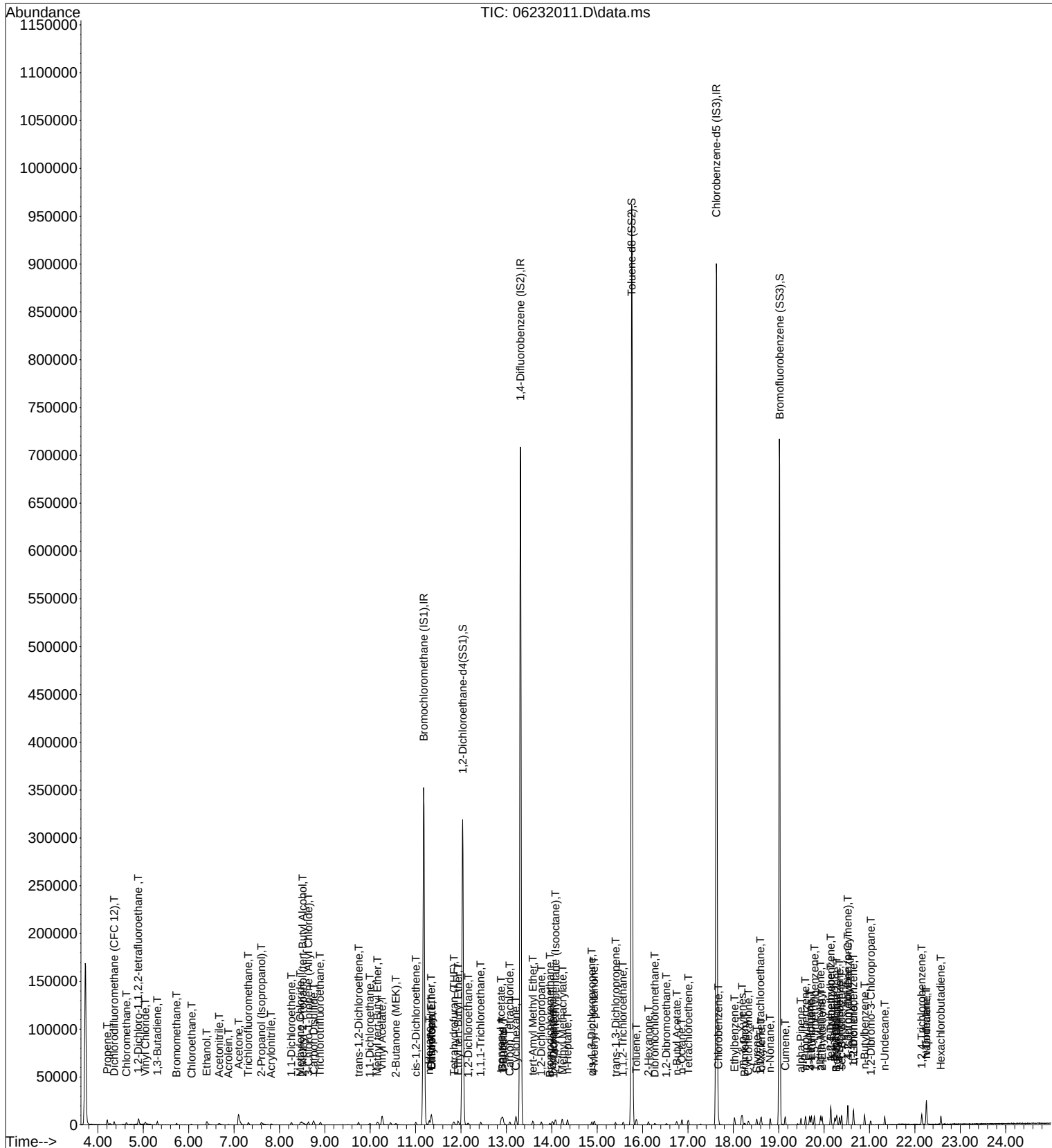
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.35	71	1317	0.091	ng	89
52) cis-1,3-Dichloropropene	14.88	75	1966	0.083	ng	92
53) 4-Methyl-2-pentanone	14.93	58	1000	0.078	ng	# 71
54) trans-1,3-Dichloropropene	15.41	75	1762	0.085	ng	93
55) 1,1,2-Trichloroethane	15.57	97	1258	0.089	ng	96
58) Toluene	15.86	91	5873	0.096	ng	99
59) 2-Hexanone	16.13	43	2947	0.093	ng	95
60) Dibromochloromethane	16.27	129	1577	0.090	ng	85
61) 1,2-Dibromoethane	16.52	107	1416	0.089	ng	99
62) n-Butyl Acetate	16.75	43	3322	0.097	ng	93
63) n-Octane	16.86	57	964	0.086	ng	91
64) Tetrachloroethene	17.01	166	1787	0.094	ng	90
65) Chlorobenzene	17.67	112	4048	0.096	ng	100
66) Ethylbenzene	18.02	91	6492	0.094	ng	91
67) m- & p-Xylenes	18.19	91	10187	0.183	ng	98
68) Bromoform	18.25	173	1162	0.075	ng	86
69) Styrene	18.51	104	3752	0.088	ng	98
70) o-Xylene	18.62	91	5014	0.089	ng	97
71) n-Nonane	18.81	43	2331	0.088	ng	94
72) 1,1,2,2-Tetrachloroethane	18.59	83	2229	0.085	ng	95
74) Cumene	19.15	105	6408	0.091	ng	95
75) alpha-Pinene	19.49	93	2897	0.082	ng	99
76) n-Propylbenzene	19.59	91	7781	0.094	ng	98
77) 3-Ethyltoluene	19.68	105	5926	0.085	ng	98
78) 4-Ethyltoluene	19.72	105	6446	0.093	ng	98
79) 1,3,5-Trimethylbenzene	19.79	105	5437	0.091	ng	95
80) alpha-Methylstyrene	19.92	118	2714	0.083	ng	91
81) 2-Ethyltoluene	19.95	105	6135	0.088	ng	98
82) 1,2,4-Trimethylbenzene	20.15	105	5361	0.086	ng	95
83) n-Decane	20.24	57	2374	0.084	ng	95
84) Benzyl Chloride	20.27	91	4532	0.088	ng	90
85) 1,3-Dichlorobenzene	20.28	146	3690	0.097	ng	97
86) 1,4-Dichlorobenzene	20.34	146	3745	0.102	ng	95
87) sec-Butylbenzene	20.39	105	6920	0.085	ng	95
88) 4-Isopropyltoluene (p-...	20.52	119	6711	0.085	ng	95
89) 1,2,3-Trimethylbenzene	20.52	105	5422	0.085	ng	100
90) 1,2-Dichlorobenzene	20.64	146	3538	0.095	ng	98
91) d-Limonene	20.65	68	1810	0.080	ng	92
92) 1,2-Dibromo-3-Chloropr...	21.03	157	1209	0.092	ng	# 76
93) n-Undecane	21.34	57	2409	0.084	ng	96
94) 1,2,4-Trichlorobenzene	22.15	180	3635	0.142	ng	96
95) Naphthalene	22.26	128	12870	0.160	ng	97
96) n-Dodecane	22.25	57	2935	0.107	ng	96
97) Hexachlorobutadiene	22.57	225	1776	0.102	ng	95
98) Cyclohexanone	18.33	55	1908	0.092	ng	92
99) tert-Butylbenzene	20.15	119	5310	0.087	ng	95
100) n-Butylbenzene	20.89	91	5849	0.091	ng	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File : I:\MS13\DATA\2020_06\23\06232011.D
Acq On : 23 Jun 2020 19:22
Sample : 0.1ng R13062320 ICAL STD
Misc : S34-06182001

Vial: 12
Operator: WA
Inst : MS13

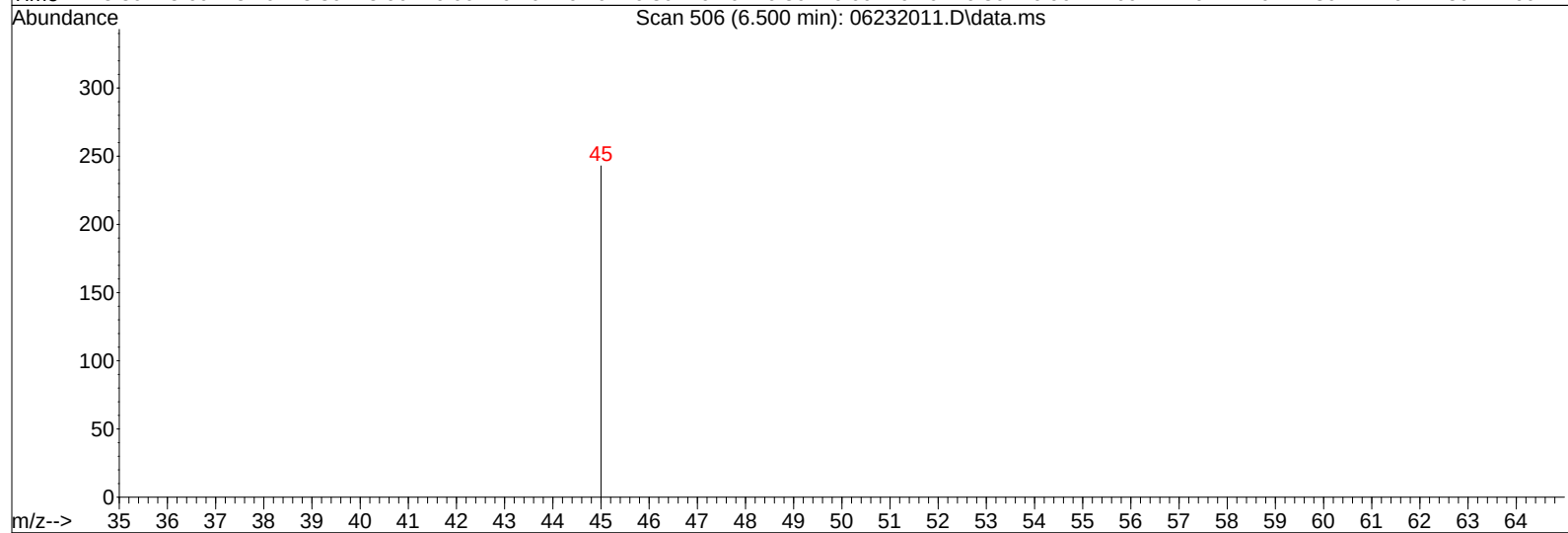
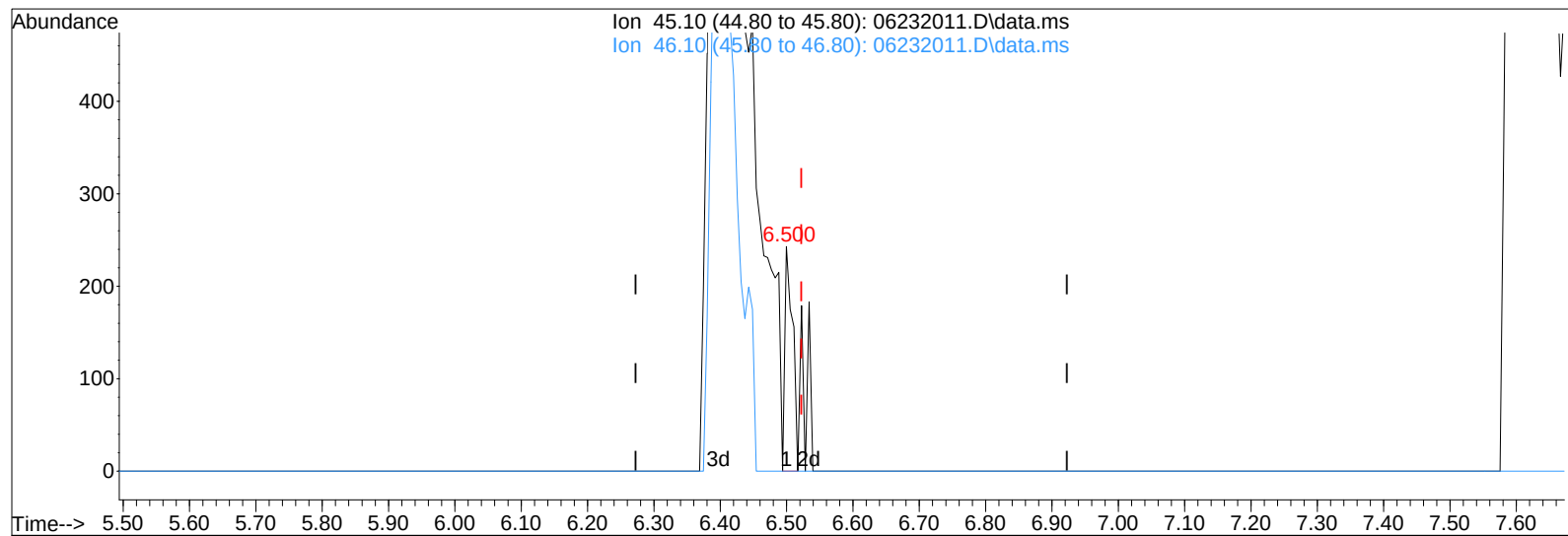
Quant Time: Jun 24 06:27:51 2020
Quant Method : I:\MS13\METHODS\R13062320.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Jun 23 18:56:28 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Data File : I:\MS13\DATA\2020_06\23\06232011.D
Acq On : 23 Jun 2020 19:22
Sample : 0.1ng R13062320 ICAL STD
Misc : S34-06182001

Vial: 12
Operator: WA
Inst : MS13

Quant Time: Jun 23 19:50:49 2020
Quant Method : I:\MS13\METHODS\R13062320.M
Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
QLast Update : Tue Jun 23 18:56:28 2020
Response via : Initial Calibration
DataAcq Meth:T015.M



TIC: 06232011.D\data.ms

(10) Ethanol (T)

6.500min (-0.023) 0.02ng

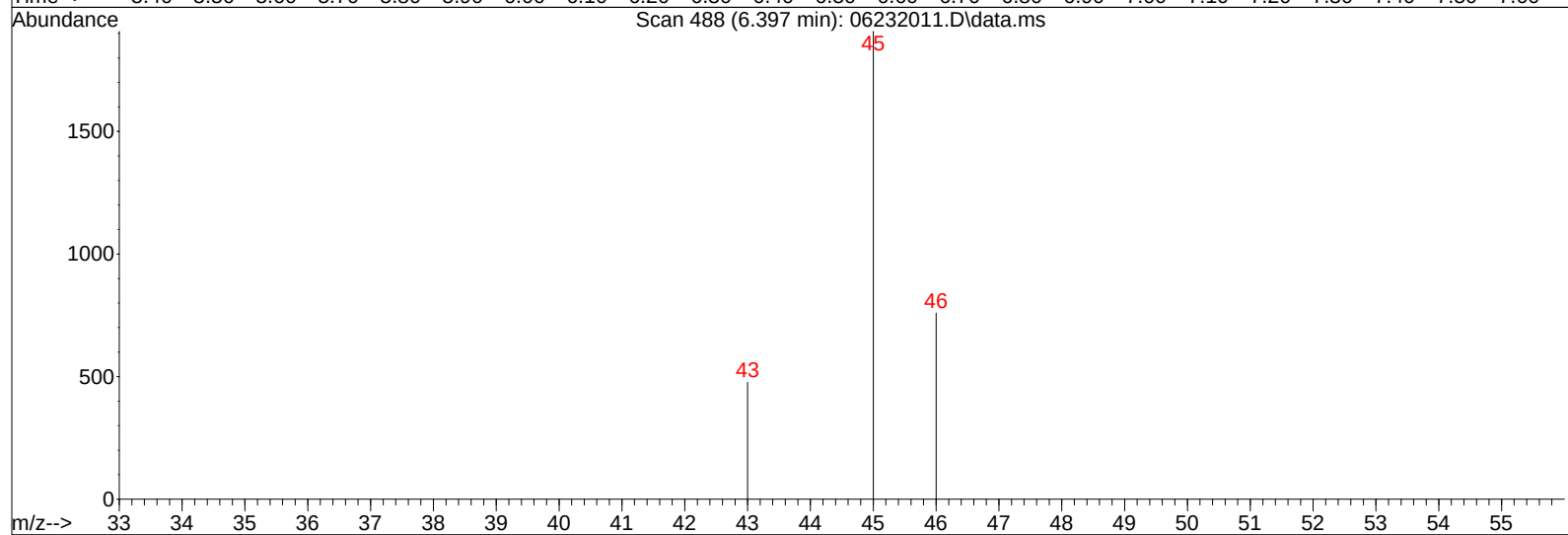
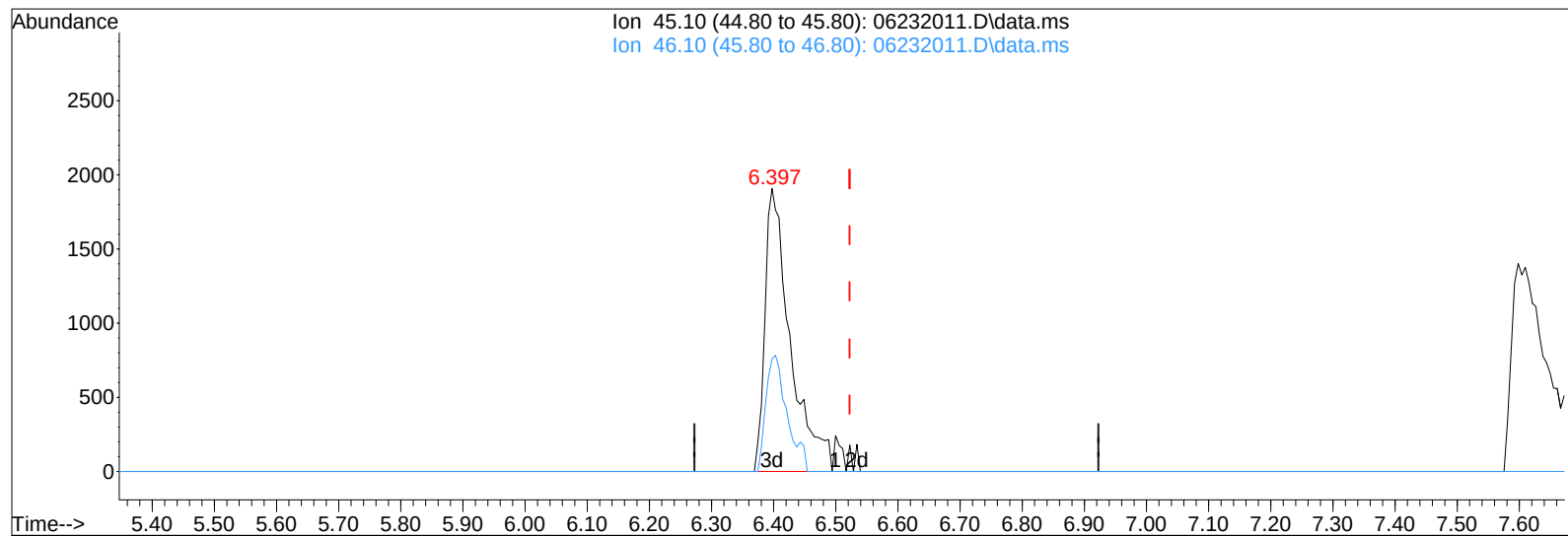
response 196

Ion	Exp%	Act%
45.10	100	100
46.10	37.20	0.00#
0.00	0.00	0.00
0.00	0.00	0.00

Data File : I:\MS13\DATA\2020_06\23\06232011.D
Acq On : 23 Jun 2020 19:22
Sample : 0.1ng R13062320 ICAL STD
Misc : S34-06182001

Vial: 12
Operator: WA
Inst : MS13

Quant Time: Jun 23 19:50:49 2020
Quant Method : I:\MS13\METHODS\R13062320.M
Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
QLast Update : Tue Jun 23 18:56:28 2020
Response via : Initial Calibration
DataAcq Meth:T015.M



TIC: 06232011.D\data.ms

(10) Ethanol (T)

6.397min (-0.125) 0.51ng m

response 5715

Ion	Exp%	Act%
45.10	100	100
46.10	37.20	32.41
0.00	0.00	0.00
0.00	0.00	0.00

MP

~~10A~~ 6/24/20

LH 6/24/20

Data File : I:\MS13\DATA\2020_06\23\06232003.D
 Acq On : 23 Jun 2020 14:49
 Sample : 0.2ng R13062320 ICAL STD
 Misc : S34-06182001/S34-06012007 (6/26)

Vial: 12
 Operator: WA
 Inst : MS13

Quant Time: Jun 23 17:48:02 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)

QLast Update : Tue Jun 23 17:47:13 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

6/24/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.18	130	159065	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.31	114	695464	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.63	82	303914	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.04	65	266082	12.620	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	100.96%
57) Toluene-d8 (SS2)	15.76	98	783616	12.911	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	103.28%
73) Bromofluorobenzene (SS3)	19.02	174	233807	11.849	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	94.80%

Target Compounds

						Qvalue
2) Propene	4.21	42	3247	0.188	ng	99
3) Dichlorodifluoromethan...	4.36	85	6978	0.201	ng	96
4) Chloromethane	4.63	50	4787	0.224	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.90	135	4615	0.189	ng	98
6) Vinyl Chloride	5.05	62	5697	0.199	ng	99
7) 1,3-Butadiene	5.31	54	3169	0.167	ng	92
8) Bromomethane	5.74	94	2874	0.200	ng	100
9) Chloroethane	6.06	64	1886	0.184	ng	93
10) Ethanol	6.40	45	9894	0.856	ng	95
11) Acetonitrile	6.67	41	4795	0.183	ng	82
12) Acrolein	6.88	56	1591	0.182	ng	90
13) Acetone	7.09	58	10811	0.893	ng	# 83
14) Trichlorofluoromethane	7.33	101	5638	0.186	ng	99
15) 2-Propanol (Isopropanol)	7.59	45	14339	0.392	ng	97
16) Acrylonitrile	7.82	53	2894	0.164	ng	97
17) 1,1-Dichloroethene	8.26	96	2932	0.194	ng	99
18) 2-Methyl-2-Propanol (t...	8.47	59	15186	0.406	ng	95
19) Methylene Chloride	8.47	84	3026	0.184	ng	99
20) 3-Chloro-1-propene (Al...	8.65	41	4664	0.210	ng	90
21) Trichlorotrifluoroethane	8.91	151	2760	0.188	ng	99
22) Carbon Disulfide	8.75	76	13466	0.216	ng	99
23) trans-1,2-Dichloroethene	9.74	61	3762	0.181	ng	97
24) 1,1-Dichloroethane	9.99	63	4872	0.194	ng	97
25) Methyl tert-Butyl Ether	10.15	73	8811	0.197	ng	96
26) Vinyl Acetate	10.26	86	3247	0.789	ng	# 46
27) 2-Butanone (MEK)	10.55	72	1726	0.174	ng	# 60
28) cis-1,2-Dichloroethene	11.01	61	3668	0.178	ng	97
29) Diisopropyl Ether	11.34	87	2694	0.174	ng	# 94
30) Ethyl Acetate	11.35	61	1713	0.311	ng	86
31) n-Hexane	11.30	57	4648	0.185	ng	97
32) Chloroform	11.35	83	5141	0.183	ng	97
34) Tetrahydrofuran (THF)	11.83	72	1817	0.188	ng	# 81
35) Ethyl tert-Butyl Ether	11.93	87	3344	0.185	ng	93
36) 1,2-Dichloroethane	12.16	62	4224	0.188	ng	99
38) 1,1,1-Trichloroethane	12.45	97	4817	0.187	ng	99
39) Isopropyl Acetate	12.89	61	3209	0.325	ng	# 81
40) 1-Butanol	12.92	56	4656	0.294	ng	82
41) Benzene	12.92	78	11443	0.178	ng	99
42) Carbon Tetrachloride	13.07	117	4288	0.178	ng	97
43) Cyclohexane	13.21	84	8718	0.348	ng	98
44) tert-Amyl Methyl Ether	13.58	73	8272	0.192	ng	97
45) 1,2-Dichloropropane	13.77	63	2500	0.180	ng	99
46) Bromodichloromethane	13.96	83	3943	0.179	ng	97
47) Trichloroethene	14.02	130	3196	0.170	ng	97
48) 1,4-Dioxane	14.03	88	2356	0.177	ng	98
49) 2,2,4-Trimethylpentane...	14.08	57	11416	0.193	ng	98
50) Methyl Methacrylate	14.23	100	2164	0.324	ng	91

Data File : I:\MS13\DATA\2020_06\23\06232003.D
 Acq On : 23 Jun 2020 14:49
 Sample : 0.2ng R13062320 ICAL STD
 Misc : S34-06182001/S34-06012007 (6/26)

Vial: 12
 Operator: WA
 Inst : MS13

Quant Time: Jun 23 17:48:02 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)

QLast Update : Tue Jun 23 17:47:13 2020

Response via : Initial Calibration

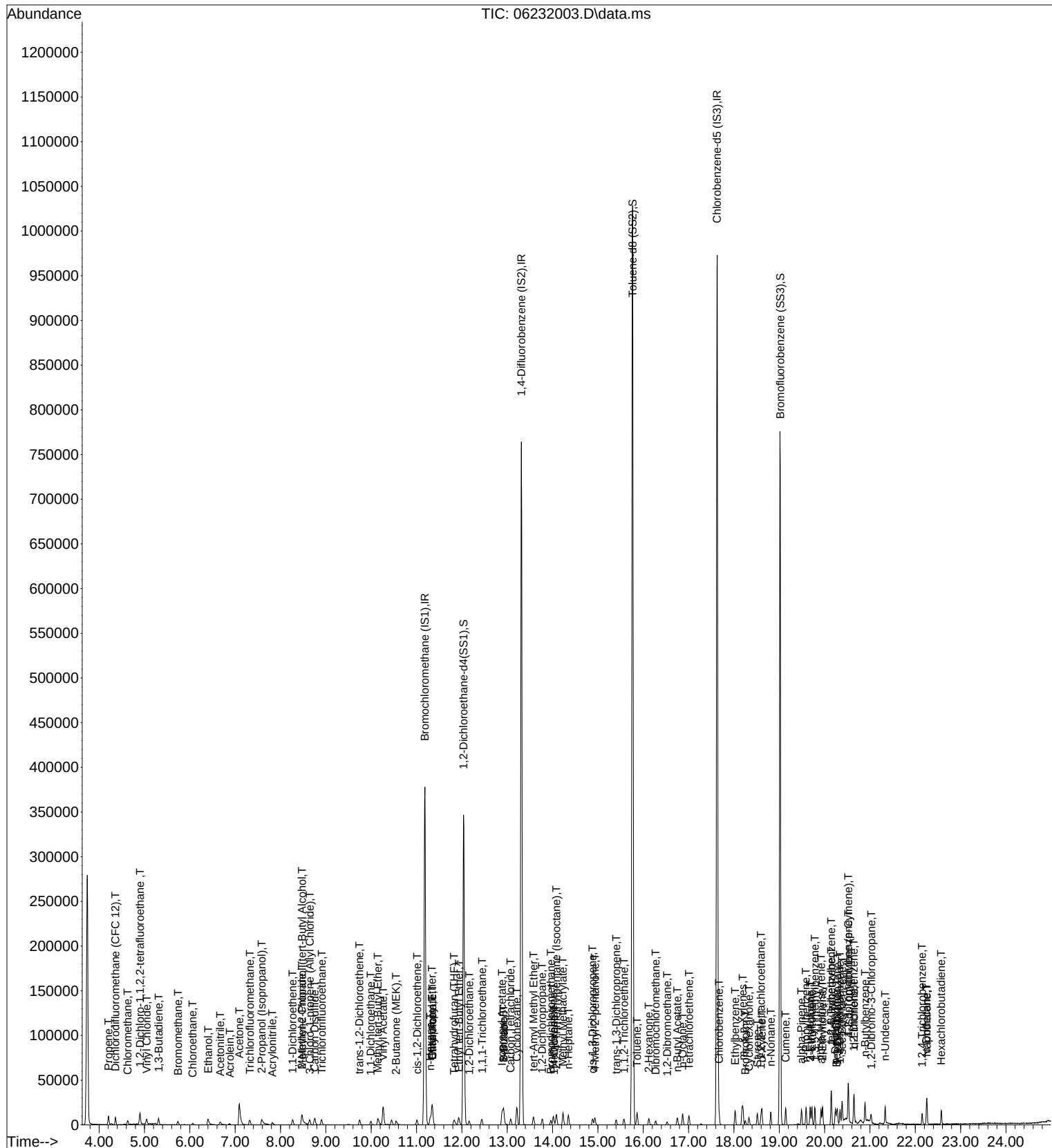
DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.35	71	2714	0.177	ng	92
52) cis-1,3-Dichloropropene	14.88	75	4151	0.166	ng	97
53) 4-Methyl-2-pentanone	14.93	58	2361	0.174	ng	86
54) trans-1,3-Dichloropropene	15.41	75	3729	0.168	ng	91
55) 1,1,2-Trichloroethane	15.58	97	2770	0.185	ng	94
58) Toluene	15.86	91	11888	0.186	ng	98
59) 2-Hexanone	16.12	43	6003	0.181	ng	94
60) Dibromochloromethane	16.27	129	3260	0.177	ng	96
61) 1,2-Dibromoethane	16.53	107	3020	0.179	ng	98
62) n-Butyl Acetate	16.75	43	6810	0.189	ng	98
63) n-Octane	16.87	57	2044	0.173	ng	95
64) Tetrachloroethene	17.01	166	3499	0.173	ng	98
65) Chlorobenzene	17.67	112	8012	0.182	ng	100
66) Ethylbenzene	18.02	91	13210	0.182	ng	99
67) m- & p-Xylenes	18.20	91	20618	0.352	ng	96
68) Bromoform	18.25	173	2488	0.152	ng	92
69) Styrene	18.51	104	7468	0.166	ng	98
70) o-Xylene	18.62	91	10262	0.173	ng	98
71) n-Nonane	18.82	43	5156	0.185	ng	92
72) 1,1,2,2-Tetrachloroethane	18.59	83	4713	0.171	ng	97
74) Cumene	19.14	105	12920	0.175	ng	98
75) alpha-Pinene	19.49	93	6330	0.171	ng	94
76) n-Propylbenzene	19.59	91	15883	0.183	ng	96
77) 3-Ethyltoluene	19.68	105	12014	0.161	ng	97
78) 4-Ethyltoluene	19.72	105	12770	0.179	ng	98
79) 1,3,5-Trimethylbenzene	19.78	105	10403	0.165	ng	99
80) alpha-Methylstyrene	19.92	118	5564	0.162	ng	93
81) 2-Ethyltoluene	19.95	105	12544	0.171	ng	99
82) 1,2,4-Trimethylbenzene	20.15	105	10412	0.160	ng	95
83) n-Decane	20.23	57	4938	0.166	ng	94
84) Benzyl Chloride	20.26	91	7819	0.144	ng	96
85) 1,3-Dichlorobenzene	20.28	146	6345	0.158	ng	100
86) 1,4-Dichlorobenzene	20.34	146	6127	0.158	ng	100
87) sec-Butylbenzene	20.39	105	14457	0.169	ng	97
88) 4-Isopropyltoluene (p-...	20.52	119	13588	0.164	ng	96
89) 1,2,3-Trimethylbenzene	20.52	105	10960	0.164	ng	97
90) 1,2-Dichlorobenzene	20.64	146	6165	0.158	ng	99
91) d-Limonene	20.65	68	4650	0.198	ng	95
92) 1,2-Dibromo-3-Chloropr...	21.03	157	2130	0.154	ng	# 79
93) n-Undecane	21.34	57	5077	0.169	ng	97
94) 1,2,4-Trichlorobenzene	22.15	180	4186	0.154	ng	98
95) Naphthalene	22.26	128	12991	0.153	ng	96
96) n-Dodecane	22.25	57	4693	0.163	ng	96
97) Hexachlorobutadiene	22.57	225	2969	0.161	ng	93
98) Cyclohexanone	18.33	55	3646	0.167	ng	95
99) tert-Butylbenzene	20.15	119	10423	0.162	ng	95
100) n-Butylbenzene	20.89	91	12209	0.180	ng	95

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Vial: 12
Operator: WA
Inst : MS13

Quant Time: Jun 23 17:48:02 2020
Quant Method : I:\MS13\METHODS\R13062320.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Jun 23 17:47:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Data File : I:\MS13\DATA\2020_06\23\06232004.D
 Acq On : 23 Jun 2020 15:23
 Sample : 0.5ng R13062320 ICAL STD
 Misc : S34-06182001/S34-06012007 (6/26)

Vial: 12
 Operator: WA
 Inst : MS13

Quant Time: Jun 23 17:48:04 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Jun 23 17:47:13 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

WA 6/24/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.18	130	144250	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.31	114	623338	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.63	82	276262	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.04	65	238512	12.474	ng	-0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	99.76%
57) Toluene-d8 (SS2)	15.76	98	698137	12.654	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.20%
73) Bromofluorobenzene (SS3)	19.02	174	219252	12.224	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	97.76%

Target Compounds

						Qvalue
2) Propene	4.19	42	7669	0.488	ng	96
3) Dichlorodifluoromethan...	4.34	85	16657	0.529	ng	99
4) Chloromethane	4.61	50	10684	0.551	ng	98
5) 1,2-Dichloro-1,1,2,2-t...	4.88	135	11425	0.516	ng	99
6) Vinyl Chloride	5.03	62	14284	0.551	ng	98
7) 1,3-Butadiene	5.29	54	9573	0.556	ng	94
8) Bromomethane	5.72	94	6773	0.519	ng	98
9) Chloroethane	6.05	64	4834	0.520	ng	97
10) Ethanol	6.39	45	29402	2.805	ng	93
11) Acetonitrile	6.65	41	11988	0.506	ng	94
12) Acrolein	6.85	56	3747	0.473	ng	97
13) Acetone	7.06	58	27149	2.473	ng	# 85
14) Trichlorofluoromethane	7.31	101	14406	0.523	ng	98
15) 2-Propanol (Isopropanol)	7.56	45	34694	1.046	ng	98
16) Acrylonitrile	7.81	53	7839	0.490	ng	97
17) 1,1-Dichloroethene	8.26	96	7265	0.530	ng	99
18) 2-Methyl-2-Propanol (t...	8.45	59	36263	1.069	ng	96
19) Methylene Chloride	8.46	84	7569	0.506	ng	97
20) 3-Chloro-1-propene (Al...	8.64	41	10412	0.517	ng	91
21) Trichlorotrifluoroethane	8.91	151	6792	0.511	ng	95
22) Carbon Disulfide	8.75	76	27606	0.489	ng	99
23) trans-1,2-Dichloroethene	9.74	61	9724	0.515	ng	100
24) 1,1-Dichloroethane	9.99	63	12074	0.530	ng	99
25) Methyl tert-Butyl Ether	10.13	73	21309	0.524	ng	99
26) Vinyl Acetate	10.26	86	8299	2.225	ng	# 60
27) 2-Butanone (MEK)	10.53	72	4841	0.538	ng	# 84
28) cis-1,2-Dichloroethene	11.01	61	9373	0.502	ng	100
29) Diisopropyl Ether	11.33	87	6868	0.489	ng	# 96
30) Ethyl Acetate	11.33	61	4638	0.928	ng	99
31) n-Hexane	11.30	57	11160	0.491	ng	99
32) Chloroform	11.35	83	12749	0.500	ng	100
34) Tetrahydrofuran (THF)	11.81	72	4670	0.533	ng	94
35) Ethyl tert-Butyl Ether	11.92	87	8426	0.513	ng	95
36) 1,2-Dichloroethane	12.16	62	10662	0.523	ng	99
38) 1,1,1-Trichloroethane	12.44	97	11578	0.502	ng	99
39) Isopropyl Acetate	12.88	61	8318	0.941	ng	# 91
40) 1-Butanol	12.91	56	11909	0.838	ng	88
41) Benzene	12.92	78	27891	0.484	ng	100
42) Carbon Tetrachloride	13.08	117	10430	0.483	ng	100
43) Cyclohexane	13.21	84	21519	0.957	ng	98
44) tert-Amyl Methyl Ether	13.57	73	19790	0.514	ng	99
45) 1,2-Dichloropropane	13.77	63	6654	0.534	ng	99
46) Bromodichloromethane	13.96	83	9689	0.491	ng	98
47) Trichloroethene	14.01	130	8025	0.476	ng	99
48) 1,4-Dioxane	14.01	88	5814	0.487	ng	99
49) 2,2,4-Trimethylpentane...	14.09	57	27187	0.514	ng	99
50) Methyl Methacrylate	14.23	100	5687	0.949	ng	96

Data File : I:\MS13\DATA\2020_06\23\06232004.D
 Acq On : 23 Jun 2020 15:23
 Sample : 0.5ng R13062320 ICAL STD
 Misc : S34-06182001/S34-06012007 (6/26)

Vial: 12
 Operator: WA
 Inst : MS13

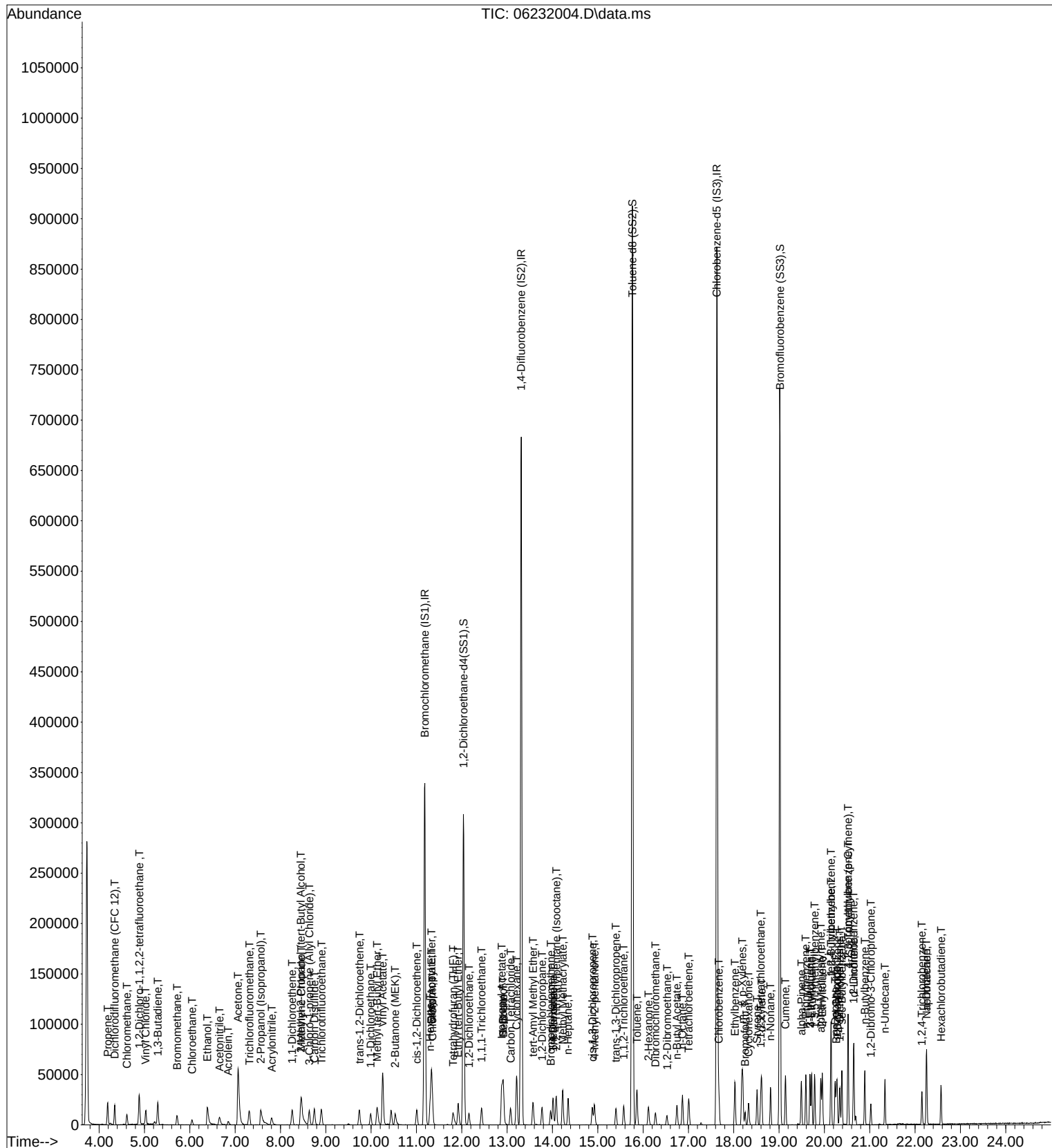
Quant Time: Jun 23 17:48:04 2020
 Quant Method : I:\MS13\METHODS\R13062320.M
 Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)
 QLast Update : Tue Jun 23 17:47:13 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.34	71	6805	0.496	ng	97
52) cis-1,3-Dichloropropene	14.88	75	10573	0.471	ng	97
53) 4-Methyl-2-pentanone	14.93	58	6026	0.495	ng	97
54) trans-1,3-Dichloropropene	15.40	75	9703	0.489	ng	98
55) 1,1,2-Trichloroethane	15.57	97	6884	0.513	ng	99
58) Toluene	15.86	91	30253	0.520	ng	98
59) 2-Hexanone	16.12	43	15266	0.505	ng	97
60) Dibromochloromethane	16.27	129	8143	0.486	ng	99
61) 1,2-Dibromoethane	16.53	107	7853	0.512	ng	99
62) n-Butyl Acetate	16.74	43	16897	0.517	ng	96
63) n-Octane	16.87	57	5372	0.501	ng	99
64) Tetrachloroethene	17.01	166	8903	0.485	ng	97
65) Chlorobenzene	17.67	112	19820	0.494	ng	97
66) Ethylbenzene	18.02	91	33221	0.504	ng	98
67) m- & p-Xylenes	18.19	91	50691	0.953	ng	98
68) Bromoform	18.25	173	6485	0.436	ng	98
69) Styrene	18.51	104	18463	0.451	ng	99
70) o-Xylene	18.62	91	25342	0.470	ng	99
71) n-Nonane	18.81	43	12509	0.493	ng	94
72) 1,1,2,2-Tetrachloroethane	18.59	83	11667	0.466	ng	99
74) Cumene	19.14	105	32933	0.492	ng	98
75) alpha-Pinene	19.49	93	16165	0.480	ng	95
76) n-Propylbenzene	19.59	91	38948	0.493	ng	98
77) 3-Ethyltoluene	19.68	105	30700	0.452	ng	99
78) 4-Ethyltoluene	19.72	105	32127	0.494	ng	96
79) 1,3,5-Trimethylbenzene	19.78	105	26630	0.465	ng	99
80) alpha-Methylstyrene	19.92	118	14016	0.449	ng	98
81) 2-Ethyltoluene	19.95	105	31039	0.464	ng	97
82) 1,2,4-Trimethylbenzene	20.15	105	26650	0.450	ng	97
83) n-Decane	20.24	57	12179	0.449	ng	98
84) Benzyl Chloride	20.26	91	19920	0.403	ng	95
85) 1,3-Dichlorobenzene	20.28	146	15640	0.428	ng	98
86) 1,4-Dichlorobenzene	20.34	146	15297	0.433	ng	100
87) sec-Butylbenzene	20.39	105	35768	0.460	ng	97
88) 4-Isopropyltoluene (p-...	20.52	119	34571	0.458	ng	99
89) 1,2,3-Trimethylbenzene	20.52	105	27178	0.446	ng	100
90) 1,2-Dichlorobenzene	20.64	146	15003	0.424	ng	99
91) d-Limonene	20.65	68	10331	0.483	ng	98
92) 1,2-Dibromo-3-Chloropr...	21.02	157	5364	0.426	ng	86
93) n-Undecane	21.34	57	12418	0.454	ng	97
94) 1,2,4-Trichlorobenzene	22.15	180	10262	0.416	ng	99
95) Naphthalene	22.26	128	30817	0.400	ng	98
96) n-Dodecane	22.25	57	11199	0.427	ng	97
97) Hexachlorobutadiene	22.58	225	7356	0.440	ng	99
98) Cyclohexanone	18.33	55	9411	0.474	ng	97
99) tert-Butylbenzene	20.15	119	26514	0.453	ng	97
100) n-Butylbenzene	20.89	91	28492	0.462	ng	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Vial: 12
Operator: WA
Inst : MS13

Quant Time: Jun 23 17:48:04 2020



Data File : I:\MS13\DATA\2020_06\23\06232005.D
 Acq On : 23 Jun 2020 15:57
 Sample : 1.0ng R13062320 ICAL STD
 Misc : S34-06182001/S34-06012007 (6/26)

Vial: 12
 Operator: WA
 Inst : MS13

Quant Time: Jun 23 17:48:06 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Jun 23 17:47:13 2020

Response via : Initial Calibration

DataAcq Meth:TO15.M

6/24/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.19	130	137195	12.500	ng	-0.02
37) 1,4-Difluorobenzene (IS2)	13.31	114	595776	12.500	ng	-0.01
56) Chlorobenzene-d5 (IS3)	17.63	82	260024	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.04	65	224953	12.370	ng	-0.01
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.96%	
57) Toluene-d8 (SS2)	15.76	98	669401	12.890	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	103.12%	
73) Bromofluorobenzene (SS3)	19.02	174	204464	12.111	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	96.88%	

Target Compounds

	R.T.	QIon	Response	Conc	Units	Qvalue
2) Propene	4.19	42	14541	0.974	ng	96
3) Dichlorodifluoromethan...	4.35	85	31222	1.042	ng	99
4) Chloromethane	4.62	50	17827	0.966	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.89	135	22105	1.050	ng	99
6) Vinyl Chloride	5.03	62	25907	1.050	ng	99
7) 1,3-Butadiene	5.29	54	18952	1.157	ng	97
8) Bromomethane	5.72	94	12972	1.044	ng	98
9) Chloroethane	6.05	64	9207	1.042	ng	99
10) Ethanol	6.40	45	50643	5.081	ng	99
11) Acetonitrile	6.66	41	21144	0.938	ng	93
12) Acrolein	6.85	56	7415	0.984	ng	99
13) Acetone	7.06	58	50176	4.806	ng	88
14) Trichlorofluoromethane	7.31	101	26810	1.023	ng	100
15) 2-Propanol (Isopropanol)	7.56	45	61591	1.953	ng	98
16) Acrylonitrile	7.81	53	14874	0.977	ng	97
17) 1,1-Dichloroethene	8.26	96	13494	1.036	ng	98
18) 2-Methyl-2-Propanol (t...	8.44	59	66104	2.049	ng	98
19) Methylene Chloride	8.46	84	13534	0.952	ng	95
20) 3-Chloro-1-propene (Al...	8.64	41	18822	0.983	ng	99
21) Trichlorotrifluoroethane	8.91	151	12976	1.027	ng	96
22) Carbon Disulfide	8.75	76	49549	0.922	ng	99
23) trans-1,2-Dichloroethene	9.74	61	18489	1.030	ng	98
24) 1,1-Dichloroethane	9.99	63	23031	1.063	ng	98
25) Methyl tert-Butyl Ether	10.13	73	41296	1.068	ng	99
26) Vinyl Acetate	10.26	86	16637	4.689	ng	# 66
27) 2-Butanone (MEK)	10.52	72	8904	1.040	ng	# 85
28) cis-1,2-Dichloroethene	11.01	61	17968	1.012	ng	98
29) Diisopropyl Ether	11.33	87	13342	0.998	ng	# 94
30) Ethyl Acetate	11.33	61	9247	1.946	ng	99
31) n-Hexane	11.31	57	20879	0.965	ng	99
32) Chloroform	11.35	83	24657	1.016	ng	98
34) Tetrahydrofuran (THF)	11.80	72	8909	1.068	ng	97
35) Ethyl tert-Butyl Ether	11.92	87	16349	1.047	ng	99
36) 1,2-Dichloroethane	12.16	62	20005	1.032	ng	100
38) 1,1,1-Trichloroethane	12.44	97	22773	1.033	ng	98
39) Isopropyl Acetate	12.88	61	15380	1.820	ng	# 89
40) 1-Butanol	12.90	56	22605	1.665	ng	85
41) Benzene	12.92	78	51850	0.941	ng	99
42) Carbon Tetrachloride	13.07	117	19987	0.968	ng	99
43) Cyclohexane	13.21	84	40653	1.892	ng	98
44) tert-Amyl Methyl Ether	13.57	73	37197	1.010	ng	98
45) 1,2-Dichloropropane	13.77	63	12291	1.032	ng	98
46) Bromodichloromethane	13.96	83	18296	0.970	ng	99
47) Trichloroethene	14.02	130	15411	0.956	ng	99
48) 1,4-Dioxane	14.01	88	11273	0.989	ng	100
49) 2,2,4-Trimethylpentane...	14.08	57	50183	0.992	ng	99
50) Methyl Methacrylate	14.22	100	10981	1.918	ng	99

Data File : I:\MS13\DATA\2020_06\23\06232005.D
 Acq On : 23 Jun 2020 15:57
 Sample : 1.0ng R13062320 ICAL STD
 Misc : S34-06182001/S34-06012007 (6/26)

Vial: 12
 Operator: WA
 Inst : MS13

Quant Time: Jun 23 17:48:06 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)

QLast Update : Tue Jun 23 17:47:13 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.35	71	12956	0.988	ng	98
52) cis-1,3-Dichloropropene	14.88	75	20641	0.963	ng	99
53) 4-Methyl-2-pentanone	14.92	58	11279	0.969	ng	94
54) trans-1,3-Dichloropropene	15.39	75	18656	0.984	ng	98
55) 1,1,2-Trichloroethane	15.57	97	13094	1.021	ng	98
58) Toluene	15.87	91	56393	1.030	ng	99
59) 2-Hexanone	16.11	43	29744	1.046	ng	96
60) Dibromochloromethane	16.27	129	15686	0.995	ng	100
61) 1,2-Dibromoethane	16.52	107	14802	1.025	ng	99
62) n-Butyl Acetate	16.74	43	32515	1.057	ng	97
63) n-Octane	16.87	57	10068	0.999	ng	99
64) Tetrachloroethene	17.01	166	16573	0.959	ng	98
65) Chlorobenzene	17.67	112	38319	1.016	ng	98
66) Ethylbenzene	18.02	91	62621	1.010	ng	99
67) m- & p-Xylenes	18.19	91	96495	1.928	ng	100
68) Bromoform	18.25	173	12606	0.901	ng	99
69) Styrene	18.51	104	36202	0.939	ng	99
70) o-Xylene	18.62	91	48909	0.964	ng	97
71) n-Nonane	18.82	43	23773	0.994	ng	97
72) 1,1,2,2-Tetrachloroethane	18.59	83	22503	0.954	ng	100
74) Cumene	19.14	105	63034	1.000	ng	98
75) alpha-Pinene	19.49	93	31078	0.980	ng	95
76) n-Propylbenzene	19.59	91	74433	1.000	ng	98
77) 3-Ethyltoluene	19.68	105	58193	0.910	ng	97
78) 4-Ethyltoluene	19.72	105	61128	0.999	ng	94
79) 1,3,5-Trimethylbenzene	19.78	105	51020	0.946	ng	99
80) alpha-Methylstyrene	19.92	118	27552	0.938	ng	93
81) 2-Ethyltoluene	19.95	105	60483	0.961	ng	98
82) 1,2,4-Trimethylbenzene	20.15	105	51518	0.924	ng	97
83) n-Decane	20.24	57	23457	0.919	ng	98
84) Benzyl Chloride	20.26	91	38646	0.831	ng	99
85) 1,3-Dichlorobenzene	20.28	146	29765	0.866	ng	100
86) 1,4-Dichlorobenzene	20.34	146	29282	0.881	ng	99
87) sec-Butylbenzene	20.39	105	67971	0.929	ng	99
88) 4-Isopropyltoluene (p-...	20.52	119	67078	0.944	ng	98
89) 1,2,3-Trimethylbenzene	20.52	105	53300	0.929	ng	98
90) 1,2-Dichlorobenzene	20.64	146	30027	0.901	ng	99
91) d-Limonene	20.65	68	20599	1.023	ng	97
92) 1,2-Dibromo-3-Chloropr...	21.02	157	10365	0.875	ng	90
93) n-Undecane	21.34	57	23563	0.915	ng	98
94) 1,2,4-Trichlorobenzene	22.15	180	19334	0.834	ng	100
95) Naphthalene	22.25	128	57335	0.790	ng	99
96) n-Dodecane	22.25	57	21677	0.878	ng	97
97) Hexachlorobutadiene	22.58	225	13844	0.879	ng	99
98) Cyclohexanone	18.33	55	17826	0.955	ng	98
99) tert-Butylbenzene	20.15	119	51337	0.933	ng	99
100) n-Butylbenzene	20.89	91	54419	0.938	ng	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Vial: 12
Operator: WA
Inst : MS13

Quant Time: Jun 23 17:48:06 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA T0-15 per SOP V0A-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Jun 23 17:47:13 2020

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File : I:\MS13\DATA\2020_06\23\06232006.D
 Acq On : 23 Jun 2020 16:31
 Sample : 5.0ng R13062320 ICAL STD
 Misc : S34-06182001/S34-06192001 (7/17)

Vial: 1
 Operator: WA
 Inst : MS13

Quant Time: Jun 23 17:48:08 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Jun 23 17:47:13 2020

Response via : Initial Calibration

DataAcq Meth:TO15.M

6/24/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.19	130	147335	12.500	ng	-0.01
37) 1,4-Difluorobenzene (IS2)	13.32	114	638254	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.63	82	279815	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.05	65	242898	12.438	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.52%	
57) Toluene-d8 (SS2)	15.76	98	716383	12.819	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	102.56%	
73) Bromofluorobenzene (SS3)	19.02	174	224500	12.357	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	98.88%	

Target Compounds

						Qvalue
2) Propene	4.18	42	67877	4.233	ng	99
3) Dichlorodifluoromethan...	4.34	85	160448	4.986	ng	99
4) Chloromethane	4.60	50	112929	5.700	ng	98
5) 1,2-Dichloro-1,1,2,2-t...	4.88	135	112395	4.971	ng	100
6) Vinyl Chloride	5.03	62	134344	5.072	ng	100
7) 1,3-Butadiene	5.29	54	75239	4.276	ng	98
8) Bromomethane	5.72	94	68221	5.114	ng	99
9) Chloroethane	6.05	64	48328	5.092	ng	99
10) Ethanol	6.41	45	256003	23.915	ng	99
11) Acetonitrile	6.67	41	110864	4.577	ng	98
12) Acrolein	6.85	56	40994	5.066	ng	99
13) Acetone	7.06	58	255996	22.832	ng	89
14) Trichlorofluoromethane	7.31	101	139993	4.973	ng	100
15) 2-Propanol (Isopropanol)	7.56	45	351456	10.376	ng	99
16) Acrylonitrile	7.82	53	81809	5.003	ng	100
17) 1,1-Dichloroethene	8.26	96	70122	5.011	ng	98
18) 2-Methyl-2-Propanol (t...	8.43	59	378754	10.934	ng	100
19) Methylene Chloride	8.48	84	71431	4.677	ng	98
20) 3-Chloro-1-propene (Al...	8.65	41	101820	4.949	ng	99
21) Trichlorotrifluoroethane	8.90	151	72002	5.305	ng	99
22) Carbon Disulfide	8.75	76	253234	4.389	ng	100
23) trans-1,2-Dichloroethene	9.75	61	98425	5.106	ng	100
24) 1,1-Dichloroethane	10.01	63	121019	5.203	ng	100
25) Methyl tert-Butyl Ether	10.11	73	222657	5.363	ng	99
26) Vinyl Acetate	10.26	86	97990	25.719	ng	# 73
27) 2-Butanone (MEK)	10.51	72	47799	5.201	ng	95
28) cis-1,2-Dichloroethene	11.02	61	94402	4.952	ng	100
29) Diisopropyl Ether	11.32	87	76448	5.327	ng	# 86
30) Ethyl Acetate	11.33	61	51570	10.103	ng	98
31) n-Hexane	11.31	57	114969	4.949	ng	99
32) Chloroform	11.37	83	131459	5.044	ng	100
34) Tetrahydrofuran (THF)	11.78	72	46372	5.178	ng	98
35) Ethyl tert-Butyl Ether	11.91	87	88230	5.259	ng	99
36) 1,2-Dichloroethane	12.16	62	107036	5.141	ng	99
38) 1,1,1-Trichloroethane	12.44	97	120131	5.088	ng	99
39) Isopropyl Acetate	12.87	61	88686	9.797	ng	94
40) 1-Butanol	12.89	56	138908	9.548	ng	93
41) Benzene	12.92	78	284292	4.814	ng	99
42) Carbon Tetrachloride	13.08	117	111910	5.061	ng	99
43) Cyclohexane	13.22	84	225082	9.778	ng	99
44) tert-Amyl Methyl Ether	13.56	73	204901	5.193	ng	99
45) 1,2-Dichloropropane	13.77	63	66153	5.187	ng	100
46) Bromodichloromethane	13.97	83	103994	5.146	ng	100
47) Trichloroethene	14.02	130	83988	4.865	ng	99
48) 1,4-Dioxane	14.00	88	61241	5.014	ng	100
49) 2,2,4-Trimethylpentane...	14.09	57	271074	5.002	ng	99
50) Methyl Methacrylate	14.22	100	60599	9.881	ng	96

Data File : I:\MS13\DATA\2020_06\23\06232006.D
 Acq On : 23 Jun 2020 16:31
 Sample : 5.0ng R13062320 ICAL STD
 Misc : S34-06182001/S34-06192001 (7/17)

Vial: 1
 Operator: WA
 Inst : MS13

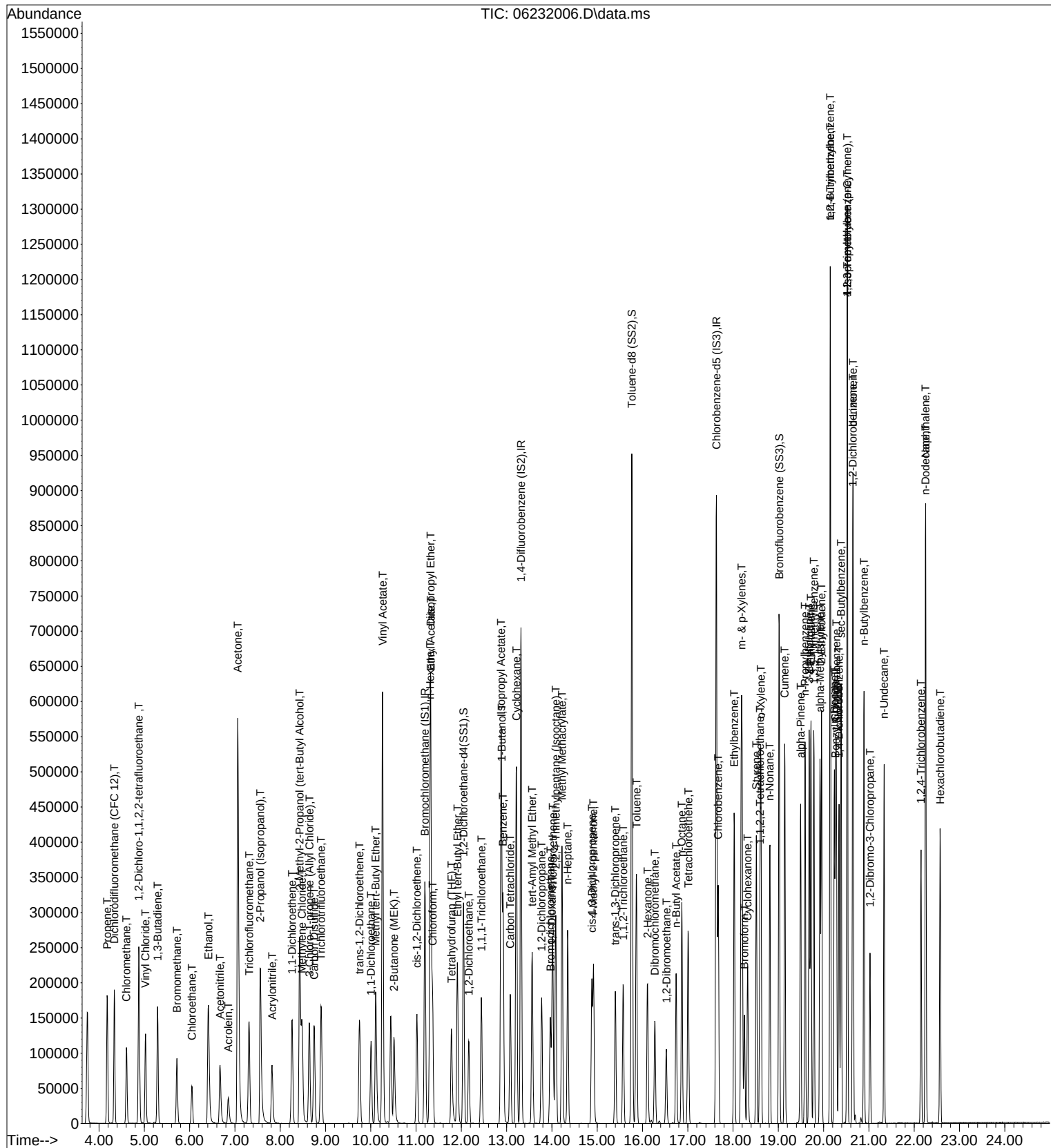
Quant Time: Jun 23 17:48:08 2020
 Quant Method : I:\MS13\METHODS\R13062320.M
 Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 QLast Update : Tue Jun 23 17:47:13 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.35	71	70557	5.022	ng	99
52) cis-1,3-Dichloropropene	14.88	75	114909	5.004	ng	100
53) 4-Methyl-2-pentanone	14.92	58	61136	4.901	ng	96
54) trans-1,3-Dichloropropene	15.40	75	107189	5.277	ng	100
55) 1,1,2-Trichloroethane	15.58	97	70189	5.106	ng	100
58) Toluene	15.87	91	299799	5.088	ng	99
59) 2-Hexanone	16.11	43	160408	5.241	ng	97
60) Dibromochloromethane	16.27	129	90042	5.308	ng	99
61) 1,2-Dibromoethane	16.53	107	83794	5.392	ng	99
62) n-Butyl Acetate	16.74	43	175237	5.295	ng	98
63) n-Octane	16.87	57	56105	5.171	ng	99
64) Tetrachloroethene	17.01	166	91569	4.924	ng	99
65) Chlorobenzene	17.67	112	204899	5.047	ng	100
66) Ethylbenzene	18.02	91	339247	5.084	ng	99
67) m- & p-Xylenes	18.19	91	545496	10.128	ng	99
68) Bromoform	18.25	173	77024	5.115	ng	100
69) Styrene	18.51	104	211429	5.094	ng	99
70) o-Xylene	18.62	91	273911	5.017	ng	99
71) n-Nonane	18.81	43	132870	5.165	ng	97
72) 1,1,2,2-Tetrachloroethane	18.59	83	127192	5.013	ng	100
74) Cumene	19.14	105	351523	5.183	ng	99
75) alpha-Pinene	19.49	93	169160	4.954	ng	99
76) n-Propylbenzene	19.59	91	419024	5.233	ng	98
77) 3-Ethyltoluene	19.68	105	333048	4.839	ng	96
78) 4-Ethyltoluene	19.72	105	354201	5.381	ng	93
79) 1,3,5-Trimethylbenzene	19.78	105	290232	5.001	ng	99
80) alpha-Methylstyrene	19.92	118	155441	4.919	ng	98
81) 2-Ethyltoluene	19.95	105	348544	5.148	ng	98
82) 1,2,4-Trimethylbenzene	20.15	105	314129	5.238	ng	98
83) n-Decane	20.24	57	138849	5.057	ng	99
84) Benzyl Chloride	20.26	91	258002	5.154	ng	98
85) 1,3-Dichlorobenzene	20.28	146	183073	4.949	ng	100
86) 1,4-Dichlorobenzene	20.34	146	179544	5.022	ng	100
87) sec-Butylbenzene	20.39	105	399157	5.070	ng	98
88) 4-Isopropyltoluene (p-...	20.52	119	398054	5.203	ng	98
89) 1,2,3-Trimethylbenzene	20.52	105	323726	5.245	ng	99
90) 1,2-Dichlorobenzene	20.64	146	179424	5.002	ng	99
91) d-Limonene	20.65	68	110055	5.079	ng	96
92) 1,2-Dibromo-3-Chloropr...	21.02	157	61954	4.858	ng	96
93) n-Undecane	21.34	57	135909	4.907	ng	98
94) 1,2,4-Trichlorobenzene	22.15	180	118460	4.746	ng	100
95) Naphthalene	22.25	128	368645	4.723	ng	99
96) n-Dodecane	22.25	57	124093	4.673	ng	96
97) Hexachlorobutadiene	22.58	225	76918	4.541	ng	99
98) Cyclohexanone	18.32	55	92994	4.628	ng	98
99) tert-Butylbenzene	20.15	119	308748	5.214	ng	98
100) n-Butylbenzene	20.89	91	314137	5.034	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Vial: 1
Operator: WA
Inst : MS13

Quant Time: Jun 23 17:48:08 2020
Quant Method : I:\MS13\METHODS\R13062320.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Jun 23 17:47:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Data File : I:\MS13\DATA\2020_06\23\06232007.D
 Acq On : 23 Jun 2020 17:05
 Sample : 25ng R13062320 ICAL STD
 Misc : S34-06182001/S34-06192001 (7/17)

Vial: 1
 Operator: WA
 Inst : MS13

Quant Time: Jun 23 17:48:10 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Jun 23 17:47:13 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

6/24/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.21	130	145364	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.32	114	628086	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.63	82	282894	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.05	65	239758	12.443	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	99.52%	
57) Toluene-d8 (SS2)	15.76	98	707160	12.517	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	100.16%	
73) Bromofluorobenzene (SS3)	19.02	174	232896	12.680	ng	0.00
Spiked Amount	12.500	Range 70 - 130	Recovery	=	101.44%	

Target Compounds

						Qvalue
2) Propene	4.17	42	352785	22.298	ng	100
3) Dichlorodifluoromethan...	4.33	85	802767	25.285	ng	100
4) Chloromethane	4.60	50	513862	26.290	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	563422	25.255	ng	100
6) Vinyl Chloride	5.03	62	658853	25.210	ng	100
7) 1,3-Butadiene	5.29	54	396968	22.867	ng	100
8) Bromomethane	5.73	94	346113	26.296	ng	100
9) Chloroethane	6.06	64	239380	25.565	ng	100
10) Ethanol	6.45	45	1417324	134.199	ng	100
11) Acetonitrile	6.69	41	572992	23.979	ng	100
12) Acrolein	6.86	56	205870	25.786	ng	100
13) Acetone	7.08	58	1507582	136.280	ng	100
14) Trichlorofluoromethane	7.31	101	714980	25.743	ng	100
15) 2-Propanol (Isopropanol)	7.58	45	1880414	56.268	ng	100
16) Acrylonitrile	7.83	53	436309	27.045	ng	100
17) 1,1-Dichloroethene	8.26	96	363002	26.292	ng	100
18) 2-Methyl-2-Propanol (t...	8.45	59	2096054	61.329	ng	100
19) Methylene Chloride	8.50	84	372956	24.750	ng	100
20) 3-Chloro-1-propene (Al...	8.65	41	521323	25.685	ng	100
21) Trichlorotrifluoroethane	8.90	151	362146	27.046	ng	100
22) Carbon Disulfide	8.76	76	1287209	22.610	ng	100
23) trans-1,2-Dichloroethene	9.76	61	502300	26.414	ng	100
24) 1,1-Dichloroethane	10.01	63	614223	26.767	ng	100
25) Methyl tert-Butyl Ether	10.11	73	1148479	28.037	ng	100
26) Vinyl Acetate	10.27	86	620551	165.084	ng	100
27) 2-Butanone (MEK)	10.51	72	257084	28.354	ng	100
28) cis-1,2-Dichloroethene	11.02	61	488831	25.988	ng	100
29) Diisopropyl Ether	11.32	87	413911	29.235	ng	100
30) Ethyl Acetate	11.33	61	317297	63.006	ng	100
31) n-Hexane	11.31	57	681226	29.723	ng	100
32) Chloroform	11.37	83	689461	26.810	ng	100
34) Tetrahydrofuran (THF)	11.78	72	235380	26.637	ng	100
35) Ethyl tert-Butyl Ether	11.91	87	476600	28.795	ng	100
36) 1,2-Dichloroethane	12.17	62	550327	26.790	ng	100
38) 1,1,1-Trichloroethane	12.45	97	625462	26.922	ng	100
39) Isopropyl Acetate	12.88	61	523577	58.775	ng	100
40) 1-Butanol	12.90	56	888671	62.072	ng	100
41) Benzene	12.92	78	1588516	27.337	ng	100
42) Carbon Tetrachloride	13.08	117	602255	27.678	ng	100
43) Cyclohexane	13.22	84	1291897	57.028	ng	100
44) tert-Amyl Methyl Ether	13.56	73	1107008	28.512	ng	100
45) 1,2-Dichloropropane	13.78	63	340699	27.146	ng	100
46) Bromodichloromethane	13.97	83	560357	28.177	ng	100
47) Trichloroethene	14.02	130	461863	27.188	ng	100
48) 1,4-Dioxane	13.99	88	335963	27.954	ng	100
49) 2,2,4-Trimethylpentane...	14.09	57	1427372	26.768	ng	100
50) Methyl Methacrylate	14.23	100	358498	59.399	ng	100

Data File : I:\MS13\DATA\2020_06\23\06232007.D
 Acq On : 23 Jun 2020 17:05
 Sample : 25ng R13062320 ICAL STD
 Misc : S34-06182001/S34-06192001 (7/17)

Vial: 1
 Operator: WA
 Inst : MS13

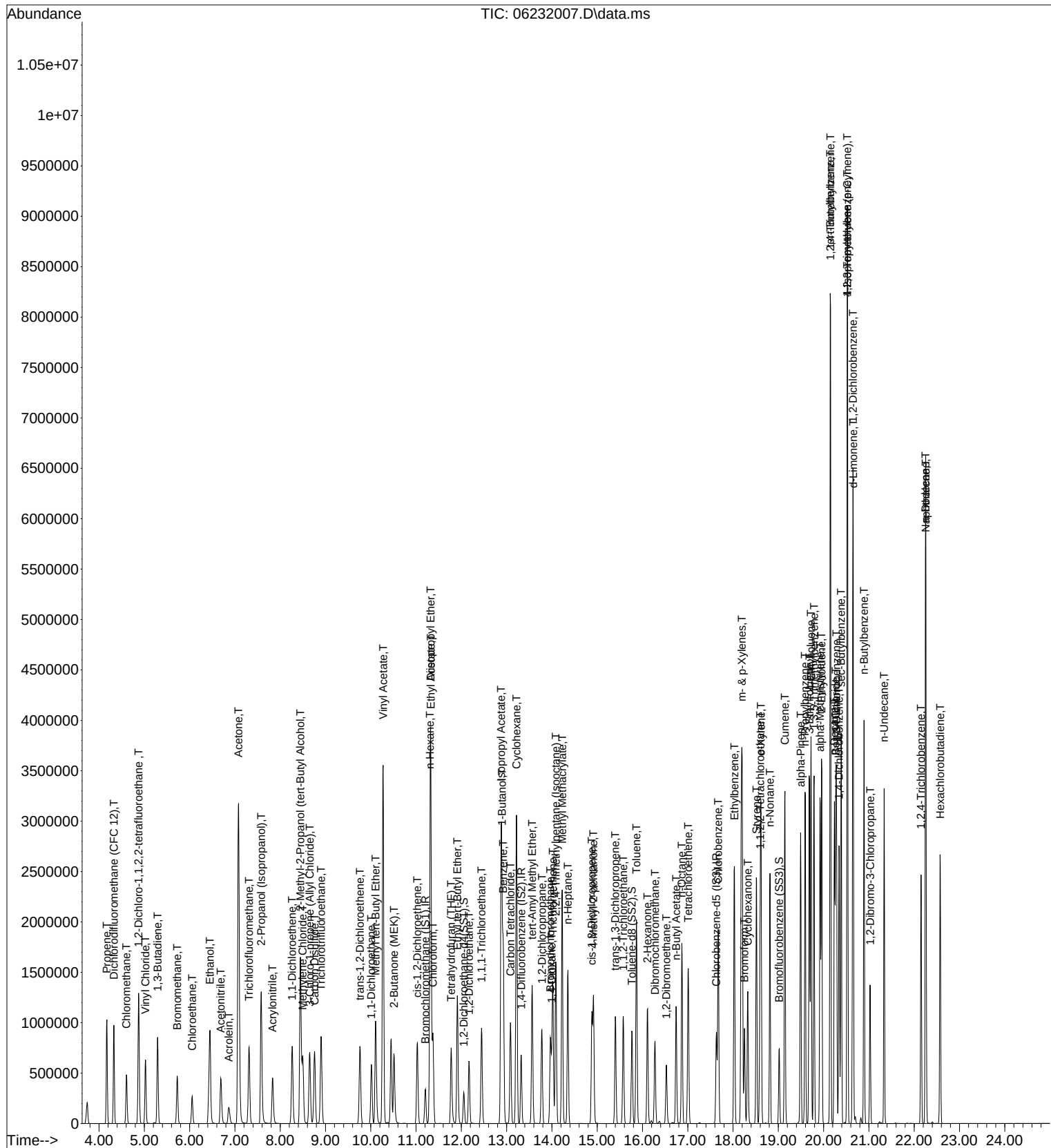
Quant Time: Jun 23 17:48:10 2020
 Quant Method : I:\MS13\METHODS\R13062320.M
 Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 QLast Update : Tue Jun 23 17:47:13 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.35	71	384620	27.819	ng	100
52) cis-1,3-Dichloropropene	14.88	75	624637	27.644	ng	100
53) 4-Methyl-2-pentanone	14.92	58	333286	27.151	ng	100
54) trans-1,3-Dichloropropene	15.40	75	584803	29.254	ng	100
55) 1,1,2-Trichloroethane	15.58	97	370897	27.420	ng	100
58) Toluene	15.87	91	1616842	27.141	ng	100
59) 2-Hexanone	16.11	43	846367	27.353	ng	100
60) Dibromochloromethane	16.28	129	492643	28.725	ng	100
61) 1,2-Dibromoethane	16.53	107	441733	28.114	ng	100
62) n-Butyl Acetate	16.74	43	923804	27.608	ng	100
63) n-Octane	16.87	57	312848	28.520	ng	100
64) Tetrachloroethene	17.01	166	501785	26.688	ng	100
65) Chlorobenzene	17.67	112	1117417	27.222	ng	100
66) Ethylbenzene	18.03	91	1909728	28.308	ng	100
67) m- & p-Xylenes	18.19	91	3308370	60.755	ng	100
68) Bromoform	18.25	173	466847	30.663	ng	100
69) Styrene	18.52	104	1235911	29.453	ng	100
70) o-Xylene	18.62	91	1627883	29.491	ng	100
71) n-Nonane	18.82	43	752880	28.948	ng	100
72) 1,1,2,2-Tetrachloroethane	18.60	83	745582	29.066	ng	100
74) Cumene	19.15	105	2050320	29.903	ng	100
75) alpha-Pinene	19.49	93	1032922	29.924	ng	100
76) n-Propylbenzene	19.59	91	2447358	30.229	ng	100
77) 3-Ethyltoluene	19.69	105	2128945	30.595	ng	100
78) 4-Ethyltoluene	19.72	105	2055067	30.880	ng	100
79) 1,3,5-Trimethylbenzene	19.79	105	1776624	30.277	ng	100
80) alpha-Methylstyrene	19.92	118	964244	30.184	ng	100
81) 2-Ethyltoluene	19.95	105	2127298	31.077	ng	100
82) 1,2,4-Trimethylbenzene	20.15	105	2161574	35.650	ng	100
83) n-Decane	20.24	57	853283	30.739	ng	100
84) Benzyl Chloride	20.27	91	1693624	33.466	ng	100
85) 1,3-Dichlorobenzene	20.28	146	1154762	30.880	ng	100
86) 1,4-Dichlorobenzene	20.34	146	1087430	30.087	ng	100
87) sec-Butylbenzene	20.39	105	2376020	29.853	ng	100
88) 4-Isopropyltoluene (p-...	20.52	119	2724603	35.228	ng	100
89) 1,2,3-Trimethylbenzene	20.52	105	2252071	36.094	ng	100
90) 1,2-Dichlorobenzene	20.65	146	1196594	32.999	ng	100
91) d-Limonene	20.65	68	704854	32.172	ng	100
92) 1,2-Dibromo-3-Chloropr...	21.03	157	363035	28.158	ng	100
93) n-Undecane	21.34	57	837125	29.893	ng	100
94) 1,2,4-Trichlorobenzene	22.15	180	730076	28.930	ng	100
95) Naphthalene	22.26	128	2546747	32.272	ng	100
96) n-Dodecane	22.25	57	869036	32.372	ng	100
97) Hexachlorobutadiene	22.58	225	483799	28.248	ng	100
98) Cyclohexanone	18.33	55	521973	25.692	ng	100
99) tert-Butylbenzene	20.15	119	2124143	35.480	ng	100
100) n-Butylbenzene	20.89	91	1870846	29.652	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Vial: 1
Operator: WA
Inst : MS13

Quant Time: Jun 23 17:48:10 2020
Quant Method : I:\MS13\METHODS\R13062320.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Jun 23 17:47:13 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Data File : I:\MS13\DATA\2020_06\23\06232008.D
 Acq On : 23 Jun 2020 17:40
 Sample : 50ng R13062320 ICAL STD
 Misc : S34-06182001/S34-06192001 (7/17)

Vial: 1
 Operator: WA
 Inst : MS13

Quant Time: Jun 23 18:08:04 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Tue Jun 23 18:06:30 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

6/24/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.21	130	152999	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.32	114	666326	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.63	82	298540	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.06	65	251823	12.445	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	99.52%
57) Toluene-d8 (SS2)	15.77	98	740655	12.379	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	99.04%
73) Bromofluorobenzene (SS3)	19.02	174	245121	12.733	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.84%

Target Compounds

						Qvalue
2) Propene	4.17	42	843736	50.523	ng	98
3) Dichlorodifluoromethan...	4.33	85	1760204	52.731	ng	100
4) Chloromethane	4.60	50	997466	48.896	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	1228101	52.186	ng	100
6) Vinyl Chloride	5.03	62	1407512	51.148	ng	99
7) 1,3-Butadiene	5.29	54	1122599	62.258	ng	96
8) Bromomethane	5.73	94	756934	54.933	ng	100
9) Chloroethane	6.06	64	523160	53.195	ng	100
10) Ethanol	6.48	45	3210591	284.720	ng	99
11) Acetonitrile	6.70	41	1242576	49.671	ng	100
12) Acrolein	6.87	56	452072	53.636	ng	100
13) Acetone	7.09	58	3507165	300.534	ng	# 82
14) Trichlorofluoromethane	7.31	101	1570607	53.699	ng	100
15) 2-Propanol (Isopropanol)	7.60	45	3991997	113.603	ng	100
16) Acrylonitrile	7.84	53	958638	56.460	ng	99
17) 1,1-Dichloroethene	8.27	96	792156	54.204	ng	100
18) 2-Methyl-2-Propanol (t...	8.46	59	4444545	123.681	ng	99
19) Methylene Chloride	8.50	84	845274	53.365	ng	98
20) 3-Chloro-1-propene (Al...	8.66	41	1129286	52.879	ng	99
21) Trichlorotrifluoroethane	8.91	151	789428	55.854	ng	100
22) Carbon Disulfide	8.76	76	2770436	46.862	ng	99
23) trans-1,2-Dichloroethene	9.77	61	1106683	55.090	ng	100
24) 1,1-Dichloroethane	10.02	63	1329887	54.822	ng	100
25) Methyl tert-Butyl Ether	10.11	73	2540575	58.629	ng	100
26) Vinyl Acetate	10.28	86	1477269	370.642	ng	# 64
27) 2-Butanone (MEK)	10.52	72	573789	59.699	ng	96
28) cis-1,2-Dichloroethene	11.03	61	1071139	53.840	ng	100
29) Diisopropyl Ether	11.33	87	988619	66.179	ng	# 81
30) Ethyl Acetate	11.33	61	749329	140.304	ng	98
31) n-Hexane	11.31	57	1569827	64.702	ng	100
32) Chloroform	11.38	83	1525123	56.038	ng	100
34) Tetrahydrofuran (THF)	11.78	72	517145	55.227	ng	99
35) Ethyl tert-Butyl Ether	11.92	87	1092436	62.405	ng	97
36) 1,2-Dichloroethane	12.17	62	1195585	54.974	ng	100
38) 1,1,1-Trichloroethane	12.45	97	1382732	55.868	ng	100
39) Isopropyl Acetate	12.88	61	1213110	127.692	ng	# 87
40) 1-Butanol	12.91	56	2126580	139.698	ng	92
41) Benzene	12.93	78	3836141	61.986	ng	100
42) Carbon Tetrachloride	13.09	117	1351602	58.274	ng	100
43) Cyclohexane	13.22	84	3042765	126.132	ng	98
44) tert-Amyl Methyl Ether	13.57	73	2503012	60.749	ng	99
45) 1,2-Dichloropropane	13.78	63	746507	55.782	ng	99
46) Bromodichloromethane	13.97	83	1255964	59.548	ng	100
47) Trichloroethene	14.02	130	1085170	60.071	ng	100
48) 1,4-Dioxane	14.00	88	780887	60.977	ng	100
49) 2,2,4-Trimethylpentane...	14.09	57	3201082	56.266	ng	99
50) Methyl Methacrylate	14.23	100	851379	132.233	ng	96

Data File : I:\MS13\DATA\2020_06\23\06232008.D
 Acq On : 23 Jun 2020 17:40
 Sample : 50ng R13062320 ICAL STD
 Misc : S34-06182001/S34-06192001 (7/17)

Vial: 1
 Operator: WA
 Inst : MS13

Quant Time: Jun 23 18:08:04 2020
 Quant Method : I:\MS13\METHODS\R13062320.M
 Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 QLast Update : Tue Jun 23 18:06:30 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.35	71	890402	60.330	ng	100
52) cis-1,3-Dichloropropene	14.88	75	1398028	58.198	ng	100
53) 4-Methyl-2-pentanone	14.92	58	751578	57.576	ng	97
54) trans-1,3-Dichloropropene	15.41	75	1295475	61.132	ng	100
55) 1,1,2-Trichloroethane	15.58	97	828167	57.605	ng	99
58) Toluene	15.87	91	3630847	57.261	ng	99
59) 2-Hexanone	16.11	43	1864116	56.550	ng	98
60) Dibromochloromethane	16.28	129	1111706	60.969	ng	99
61) 1,2-Dibromoethane	16.53	107	968281	58.148	ng	100
62) n-Butyl Acetate	16.74	43	2015677	56.716	ng	98
63) n-Octane	16.87	57	723268	62.146	ng	99
64) Tetrachloroethene	17.01	166	1166869	58.600	ng	100
65) Chlorobenzene	17.67	112	2546549	58.220	ng	99
66) Ethylbenzene	18.03	91	4351800	60.719	ng	97
67) m- & p-Xylenes	18.19	91	7604365	131.470	ng	97
68) Bromoform	18.26	173	1100852	68.168	ng	100
69) Styrene	18.52	104	2853711	64.091	ng	99
70) o-Xylene	18.62	91	3829163	65.206	ng	98
71) n-Nonane	18.82	43	1705349	61.659	ng	97
72) 1,1,2,2-Tetrachloroethane	18.60	83	1726723	63.433	ng	99
74) Cumene	19.15	105	4713235	64.616	ng	97
75) alpha-Pinene	19.49	93	2439001	66.430	ng	99
76) n-Propylbenzene	19.59	91	5440212	63.209	ng	97
77) 3-Ethyltoluene	19.69	105	4793837	66.077	ng	97
78) 4-Ethyltoluene	19.72	105	4842630	67.130	ng	96
79) 1,3,5-Trimethylbenzene	19.79	105	4161970	66.634	ng	97
80) alpha-Methylstyrene	19.93	118	2318818	68.108	ng	99
81) 2-Ethyltoluene	19.96	105	4892630	67.229	ng	97
82) 1,2,4-Trimethylbenzene	20.15	105	4690211	72.631	ng	99
83) n-Decane	20.24	57	1997593	67.705	ng	98
84) Benzyl Chloride	20.27	91	4060654	75.778	ng	96
85) 1,3-Dichlorobenzene	20.29	146	2838224	71.441	ng	99
86) 1,4-Dichlorobenzene	20.35	146	2623182	68.308	ng	100
87) sec-Butylbenzene	20.39	105	5395998	63.825	ng	97
88) 4-Isopropyltoluene (p-...	20.53	119	5595811	67.890	ng	97
89) 1,2,3-Trimethylbenzene	20.53	105	4801038	72.206	ng	100
90) 1,2-Dichlorobenzene	20.65	146	2867201	74.120	ng	99
91) d-Limonene	20.65	68	1617612	68.988	ng	97
92) 1,2-Dibromo-3-Chloropr...	21.03	157	864335	63.067	ng	95
93) n-Undecane	21.34	57	1970389	66.221	ng	97
94) 1,2,4-Trichlorobenzene	22.16	180	1839681	68.717	ng	99
95) Naphthalene	22.26	128	5858215	69.779	ng	98
96) n-Dodecane	22.25	57	1978330	69.338	ng	96
97) Hexachlorobutadiene	22.58	225	1262094	69.263	ng	99
98) Cyclohexanone	18.33	55	1157753	53.779	ng	99
99) tert-Butylbenzene	20.15	119	4546796	71.361	ng	97
100) n-Butylbenzene	20.89	91	4267787	63.591	ng	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File : I:\MS13\DATA\2020_06\23\06232008.D
Acq On : 23 Jun 2020 17:40
Sample : 50ng R13062320 ICAL STD
Misc : S34-06182001/S34-06192001 (7/17)

Data File : I:\MS13\DATA\2020_06\23\06232009.D
 Acq On : 23 Jun 2020 18:14
 Sample : 100ng R13062320 ICAL STD
 Misc : S34-06182001/S34-06192001 (7/17)

Vial: 1
 Operator: WA
 Inst : MS13

Quant Time: Jun 23 18:55:07 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Tue Jun 23 18:09:03 2020

Response via : Initial Calibration

DataAcq Meth:TO15.M

WA 6/24/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.22	130	163081	12.500	ng	0.00
37) 1,4-Difluorobenzene (IS2)	13.33	114	719102	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.63	82	325491	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.07	65	266237	12.336	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	98.72%
57) Toluene-d8 (SS2)	15.77	98	786147	12.022	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	96.16%
73) Bromofluorobenzene (SS3)	19.02	174	265101	12.702	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	101.60%

Target Compounds

						Qvalue
2) Propene	4.17	42	2401811	134.655	ng	95
3) Dichlorodifluoromethan...	4.33	85	3960589	111.379	ng	98
4) Chloromethane	4.61	50	1535381	70.868	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.88	135	2708694	108.021	ng	99
6) Vinyl Chloride	5.03	62	3040863	103.628	ng	98
7) 1,3-Butadiene	5.30	54	2523064	131.412	ng	92
8) Bromomethane	5.74	94	1732271	117.932	ng	100
9) Chloroethane	6.07	64	1213160	115.555	ng	99
10) Ethanol	6.52	45	7185448	597.755	ng	98
11) Acetonitrile	6.73	41	2825923	106.008	ng	100
12) Acrolein	6.89	56	1010160	112.444	ng	100
13) Acetone	7.11	58	7574280	608.653	ng	# 57
14) Trichlorofluoromethane	7.32	101	3651963	117.233	ng	99
15) 2-Propanol (Isopropanol)	7.63	45	7293745	194.919	ng	100
16) Acrylonitrile	7.87	53	2186769	120.753	ng	99
17) 1,1-Dichloroethene	8.28	96	1846128	118.512	ng	98
18) 2-Methyl-2-Propanol (t...	8.49	59	6401869	167.645	ng	98
19) Methylene Chloride	8.51	84	2032043	120.349	ng	93
20) 3-Chloro-1-propene (Al...	8.67	41	2573949	113.001	ng	98
21) Trichlorotrifluoroethane	8.91	151	1841444	122.310	ng	97
22) Carbon Disulfide	8.77	76	6291669	99.823	ng	98
23) trans-1,2-Dichloroethene	9.77	61	2545298	118.817	ng	99
24) 1,1-Dichloroethane	10.02	63	2970568	114.806	ng	99
25) Methyl tert-Butyl Ether	10.11	73	5509462	119.246	ng	99
26) Vinyl Acetate	10.30	86	3024141	712.408	ng	# 28
27) 2-Butanone (MEK)	10.53	72	1349361	131.536	ng	# 86
28) cis-1,2-Dichloroethene	11.04	61	2450662	115.519	ng	98
29) Diisopropyl Ether	11.33	87	2097931	131.851	ng	# 57
30) Ethyl Acetate	11.35	61	1580360	277.770	ng	95
31) n-Hexane	11.31	57	3275737	126.505	ng	99
32) Chloroform	11.39	83	3480467	120.013	ng	100
34) Tetrahydrofuran (THF)	11.78	72	1216603	121.871	ng	97
35) Ethyl tert-Butyl Ether	11.92	87	2628810	140.818	ng	90
36) 1,2-Dichloroethane	12.18	62	2691954	116.152	ng	98
38) 1,1,1-Trichloroethane	12.45	97	3232158	121.220	ng	99
39) Isopropyl Acetate	12.89	61	2667716	260.119	ng	# 64
40) 1-Butanol	12.94	56	4554552	277.573	ng	# 80
41) Benzene	12.94	78	8380757	125.560	ng	99
42) Carbon Tetrachloride	13.09	117	3223477	129.039	ng	100
43) Cyclohexane	13.23	84	6651836	255.791	ng	96
44) tert-Amyl Methyl Ether	13.57	73	5746338	129.295	ng	97
45) 1,2-Dichloropropane	13.78	63	1736841	120.257	ng	99
46) Bromodichloromethane	13.97	83	2903438	127.700	ng	99
47) Trichloroethene	14.03	130	2690669	138.139	ng	100
48) 1,4-Dioxane	14.01	88	1926019	139.438	ng	98
49) 2,2,4-Trimethylpentane...	14.10	57	7149718	116.446	ng	95
50) Methyl Methacrylate	14.24	100	2041211	294.253	ng	# 87

Data File : I:\MS13\DATA\2020_06\23\06232009.D
 Acq On : 23 Jun 2020 18:14
 Sample : 100ng R13062320 ICAL STD
 Misc : S34-06182001/S34-06192001 (7/17)

Vial: 1
 Operator: WA
 Inst : MS13

Quant Time: Jun 23 18:55:07 2020
 Quant Method : I:\MS13\METHODS\R13062320.M
 Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)
 QLast Update : Tue Jun 23 18:09:03 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

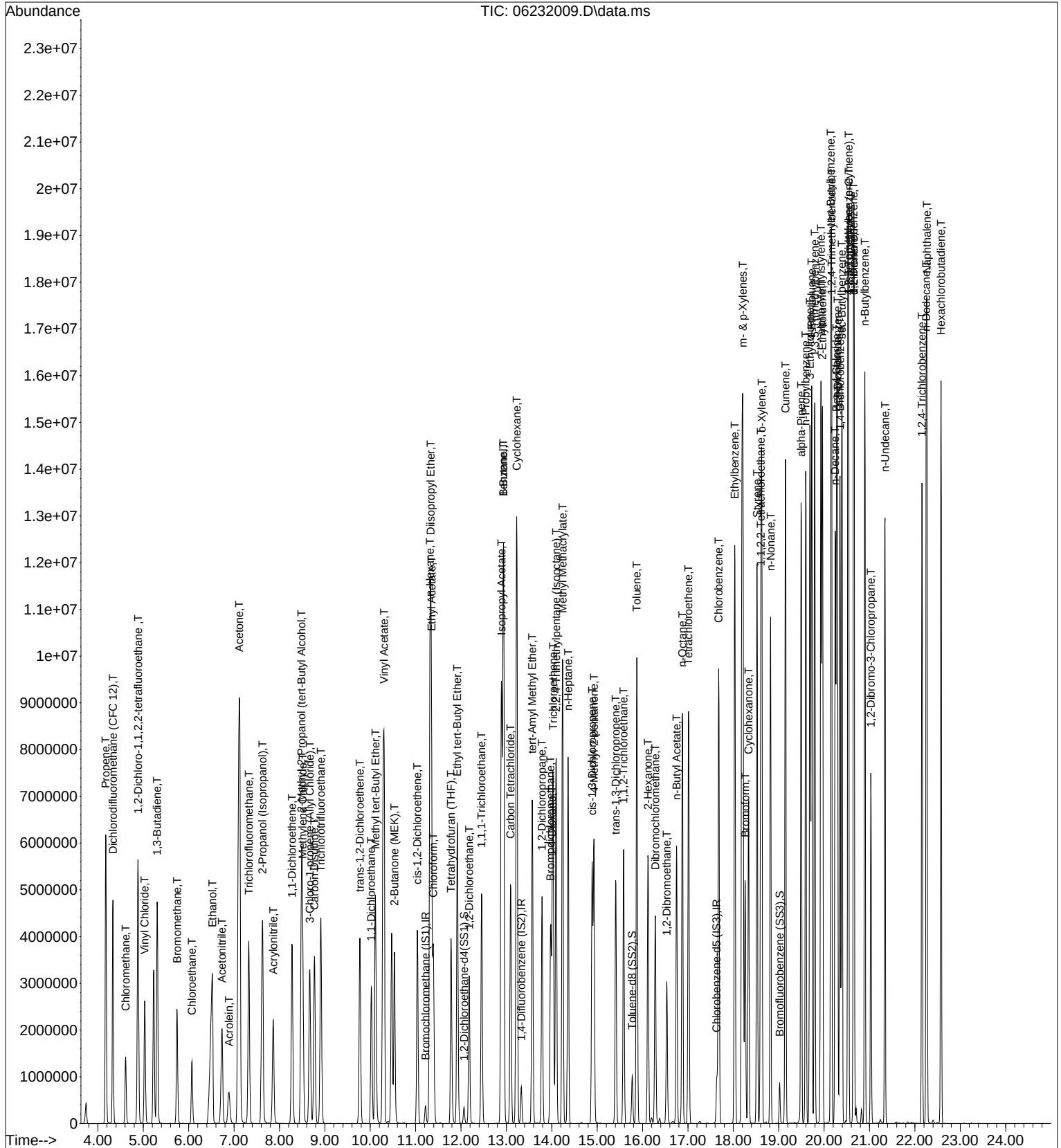
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.36	71	2132190	133.763	ng	98
52) cis-1,3-Dichloropropene	14.89	75	3263779	125.972	ng	98
53) 4-Methyl-2-pentanone	14.93	58	1779979	126.455	ng	89
54) trans-1,3-Dichloropropene	15.41	75	3007395	131.693	ng	98
55) 1,1,2-Trichloroethane	15.58	97	1963981	126.660	ng	99
58) Toluene	15.87	91	7976256	115.116	ng	95
59) 2-Hexanone	16.12	43	4060825	112.727	ng	93
60) Dibromochloromethane	16.28	129	2658743	133.530	ng	98
61) 1,2-Dibromoethane	16.53	107	2260284	124.320	ng	99
62) n-Butyl Acetate	16.75	43	4422706	113.906	ng	93
63) n-Octane	16.87	57	1689583	132.755	ng	96
64) Tetrachloroethene	17.01	166	2893229	133.116	ng	99
65) Chlorobenzene	17.68	112	5844926	122.312	ng	96
66) Ethylbenzene	18.03	91	9097826	116.146	ng	91
67) m- & p-Xylenes	18.21	91	14603495	231.075	ng	92
68) Bromoform	18.26	173	2686569	152.341	ng	98
69) Styrene	18.52	104	6346278	130.535	ng	97
70) o-Xylene	18.63	91	7957489	124.030	ng	93
71) n-Nonane	18.82	43	3492458	115.461	ng	89
72) 1,1,2,2-Tetrachloroethane	18.60	83	3776877	126.880	ng	99
74) Cumene	19.15	105	9325306	117.026	ng	90
75) alpha-Pinene	19.49	93	5230774	130.346	ng	100
76) n-Propylbenzene	19.59	91	10364043	110.218	ng	89
77) 3-Ethyltoluene	19.69	105	9853718	124.332	ng	91
78) 4-Ethyltoluene	19.73	105	8922573	113.152	ng	87
79) 1,3,5-Trimethylbenzene	19.79	105	8310288	121.773	ng	92
80) alpha-Methylstyrene	19.93	118	5112056	137.636	ng	91
81) 2-Ethyltoluene	19.96	105	9670895	121.648	ng	90
82) 1,2,4-Trimethylbenzene	20.16	105	7280066	103.157	ng	99
83) n-Decane	20.24	57	4089426	126.816	ng	95
84) Benzyl Chloride	20.27	91	7994457	136.640	ng	90
85) 1,3-Dichlorobenzene	20.29	146	5966644	137.583	ng	98
86) 1,4-Dichlorobenzene	20.35	146	5814085	138.713	ng	98
87) sec-Butylbenzene	20.39	105	10098869	109.252	ng	89
88) 4-Isopropyltoluene (p-...	20.54	119	8114559	90.164	ng	94
89) 1,2,3-Trimethylbenzene	20.54	105	7205877	99.239	ng	100
90) 1,2-Dichlorobenzene	20.65	146	4948443	117.185	ng	99
91) d-Limonene	20.66	68	2759644	107.748	ng	96
92) 1,2-Dibromo-3-Chloropr...	21.03	157	2146484	143.485	ng	86
93) n-Undecane	21.34	57	3997730	122.853	ng	93
94) 1,2,4-Trichlorobenzene	22.16	180	4407034	150.964	ng	98
95) Naphthalene	22.26	128	9623921	105.093	ng	96
96) n-Dodecane	22.25	57	3256683	104.461	ng	94
97) Hexachlorobutadiene	22.58	225	3092610	155.499	ng	99
98) Cyclohexanone	18.34	55	2660215	113.189	ng	95
99) tert-Butylbenzene	20.15	119	7071313	101.616	ng	96
100) n-Butylbenzene	20.90	91	8129221	110.888	ng	# 90

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File : I:\MS13\DATA\2020_06\23\06232009.D
Acq On : 23 Jun 2020 18:14
Sample : 100ng R13062320 ICAL STD
Misc : S34-06182001/S34-06192001 (7/17)

Vial: 1
Operator: WA
Inst : MS13

Quant Time: Jun 23 18:55:07 2020
Quant Method : I:\MS13\METHODS\R13062320.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Tue Jun 23 18:09:03 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Data File : I:\MS13\DATA\2020_06\23\06232013.D
 Acq On : 23 Jun 2020 20:31
 Sample : 25ng R13062320 ICV STD
 Misc : S34-06182001/S34-06192009 (7/17)

Vial: 1
 Operator: WA
 Inst : MS13

Quant Time: Jun 24 06:46:39 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

QLast Update : Wed Jun 24 06:33:38 2020

Response via : Initial Calibration

DataAcq Meth:TO15.M

6/24/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.21	130	146005	12.500	ng	0.02
37) 1,4-Difluorobenzene (IS2)	13.32	114	635245	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.63	82	279745	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.05	65	240309	12.478	ng	0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	99.84%
57) Toluene-d8 (SS2)	15.76	98	708958	12.533	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	100.24%
73) Bromofluorobenzene (SS3)	19.02	174	224697	12.578	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	100.64%

Target Compounds

						Qvalue
2) Propene	4.16	42	361722	24.613	ng	99
3) Dichlorodifluoromethan...	4.32	85	826534	26.685	ng	100
4) Chloromethane	4.60	50	506791	26.696	ng	100
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	562957	26.362	ng	100
6) Vinyl Chloride	5.02	62	662150	26.570	ng	100
7) 1,3-Butadiene	5.29	54	449776	26.913	ng	99
8) Bromomethane	5.72	94	338585	26.626	ng	100
9) Chloroethane	6.05	64	238655	26.789	ng	100
10) Ethanol	6.44	45	1332691	124.269	ng	100
11) Acetonitrile	6.68	41	586294	26.328	ng	100
12) Acrolein	6.86	56	212643	27.660	ng	100
13) Acetone	7.07	58	1503210	141.381	ng	99
14) Trichlorofluoromethane	7.31	101	735384	27.347	ng	100
15) 2-Propanol (Isopropanol)	7.58	45	1893559	57.637	ng	100
16) Acrylonitrile	7.83	53	448298	29.476	ng	99
17) 1,1-Dichloroethene	8.26	96	367156	27.447	ng	99
18) 2-Methyl-2-Propanol (t...	8.44	59	2148369	63.945	ng	99
19) Methylene Chloride	8.50	84	377488	26.474	ng	99
20) 3-Chloro-1-propene (Al...	8.65	41	506236	25.628	ng	99
21) Trichlorotrifluoroethane	8.90	151	366910	27.875	ng	100
22) Carbon Disulfide	8.75	76	1298933	24.405	ng	100
23) trans-1,2-Dichloroethene	9.76	61	516866	28.540	ng	99
24) 1,1-Dichloroethane	10.01	63	600885	26.888	ng	100
25) Methyl tert-Butyl Ether	10.11	73	1175756	28.695	ng	100
26) Vinyl Acetate	10.27	86	613826	146.904	ng	99
27) 2-Butanone (MEK)	10.51	72	258176	26.437	ng	99
28) cis-1,2-Dichloroethene	11.02	61	497381	27.492	ng	100
29) Diisopropyl Ether	11.32	87	412936	29.498	ng	98
30) Ethyl Acetate	11.33	61	317239	58.465	ng	100
31) n-Hexane	11.31	57	681575	30.326	ng	100
32) Chloroform	11.37	83	701924	28.342	ng	100
34) Tetrahydrofuran (THF)	11.78	72	239736	27.654	ng	100
35) Ethyl tert-Butyl Ether	11.91	87	483354	28.898	ng	100
36) 1,2-Dichloroethane	12.17	62	554697	27.910	ng	100
38) 1,1,1-Trichloroethane	12.45	97	646398	28.440	ng	100
39) Isopropyl Acetate	12.88	61	522672	55.659	ng	99
40) 1-Butanol	12.90	56	879638	56.951	ng	99
41) Benzene	12.93	78	1580964	27.721	ng	100
42) Carbon Tetrachloride	13.08	117	604321	27.774	ng	100
43) Cyclohexane	13.22	84	1295041	57.697	ng	100
44) tert-Amyl Methyl Ether	13.56	73	1117790	28.644	ng	100
45) 1,2-Dichloropropane	13.77	63	342447	27.912	ng	99
46) Bromodichloromethane	13.97	83	559051	28.665	ng	100
47) Trichloroethene	14.02	130	463295	28.110	ng	100
48) 1,4-Dioxane	13.99	88	338006	28.543	ng	99
49) 2,2,4-Trimethylpentane...	14.09	57	1436639	27.490	ng	99
50) Methyl Methacrylate	14.23	100	361594	60.131	ng	99

Data File : I:\MS13\DATA\2020_06\23\06232013.D
 Acq On : 23 Jun 2020 20:31
 Sample : 25ng R13062320 ICV STD
 Misc : S34-06182001/S34-06192009 (7/17)

Vial: 1
 Operator: WA
 Inst : MS13

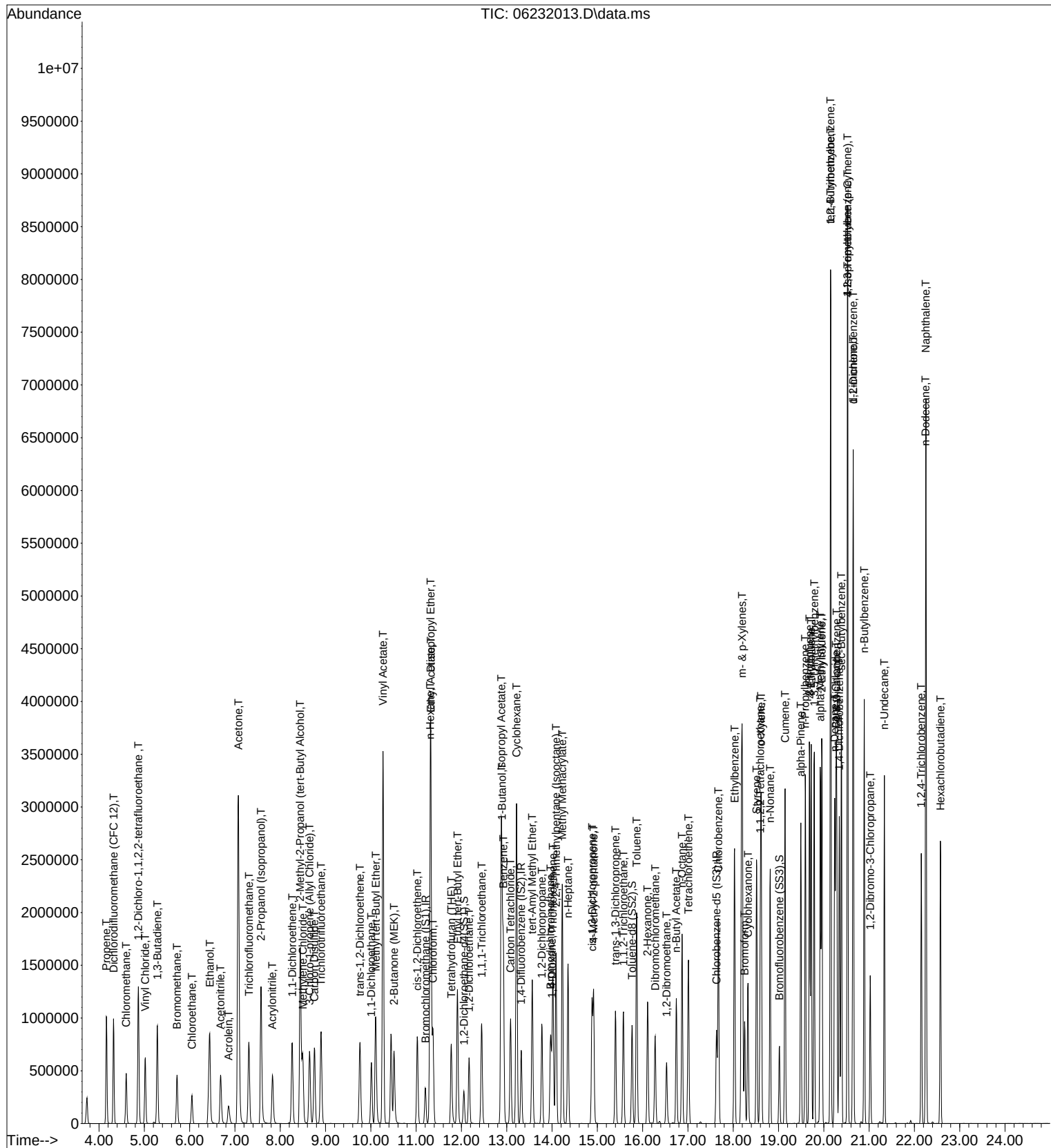
Quant Time: Jun 24 06:46:39 2020
 Quant Method : I:\MS13\METHODS\R13062320.M
 Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)
 QLast Update : Wed Jun 24 06:33:38 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.35	71	388693	28.392	ng	99
52) cis-1,3-Dichloropropene	14.88	75	665706	29.901	ng	100
53) 4-Methyl-2-pentanone	14.92	58	338060	28.523	ng	100
54) trans-1,3-Dichloropropene	15.40	75	594105	29.623	ng	99
55) 1,1,2-Trichloroethane	15.58	97	375433	27.952	ng	99
58) Toluene	15.87	91	1628691	28.176	ng	100
59) 2-Hexanone	16.11	43	863823	29.013	ng	100
60) Dibromochloromethane	16.28	129	502477	29.658	ng	100
61) 1,2-Dibromoethane	16.53	107	446980	29.112	ng	100
62) n-Butyl Acetate	16.74	43	932989	29.002	ng	100
63) n-Octane	16.87	57	312306	27.579	ng	99
64) Tetrachloroethene	17.01	166	504227	27.171	ng	100
65) Chlorobenzene	17.67	112	1128797	28.327	ng	100
66) Ethylbenzene	18.03	91	1916206	29.171	ng	100
67) m- & p-Xylenes	18.19	91	3312063	62.356	ng	100
68) Bromoform	18.25	173	477942	29.424	ng	100
69) Styrene	18.51	104	1273593	31.148	ng	100
70) o-Xylene	18.62	91	1622255	30.207	ng	100
71) n-Nonane	18.82	43	744011	29.506	ng	100
72) 1,1,2,2-Tetrachloroethane	18.60	83	755006	30.607	ng	100
74) Cumene	19.15	105	2021667	30.286	ng	100
75) alpha-Pinene	19.49	93	1022293	30.270	ng	99
76) n-Propylbenzene	19.59	91	2425958	30.821	ng	100
77) 3-Ethyltoluene	19.68	105	2213308	33.303	ng	100
78) 4-Ethyltoluene	19.72	105	1944518	29.349	ng	100
79) 1,3,5-Trimethylbenzene	19.79	105	1794035	31.187	ng	100
80) alpha-Methylstyrene	19.92	118	1005659	32.254	ng	100
81) 2-Ethyltoluene	19.95	105	2128986	32.016	ng	100
82) 1,2,4-Trimethylbenzene	20.15	105	2139247	33.647	ng	100
83) n-Decane	20.24	57	841944	31.330	ng	100
84) Benzyl Chloride	20.27	91	1747144	32.787	ng	100
85) 1,3-Dichlorobenzene	20.28	146	1176486	31.881	ng	100
86) 1,4-Dichlorobenzene	20.34	146	1118196	31.332	ng	100
87) sec-Butylbenzene	20.39	105	2356968	31.438	ng	100
88) 4-Isopropyltoluene (p-...	20.52	119	2615921	33.934	ng	100
89) 1,2,3-Trimethylbenzene	20.52	105	2116184	33.102	ng	100
90) 1,2-Dichlorobenzene	20.65	146	1201291	33.685	ng	100
91) d-Limonene	20.65	68	699920	32.482	ng	99
92) 1,2-Dibromo-3-Chloropr...	21.02	157	364845	29.165	ng	99
93) n-Undecane	21.34	57	838080	31.608	ng	100
94) 1,2,4-Trichlorobenzene	22.15	180	759256	29.348	ng	100
95) Naphthalene	22.25	128	2776833	33.788	ng	100
96) n-Dodecane	22.25	57	897829	33.851	ng	100
97) Hexachlorobutadiene	22.58	225	482111	28.071	ng	100
98) Cyclohexanone	18.33	55	531250	26.975	ng	100
99) tert-Butylbenzene	20.15	119	2075050	33.249	ng	100
100) n-Butylbenzene	20.89	91	1884181	31.225	ng	100

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Vial: 1
Operator: WA
Inst : MS13

Quant Time: Jun 24 06:46:39 2020
Quant Method : I:\MS13\METHODS\R13062320.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jun 24 06:33:38 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: 06232013.D

Acq. Method File: TO15.M

6/24/20

Data File Path: I:\MS13\DATA\2020_06\23\

Sample Name: 25ng R13062320 ICV STD

Operator: WA

Misc Info: S34-06182001/S34-06192009 (

Date Acquired: 6/23/2020

20:31

Instrument Name: MS13

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
2)	Propene	4.16	24.6	26.25	94	51	133	*	*
3)	Dichlorodifluoromethane (CFC 1	4.32	26.7	26.25	102	64	115	*	*
4)	Chloromethane	4.60	26.7	26.50	101	49	127	*	*
5)	1,2-Dichloro-1,1,2,2-tetrafluoroeth	4.87	26.4	25.75	103	65	114	*	*
6)	Vinyl Chloride	5.02	26.6	26.50	100	61	129	*	*
7)	1,3-Butadiene	5.29	26.9	26.50	102	54	140	*	*
8)	Bromomethane	5.72	26.6	26.50	100	68	120	*	*
9)	Chloroethane	6.05	26.8	26.75	100	63	123	*	*
10)	Ethanol	6.44	124	132.50	94	49	134	*	*
11)	Acetonitrile	6.68	26.3	26.75	98	50	137	*	*
12)	Acrolein	6.86	27.7	25.75	108	62	128	*	*
13)	Acetone	7.07	141	133.50	106	56	125	*	*
14)	Trichlorofluoromethane	7.31	27.3	26.50	103	64	115	*	*
15)	2-Propanol (Isopropanol)	7.58	57.6	52.75	109	57	133	*	*
16)	Acrylonitrile	7.83	29.5	26.50	111	64	136	*	*
17)	1,1-Dichloroethene	8.26	27.4	26.75	102	68	115	*	*
18)	2-Methyl-2-Propanol (tert-Butyl Alco	8.44	63.9	53.75	119	56	132	*	*
19)	Methylene Chloride	8.50	26.5	26.25	101	68	114	*	*
20)	3-Chloro-1-propene (Allyl Chloride)	8.65	25.6	26.75	96	55	139	*	*
21)	Trichlorotrifluoroethane	8.90	27.9	27.00	103	65	115	*	*
22)	Carbon Disulfide	8.75	24.4	26.50	92	68	113	*	*
23)	trans-1,2-Dichloroethene	9.76	28.5	26.75	107	65	122	*	*
24)	1,1-Dichloroethane	10.01	26.9	26.50	102	63	118	*	*
25)	Methyl tert-Butyl Ether	10.11	28.7	26.75	107	57	131	*	*
26)	Vinyl Acetate	10.27	147	133.25	110	71	128	*	*
27)	2-Butanone (MEK)	10.51	26.4	26.50	100	67	123	*	*
28)	cis-1,2-Dichloroethene	11.02	27.5	26.50	104	64	120	*	*
29)	Diisopropyl Ether	11.32	29.5	27.00	109	62	121	*	*
30)	Ethyl Acetate	11.33	58.5	54.00	108	64	131	*	*
31)	n-Hexane	11.31	30.3	27.00	112	58	125	*	*
32)	Chloroform	11.37	28.3	26.75	106	65	114	*	*
34)	Tetrahydrofuran (THF)	11.78	27.7	27.50	101	65	115	*	*
35)	Ethyl tert-Butyl Ether	11.91	28.9	26.75	108	61	130	*	*
36)	1,2-Dichloroethane	12.17	27.9	26.75	104	59	120	*	*
38)	1,1,1-Trichloroethane	12.45	28.4	26.75	106	66	115	*	*
39)	Isopropyl Acetate	12.88	55.7	52.50	106	65	129	*	*
40)	1-Butanol	12.90	57.0	53.25	107	58	140	*	*
41)	Benzene	12.93	27.7	26.25	106	66	109	*	*
42)	Carbon Tetrachloride	13.08	27.8	26.00	107	66	119	*	*
43)	Cyclohexane	13.22	57.7	52.75	109	67	117	*	*
44)	tert-Amyl Methyl Ether	13.56	28.6	26.75	107	62	133	*	*
45)	1,2-Dichloropropane	13.77	27.9	26.75	104	66	119	*	*
46)	Bromodichloromethane	13.97	28.7	27.25	105	71	119	*	*
47)	Trichloroethene	14.02	28.1	27.00	104	70	114	*	*
48)	1,4-Dioxane	14.00	28.5	27.00	106	71	117	*	*
49)	2,2,4-Trimethylpentane (Isooctane)	14.09	27.5	26.75	103	61	122	*	*

Initial Calibration Verification/LABORATORY CONTROL SAMPLE CHECK SHEET

Data File Name: **06232013.D**

TO15.M

Data File Path: I:\MS13\DATA\2020_06\23\

Sample Name: **25ng R13062320 ICV STD**

Operator: **WA**

Misc Info: **S34-06182001/S34-06192009 (**

Date Acquired: **6/23/2020**

20:31

Instrument Name: **MS13**

#	Compound Name	Ret. Time	Amt. (ng)	Spike Amt.(ng)	% Rec.	Lower Limit	Upper Limit	* OR Fail	ICV/AZ 70-130%
50)	Methyl Methacrylate	14.23	60.1	53.75	112	76	121	*	*
51)	n-Heptane	14.35	28.4	26.75	106	66	119	*	*
52)	cis-1,3-Dichloropropene	14.88	29.9	26.75	112	72	125	*	*
53)	4-Methyl-2-pentanone	14.92	28.5	26.50	108	68	130	*	*
54)	trans-1,3-Dichloropropene	15.40	29.6	26.50	112	71	132	*	*
55)	1,1,2-Trichloroethane	15.58	28.0	26.75	105	70	117	*	*
58)	Toluene	15.87	28.2	26.50	106	67	113	*	*
59)	2-Hexanone	16.11	29.0	27.00	107	62	135	*	*
60)	Dibromochloromethane	16.28	29.7	26.75	111	73	126	*	*
61)	1,2-Dibromoethane	16.53	29.1	26.75	109	71	122	*	*
62)	n-Butyl Acetate	16.74	29.0	27.25	106	65	134	*	*
63)	n-Octane	16.87	27.6	27.00	102	63	120	*	*
64)	Tetrachloroethene	17.01	27.2	26.00	105	64	120	*	*
65)	Chlorobenzene	17.67	28.3	26.75	106	65	116	*	*
66)	Ethylbenzene	18.03	29.2	26.50	110	65	117	*	*
67)	m- & p-Xylenes	18.19	62.4	53.25	117	64	121	*	*
68)	Bromoform	18.25	29.4	26.75	110	72	130	*	*
69)	Styrene	18.51	31.1	26.50	117	72	126	*	*
70)	o-Xylene	18.62	30.2	26.75	113	64	120	*	*
71)	n-Nonane	18.82	29.5	26.75	110	56	132	*	*
72)	1,1,2,2-Tetrachloroethane	18.60	30.6	26.75	114	66	122	*	*
74)	Cumene	19.15	30.3	26.75	113	64	121	*	*
75)	alpha-Pinene	19.49	30.3	26.50	114	62	136	*	*
76)	n-Propylbenzene	19.59	30.8	26.75	115	65	123	*	*
77)	3-Ethyltoluene	19.68	33.3	26.75	124	62	123	FAIL	*
78)	4-Ethyltoluene	19.72	29.3	26.25	112	71	126	*	*
79)	1,3,5-Trimethylbenzene	19.79	31.2	26.50	118	65	120	*	*
80)	alpha-Methylstyrene	19.92	32.3	26.50	122	70	132	*	*
81)	2-Ethyltoluene	19.95	32.0	26.75	120	66	121	*	*
82)	1,2,4-Trimethylbenzene	20.15	33.6	26.50	127	63	129	*	*
83)	n-Decane	20.24	31.3	26.75	117	61	131	*	*
84)	Benzyl Chloride	20.27	32.8	26.75	123	66	138	*	*
85)	1,3-Dichlorobenzene	20.28	31.9	26.75	119	65	127	*	*
86)	1,4-Dichlorobenzene	20.34	31.3	26.75	117	66	125	*	*
87)	sec-Butylbenzene	20.39	31.4	26.50	118	68	123	*	*
88)	4-Isopropyltoluene (p-Cymene)	20.52	33.9	27.25	124	61	129	*	*
89)	1,2,3-Trimethylbenzene	20.52	33.1	27.00	123	60	134	*	*
90)	1,2-Dichlorobenzene	20.65	33.7	26.75	126	67	128	*	*
91)	d-Limonene	20.65	32.5	26.50	123	65	136	*	*
92)	1,2-Dibromo-3-Chloropropane	21.02	29.2	26.75	109	73	133	*	*
93)	n-Undecane	21.34	31.6	27.00	117	64	131	*	*
94)	1,2,4-Trichlorobenzene	22.15	29.3	27.00	109	62	140	*	*
95)	Naphthalene	22.25	33.8	26.50	128	57	149	*	*
96)	n-Dodecane	22.25	33.9	26.50	128	41	181	*	*
97)	Hexachlorobutadiene	22.58	28.1	26.75	105	57	129	*	*
98)	Cyclohexanone	18.33	27.0	25.25	107	61	131	*	*
99)	tert-Butylbenzene	20.15	33.2	26.50	125	62	130	*	*
100)	n-Butylbenzene	20.89	31.2	26.75	117	67	124	*	*

Bold = 75 Compound List

Data File : I:\MS13\DATA\2020_07\22\07222001.D
 Acq On : 22 Jul 2020 15:30
 Sample : CCV R13072220_25ng
 Misc : S34-06182001/S34-06292001 (7/28)

Vial: 1
 Operator: WA
 Inst : MS13

Quant Time: Jul 22 15:53:52 2020
 Quant Method : I:\MS13\METHODS\R13062320.M
 Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)
 QLast Update : Wed Jun 24 06:33:38 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

LH 7/22/20

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 IR	Bromochloromethane (IS1)	1.000	1.000	0.0	110	0.02
2 T	Propene	1.258	1.249	0.7	120	-0.02
3 T	Dichlorodifluoromethane (CF	2.652	2.147	19.0	91	0.01
4 T	Chloromethane	1.625	1.680	-3.4	111	-0.04
5 T	1,2-Dichloro-1,1,2,2-tetra	1.828	1.179	35.5#	70	-0.04
6 T	Vinyl Chloride	2.134	1.654	22.5	87	-0.04
7 T	1,3-Butadiene	1.431	1.365	4.6	117	-0.03
8 T	Bromomethane	1.089	1.078	1.0	108	-0.03
9 T	Chloroethane	0.763	0.865	-13.4	125	-0.02
10 T	Ethanol	0.918	0.802	12.6	95	0.03
11 T	Acetonitrile	1.907	2.069	-8.5	122	0.00
12 T	Acrolein	0.658	0.760	-15.5	122	-0.02
13 T	Acetone	0.910	0.784	13.8	89	-0.03
14 T	Trichlorofluoromethane	2.302	1.845	19.9	88	-0.03
15 T	2-Propanol (Isopropanol)	2.813	2.670	5.1	96	-0.03
16 T	Acrylonitrile	1.302	1.534	-17.8	118	0.01
17 T	1,1-Dichloroethene	1.145	1.099	4.0	105	-0.02
18 T	2-Methyl-2-Propanol (tert-B	2.876	2.686	6.6	89	-0.05
19 T	Methylene Chloride	1.221	1.147	6.1	105	0.02
20 T	3-Chloro-1-propene (Allyl C	1.691	1.599	5.4	106	0.00
21 T	Trichlorotrifluoroethane	1.127	1.047	7.1	100	0.00
22 T	Carbon Disulfide	4.557	4.110	9.8	110	-0.01
23 T	trans-1,2-Dichloroethene	1.550	1.537	0.8	106	0.01
24 T	1,1-Dichloroethane	1.913	1.893	1.0	108	0.02
25 T	Methyl tert-Butyl Ether	3.508	3.312	5.6	100	-0.06
26 T	Vinyl Acetate	0.358	0.271	24.3	75	0.00
27 T	2-Butanone (MEK)	0.836	0.776	7.2	103	-0.04
28 T	cis-1,2-Dichloroethene	1.549	1.453	6.2	101	0.02
29 T	Diisopropyl Ether	1.198	0.911	24.0	76	-0.03
30 T	Ethyl Acetate	0.465	0.385	17.2	84	-0.02
31 T	n-Hexane	1.924	1.724	10.4	88	0.00
32 T	Chloroform	2.120	1.802	15.0	90	0.02
33 S	1,2-Dichloroethane-d4(SS1)	1.649	1.305	20.9	87	0.02
34 T	Tetrahydrofuran (THF)	0.742	0.741	0.1	110	-0.06
35 T	Ethyl tert-Butyl Ether	1.432	1.341	6.4	97	-0.02
36 T	1,2-Dichloroethane	1.702	1.263	25.8	80	0.01
37 IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	112	0.00
38 T	1,1,1-Trichloroethane	0.447	0.371	17.0	89	0.01
39 T	Isopropyl Acetate	0.185	0.158	14.6	89	-0.01
40 T	1-Butanol	0.304	0.253	16.8	83	-0.03
41 T	Benzene	1.122	0.996	11.2	93	0.01
42 T	Carbon Tetrachloride	0.428	0.351	18.0	86	0.00
43 T	Cyclohexane	0.442	0.395	10.6	91	0.00
44 T	tert-Amyl Methyl Ether	0.768	0.707	7.9	97	-0.02
45 T	1,2-Dichloropropane	0.241	0.249	-3.3	110	0.00
46 T	Bromodichloromethane	0.384	0.329	14.3	89	0.00
47 T	Trichloroethene	0.324	0.289	10.8	94	0.00
48 T	1,4-Dioxane	0.233	0.215	7.7	97	-0.03
49 T	2,2,4-Trimethylpentane (Iso	1.028	1.028	0.0	108	0.00
50 T	Methyl Methacrylate	0.118	0.110	6.8	93	-0.01
51 T	n-Heptane	0.269	0.258	4.1	102	0.00
52 T	cis-1,3-Dichloropropene	0.438	0.429	2.1	100	0.00
53 T	4-Methyl-2-pentanone	0.233	0.232	0.4	103	-0.02
54 T	trans-1,3-Dichloropropene	0.395	0.382	3.3	97	0.00
55 T	1,1,2-Trichloroethane	0.264	0.250	5.3	101	0.00

Data File : I:\MS13\DATA\2020_07\22\07222001.D
 Acq On : 22 Jul 2020 15:30
 Sample : CCV R13072220_25ng
 Misc : S34-06182001/S34-06292001 (7/28)

Vial: 1
 Operator: WA
 Inst : MS13

Quant Time: Jul 22 15:53:52 2020
 Quant Method : I:\MS13\METHODS\R13062320.M
 Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)
 QLast Update : Wed Jun 24 06:33:38 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
56	IR Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	108	0.00
57	S Toluene-d8 (SS2)	2.528	2.530	-0.1	109	0.00
58	T Toluene	2.583	2.361	8.6	95	0.00
59	T 2-Hexanone	1.330	1.123	15.6	86	-0.02
60	T Dibromochloromethane	0.757	0.693	8.5	92	0.00
61	T 1,2-Dibromoethane	0.686	0.664	3.2	98	0.00
62	T n-Butyl Acetate	1.437	1.255	12.7	90	0.00
63	T n-Octane	0.506	0.477	5.7	100	0.00
64	T Tetrachloroethene	0.829	0.755	8.9	95	0.00
65	T Chlorobenzene	1.781	1.619	9.1	94	0.00
66	T Ethylbenzene	2.935	2.628	10.5	90	0.00
67	T m- & p-Xylenes	2.373	1.973	16.9	78	0.00
68	T Bromoform	0.726	0.625	13.9	87	0.00
69	T Styrene	1.827	1.709	6.5	89	0.00
70	T o-Xylene	2.400	2.022	15.8	81	0.00
71	T n-Nonane	1.127	0.986	12.5	85	0.00
72	T 1,1,2,2-Tetrachloroethane	1.102	0.968	12.2	85	0.00
73	S Bromofluorobenzene (SS3)	0.798	0.824	-3.3	108	0.00
74	T Cumene	2.983	2.636	11.6	85	0.00
75	T alpha-Pinene	1.509	1.329	11.9	84	0.00
76	T n-Propylbenzene	3.517	3.086	12.3	83	0.00
77	T 3-Ethyltoluene	2.970	2.740	7.7	83	0.00
78	T 4-Ethyltoluene	2.960	2.441	17.5	78	0.00
79	T 1,3,5-Trimethylbenzene	2.570	2.189	14.8	79	0.00
80	T alpha-Methylstyrene	1.393	1.209	13.2	82	0.00
81	T 2-Ethyltoluene	2.971	2.534	14.7	78	0.00
82	T 1,2,4-Trimethylbenzene	2.841	2.119	25.4	64	0.00
83	T n-Decane	1.201	1.114	7.2	85	0.00
84	T Benzyl Chloride	2.381	1.927	19.1	75	0.00
85	T 1,3-Dichlorobenzene	1.649	1.383	16.1	78	0.00
86	T 1,4-Dichlorobenzene	1.595	1.413	11.4	85	0.00
87	T sec-Butylbenzene	3.350	2.901	13.4	80	0.00
88	T 4-Isopropyltoluene (p-Cymen	3.445	2.631	23.6	64	0.00
89	T 1,2,3-Trimethylbenzene	2.857	2.114	26.0	62	0.00
90	T 1,2-Dichlorobenzene	1.594	1.310	17.8	71	0.00
91	T d-Limonene	0.963	0.738	23.4	69	0.00
92	T 1,2-Dibromo-3-Chloropropane	0.559	0.538	3.8	95	0.00
93	T n-Undecane	1.185	1.163	1.9	91	0.00
94	T 1,2,4-Trichlorobenzene	1.156	1.133	2.0	101	0.00
95	T Naphthalene	3.672	3.264	11.1	80	0.00
96	T n-Dodecane	1.185	1.082	8.7	79	0.00
97	T Hexachlorobutadiene	0.767	0.740	3.5	99	0.00
98	T Cyclohexanone	0.880	0.791	10.1	92	0.00
99	T tert-Butylbenzene	2.789	2.112	24.3	65	0.00
100	T n-Butylbenzene	2.696	2.300	14.7	80	0.00

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

Data File : I:\MS13\DATA\2020_07\22\07222001.D
 Acq On : 22 Jul 2020 15:30
 Sample : CCV R13072220_25ng
 Misc : S34-06182001/S34-06292001 (7/28)

Vial: 1
 Operator: WA
 Inst : MS13

Quant Time: Jul 22 15:53:52 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)

QLast Update : Wed Jun 24 06:33:38 2020

Response via : Initial Calibration

LH 7/22/20

DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.20	130	160396	12.500	ng	0.02
37) 1,4-Difluorobenzene (IS2)	13.32	114	700473	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.63	82	304315	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.05	65	209331	9.894	ng	0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	79.12%
57) Toluene-d8 (SS2)	15.76	98	769814	12.510	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	100.08%
73) Bromofluorobenzene (SS3)	19.02	174	250687	12.900	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	103.20%

Target Compounds

						Qvalue
2) Propene	4.16	42	424557	26.297	ng	# 91
3) Dichlorodifluoromethan...	4.31	85	730107	21.457	ng	100
4) Chloromethane	4.59	50	571330	27.395	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.86	135	396996m	16.923	ng	
6) Vinyl Chloride	5.01	62	572960	20.928	ng	100
7) 1,3-Butadiene	5.28	54	464160	25.282	ng	89
8) Bromomethane	5.71	94	373431	26.731	ng	100
9) Chloroethane	6.04	64	299609	30.614	ng	99
10) Ethanol	6.44	45	1339667	113.712	ng	98
11) Acetonitrile	6.68	41	696854	28.485	ng	96
12) Acrolein	6.85	56	251091	29.731	ng	99
13) Acetone	7.07	58	1339899	114.714	ng	# 67
14) Trichlorofluoromethane	7.30	101	627223	21.232	ng	100
15) 2-Propanol (Isopropanol)	7.57	45	1798738	49.839	ng	88
16) Acrylonitrile	7.83	53	516701	30.925	ng	97
17) 1,1-Dichloroethene	8.26	96	380805	25.913	ng	91
18) 2-Methyl-2-Propanol (t...	8.44	59	1860977	50.421	ng	91
19) Methylene Chloride	8.49	84	390153	24.907	ng	90
20) 3-Chloro-1-propene (Al...	8.65	41	553961	25.528	ng	98
21) Trichlorotrifluoroethane	8.90	151	362662	25.081	ng	99
22) Carbon Disulfide	8.75	76	1410631	24.125	ng	100
23) trans-1,2-Dichloroethene	9.76	61	532459	26.763	ng	99
24) 1,1-Dichloroethane	10.01	63	661992	26.965	ng	100
25) Methyl tert-Butyl Ether	10.10	73	1147377	25.490	ng	98
26) Vinyl Acetate	10.27	86	465309	101.368	ng	# 91
27) 2-Butanone (MEK)	10.51	72	263725	24.582	ng	# 87
28) cis-1,2-Dichloroethene	11.02	61	493944	24.853	ng	96
29) Diisopropyl Ether	11.31	87	315751	20.532	ng	# 92
30) Ethyl Acetate	11.33	61	267914	44.944	ng	100
31) n-Hexane	11.30	57	597404	24.196	ng	99
32) Chloroform	11.37	83	618398	22.729	ng	99
34) Tetrahydrofuran (THF)	11.78	72	259011	27.197	ng	97
35) Ethyl tert-Butyl Ether	11.91	87	464513	25.280	ng	98
36) 1,2-Dichloroethane	12.17	62	437624	20.044	ng	99
38) 1,1,1-Trichloroethane	12.45	97	555427	22.162	ng	95
39) Isopropyl Acetate	12.87	61	466945	45.094	ng	# 68
40) 1-Butanol	12.90	56	738601	43.367	ng	# 79
41) Benzene	12.93	78	1479687	23.529	ng	98
42) Carbon Tetrachloride	13.08	117	515996	21.507	ng	99
43) Cyclohexane	13.22	84	1174080	47.437	ng	96
44) tert-Amyl Methyl Ether	13.56	73	1069898	24.863	ng	93
45) 1,2-Dichloropropane	13.77	63	376325	27.817	ng	100
46) Bromodichloromethane	13.97	83	498207	23.167	ng	100
47) Trichloroethene	14.02	130	433728	23.865	ng	100
48) 1,4-Dioxane	14.00	88	324635	24.861	ng	95
49) 2,2,4-Trimethylpentane...	14.09	57	1541416	26.748	ng	79
50) Methyl Methacrylate	14.22	100	332295	50.113	ng	98

Data File : I:\MS13\DATA\2020_07\22\07222001.D
 Acq On : 22 Jul 2020 15:30
 Sample : CCV R13072220_25ng
 Misc : S34-06182001/S34-06292001 (7/28)

Vial: 1
 Operator: WA
 Inst : MS13

Quant Time: Jul 22 15:53:52 2020
 Quant Method : I:\MS13\METHODS\R13062320.M
 Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 QLast Update : Wed Jun 24 06:33:38 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.35	71	390598	25.874	ng	98
52) cis-1,3-Dichloropropene	14.88	75	625274	25.469	ng	100
53) 4-Methyl-2-pentanone	14.92	58	344336	26.347	ng	83
54) trans-1,3-Dichloropropene	15.40	75	567644	25.668	ng	100
55) 1,1,2-Trichloroethane	15.58	97	375293	25.339	ng	100
58) Toluene	15.87	91	1537315	24.448	ng	99
59) 2-Hexanone	16.11	43	731378	22.581	ng	86
60) Dibromochloromethane	16.28	129	451603	24.503	ng	100
61) 1,2-Dibromoethane	16.53	107	432215	25.877	ng	100
62) n-Butyl Acetate	16.74	43	832479	23.788	ng	90
63) n-Octane	16.87	57	313784	25.472	ng	98
64) Tetrachloroethene	17.01	166	477997	23.678	ng	99
65) Chlorobenzene	17.67	112	1054045	24.315	ng	100
66) Ethylbenzene	18.02	91	1711199	23.946	ng	100
67) m- & p-Xylenes	18.20	91	2570126	44.481	ng	99
68) Bromoform	18.25	173	407196	23.044	ng	100
69) Styrene	18.51	104	1102248	24.781	ng	97
70) o-Xylene	18.62	91	1316782	22.539	ng	99
71) n-Nonane	18.82	43	642006	23.405	ng	92
72) 1,1,2,2-Tetrachloroethane	18.59	83	630143	23.483	ng	100
74) Cumene	19.14	105	1732824	23.863	ng	100
75) alpha-Pinene	19.49	93	865192	23.550	ng	93
76) n-Propylbenzene	19.59	91	2028548	23.691	ng	98
77) 3-Ethyltoluene	19.68	105	1767611	24.449	ng	99
78) 4-Ethyltoluene	19.72	105	1604730	22.265	ng	99
79) 1,3,5-Trimethylbenzene	19.79	105	1412103	22.566	ng	98
80) alpha-Methylstyrene	19.92	118	787396	23.215	ng	94
81) 2-Ethyltoluene	19.95	105	1665476	23.023	ng	99
82) 1,2,4-Trimethylbenzene	20.15	105	1380270	19.957	ng	100
83) n-Decane	20.24	57	725362	24.813	ng	97
84) Benzyl Chloride	20.27	91	1266469	21.848	ng	99
85) 1,3-Dichlorobenzene	20.28	146	900390	22.430	ng	100
86) 1,4-Dichlorobenzene	20.34	146	920370	23.707	ng	100
87) sec-Butylbenzene	20.39	105	1889122	23.163	ng	98
88) 4-Isopropyltoluene (p-...	20.52	119	1745169	20.811	ng	95
89) 1,2,3-Trimethylbenzene	20.52	105	1402708	20.170	ng	99
90) 1,2-Dichlorobenzene	20.64	146	853161	21.992	ng	100
91) d-Limonene	20.65	68	484860	20.685	ng	94
92) 1,2-Dibromo-3-Chloropr...	21.02	157	343588	25.248	ng	# 76
93) n-Undecane	21.34	57	764611	26.509	ng	99
94) 1,2,4-Trichlorobenzene	22.15	180	737704	26.213	ng	100
95) Naphthalene	22.26	128	2046327	22.889	ng	99
96) n-Dodecane	22.25	57	685112	23.746	ng	98
97) Hexachlorobutadiene	22.57	225	477299	25.547	ng	100
98) Cyclohexanone	18.33	55	481283	22.465	ng	# 88
99) tert-Butylbenzene	20.15	119	1375685	20.263	ng	99
100) n-Butylbenzene	20.89	91	1497527	22.814	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File : I:\MS13\DATA\2020_07\22\07222001.D
Acq On : 22 Jul 2020 15:30
Sample : CCV R13072220_25ng
Misc : S34-06182001/S34-06292001 (7/28)

Vial: 1
Operator: WA
Inst : MS13

Quant Time: Jul 22 15:53:52 2020

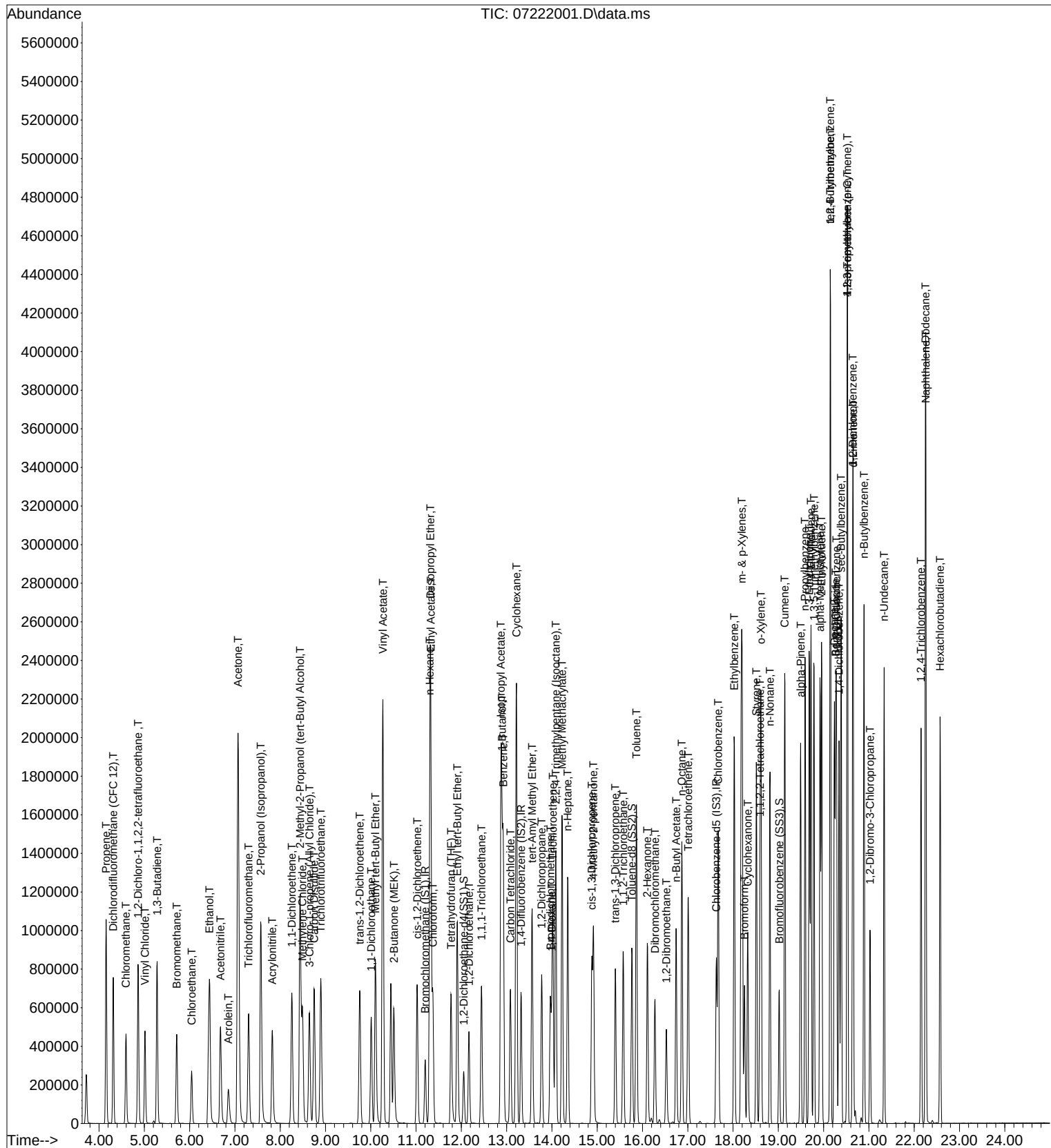
Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA TO-15 per SOP VOA-T015 (CASS TO-15/GC-MS)

QLast Update : Wed Jun 24 06:33:38 2020

Response via : Initial Calibration

DataAcq Meth:T015.M



Data File : I:\MS13\DATA\2020_07\22\07222027.D
 Acq On : 23 Jul 2020 7:00
 Sample : CCVend R13072220_25ng
 Misc : S34-06182001/S34-06292001 (7/28)

Vial: 1
 Operator: WA
 Inst : MS13

Quant Time: Jul 23 07:36:21 2020
 Quant Method : I:\MS13\METHODS\R13062320.M
 Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 QLast Update : Wed Jun 24 06:33:38 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

7/23/20

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 IR	Bromochloromethane (IS1)	1.000	1.000	0.0	109	0.02
2 T	Propene	1.258	1.208	4.0	115	0.00
3 T	Dichlorodifluoromethane (CF	2.652	2.085	21.4	88	0.02
4 T	Chloromethane	1.625	1.631	-0.4	107	-0.03
5 T	1,2-Dichloro-1,1,2,2-tetra	1.828	1.145	37.4#	68	-0.03
6 T	Vinyl Chloride	2.134	1.586	25.7	83	-0.03
7 T	1,3-Butadiene	1.431	1.249	12.7	106	-0.03
8 T	Bromomethane	1.089	1.046	3.9	104	-0.02
9 T	Chloroethane	0.763	0.828	-8.5	119	-0.02
10 T	Ethanol	0.918	0.778	15.3	91	0.03
11 T	Acetonitrile	1.907	2.015	-5.7	117	0.00
12 T	Acrolein	0.658	0.740	-12.5	118	-0.02
13 T	Acetone	0.910	0.761	16.4	86	-0.03
14 T	Trichlorofluoromethane	2.302	1.794	22.1	85	-0.02
15 T	2-Propanol (Isopropanol)	2.813	2.589	8.0	92	-0.03
16 T	Acrylonitrile	1.302	1.496	-14.9	115	0.01
17 T	1,1-Dichloroethene	1.145	1.077	5.9	102	-0.02
18 T	2-Methyl-2-Propanol (tert-B	2.876	2.605	9.4	85	-0.05
19 T	Methylene Chloride	1.221	1.118	8.4	101	0.02
20 T	3-Chloro-1-propene (Allyl C	1.691	1.549	8.4	102	0.00
21 T	Trichlorotrifluoroethane	1.127	1.008	10.6	96	0.00
22 T	Carbon Disulfide	4.557	3.996	12.3	106	0.00
23 T	trans-1,2-Dichloroethene	1.550	1.488	4.0	102	0.01
24 T	1,1-Dichloroethane	1.913	1.841	3.8	104	0.02
25 T	Methyl tert-Butyl Ether	3.508	3.202	8.7	96	-0.06
26 T	Vinyl Acetate	0.358	0.265	26.0	73	0.00
27 T	2-Butanone (MEK)	0.836	0.757	9.4	99	-0.04
28 T	cis-1,2-Dichloroethene	1.549	1.413	8.8	97	0.02
29 T	Diisopropyl Ether	1.198	0.902	24.7	75	-0.02
30 T	Ethyl Acetate	0.465	0.372	20.0	81	-0.02
31 T	n-Hexane	1.924	1.659	13.8	84	0.00
32 T	Chloroform	2.120	1.756	17.2	87	0.02
33 S	1,2-Dichloroethane-d4(SS1)	1.649	1.308	20.7	87	0.02
34 T	Tetrahydrofuran (THF)	0.742	0.724	2.4	107	-0.06
35 T	Ethyl tert-Butyl Ether	1.432	1.288	10.1	93	-0.02
36 T	1,2-Dichloroethane	1.702	1.225	28.0	76	0.01
37 IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	109	0.00
38 T	1,1,1-Trichloroethane	0.447	0.363	18.8	85	0.01
39 T	Isopropyl Acetate	0.185	0.154	16.8	85	-0.01
40 T	1-Butanol	0.304	0.246	19.1	79	-0.03
41 T	Benzene	1.122	0.975	13.1	89	0.01
42 T	Carbon Tetrachloride	0.428	0.346	19.2	83	0.00
43 T	Cyclohexane	0.442	0.385	12.9	87	0.00
44 T	tert-Amyl Methyl Ether	0.768	0.691	10.0	93	-0.02
45 T	1,2-Dichloropropane	0.241	0.244	-1.2	106	0.00
46 T	Bromodichloromethane	0.384	0.323	15.9	86	0.00
47 T	Trichloroethene	0.324	0.283	12.7	90	0.00
48 T	1,4-Dioxane	0.233	0.210	9.9	93	-0.03
49 T	2,2,4-Trimethylpentane (Iso	1.028	1.006	2.1	104	0.00
50 T	Methyl Methacrylate	0.118	0.108	8.5	89	-0.01
51 T	n-Heptane	0.269	0.253	5.9	98	0.00
52 T	cis-1,3-Dichloropropene	0.438	0.420	4.1	96	0.00
53 T	4-Methyl-2-pentanone	0.233	0.227	2.6	99	-0.02
54 T	trans-1,3-Dichloropropene	0.395	0.376	4.8	94	0.00
55 T	1,1,2-Trichloroethane	0.264	0.247	6.4	98	0.00

Data File : I:\MS13\DATA\2020_07\22\07222027.D
 Acq On : 23 Jul 2020 7:00
 Sample : CCVend R13072220_25ng
 Misc : S34-06182001/S34-06292001 (7/28)

Vial: 1
 Operator: WA
 Inst : MS13

Quant Time: Jul 23 07:36:21 2020
 Quant Method : I:\MS13\METHODS\R13062320.M
 Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
 QLast Update : Wed Jun 24 06:33:38 2020
 Response via : Initial Calibration
 DataAcq Meth:TO15.M

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
56	IR Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	107	0.00
57	S Toluene-d8 (SS2)	2.528	2.488	1.6	107	0.00
58	T Toluene	2.583	2.272	12.0	91	0.00
59	T 2-Hexanone	1.330	1.078	18.9	83	-0.02
60	T Dibromochloromethane	0.757	0.670	11.5	89	0.00
61	T 1,2-Dibromoethane	0.686	0.640	6.7	94	0.00
62	T n-Butyl Acetate	1.437	1.212	15.7	87	0.00
63	T n-Octane	0.506	0.458	9.5	96	0.00
64	T Tetrachloroethene	0.829	0.725	12.5	91	0.00
65	T Chlorobenzene	1.781	1.560	12.4	91	0.00
66	T Ethylbenzene	2.935	2.526	13.9	86	0.00
67	T m- & p-Xylenes	2.373	1.907	19.6	75	0.00
68	T Bromoform	0.726	0.607	16.4	85	0.00
69	T Styrene	1.827	1.646	9.9	86	0.00
70	T o-Xylene	2.400	1.943	19.0	78	0.00
71	T n-Nonane	1.127	0.945	16.1	82	0.00
72	T 1,1,2,2-Tetrachloroethane	1.102	0.933	15.3	81	0.00
73	S Bromofluorobenzene (SS3)	0.798	0.837	-4.9	109	0.00
74	T Cumene	2.983	2.547	14.6	82	0.00
75	T alpha-Pinene	1.509	1.289	14.6	81	0.00
76	T n-Propylbenzene	3.517	2.984	15.2	80	0.00
77	T 3-Ethyltoluene	2.970	2.662	10.4	81	0.00
78	T 4-Ethyltoluene	2.960	2.335	21.1	75	0.00
79	T 1,3,5-Trimethylbenzene	2.570	2.106	18.1	76	0.00
80	T alpha-Methylstyrene	1.393	1.168	16.2	79	0.00
81	T 2-Ethyltoluene	2.971	2.440	17.9	75	0.00
82	T 1,2,4-Trimethylbenzene	2.841	2.033	28.4	61	0.00
83	T n-Decane	1.201	1.065	11.3	81	0.00
84	T Benzyl Chloride	2.381	1.868	21.5	72	0.00
85	T 1,3-Dichlorobenzene	1.649	1.331	19.3	75	0.00
86	T 1,4-Dichlorobenzene	1.595	1.368	14.2	82	0.00
87	T sec-Butylbenzene	3.350	2.801	16.4	77	0.00
88	T 4-Isopropyltoluene (p-Cymen	3.445	2.533	26.5	62	0.00
89	T 1,2,3-Trimethylbenzene	2.857	2.037	28.7	60	0.00
90	T 1,2-Dichlorobenzene	1.594	1.271	20.3	69	0.00
91	T d-Limonene	0.963	0.705	26.8	66	0.00
92	T 1,2-Dibromo-3-Chloropropane	0.559	0.520	7.0	91	0.00
93	T n-Undecane	1.185	1.126	5.0	88	0.00
94	T 1,2,4-Trichlorobenzene	1.156	1.099	4.9	98	0.00
95	T Naphthalene	3.672	3.174	13.6	78	0.00
96	T n-Dodecane	1.185	1.060	10.5	77	0.00
97	T Hexachlorobutadiene	0.767	0.726	5.3	97	0.00
98	T Cyclohexanone	0.880	0.769	12.6	90	0.00
99	T tert-Butylbenzene	2.789	2.028	27.3	62	0.00
100	T n-Butylbenzene	2.696	2.229	17.3	77	0.00

(#) = Out of Range

SPCC's out = 0 CCC's out = 0

Data File : I:\MS13\DATA\2020_07\22\07222027.D
 Acq On : 23 Jul 2020 7:00
 Sample : CCVend R13072220_25ng
 Misc : S34-06182001/S34-06292001 (7/28)

Vial: 1
 Operator: WA
 Inst : MS13

Quant Time: Jul 23 07:36:21 2020

Quant Method : I:\MS13\METHODS\R13062320.M

Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)

QLast Update : Wed Jun 24 06:33:38 2020

Response via : Initial Calibration

DataAcq Meth:T015.M

7/23/20

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	11.21	130	159035	12.500	ng	0.02
37) 1,4-Difluorobenzene (IS2)	13.32	114	687685	12.500	ng	0.00
56) Chlorobenzene-d5 (IS3)	17.63	82	303940	12.500	ng	0.00

System Monitoring Compounds

33) 1,2-Dichloroethane-d4(...)	12.05	65	207993	9.915	ng	0.02
Spiked Amount	12.500	Range	70 - 130	Recovery	=	79.36%
57) Toluene-d8 (SS2)	15.76	98	756279	12.305	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	98.48%
73) Bromofluorobenzene (SS3)	19.02	174	254267	13.101	ng	0.00
Spiked Amount	12.500	Range	70 - 130	Recovery	=	104.80%

Target Compounds

						Qvalue
2) Propene	4.17	42	407414	25.451	ng	91
3) Dichlorodifluoromethan...	4.32	85	702967	20.836	ng	100
4) Chloromethane	4.60	50	549893	26.593	ng	99
5) 1,2-Dichloro-1,1,2,2-t...	4.87	135	382422	16.441	ng	100
6) Vinyl Chloride	5.02	62	544848	20.072	ng	100
7) 1,3-Butadiene	5.29	54	421211	23.139	ng	89
8) Bromomethane	5.72	94	359216	25.934	ng	100
9) Chloroethane	6.05	64	284268	29.295	ng	100
10) Ethanol	6.44	45	1289215	110.366	ng	99
11) Acetonitrile	6.68	41	672866	27.740	ng	96
12) Acrolein	6.86	56	242539	28.964	ng	98
13) Acetone	7.07	58	1290586	111.438	ng	# 67
14) Trichlorofluoromethane	7.31	101	604752	20.647	ng	100
15) 2-Propanol (Isopropanol)	7.57	45	1729621	48.334	ng	88
16) Acrylonitrile	7.83	53	499780	30.169	ng	97
17) 1,1-Dichloroethene	8.26	96	369806	25.380	ng	90
18) 2-Methyl-2-Propanol (t...	8.44	59	1790007	48.913	ng	91
19) Methylene Chloride	8.49	84	377065	24.278	ng	90
20) 3-Chloro-1-propene (Al...	8.65	41	531942	24.723	ng	98
21) Trichlorotrifluoroethane	8.90	151	346415	24.162	ng	100
22) Carbon Disulfide	8.75	76	1360082	23.460	ng	100
23) trans-1,2-Dichloroethene	9.76	61	511228	25.916	ng	99
24) 1,1-Dichloroethane	10.01	63	638114	26.215	ng	99
25) Methyl tert-Butyl Ether	10.10	73	1099972	24.646	ng	98
26) Vinyl Acetate	10.27	86	451145	99.124	ng	# 89
27) 2-Butanone (MEK)	10.51	72	255113	23.983	ng	# 86
28) cis-1,2-Dichloroethene	11.02	61	476503	24.180	ng	97
29) Diisopropyl Ether	11.32	87	309966	20.328	ng	# 88
30) Ethyl Acetate	11.33	61	256986	43.480	ng	99
31) n-Hexane	11.30	57	569925	23.280	ng	98
32) Chloroform	11.37	83	597460	22.147	ng	99
34) Tetrahydrofuran (THF)	11.78	72	251137	26.596	ng	96
35) Ethyl tert-Butyl Ether	11.91	87	442531	24.289	ng	98
36) 1,2-Dichloroethane	12.17	62	420964	19.446	ng	99
38) 1,1,1-Trichloroethane	12.45	97	534236	21.713	ng	95
39) Isopropyl Acetate	12.87	61	446062	43.879	ng	# 68
40) 1-Butanol	12.90	56	704925	42.159	ng	# 79
41) Benzene	12.93	78	1420873	23.014	ng	98
42) Carbon Tetrachloride	13.08	117	499140	21.191	ng	99
43) Cyclohexane	13.22	84	1123866	46.253	ng	96
44) tert-Amyl Methyl Ether	13.56	73	1025932	24.285	ng	93
45) 1,2-Dichloropropane	13.77	63	361881	27.247	ng	100
46) Bromodichloromethane	13.97	83	479562	22.714	ng	100
47) Trichloroethene	14.02	130	416896	23.366	ng	100
48) 1,4-Dioxane	13.99	88	312524	24.378	ng	95
49) 2,2,4-Trimethylpentane...	14.09	57	1480229	26.164	ng	79
50) Methyl Methacrylate	14.22	100	319365	49.059	ng	98

Data File : I:\MS13\DATA\2020_07\22\07222027.D
 Acq On : 23 Jul 2020 7:00
 Sample : CCVend R13072220_25ng
 Misc : S34-06182001/S34-06292001 (7/28)

Vial: 1
 Operator: WA
 Inst : MS13

Quant Time: Jul 23 07:36:21 2020
 Quant Method : I:\MS13\METHODS\R13062320.M
 Quant Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 QLast Update : Wed Jun 24 06:33:38 2020
 Response via : Initial Calibration
 DataAcq Meth:T015.M

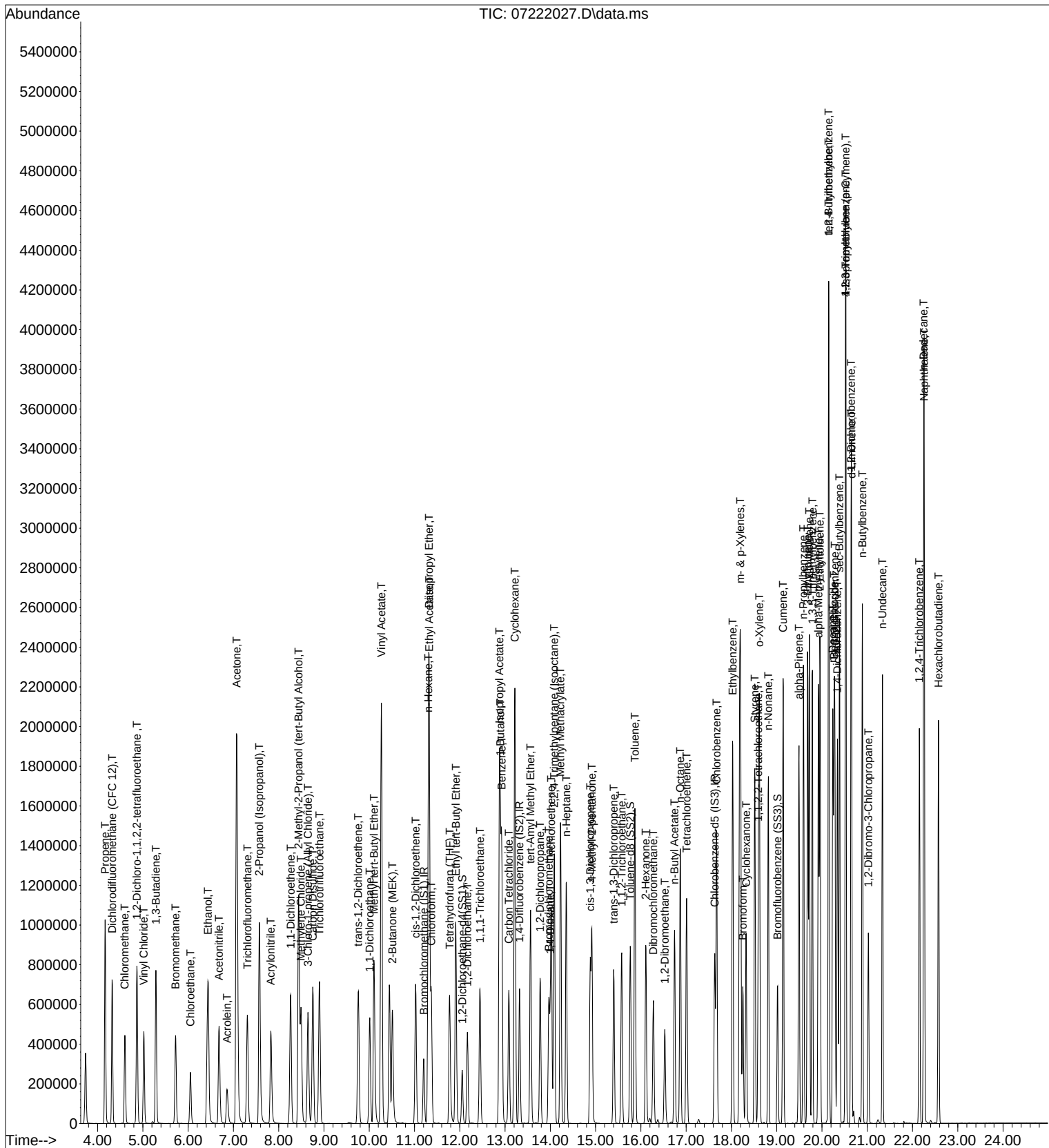
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) n-Heptane	14.35	71	376003	25.371	ng	99
52) cis-1,3-Dichloropropene	14.88	75	600712	24.924	ng	100
53) 4-Methyl-2-pentanone	14.92	58	330683	25.773	ng	82
54) trans-1,3-Dichloropropene	15.40	75	548466	25.262	ng	100
55) 1,1,2-Trichloroethane	15.58	97	363952	25.031	ng	100
58) Toluene	15.87	91	1477866	23.531	ng	99
59) 2-Hexanone	16.11	43	701277	21.678	ng	86
60) Dibromochloromethane	16.28	129	436072	23.689	ng	100
61) 1,2-Dibromoethane	16.53	107	416292	24.955	ng	100
62) n-Butyl Acetate	16.74	43	803140	22.978	ng	91
63) n-Octane	16.87	57	300439	24.419	ng	97
64) Tetrachloroethene	17.01	166	458509	22.740	ng	99
65) Chlorobenzene	17.67	112	1014554	23.433	ng	99
66) Ethylbenzene	18.02	91	1642771	23.017	ng	100
67) m- & p-Xylenes	18.19	91	2480636	42.985	ng	99
68) Bromoform	18.25	173	394753	22.368	ng	100
69) Styrene	18.51	104	1060323	23.868	ng	97
70) o-Xylene	18.62	91	1263614	21.656	ng	99
71) n-Nonane	18.82	43	614656	22.435	ng	92
72) 1,1,2,2-Tetrachloroethane	18.59	83	606855	22.643	ng	100
74) Cumene	19.14	105	1672098	23.055	ng	99
75) alpha-Pinene	19.49	93	838678	22.856	ng	93
76) n-Propylbenzene	19.59	91	1959085	22.908	ng	98
77) 3-Ethyltoluene	19.68	105	1715109	23.752	ng	99
78) 4-Ethyltoluene	19.72	105	1533067	21.297	ng	100
79) 1,3,5-Trimethylbenzene	19.79	105	1356850	21.710	ng	98
80) alpha-Methylstyrene	19.92	118	759439	22.418	ng	94
81) 2-Ethyltoluene	19.95	105	1602148	22.175	ng	99
82) 1,2,4-Trimethylbenzene	20.15	105	1322298	19.142	ng	100
83) n-Decane	20.24	57	692896	23.732	ng	98
84) Benzyl Chloride	20.27	91	1226527	21.185	ng	99
85) 1,3-Dichlorobenzene	20.28	146	865793	21.594	ng	100
86) 1,4-Dichlorobenzene	20.34	146	889853	22.949	ng	100
87) sec-Butylbenzene	20.39	105	1821632	22.363	ng	98
88) 4-Isopropyltoluene (p-...	20.52	119	1678525	20.041	ng	95
89) 1,2,3-Trimethylbenzene	20.52	105	1349431	19.428	ng	99
90) 1,2-Dichlorobenzene	20.64	146	826662	21.335	ng	100
91) d-Limonene	20.65	68	463062	19.779	ng	95
92) 1,2-Dibromo-3-Chloropr...	21.02	157	331786	24.411	ng	# 76
93) n-Undecane	21.34	57	739288	25.662	ng	99
94) 1,2,4-Trichlorobenzene	22.15	180	714695	25.426	ng	100
95) Naphthalene	22.26	128	1987218	22.256	ng	99
96) n-Dodecane	22.25	57	670224	23.258	ng	98
97) Hexachlorobutadiene	22.58	225	467862	25.073	ng	100
98) Cyclohexanone	18.33	55	467543	21.851	ng	# 88
99) tert-Butylbenzene	20.15	119	1319169	19.455	ng	99
100) n-Butylbenzene	20.89	91	1449766	22.113	ng	98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data File : I:\MS13\DATA\2020_07\22\07222027.D
Acq On : 23 Jul 2020 7:00
Sample : CCVend R13072220_25ng
Misc : S34-06182001/S34-06292001 (7/28)

Vial: 1
Operator: WA
Inst : MS13

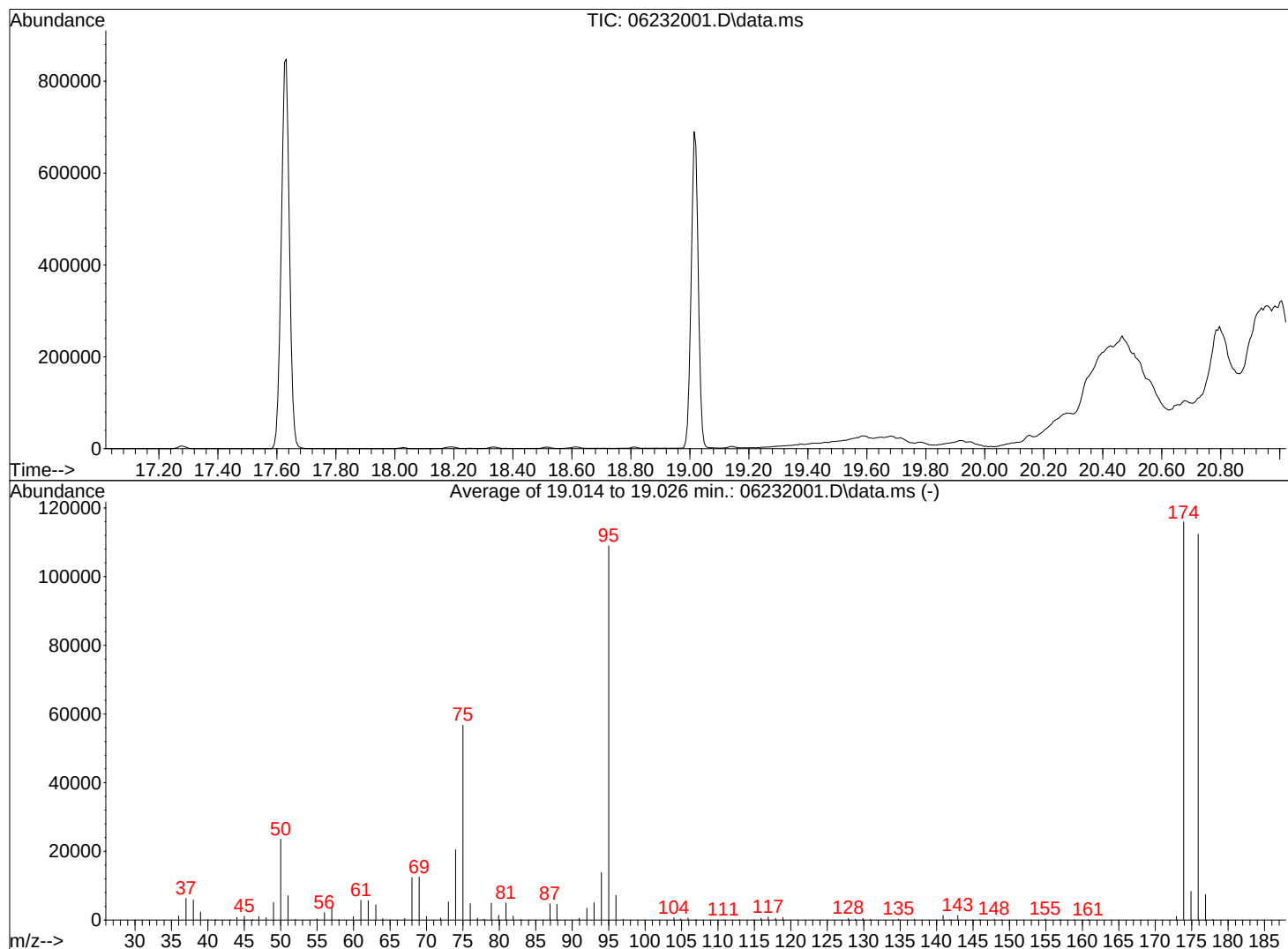
Quant Time: Jul 23 07:36:21 2020
Quant Method : I:\MS13\METHODS\R13062320.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Jun 24 06:33:38 2020
Response via : Initial Calibration
DataAcq Meth:TO15.M



Data Path : I:\MS13\DATA\2020_06\23\
 Data File : 06232001.D
 Acq On : 23 Jun 2020 13:42
 Operator : WA
 Sample : 12.5ng T0-15 BFB STD
 Misc : S34-06182001
 ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS13\METHODS\R13062220.M
 Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 Last Update : Tue Jun 23 13:39:04 2020



AutoFind: Scans 2705, 2706, 2707; Background Corrected with Scan 2697

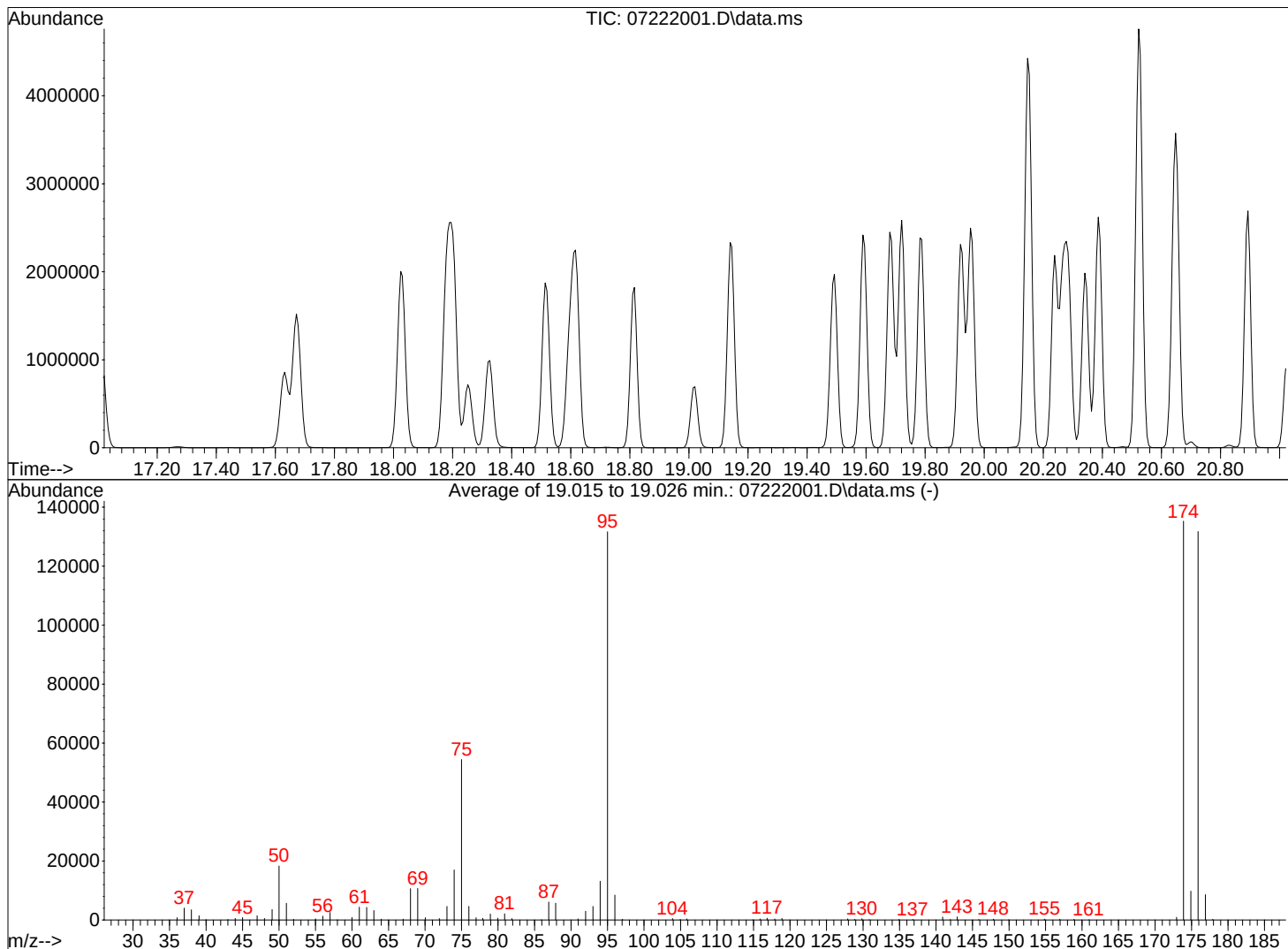
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	21.6	23563	PASS
75	95	30	66	52.1	56752	PASS
95	95	100	100	100.0	108939	PASS
96	95	5	9	6.6	7210	PASS
173	174	0.00	2	0.9	1053	PASS
174	95	50	120	106.4	115923	PASS
175	174	4	9	7.2	8347	PASS
176	174	93	101	96.9	112379	PASS
177	176	5	9	6.6	7403	PASS

LH 6/24/20

Data Path : I:\MS13\DATA\2020_07\22\
 Data File : 07222001.D
 Acq On : 22 Jul 2020 15:30
 Operator : WA
 Sample : CCV R13072220_25ng
 Misc : S34-06182001/S34-06292001 (7/28)
 ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : I:\MS13\METHODS\R13062320.M
 Title : EPA T0-15 per SOP VOA-T015 (CASS T0-15/GC-MS)
 Last Update : Wed Jun 24 06:33:38 2020



AutoFind: Scans 2705, 2706, 2707; Background Corrected with Scan 2697

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	8	40	13.9	18338	PASS
75	95	30	66	41.3	54437	PASS
95	95	100	100	100.0	131675	PASS
96	95	5	9	6.4	8459	PASS
173	174	0.00	2	0.7	934	PASS
174	95	50	120	102.7	135261	PASS
175	174	4	9	7.3	9807	PASS
176	174	93	101	97.4	131752	PASS
177	176	5	9	6.5	8571	PASS

107 7/25/20

Injection Log

Directory: I:\MS13\DATA\2020_06\23\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Vial	Comment
1	6/23/20 13:42	06232001.D	12.5ng TO-15 BFB STD	S34-06182001	WA	1	
2	6/23/20 14:15	06232002.D	0.1ng R13062320 ICAL STD	S34-06182001/S34-06012007 (6/26)	WA	12	rerun
3	6/23/20 14:49	06232003.D	0.2ng R13062320 ICAL STD	S34-06182001/S34-06012007 (6/26)	WA	12	R13062320.M
4	6/23/20 15:23	06232004.D	0.5ng R13062320 ICAL STD	S34-06182001/S34-06012007 (6/26)	WA	12	
5	6/23/20 15:57	06232005.D	1.0ng R13062320 ICAL STD	S34-06182001/S34-06012007 (6/26)	WA	12	
6	6/23/20 16:31	06232006.D	5.0ng R13062320 ICAL STD	S34-06182001/S34-06192001 (7/17)	WA	1	
7	6/23/20 17:05	06232007.D	25ng R13062320 ICAL STD	S34-06182001/S34-06192001 (7/17)	WA	1	
8	6/23/20 17:40	06232008.D	50ng R13062320 ICAL STD	S34-06182001/S34-06192001 (7/17)	WA	1	
9	6/23/20 18:14	06232009.D	100ng R13062320 ICAL STD	S34-06182001/S34-06192001 (7/17)	WA	1	
10	6/23/20 18:48	06232010.D	Blank	S34-06182001	WA	1	
11	6/23/20 19:22	06232011.D	0.1ng R13062320 ICAL STD	S34-06182001	WA	12	
12	6/23/20 19:56	06232012.D	25ng R13062320 ICV STD	S34-06182001/S34-06192009 (7/17)	WA	1	
13	6/23/20 20:31	06232013.D	25ng R13062320 ICV STD	S34-06182001/S34-06192009 (7/17)	WA	1	Pass
R13062320.M good for low level compounds ranges from 0.1ng --> 100ng, except: MEK, Isopropyl Ac., 1-Butanol, n-Octane, Bromoform, 1,2,4-TMB,							
Benzyl-Cl, p-Cymene, 1,2,3-TMB and tert-Butylbenzene: from 0.5ng --> 100ng; Vinyl Ac. From 2.5ng --> 500ng; Ethyl Ac.: from 1ng --> 200ng							

 6/24/20

Injection Log

Directory: I:\MS13\DATA\2020_07\22\

[illegible]

SIMIVALLEY QC Certification

Conditioner: P-Conditioner-10

Cycles: 30

Batch: 25783

Batch Started By: ANAKLOWYCZ on 6/17/20 0815
Finished Cleaning By: ANAKLOWYCZ on 6/17/20 0815

Container IDs	Cleaned Date	QC Date Analyzed	QC Results	Initial Vacuum		Final Vacuum		Comments
				Vacuum	Date/Time	Vacuum	Date/Time	
SC01049	6/17/20	6/17/20	Pass w/ Conditions	-14.3	6/17/20 0815	-14.0	7/6/20 0751	MS21_06172011
SC00954	6/17/20	6/17/20	Pass w/ Conditions	-14.3	6/17/20 0815	-14.0	7/1/20 0949	
SC00677	6/17/20	6/17/20	Pass w/ Conditions	-14.3	6/17/20 0815	-14.0	6/30/20 0849	
SC00689	6/17/20	6/17/20	Pass w/ Conditions	-14.3	6/17/20 0815	-14.0	6/26/20 0159	
SC00907	6/17/20	6/17/20	Pass w/ Conditions	-14.3	6/17/20 0815	-14.0	6/30/20 0849	
SC01755	6/17/20	6/17/20	Pass w/ Conditions	-14.3	6/17/20 0815	-14.0		
SC01993	6/17/20	6/17/20	Pass w/ Conditions	-14.3	6/17/20 0815	-14.0	6/30/20 0848	
SC02183	6/17/20	6/17/20	Pass w/ Conditions	-14.3	6/17/20 0815	-14.0	6/26/20 0158	
SC01693	6/17/20	6/17/20	Pass w/ Conditions	-14.3	6/17/20 0815	-14.0	6/30/20 0849	
SC02186	6/17/20	6/17/20	Pass w/ Conditions	-14.3	6/17/20 0815	-14.0	6/30/20 0849	

Passed For: TO-15 (75 Comp 0.1 ug/m3 + TICs)

Exceptions:

COMPONENTID	Date / Time	MODULE	USER	COMMENTS

Batch Comment:

* QC Canister

Data Path : I:\MS21\DATA\2020_06\17\
 Data File : 06172011.D
 Acq On : 17 Jun 2020 16:53
 Operator : WA/RVT/JC
 Sample : 061720_SC01049_25783
 Misc : LL+TICS (Sig #1); S34-06152001 (Sig #2)
 ALS Vial : 5 Sample Multiplier: 1

RVT 6/18/20

Quant Time: Jun 18 05:59:59 2020
 Quant Method : I:\MS21\Methods\F21033120.M
 Quant Title : EPA TO-15
 QLast Update : Wed Apr 01 05:58:09 2020
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Bromochloromethane (IS1)	7.503	130	49781	1000.00	pg	0.00
37) 1,4-Difluorobenzene (IS2)	9.746	114	168531	1000.00	pg	0.00
56) Chlorobenzene-d5 (IS3)	14.677	117	112226	1000.00	pg	0.00

System Monitoring Compounds						
33) 1,2-Dichloroethane-d4 ...	8.321	65	67773	1065.60	pg	0.00
Spiked Amount 1000.000			Recovery	=	106.56%	
57) Toluene-d8 (SS2)	12.583	98	113169	807.04	pg	0.00
Spiked Amount 1000.000			Recovery	=	80.70%	
74) Bromofluorobenzene (SS3)	16.120	174	37388	948.68	pg	-0.03
Spiked Amount 1000.000			Recovery	=	94.87%	

Target Compounds						Qvalue
2] * Propene	3.492	42	1249	24.33	pg	# 71
3] * Dichlorodifluoromethane	3.553	85	237	1.79	pg	# 42
4] * Chloromethane	3.682	50	444	6.25	pg	# 99
5] * 1,2-Dichloro-1,1,2,2...	0.000		0	N.D.		
6] * Vinyl Chloride	0.000		0	N.D.		
7] * 1,3-Butadiene	3.961	54	12	0.23	pg	# 13
8] * Bromomethane	0.000		0	N.D.		
9] * Chloroethane	4.318	64	139	3.72	pg	# 85
10] * Ethanol	4.406	45	6205	218.75	pg	# 98
11] * Acetonitrile	4.583	41	260	5.14	pg	# 68
12] * Acrolein	4.682	56	832	25.30	pg	# 91
13] * Acetone	4.797	58	28446	671.68	pg	# 81
14] * Trichlorofluoromethane	4.931	101	222	1.89	pg	# 96
15] * 2-Propanol (Isopropa...	4.997	45	3488	36.90	pg	# 37
16] * Acrylonitrile	0.000		0	N.D.		
17] * 1,1-Dichloroethene	5.455	96	733	10.68	pg	# 33
18] tert-Butanol	5.518	59	1121	8.41	pg	# 1
19] * Methylene Chloride	5.528	84	732	10.63	pg	# 87
20] * 3-Chloro-1-propene (...)	0.000		0	N.D.		
21] * Trichlorotrifluoroet...	0.000		0	N.D.		
22] * Carbon Disulfide	5.800	76	13274	58.01	pg	# 98
23] * trans-1,2-Dichloroet...	0.000		0	N.D.		
24] * 1,1-Dichloroethane	0.000		0	N.D.		
25] * Methyl tert-Butyl Ether	0.000		0	N.D.		
26] * Vinyl Acetate	6.665	86	550	34.62	pg	# 39
27] * 2-Butanone (MEK)	6.937	72	4089	98.21	pg	# 71
28] * cis-1,2-Dichloroethene	0.000		0	N.D.		
29] DIPE	7.600	45	79	0.46	pg	# 46
30] * Ethyl Acetate	7.600	61	135	7.59	pg	# 6
31] * n-Hexane	7.587	57	143	1.64	pg	# 55
32] * Chloroform	0.000		0	N.D.		
34] * Tetrahydrofuran	8.115	71	76	2.30	pg	# 86
35] ETBE	0.000		0	N.D.		
36] * 1,2-Dichloroethane	0.000		0	N.D.		
38] * 1,1,1-Trichloroethane	0.000		0	N.D.		
39] * Benzene	9.308	78	705	3.47	pg	# 97
40] Isopropyl Acetate	0.000		0	N.D.		
41] 1-Butanol	9.272	56	1553	30.51	pg	# 91
42] * Carbon Tetrachloride	0.000		0	N.D.		
43] * Cyclohexane	0.000		0	N.D.		
44] TAME	0.000		0	N.D.		
45] * 1,2-Dichloropropane	0.000		0	N.D.		
46] * Bromodichloromethane	0.000		0	N.D.		
47] * Trichloroethene	0.000		0	N.D.		

Data Path : I:\MS21\DATA\2020_06\17\
 Data File : 06172011.D
 Acq On : 17 Jun 2020 16:53
 Operator : WA/RVT/JC
 Sample : 061720_SC01049_25783
 Misc : LL+TICS (Sig #1); S34-06152001 (Sig #2)
 ALS Vial : 5 Sample Multiplier: 1

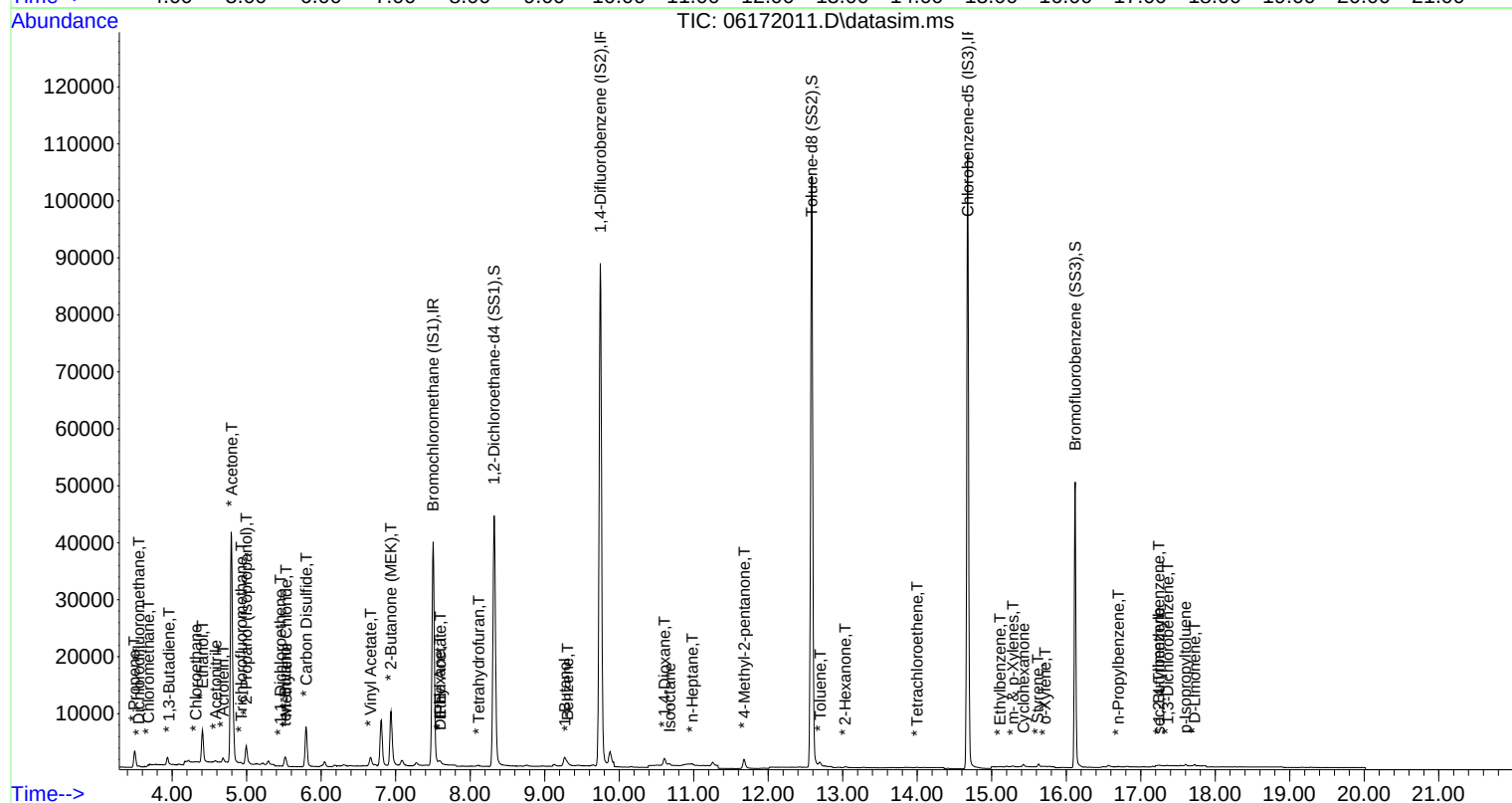
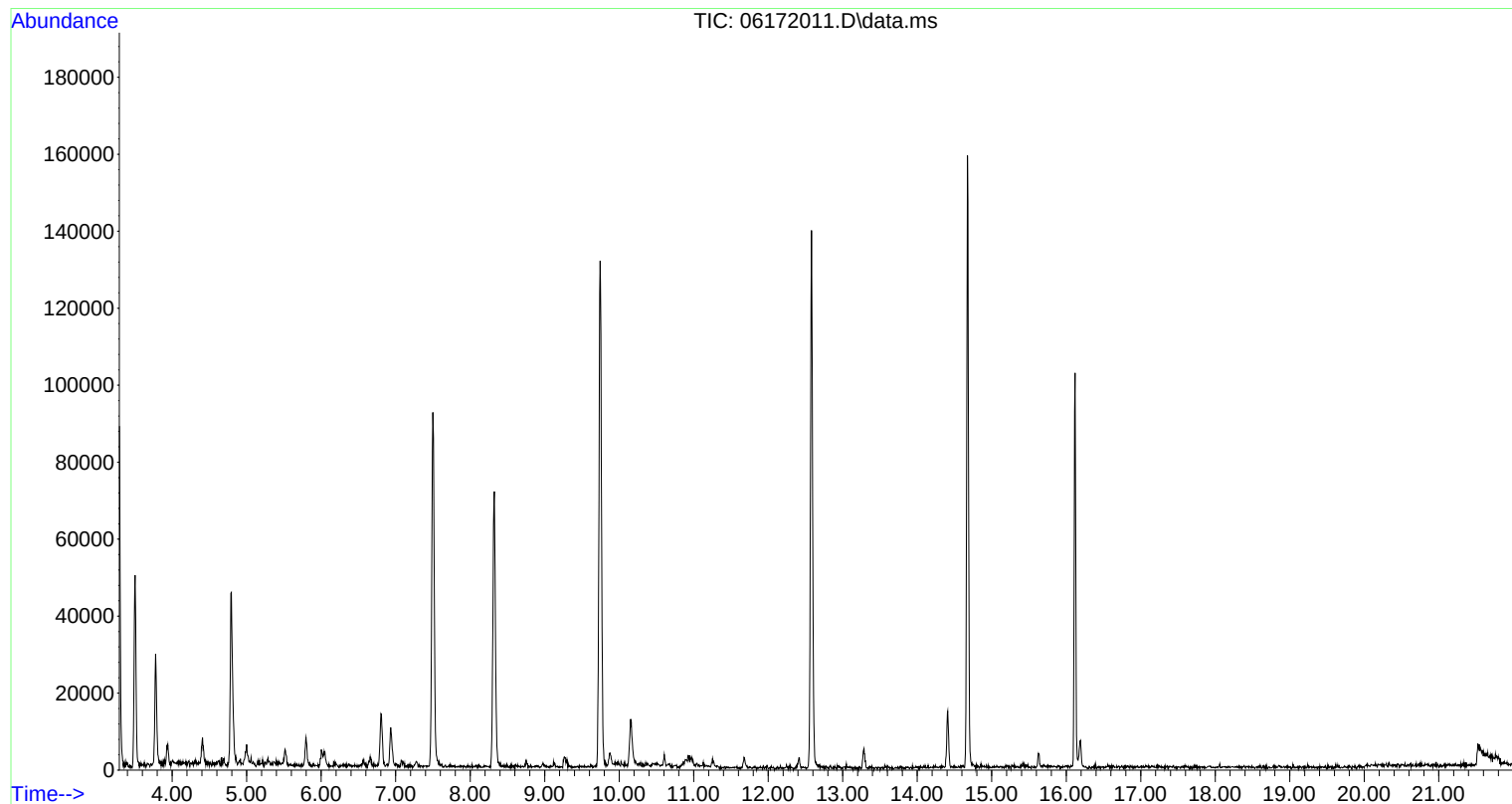
Quant Time: Jun 18 05:59:59 2020
 Quant Method : I:\MS21\Methods\F21033120.M
 Quant Title : EPA T0-15
 QLast Update : Wed Apr 01 05:58:09 2020
 Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
48]	* 1,4-Dioxane	10.607	88	1386	27.47	pg	86
49]	Isooctane	10.676	56	169	2.24	pg	78
50]	* Methyl Methacrylate	0.000		0	N.D.		
51]	* n-Heptane	10.979	71	161	2.73	pg	# 38
52]	* cis-1,3-Dichloropropene	0.000		0	N.D.		
53]	* 4-Methyl-2-pentanone	11.679	58	986	20.95	pg	94
54]	* trans-1,3-Dichloropr...	0.000		0	N.D.		
55]	* 1,1,2-Trichloroethane	0.000		0	N.D.		
58]	* Toluene	12.697	91	740	4.08	pg	97
59]	* 2-Hexanone	13.035	58	377	11.79	pg	# 81
60]	* Dibromochloromethane	0.000		0	N.D.		
61]	* 1,2-Dibromoethane	0.000		0	N.D.		
62]	* n-Butyl Acetate	0.000		0	N.D.		
63]	* n-Octane	0.000		0	N.D.		
64]	* Tetrachloroethene	14.000	166	67	1.12	pg	98
65]	* Chlorobenzene	0.000		0	N.D.		
66]	* Ethylbenzene	15.111	91	73	0.40	pg	# 43
67]	* m- & p-Xylenes	15.282	91	176	1.26	pg	92
68]	* Bromoform	0.000		0	N.D.		
69]	Cyclohexanone	15.424	98	205	7.59	pg	# 37
70]	* Styrene	15.618	104	76	0.86	pg	# 29
71]	* o-Xylene	15.715	91	71	0.49	pg	# 29
72]	* n-Nonane	0.000		0	N.D.		
73]	* 1,1,2,2-Tetrachloroe...	0.000		0	N.D.		
75]	* Cumene	0.000		0	N.D.		
76]	* alpha-Pinene	0.000		0	N.D.		
77]	* n-Propylbenzene	16.700	91	81	0.43	pg	# 51
78]	3-Ethyltoluene	0.000		0	N.D.		
79]	* 4-Ethyltoluene	0.000		0	N.D.		
80]	* 1,3,5-Trimethylbenzene	0.000		0	N.D.		
81]	alpha-Methylstyrene	0.000		0	N.D.		
82]	2-Ethyltoluene	0.000		0	N.D.		
83]	tert-Butylbenzene	0.000		0	N.D.		
84]	* 1,2,4-Trimethylbenzene	17.244	105	92	0.72	pg	# 23
85]	* Benzyl Chloride	0.000		0	N.D.		
86]	* 1,3-Dichlorobenzene	17.362	146	58	0.90	pg	# 18
87]	* 1,4-Dichlorobenzene	0.000		0	N.D.		
88]	n-Decane	0.000		0	N.D.		
89]	sec-Butylbenzene	17.244	105	92	0.72	pg	# 51
90]	1,2,3-Trimethylbenzene	0.000		0	N.D.		
91]	p-Isopropyltoluene	17.600	134	79	1.96	pg	67
92]	* 1,2-Dichlorobenzene	0.000		0	N.D.		
93]	* D-Limonene	17.724	68	108	2.52	pg	84
94]	n-Butylbenzene	0.000		0	N.D.		
95]	* 1,2-Dibromo-3-chloro...	0.000		0	N.D.		
96]	n-Undecane	0.000		0	N.D.		
97]	* 1,2,4-Trichlorobenzene	0.000		0	N.D.		
98]	* Naphthalene	0.000		0	N.D.		
99]	n-Dodecane	0.000		0	N.D.		
100]	* Hexachlorobutadiene	0.000		0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Data Path : I:\MS21\DATA\2020_06\17\
Data File : 06172011.D
Acq On : 17 Jun 2020 16:53
Operator : WA/RVT/JC
Sample : 061720_SC01049_25783
Misc : LL+TICS (Sig #1); S34-06152001 (Sig #2)
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 18 05:59:59 2020
Quant Method : I:\MS21\Methods\F21033120.M
Quant Title : EPA T0-15
QLast Update : Wed Apr 01 05:58:09 2020
Response via : Initial Calibration



Appendix G Data Quality Evaluation

DATA QUALITY EVALUATION

Quarterly vapor sampling of the Off Depot AS/SVE System effluent was conducted in October 2019, December 2019, May 2020, and July 2020. Samples were collected to evaluate performance and ensure compliance with discharge limits. System monitoring was performed in accordance with the *Dunn Field Off Depot Groundwater Remedial Action Work Plan, Revision 2* (HDR, 2009). The vapor samples were submitted to ALS Environmental in Simi Valley, California for analysis.

Field activities and laboratory analyses were performed in accordance with the *2017 Uniform Federal Policy-Quality Assurance Project Plan, Revision 0* (2017 QAPP) (HDR, 2017). The data quality evaluation (DQE) process involves assessment of all field and laboratory procedures for compliance with the QAPP. This assessment is designed to evaluate problems with the quality assurance (QA)/quality control (QC) associated with the laboratory data and potential impact to the data quality objectives (DQOs). The DQE findings are summarized in the following sections.

FIELD ACTIVITIES AND FIELD QUALITY CONTROL

The field effort included the collection of soil gas from a single location. The AS/SVE effluent sample location is on the north side of the SVE compound shown on [Figure 1](#) of the report.

Sample containers (6-liter Summa canisters) met U.S. Environmental Protection Agency (EPA) requirements for environmentally clean containers. Sample labels were pre-printed to facilitate sample tracking from the field through the laboratory. Documentation of the sampling was performed in the field to ensure that the samples collected, sample labels, chain-of-custody (COC) records, and request for analysis were consistent. Where necessary, additional COC forms were filled out manually.

ANALYTICAL METHODS

The soil gas samples were analyzed for volatile organic compounds (VOCs) by Toxic Organics method TO-15.

LABORATORY QUALITY CONTROL

The laboratory QC program, including sample handling, laboratory control, and reporting, is documented in the QAPP. Sample handling includes documentation of sample receipt, placement in storage, lab personnel using the sample, and disposal. The laboratory control consists of instrument calibration and maintenance, laboratory control samples (LCS) and method blanks. Reporting of the laboratory control data was planned prior to the collection of the data, allowing the laboratory to place the appropriate information into the data package so that the DQE could be performed in a timely manner.

DQE SUMMARY

The objective of the DQE was to provide a review of the chemical data reports submitted by the laboratory and to assess the data in relation to the DQOs stated in the QAPP. The DQE consisted of review of laboratory QC data and field QC parameters, and flagging of the data as usable, usable with qualification, or unusable in accordance with the DQE standard operating procedures (SOPs) using the criteria stated in the QAPP for each analytical method performed.

The following information was reviewed:

- Sample Integrity (Deliverables)
- Sample Completeness
- Sample Holding Times
- Laboratory Methods for Extraction and Analysis (Calibration, Internal Standards)

- Method Accuracy (bias) and Precision (Surrogates, LCS Recoveries)
- Laboratory Performance Criteria (Blanks, Instrument Performance Checks)

Field QC parameters were evaluated through field duplicates, field documentation, and shipping criteria. The DQE was summarized by use of flags that indicate to the reviewer that the data being considered has been qualified using the established criteria. Sample delivery group (SDG) narratives detailing the evaluation of the laboratory data are included as attachments in this Appendix. The SDGs and associated soil gas samples are listed on [Table E-1](#). The following sections provide summary discussions of the required data qualifications for each sampling event. A Level III DQE was performed and the data quality indicators (DQIs), expressed in terms of precision, accuracy, representativeness, comparability, completeness, and sensitivity, were assessed. This included the evaluation of sample integrity, holding times, method blanks, internal standards, surrogate recoveries, LCSs, and field duplicate precision. The results of the DQI assessment are provided below.

Precision

An annual field duplicate was collected to assess sampling precision. It consisted of a replicate grab sample collected concurrently with the associated field sample. Precision is best expressed in terms of relative percent difference (RPD).

October 2019: No duplicate sample pairs were collected during the sampling event.

December 2019: All data are considered valid. Laboratory precision is discussed in more detail in the attached narratives.

May 2020: No duplicate sample pairs were collected during the sampling event.

July 2020: No duplicate sample pairs were collected during the sampling event.

Accuracy

Accuracy or bias was measured through the analysis of LCSs. Sample specific accuracy was measured through surrogate recovery. Accuracy is expressed as percent recovery (%R). Laboratory blanks were analyzed to assess potential bias in the reported sample results. Bias is expressed through qualification of analytical results.

Sample results were evaluated against blank results. Benzene was detected in the October 2019 method blank at trace concentrations and did not require qualification in the sample (non-detect). Ethanol was detected in the December 2019 method blank at trace concentrations and was qualified in the field sample as non-detect. Propene and ethanol were detected in the May 2020 method blank at trace concentrations. These analytes were detected in the sample at higher levels and no qualification was required. No analytes were detected at trace levels in the July 2020 method blank.

There were no samples analyzed for MS/MSD during Year Nine. All LCS recoveries were within control limits. Further discussion of the LCS recoveries is provided in the attached DQE narratives.

Representativeness

Representativeness refers to the degree sample data accurately and precisely describes the population of samples at a sampling point or under certain environmental conditions. Samples that are not properly preserved or are analyzed beyond holding times may not be considered representative. Review of sampling procedures, laboratory preparation and analysis holding times help in providing this assessment. Sampling procedures followed the QAPP and were considered representative of the matrix collected with the exception described below. Laboratory preparation and analysis followed method guidelines.

Comparability

The selection of standardized methods and consistent laboratory practices facilitates the comparison of data between sampling events. Consistent methodology has been maintained throughout the SVE sampling events. Past SVE data are comparable to recent events.

Completeness

Completeness is determined for both field and analytical objectives. Field completeness is calculated from the number of samples proposed versus the actual number of samples collected. Analytical completeness is expressed in terms of usable data. The project completeness goal for DDMT is 90% as stated in the QAPP. Data from the SVE events was 100% complete and therefore met the completeness DQO.

Sensitivity

Analytical sensitivity is the concentration at which the measurement system can quantitate target analytes in the environmental matrices of concern. Analytical sensitivity is expressed in terms of the RL, which is provided by the respective laboratories as their reasonable and defensible quantitation limit for environmental samples above the method detection limit (MDL), which is established by each laboratory using clean matrix.

The analytical method RLs and MDLs were compared to the required RLs as listed in the QAPP and were determined to meet the overall project objectives, with the exception described below. The following sections discuss only those deficiencies encountered during the evaluation that resulted in qualified and/or unusable data.

AS/SVE Event – October 2019

A total of two soil gas samples, including one soil gas field sample and one QA/QC sample (a field duplicate), were collected from one AS/SVE location in October 2018. The sample was analyzed for TO-15 VOCs. The data are usable with qualifications as described below:

- Any result reported below the RL but above the method detection limit was qualified J and considered an estimated result.

AS/SVE Event – December 2019

A total of one soil gas sample, including one soil gas field sample and no QA/QC samples (duplicates), was collected from one AS/SVE location in December 2018. The sample was analyzed for TO-15 VOCs. The data are usable with qualifications as described below:

- Any result reported below the RL but above the method detection limit was qualified J and considered an estimated result.

AS/SVE Event – May 2020

A total of one soil gas sample, including one soil gas field sample and no QA/QC samples (duplicates), was collected from one AS/ SVE location in April 2019. The sample was analyzed for TO-15 VOCs. The data are usable with qualifications as described below:

- Any result reported below the RL but above the method detection limit was qualified J and considered an estimated result.

AS/SVE Event – July 2020

A total of one soil gas sample, including one soil gas field sample and no QA/QC samples (duplicates), was collected from one AS/SVE location in June 2019. The sample was analyzed for TO-15 VOCs. Although the

analyses resulted in anomalous concentrations of non-typical analytes, the data are usable with qualifications as described below:

- Any result reported below the RL but above the method detection limit was qualified J and considered an estimated result.

SUMMARY

The sample data from the SVE events met the data quality objectives and are of sufficient quality to support the evaluation of the remedial action.